

“ YOUR PARTNER for TOTAL SOLUTIONS ”

# PACIFIC PIPE

## STRUCTURAL STEEL CATALOG

ท่อเหล็กมาตรฐาน สำหรับงานโครงสร้าง



บริษัท แปซิฟิกไพพ์ จำกัด (มหาชน) / Pacific Pipe Public Company Limited



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## SUMMARY STANDARD SPECIFICATIONS

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# PACIFIC PIPE

ผู้ผลิตและจัดจำหน่ายท่อเหล็ก สำหรับงานโครงสร้าง และงานระบบ  
ด้วยกำลังการผลิตรวม 450,000 ตัน/ปี

มีโรงงานผลิต 4 แห่ง ศูนย์กระจายสินค้า 2 แห่ง และสำนักงานขาย 1 แห่ง



## โรงงานผลิต

โรงงานศูนย์พระประแดง  
โรงงานศูนย์มหาชัย 1  
โรงงานศูนย์มหาชัย 2  
โรงงานศูนย์มหาชัย 3



## ศูนย์กระจายสินค้า

ศูนย์กระจายสินค้า  
ลาดหลุมแก้ว  
ศูนย์กระจายสินค้า  
บางนา



## สำนักงานขาย

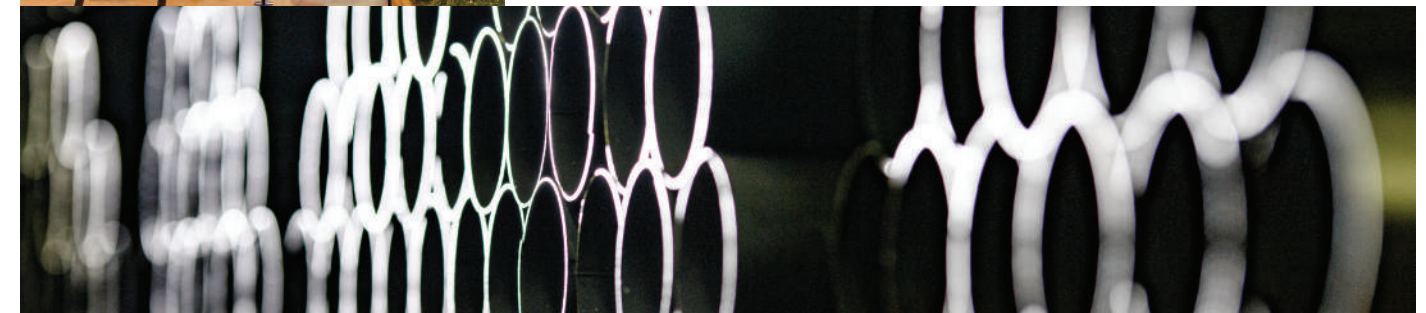
สำนักงานขายลุมพินี



## วิสัยทัศน์

**‘Your Partner for Total Solutions’**

**PACIFIC PIPE** เรามุ่งมั่นขับเคลื่อนธุรกิจให้เติบโต เพื่อยกระดับอุตสาหกรรม ผ่านสินค้าและบริการ ที่มีคุณภาพ ด้วยนวัตกรรมที่ทันสมัย พร้อมเป็นพันธมิตรที่แข็งแกร่ง ของผู้มีส่วนได้ส่วนเสียทุกมิติ เพื่อก้าวไปสู่การพัฒนาที่ยั่งยืนเคียงข้างกัน



## พันธกิจ



พัฒนาผลิตภัณฑ์ที่มีคุณภาพมาตรฐาน โดยใช้เทคโนโลยีการผลิตและการจัดการที่ทันสมัย เข้ามาเพื่อเพิ่มประสิทธิภาพขององค์กร



พัฒนาระบบการให้บริการ เพื่อบรรลุความพึงพอใจสูงสุดแก่ลูกค้า

2



ดำเนินธุรกิจให้บรรลุผลประกอบการที่ดี เพื่อสร้างผลตอบแทนแก่ผู้ถือหุ้นอย่างต่อเนื่อง บริหารจัดการตามหลักธรรมาภิบาล มีความรับผิดชอบต่อสังคม สิ่งแวดล้อม

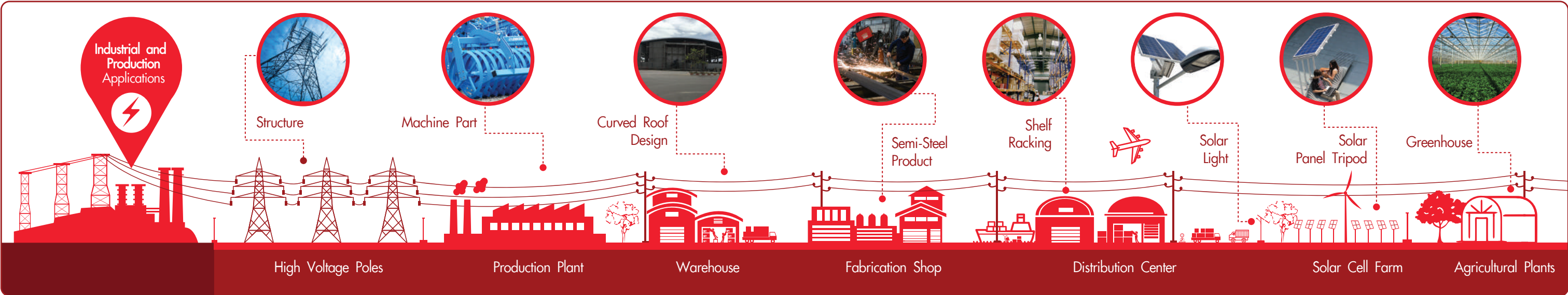
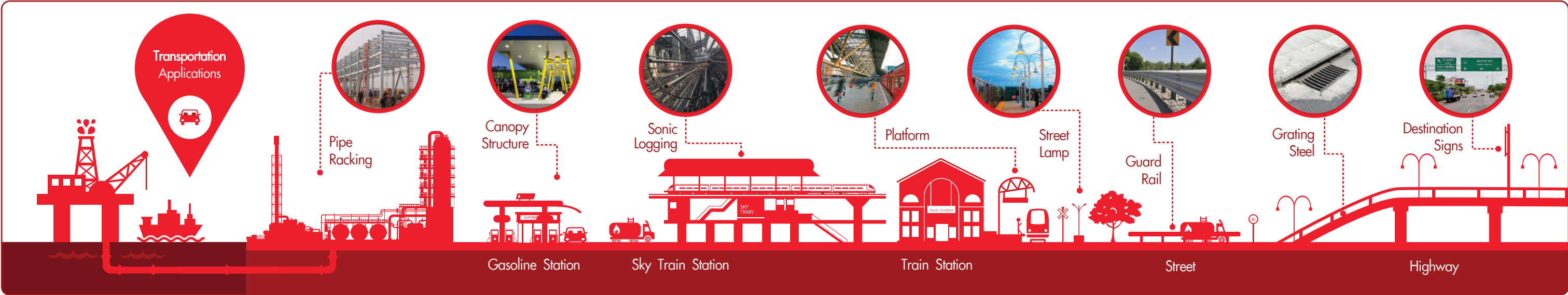
3



มุ่งมั่นสู่การเป็นองค์กรแห่งการเรียนรู้ที่ขับเคลื่อนด้วยการตลาดและนวัตกรรม

4



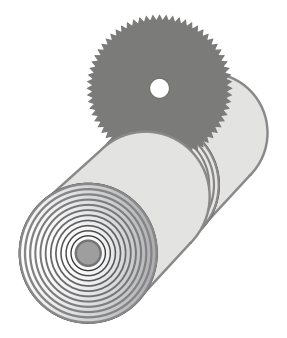


# Steel Pipe Production Process



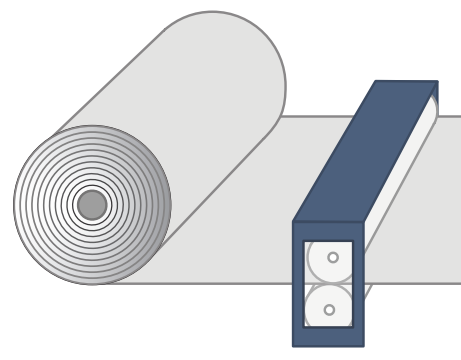
## 1. RM Inspection

ตรวจสอบความกว้าง ความหนา คุณสมบัติทางกล และส่วนประกอบทางเคมีของวัตถุดิบ



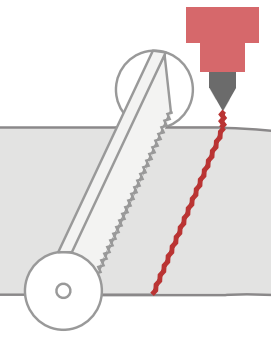
## 2. Slitting

ซอยเหล็กม้วนให้ได้หน้ากว้างตามขนาดของท่อที่ผลิต



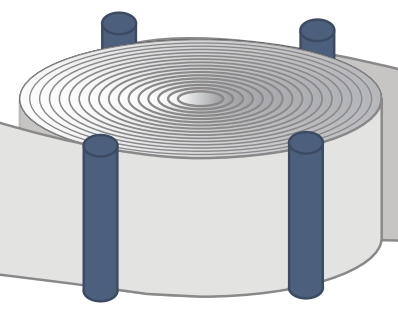
## 3. Uncoiling

นำเหล็กม้วนซอยเข้าเครื่องจักรเพื่อคลายเหล็กออก



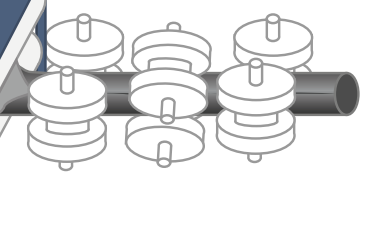
## 4. Shear Cut & Welding

ตัดปลายเหล็กม้วนซอยให้เรียบ และเชื่อมต่อปลายเหล็กม้วนแต่ละลูก เพื่อให้เกิดความต่อเนื่องในการผลิต



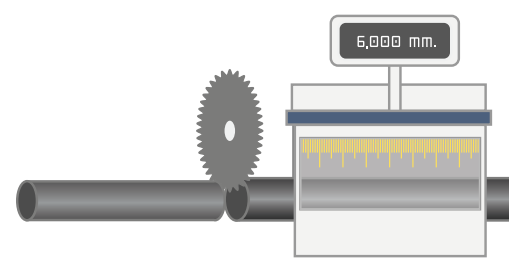
## 5. Accumulating

การสะสมเหล็กม้วนซอยเพื่อความสะดวกของการกระบวนกรรีด



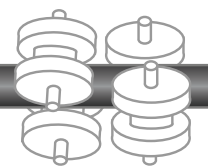
## 6. Forming

ทำหน้าที่ในการขึ้นรูปเหล็กม้วนซอย ให้เป็นรูปทรงกลมก่อนทำการเชื่อมตะเข็บ



## 12. Cutting

ทำหน้าที่ตัดท่อตามความยาวที่ต้องการ



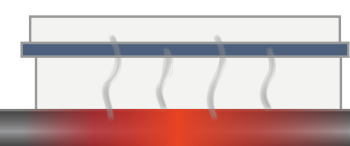
## 11. Sizing & Turk Head

ทำหน้าที่ในการปรับเปลี่ยนขนาดและขึ้นรูปเหล็กตามทรงต่างๆ



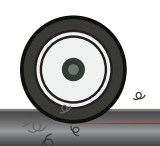
## 10. Eddy Current Test

ตรวจสอบความสมบูรณ์ของเนื้อเหล็กบริเวณตะเข็บท่อ (เฉพาะท่องานระบบ)



## 9. Annealing

อบตะเข็บ เพื่อให้เนื้อเหล็กตรง ตะเข็บท่อ และบริเวณรอบข้างกลับคืนสู่สภาวะปกติ ที่ใกล้เคียงกับคุณสมบัติของเหล็กที่นำมาทำการผลิต (ในกรณีที่มีมาตรฐานกำหนด)



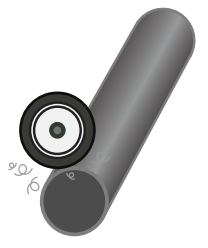
## 8. O.D. Scarfing & I.D. Scarfing

ทำการไสตะเข็บนอกและตะเข็บใน (กรณีที่มีมาตรฐานผลิตภัณฑ์กำหนด)



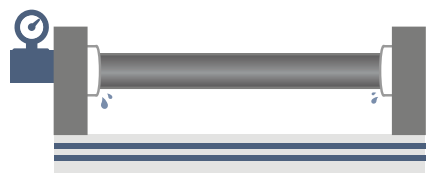
## 7. High Frequency Welding

เหนี่ยวนำความร้อนผ่านกระแสไฟฟ้าระหว่างขอบเหล็กทั้ง 2 ข้าง ด้วยความต้านทานของกระแสไฟฟ้า จนทำให้ขอบเหล็กร้อนแดงและหลอมละลาย จึงทำการอัดตะเข็บให้ติดกันโดยใช้ลูกรีด



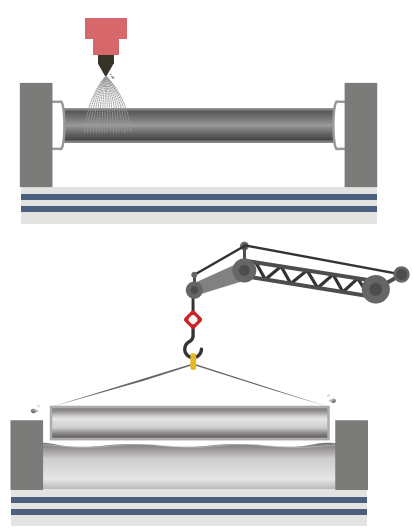
## 13. End Facing

ทำหน้าที่ลบคมที่ปลายท่อให้เป็นมุม 30°, 45°, 60° หรือ 90°



## 14. Hydrostatic Test

ทดสอบการรั่วซึมของตะเข็บท่อ โดยการอัดแรงดันน้ำ ตามที่ระบุในมาตรฐานผลิตภัณฑ์



## 15.1 Coating (Varnish, Primer)

ทำการเคลือบผิวท่อ เพื่อป้องกันการเกิดสนิมบริเวณผิวท่อ

## 15.2 Hot Dip Galvanizing

ทำการชุบสังกะสี แบบจุ่มร้อน



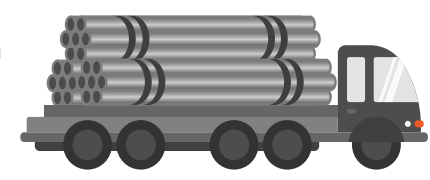
## 16. Threading

ทำเกลียวที่ปลายท่อ



## 17. Marking & Packing

พิมพ์สีข้างท่อ และทำการแพ็คตามมาตรฐานกำหนด ก่อนนำไปส่งมอบ



## Production Process

## Quality Certification

บริษัท แปซิฟิกไฟฟ์ จำกัด (มหาชน) มุ่งเน้น และให้ความสำคัญอย่างยิ่งต่อคุณภาพของผลิตภัณฑ์ ดังนั้นการควบคุมคุณภาพผลิตภัณฑ์ให้ได้ตามมาตรฐาน พร้อมการตรวจสอบ ทดสอบ โดยวิศวกรผู้ชำนาญการ จึงเป็นหัวใจสำคัญของการผลิต จากความมุ่งมั่นนี้ บริษัทฯ จึงได้รับการรับรองมาตรฐาน ผลิตภัณฑ์ต่างๆ ทั้งท่อเหล็กงานโครงสร้างและท่อเหล็กงานระบบ จากสำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม และจากสถาบันรับรองมาตรฐานสากลอันมีชื่อเสียงต่างๆ ทั่วโลก ได้แก่ FM, UL, JQA นอกจากนี้ บริษัทฯ ยังได้รับการรับรองมาตรฐานความสามารถห้องปฏิบัติการทดสอบ มาตรฐานระบบบริหารงานคุณภาพ และรางวัลธรรมาภิบาลสิ่งแวดล้อม

ทั้งหมดนี้ คือความมุ่งมั่นของบริษัทฯ ในการพัฒนาคุณภาพผลิตภัณฑ์ คุณภาพองค์กร รวมถึงคุณภาพสิ่งแวดล้อมเพื่อการส่งมอบสินค้า และบริการได้อย่างยั่งยืนตลอดไป

### มาตรฐานระบบงานและการจัดการที่ บริษัท แปซิฟิกไฟฟ์ จำกัด (มหาชน) ได้รับ



## Quality Certification

### มาตรฐานผลิตภัณฑ์และใบรับรองที่บริษัท แปซิฟิกไฟฟ์ จำกัด (มหาชน) ได้รับ



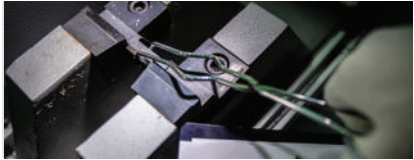
# Quality Inspection

บริษัท แปซิฟิกไพพ์ จำกัด (มหาชน) ให้ความสำคัญอย่างยิ่ง ในการให้บริการสินค้าที่มีคุณภาพดีอย่างสม่ำเสมอ บริษัทฯ จึงมีนโยบายในการพัฒนาระบบ และปรับปรุงกระบวนการผลิตอย่างต่อเนื่อง มีระบบตรวจสอบ ทดสอบ

โดยทีมวิศวกรผู้ชำนาญการ เพื่อให้ได้ผลิตภัณฑ์ที่มีคุณภาพตรงตามมาตรฐานที่ต้องการอย่างแท้จริง บริษัทฯ จึงกำหนดการตรวจสอบและทดสอบ ดังนี้

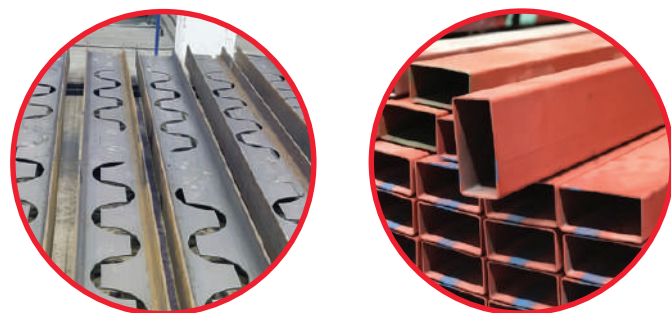
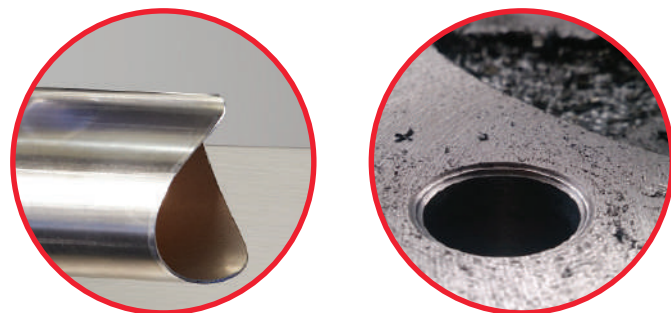
| ลำดับ | การตรวจสอบ / การทดสอบ                      | รายละเอียด                                                  | ท่องานระบบ | ท่องานโครงสร้าง |    |
|-------|--------------------------------------------|-------------------------------------------------------------|------------|-----------------|----|
|       |                                            |                                                             | ○          | ○               | □□ |
| 1     | การตรวจสอบวัตถุดิบ                         | ส่วนประกอบทางเคมี (Chemical Composition Test)               | ✓          | ✓               | ✓  |
|       |                                            | คุณสมบัติทางกล (Tension Test)                               | ✓          | ✓               | ✓  |
| 2     | การตรวจสอบสภาพทั่วไปของท่อ                 | ความตรง (Straightness Inspection)                           | ✓          | ✓               | ✓  |
|       |                                            | สภาพผิว (Appearance Inspection)                             | ✓          | ✓               | ✓  |
| 3     | การตรวจสอบขนาดของท่อ                       | เส้นผ่านศูนย์กลาง (Outside Diameter Inspection)             | ✓          | ✓               | ✓  |
|       |                                            | ความยาว (Length Inspection)                                 | ✓          | ✓               | ✓  |
|       |                                            | ความหนา (Wall Thickness Inspection)                         | ✓          | ✓               | ✓  |
|       |                                            | น้ำหนัก (Weight Inspection)                                 | ✓          | ✓               | ✓  |
| 4     | การตรวจสอบตะเข็บท่อ                        | การทดสอบโดยวิธีกระแสไหลวน (Eddy Current Test)               | ✓          | -               | -  |
| 5     | การทดสอบความทนต่อแรงดัน                    | การทดสอบโดยแรงดันน้ำ (Hydrostatic Test)                     | ✓          | -               | -  |
| 6     | การทดสอบคุณสมบัติทางกลของท่อ               | คุณสมบัติทางกล (Tension Test)                               | ✓          | ✓               | ✓  |
|       |                                            | การดัดโค้ง (Bending Test)                                   | ✓          | ✓               | -  |
|       |                                            | การกดแบน (Flattening Test)                                  | ✓          | ✓               | -  |
|       |                                            | การอัดขยาย (Expansion Test)                                 | ✓          | -               | -  |
|       |                                            | การทนต่อแรงสั่น (Vibration Resistance Test)                 | ✓          | -               | -  |
|       |                                            | การทนต่อแรงดันพร้อมคัปปลิง (Hydrostatic Test with Coupling) | ✓          | -               | -  |
| 7     | การตรวจสอบความหนาของสังกะสีที่เคลือบผิวท่อ | Zinc Thickness Test                                         | ✓          | ✓               | ✓  |
| 8     | การตรวจสอบความหนาของสี ที่เคลือบผิวท่อ     | Primer Coat Thickness Test                                  | ✓          | ✓               | ✓  |
| 9     | การตรวจสอบการพิมพ์อักษรบนผิวท่อ            | Marking Durability                                          | ✓          | ✓               | ✓  |
| 10    | การตรวจสอบปลายท่อ                          | ท่อปลายเรียบ (Plain Ends)                                   | ✓          | -               | -  |
|       |                                            | ท่อปลายกรูฟ (Groove Ends)                                   | ✓          | -               | -  |
|       |                                            | ท่อปลายเกลียว (Threaded Ends)                               | ✓          | ✓               | -  |

# Quality Inspection



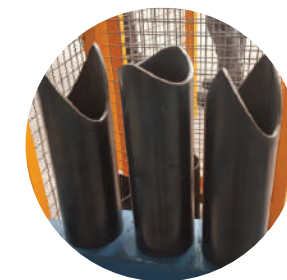
# STEEL SERVICE SOLUTIONS

บริการแปรรูปเหล็กทรงวงจรร  
โดยเครื่องจักรที่ทันสมัย  
คุณภาพสูง ประหยัดทั้งเวลา  
และค่าใช้จ่ายในการก่อสร้าง  
ควบคุมการผลิต โดยวิศวกร  
ชำนาญการ

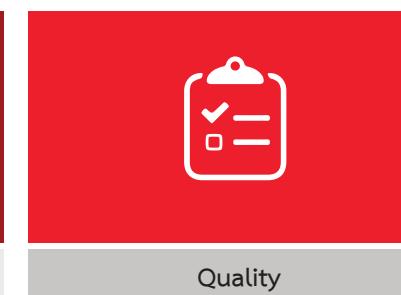


## STEEL SERVICES SOLUTIONS

| Services       |  | Solutions                                                                                                                                                                             |
|----------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cut to Length  |  | สามารถตัดตามความยาวขนาดพิเศษ และตามแบบที่ต้องการ ด้วยระบบ Laser / Plasma Cutting Robot ที่มีความแม่นยำสูง (OD สูงสุด 200 mm / หนาสูงสุด 10 mm / ยาว ≤ 6000 mm)                        |
| Cut to Profile |  |                                                                                                                                                                                       |
| Drilling       |  | ใช้เครื่องมือตัดเจาะด้วยระบบพลาสมา / แก๊ส ที่มีความแม่นยำสูง ควบคุมสั่งการด้วยระบบคอมพิวเตอร์ทั้งหมด สามารถเจาะเหล็กที่มีความหนาได้สูงสุด 40 mm.                                      |
| Pre Assembly   |  | ช่วยให้การประกอบง่ายและรวดเร็วขึ้น ลดการใช้แรงงานให้ความสะดวกสบายมากยิ่งขึ้น                                                                                                          |
| Bending        |  | ควบคุมการดัดแบบอัตโนมัติ ด้วยระบบไฮดรอลิก ขึ้นงานได้ตามมาตรฐานเท่ากันทุกเส้น<br>● ท่อเหล็กกลม ตัดได้ถึง OD 16" / หนา 15 mm<br>■ ท่อเหล็กเหลี่ยม / แบน ตัดได้ถึง OD 350 mm / หนา 15 mm |
| Primer Coating |  | เคลือบสีเรียบเนียนสม่ำเสมอทุกจุดโดยตรงจากโรงงาน สียึดเกาะแน่น และป้องกันการกัดกร่อนได้ดี สามารถควบคุมระดับความหนาของสีได้ตามต้องการ                                                   |
| Galvanizing    |  | ช่วยเพิ่มความทนทาน ป้องกันการกัดกร่อนได้ดี และสามารถเลือกความหนาของสังกะสีได้หลายระดับตามความต้องการ                                                                                  |



## PROFESSIONAL STEEL ADVISORY



# MADE TO ORDER

## Customize for Your design

ผลิตภัณฑ์ท่อแปรรูป ตอบโจทย์ทุกจินตนาการเพื่อทุกงานของคุณ

ผลิตภัณฑ์ท่อแปรรูปตามความต้องการของลูกค้า  
บริการที่ช่วยเพิ่มประสิทธิภาพของชิ้นงาน ลดต้นทุนด้านแรงงาน และเวลา



SIMPLY



STANDARDIZE



SPEED



SAVE



## OUR PRODUCTS

PACIFIC PIPE สามารถผลิตท่อเหล็กได้ตั้งแต่ขนาด 3/8" หรือ 12x12 ขึ้นไป ความหนาตั้งแต่ 0.9 มม. ขึ้นไป รวมไปถึงท่อขนาดใหญ่พิเศษ ที่มีความหนา ถึง 12.70 มม. ด้วยระบบ ERW (Electric-Resistance-Welded Pipe) รายแรกในประเทศไทย



ท่อเหล็กกลม  
ตั้งแต่ 3/8 นิ้ว (10 มม.)  
ถึง 16 นิ้ว (400 มม.)



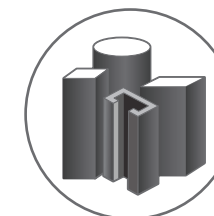
ท่อเหล็กสี่เหลี่ยมจัตุรัส  
ตั้งแต่ 12 x 12 มม.  
ถึง 300 x 300 มม.



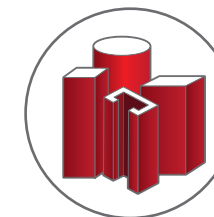
ท่อเหล็กสี่เหลี่ยมผืนผ้า  
ตั้งแต่ 38 x 19 มม.  
ถึง 400 x 200 มม.



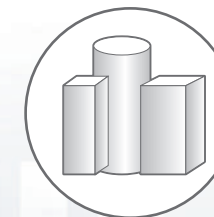
เหล็กรูปตัวซี  
ตั้งแต่ 60 x 30 x 10 มม.  
ถึง 250 x 75 x 25 มม.



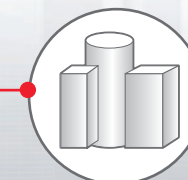
ท่อเหล็กดำ  
(Black Steel pipe)



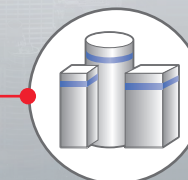
ท่อเหล็กเคลือบสี  
(The P-Coat pipe)



ท่อเหล็กเคลือบสังกะสี  
(Galvanized Steel pipe)



ท่อเคลือบโลหะ  
ก่อนการขึ้นรูป  
(Pre-Galvanized Pipe หรือ GI)



ท่อเคลือบสังกะสี  
หลังการขึ้นรูป  
(Hot Dip Galvanized pipe)



Chemical Composition / Mechanical Properties

ส่วนประกอบทางเคมี / คุณสมบัติทางกล

|  | TIS 107 Carbon Steel Tubes |                              |       |               |        |        |                             |                  |
|-----------------------------------------------------------------------------------|----------------------------|------------------------------|-------|---------------|--------|--------|-----------------------------|------------------|
|                                                                                   | Grade                      | % Chemical Composition (Max) |       |               |        |        | Mechanical Properties (Min) |                  |
|                                                                                   | TIS 107                    | C                            | Si    | Mn            | P      | S      | Yield Strength              | Tensile Strength |
|                                                                                   |                            |                              |       |               |        |        | MPa                         | MPa              |
|                                                                                   | STK290                     | -                            | -     | -             | 0.050* | 0.050* | -                           | 290              |
|                                                                                   | STK400                     | 0.25*                        | -     | -             | 0.040* | 0.040* | 235                         | 400              |
|                                                                                   | STK490                     | 0.18*                        | 0.55* | 1.65*         | 0.035* | 0.035* | 315                         | 490              |
|                                                                                   | STK500                     | 0.24*                        | 0.35* | 0.30 ถึง 1.30 | 0.040* | 0.040* | 355                         | 500              |
|                                                                                   | STK540                     | 0.23*                        | 0.55* | 1.50*         | 0.040* | 0.040* | 390                         | 540              |

\* สูงสุด

|  | Elongation % (Min) |              |               |                  |     |        |        |        |        |        |        |         |
|-----------------------------------------------------------------------------------|--------------------|--------------|---------------|------------------|-----|--------|--------|--------|--------|--------|--------|---------|
|                                                                                   | Grade              |              |               | Thickness < 8 mm |     |        |        |        |        |        |        |         |
|                                                                                   |                    | W            |               | Test (piece)     | < 1 | >1 - 2 | >2 - 3 | >3 - 4 | >4 - 5 | >5 - 6 | >6 - 7 | >7 - <8 |
|                                                                                   |                    | ≤350         | >350          |                  |     |        |        |        |        |        |        |         |
|                                                                                   |                    |              |               |                  |     |        |        |        |        |        |        |         |
|                                                                                   |                    | 12           | 5             |                  |     |        |        |        |        |        |        |         |
|                                                                                   |                    | ตามแนวยาวท่อ | ตามแนวตั้งฉาก |                  |     |        |        |        |        |        |        |         |
|                                                                                   | STK290             | 30           | 25            | No.12            | 20  | 21     | 22     | 24     | 26     | 27     | 28     | 30      |
|                                                                                   |                    |              | No.5          | 14               | 16  | 18     | 19     | 20     | 22     | 24     | 25     |         |
| STK400                                                                            | 23                 | 18           | No.12         | 12               | 14  | 16     | 17     | 18     | 20     | 22     | 23     |         |
|                                                                                   |                    |              | No.5          | 8                | 9   | 10     | 12     | 14     | 15     | 16     | 18     |         |
| STK490                                                                            | 23                 | 18           | No.12         | 12               | 14  | 16     | 17     | 18     | 20     | 22     | 23     |         |
|                                                                                   |                    |              | No.5          | 8                | 9   | 10     | 12     | 14     | 15     | 16     | 18     |         |
| STK500                                                                            | 15                 | 10           | No.12         | 4                | 6   | 8      | 9      | 10     | 12     | 14     | 15     |         |
|                                                                                   |                    |              | No.5          | -                | 1   | 2      | 4      | 6      | 7      | 8      | 10     |         |
| STK540                                                                            | 20                 | 16           | No.12         | 10               | 11  | 12     | 14     | 16     | 17     | 18     | 20     |         |
|                                                                                   |                    |              | No.5          | 6                | 7   | 8      | 10     | 12     | 13     | 14     | 16     |         |

หมายเหตุ 1. ขึ้นทดสอบหมายเลข 5 ใช้กับท่อเหล็กแบบกลมเส้นผ่านศูนย์กลางภายนอกมากกว่า 350 mm  
2. ขึ้นทดสอบหมายเลข 12 ใช้กับท่อเหล็กแบบกลมเส้นผ่านศูนย์กลางภายนอกมากกว่า 40 mm ถึง 350 mm

|  | TIS 107 Carbon Steel Square and Rectangle |                              |       |       |        |        |                             |                  |
|-------------------------------------------------------------------------------------|-------------------------------------------|------------------------------|-------|-------|--------|--------|-----------------------------|------------------|
|                                                                                     | Grade                                     | % Chemical Composition (Max) |       |       |        |        | Mechanical Properties (Min) |                  |
|                                                                                     | TIS 107                                   | C                            | Si    | Mn    | P      | S      | Yield Strength              | Tensile Strength |
|                                                                                     |                                           |                              |       |       |        |        | MPa                         | MPa              |
|                                                                                     | STKR290                                   | -                            | -     | -     | 0.050* | 0.050* | -                           | 290              |
|                                                                                     | STKR400                                   | 0.25*                        | -     | -     | 0.040* | 0.040* | 245                         | 400              |
|                                                                                     | STKR490                                   | 0.18*                        | 0.55* | 1.50* | 0.040* | 0.040* | 325                         | 490              |

\* สูงสุด

|  | Elongation % (Min) |                  |                  |        |        |        |        |        |        |         |
|-------------------------------------------------------------------------------------|--------------------|------------------|------------------|--------|--------|--------|--------|--------|--------|---------|
|                                                                                     | Grade              | Thickness > 8 mm | Thickness < 8 mm |        |        |        |        |        |        |         |
|                                                                                     |                    |                  | < 1              | >1 - 2 | >2 - 3 | >3 - 4 | >4 - 5 | >5 - 6 | >6 - 7 | >7 - <8 |
|                                                                                     |                    |                  |                  |        |        |        |        |        |        |         |
|                                                                                     | STKR290            | 30               | 20               | 21     | 22     | 24     | 26     | 27     | 28     | 30      |
|                                                                                     | STKR400            | 23               | 12               | 14     | 16     | 17     | 18     | 20     | 22     | 23      |
|                                                                                     | STKR490            | 23               | 12               | 14     | 16     | 17     | 18     | 20     | 22     | 23      |

วัตถุดิบที่ใช้ในการผลิตท่อเคลือบโลหะก่อนการขึ้นรูป

- เหล็กกล้าทรงแบนรีดเย็นเคลือบสังกะสีโดยวิธีการจุ่มร้อน (มอก.50-2565)
- เหล็กกล้าทรงแบนรีดร้อนเคลือบสังกะสีโดยวิธีการจุ่มร้อน (มอก.3243-2564)

มวลเคลือบของเหล็กกล้าทรงแบนรีดเย็นเคลือบสังกะสีโดยวิธีการจุ่มร้อน และเหล็กกล้าทรงแบนรีดร้อนเคลือบสังกะสีโดยวิธีการจุ่มร้อน

| สัญลักษณ์มวลเคลือบ | มวลเคลือบเฉลี่ย เฉลี่ย 3 จุด (g/m <sup>2</sup> ) ไม่น้อยกว่า | มวลเคลือบน้อยที่สุด (g/m <sup>2</sup> ) |
|--------------------|--------------------------------------------------------------|-----------------------------------------|
| Z060               | 60                                                           | 51                                      |
| Z080               | 80                                                           | 68                                      |
| Z100               | 100                                                          | 85                                      |
| Z120               | 120                                                          | 102                                     |
| Z140               | 140                                                          | 119                                     |
| Z180               | 180                                                          | 153                                     |
| Z200               | 200                                                          | 170                                     |
| Z220               | 220                                                          | 187                                     |
| Z250               | 250                                                          | 213                                     |
| Z275               | 275                                                          | 234                                     |
| Z350               | 350                                                          | 298                                     |
| Z370               | 370                                                          | 315                                     |
| Z450               | 450                                                          | 383                                     |
| Z600               | 600                                                          | 510                                     |

- เหล็กกล้าทรงแบนเคลือบสังกะสี ผสมอะลูมิเนียม 5% ถึง 13% และแมกนีเซียม 2% ถึง 4% โดยกรรมวิธีจุ่มร้อน (มอก.2981-2562)

มวลเคลือบของเหล็กกล้าทรงแบนเคลือบสังกะสี ผสมอะลูมิเนียม 5% ถึง 13% และแมกนีเซียม 2% ถึง 4% โดยกรรมวิธีจุ่มร้อน

| สัญลักษณ์มวลเคลือบ | มวลเคลือบต่ำสุดรวมทั้ง 2 ด้าน (g/m <sup>2</sup> ) |                   |
|--------------------|---------------------------------------------------|-------------------|
|                    | การทดสอบแบบ 3 จุด                                 | การทดสอบแบบ 1 จุด |
| K06                | 60                                                | 51                |
| K08                | 80                                                | 68                |
| K10                | 100                                               | 85                |
| K12                | 120                                               | 102               |
| K14                | 140                                               | 119               |
| K18                | 180                                               | 153               |
| K20                | 200                                               | 170               |
| K22                | 220                                               | 187               |
| K25                | 250                                               | 213               |
| K27                | 275                                               | 234               |
| K35                | 350                                               | 298               |
| K45                | 450                                               | 383               |



TIS 107-2566 Table ก.1  
(JIS G3444)

Carbon Steel Tubes for General Structure

ท่อเหล็กกลม สำหรับงานโครงสร้าง

“Black Steel Pipe, Primer Coated Pipe and Pre-Galvanized Pipe”

|                    | Dimension Tolerances       |
|--------------------|----------------------------|
| Outside Diameter   | DN < 50 mm : ±0.5 mm       |
|                    | DN ≥ 50 mm : ±1%           |
| Thickness          | < 12 mm : +15% to - 12.5%  |
|                    | ≥ 12 mm : +15% to - 1.5 mm |
| Weight             | ±10%                       |
| Steel Pipe Surface | ● ● ●                      |

| Nominal Dimension |        | OD   | Thickness (t) | Weight | Cross Section Area | Geometrical Moment of Inertia   | Elastic Modulus of Section      | Plastic Modulus of Section      | Radius of Gyration |
|-------------------|--------|------|---------------|--------|--------------------|---------------------------------|---------------------------------|---------------------------------|--------------------|
|                   |        |      |               |        |                    | I <sub>x</sub> , I <sub>y</sub> | S <sub>x</sub> , S <sub>y</sub> | Z <sub>x</sub> , Z <sub>y</sub> |                    |
| mm                | inch   | mm   | mm            | kg/m   | cm <sup>2</sup>    | cm <sup>4</sup>                 | cm <sup>3</sup>                 | cm <sup>3</sup>                 | cm                 |
| 10                | 3/8"   | 15.9 | 1.00          | 0.367  | 0.468              | 0.130                           | 0.164                           | 0.222                           | 0.528              |
|                   |        |      | 1.20          | 0.435  | 0.554              | 0.151                           | 0.190                           | 0.260                           | 0.521              |
|                   |        |      | 1.40          | 0.501  | 0.638              | 0.169                           | 0.213                           | 0.295                           | 0.515              |
|                   |        |      | 1.60          | 0.564  | 0.719              | 0.186                           | 0.234                           | 0.329                           | 0.509              |
|                   |        |      | 1.70          | 0.595  | 0.758              | 0.194                           | 0.244                           | 0.344                           | 0.506              |
|                   |        |      | 1.80          | 0.626  | 0.797              | 0.201                           | 0.253                           | 0.360                           | 0.503              |
|                   |        |      | 2.00          | 0.686  | 0.873              | 0.215                           | 0.271                           | 0.389                           | 0.497              |
| 15                | 1/2"   | 21.7 | 1.00          | 0.510  | 0.650              | 0.349                           | 0.322                           | 0.429                           | 0.733              |
|                   |        |      | 1.20          | 0.607  | 0.773              | 0.407                           | 0.375                           | 0.505                           | 0.726              |
|                   |        |      | 1.40          | 0.701  | 0.893              | 0.462                           | 0.426                           | 0.578                           | 0.719              |
|                   |        |      | 1.60          | 0.793  | 1.010              | 0.513                           | 0.473                           | 0.648                           | 0.713              |
|                   |        |      | 1.80          | 0.883  | 1.125              | 0.562                           | 0.518                           | 0.715                           | 0.706              |
|                   |        |      | 2.00          | 0.972  | 1.238              | 0.607                           | 0.559                           | 0.779                           | 0.700              |
|                   |        |      | 2.30          | 1.10   | 1.402              | 0.669                           | 0.616                           | 0.870                           | 0.691              |
|                   |        |      | 2.50          | 1.18   | 1.508              | 0.707                           | 0.651                           | 0.927                           | 0.685              |
|                   |        |      | 2.80          | 1.31   | 1.663              | 0.759                           | 0.699                           | 1.01                            | 0.676              |
|                   |        |      | 3.00          | 1.38   | 1.762              | 0.790                           | 0.728                           | 1.06                            | 0.670              |
| 20                | 3/4"   | 27.2 | 3.20          | 1.46   | 1.860              | 0.819                           | 0.755                           | 1.11                            | 0.664              |
|                   |        |      | 1.00          | 0.65   | 0.823              | 0.707                           | 0.520                           | 0.69                            | 0.927              |
|                   |        |      | 1.20          | 0.77   | 0.980              | 0.830                           | 0.610                           | 0.81                            | 0.920              |
|                   |        |      | 1.40          | 0.89   | 1.135              | 0.947                           | 0.696                           | 0.93                            | 0.914              |
|                   |        |      | 1.60          | 1.01   | 1.287              | 1.06                            | 0.778                           | 1.05                            | 0.907              |
|                   |        |      | 1.80          | 1.13   | 1.436              | 1.16                            | 0.856                           | 1.16                            | 0.900              |
|                   |        |      | 2.00          | 1.24   | 1.583              | 1.26                            | 0.930                           | 1.27                            | 0.894              |
|                   |        |      | 2.30          | 1.41   | 1.799              | 1.41                            | 1.03                            | 1.43                            | 0.884              |
|                   |        |      | 2.50          | 1.52   | 1.940              | 1.49                            | 1.10                            | 1.53                            | 0.878              |
|                   |        |      | 2.80          | 1.69   | 2.146              | 1.62                            | 1.19                            | 1.67                            | 0.868              |
|                   |        |      | 3.00          | 1.79   | 2.281              | 1.70                            | 1.25                            | 1.77                            | 0.862              |
|                   |        |      | 3.20          | 1.89   | 2.413              | 1.77                            | 1.30                            | 1.85                            | 0.856              |
| 25                | 1"     | 34.0 | 1.00          | 0.81   | 1.037              | 1.41                            | 0.83                            | 1.09                            | 1.17               |
|                   |        |      | 1.10          | 0.89   | 1.137              | 1.54                            | 0.91                            | 1.19                            | 1.16               |
|                   |        |      | 1.20          | 0.97   | 1.237              | 1.67                            | 0.98                            | 1.29                            | 1.16               |
|                   |        |      | 1.40          | 1.13   | 1.434              | 1.91                            | 1.12                            | 1.49                            | 1.15               |
|                   |        |      | 1.50          | 1.20   | 1.532              | 2.03                            | 1.19                            | 1.59                            | 1.15               |
|                   |        |      | 1.60          | 1.28   | 1.629              | 2.14                            | 1.26                            | 1.68                            | 1.15               |
|                   |        |      | 1.80          | 1.43   | 1.821              | 2.37                            | 1.39                            | 1.87                            | 1.14               |
|                   |        |      | 2.00          | 1.58   | 2.011              | 2.58                            | 1.52                            | 2.05                            | 1.13               |
|                   |        |      | 2.30          | 1.80   | 2.291              | 2.89                            | 1.70                            | 2.32                            | 1.12               |
|                   |        |      | 2.50          | 1.94   | 2.474              | 3.09                            | 1.82                            | 2.49                            | 1.12               |
|                   |        |      | 2.80          | 2.15   | 2.744              | 3.37                            | 1.98                            | 2.73                            | 1.11               |
|                   |        |      | 3.00          | 2.29   | 2.922              | 3.54                            | 2.08                            | 2.89                            | 1.10               |
|                   |        |      | 3.20          | 2.43   | 3.096              | 3.71                            | 2.18                            | 3.05                            | 1.09               |
|                   |        |      | 3.50          | 2.63   | 3.354              | 3.95                            | 2.32                            | 3.27                            | 1.09               |
|                   |        |      | 4.00          | 2.96   | 3.770              | 4.32                            | 2.54                            | 3.62                            | 1.07               |
|                   |        |      | 4.50          | 3.27   | 4.170              | 4.64                            | 2.73                            | 3.95                            | 1.06               |
|                   |        |      | 5.00          | 3.58   | 4.555              | 4.93                            | 2.90                            | 4.25                            | 1.04               |
| 32                | 1 1/4" | 42.7 | 1.00          | 1.03   | 1.310              | 2.85                            | 1.33                            | 1.74                            | 1.47               |
|                   |        |      | 1.10          | 1.13   | 1.438              | 3.11                            | 1.46                            | 1.90                            | 1.47               |
|                   |        |      | 1.20          | 1.23   | 1.565              | 3.37                            | 1.58                            | 2.07                            | 1.47               |



TIS 107-2566 Table ก.1  
(JIS G3444)

Carbon Steel Tubes for General Structure

ท่อเหล็กกลม สำหรับงานโครงสร้าง

“Black Steel Pipe, Primer Coated Pipe and Pre-Galvanized Pipe”

|                    | Dimension Tolerances       |
|--------------------|----------------------------|
| Outside Diameter   | DN < 50 mm : ±0.5 mm       |
|                    | DN ≥ 50 mm : ±1%           |
| Thickness          | < 12 mm : +15% to - 12.5%  |
|                    | ≥ 12 mm : +15% to - 1.5 mm |
| Weight             | ±10%                       |
| Steel Pipe Surface | ● ● ●                      |

| Nominal Dimension |        | OD   | Thickness (t) | Weight | Cross Section Area | Geometrical Moment of Inertia   | Elastic Modulus of Section      | Plastic Modulus of Section      | Radius of Gyration |
|-------------------|--------|------|---------------|--------|--------------------|---------------------------------|---------------------------------|---------------------------------|--------------------|
|                   |        |      |               |        |                    | I <sub>x</sub> , I <sub>y</sub> | S <sub>x</sub> , S <sub>y</sub> | Z <sub>x</sub> , Z <sub>y</sub> |                    |
| mm                | inch   | mm   | mm            | kg/m   | cm <sup>2</sup>    | cm <sup>4</sup>                 | cm <sup>3</sup>                 | cm <sup>3</sup>                 | cm                 |
| 32                | 1 1/4" | 42.7 | 1.40          | 1.43   | 1.816              | 3.88                            | 1.82                            | 2.39                            | 1.46               |
|                   |        |      | 1.50          | 1.52   | 1.942              | 4.12                            | 1.93                            | 2.55                            | 1.46               |
|                   |        |      | 1.60          | 1.62   | 2.066              | 4.37                            | 2.05                            | 2.70                            | 1.45               |
|                   |        |      | 1.80          | 1.82   | 2.313              | 4.85                            | 2.27                            | 3.01                            | 1.45               |
|                   |        |      | 2.00          | 2.01   | 2.557              | 5.31                            | 2.49                            | 3.32                            | 1.44               |
|                   |        |      | 2.30          | 2.29   | 2.919              | 5.97                            | 2.80                            | 3.76                            | 1.43               |
|                   |        |      | 2.50          | 2.48   | 3.157              | 6.40                            | 3.00                            | 4.05                            | 1.42               |
|                   |        |      | 2.80          | 2.76   | 3.510              | 7.02                            | 3.29                            | 4.46                            | 1.41               |
|                   |        |      | 3.00          | 2.94   | 3.742              | 7.41                            | 3.47                            | 4.74                            | 1.41               |
|                   |        |      | 3.20          | 3.12   | 3.971              | 7.80                            | 3.65                            | 5.00                            | 1.40               |
|                   |        |      | 3.50          | 3.38   | 4.310              | 8.35                            | 3.91                            | 5.39                            | 1.39               |
|                   |        |      | 4.00          | 3.82   | 4.863              | 9.20                            | 4.31                            | 6.01                            | 1.38               |
|                   |        |      | 4.50          | 4.24   | 5.400              | 9.99                            | 4.68                            | 6.60                            | 1.36               |
|                   |        |      | 5.00          | 4.65   | 5.922              | 10.7                            | 5.01                            | 7.15                            | 1.34               |
| 40                | 1 1/2" | 48.6 | 1.00          | 1.17   | 1.495              | 4.24                            | 1.74                            | 2.27                            | 1.68               |
|                   |        |      | 1.10          | 1.29   | 1.641              | 4.63                            | 1.91                            | 2.48                            | 1.68               |
|                   |        |      | 1.20          | 1.40   | 1.787              | 5.02                            | 2.07                            | 2.70                            | 1.68               |
|                   |        |      | 1.40          | 1.63   | 2.076              | 5.79                            | 2.38                            | 3.12                            | 1.67               |
|                   |        |      | 1.50          | 1.74   | 2.220              | 6.16                            | 2.54                            | 3.33                            | 1.67               |
|                   |        |      | 1.60          | 1.86   | 2.362              | 6.53                            | 2.69                            | 3.54                            | 1.66               |
|                   |        |      | 1.80          | 2.08   | 2.646              | 7.26                            | 2.99                            | 3.94                            | 1.66               |
|                   |        |      | 2.00          | 2.30   | 2.928              | 7.96                            | 3.28                            | 4.35                            | 1.65               |
|                   |        |      | 2.30          | 2.63   | 3.345              | 8.99                            | 3.70                            | 4.93                            | 1.64               |
|                   |        |      | 2.50          | 2.84   | 3.621              | 9.65                            | 3.97                            | 5.32                            | 1.63               |
|                   |        |      | 2.80          | 3.16   | 4.029              | 10.6                            | 4.36                            | 5.88                            | 1.62               |
|                   |        |      | 3.00          | 3.37   | 4.298              | 11.2                            | 4.62                            | 6.25                            | 1.62               |
|                   |        |      | 3.20          | 3.58   | 4.564              | 11.8                            | 4.86                            | 6.61                            | 1.61               |
|                   |        |      | 3.50          | 3.89   | 4.959              | 12.7                            | 5.22                            | 7.13                            | 1.60               |
|                   |        |      | 4.00          | 4.40   | 5.605              | 14.0                            | 5.78                            | 7.98                            | 1.58               |
|                   |        |      | 4.50          | 4.89   | 6.234              | 15.3                            | 6.30                            | 8.78                            | 1.57               |
| 50                | 2"     | 60.5 | 5.00          | 5.38   | 6.849              | 16.5                            | 6.79                            | 9.55                            | 1.55               |
|                   |        |      | 1.00          | 1.47   | 1.869              | 8.27                            | 2.74                            | 3.54                            | 2.10               |
|                   |        |      | 1.10          | 1.61   | 2.053              | 9.06                            | 2.99                            | 3.88                            | 2.10               |
|                   |        |      | 1.20          | 1.76   | 2.236              | 9.83                            | 3.25                            | 4.22                            | 2.10               |
|                   |        |      | 1.40          | 2.04   | 2.599              | 11.4                            | 3.75                            | 4.89                            | 2.09               |
|                   |        |      | 1.50          | 2.18   | 2.780              | 12.10                           | 4.00                            | 5.22                            | 2.09               |
|                   |        |      | 1.60          | 2.32   | 2.961              | 12.8                            | 4.25                            | 5.55                            | 2.08               |
|                   |        |      | 1.80          | 2.61   | 3.319              | 14.3                            | 4.73                            | 6.20                            | 2.08               |
|                   |        |      | 2.00          | 2.89   | 3.676              | 15.7                            | 5.20                            | 6.85                            | 2.07               |
|                   |        |      | 2.30          | 3.30   | 4.205              | 17.8                            | 5.90                            | 7.79                            | 2.06               |
|                   |        |      | 2.50          | 3.58   | 4.555              | 19.2                            | 6.34                            | 8.42                            | 2.05               |
|                   |        |      | 2.80          | 3.98   | 5.076              | 21.2                            | 7.00                            | 9.33                            | 2.04               |
|                   |        |      | 3.00          | 4.25   | 5.419              | 22.5                            | 7.42                            | 9.93                            | 2.04               |
|                   |        |      | 3.20          | 4.52   | 5.760              | 23.7                            | 7.84                            | 10.5                            | 2.03               |
|                   |        |      | 3.50          | 4.92   | 6.267              | 25.5                            | 8.45                            | 11.4                            | 2.02               |
|                   |        |      | 4.00          | 5.57   | 7.100              | 28.5                            | 9.41                            | 12.8                            | 2.00               |
|                   |        |      | 4.50          | 6.22   | 7.917              | 31.2                            | 10.3                            | 14.1                            | 1.99               |
|                   |        |      | 5.00          | 6.84   | 8.718              | 33.8                            | 11.2                            | 15.4                            | 1.97               |
|                   |        |      | 5.50          | 7.46   | 9.503              | 36.3                            | 12.0                            | 16.7                            | 1.95               |
|                   |        |      | 6.00          | 8.06   | 10.27              | 38.6                            | 12.8                            | 17.9                            | 1.94               |



TIS 107-2566 Table ก.1

(JIS G3444)

Carbon Steel Tubes for General Structure

ท่อเหล็กกลม สำหรับงานโครงสร้าง

“Black Steel Pipe, Primer Coated Pipe and Pre-Galvanized Pipe”

|                    | Dimension Tolerances       |
|--------------------|----------------------------|
| Outside Diameter   | DN < 50 mm : ±0.5 mm       |
|                    | DN ≥ 50 mm : ±1%           |
| Thickness          | < 12 mm : +15% to - 12.5%  |
|                    | ≥ 12 mm : +15% to - 1.5 mm |
| Weight             | ±10%                       |
| Steel Pipe Surface | ● ● ●                      |

| Nominal Dimension |        | OD    | Thickness (t) | Weight | Cross Section Area | Geometrical Moment of Inertia   | Elastic Modulus of Section      | Plastic Modulus of Section      | Radius of Gyration |
|-------------------|--------|-------|---------------|--------|--------------------|---------------------------------|---------------------------------|---------------------------------|--------------------|
|                   |        |       |               |        |                    | I <sub>x</sub> , I <sub>y</sub> | S <sub>x</sub> , S <sub>y</sub> | Z <sub>x</sub> , Z <sub>y</sub> |                    |
| mm                | inch   | mm    | mm            | kg/m   | cm <sup>2</sup>    | cm <sup>4</sup>                 | cm <sup>3</sup>                 | cm <sup>3</sup>                 | cm                 |
| 65                | 2 1/2" | 76.3  | 1.00          | 1.86   | 2.366              | 16.8                            | 4.40                            | 5.67                            | 2.66               |
|                   |        |       | 1.20          | 2.22   | 2.831              | 20.0                            | 5.23                            | 6.77                            | 2.66               |
|                   |        |       | 1.40          | 2.59   | 3.294              | 23.1                            | 6.06                            | 7.85                            | 2.65               |
|                   |        |       | 1.60          | 2.95   | 3.755              | 26.2                            | 6.87                            | 8.93                            | 2.64               |
|                   |        |       | 1.80          | 3.31   | 4.213              | 29.2                            | 7.67                            | 10.0                            | 2.63               |
|                   |        |       | 2.00          | 3.67   | 4.668              | 32.2                            | 8.45                            | 11.0                            | 2.63               |
|                   |        |       | 2.30          | 4.20   | 5.347              | 36.6                            | 9.60                            | 12.6                            | 2.62               |
|                   |        |       | 2.50          | 4.55   | 5.796              | 39.5                            | 10.4                            | 13.6                            | 2.61               |
|                   |        |       | 2.80          | 5.08   | 6.465              | 43.7                            | 11.5                            | 15.1                            | 2.60               |
|                   |        |       | 3.00          | 5.42   | 6.908              | 46.5                            | 12.2                            | 16.1                            | 2.59               |
|                   |        |       | 3.20          | 5.77   | 7.349              | 49.2                            | 12.9                            | 17.1                            | 2.59               |
|                   |        |       | 3.50          | 6.28   | 8.005              | 53.2                            | 13.9                            | 18.6                            | 2.58               |
|                   |        |       | 4.00          | 7.13   | 9.085              | 59.5                            | 15.6                            | 20.9                            | 2.56               |
|                   |        |       | 4.50          | 7.97   | 10.15              | 65.7                            | 17.2                            | 23.2                            | 2.54               |
|                   |        |       | 5.00          | 8.79   | 11.20              | 71.5                            | 18.7                            | 25.5                            | 2.53               |
|                   |        |       | 5.50          | 9.60   | 12.23              | 77.1                            | 20.2                            | 27.6                            | 2.51               |
|                   |        |       | 6.00          | 10.40  | 13.25              | 82.5                            | 21.6                            | 29.7                            | 2.49               |
| 80                | 3"     | 89.1  | 1.00          | 2.17   | 2.768              | 26.9                            | 6.03                            | 7.76                            | 3.12               |
|                   |        |       | 1.20          | 2.60   | 3.314              | 32.0                            | 7.19                            | 9.27                            | 3.11               |
|                   |        |       | 1.40          | 3.03   | 3.857              | 37.1                            | 8.33                            | 10.8                            | 3.10               |
|                   |        |       | 1.60          | 3.45   | 4.398              | 42.1                            | 9.45                            | 12.3                            | 3.09               |
|                   |        |       | 1.80          | 3.88   | 4.937              | 47.1                            | 10.6                            | 13.7                            | 3.09               |
|                   |        |       | 2.00          | 4.30   | 5.473              | 51.9                            | 11.7                            | 15.2                            | 3.08               |
|                   |        |       | 2.30          | 4.92   | 6.272              | 59.1                            | 13.3                            | 17.3                            | 3.07               |
|                   |        |       | 2.50          | 5.34   | 6.802              | 63.8                            | 14.3                            | 18.8                            | 3.06               |
|                   |        |       | 2.80          | 5.96   | 7.591              | 70.7                            | 15.9                            | 20.9                            | 3.05               |
|                   |        |       | 3.00          | 6.37   | 8.115              | 75.3                            | 16.9                            | 22.2                            | 3.05               |
|                   |        |       | 3.20          | 6.78   | 8.636              | 79.8                            | 17.9                            | 23.6                            | 3.04               |
|                   |        |       | 3.50          | 7.39   | 9.412              | 86.4                            | 19.4                            | 25.7                            | 3.03               |
|                   |        |       | 4.00          | 8.40   | 10.69              | 97.0                            | 21.8                            | 29.0                            | 3.01               |
|                   |        |       | 4.50          | 9.39   | 11.96              | 107                             | 24.1                            | 32.2                            | 3.00               |
|                   |        |       | 5.00          | 10.40  | 13.21              | 117                             | 26.3                            | 35.4                            | 2.98               |
|                   |        |       | 5.50          | 11.30  | 14.45              | 127                             | 28.4                            | 38.5                            | 2.96               |
|                   |        |       | 6.00          | 12.30  | 15.66              | 136                             | 30.5                            | 41.5                            | 2.95               |
| 90                | 3 1/2" | 101.6 | 1.00          | 2.48   | 3.160              | 40.0                            | 7.87                            | 10.1                            | 3.56               |
|                   |        |       | 1.20          | 2.97   | 3.785              | 47.7                            | 9.39                            | 12.1                            | 3.55               |
|                   |        |       | 1.40          | 3.46   | 4.407              | 55.3                            | 10.9                            | 14.1                            | 3.54               |
|                   |        |       | 1.60          | 3.95   | 5.027              | 62.8                            | 12.4                            | 16.0                            | 3.54               |
|                   |        |       | 1.80          | 4.43   | 5.644              | 70.3                            | 13.8                            | 17.9                            | 3.53               |
|                   |        |       | 2.00          | 4.91   | 6.258              | 77.6                            | 15.3                            | 19.8                            | 3.52               |
|                   |        |       | 2.30          | 5.63   | 7.175              | 88.5                            | 17.4                            | 22.7                            | 3.51               |
|                   |        |       | 2.50          | 6.11   | 7.783              | 95.6                            | 18.8                            | 24.6                            | 3.50               |
|                   |        |       | 2.80          | 6.82   | 8.691              | 106                             | 20.9                            | 27.3                            | 3.49               |
|                   |        |       | 3.00          | 7.30   | 9.293              | 113                             | 22.3                            | 29.2                            | 3.49               |
|                   |        |       | 3.20          | 7.77   | 9.892              | 120                             | 23.6                            | 31.0                            | 3.48               |
|                   |        |       | 3.50          | 8.47   | 10.79              | 130                             | 25.6                            | 33.7                            | 3.47               |
|                   |        |       | 4.00          | 9.63   | 12.26              | 146                             | 28.8                            | 38.1                            | 3.45               |
|                   |        |       | 4.50          | 10.80  | 13.73              | 162                             | 31.9                            | 42.5                            | 3.44               |
|                   |        |       | 5.00          | 11.90  | 15.17              | 178                             | 34.9                            | 46.7                            | 3.42               |



TIS 107-2566 Table ก.1

(JIS G3444)

Carbon Steel Tubes for General Structure

ท่อเหล็กกลม สำหรับงานโครงสร้าง

“Black Steel Pipe, Primer Coated Pipe and Pre-Galvanized Pipe”

|                    | Dimension Tolerances       |
|--------------------|----------------------------|
| Outside Diameter   | DN < 50 mm : ±0.5 mm       |
|                    | DN ≥ 50 mm : ±1%           |
| Thickness          | < 12 mm : +15% to - 12.5%  |
|                    | ≥ 12 mm : +15% to - 1.5 mm |
| Weight             | ±10%                       |
| Steel Pipe Surface | ● ● ●                      |

| Nominal Dimension |        | OD    | Thickness (t) | Weight | Cross Section Area | Geometrical Moment of Inertia   | Elastic Modulus of Section      | Plastic Modulus of Section      | Radius of Gyration |
|-------------------|--------|-------|---------------|--------|--------------------|---------------------------------|---------------------------------|---------------------------------|--------------------|
|                   |        |       |               |        |                    | I <sub>x</sub> , I <sub>y</sub> | S <sub>x</sub> , S <sub>y</sub> | Z <sub>x</sub> , Z <sub>y</sub> |                    |
| mm                | inch   | mm    | mm            | kg/m   | cm <sup>2</sup>    | cm <sup>4</sup>                 | cm <sup>3</sup>                 | cm <sup>3</sup>                 | cm                 |
| 90                | 3 1/2" | 101.6 | 5.50          | 13.00  | 16.60              | 192                             | 37.9                            | 50.8                            | 3.40               |
|                   |        |       | 6.00          | 14.10  | 18.02              | 207                             | 40.7                            | 54.9                            | 3.39               |
| 100               | 4"     | 114.3 | 1.40          | 3.90   | 4.966              | 79.1                            | 13.8                            | 17.8                            | 3.99               |
|                   |        |       | 1.45          | 4.04   | 5.141              | 81.8                            | 14.3                            | 18.5                            | 3.99               |
|                   |        |       | 1.60          | 4.45   | 5.665              | 90.0                            | 15.7                            | 20.3                            | 3.98               |
|                   |        |       | 1.80          | 4.99   | 6.362              | 101                             | 17.6                            | 22.8                            | 3.98               |
|                   |        |       | 2.00          | 5.54   | 7.056              | 111                             | 19.5                            | 25.2                            | 3.97               |
|                   |        |       | 2.30          | 6.35   | 8.093              | 127                             | 22.2                            | 28.9                            | 3.96               |
|                   |        |       | 2.50          | 6.89   | 8.781              | 137                             | 24.0                            | 31.3                            | 3.95               |
|                   |        |       | 2.80          | 7.70   | 9.808              | 153                             | 26.7                            | 34.8                            | 3.94               |
|                   |        |       | 3.00          | 8.23   | 10.49              | 163                             | 28.4                            | 37.2                            | 3.94               |
|                   |        |       | 3.20          | 8.77   | 11.17              | 173                             | 30.2                            | 39.5                            | 3.93               |
|                   |        |       | 3.50          | 9.56   | 12.18              | 187                             | 32.7                            | 43.0                            | 3.92               |
|                   |        |       | 4.00          | 10.90  | 13.86              | 211                             | 36.9                            | 48.7                            | 3.90               |
|                   |        |       | 4.50          | 12.20  | 15.52              | 234                             | 41.0                            | 54.3                            | 3.89               |
|                   |        |       | 5.00          | 13.50  | 17.17              | 257                             | 45.0                            | 59.8                            | 3.87               |
|                   |        |       | 5.50          | 14.80  | 18.80              | 279                             | 48.8                            | 65.2                            | 3.85               |
|                   |        |       | 6.00          | 16.00  | 20.41              | 300                             | 52.5                            | 70.4                            | 3.83               |
|                   |        |       | 7.00          | 18.50  | 23.60              | 341                             | 59.7                            | 80.7                            | 3.80               |
|                   |        |       | 8.00          | 21.00  | 26.72              | 380                             | 66.4                            | 90.6                            | 3.77               |
|                   |        |       | 9.00          | 23.40  | 29.77              | 416                             | 72.7                            | 100                             | 3.74               |
|                   |        |       | 10.00         | 25.70  | 32.77              | 450                             | 78.7                            | 109                             | 3.70               |
| 125               | 5"     | 139.8 | 2.50          | 8.47   | 10.78              | 254                             | 36.4                            | 47.1                            | 4.86               |
|                   |        |       | 2.80          | 9.46   | 12.05              | 283                             | 40.5                            | 52.6                            | 4.84               |
|                   |        |       | 3.00          | 10.10  | 12.89              | 302                             | 43.2                            | 56.2                            | 4.84               |
|                   |        |       | 3.20          | 10.80  | 13.73              | 321                             | 45.8                            | 59.7                            | 4.83               |
|                   |        |       | 3.60          | 12.10  | 15.40              | 357                             | 51.1                            | 66.8                            | 4.82               |
|                   |        |       | 4.00          | 13.40  | 17.07              | 394                             | 56.3                            | 73.8                            | 4.80               |
|                   |        |       | 4.50          | 15.00  | 19.13              | 438                             | 62.7                            | 82.4                            | 4.79               |
|                   |        |       | 5.00          | 16.60  | 21.17              | 482                             | 68.9                            | 90.9                            | 4.77               |
|                   |        |       | 6.00          | 19.80  | 25.22              | 566                             | 80.9                            | 107                             | 4.74               |
|                   |        |       | 7.00          | 22.90  | 29.20              | 646                             | 92.4                            | 124                             | 4.70               |
|                   |        |       | 8.00          | 26.00  | 33.12              | 722                             | 103                             | 139                             | 4.67               |
|                   |        |       | 9.00          | 29.00  | 36.98              | 795                             | 114                             | 154                             | 4.64               |
|                   |        |       | 10.00         | 32.00  | 40.78              | 864                             | 124                             | 169                             | 4.60               |
| 150               | 6"     | 165.2 | 2.50          | 10.00  | 12.78              | 423                             | 51.2                            | 66.2                            | 5.75               |
|                   |        |       | 2.80          | 11.20  | 14.29              | 471                             | 57.0                            | 73.9                            | 5.74               |
|                   |        |       | 3.00          | 12.00  | 15.29              | 503                             | 60.9                            | 78.9                            | 5.74               |
|                   |        |       | 3.20          | 12.80  | 16.29              | 535                             | 64.7                            | 84.0                            | 5.73               |
|                   |        |       | 4.00          | 15.90  | 20.26              | 658                             | 79.7                            | 104                             | 5.70               |
|                   |        |       | 4.50          | 17.80  | 22.72              | 734                             | 88.9                            | 116                             | 5.68               |
|                   |        |       | 5.00          | 19.80  | 25.16              | 808                             | 97.8                            | 128                             | 5.67               |
|                   |        |       | 6.00          | 23.60  | 30.01              | 952                             | 115                             | 152                             | 5.63               |
|                   |        |       | 7.00          | 27.30  | 34.79              | 1,090                           | 132                             | 175                             | 5.60               |
|                   |        |       | 7.10          | 27.70  | 35.26              | 1,100                           | 134                             | 178                             | 5.60               |
|                   |        |       | 8.00          | 31.00  | 39.51              | 1,220                           | 148                             | 198                             | 5.57               |
|                   |        |       | 9.00          | 34.70  | 44.16              | 1,350                           | 164                             | 220                             | 5.53               |
|                   |        |       | 10.00         | 38.30  | 48.76              | 1,470                           | 179                             | 241                             | 5.50               |



TIS 107-2566 Table ก.1

(JIS G3444)

Carbon Steel Tubes for General Structure

ท่อเหล็กกลม สำหรับงานโครงสร้าง

“Black Steel Pipe, Primer Coated Pipe and Pre-Galvanized Pipe”

|                    | Dimension Tolerances       |
|--------------------|----------------------------|
| Outside Diameter   | DN < 50 mm : ±0.5 mm       |
|                    | DN ≥ 50 mm : ±1%           |
| Thickness          | < 12 mm : +15% to - 12.5%  |
|                    | ≥ 12 mm : +15% to - 1.5 mm |
| Weight             | ±10%                       |
| Steel Pipe Surface | ● ● ●                      |

| Nominal Dimension |      | OD    | Thickness (t) | Weight | Cross Section Area | Geometrical Moment of Inertia                      | Elastic Modulus of Section                         | Plastic Modulus of Section                         | Radius of Gyration                    |
|-------------------|------|-------|---------------|--------|--------------------|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|---------------------------------------|
| mm                | inch |       |               |        |                    | I <sub>x</sub> , I <sub>y</sub><br>cm <sup>4</sup> | S <sub>x</sub> , S <sub>y</sub><br>cm <sup>3</sup> | Z <sub>x</sub> , Z <sub>y</sub><br>cm <sup>3</sup> | r <sub>x</sub> , r <sub>y</sub><br>cm |
| 175               | 7"   | 190.7 | 3.00          | 13.90  | 17.69              | 779                                                | 81.7                                               | 106                                                | 6.64                                  |
|                   |      |       | 3.20          | 14.80  | 18.85              | 829                                                | 86.9                                               | 113                                                | 6.63                                  |
|                   |      |       | 3.50          | 16.20  | 20.58              | 902                                                | 94.6                                               | 123                                                | 6.62                                  |
|                   |      |       | 4.00          | 18.40  | 23.46              | 1,020                                              | 107                                                | 139                                                | 6.60                                  |
|                   |      |       | 4.50          | 20.70  | 26.32              | 1,140                                              | 120                                                | 156                                                | 6.59                                  |
|                   |      |       | 5.00          | 22.90  | 29.17              | 1,260                                              | 132                                                | 172                                                | 6.57                                  |
|                   |      |       | 5.30          | 24.20  | 30.87              | 1,330                                              | 139                                                | 182                                                | 6.56                                  |
|                   |      |       | 6.00          | 27.30  | 34.82              | 1,490                                              | 156                                                | 205                                                | 6.53                                  |
|                   |      |       | 7.00          | 31.70  | 40.40              | 1,710                                              | 179                                                | 236                                                | 6.50                                  |
|                   |      |       | 8.00          | 36.00  | 45.92              | 1,920                                              | 201                                                | 267                                                | 6.47                                  |
|                   |      |       | 8.20          | 36.90  | 47.01              | 1,960                                              | 206                                                | 273                                                | 6.46                                  |
|                   |      |       | 9.00          | 40.30  | 51.37              | 2,130                                              | 223                                                | 297                                                | 6.43                                  |
|                   |      |       | 10.00         | 44.60  | 56.77              | 2,320                                              | 244                                                | 327                                                | 6.40                                  |
|                   |      |       | 12.00         | 52.90  | 67.37              | 2,700                                              | 283                                                | 384                                                | 6.33                                  |
| 200               | 8"   | 216.3 | 3.00          | 15.80  | 20.10              | 1,140                                              | 106                                                | 136                                                | 7.54                                  |
|                   |      |       | 3.20          | 16.80  | 21.42              | 1,220                                              | 113                                                | 145                                                | 7.54                                  |
|                   |      |       | 3.40          | 17.90  | 22.74              | 1,290                                              | 119                                                | 154                                                | 7.53                                  |
|                   |      |       | 4.00          | 20.90  | 26.68              | 1,500                                              | 139                                                | 180                                                | 7.51                                  |
|                   |      |       | 4.50          | 23.50  | 29.94              | 1,680                                              | 155                                                | 202                                                | 7.49                                  |
|                   |      |       | 5.00          | 26.10  | 33.19              | 1,850                                              | 171                                                | 223                                                | 7.47                                  |
|                   |      |       | 5.80          | 30.10  | 38.36              | 2,130                                              | 197                                                | 257                                                | 7.45                                  |
|                   |      |       | 6.00          | 31.10  | 39.64              | 2,190                                              | 203                                                | 265                                                | 7.44                                  |
|                   |      |       | 7.00          | 36.10  | 46.03              | 2,520                                              | 233                                                | 307                                                | 7.40                                  |
|                   |      |       | 8.00          | 41.10  | 52.35              | 2,840                                              | 263                                                | 347                                                | 7.37                                  |
|                   |      |       | 8.20          | 42.10  | 53.61              | 2,910                                              | 269                                                | 355                                                | 7.36                                  |
|                   |      |       | 9.00          | 46.00  | 58.61              | 3,150                                              | 292                                                | 387                                                | 7.34                                  |
|                   |      |       | 10.00         | 50.90  | 64.81              | 3,460                                              | 320                                                | 426                                                | 7.30                                  |
|                   |      |       | 12.00         | 60.50  | 77.02              | 4,030                                              | 373                                                | 501                                                | 7.24                                  |
| 250               | 10"  | 267.4 | 4.50          | 29.20  | 37.17              | 3,210                                              | 240                                                | 311                                                | 9.30                                  |
|                   |      |       | 5.00          | 32.40  | 41.22              | 3,550                                              | 265                                                | 344                                                | 9.28                                  |
|                   |      |       | 5.80          | 37.40  | 47.67              | 4,080                                              | 305                                                | 397                                                | 9.25                                  |
|                   |      |       | 6.00          | 38.70  | 49.27              | 4,210                                              | 315                                                | 410                                                | 9.24                                  |
|                   |      |       | 6.60          | 42.40  | 54.08              | 4,600                                              | 344                                                | 449                                                | 9.22                                  |
|                   |      |       | 7.00          | 45.00  | 57.26              | 4,860                                              | 363                                                | 475                                                | 9.21                                  |
|                   |      |       | 8.00          | 51.20  | 65.19              | 5,490                                              | 411                                                | 538                                                | 9.18                                  |
|                   |      |       | 8.20          | 52.40  | 66.77              | 5,610                                              | 420                                                | 551                                                | 9.17                                  |
|                   |      |       | 9.00          | 57.40  | 73.06              | 6,110                                              | 457                                                | 601                                                | 9.14                                  |
|                   |      |       | 9.30          | 59.20  | 75.41              | 6,290                                              | 470                                                | 620                                                | 9.13                                  |
|                   |      |       | 10.00         | 63.50  | 80.86              | 6,710                                              | 502                                                | 663                                                | 9.11                                  |
|                   |      |       | 12.00         | 75.60  | 96.28              | 7,870                                              | 589                                                | 783                                                | 9.04                                  |
|                   |      |       | 12.70         | 79.80  | 101.6              | 8,260                                              | 618                                                | 825                                                | 9.02                                  |
| 300               | 12"  | 318.5 | 4.50          | 34.80  | 44.39              | 5,470                                              | 344                                                | 444                                                | 11.1                                  |
|                   |      |       | 5.00          | 38.70  | 49.24              | 6,050                                              | 380                                                | 491                                                | 11.1                                  |
|                   |      |       | 6.00          | 46.20  | 58.90              | 7,190                                              | 452                                                | 586                                                | 11.1                                  |
|                   |      |       | 6.90          | 53.00  | 67.55              | 8,200                                              | 515                                                | 670                                                | 11.0                                  |
|                   |      |       | 7.00          | 53.80  | 68.50              | 8,310                                              | 522                                                | 679                                                | 11.0                                  |
|                   |      |       | 8.00          | 61.30  | 78.04              | 9,410                                              | 591                                                | 771                                                | 11.0                                  |



TIS 107-2566 Table ก.1

(JIS G3444)

Carbon Steel Tubes for General Structure

ท่อเหล็กกลม สำหรับงานโครงสร้าง

“Black Steel Pipe, Primer Coated Pipe and Pre-Galvanized Pipe”

|                    | Dimension Tolerances       |
|--------------------|----------------------------|
| Outside Diameter   | DN < 50 mm : ±0.5 mm       |
|                    | DN ≥ 50 mm : ±1%           |
| Thickness          | < 12 mm : +15% to - 12.5%  |
|                    | ≥ 12 mm : +15% to - 1.5 mm |
| Weight             | ±10%                       |
| Steel Pipe Surface | ● ● ●                      |

| Nominal Dimension |      | OD    | Thickness (t) | Weight | Cross Section Area | Geometrical Moment of Inertia                      | Elastic Modulus of Section                         | Plastic Modulus of Section                         | Radius of Gyration                    |
|-------------------|------|-------|---------------|--------|--------------------|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|---------------------------------------|
| mm                | inch |       |               |        |                    | I <sub>x</sub> , I <sub>y</sub><br>cm <sup>4</sup> | S <sub>x</sub> , S <sub>y</sub><br>cm <sup>3</sup> | Z <sub>x</sub> , Z <sub>y</sub><br>cm <sup>3</sup> | r <sub>x</sub> , r <sub>y</sub><br>cm |
| 300               | 12"  | 318.5 | 9.00          | 68.70  | 87.51              | 10,500                                             | 659                                                | 862                                                | 10.9                                  |
|                   |      |       | 10.00         | 76.10  | 96.92              | 11,500                                             | 725                                                | 952                                                | 10.9                                  |
|                   |      |       | 10.30         | 78.30  | 99.73              | 11,900                                             | 744                                                | 979                                                | 10.9                                  |
|                   |      |       | 12.00         | 90.70  | 115.5              | 13,600                                             | 853                                                | 1,130                                              | 10.8                                  |
|                   |      |       | 12.70         | 95.80  | 122.0              | 14,300                                             | 897                                                | 1,190                                              | 10.8                                  |
| 350               | 14"  | 355.6 | 4.50          | 39.00  | 49.640             | 7,650                                              | 430                                                | 555                                                | 12.4                                  |
|                   |      |       | 5.00          | 43.20  | 55.070             | 8,460                                              | 476                                                | 615                                                | 12.4                                  |
|                   |      |       | 6.00          | 51.70  | 65.900             | 10,100                                             | 566                                                | 733                                                | 12.4                                  |
|                   |      |       | 6.40          | 55.10  | 70.210             | 10,700                                             | 602                                                | 781                                                | 12.3                                  |
|                   |      |       | 7.00          | 60.20  | 76.660             | 11,600                                             | 655                                                | 851                                                | 12.3                                  |
|                   |      |       | 7.90          | 67.70  | 86.290             | 13,000                                             | 734                                                | 955                                                | 12.3                                  |
|                   |      |       | 8.00          | 68.60  | 87.360             | 13,200                                             | 743                                                | 967                                                | 12.3                                  |
|                   |      |       | 9.00          | 76.90  | 98.000             | 14,700                                             | 828                                                | 1,080                                              | 12.3                                  |
|                   |      |       | 9.50          | 81.10  | 103.300            | 15,500                                             | 871                                                | 1,140                                              | 12.2                                  |
|                   |      |       | 10.00         | 85.20  | 108.600            | 16,200                                             | 912                                                | 1,190                                              | 12.2                                  |
|                   |      |       | 12.00         | 102.00 | 129.500            | 19,100                                             | 1,080                                              | 1,420                                              | 12.2                                  |
|                   |      |       | 12.70         | 107.00 | 136.800            | 20,100                                             | 1,130                                              | 1,490                                              | 12.1                                  |
| 400               | 16"  | 406.4 | 6.00          | 59.20  | 75.470             | 15,100                                             | 745                                                | 962                                                | 14.2                                  |
|                   |      |       | 7.90          | 77.60  | 98.900             | 19,600                                             | 967                                                | 1,250                                              | 14.1                                  |
|                   |      |       | 8.00          | 78.60  | 100.100            | 19,900                                             | 978                                                | 1,270                                              | 14.1                                  |
|                   |      |       | 9.00          | 88.20  | 112.400            | 22,200                                             | 1,090                                              | 1,420                                              | 14.1                                  |
|                   |      |       | 9.50          | 93.00  | 118.500            | 23,300                                             | 1,150                                              | 1,500                                              | 14.0                                  |
|                   |      |       | 10.00         | 97.80  | 124.500            | 24,500                                             | 1,200                                              | 1,570                                              | 14.0                                  |
|                   |      |       | 12.00         | 117.00 | 148.700            | 28,900                                             | 1,420                                              | 1,870                                              | 14.0                                  |
|                   |      |       | 12.70         | 123.00 | 157.100            | 30,500                                             | 1,500                                              | 1,970                                              | 13.9                                  |

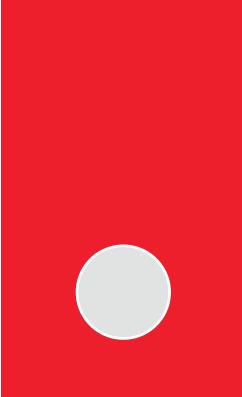


TIS 107-2566 Table n.2  
(ASTM A500)  
Carbon Steel Pipe for Structural Purposes  
ท่อเหล็กกลม สำหรับงานโครงสร้าง  
“Black Steel Pipe, Primer Coated Pipe and Pre-Galvanized Pipe”



|                    | Dimension Tolerances       |
|--------------------|----------------------------|
| Outside Diameter   | DN < 50 mm : ±0.5 mm       |
|                    | DN ≥ 50 mm : ±1%           |
| Thickness          | < 12 mm : +15% to - 12.5%  |
|                    | ≥ 12 mm : +15% to - 1.5 mm |
| Weight             | ±10%                       |
| Steel Pipe Surface | ● ● ●                      |

| Nominal Dimension |       | OD    | Thickness (t) | Weight | Cross Section Area | Geometrical Moment of Inertia                      | Elastic Modulus of Section                         | Plastic Modulus of Section                         | Radius of Gyration |
|-------------------|-------|-------|---------------|--------|--------------------|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|--------------------|
|                   |       |       |               |        |                    | I <sub>x</sub> , I <sub>y</sub><br>cm <sup>4</sup> | S <sub>x</sub> , S <sub>y</sub><br>cm <sup>3</sup> | Z <sub>x</sub> , Z <sub>y</sub><br>cm <sup>3</sup> |                    |
| mm                | inch  | mm    | mm            | kg/m   | cm <sup>2</sup>    |                                                    |                                                    |                                                    | cm                 |
| 15                | 1/2   | 21.3  | 2.77          | 1.27   | 1.613              | 0.708                                              | 0.664                                              | 0.958                                              | 0.662              |
|                   |       |       | 3.73          | 1.62   | 2.059              | 0.830                                              | 0.780                                              | 1.17                                               | 0.635              |
| 20                | 3/4   | 26.7  | 2.87          | 1.69   | 2.149              | 1.55                                               | 1.16                                               | 1.64                                               | 0.849              |
|                   |       |       | 3.91          | 2.20   | 2.799              | 1.87                                               | 1.40                                               | 2.05                                               | 0.818              |
| 25                | 1     | 33.4  | 2.64          | 2.00   | 2.551              | 3.04                                               | 1.82                                               | 2.50                                               | 1.09               |
|                   |       |       | 3.38          | 2.50   | 3.188              | 3.64                                               | 2.18                                               | 3.06                                               | 1.07               |
|                   |       |       | 4.55          | 3.24   | 4.124              | 4.40                                               | 2.63                                               | 3.82                                               | 1.03               |
| 32                | 1 1/4 | 42.2  | 2.79          | 2.71   | 3.454              | 6.74                                               | 3.19                                               | 4.34                                               | 1.40               |
|                   |       |       | 3.56          | 3.39   | 4.322              | 8.13                                               | 3.85                                               | 5.33                                               | 1.37               |
|                   |       |       | 4.85          | 4.47   | 5.691              | 10.1                                               | 4.78                                               | 6.80                                               | 1.33               |
| 40                | 1 1/2 | 48.3  | 2.90          | 3.25   | 4.136              | 10.7                                               | 4.43                                               | 5.99                                               | 1.61               |
|                   |       |       | 3.68          | 4.05   | 5.159              | 12.9                                               | 5.35                                               | 7.34                                               | 1.58               |
|                   |       |       | 5.08          | 5.41   | 6.898              | 16.3                                               | 6.76                                               | 9.53                                               | 1.54               |
| 50                | 2     | 60.3  | 3.07          | 4.33   | 5.520              | 22.7                                               | 7.52                                               | 10.1                                               | 2.03               |
|                   |       |       | 3.91          | 5.44   | 6.927              | 27.7                                               | 9.18                                               | 12.5                                               | 2.00               |
|                   |       |       | 5.54          | 7.48   | 9.531              | 36.1                                               | 12.0                                               | 16.7                                               | 1.95               |
| 65                | 2 1/2 | 73.0  | 3.96          | 6.74   | 8.589              | 51.3                                               | 14.1                                               | 18.9                                               | 2.44               |
|                   |       |       | 4.78          | 8.04   | 10.24              | 59.9                                               | 16.4                                               | 22.3                                               | 2.42               |
|                   |       |       | 5.16          | 8.63   | 11.00              | 63.6                                               | 17.4                                               | 23.8                                               | 2.41               |
|                   |       |       | 7.01          | 11.41  | 14.53              | 80.0                                               | 21.9                                               | 30.6                                               | 2.35               |
| 80                | 3     | 88.9  | 3.96          | 8.29   | 10.57              | 95.5                                               | 21.5                                               | 28.6                                               | 3.01               |
|                   |       |       | 4.78          | 9.92   | 12.63              | 112                                                | 25.2                                               | 33.9                                               | 2.98               |
|                   |       |       | 5.49          | 11.29  | 14.39              | 126                                                | 28.3                                               | 38.3                                               | 2.96               |
|                   |       |       | 7.62          | 15.27  | 19.46              | 162                                                | 36.5                                               | 50.5                                               | 2.89               |
| 90                | 3 1/2 | 101.6 | 3.96          | 9.53   | 12.15              | 145                                                | 28.5                                               | 37.8                                               | 3.45               |
|                   |       |       | 4.78          | 11.41  | 14.54              | 171                                                | 33.6                                               | 44.8                                               | 3.43               |
|                   |       |       | 5.74          | 13.57  | 17.29              | 199                                                | 39.2                                               | 52.8                                               | 3.40               |
|                   |       |       | 8.08          | 18.63  | 23.74              | 261                                                | 51.5                                               | 70.8                                               | 3.32               |
| 100               | 4     | 114.3 | 3.96          | 10.78  | 13.73              | 209                                                | 36.6                                               | 48.2                                               | 3.90               |
|                   |       |       | 4.78          | 12.91  | 16.45              | 247                                                | 43.2                                               | 57.4                                               | 3.88               |
|                   |       |       | 5.56          | 14.91  | 18.99              | 281                                                | 49.3                                               | 65.8                                               | 3.85               |
|                   |       |       | 6.02          | 16.07  | 20.48              | 301                                                | 52.7                                               | 70.7                                               | 3.83               |
| 125               | 5     | 141.3 | 8.56          | 22.32  | 28.44              | 400                                                | 70.0                                               | 95.9                                               | 3.75               |
|                   |       |       | 6.55          | 21.77  | 27.73              | 631                                                | 89.3                                               | 119                                                | 4.77               |
| 150               | 6     | 168.3 | 9.53          | 30.97  | 39.45              | 861                                                | 122                                                | 166                                                | 4.67               |
|                   |       |       | 7.11          | 28.26  | 36.00              | 1,170                                              | 139                                                | 185                                                | 5.70               |
|                   |       |       | 10.97         | 42.56  | 54.22              | 1,690                                              | 200                                                | 272                                                | 5.58               |
| 200               | 8     | 219.1 | 8.18          | 42.55  | 54.20              | 3,020                                              | 276                                                | 364                                                | 7.46               |
|                   |       |       | 12.70         | 64.64  | 82.35              | 4,400                                              | 402                                                | 542                                                | 7.31               |
| 250               | 10    | 273.0 | 9.27          | 60.31  | 76.80              | 6,690                                              | 490                                                | 645                                                | 9.33               |
|                   |       |       | 12.70         | 81.55  | 103.9              | 8,820                                              | 646                                                | 861                                                | 9.21               |
| 300               | 12    | 323.8 | 9.53          | 73.88  | 94.09              | 11,600                                             | 718                                                | 942                                                | 11.1               |
|                   |       |       | 12.70         | 97.46  | 124.1              | 15,000                                             | 929                                                | 1,230                                              | 11.0               |
| 350               | 14    | 355.6 | 9.53          | 81.33  | 103.6              | 15,500                                             | 873                                                | 1,142                                              | 12.2               |
|                   |       |       | 12.70         | 107.39 | 136.8              | 20,100                                             | 1,130                                              | 1,494                                              | 12.1               |
| 400               | 16    | 406.4 | 9.53          | 93.27  | 118.8              | 23,400                                             | 1,150                                              | 1,501                                              | 14.0               |
|                   |       |       | 12.70         | 123.30 | 157.1              | 30,500                                             | 1,500                                              | 1,969                                              | 13.9               |



TIS 107-2566 Table n.3  
(BS EN10219)  
Cold Formed Welded Structural  
Hollow Section  
ท่อเหล็กกลม สำหรับงานโครงสร้าง  
“Black Steel Pipe, Primer Coated Pipe and Pre-Galvanized Pipe”



|                    | Dimension Tolerances       |
|--------------------|----------------------------|
| Outside Diameter   | DN < 50 mm : ±0.5 mm       |
|                    | DN ≥ 50 mm : ±1%           |
| Thickness          | < 12 mm : +15% to - 12.5%  |
|                    | ≥ 12 mm : +15% to - 1.5 mm |
| Weight             | ±10%                       |
| Steel Pipe Surface | ● ● ●                      |

| Nominal Dimension |       | OD    | Thickness (t) | Weight | Cross Section Area | Geometrical Moment of Inertia                      | Elastic Modulus of Section                         | Plastic Modulus of Section                         | Radius of Gyration |
|-------------------|-------|-------|---------------|--------|--------------------|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|--------------------|
|                   |       |       |               |        |                    | I <sub>x</sub> , I <sub>y</sub><br>cm <sup>4</sup> | S <sub>x</sub> , S <sub>y</sub><br>cm <sup>3</sup> | Z <sub>x</sub> , Z <sub>y</sub><br>cm <sup>3</sup> |                    |
| mm                | inch  | mm    | mm            | kg/m   | cm <sup>2</sup>    |                                                    |                                                    |                                                    | cm                 |
| 15                | 1/2   | 21.3  | 2.00          | 0.95   | 1.21               | 0.571                                              | 0.536                                              | 0.748                                              | 0.686              |
|                   |       |       | 2.50          | 1.16   | 1.48               | 0.664                                              | 0.623                                              | 0.889                                              | 0.671              |
|                   |       |       | 3.00          | 1.35   | 1.72               | 0.741                                              | 0.696                                              | 1.01                                               | 0.656              |
| 20                | 3/4   | 26.9  | 2.00          | 1.23   | 1.56               | 1.22                                               | 0.907                                              | 1.24                                               | 0.883              |
|                   |       |       | 2.50          | 1.50   | 1.92               | 1.44                                               | 1.07                                               | 1.49                                               | 0.867              |
|                   |       |       | 3.00          | 1.77   | 2.25               | 1.63                                               | 1.21                                               | 1.72                                               | 0.852              |
| 25                | 1     | 33.7  | 2.00          | 1.56   | 1.99               | 2.51                                               | 1.49                                               | 2.01                                               | 1.12               |
|                   |       |       | 2.50          | 1.92   | 2.45               | 3.00                                               | 1.78                                               | 2.44                                               | 1.11               |
|                   |       |       | 3.00          | 2.27   | 2.89               | 3.44                                               | 2.04                                               | 2.84                                               | 1.09               |
| 32                | 1 1/4 | 42.4  | 2.00          | 1.99   | 2.54               | 5.19                                               | 2.45                                               | 3.27                                               | 1.43               |
|                   |       |       | 2.50          | 2.46   | 3.13               | 6.26                                               | 2.95                                               | 3.99                                               | 1.41               |
|                   |       |       | 3.00          | 2.91   | 3.71               | 7.25                                               | 3.42                                               | 4.67                                               | 1.40               |
|                   |       |       | 4.00          | 3.79   | 4.83               | 8.99                                               | 4.24                                               | 5.92                                               | 1.36               |
| 40                | 1 1/2 | 48.3  | 2.00          | 2.28   | 2.91               | 7.81                                               | 3.23                                               | 4.29                                               | 1.64               |
|                   |       |       | 2.50          | 2.82   | 3.60               | 9.46                                               | 3.92                                               | 5.25                                               | 1.62               |
|                   |       |       | 3.00          | 3.35   | 4.27               | 11.0                                               | 4.55                                               | 6.17                                               | 1.61               |
|                   |       |       | 4.00          | 4.37   | 5.57               | 13.8                                               | 5.70                                               | 7.87                                               | 1.57               |
|                   |       |       | 5.00          | 5.34   | 6.80               | 16.2                                               | 6.69                                               | 9.42                                               | 1.54               |
| 50                | 2     | 60.3  | 2.00          | 2.88   | 3.66               | 15.6                                               | 5.17                                               | 6.80                                               | 2.06               |
|                   |       |       | 2.50          | 3.56   | 4.54               | 19.0                                               | 6.30                                               | 8.36                                               | 2.05               |
|                   |       |       | 3.00          | 4.24   | 5.40               | 22.2                                               | 7.37                                               | 9.86                                               | 2.03               |
|                   |       |       | 4.00          | 5.55   | 7.07               | 28.2                                               | 9.34                                               | 12.7                                               | 2.00               |
|                   |       |       | 5.00          | 6.82   | 8.69               | 33.5                                               | 11.1                                               | 15.3                                               | 1.96               |
| 65                | 2 1/2 | 76.1  | 2.00          | 3.65   | 4.66               | 32.0                                               | 8.40                                               | 11.0                                               | 2.62               |
|                   |       |       | 2.50          | 4.54   | 5.78               | 39.2                                               | 10.3                                               | 13.5                                               | 2.60               |
|                   |       |       | 3.00          | 5.41   | 6.89               | 46.1                                               | 12.1                                               | 16.0                                               | 2.59               |
|                   |       |       | 4.00          | 7.11   | 9.06               | 59.1                                               | 15.5                                               | 20.8                                               | 2.55               |
|                   |       |       | 5.00          | 8.77   | 11.2               | 70.9                                               | 18.6                                               | 25.3                                               | 2.52               |
|                   |       |       | 6.00          | 10.40  | 13.2               | 81.8                                               | 21.5                                               | 29.6                                               | 2.49               |
|                   |       |       | 6.30          | 10.80  | 13.8               | 84.8                                               | 22.3                                               | 30.8                                               | 2.48               |
| 80                | 3     | 88.9  | 2.00          | 4.29   | 5.46               | 51.6                                               | 11.6                                               | 15.1                                               | 3.07               |
|                   |       |       | 2.50          | 5.33   | 6.79               | 63.4                                               | 14.3                                               | 18.7                                               | 3.06               |
|                   |       |       | 3.00          | 6.36   | 8.10               | 74.8                                               | 16.8                                               | 22.1                                               | 3.04               |
|                   |       |       | 4.00          | 8.38   | 10.7               | 96.3                                               | 21.7                                               | 28.9                                               | 3.00               |
|                   |       |       | 5.00          | 10.30  | 13.2               | 116                                                | 26.2                                               | 35.2                                               | 2.97               |
|                   |       |       | 6.00          | 12.30  | 15.6               | 135                                                | 30.4                                               | 41.3                                               | 2.94               |
|                   |       |       | 6.30          | 12.80  | 16.3               | 140                                                | 31.5                                               | 43.1                                               | 2.93               |
| 90                | 3 1/2 | 101.6 | 2.00          | 4.91   | 6.26               | 77.6                                               | 15.3                                               | 19.8                                               | 3.52               |
|                   |       |       | 2.50          | 6.11   | 7.78               | 95.6                                               | 18.8                                               | 24.6                                               | 3.50               |
|                   |       |       | 3.00          | 7.29   | 9.29               | 113                                                | 22.3                                               | 29.2                                               | 3.49               |
|                   |       |       | 4.00          | 9.63   | 12.3               | 146                                                | 28.8                                               | 38.1                                               | 3.45               |
|                   |       |       | 5.00          | 11.90  | 15.2               | 177                                                | 34.9                                               | 46.7                                               | 3.42               |
|                   |       |       | 6.00          | 14.10  | 18.0               | 207                                                | 40.7                                               | 54.9                                               | 3.39               |
|                   |       |       | 6.30          | 14.80  | 18.9               | 215                                                | 42.3                                               | 57.3                                               | 3.38               |
| 100               | 4     | 114.3 | 2.50          | 6.89   | 8.78               | 137                                                | 24.0                                               | 31.3                                               | 3.95               |
|                   |       |       | 3.00          | 8.23   | 10.5               | 163                                                | 28.4                                               | 37.2                                               | 3.94               |
|                   |       |       | 4.00          | 10.90  | 13.9               | 211                                                | 36.9                                               | 48.7                                               | 3.90               |
|                   |       |       | 5.00          | 13.50  | 17.2               | 257                                                | 45.0                                               | 59.8                                               | 3.87               |



TIS 107-2566 Table ก.3  
(BS EN10219)  
Cold Formed Welded Structural  
Hollow Section

ท่อเหล็กกลม สำหรับงานโครงสร้าง

“Black Steel Pipe, Primer Coated Pipe and Pre-Galvanized Pipe”

|                    | Dimension Tolerances       |
|--------------------|----------------------------|
| Outside Diameter   | DN < 50 mm : ±0.5 mm       |
|                    | DN ≥ 50 mm : ±1%           |
| Thickness          | < 12 mm : +15% to - 12.5%  |
|                    | ≥ 12 mm : +15% to - 1.5 mm |
| Weight             | ±10%                       |
| Steel Pipe Surface | ● ● ●                      |

| Nominal Dimension |      | OD    | Thickness (t) | Weight | Cross Section Area | Geometrical Moment of Inertia   | Elastic Modulus of Section      | Plastic Modulus of Section      | Radius of Gyration |
|-------------------|------|-------|---------------|--------|--------------------|---------------------------------|---------------------------------|---------------------------------|--------------------|
|                   |      |       |               |        |                    | I <sub>x</sub> , I <sub>y</sub> | S <sub>x</sub> , S <sub>y</sub> | Z <sub>x</sub> , Z <sub>y</sub> |                    |
| mm                | inch | mm    | mm            | kg/m   | cm <sup>2</sup>    | cm <sup>4</sup>                 | cm <sup>3</sup>                 | cm <sup>3</sup>                 | cm                 |
| 100               | 4    | 114.3 | 6.00          | 16.00  | 20.4               | 300                             | 52.5                            | 70.4                            | 3.83               |
|                   |      |       | 6.30          | 16.80  | 21.4               | 313                             | 54.7                            | 73.6                            | 3.82               |
|                   |      |       | 8.00          | 21.00  | 26.7               | 379                             | 66.4                            | 90.6                            | 3.77               |
| 125               | 5    | 139.7 | 3.00          | 10.10  | 12.9               | 301                             | 43.1                            | 56.1                            | 4.83               |
|                   |      |       | 4.00          | 13.40  | 17.1               | 393                             | 56.2                            | 73.7                            | 4.80               |
|                   |      |       | 5.00          | 16.60  | 21.2               | 481                             | 68.8                            | 90.8                            | 4.77               |
|                   |      |       | 6.00          | 19.80  | 25.2               | 564                             | 80.8                            | 107                             | 4.73               |
|                   |      |       | 6.30          | 20.70  | 26.4               | 589                             | 84.3                            | 112                             | 4.72               |
|                   |      |       | 8.00          | 26.00  | 33.1               | 720                             | 103                             | 139                             | 4.66               |
|                   |      |       | 10.00         | 32.00  | 40.7               | 862                             | 123                             | 169                             | 4.60               |
| 150               | 6    | 168.3 | 3.00          | 12.20  | 15.6               | 532                             | 63.3                            | 82                              | 5.85               |
|                   |      |       | 4.00          | 16.20  | 20.6               | 697                             | 82.8                            | 108                             | 5.81               |
|                   |      |       | 5.00          | 20.10  | 25.7               | 856                             | 102                             | 133                             | 5.78               |
|                   |      |       | 6.00          | 24.00  | 30.6               | 1,009                           | 120                             | 158                             | 5.74               |
|                   |      |       | 6.30          | 25.20  | 32.1               | 1,053                           | 125                             | 165                             | 5.73               |
|                   |      |       | 8.00          | 31.60  | 40.3               | 1,297                           | 154                             | 206                             | 5.67               |
|                   |      |       | 10.00         | 39.00  | 49.7               | 1,564                           | 186                             | 251                             | 5.61               |
| 175               | 7    | 193.7 | 4.00          | 18.70  | 23.8               | 1,073                           | 111                             | 144                             | 6.71               |
|                   |      |       | 5.00          | 23.30  | 29.6               | 1,320                           | 136                             | 178                             | 6.67               |
|                   |      |       | 6.00          | 27.80  | 35.4               | 1,560                           | 161                             | 211                             | 6.64               |
|                   |      |       | 6.30          | 29.10  | 37.1               | 1,630                           | 168                             | 221                             | 6.63               |
|                   |      |       | 8.00          | 36.60  | 46.7               | 2,016                           | 208                             | 276                             | 6.57               |
|                   |      |       | 10.00         | 45.30  | 57.7               | 2,442                           | 252                             | 338                             | 6.50               |
|                   |      |       | 12.00         | 53.80  | 68.5               | 2,839                           | 293                             | 397                             | 6.44               |
| 200               | 8    | 219.1 | 12.50         | 55.90  | 71.2               | 2,934                           | 303                             | 411                             | 6.42               |
|                   |      |       | 4.00          | 21.20  | 27.0               | 1,564                           | 143                             | 185                             | 7.61               |
|                   |      |       | 5.00          | 26.40  | 33.6               | 1,928                           | 176                             | 229                             | 7.57               |
|                   |      |       | 6.00          | 31.50  | 40.2               | 2,282                           | 208                             | 273                             | 7.54               |
|                   |      |       | 6.30          | 33.10  | 42.1               | 2,386                           | 218                             | 285                             | 7.53               |
|                   |      |       | 8.00          | 41.60  | 53.1               | 2,960                           | 270                             | 357                             | 7.47               |
|                   |      |       | 10.00         | 51.60  | 65.7               | 3,598                           | 328                             | 438                             | 7.40               |
| 250               | 10   | 273.0 | 12.00         | 61.30  | 78.1               | 4,200                           | 383                             | 515                             | 7.33               |
|                   |      |       | 12.50         | 63.70  | 81.1               | 4,345                           | 397                             | 534                             | 7.32               |
|                   |      |       | 5.00          | 33.00  | 42.1               | 3,781                           | 277                             | 359                             | 9.48               |
|                   |      |       | 6.00          | 39.50  | 50.3               | 4,487                           | 329                             | 428                             | 9.44               |
|                   |      |       | 6.30          | 41.40  | 52.8               | 4,696                           | 344                             | 448                             | 9.43               |
|                   |      |       | 8.00          | 52.30  | 66.6               | 5,852                           | 429                             | 562                             | 9.37               |
|                   |      |       | 10.00         | 64.90  | 82.6               | 7,154                           | 524                             | 692                             | 9.31               |
| 300               | 12   | 323.9 | 12.00         | 77.20  | 98.4               | 8,396                           | 615                             | 818                             | 9.24               |
|                   |      |       | 12.50         | 80.30  | 102                | 8,697                           | 637                             | 849                             | 9.22               |
|                   |      |       | 5.00          | 39.30  | 50.1               | 6,369                           | 393                             | 509                             | 11.3               |
|                   |      |       | 6.00          | 47.00  | 59.9               | 7,572                           | 468                             | 606                             | 11.2               |
|                   |      |       | 6.30          | 49.30  | 62.9               | 7,929                           | 490                             | 636                             | 11.2               |
|                   |      |       | 8.00          | 62.30  | 79.4               | 9,910                           | 612                             | 799                             | 11.2               |
|                   |      |       | 10.00         | 77.40  | 98.6               | 12,160                          | 751                             | 986                             | 11.1               |
|                   |      |       | 12.00         | 92.30  | 118                | 14,320                          | 884                             | 1,168                           | 11.0               |
|                   |      |       | 12.50         | 96.00  | 122                | 14,850                          | 917                             | 1,213                           | 11.0               |



TIS 107-2566 Table ก.3  
(BS EN10219)  
Cold Formed Welded Structural  
Hollow Section

ท่อเหล็กกลม สำหรับงานโครงสร้าง

“Black Steel Pipe, Primer Coated Pipe and Pre-Galvanized Pipe”

|                    | Dimension Tolerances       |
|--------------------|----------------------------|
| Outside Diameter   | DN < 50 mm : ±0.5 mm       |
|                    | DN ≥ 50 mm : ±1%           |
| Thickness          | < 12 mm : +15% to - 12.5%  |
|                    | ≥ 12 mm : +15% to - 1.5 mm |
| Weight             | ±10%                       |
| Steel Pipe Surface | ● ● ●                      |

| Nominal Dimension |      | OD    | Thickness (t) | Weight | Cross Section Area | Geometrical Moment of Inertia   | Elastic Modulus of Section      | Plastic Modulus of Section      | Radius of Gyration |
|-------------------|------|-------|---------------|--------|--------------------|---------------------------------|---------------------------------|---------------------------------|--------------------|
|                   |      |       |               |        |                    | I <sub>x</sub> , I <sub>y</sub> | S <sub>x</sub> , S <sub>y</sub> | Z <sub>x</sub> , Z <sub>y</sub> |                    |
| mm                | inch | mm    | mm            | kg/m   | cm <sup>2</sup>    | cm <sup>4</sup>                 | cm <sup>3</sup>                 | cm <sup>3</sup>                 | cm                 |
| 350               | 14   | 355.6 | 5.00          | 43.20  | 55.1               | 8,464                           | 476                             | 615                             | 12.4               |
|                   |      |       | 6.00          | 51.70  | 65.9               | 10,070                          | 566                             | 733                             | 12.4               |
|                   |      |       | 6.30          | 54.30  | 69.1               | 10,550                          | 593                             | 769                             | 12.4               |
|                   |      |       | 8.00          | 68.60  | 87.4               | 13,200                          | 742                             | 967                             | 12.3               |
|                   |      |       | 10.00         | 85.20  | 109                | 16,220                          | 912                             | 1,195                           | 12.2               |
|                   |      |       | 12.00         | 102.00 | 130                | 19,140                          | 1,076                           | 1,417                           | 12.2               |
|                   |      |       | 12.50         | 106.00 | 135                | 19,850                          | 1,117                           | 1,472                           | 12.1               |
| 400               | 16   | 406.4 | 6.00          | 59.20  | 75.5               | 15,130                          | 745                             | 962                             | 14.2               |
|                   |      |       | 6.30          | 62.20  | 79.2               | 15,850                          | 780                             | 1,009                           | 14.1               |
|                   |      |       | 8.00          | 78.60  | 100                | 19,870                          | 978                             | 1,270                           | 14.1               |
|                   |      |       | 10.00         | 97.80  | 125                | 24,480                          | 1,205                           | 1,572                           | 14.0               |
|                   |      |       | 12.00         | 117.00 | 149                | 28,940                          | 1,424                           | 1,867                           | 14.0               |
|                   |      |       | 12.50         | 121.00 | 155                | 30,030                          | 1,478                           | 1,940                           | 13.9               |

TIS 107-2566 Table ข.1  
(JIS G3466)

Carbon Steel Square Tubes for  
General Structure

ท่อเหล็กรูปสี่เหลี่ยมจัตุรัส สำหรับงานโครงสร้าง

“Black Steel Pipe, Primer Coated Pipe and Pre-Galvanized Pipe”



| Dimension Tolerances |                        |
|----------------------|------------------------|
| Length of Side       | B,B ≤ 100 mm : ±1.5 mm |
|                      | B,B > 100 mm : ±1.5%   |
| Thickness            | ±10%                   |
| Weight               | ±10%                   |
| Steel Pipe Surface   | ● ● ●                  |

| Nominal Size<br>B x B | Thickness | Weight | Cross Sectional<br>Area | Geometrical<br>Moment of<br>Inertia                | Elastic Modulus<br>of Section                      | Plastic Modulus<br>of Section                      | Radius of<br>Gyration                 |
|-----------------------|-----------|--------|-------------------------|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|---------------------------------------|
|                       |           |        |                         | I <sub>x</sub> , I <sub>y</sub><br>cm <sup>4</sup> | S <sub>x</sub> , S <sub>y</sub><br>cm <sup>3</sup> | Z <sub>x</sub> , Z <sub>y</sub><br>cm <sup>3</sup> | r <sub>x</sub> , r <sub>y</sub><br>cm |
| mm                    | mm        | kg/m   | cm <sup>2</sup>         |                                                    |                                                    |                                                    |                                       |
| 12 x 12               | 1.00      | 0.33   | 0.414                   | 0.081                                              | 0.135                                              | 0.124                                              | 0.442                                 |
|                       | 1.20      | 0.38   | 0.481                   | 0.090                                              | 0.150                                              | 0.144                                              | 0.432                                 |
|                       | 1.40      | 0.43   | 0.543                   | 0.097                                              | 0.161                                              | 0.163                                              | 0.422                                 |
|                       | 1.50      | 0.45   | 0.572                   | 0.099                                              | 0.165                                              | 0.172                                              | 0.417                                 |
|                       | 1.60      | 0.47   | 0.600                   | 0.102                                              | 0.169                                              | 0.180                                              | 0.412                                 |
|                       | 1.80      | 0.51   | 0.651                   | 0.105                                              | 0.175                                              | 0.195                                              | 0.401                                 |
|                       | 2.00      | 0.55   | 0.697                   | 0.106                                              | 0.177                                              | 0.209                                              | 0.391                                 |
| 16 X 16               | 1.00      | 0.45   | 0.574                   | 0.210                                              | 0.263                                              | 0.230                                              | 0.605                                 |
|                       | 1.20      | 0.53   | 0.673                   | 0.239                                              | 0.298                                              | 0.269                                              | 0.595                                 |
|                       | 1.40      | 0.60   | 0.767                   | 0.263                                              | 0.329                                              | 0.307                                              | 0.586                                 |
|                       | 1.50      | 0.64   | 0.812                   | 0.274                                              | 0.342                                              | 0.325                                              | 0.581                                 |
|                       | 1.60      | 0.67   | 0.856                   | 0.284                                              | 0.354                                              | 0.342                                              | 0.576                                 |
|                       | 1.80      | 0.74   | 0.939                   | 0.300                                              | 0.375                                              | 0.376                                              | 0.566                                 |
|                       | 2.00      | 0.80   | 1.017                   | 0.314                                              | 0.392                                              | 0.407                                              | 0.556                                 |
| 19 x 19               | 1.00      | 0.54   | 0.694                   | 0.368                                              | 0.387                                              | 0.330                                              | 0.728                                 |
|                       | 1.20      | 0.64   | 0.817                   | 0.421                                              | 0.444                                              | 0.388                                              | 0.718                                 |
|                       | 1.40      | 0.73   | 0.935                   | 0.469                                              | 0.494                                              | 0.444                                              | 0.708                                 |
|                       | 1.50      | 0.78   | 0.992                   | 0.491                                              | 0.517                                              | 0.471                                              | 0.703                                 |
|                       | 1.60      | 0.82   | 1.048                   | 0.511                                              | 0.538                                              | 0.498                                              | 0.698                                 |
|                       | 1.80      | 0.91   | 1.155                   | 0.548                                              | 0.576                                              | 0.549                                              | 0.689                                 |
|                       | 2.00      | 0.99   | 1.257                   | 0.579                                              | 0.609                                              | 0.597                                              | 0.679                                 |
| 25 x 25               | 1.00      | 0.73   | 0.934                   | 0.884                                              | 0.707                                              | 0.584                                              | 0.973                                 |
|                       | 1.10      | 0.80   | 1.020                   | 0.956                                              | 0.765                                              | 0.638                                              | 0.968                                 |
|                       | 1.20      | 0.87   | 1.105                   | 1.03                                               | 0.820                                              | 0.691                                              | 0.963                                 |
|                       | 1.40      | 1.00   | 1.271                   | 1.16                                               | 0.924                                              | 0.794                                              | 0.953                                 |
|                       | 1.50      | 1.06   | 1.352                   | 1.22                                               | 0.973                                              | 0.845                                              | 0.949                                 |
|                       | 1.60      | 1.12   | 1.432                   | 1.28                                               | 1.02                                               | 0.895                                              | 0.944                                 |
|                       | 1.80      | 1.25   | 1.587                   | 1.38                                               | 1.11                                               | 0.992                                              | 0.934                                 |
|                       | 2.00      | 1.36   | 1.737                   | 1.48                                               | 1.19                                               | 1.09                                               | 0.924                                 |
|                       | 2.30      | 1.53   | 1.952                   | 1.61                                               | 1.29                                               | 1.22                                               | 0.909                                 |
|                       | 2.50      | 1.64   | 2.089                   | 1.69                                               | 1.35                                               | 1.31                                               | 0.899                                 |
|                       | 2.80      | 1.79   | 2.285                   | 1.79                                               | 1.43                                               | 1.43                                               | 0.884                                 |
|                       | 3.20      | 1.98   | 2.527                   | 1.89                                               | 1.51                                               | 1.58                                               | 0.864                                 |
| 32 x 32               | 1.00      | 0.95   | 1.214                   | 1.92                                               | 1.20                                               | 0.971                                              | 1.26                                  |
|                       | 1.10      | 1.04   | 1.328                   | 2.09                                               | 1.31                                               | 1.06                                               | 1.25                                  |
|                       | 1.20      | 1.13   | 1.441                   | 2.25                                               | 1.41                                               | 1.15                                               | 1.25                                  |
|                       | 1.40      | 1.31   | 1.663                   | 2.55                                               | 1.60                                               | 1.33                                               | 1.24                                  |
|                       | 1.50      | 1.39   | 1.772                   | 2.70                                               | 1.69                                               | 1.42                                               | 1.23                                  |
|                       | 1.60      | 1.48   | 1.880                   | 2.84                                               | 1.78                                               | 1.50                                               | 1.23                                  |
|                       | 1.80      | 1.64   | 2.091                   | 3.11                                               | 1.95                                               | 1.67                                               | 1.22                                  |
|                       | 2.00      | 1.80   | 2.297                   | 3.36                                               | 2.10                                               | 1.84                                               | 1.21                                  |
|                       | 2.30      | 2.04   | 2.596                   | 3.71                                               | 2.32                                               | 2.08                                               | 1.20                                  |
|                       | 2.50      | 2.19   | 2.789                   | 3.92                                               | 2.45                                               | 2.23                                               | 1.19                                  |
|                       | 2.80      | 2.41   | 3.069                   | 4.21                                               | 2.63                                               | 2.45                                               | 1.17                                  |
|                       | 3.20      | 2.69   | 3.423                   | 4.54                                               | 2.84                                               | 2.74                                               | 1.15                                  |
| 38 x 38               | 1.00      | 1.14   | 1.454                   | 3.29                                               | 1.73                                               | 1.38                                               | 1.50                                  |
|                       | 1.10      | 1.25   | 1.592                   | 3.58                                               | 1.88                                               | 1.51                                               | 1.50                                  |
|                       | 1.20      | 1.36   | 1.729                   | 3.86                                               | 2.03                                               | 1.64                                               | 1.49                                  |
|                       | 1.40      | 1.57   | 1.999                   | 4.41                                               | 2.32                                               | 1.90                                               | 1.48                                  |

TIS 107-2566 Table ข.1  
(JIS G3466)

Carbon Steel Square Tubes for  
General Structure

ท่อเหล็กรูปสี่เหลี่ยมจัตุรัส สำหรับงานโครงสร้าง

“Black Steel Pipe, Primer Coated Pipe and Pre-Galvanized Pipe”



| Dimension Tolerances |                        |
|----------------------|------------------------|
| Length of Side       | B,B ≤ 100 mm : ±1.5 mm |
|                      | B,B > 100 mm : ±1.5%   |
| Thickness            | ±10%                   |
| Weight               | ±10%                   |
| Steel Pipe Surface   | ● ● ●                  |

| Nominal Size<br>B x B | Thickness | Weight | Cross Sectional<br>Area | Geometrical<br>Moment of<br>Inertia                | Elastic Modulus<br>of Section                      | Plastic Modulus<br>of Section                      | Radius of<br>Gyration                 |
|-----------------------|-----------|--------|-------------------------|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|---------------------------------------|
|                       |           |        |                         | I <sub>x</sub> , I <sub>y</sub><br>cm <sup>4</sup> | S <sub>x</sub> , S <sub>y</sub><br>cm <sup>3</sup> | Z <sub>x</sub> , Z <sub>y</sub><br>cm <sup>3</sup> | r <sub>x</sub> , r <sub>y</sub><br>cm |
| mm                    | mm        | kg/m   | cm <sup>2</sup>         |                                                    |                                                    |                                                    |                                       |
| 38 x 38               | 1.50      | 1.67   | 2.132                   | 4.67                                               | 2.46                                               | 2.03                                               | 1.48                                  |
|                       | 1.60      | 1.78   | 2.264                   | 4.92                                               | 2.59                                               | 2.15                                               | 1.47                                  |
|                       | 1.80      | 1.98   | 2.523                   | 5.42                                               | 2.85                                               | 2.40                                               | 1.47                                  |
|                       | 2.00      | 2.18   | 2.777                   | 5.88                                               | 3.10                                               | 2.64                                               | 1.46                                  |
|                       | 2.30      | 2.47   | 3.148                   | 6.54                                               | 3.44                                               | 2.99                                               | 1.44                                  |
|                       | 2.50      | 2.66   | 3.389                   | 6.94                                               | 3.65                                               | 3.22                                               | 1.43                                  |
|                       | 2.80      | 2.94   | 3.741                   | 7.51                                               | 3.95                                               | 3.55                                               | 1.42                                  |
|                       | 3.20      | 3.29   | 4.191                   | 8.18                                               | 4.30                                               | 3.98                                               | 1.40                                  |
|                       | 1.00      | 1.20   | 1.534                   | 3.86                                               | 1.93                                               | 1.53                                               | 1.59                                  |
| 40 x 40               | 1.20      | 1.43   | 1.825                   | 4.53                                               | 2.27                                               | 1.83                                               | 1.58                                  |
|                       | 1.40      | 1.66   | 2.111                   | 5.18                                               | 2.59                                               | 2.11                                               | 1.57                                  |
|                       | 1.60      | 1.88   | 2.392                   | 5.79                                               | 2.90                                               | 2.39                                               | 1.56                                  |
|                       | 1.80      | 2.09   | 2.667                   | 6.38                                               | 3.19                                               | 2.67                                               | 1.55                                  |
|                       | 2.00      | 2.31   | 2.937                   | 6.94                                               | 3.47                                               | 2.94                                               | 1.54                                  |
|                       | 2.30      | 2.62   | 3.332                   | 7.73                                               | 3.86                                               | 3.33                                               | 1.52                                  |
|                       | 2.50      | 2.82   | 3.589                   | 8.22                                               | 4.11                                               | 3.59                                               | 1.51                                  |
|                       | 2.80      | 3.11   | 3.965                   | 8.90                                               | 4.45                                               | 3.96                                               | 1.50                                  |
|                       | 3.20      | 3.49   | 4.447                   | 9.72                                               | 4.86                                               | 4.45                                               | 1.48                                  |
| 50 x 50               | 1.00      | 1.52   | 1.934                   | 7.69                                               | 3.08                                               | 2.42                                               | 1.99                                  |
|                       | 1.10      | 1.66   | 2.120                   | 8.39                                               | 3.36                                               | 2.65                                               | 1.99                                  |
|                       | 1.20      | 1.81   | 2.305                   | 9.08                                               | 3.63                                               | 2.88                                               | 1.98                                  |
|                       | 1.40      | 2.10   | 2.671                   | 10.4                                               | 4.17                                               | 3.34                                               | 1.97                                  |
|                       | 1.50      | 2.24   | 2.852                   | 11.1                                               | 4.43                                               | 3.57                                               | 1.97                                  |
|                       | 1.60      | 2.38   | 3.032                   | 11.7                                               | 4.68                                               | 3.79                                               | 1.96                                  |
|                       | 1.80      | 2.66   | 3.387                   | 12.9                                               | 5.18                                               | 4.23                                               | 1.96                                  |
|                       | 2.00      | 2.93   | 3.737                   | 14.1                                               | 5.66                                               | 4.67                                               | 1.95                                  |
|                       | 2.30      | 3.34   | 4.252                   | 15.9                                               | 6.34                                               | 5.32                                               | 1.93                                  |
|                       | 2.50      | 3.60   | 4.589                   | 16.9                                               | 6.78                                               | 5.74                                               | 1.92                                  |
|                       | 2.80      | 3.99   | 5.085                   | 18.5                                               | 7.40                                               | 6.36                                               | 1.91                                  |
|                       | 3.20      | 4.50   | 5.727                   | 20.4                                               | 8.16                                               | 7.16                                               | 1.89                                  |
|                       | 4.00      | 5.45   | 6.948                   | 23.7                                               | 9.49                                               | 8.68                                               | 1.85                                  |
|                       | 4.50      | 6.02   | 7.669                   | 25.5                                               | 10.20                                              | 9.59                                               | 1.82                                  |
|                       | 5.00      | 6.56   | 8.356                   | 27.0                                               | 10.82                                              | 10.45                                              | 1.80                                  |
| 60 x 60               | 6.00      | 7.56   | 9.633                   | 29.5                                               | 11.78                                              | 12.04                                              | 1.75                                  |
|                       | 6.35      | 7.89   | 9.703                   | 28.0                                               | 11.18                                              | 12.13                                              | 1.70                                  |
|                       | 1.00      | 1.83   | 2.334                   | 13.47                                              | 4.49                                               | 3.50                                               | 2.40                                  |
|                       | 1.20      | 2.19   | 2.785                   | 15.94                                              | 5.31                                               | 4.18                                               | 2.39                                  |
|                       | 1.40      | 2.54   | 3.231                   | 18.35                                              | 6.12                                               | 4.85                                               | 2.38                                  |
|                       | 1.60      | 2.88   | 3.672                   | 20.68                                              | 6.89                                               | 5.51                                               | 2.37                                  |
|                       | 1.80      | 3.22   | 4.107                   | 22.95                                              | 7.65                                               | 6.16                                               | 2.36                                  |
|                       | 2.00      | 3.56   | 4.537                   | 25.14                                              | 8.38                                               | 6.81                                               | 2.35                                  |
|                       | 2.30      | 4.06   | 5.172                   | 28.31                                              | 9.44                                               | 7.76                                               | 2.34                                  |
|                       | 2.50      | 4.39   | 5.589                   | 30.34                                              | 10.11                                              | 8.38                                               | 2.33                                  |
|                       | 2.80      | 4.87   | 6.205                   | 33.27                                              | 11.09                                              | 9.31                                               | 2.32                                  |
|                       | 3.20      | 5.50   | 7.007                   | 36.94                                              | 12.31                                              | 10.51                                              | 2.30                                  |
|                       | 4.00      | 6.71   | 8.548                   | 43.55                                              | 14.52                                              | 12.82                                              | 2.26                                  |
|                       | 4.50      | 7.43   | 9.469                   | 47.20                                              | 15.73                                              | 14.20                                              | 2.23                                  |
|                       | 5.00      | 8.13   | 10.356                  | 50.49                                              | 16.83                                              | 15.53                                              | 2.21                                  |
|                       | 6.00      | 9.45   | 12.033                  | 56.07                                              | 18.69                                              | 18.05                                              | 2.16                                  |
|                       | 6.35      | 9.88   | 12.243                  | 54.59                                              | 18.20                                              | 18.36                                              | 2.11                                  |

TIS 107-2566 Table ข.1  
(JIS G3466)

Carbon Steel Square Tubes for  
General Structure

ท่อเหล็กรูปสี่เหลี่ยมจัตุรัส สำหรับงานโครงสร้าง

“Black Steel Pipe, Primer Coated Pipe and Pre-Galvanized Pipe”



| Dimension Tolerances |                        |
|----------------------|------------------------|
| Length of Side       | B,B ≤ 100 mm : ±1.5 mm |
|                      | B,B > 100 mm : ±1.5%   |
| Thickness            | ±10%                   |
| Weight               | ±10%                   |
| Steel Pipe Surface   | ● ● ●                  |

| Nominal Size<br>B x B | Thickness | Weight | Cross Sectional<br>Area | Geometrical<br>Moment of<br>Inertia                | Elastic Modulus<br>of Section                      | Plastic Modulus<br>of Section                      | Radius of<br>Gyration                 |
|-----------------------|-----------|--------|-------------------------|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|---------------------------------------|
|                       |           |        |                         | I <sub>x</sub> , I <sub>y</sub><br>cm <sup>4</sup> | S <sub>x</sub> , S <sub>y</sub><br>cm <sup>3</sup> | Z <sub>x</sub> , Z <sub>y</sub><br>cm <sup>3</sup> | r <sub>x</sub> , r <sub>y</sub><br>cm |
| mm                    | mm        | kg/m   | cm <sup>2</sup>         |                                                    |                                                    |                                                    |                                       |
| 65 x 65               | 1.00      | 1.99   | 2.534                   | 17.21                                              | 5.30                                               | 4.12                                               | 2.61                                  |
|                       | 1.20      | 2.37   | 3.025                   | 20.40                                              | 6.28                                               | 4.92                                               | 2.60                                  |
|                       | 1.40      | 2.76   | 3.511                   | 23.50                                              | 7.23                                               | 5.71                                               | 2.59                                  |
|                       | 1.60      | 3.13   | 3.992                   | 26.52                                              | 8.16                                               | 6.49                                               | 2.58                                  |
|                       | 1.80      | 3.51   | 4.467                   | 29.45                                              | 9.06                                               | 7.26                                               | 2.57                                  |
|                       | 2.00      | 3.88   | 4.937                   | 32.31                                              | 9.94                                               | 8.02                                               | 2.56                                  |
|                       | 2.30      | 4.42   | 5.632                   | 36.45                                              | 11.21                                              | 9.15                                               | 2.54                                  |
|                       | 2.50      | 4.78   | 6.089                   | 39.10                                              | 12.03                                              | 9.89                                               | 2.53                                  |
|                       | 2.80      | 5.31   | 6.765                   | 42.95                                              | 13.21                                              | 10.99                                              | 2.52                                  |
|                       | 3.20      | 6.00   | 7.647                   | 47.81                                              | 14.71                                              | 12.43                                              | 2.50                                  |
|                       | 4.00      | 7.34   | 9.348                   | 56.64                                              | 17.43                                              | 15.19                                              | 2.46                                  |
|                       | 4.50      | 8.14   | 10.369                  | 61.59                                              | 18.95                                              | 16.85                                              | 2.44                                  |
|                       | 5.00      | 8.91   | 11.356                  | 66.10                                              | 20.34                                              | 18.45                                              | 2.41                                  |
|                       | 6.00      | 10.39  | 13.233                  | 73.91                                              | 22.74                                              | 21.50                                              | 2.36                                  |
| 75 x 75               | 1.00      | 2.30   | 2.934                   | 26.66                                              | 7.11                                               | 5.50                                               | 3.01                                  |
|                       | 1.20      | 2.75   | 3.505                   | 31.65                                              | 8.44                                               | 6.57                                               | 3.00                                  |
|                       | 1.40      | 3.20   | 4.071                   | 36.52                                              | 9.74                                               | 7.63                                               | 3.00                                  |
|                       | 1.50      | 3.42   | 4.352                   | 38.92                                              | 10.38                                              | 8.16                                               | 2.99                                  |
|                       | 1.60      | 3.64   | 4.632                   | 41.29                                              | 11.01                                              | 8.68                                               | 2.99                                  |
|                       | 1.80      | 4.07   | 5.187                   | 45.94                                              | 12.25                                              | 9.73                                               | 2.98                                  |
|                       | 2.00      | 4.50   | 5.737                   | 50.49                                              | 13.46                                              | 10.76                                              | 2.97                                  |
|                       | 2.30      | 5.14   | 6.552                   | 57.10                                              | 15.23                                              | 12.29                                              | 2.95                                  |
|                       | 2.50      | 5.56   | 7.089                   | 61.38                                              | 16.37                                              | 13.29                                              | 2.94                                  |
|                       | 2.80      | 6.19   | 7.885                   | 67.60                                              | 18.03                                              | 14.78                                              | 2.93                                  |
|                       | 3.20      | 7.01   | 8.927                   | 75.53                                              | 20.14                                              | 16.74                                              | 2.91                                  |
|                       | 4.00      | 8.59   | 10.948                  | 90.19                                              | 24.05                                              | 20.53                                              | 2.87                                  |
|                       | 4.50      | 9.55   | 12.169                  | 98.55                                              | 26.28                                              | 22.82                                              | 2.85                                  |
|                       | 5.00      | 10.48  | 13.356                  | 106.33                                             | 28.35                                              | 25.04                                              | 2.82                                  |
| 80 x 80               | 6.00      | 12.27  | 15.633                  | 120.16                                             | 32.04                                              | 29.31                                              | 2.77                                  |
|                       | 6.35      | 12.87  | 16.053                  | 119.59                                             | 31.89                                              | 30.10                                              | 2.73                                  |
|                       | 1.00      | 2.46   | 3.134                   | 32.47                                              | 8.12                                               | 6.27                                               | 3.22                                  |
|                       | 1.05      | 2.58   | 3.288                   | 34.00                                              | 8.50                                               | 6.58                                               | 3.22                                  |
|                       | 1.20      | 2.94   | 3.745                   | 38.57                                              | 9.64                                               | 7.49                                               | 3.21                                  |
|                       | 1.40      | 3.42   | 4.351                   | 44.54                                              | 11.13                                              | 8.70                                               | 3.20                                  |
|                       | 1.60      | 3.89   | 4.952                   | 50.38                                              | 12.60                                              | 9.90                                               | 3.19                                  |
|                       | 1.80      | 4.35   | 5.547                   | 56.10                                              | 14.03                                              | 11.09                                              | 3.18                                  |
|                       | 2.00      | 4.82   | 6.137                   | 61.70                                              | 15.42                                              | 12.27                                              | 3.17                                  |
|                       | 2.30      | 5.50   | 7.012                   | 69.86                                              | 17.46                                              | 14.02                                              | 3.16                                  |
|                       | 2.50      | 5.96   | 7.589                   | 75.15                                              | 18.79                                              | 15.18                                              | 3.15                                  |
|                       | 2.80      | 6.63   | 8.445                   | 82.85                                              | 20.71                                              | 16.89                                              | 3.13                                  |
|                       | 3.20      | 7.51   | 9.567                   | 92.71                                              | 23.18                                              | 19.13                                              | 3.11                                  |
|                       | 4.00      | 9.22   | 11.748                  | 111.04                                             | 27.76                                              | 23.50                                              | 3.07                                  |
|                       | 4.50      | 10.26  | 13.069                  | 121.58                                             | 30.40                                              | 26.14                                              | 3.05                                  |
|                       | 5.00      | 11.27  | 14.356                  | 131.44                                             | 32.86                                              | 28.71                                              | 3.03                                  |
|                       | 6.00      | 13.21  | 16.833                  | 149.18                                             | 37.29                                              | 33.67                                              | 2.98                                  |
|                       | 6.35      | 13.87  | 17.323                  | 149.20                                             | 37.30                                              | 34.65                                              | 2.93                                  |
|                       | 6.50      | 14.15  | 17.659                  | 151.25                                             | 37.81                                              | 35.32                                              | 2.93                                  |
|                       | 7.00      | 15.06  | 18.758                  | 157.61                                             | 39.40                                              | 37.52                                              | 2.90                                  |

TIS 107-2566 Table ข.1  
(JIS G3466)

Carbon Steel Square Tubes for  
General Structure

ท่อเหล็กรูปสี่เหลี่ยมจัตุรัส สำหรับงานโครงสร้าง

“Black Steel Pipe, Primer Coated Pipe and Pre-Galvanized Pipe”



| Dimension Tolerances |                        |
|----------------------|------------------------|
| Length of Side       | B,B ≤ 100 mm : ±1.5 mm |
|                      | B,B > 100 mm : ±1.5%   |
| Thickness            | ±10%                   |
| Weight               | ±10%                   |
| Steel Pipe Surface   | ● ● ●                  |

| Nominal Size<br>B x B | Thickness | Weight | Cross Sectional<br>Area | Geometrical<br>Moment of<br>Inertia                | Elastic Modulus<br>of Section                      | Plastic Modulus<br>of Section                      | Radius of<br>Gyration                 |
|-----------------------|-----------|--------|-------------------------|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|---------------------------------------|
|                       |           |        |                         | I <sub>x</sub> , I <sub>y</sub><br>cm <sup>4</sup> | S <sub>x</sub> , S <sub>y</sub><br>cm <sup>3</sup> | Z <sub>x</sub> , Z <sub>y</sub><br>cm <sup>3</sup> | r <sub>x</sub> , r <sub>y</sub><br>cm |
| mm                    | mm        | kg/m   | cm <sup>2</sup>         |                                                    |                                                    |                                                    |                                       |
| 90 x 90               | 1.00      | 2.77   | 3.534                   | 46.49                                              | 10.33                                              | 7.95                                               | 3.63                                  |
|                       | 1.05      | 2.91   | 3.708                   | 48.70                                              | 10.82                                              | 8.34                                               | 3.62                                  |
|                       | 1.20      | 3.32   | 4.225                   | 55.29                                              | 12.29                                              | 9.51                                               | 3.62                                  |
|                       | 1.40      | 3.86   | 4.911                   | 63.92                                              | 14.20                                              | 11.05                                              | 3.61                                  |
|                       | 1.60      | 4.39   | 5.592                   | 72.39                                              | 16.09                                              | 12.58                                              | 3.60                                  |
|                       | 1.80      | 4.92   | 6.267                   | 80.71                                              | 17.93                                              | 14.10                                              | 3.59                                  |
|                       | 2.00      | 5.45   | 6.937                   | 88.86                                              | 19.75                                              | 15.61                                              | 3.58                                  |
|                       | 2.30      | 6.23   | 7.932                   | 100.79                                             | 22.40                                              | 17.85                                              | 3.56                                  |
|                       | 2.50      | 6.74   | 8.589                   | 108.55                                             | 24.12                                              | 19.33                                              | 3.56                                  |
|                       | 2.80      | 7.51   | 9.565                   | 119.91                                             | 26.65                                              | 21.52                                              | 3.54                                  |
|                       | 3.20      | 8.51   | 10.847                  | 134.51                                             | 29.89                                              | 24.41                                              | 3.52                                  |
|                       | 4.00      | 10.48  | 13.348                  | 161.92                                             | 35.98                                              | 30.03                                              | 3.48                                  |
|                       | 4.50      | 11.67  | 14.869                  | 177.87                                             | 39.53                                              | 33.45                                              | 3.46                                  |
|                       | 5.00      | 12.84  | 16.356                  | 192.93                                             | 42.87                                              | 36.80                                              | 3.43                                  |
| 100 x 100             | 6.00      | 15.10  | 19.233                  | 220.48                                             | 48.99                                              | 43.27                                              | 3.39                                  |
|                       | 6.35      | 15.86  | 19.863                  | 222.26                                             | 49.39                                              | 44.69                                              | 3.35                                  |
|                       | 6.50      | 16.19  | 20.259                  | 225.60                                             | 50.13                                              | 45.58                                              | 3.34                                  |
|                       | 7.00      | 17.25  | 21.558                  | 236.13                                             | 52.47                                              | 48.50                                              | 3.31                                  |
|                       | 1.60      | 4.89   | 6.232                   | 100.03                                             | 20.01                                              | 15.58                                              | 4.01                                  |
|                       | 1.80      | 5.48   | 6.987                   | 111.62                                             | 22.32                                              | 17.47                                              | 4.00                                  |
|                       | 2.00      | 6.07   | 7.737                   | 123.01                                             | 24.60                                              | 19.34                                              | 3.99                                  |
|                       | 2.30      | 6.95   | 8.852                   | 139.73                                             | 27.95                                              | 22.13                                              | 3.97                                  |
|                       | 2.50      | 7.53   | 9.589                   | 150.63                                             | 30.13                                              | 23.97                                              | 3.96                                  |
|                       | 2.80      | 8.39   | 10.685                  | 166.62                                             | 33.32                                              | 26.71                                              | 3.95                                  |
|                       | 3.20      | 9.52   | 12.127                  | 187.28                                             | 37.46                                              | 30.32                                              | 3.93                                  |
|                       | 4.00      | 11.73  | 14.948                  | 226.35                                             | 45.27                                              | 37.37                                              | 3.89                                  |
|                       | 4.50      | 13.08  | 16.669                  | 249.29                                             | 49.86                                              | 41.67                                              | 3.87                                  |
|                       | 5.00      | 14.41  | 18.356                  | 271.10                                             | 54.22                                              | 45.89                                              | 3.84                                  |
| 120 x 120             | 6.00      | 16.98  | 21.633                  | 311.47                                             | 62.29                                              | 54.08                                              | 3.79                                  |
|                       | 7.00      | 19.45  | 24.358                  | 337.04                                             | 67.41                                              | 60.89                                              | 3.72                                  |
|                       | 8.00      | 21.82  | 27.242                  | 365.94                                             | 73.19                                              | 68.11                                              | 3.67                                  |
|                       | 9.00      | 24.08  | 29.979                  | 390.56                                             | 78.11                                              | 74.95                                              | 3.61                                  |
|                       | 10.00     | 26.24  | 32.566                  | 411.08                                             | 82.22                                              | 81.42                                              | 3.55                                  |
|                       | 2.00      | 7.33   | 9.337                   | 215.47                                             | 35.91                                              | 28.01                                              | 4.80                                  |
|                       | 2.30      | 8.39   | 10.692                  | 245.28                                             | 40.88                                              | 32.08                                              | 4.79                                  |
|                       | 2.50      | 9.10   | 11.589                  | 264.79                                             | 44.13                                              | 34.77                                              | 4.78                                  |
|                       | 2.80      | 10.15  | 12.925                  | 293.54                                             | 48.92                                              | 38.77                                              | 4.77                                  |
|                       | 3.20      | 11.53  | 14.687                  | 330.88                                             | 55.15                                              | 44.06                                              | 4.75                                  |
|                       | 4.00      | 14.25  | 18.148                  | 402.28                                             | 67.05                                              | 54.44                                              | 4.71                                  |
|                       | 4.50      | 15.91  | 20.269                  | 444.70                                             | 74.12                                              | 60.81                                              | 4.68                                  |
|                       | 5.00      | 17.55  | 22.356                  | 485.47                                             | 80.91                                              | 67.07                                              | 4.66                                  |
|                       | 6.00      | 20.75  | 26.433                  | 562.16                                             | 93.69                                              | 79.30                                              | 4.61                                  |
| 125 x 125             | 7.00      | 23.85  | 29.958                  | 617.26                                             | 102.88                                             | 89.87                                              | 4.54                                  |
|                       | 8.00      | 26.84  | 33.642                  | 676.88                                             | 112.81                                             | 100.93                                             | 4.49                                  |
|                       | 9.00      | 29.73  | 37.179                  | 729.99                                             | 121.66                                             | 111.54                                             | 4.43                                  |
|                       | 10.00     | 32.52  | 40.566                  | 776.81                                             | 129.47                                             | 121.70                                             | 4.38                                  |
|                       | 2.00      | 7.64   | 9.737                   | 244.21                                             | 39.07                                              | 30.43                                              | 5.01                                  |
|                       | 2.30      | 8.75   | 11.152                  | 278.10                                             | 44.50                                              | 34.85                                              | 4.99                                  |
|                       | 2.50      | 9.49   | 12.089                  | 300.31                                             | 48.05                                              | 37.78                                              | 4.98                                  |



TIS 107-2566 Table ข.1  
(JIS G3466)

Carbon Steel Square Tubes for  
General Structure

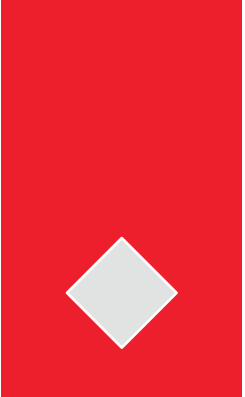
ท่อเหลี่ยมรูปสี่เหลี่ยมจัตุรัส สำหรับงานโครงสร้าง

“Black Steel Pipe, Primer Coated Pipe and Pre-Galvanized Pipe”



| Dimension Tolerances |                        |
|----------------------|------------------------|
| Length of Side       | B,B ≤ 100 mm : ±1.5 mm |
|                      | B,B > 100 mm : ±1.5%   |
| Thickness            | ±10%                   |
| Weight               | ±10%                   |
| Steel Pipe Surface   | ● ● ●                  |

| Nominal Size<br>B x B | Thickness | Weight | Cross Sectional<br>Area | Geometrical<br>Moment of<br>Inertia                | Elastic Modulus<br>of Section                      | Plastic Modulus<br>of Section                      | Radius of<br>Gyration                 |
|-----------------------|-----------|--------|-------------------------|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|---------------------------------------|
|                       |           |        |                         | I <sub>x</sub> , I <sub>y</sub><br>cm <sup>4</sup> | S <sub>x</sub> , S <sub>y</sub><br>cm <sup>3</sup> | Z <sub>x</sub> , Z <sub>y</sub><br>cm <sup>3</sup> | r <sub>x</sub> , r <sub>y</sub><br>cm |
| mm                    | mm        | kg/m   | cm <sup>2</sup>         |                                                    |                                                    |                                                    |                                       |
| 125 x 125             | 2.80      | 10.59  | 13.485                  | 333.05                                             | 53.29                                              | 42.14                                              | 4.97                                  |
|                       | 3.20      | 12.03  | 15.327                  | 375.64                                             | 60.10                                              | 47.90                                              | 4.95                                  |
|                       | 4.00      | 14.87  | 18.948                  | 457.23                                             | 73.16                                              | 59.21                                              | 4.91                                  |
|                       | 4.50      | 16.62  | 21.169                  | 505.83                                             | 80.93                                              | 66.15                                              | 4.89                                  |
|                       | 5.00      | 18.33  | 23.356                  | 552.62                                             | 88.42                                              | 72.99                                              | 4.86                                  |
|                       | 6.00      | 21.69  | 27.633                  | 640.89                                             | 102.54                                             | 86.35                                              | 4.82                                  |
|                       | 7.00      | 24.95  | 31.358                  | 705.69                                             | 112.91                                             | 97.99                                              | 4.74                                  |
|                       | 8.00      | 28.10  | 35.242                  | 775.32                                             | 124.05                                             | 110.13                                             | 4.69                                  |
|                       | 9.00      | 31.14  | 38.979                  | 837.82                                             | 134.05                                             | 121.81                                             | 4.64                                  |
|                       | 10.00     | 34.09  | 42.566                  | 893.42                                             | 142.95                                             | 133.02                                             | 4.58                                  |
| 150 x 150             | 2.50      | 11.45  | 14.589                  | 526.06                                             | 70.14                                              | 54.71                                              | 6.00                                  |
|                       | 2.80      | 12.78  | 16.285                  | 584.39                                             | 77.92                                              | 61.07                                              | 5.99                                  |
|                       | 3.20      | 14.54  | 18.527                  | 660.62                                             | 88.08                                              | 69.48                                              | 5.97                                  |
|                       | 4.00      | 18.01  | 22.948                  | 807.82                                             | 107.71                                             | 86.05                                              | 5.93                                  |
|                       | 4.50      | 20.15  | 25.669                  | 896.30                                             | 119.51                                             | 96.26                                              | 5.91                                  |
|                       | 5.00      | 22.26  | 28.356                  | 982.12                                             | 130.95                                             | 106.34                                             | 5.89                                  |
|                       | 6.00      | 26.40  | 33.633                  | 1,145.91                                           | 152.79                                             | 126.12                                             | 5.84                                  |
|                       | 7.00      | 30.44  | 38.358                  | 1,275.59                                           | 170.08                                             | 143.84                                             | 5.77                                  |
|                       | 8.00      | 34.38  | 43.242                  | 1,411.83                                           | 188.24                                             | 162.16                                             | 5.71                                  |
|                       | 9.00      | 38.21  | 47.979                  | 1,537.39                                           | 204.99                                             | 179.92                                             | 5.66                                  |
| 175 x 175             | 4.00      | 21.15  | 26.948                  | 1,303.12                                           | 148.93                                             | 117.90                                             | 6.95                                  |
|                       | 4.50      | 23.68  | 30.169                  | 1,448.83                                           | 165.58                                             | 131.99                                             | 6.93                                  |
|                       | 5.00      | 26.18  | 33.356                  | 1,590.86                                           | 181.81                                             | 145.93                                             | 6.91                                  |
|                       | 6.00      | 31.11  | 39.633                  | 1,864.03                                           | 213.03                                             | 173.39                                             | 6.86                                  |
|                       | 7.00      | 35.94  | 45.358                  | 2,090.47                                           | 238.91                                             | 198.44                                             | 6.79                                  |
|                       | 8.00      | 40.66  | 51.242                  | 2,325.48                                           | 265.77                                             | 224.19                                             | 6.74                                  |
|                       | 9.00      | 45.27  | 56.979                  | 2,545.52                                           | 290.92                                             | 249.28                                             | 6.68                                  |
|                       | 10.00     | 49.79  | 62.566                  | 2,750.91                                           | 314.39                                             | 273.73                                             | 6.63                                  |
|                       | 12.00     | 58.51  | 72.059                  | 3,020.15                                           | 345.16                                             | 315.26                                             | 6.47                                  |
| 200 x 200             | 4.00      | 24.29  | 30.948                  | 1,968.13                                           | 196.81                                             | 154.74                                             | 7.97                                  |
|                       | 4.50      | 27.21  | 34.669                  | 2,191.54                                           | 219.15                                             | 173.34                                             | 7.95                                  |
|                       | 5.00      | 30.11  | 38.356                  | 2,410.09                                           | 241.01                                             | 191.78                                             | 7.93                                  |
|                       | 6.00      | 35.82  | 45.633                  | 2,832.75                                           | 283.27                                             | 228.16                                             | 7.88                                  |
|                       | 7.00      | 41.43  | 52.358                  | 3,194.10                                           | 319.41                                             | 261.79                                             | 7.81                                  |
|                       | 8.00      | 46.94  | 59.242                  | 3,566.25                                           | 356.63                                             | 296.21                                             | 7.76                                  |
|                       | 9.00      | 52.34  | 65.979                  | 3,918.45                                           | 391.85                                             | 329.89                                             | 7.71                                  |
|                       | 10.00     | 57.64  | 72.566                  | 4,251.06                                           | 425.11                                             | 362.83                                             | 7.65                                  |
|                       | 12.00     | 67.93  | 84.059                  | 4,730.22                                           | 473.02                                             | 420.30                                             | 7.50                                  |
| 250 x 250             | 4.50      | 34.28  | 43.669                  | 4,360.02                                           | 348.80                                             | 272.93                                             | 9.99                                  |
|                       | 5.00      | 37.96  | 48.356                  | 4,805.01                                           | 384.40                                             | 302.23                                             | 9.97                                  |
|                       | 6.00      | 45.24  | 57.633                  | 5,672.00                                           | 453.76                                             | 360.21                                             | 9.92                                  |
|                       | 7.00      | 52.42  | 66.358                  | 6,442.58                                           | 515.41                                             | 414.73                                             | 9.85                                  |
|                       | 8.00      | 59.50  | 75.242                  | 7,229.20                                           | 578.34                                             | 470.27                                             | 9.80                                  |
|                       | 9.00      | 66.47  | 83.979                  | 7,983.75                                           | 638.70                                             | 524.87                                             | 9.75                                  |
|                       | 10.00     | 73.34  | 92.566                  | 8,706.67                                           | 696.53                                             | 578.54                                             | 9.70                                  |
|                       | 12.00     | 86.77  | 108.059                 | 9,859.42                                           | 788.75                                             | 675.37                                             | 9.55                                  |
|                       | 12.70     | 91.37  | 113.626                 | 10,279.76                                          | 822.38                                             | 710.16                                             | 9.51                                  |



TIS 107-2566 Table ข.1  
(JIS G3466)

Carbon Steel Square Tubes for  
General Structure

ท่อเหลี่ยมรูปสี่เหลี่ยมจัตุรัส สำหรับงานโครงสร้าง

“Black Steel Pipe, Primer Coated Pipe and Pre-Galvanized Pipe”



| Dimension Tolerances |                        |
|----------------------|------------------------|
| Length of Side       | B,B ≤ 100 mm : ±1.5 mm |
|                      | B,B > 100 mm : ±1.5%   |
| Thickness            | ±10%                   |
| Weight               | ±10%                   |
| Steel Pipe Surface   | ● ● ●                  |

| Nominal Size<br>B x B | Thickness | Weight | Cross Sectional<br>Area | Geometrical<br>Moment of<br>Inertia                | Elastic Modulus<br>of Section                      | Plastic Modulus<br>of Section                      | Radius of<br>Gyration                 |
|-----------------------|-----------|--------|-------------------------|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|---------------------------------------|
|                       |           |        |                         | I <sub>x</sub> , I <sub>y</sub><br>cm <sup>4</sup> | S <sub>x</sub> , S <sub>y</sub><br>cm <sup>3</sup> | Z <sub>x</sub> , Z <sub>y</sub><br>cm <sup>3</sup> | r <sub>x</sub> , r <sub>y</sub><br>cm |
| mm                    | mm        | kg/m   | cm <sup>2</sup>         |                                                    |                                                    |                                                    |                                       |
| 300 x 300             | 4.50      | 41.34  | 52.669                  | 7,626.73                                           | 508.45                                             | 395.01                                             | 12.03                                 |
|                       | 5.00      | 45.81  | 58.356                  | 8,416.88                                           | 561.13                                             | 437.67                                             | 12.01                                 |
|                       | 6.00      | 54.66  | 69.633                  | 9,963.67                                           | 664.24                                             | 522.25                                             | 11.96                                 |
|                       | 7.00      | 63.41  | 80.358                  | 11,371.04                                          | 758.07                                             | 602.68                                             | 11.90                                 |
|                       | 8.00      | 72.06  | 91.242                  | 12,800.69                                          | 853.38                                             | 684.32                                             | 11.84                                 |
|                       | 9.00      | 80.60  | 101.979                 | 14,183.28                                          | 945.55                                             | 764.84                                             | 11.79                                 |
|                       | 10.00     | 89.04  | 112.566                 | 15,519.37                                          | 1,034.62                                           | 844.25                                             | 11.74                                 |
|                       | 12.00     | 105.61 | 132.059                 | 17,767.35                                          | 1,184.49                                           | 990.45                                             | 11.60                                 |
|                       | 12.70     | 111.31 | 139.026                 | 18,577.03                                          | 1,238.47                                           | 1042.69                                            | 11.56                                 |

TIS 107-2566 Table ข.2  
(ASTM A500)

Square Hollow Section for  
Structural Purposes

ท่อเหลี่ยมรูปสี่เหลี่ยมจัตุรัส สำหรับงานโครงสร้าง

“Black Steel Pipe, Primer Coated Pipe and Pre-Galvanized Pipe”

| Dimension Tolerances |                        |
|----------------------|------------------------|
| Length of Side       | B,B ≤ 100 mm : ±1.5 mm |
|                      | B,B > 100 mm : ±1.5%   |
| Thickness            | ±10%                   |
| Weight               | ±10%                   |
| Steel Pipe Surface   | ● ● ●                  |



| Nominal Size<br>B x B            | Thickness | Weight | Cross Sectional<br>Area | Geometrical<br>Moment of<br>Inertia                | Elastic Modulus<br>of Section                      | Plastic Modulus<br>of Section                      | Radius of<br>Gyration                 |
|----------------------------------|-----------|--------|-------------------------|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|---------------------------------------|
|                                  |           |        |                         | I <sub>x</sub> , I <sub>y</sub><br>cm <sup>4</sup> | S <sub>x</sub> , S <sub>y</sub><br>cm <sup>3</sup> | Z <sub>x</sub> , Z <sub>y</sub><br>cm <sup>3</sup> | r <sub>x</sub> , r <sub>y</sub><br>cm |
| mm                               | mm        | kg/m   | cm <sup>2</sup>         |                                                    |                                                    |                                                    |                                       |
| 25.4 x 25.4<br>(1" x 1")         | 2.41      | 1.62   | 2.067                   | 1.75                                               | 1.38                                               | 1.31                                               | 0.920                                 |
|                                  | 3.38      | 2.10   | 2.683                   | 2.04                                               | 1.60                                               | 1.70                                               | 0.871                                 |
| 50.8 x 50.8<br>(2" x 2")         | 2.79      | 4.00   | 5.157                   | 19.4                                               | 7.64                                               | 6.55                                               | 1.94                                  |
|                                  | 3.18      | 4.52   | 5.797                   | 21.4                                               | 8.42                                               | 7.36                                               | 1.92                                  |
|                                  | 3.91      | 5.44   | 6.940                   | 24.7                                               | 9.71                                               | 8.81                                               | 1.89                                  |
|                                  | 4.78      | 6.41   | 8.211                   | 27.9                                               | 11.0                                               | 10.4                                               | 1.84                                  |
| 63.5 x 63.5<br>(2 1/2" x 2 1/2") | 3.58      | 6.43   | 8.250                   | 48.3                                               | 15.2                                               | 13.1                                               | 2.42                                  |
|                                  | 4.78      | 8.32   | 10.64                   | 59.4                                               | 18.7                                               | 16.9                                               | 2.36                                  |
|                                  | 6.35      | 10.56  | 13.13                   | 66.8                                               | 21.1                                               | 20.8                                               | 2.26                                  |
| 76.2 x 76.2<br>(3" x 3")         | 3.96      | 8.60   | 11.04                   | 94.2                                               | 24.7                                               | 21.0                                               | 2.92                                  |
|                                  | 4.78      | 10.21  | 13.07                   | 108                                                | 28.5                                               | 24.9                                               | 2.88                                  |
|                                  | 6.35      | 13.09  | 16.36                   | 126                                                | 33.2                                               | 31.2                                               | 2.78                                  |
| 88.9 x 88.9<br>(3 1/2" x 3 1/2") | 3.96      | 10.24  | 13.05                   | 154                                                | 34.7                                               | 29.0                                               | 3.44                                  |
|                                  | 4.78      | 12.11  | 15.50                   | 179                                                | 40.3                                               | 34.4                                               | 3.40                                  |
|                                  | 6.35      | 15.62  | 19.58                   | 213                                                | 48.0                                               | 43.5                                               | 3.30                                  |
|                                  | 7.92      | 18.88  | 23.50                   | 243                                                | 54.6                                               | 52.2                                               | 3.21                                  |
| 101.6 x 101.6<br>(4" x 4")       | 4.78      | 13.85  | 17.92                   | 275                                                | 54.2                                               | 45.5                                               | 3.92                                  |
|                                  | 6.35      | 17.89  | 22.81                   | 333                                                | 65.5                                               | 57.9                                               | 3.82                                  |
|                                  | 7.92      | 21.61  | 27.52                   | 384                                                | 75.6                                               | 69.9                                               | 3.74                                  |
|                                  | 9.52      | 25.06  | 31.95                   | 425                                                | 83.6                                               | 81.2                                               | 3.65                                  |
| 127.0 x 127.0<br>(5" x 5")       | 4.78      | 17.65  | 22.78                   | 560                                                | 88.1                                               | 72.3                                               | 4.96                                  |
|                                  | 6.35      | 22.94  | 29.26                   | 691                                                | 109                                                | 92.9                                               | 4.86                                  |
|                                  | 7.92      | 27.93  | 35.57                   | 812                                                | 128                                                | 113                                                | 4.78                                  |
|                                  | 9.52      | 32.65  | 41.62                   | 916                                                | 144                                                | 132                                                | 4.69                                  |
|                                  | 12.70     | 41.19  | 51.14                   | 1,010                                              | 159                                                | 162                                                | 4.45                                  |
| 152.4 x 152.4<br>(6" x 6")       | 4.78      | 21.44  | 27.64                   | 993                                                | 130                                                | 105                                                | 5.99                                  |
|                                  | 6.35      | 28.00  | 35.71                   | 1,240                                              | 163                                                | 136                                                | 5.90                                  |
|                                  | 7.92      | 34.25  | 43.62                   | 1,480                                              | 194                                                | 166                                                | 5.82                                  |
|                                  | 9.52      | 40.28  | 51.30                   | 1,680                                              | 221                                                | 195                                                | 5.73                                  |
| 177.8 x 177.8<br>(7" x 7")       | 4.78      | 25.07  | 32.49                   | 1,610                                              | 181                                                | 144                                                | 7.03                                  |
|                                  | 6.35      | 32.80  | 42.16                   | 2,030                                              | 228                                                | 187                                                | 6.94                                  |
|                                  | 7.92      | 39.16  | 51.66                   | 2,430                                              | 273                                                | 230                                                | 6.86                                  |
|                                  | 9.52      | 47.21  | 60.97                   | 2,800                                              | 314                                                | 271                                                | 6.77                                  |
| 203.2 x 203.2<br>(8" x 8")       | 6.35      | 37.85  | 48.62                   | 3,090                                              | 304                                                | 247                                                | 7.97                                  |
|                                  | 7.92      | 46.49  | 59.71                   | 3,720                                              | 366                                                | 303                                                | 7.89                                  |
|                                  | 9.52      | 54.80  | 70.64                   | 4,310                                              | 424                                                | 359                                                | 7.81                                  |
|                                  | 12.70     | 70.46  | 89.85                   | 5,180                                              | 510                                                | 456                                                | 7.59                                  |
| 254.0 x 254.0<br>(10" x 10")     | 6.35      | 47.96  | 61.52                   | 6,240                                              | 489                                                | 391                                                | 10.1                                  |
|                                  | 7.92      | 59.13  | 75.80                   | 7,530                                              | 593                                                | 481                                                | 9.97                                  |
|                                  | 9.52      | 69.98  | 89.99                   | 8,800                                              | 693                                                | 571                                                | 9.89                                  |
|                                  | 12.70     | 90.69  | 115.7                   | 10,800                                             | 853                                                | 735                                                | 9.68                                  |
| 304.8 x 304.8<br>(12" x 12")     | 12.70     | 113.66 | 141.5                   | 19,600                                             | 1,280                                              | 1,078                                              | 11.8                                  |

TIS 107-2566 Table ข.3  
(BS EN10219)

Cold Formed Welded Structural  
Hollow Section

ท่อเหลี่ยมรูปสี่เหลี่ยมจัตุรัส สำหรับงานโครงสร้าง

“Black Steel Pipe, Primer Coated Pipe and Pre-Galvanized Pipe”

| Dimension Tolerances |                        |
|----------------------|------------------------|
| Length of Side       | B,B ≤ 100 mm : ±1.5 mm |
|                      | B,B > 100 mm : ±1.5%   |
| Thickness            | ±10%                   |
| Weight               | ±10%                   |
| Steel Pipe Surface   | ● ● ●                  |



| Nominal Size<br>B x B | Thickness | Weight | Cross Sectional<br>Area | Geometrical<br>Moment of<br>Inertia                | Elastic Modulus<br>of Section                      | Plastic Modulus<br>of Section                      | Radius of<br>Gyration                 |
|-----------------------|-----------|--------|-------------------------|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|---------------------------------------|
|                       |           |        |                         | I <sub>x</sub> , I <sub>y</sub><br>cm <sup>4</sup> | S <sub>x</sub> , S <sub>y</sub><br>cm <sup>3</sup> | Z <sub>x</sub> , Z <sub>y</sub><br>cm <sup>3</sup> | r <sub>x</sub> , r <sub>y</sub><br>cm |
| mm                    | mm        | kg/m   | cm <sup>2</sup>         |                                                    |                                                    |                                                    |                                       |
| 20 x 20               | 2.00      | 1.05   | 1.34                    | 0.692                                              | 0.692                                              | 0.670                                              | 0.720                                 |
|                       | 2.00      | 1.36   | 1.74                    | 1.48                                               | 1.19                                               | 1.09                                               | 0.924                                 |
| 25 x 25               | 2.50      | 1.64   | 2.09                    | 1.69                                               | 1.35                                               | 1.31                                               | 0.899                                 |
|                       | 3.00      | 1.89   | 2.41                    | 1.84                                               | 1.47                                               | 1.51                                               | 0.874                                 |
| 30 x 30               | 2.00      | 1.68   | 2.14                    | 2.72                                               | 1.81                                               | 1.61                                               | 1.13                                  |
|                       | 2.50      | 2.03   | 2.59                    | 3.16                                               | 2.10                                               | 1.94                                               | 1.10                                  |
|                       | 3.00      | 2.36   | 3.01                    | 3.50                                               | 2.34                                               | 2.26                                               | 1.08                                  |
| 40 x 40               | 2.00      | 2.31   | 2.94                    | 6.94                                               | 3.47                                               | 2.94                                               | 1.54                                  |
|                       | 2.50      | 2.82   | 3.59                    | 8.22                                               | 4.11                                               | 3.59                                               | 1.51                                  |
|                       | 3.00      | 3.30   | 4.21                    | 9.32                                               | 4.66                                               | 4.21                                               | 1.49                                  |
| 50 x 50               | 4.00      | 4.20   | 5.35                    | 11.1                                               | 5.54                                               | 5.35                                               | 1.44                                  |
|                       | 2.00      | 2.93   | 3.74                    | 14.1                                               | 5.66                                               | 4.68                                               | 1.95                                  |
|                       | 2.50      | 3.60   | 4.59                    | 16.9                                               | 6.78                                               | 5.74                                               | 1.92                                  |
|                       | 3.00      | 4.25   | 5.41                    | 19.5                                               | 7.79                                               | 6.76                                               | 1.90                                  |
|                       | 4.00      | 5.45   | 6.95                    | 23.7                                               | 9.49                                               | 8.69                                               | 1.85                                  |
| 60 x 60               | 5.00      | 6.56   | 8.36                    | 27.0                                               | 10.8                                               | 10.5                                               | 1.80                                  |
|                       | 2.00      | 3.56   | 4.54                    | 25.1                                               | 8.38                                               | 6.81                                               | 2.35                                  |
|                       | 2.50      | 4.39   | 5.59                    | 30.3                                               | 10.1                                               | 8.39                                               | 2.33                                  |
|                       | 3.00      | 5.19   | 6.61                    | 35.1                                               | 11.7                                               | 9.92                                               | 2.31                                  |
|                       | 4.00      | 6.71   | 8.55                    | 43.6                                               | 14.5                                               | 12.8                                               | 2.26                                  |
|                       | 5.00      | 8.13   | 10.4                    | 50.5                                               | 16.8                                               | 15.6                                               | 2.21                                  |
| 80 x 80               | 6.00      | 9.45   | 12.0                    | 56.1                                               | 18.7                                               | 18.0                                               | 2.16                                  |
|                       | 6.30      | 9.55   | 12.2                    | 54.4                                               | 18.1                                               | 18.3                                               | 2.11                                  |
|                       | 3.00      | 7.07   | 9.01                    | 87.8                                               | 22.0                                               | 18.0                                               | 3.12                                  |
|                       | 4.00      | 9.22   | 11.7                    | 111                                                | 27.8                                               | 23.4                                               | 3.07                                  |
|                       | 5.00      | 11.30  | 14.4                    | 131                                                | 32.9                                               | 28.8                                               | 3.03                                  |
| 90 x 90               | 6.00      | 13.20  | 16.8                    | 149                                                | 37.3                                               | 33.6                                               | 2.98                                  |
|                       | 6.30      | 13.50  | 17.2                    | 149                                                | 37.1                                               | 34.4                                               | 2.94                                  |
|                       | 8.00      | 16.40  | 20.8                    | 168                                                | 42.1                                               | 41.6                                               | 2.84                                  |
|                       | 3.00      | 8.01   | 10.2                    | 127                                                | 28.3                                               | 23.0                                               | 3.53                                  |
|                       | 4.00      | 10.50  | 13.3                    | 162                                                | 36.0                                               | 29.9                                               | 3.48                                  |
| 100 x 100             | 5.00      | 12.80  | 16.4                    | 193                                                | 42.9                                               | 36.9                                               | 3.43                                  |
|                       | 6.00      | 15.10  | 19.2                    | 220                                                | 49.0                                               | 43.2                                               | 3.39                                  |
|                       | 6.30      | 15.50  | 19.7                    | 221                                                | 49.1                                               | 44.3                                               | 3.35                                  |
|                       | 3.00      | 8.96   | 11.4                    | 177                                                | 35.4                                               | 28.5                                               | 3.94                                  |
|                       | 4.00      | 11.70  | 14.9                    | 226                                                | 45.3                                               | 37.3                                               | 3.89                                  |
| 120 x 120             | 5.00      | 14.40  | 18.4                    | 271                                                | 54.2                                               | 46.0                                               | 3.84                                  |
|                       | 6.00      | 17.00  | 21.6                    | 311                                                | 65.3                                               | 54.0                                               | 3.79                                  |
|                       | 6.30      | 17.50  | 22.2                    | 314                                                | 62.8                                               | 55.5                                               | 3.76                                  |
|                       | 8.00      | 21.40  | 27.2                    | 366                                                | 73.2                                               | 68.0                                               | 3.67                                  |
|                       | 10.00     | 25.60  | 32.6                    | 411                                                | 82.2                                               | 81.5                                               | 3.55                                  |
|                       | 3.00      | 10.80  | 13.8                    | 312                                                | 52.1                                               | 41.4                                               | 4.76                                  |
| 120 x 120             | 4.00      | 14.20  | 18.1                    | 402                                                | 67.0                                               | 54.3                                               | 4.71                                  |
|                       | 5.00      | 17.50  | 22.4                    | 485                                                | 80.9                                               | 67.2                                               | 4.66                                  |
|                       | 6.00      | 20.70  | 26.4                    | 562                                                | 93.7                                               | 79.2                                               | 4.61                                  |
|                       | 6.30      | 21.40  | 27.3                    | 572                                                | 95.3                                               | 81.9                                               | 4.58                                  |
|                       | 8.00      | 26.40  | 33.6                    | 677                                                | 113                                                | 101                                                | 4.49                                  |
|                       | 10.00     | 31.80  | 40.6                    | 777                                                | 129                                                | 122                                                | 4.38                                  |

Cold Formed Welded Structural Hollow Section

ท่อเหล็กรูปสี่เหลี่ยมจัตุรัส สำหรับงานโครงสร้าง

“Black Steel Pipe, Primer Coated Pipe and Pre-Galvanized Pipe”



| Dimension Tolerances |                        |
|----------------------|------------------------|
| Length of Side       | B,B ≤ 100 mm : ±1.5 mm |
|                      | B,B > 100 mm : ±1.5%   |
| Thickness            | ±10%                   |
| Weight               | ±10%                   |
| Steel Pipe Surface   | ● ● ●                  |

| Nominal Size<br>B x B | Thickness | Weight | Cross Sectional<br>Area | Geometrical<br>Moment of<br>Inertia                | Elastic Modulus<br>of Section                      | Plastic Modulus<br>of Section                      | Radius of<br>Gyratation               |
|-----------------------|-----------|--------|-------------------------|----------------------------------------------------|----------------------------------------------------|----------------------------------------------------|---------------------------------------|
|                       |           |        |                         | I <sub>x</sub> , I <sub>y</sub><br>cm <sup>4</sup> | S <sub>x</sub> , S <sub>y</sub><br>cm <sup>3</sup> | Z <sub>x</sub> , Z <sub>y</sub><br>cm <sup>3</sup> | r <sub>x</sub> , r <sub>y</sub><br>cm |
| mm                    | mm        | kg/m   | cm <sup>2</sup>         |                                                    |                                                    |                                                    |                                       |
| 150 x 150             | 4.00      | 18.00  | 22.9                    | 808                                                | 108                                                | 85.9                                               | 5.93                                  |
|                       | 5.00      | 22.30  | 28.4                    | 982                                                | 131                                                | 107                                                | 5.89                                  |
|                       | 6.00      | 26.40  | 33.6                    | 1,146                                              | 153                                                | 126                                                | 5.84                                  |
|                       | 6.30      | 27.40  | 34.8                    | 1,174                                              | 156                                                | 131                                                | 5.80                                  |
|                       | 8.00      | 33.90  | 43.2                    | 1,412                                              | 188                                                | 162                                                | 5.71                                  |
|                       | 10.00     | 41.30  | 52.6                    | 1,653                                              | 220                                                | 197                                                | 5.61                                  |
| 200 x 200             | 4.00      | 24.30  | 30.9                    | 1,968                                              | 197                                                | 155                                                | 7.97                                  |
|                       | 5.00      | 30.10  | 38.4                    | 2,410                                              | 241                                                | 192                                                | 7.93                                  |
|                       | 6.00      | 35.80  | 45.6                    | 2,833                                              | 283                                                | 228                                                | 7.88                                  |
|                       | 6.30      | 37.20  | 47.4                    | 2,922                                              | 292                                                | 237                                                | 7.85                                  |
|                       | 8.00      | 46.50  | 59.2                    | 3,566                                              | 357                                                | 296                                                | 7.76                                  |
|                       | 10.00     | 57.00  | 72.6                    | 4,251                                              | 425                                                | 363                                                | 7.65                                  |
| 250 x 250             | 12.00     | 66.00  | 84.1                    | 4,730                                              | 473                                                | 421                                                | 7.50                                  |
|                       | 12.50     | 68.30  | 87.0                    | 4,859                                              | 486                                                | 435                                                | 7.47                                  |
|                       | 5.00      | 38.00  | 48.4                    | 4,805                                              | 384                                                | 303                                                | 9.97                                  |
|                       | 6.00      | 45.20  | 57.6                    | 5,672                                              | 454                                                | 360                                                | 9.92                                  |
|                       | 6.30      | 47.10  | 60.0                    | 5,873                                              | 470                                                | 375                                                | 9.89                                  |
|                       | 8.00      | 59.10  | 75.2                    | 7,229                                              | 578                                                | 470                                                | 9.80                                  |
| 300 x 300             | 10.00     | 72.70  | 92.6                    | 8,707                                              | 697                                                | 579                                                | 9.70                                  |
|                       | 12.00     | 84.80  | 108                     | 9,859                                              | 789                                                | 675                                                | 9.55                                  |
|                       | 12.50     | 88.00  | 112                     | 10,160                                             | 813                                                | 700                                                | 9.52                                  |
|                       | 6.00      | 54.70  | 69.6                    | 9,964                                              | 664                                                | 522                                                | 12.0                                  |
|                       | 6.30      | 57.00  | 72.6                    | 10,340                                             | 689                                                | 545                                                | 11.9                                  |
|                       | 8.00      | 71.60  | 91.2                    | 12,800                                             | 853                                                | 684                                                | 11.8                                  |
|                       | 10.00     | 88.40  | 113                     | 15,520                                             | 1,035                                              | 848                                                | 11.7                                  |
|                       | 12.00     | 104.00 | 132                     | 17,770                                             | 1,184                                              | 990                                                | 11.6                                  |
|                       | 12.50     | 108.00 | 137                     | 18,350                                             | 1,223                                              | 1,028                                              | 11.6                                  |

Carbon Steel Square Tubes for General Structural

ท่อเหล็กรูปสี่เหลี่ยมผืนผ้า สำหรับงานโครงสร้าง

“Black Steel Pipe, Primer Coated Pipe and Pre-Galvanized Pipe”



| Dimension Tolerances |                        |
|----------------------|------------------------|
| Length of Side       | H,B ≤ 100 mm : ±1.5 mm |
|                      | H,B > 100 mm : ±1.5%   |
| Thickness            | ±10%                   |
| Weight               | ±10%                   |
| Steel Pipe Surface   | ● ● ●                  |

| Nominal Size<br>H x B | Thickness<br>(t) | Weight | Cross<br>Sectional<br>Area | Geometrical Moment of<br>Inertia  |                                   | Elastic Modulus of<br>Section     |                                   | Plastic Modulus of<br>Section     |                                   | Radius of<br>Gyratation |                      |
|-----------------------|------------------|--------|----------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-------------------------|----------------------|
|                       |                  |        |                            | I <sub>x</sub><br>cm <sup>4</sup> | I <sub>y</sub><br>cm <sup>4</sup> | S <sub>x</sub><br>cm <sup>3</sup> | S <sub>y</sub><br>cm <sup>3</sup> | Z <sub>x</sub><br>cm <sup>3</sup> | Z <sub>y</sub><br>cm <sup>3</sup> | r <sub>x</sub><br>cm    | r <sub>y</sub><br>cm |
| mm.                   | mm               | kg/m   | cm <sup>2</sup>            |                                   |                                   |                                   |                                   |                                   |                                   |                         |                      |
| 38 x 19               | 1.00             | 0.84   | 1.074                      | 1.99                              | 0.676                             | 1.05                              | 0.711                             | 1.02                              | 0.510                             | 1.36                    | 0.793                |
|                       | 1.20             | 1.00   | 1.273                      | 2.32                              | 0.783                             | 1.22                              | 0.824                             | 1.21                              | 0.605                             | 1.35                    | 0.784                |
|                       | 1.40             | 1.15   | 1.467                      | 2.62                              | 0.882                             | 1.38                              | 0.928                             | 1.39                              | 0.697                             | 1.34                    | 0.775                |
|                       | 1.60             | 1.30   | 1.656                      | 2.91                              | 0.973                             | 1.53                              | 1.02                              | 1.57                              | 0.786                             | 1.33                    | 0.766                |
|                       | 1.80             | 1.44   | 1.839                      | 3.17                              | 1.06                              | 1.67                              | 1.11                              | 1.75                              | 0.874                             | 1.31                    | 0.758                |
|                       | 2.00             | 1.58   | 2.017                      | 3.42                              | 1.13                              | 1.80                              | 1.19                              | 1.92                              | 0.958                             | 1.30                    | 0.749                |
|                       | 2.30             | 1.79   | 2.274                      | 3.75                              | 1.23                              | 1.97                              | 1.29                              | 2.16                              | 1.08                              | 1.28                    | 0.735                |
|                       | 2.50             | 1.92   | 2.439                      | 3.94                              | 1.29                              | 2.08                              | 1.36                              | 2.32                              | 1.16                              | 1.27                    | 0.726                |
|                       | 2.80             | 2.10   | 2.677                      | 4.20                              | 1.36                              | 2.21                              | 1.43                              | 2.54                              | 1.27                              | 1.25                    | 0.713                |
|                       | 3.20             | 2.34   | 2.975                      | 4.49                              | 1.44                              | 2.36                              | 1.52                              | 2.83                              | 1.41                              | 1.23                    | 0.695                |
| 40 x 20               | 1.00             | 0.89   | 1.134                      | 2.34                              | 0.795                             | 1.17                              | 0.795                             | 1.13                              | 0.567                             | 1.44                    | 0.837                |
|                       | 1.20             | 1.06   | 1.345                      | 2.73                              | 0.923                             | 1.36                              | 0.923                             | 1.35                              | 0.673                             | 1.42                    | 0.828                |
|                       | 1.40             | 1.22   | 1.551                      | 3.09                              | 1.04                              | 1.55                              | 1.04                              | 1.55                              | 0.776                             | 1.41                    | 0.819                |
|                       | 1.60             | 1.38   | 1.752                      | 3.43                              | 1.15                              | 1.72                              | 1.15                              | 1.75                              | 0.876                             | 1.40                    | 0.811                |
|                       | 1.80             | 1.53   | 1.947                      | 3.75                              | 1.25                              | 1.88                              | 1.25                              | 1.95                              | 0.973                             | 1.39                    | 0.802                |
|                       | 2.00             | 1.68   | 2.137                      | 4.05                              | 1.34                              | 2.03                              | 1.34                              | 2.14                              | 1.07                              | 1.38                    | 0.793                |
|                       | 2.30             | 1.89   | 2.412                      | 4.45                              | 1.47                              | 2.23                              | 1.47                              | 2.41                              | 1.21                              | 1.36                    | 0.779                |
|                       | 2.50             | 2.03   | 2.589                      | 4.69                              | 1.54                              | 2.35                              | 1.54                              | 2.59                              | 1.30                              | 1.35                    | 0.770                |
|                       | 2.80             | 2.23   | 2.845                      | 5.02                              | 1.63                              | 2.51                              | 1.63                              | 2.85                              | 1.42                              | 1.33                    | 0.757                |
|                       | 3.20             | 2.49   | 3.167                      | 5.38                              | 1.73                              | 2.69                              | 1.73                              | 3.17                              | 1.58                              | 1.30                    | 0.740                |
| 50 x 20               | 3.50             | 2.67   | 3.395                      | 5.60                              | 1.79                              | 2.80                              | 1.79                              | 3.40                              | 1.70                              | 1.28                    | 0.726                |
|                       | 1.00             | 1.05   | 1.334                      | 4.09                              | 0.976                             | 1.63                              | 0.976                             | 1.67                              | 0.667                             | 1.75                    | 0.855                |
|                       | 1.20             | 1.24   | 1.585                      | 4.79                              | 1.14                              | 1.92                              | 1.14                              | 1.98                              | 0.793                             | 1.74                    | 0.846                |
|                       | 1.40             | 1.44   | 1.831                      | 5.45                              | 1.28                              | 2.18                              | 1.28                              | 2.29                              | 0.916                             | 1.73                    | 0.837                |
|                       | 1.60             | 1.63   | 2.072                      | 6.08                              | 1.42                              | 2.43                              | 1.42                              | 2.59                              | 1.04                              | 1.71                    | 0.829                |
|                       | 1.80             | 1.81   | 2.307                      | 6.67                              | 1.55                              | 2.67                              | 1.55                              | 2.88                              | 1.15                              | 1.70                    | 0.820                |
|                       | 2.00             | 1.99   | 2.537                      | 7.23                              | 1.67                              | 2.89                              | 1.67                              | 3.17                              | 1.27                              | 1.69                    | 0.811                |
|                       | 2.30             | 2.26   | 2.872                      | 8.00                              | 1.83                              | 3.20                              | 1.83                              | 3.59                              | 1.44                              | 1.67                    | 0.798                |
|                       | 2.50             | 2.43   | 3.089                      | 8.48                              | 1.92                              | 3.39                              | 1.92                              | 3.86                              | 1.55                              | 1.66                    | 0.789                |
|                       | 2.80             | 2.67   | 3.405                      | 9.12                              | 2.05                              | 3.65                              | 2.05                              | 4.26                              | 1.70                              | 1.64                    | 0.776                |
| 50 x 25               | 3.20             | 2.99   | 3.807                      | 9.87                              | 2.19                              | 3.95                              | 2.19                              | 4.76                              | 1.90                              | 1.61                    | 0.758                |
|                       | 3.50             | 3.21   | 4.095                      | 10.4                              | 2.27                              | 4.14                              | 2.27                              | 5.12                              | 2.05                              | 1.59                    | 0.745                |
|                       | 1.00             | 1.13   | 1.434                      | 4.69                              | 1.61                              | 1.88                              | 1.28                              | 1.79                              | 0.896                             | 1.81                    | 1.06                 |
|                       | 1.10             | 1.23   | 1.570                      | 5.10                              | 1.74                              | 2.04                              | 1.39                              | 1.96                              | 0.982                             | 1.80                    | 1.05                 |
|                       | 1.20             | 1.34   | 1.705                      | 5.50                              | 1.88                              | 2.20                              | 1.50                              | 2.13                              | 1.07                              | 1.80                    | 1.05                 |
|                       | 1.40             | 1.55   | 1.971                      | 6.28                              | 2.13                              | 2.51                              | 1.71                              | 2.46                              | 1.23                              | 1.79                    | 1.04                 |
|                       | 1.50             | 1.65   | 2.102                      | 6.65                              | 2.25                              | 2.66                              | 1.80                              | 2.63                              | 1.31                              | 1.78                    | 1.04                 |
|                       | 1.60             | 1.75   | 2.232                      | 7.02                              | 2.37                              | 2.81                              | 1.90                              | 2.79                              | 1.40                              | 1.77                    | 1.03                 |
|                       | 1.80             | 1.95   | 2.487                      | 7.72                              | 2.60                              | 3.09                              | 2.08                              | 3.11                              | 1.55                              | 1.76                    | 1.02                 |
|                       | 2.00             | 2.15   | 2.737                      | 8.38                              | 2.81                              | 3.35                              | 2.25                              | 3.42                              | 1.71                              | 1.75                    | 1.01                 |
| 60 x 30               | 2.30             | 2.44   | 3.102                      | 9.31                              | 3.10                              | 3.73                              | 2.48                              | 3.88                              | 1.94                              | 1.73                    | 1.00                 |
|                       | 2.50             | 2.62   | 3.339                      | 9.89                              | 3.28                              | 3.96                              | 2.62                              | 4.17                              | 2.09                              | 1.72                    | 0.99                 |
|                       | 2.80             | 2.89   | 3.685                      | 10.7                              | 3.52                              | 4.27                              | 2.82                              | 4.61                              | 2.30                              | 1.70                    | 0.98                 |
|                       | 3.20             | 3.24   | 4.127                      | 11.6                              | 3.80                              | 4.65                              | 3.04                              | 5.16                              | 2.58                              | 1.68                    | 0.96                 |
|                       | 3.50             | 3.49   | 4.445                      | 12.3                              | 3.98                              | 4.90                              | 3.19                              | 5.56                              | 2.78                              | 1.66                    | 0.95                 |
|                       | 1.00             | 1.36   | 1.734                      | 8.25                              | 2.83                              | 2.75                              | 1.89                              | 2.60                              | 1.30                              | 2.18                    | 1.28                 |
|                       | 1.20             | 1.62   | 2.065                      | 9.72                              | 3.33                              | 3.24                              | 2.22                              | 3.10                              | 1.55                              | 2.17                    | 1.27                 |
|                       | 1.40             | 1.88   | 2.391                      | 11.1                              | 3.80                              | 3.71                              | 2.53                              | 3.59                              | 1.79                              | 2.16                    | 1.26                 |

TIS 107-2566 Table ค.1

(JIS G3466)

Carbon Steel Square Tubes for  
General Structural

ท่อเหล็กรูปสี่เหลี่ยมผืนผ้า สำหรับงานโครงสร้าง

“Black Steel Pipe, Primer Coated Pipe and Pre-Galvanized Pipe”



| Dimension Tolerances |                        |
|----------------------|------------------------|
| Length of Side       | H,B ≤ 100 mm : ±1.5 mm |
|                      | H,B > 100 mm : ±1.5%   |
| Thickness            | ±10%                   |
| Weight               | ±10%                   |
| Steel Pipe Surface   | ● ● ●                  |

| Nominal Size<br>H x B | Thickness<br>(t) | Weight | Cross<br>Sectional<br>Area | Geometrical Moment of<br>Inertia |                 | Elastic Modulus of<br>Section |                 | Plastic Modulus of<br>Section |                 | Radius of<br>Gyration |                |
|-----------------------|------------------|--------|----------------------------|----------------------------------|-----------------|-------------------------------|-----------------|-------------------------------|-----------------|-----------------------|----------------|
|                       |                  |        |                            | I <sub>x</sub>                   | I <sub>y</sub>  | S <sub>x</sub>                | S <sub>y</sub>  | Z <sub>x</sub>                | Z <sub>y</sub>  | r <sub>x</sub>        | r <sub>y</sub> |
| mm.                   | mm               | kg/m   | cm <sup>2</sup>            | cm <sup>4</sup>                  | cm <sup>4</sup> | cm <sup>3</sup>               | cm <sup>3</sup> | cm <sup>3</sup>               | cm <sup>3</sup> | cm                    | cm             |
| 60 x 30               | 1.60             | 2.13   | 2.712                      | 12.5                             | 4.25            | 4.16                          | 2.83            | 4.07                          | 2.03            | 2.15                  | 1.25           |
|                       | 1.80             | 2.38   | 3.027                      | 13.8                             | 4.67            | 4.60                          | 3.12            | 4.54                          | 2.27            | 2.14                  | 1.24           |
|                       | 2.00             | 2.62   | 3.337                      | 15.1                             | 5.08            | 5.02                          | 3.39            | 5.01                          | 2.50            | 2.12                  | 1.23           |
|                       | 2.30             | 2.98   | 3.792                      | 16.8                             | 5.65            | 5.61                          | 3.76            | 5.69                          | 2.84            | 2.11                  | 1.22           |
|                       | 2.50             | 3.21   | 4.089                      | 17.9                             | 6.00            | 5.98                          | 4.00            | 6.13                          | 3.07            | 2.09                  | 1.21           |
|                       | 2.80             | 3.55   | 4.525                      | 19.5                             | 6.49            | 6.50                          | 4.33            | 6.79                          | 3.39            | 2.08                  | 1.20           |
|                       | 3.20             | 3.99   | 5.087                      | 21.4                             | 7.09            | 7.15                          | 4.72            | 7.63                          | 3.82            | 2.05                  | 1.18           |
| 60 x 40               | 3.50             | 4.31   | 5.495                      | 22.8                             | 7.48            | 7.58                          | 4.99            | 8.24                          | 4.12            | 2.04                  | 1.17           |
|                       | 1.00             | 1.52   | 1.934                      | 9.99                             | 5.38            | 3.33                          | 2.69            | 2.90                          | 1.93            | 2.27                  | 1.67           |
|                       | 1.20             | 1.81   | 2.305                      | 11.8                             | 6.34            | 3.93                          | 3.17            | 3.46                          | 2.31            | 2.26                  | 1.66           |
|                       | 1.40             | 2.10   | 2.671                      | 13.5                             | 7.27            | 4.51                          | 3.63            | 4.01                          | 2.67            | 2.25                  | 1.65           |
|                       | 1.60             | 2.38   | 3.032                      | 15.2                             | 8.16            | 5.07                          | 4.08            | 4.55                          | 3.03            | 2.24                  | 1.64           |
|                       | 1.80             | 2.66   | 3.387                      | 16.9                             | 9.01            | 5.62                          | 4.51            | 5.08                          | 3.39            | 2.23                  | 1.63           |
|                       | 2.00             | 2.93   | 3.737                      | 18.4                             | 9.83            | 6.14                          | 4.92            | 5.61                          | 3.74            | 2.22                  | 1.62           |
|                       | 2.30             | 3.34   | 4.252                      | 20.7                             | 11.0            | 6.88                          | 5.50            | 6.38                          | 4.25            | 2.20                  | 1.61           |
|                       | 2.50             | 3.60   | 4.589                      | 22.1                             | 11.7            | 7.36                          | 5.87            | 6.88                          | 4.59            | 2.19                  | 1.60           |
|                       | 2.80             | 3.99   | 5.085                      | 24.1                             | 12.8            | 8.03                          | 6.39            | 7.63                          | 5.09            | 2.18                  | 1.59           |
|                       | 3.20             | 4.50   | 5.727                      | 26.6                             | 14.1            | 8.87                          | 7.03            | 8.59                          | 5.73            | 2.16                  | 1.57           |
|                       | 3.50             | 4.86   | 6.195                      | 28.4                             | 15.0            | 9.45                          | 7.48            | 9.29                          | 6.20            | 2.14                  | 1.55           |
|                       | 4.00             | 5.45   | 6.948                      | 31.0                             | 16.3            | 10.3                          | 8.14            | 10.4                          | 6.95            | 2.11                  | 1.53           |
|                       | 4.50             | 6.02   | 7.669                      | 33.3                             | 17.4            | 11.1                          | 8.72            | 11.5                          | 7.67            | 2.08                  | 1.51           |
|                       | 5.00             | 6.56   | 8.356                      | 35.3                             | 18.4            | 11.8                          | 9.21            | 12.5                          | 8.36            | 2.06                  | 1.49           |
|                       | 6.00             | 7.56   | 9.633                      | 38.5                             | 20.0            | 12.8                          | 9.97            | 14.5                          | 9.63            | 2.00                  | 1.44           |
| 75 x 20               | 1.00             | 1.44   | 1.834                      | 11.6                             | 1.43            | 3.09                          | 1.43            | 3.44                          | 0.92            | 2.52                  | 0.882          |
|                       | 1.20             | 1.72   | 2.185                      | 13.7                             | 1.67            | 3.65                          | 1.67            | 4.10                          | 1.09            | 2.50                  | 0.873          |
|                       | 1.40             | 1.99   | 2.531                      | 15.7                             | 1.89            | 4.18                          | 1.89            | 4.75                          | 1.27            | 2.49                  | 0.864          |
|                       | 1.60             | 2.25   | 2.872                      | 17.6                             | 2.10            | 4.69                          | 2.10            | 5.38                          | 1.44            | 2.47                  | 0.855          |
|                       | 1.80             | 2.52   | 3.207                      | 19.4                             | 2.30            | 5.18                          | 2.30            | 6.01                          | 1.60            | 2.46                  | 0.846          |
|                       | 2.00             | 2.78   | 3.537                      | 21.2                             | 2.48            | 5.65                          | 2.48            | 6.63                          | 1.77            | 2.45                  | 0.838          |
|                       | 2.30             | 3.16   | 4.022                      | 23.7                             | 2.73            | 6.31                          | 2.73            | 7.54                          | 2.01            | 2.43                  | 0.824          |
|                       | 2.50             | 3.41   | 4.339                      | 25.2                             | 2.89            | 6.73                          | 2.89            | 8.14                          | 2.17            | 2.41                  | 0.816          |
|                       | 2.80             | 3.77   | 4.805                      | 27.4                             | 3.09            | 7.32                          | 3.09            | 9.01                          | 2.40            | 2.39                  | 0.802          |
|                       | 3.20             | 4.24   | 5.407                      | 30.1                             | 3.33            | 8.04                          | 3.33            | 10.1                          | 2.70            | 2.36                  | 0.785          |
|                       | 4.00             | 5.14   | 6.548                      | 34.7                             | 3.69            | 9.25                          | 3.69            | 12.3                          | 3.27            | 2.30                  | 0.751          |
|                       | 4.50             | 5.67   | 7.219                      | 37.0                             | 3.84            | 9.86                          | 3.84            | 13.5                          | 3.61            | 2.26                  | 0.729          |
|                       | 5.00             | 6.17   | 7.856                      | 38.8                             | 3.95            | 10.4                          | 3.95            | 14.7                          | 3.93            | 2.22                  | 0.709          |
|                       | 6.00             | 7.09   | 9.033                      | 41.4                             | 4.03            | 11.0                          | 4.03            | 16.9                          | 4.52            | 2.14                  | 0.668          |
| 75 x 25               | 1.00             | 1.52   | 1.934                      | 13.0                             | 2.33            | 3.46                          | 1.86            | 3.63                          | 1.21            | 2.59                  | 1.10           |
|                       | 1.20             | 1.81   | 2.305                      | 15.3                             | 2.73            | 4.08                          | 2.18            | 4.32                          | 1.44            | 2.58                  | 1.09           |
|                       | 1.40             | 2.10   | 2.671                      | 17.6                             | 3.11            | 4.68                          | 2.49            | 5.01                          | 1.67            | 2.56                  | 1.08           |
|                       | 1.60             | 2.38   | 3.032                      | 19.7                             | 3.47            | 5.26                          | 2.78            | 5.68                          | 1.90            | 2.55                  | 1.07           |
|                       | 1.80             | 2.66   | 3.387                      | 21.8                             | 3.81            | 5.82                          | 3.05            | 6.35                          | 2.12            | 2.54                  | 1.06           |
|                       | 2.00             | 2.93   | 3.737                      | 23.8                             | 4.14            | 6.36                          | 3.31            | 7.01                          | 2.34            | 2.53                  | 1.05           |
|                       | 2.30             | 3.34   | 4.252                      | 26.7                             | 4.59            | 7.12                          | 3.67            | 7.97                          | 2.66            | 2.51                  | 1.04           |
|                       | 2.50             | 3.60   | 4.589                      | 28.5                             | 4.87            | 7.61                          | 3.89            | 8.60                          | 2.87            | 2.49                  | 1.03           |
|                       | 2.80             | 3.99   | 5.085                      | 31.1                             | 5.26            | 8.29                          | 4.20            | 9.53                          | 3.18            | 2.47                  | 1.02           |
|                       | 3.20             | 4.50   | 5.727                      | 34.3                             | 5.72            | 9.14                          | 4.57            | 10.7                          | 3.58            | 2.45                  | 1.00           |
|                       | 4.00             | 5.45   | 6.948                      | 39.7                             | 6.46            | 10.6                          | 5.17            | 13.0                          | 4.34            | 2.39                  | 0.964          |

TIS 107-2566 Table ค.1

(JIS G3466)

Carbon Steel Square Tubes for  
General Structural

ท่อเหล็กรูปสี่เหลี่ยมผืนผ้า สำหรับงานโครงสร้าง

“Black Steel Pipe, Primer Coated Pipe and Pre-Galvanized Pipe”



| Dimension Tolerances |                        |
|----------------------|------------------------|
| Length of Side       | H,B ≤ 100 mm : ±1.5 mm |
|                      | H,B > 100 mm : ±1.5%   |
| Thickness            | ±10%                   |
| Weight               | ±10%                   |
| Steel Pipe Surface   | ● ● ●                  |

| Normal Size<br>H x B | Thickness<br>(t) | Weight | Cross<br>Sectional<br>Area | Geometrical Moment of<br>Inertia |                 | Elastic Modulus of<br>Section |                 | Plastic Modulus of<br>Section |                 | Radius of<br>Gyration |                |
|----------------------|------------------|--------|----------------------------|----------------------------------|-----------------|-------------------------------|-----------------|-------------------------------|-----------------|-----------------------|----------------|
|                      |                  |        |                            | I <sub>x</sub>                   | I <sub>y</sub>  | S <sub>x</sub>                | S <sub>y</sub>  | Z <sub>x</sub>                | Z <sub>y</sub>  | r <sub>x</sub>        | r <sub>y</sub> |
| mm.                  | mm               | kg/m   | cm <sup>2</sup>            | cm <sup>4</sup>                  | cm <sup>4</sup> | cm <sup>3</sup>               | cm <sup>3</sup> | cm <sup>3</sup>               | cm <sup>3</sup> | cm                    | cm             |
| 75 x 25              | 4.50             | 6.02   | 7.669                      | 42.6                             | 6.81            | 11.4                          | 5.45            | 14.4                          | 4.79            | 2.36                  | 0.943          |
|                      | 5.00             | 6.56   | 8.356                      | 45.0                             | 7.09            | 12.0                          | 5.67            | 15.7                          | 5.22            | 2.32                  | 0.921          |
|                      | 6.00             | 7.56   | 9.633                      | 48.6                             | 7.44            | 13.0                          | 5.96            | 18.1                          | 6.02            | 2.25                  | 0.879          |
| 75 x 38              | 1.00             | 1.72   | 2.194                      | 16.5                             | 5.82            | 4.41                          | 3.06            | 4.11                          | 2.09            | 2.75                  | 1.63           |
|                      | 1.10             | 1.89   | 2.406                      | 18.1                             | 6.35            | 4.82                          | 3.34            | 4.51                          | 2.29            | 2.74                  | 1.62           |
|                      | 1.20             | 2.06   | 2.617                      | 19.6                             | 6.87            | 5.22                          | 3.62            | 4.91                          | 2.49            | 2.73                  | 1.62           |
|                      | 1.40             | 2.38   | 3.035                      | 22.5                             | 7.88            | 6.00                          | 4.15            | 5.69                          | 2.88            | 2.72                  | 1.61           |
|                      | 1.50             | 2.55   | 3.242                      | 23.9                             | 8.37            | 6.38                          | 4.40            | 6.08                          | 3.08            | 2.72                  | 1.61           |
|                      | 1.60             | 2.71   | 3.448                      | 25.3                             | 8.85            | 6.76                          | 4.66            | 6.46                          | 3.28            | 2.71                  | 1.60           |
|                      | 1.80             | 3.03   | 3.855                      | 28.1                             | 9.78            | 7.49                          | 5.15            | 7.23                          | 3.66            | 2.70                  | 1.59           |
|                      | 2.00             | 3.34   | 4.257                      | 30.8                             | 10.7            | 8.20                          | 5.62            | 7.98                          | 4.04            | 2.69                  | 1.58           |
|                      | 2.30             | 3.81   | 4.850                      | 34.6                             | 12.0            | 9.23                          | 6.30            | 9.09                          | 4.61            | 2.67                  | 1.57           |
|                      | 2.50             | 4.11   | 5.239                      | 37.1                             | 12.8            | 9.88                          | 6.73            | 9.82                          | 4.98            | 2.66                  | 1.56           |
|                      | 2.80             | 4.56   | 5.813                      | 40.6                             | 13.9            | 10.8                          | 7.34            | 10.9                          | 5.52            | 2.64                  | 1.55           |
|                      | 3.20             | 5.15   | 6.559                      | 45.0                             | 15.4            | 12.0                          | 8.09            | 12.3                          | 6.23            | 2.62                  | 1.53           |
|                      | 4.00             | 6.27   | 7.988                      | 52.8                             | 17.9            | 14.1                          | 9.40            | 15.0                          | 7.59            | 2.57                  | 1.50           |
|                      | 4.50             | 6.94   | 8.839                      | 57.1                             | 19.2            | 15.2                          | 10.1            | 16.6                          | 8.40            | 2.54                  | 1.47           |
|                      | 5.00             | 7.58   | 9.656                      | 60.9                             | 20.3            | 16.3                          | 10.7            | 18.1                          | 9.17            | 2.51                  | 1.45           |
|                      | 6.00             | 8.79   | 11.19                      | 67.2                             | 22.1            | 17.9                          | 11.7            | 21.0                          | 10.6            | 2.45                  | 1.41           |
| 75 x 45              | 1.00             | 1.83   | 2.334                      | 18.5                             | 8.5             | 4.92                          | 3.76            | 4.38                          | 2.63            | 2.81                  | 1.90           |
|                      | 1.20             | 2.19   | 2.785                      | 21.8                             | 10.0            | 5.83                          | 4.44            | 5.22                          | 3.13            | 2.80                  | 1.90           |
|                      | 1.40             | 2.54   | 3.231                      | 25.2                             | 11.5            | 6.71                          | 5.11            | 6.06                          | 3.64            | 2.79                  | 1.89           |
|                      | 1.60             | 2.88   | 3.672                      | 28.4                             | 12.9            | 7.56                          | 5.75            | 6.88                          | 4.13            | 2.78                  | 1.88           |
|                      | 1.80             | 3.22   | 4.107                      | 31.5                             | 14.3            | 8.39                          | 6.37            | 7.70                          | 4.62            | 2.77                  | 1.87           |
|                      | 2.00             | 3.56   | 4.537                      | 34.5                             | 15.7            | 9.20                          | 6.97            | 8.51                          | 5.10            | 2.76                  | 1.86           |
|                      | 2.30             | 4.06   | 5.172                      | 38.9                             | 17.6            | 10.4                          | 7.83            | 9.70                          | 5.82            | 2.74                  | 1.85           |
|                      | 2.50             | 4.39   | 5.589                      | 41.7                             | 18.8            | 11.1                          | 8.37            | 10.5                          | 6.29            | 2.73                  | 1.84           |
|                      | 2.80             | 4.87   | 6.205                      | 45.7                             | 20.6            | 12.2                          | 9.16            | 11.6                          | 6.98            | 2.71                  | 1.82           |
|                      | 3.20             | 5.50   | 7.007                      | 50.8                             | 22.8            | 13.5                          | 10.1            | 13.1                          | 7.88            | 2.69                  | 1.80           |
|                      | 4.00             | 6.71   | 8.548                      | 59.9                             | 26.7            | 16.0                          | 11.9            | 16.0                          | 9.62            | 2.65                  | 1.77           |
|                      | 4.50             | 7.43   | 9.469                      | 65.0                             | 28.9            | 17.3                          | 12.8            | 17.8                          | 10.7            | 2.62                  | 1.75           |
|                      | 5.00             | 8.1    | 10.36                      | 69.5                             | 30.8            | 18.5                          | 13.7            | 19.4                          | 11.7            | 2.59                  | 1.72           |
|                      | 6.00             | 9.4    | 12.03                      | 77.2                             | 33.9            | 20.6                          | 15.1            | 22.6                          | 13.5            | 2.53                  | 1.68           |
| 75 x 50              | 1.00             | 1.91   | 2.434                      | 19.8                             | 10.7            | 5.28                          | 4.28            | 4.56                          | 3.04            | 2.85                  | 2.10           |
|                      | 1.20             | 2.28   | 2.905                      | 23.5                             | 12.7            | 6.26                          | 5.06            | 5.45                          | 3.63            | 2.84                  | 2.09           |
|                      | 1.40             | 2.65   | 3.371                      | 27.0                             | 14.6            | 7.21                          | 5.82            | 6.32                          | 4.21            | 2.83                  | 2.08           |
|                      | 1.60             | 3.01   | 3.832                      | 30.5                             | 16.4            | 8.14                          | 6.56            | 7.18                          | 4.79            | 2.82                  | 2.07           |
|                      | 1.80             | 3.37   | 4.287                      | 33.9                             | 18.2            | 9.04                          | 7.27            | 8.04                          | 5.36            | 2.81                  | 2.06           |
|                      | 2.00             | 3.72   | 4.737                      | 37.2                             | 19.9            | 9.91                          | 7.96            | 8.88                          | 5.92            | 2.80                  | 2.05           |
|                      | 2.30             | 4.24   | 5.402                      | 41.9                             | 22.4            | 11.2                          | 8.96            | 10.1                          | 6.75            | 2.79                  | 2.04           |
|                      | 2.50             | 4.58   | 5.839                      | 45.0                             | 24.0            | 12.0                          | 9.60            | 11.0                          | 7.30            | 2.78                  | 2.03           |
|                      | 2.80             | 5.09   | 6.485                      | 49.4                             | 26.3            | 13.2                          | 10.5            | 12.2                          | 8.11            | 2.76                  | 2.01           |
|                      | 3.20             | 5.75   | 7.327                      | 54.9                             | 29.2            | 14.6                          | 11.7            | 13.7                          | 9.16            | 2.74                  | 2.00           |
|                      | 4.00             | 7.02   | 8.948                      | 65.0                             | 34.3            | 17.3                          | 13.7            | 16.8                          | 11.18           | 2.69                  | 1.96           |
|                      | 4.50             | 7.79   | 9.919                      | 70.6                             | 37.2            | 18.8                          | 14.9            | 18.6                          | 12.4            | 2.67                  | 1.94           |
| 5.00                 | 8.5              | 10.86  | 75.7                       | 39.8                             | 20.2            | 15.9                          | 20.4            | 13.6                          | 2.64            | 1.91                  |                |
| 6.00                 | 9.9              | 12.63  | 84.4                       | 44.1                             | 22.5            | 17.6                          | 23.7            | 15.8                          | 2.58            | 1.87                  |                |

TIS 107-2566 Table ค.1

(JIS G3466)

Carbon Steel Square Tubes for  
General Structural

ท่อเหล็กรูปสี่เหลี่ยมผืนผ้า สำหรับงานโครงสร้าง

“Black Steel Pipe, Primer Coated Pipe and Pre-Galvanized Pipe”



|                    | Dimension Tolerances   |
|--------------------|------------------------|
| Length of Side     | H,B ≤ 100 mm : ±1.5 mm |
|                    | H,B > 100 mm : ±1.5%   |
| Thickness          | ±10%                   |
| Weight             | ±10%                   |
| Steel Pipe Surface | ● ● ●                  |

| Nominal Size<br>H x B | Thickness<br>(t) | Weight | Cross<br>Sectional<br>Area | Geometrical Moment of<br>Inertia |                 | Elastic Modulus of<br>Section |                 | Plastic Modulus of<br>Section |                 | Radius of<br>Gyration |                |
|-----------------------|------------------|--------|----------------------------|----------------------------------|-----------------|-------------------------------|-----------------|-------------------------------|-----------------|-----------------------|----------------|
|                       |                  |        |                            | I <sub>x</sub>                   | I <sub>y</sub>  | S <sub>x</sub>                | S <sub>y</sub>  | Z <sub>x</sub>                | Z <sub>y</sub>  | r <sub>x</sub>        | r <sub>y</sub> |
| mm.                   | mm               | kg/m   | cm <sup>2</sup>            | cm <sup>4</sup>                  | cm <sup>4</sup> | cm <sup>3</sup>               | cm <sup>3</sup> | cm <sup>3</sup>               | cm <sup>3</sup> | cm                    | cm             |
| 100 x 50              | 1.20             | 2.75   | 3.505                      | 47.0                             | 16.2            | 9.39                          | 6.49            | 8.76                          | 4.38            | 3.66                  | 2.15           |
|                       | 1.40             | 3.20   | 4.071                      | 54.2                             | 18.7            | 10.8                          | 7.47            | 10.2                          | 5.09            | 3.65                  | 2.14           |
|                       | 1.50             | 3.42   | 4.352                      | 57.8                             | 19.9            | 11.6                          | 7.96            | 10.9                          | 5.44            | 3.64                  | 2.14           |
|                       | 1.60             | 3.64   | 4.632                      | 61.3                             | 21.1            | 12.3                          | 8.43            | 11.6                          | 5.79            | 3.64                  | 2.13           |
|                       | 1.80             | 4.07   | 5.187                      | 68.2                             | 23.4            | 13.6                          | 9.36            | 13.0                          | 6.48            | 3.63                  | 2.12           |
|                       | 2.00             | 4.50   | 5.737                      | 75.0                             | 25.7            | 15.0                          | 10.3            | 14.3                          | 7.17            | 3.62                  | 2.12           |
|                       | 2.30             | 5.14   | 6.552                      | 84.8                             | 29.0            | 17.0                          | 11.6            | 16.4                          | 8.19            | 3.60                  | 2.10           |
|                       | 2.50             | 5.57   | 7.089                      | 91.2                             | 31.1            | 18.2                          | 12.4            | 17.7                          | 8.86            | 3.59                  | 2.09           |
|                       | 2.80             | 6.19   | 7.885                      | 101                              | 34.1            | 20.1                          | 13.6            | 19.7                          | 9.86            | 3.57                  | 2.08           |
|                       | 3.20             | 7.01   | 8.927                      | 112                              | 38.0            | 22.5                          | 15.2            | 22.3                          | 11.2            | 3.55                  | 2.06           |
|                       | 4.00             | 8.59   | 10.95                      | 134                              | 45.0            | 26.8                          | 18.0            | 27.4                          | 13.7            | 3.50                  | 2.03           |
|                       | 4.50             | 9.55   | 12.17                      | 147                              | 48.9            | 29.3                          | 19.6            | 30.4                          | 15.2            | 3.47                  | 2.00           |
| 100 x 75              | 1.20             | 3.22   | 4.105                      | 61.6                             | 39.8            | 12.3                          | 10.6            | 10.3                          | 7.70            | 3.87                  | 3.11           |
|                       | 1.40             | 3.75   | 4.771                      | 71.2                             | 46.0            | 14.2                          | 12.3            | 11.9                          | 8.95            | 3.86                  | 3.11           |
|                       | 1.50             | 4.01   | 5.102                      | 76.0                             | 49.1            | 15.2                          | 13.1            | 12.8                          | 9.57            | 3.86                  | 3.10           |
|                       | 1.60             | 4.26   | 5.432                      | 80.7                             | 52.1            | 16.1                          | 13.9            | 13.6                          | 10.2            | 3.85                  | 3.10           |
|                       | 1.80             | 4.78   | 6.087                      | 89.9                             | 58.0            | 18.0                          | 15.5            | 15.2                          | 11.4            | 3.84                  | 3.09           |
|                       | 2.00             | 5.29   | 6.737                      | 99.0                             | 63.8            | 19.8                          | 17.0            | 16.8                          | 12.6            | 3.83                  | 3.08           |
|                       | 2.30             | 6.05   | 7.702                      | 112                              | 72.3            | 22.5                          | 19.3            | 19.3                          | 14.4            | 3.82                  | 3.06           |
|                       | 2.50             | 6.55   | 8.339                      | 121                              | 77.81           | 24.2                          | 20.8            | 20.9                          | 15.6            | 3.81                  | 3.06           |
|                       | 2.80             | 7.29   | 9.285                      | 134                              | 85.86           | 26.7                          | 22.9            | 23.2                          | 17.4            | 3.79                  | 3.04           |
|                       | 3.20             | 8.26   | 10.53                      | 150                              | 96.17           | 30.0                          | 25.6            | 26.3                          | 19.7            | 3.77                  | 3.02           |
|                       | 4.00             | 10.16  | 12.95                      | 180                              | 115             | 36.1                          | 30.8            | 32.4                          | 24.3            | 3.73                  | 2.99           |
|                       | 4.50             | 11.32  | 14.42                      | 198                              | 127             | 39.6                          | 33.8            | 36.1                          | 27.0            | 3.71                  | 2.96           |
| 120 x 80              | 1.80             | 5.49   | 6.987                      | 145                              | 78.1            | 24.2                          | 19.5            | 21.0                          | 14.0            | 4.56                  | 3.34           |
|                       | 2.00             | 6.07   | 7.737                      | 160                              | 86.0            | 26.6                          | 21.5            | 23.2                          | 15.5            | 4.54                  | 3.34           |
|                       | 2.30             | 6.95   | 8.852                      | 182                              | 97.6            | 30.3                          | 24.4            | 26.6                          | 17.7            | 4.53                  | 3.32           |
|                       | 2.50             | 7.53   | 9.589                      | 196                              | 105             | 32.6                          | 26.3            | 28.8                          | 19.2            | 4.52                  | 3.31           |
|                       | 2.80             | 8.39   | 10.68                      | 217                              | 116             | 36.1                          | 29.1            | 32.1                          | 21.4            | 4.50                  | 3.30           |
|                       | 3.20             | 9.52   | 12.13                      | 244                              | 131             | 40.6                          | 32.6            | 36.4                          | 24.3            | 4.48                  | 3.28           |
|                       | 4.00             | 11.73  | 14.95                      | 295                              | 157             | 49.1                          | 39.3            | 44.8                          | 29.9            | 4.44                  | 3.24           |
|                       | 4.50             | 13.08  | 16.67                      | 325                              | 173             | 54.1                          | 43.2            | 50.0                          | 33.3            | 4.41                  | 3.22           |
|                       | 5.00             | 14.41  | 18.36                      | 353                              | 188             | 58.9                          | 46.9            | 55.1                          | 36.7            | 4.39                  | 3.20           |
|                       | 6.00             | 16.98  | 21.63                      | 406                              | 215             | 67.7                          | 53.8            | 64.9                          | 43.3            | 4.33                  | 3.15           |
|                       | 7.00             | 19.45  | 24.78                      | 438                              | 232             | 73.0                          | 58.1            | 73.1                          | 48.7            | 4.24                  | 3.09           |
|                       | 8.00             | 21.82  | 27.79                      | 476                              | 252             | 79.3                          | 62.9            | 81.7                          | 54.5            | 4.18                  | 3.04           |
| 125 x 50              | 1.80             | 4.78   | 6.087                      | 119                              | 28.6            | 19.0                          | 11.5            | 19.0                          | 7.6             | 4.42                  | 2.17           |
|                       | 2.00             | 5.29   | 6.737                      | 131                              | 31.4            | 20.9                          | 12.6            | 21.1                          | 8.4             | 4.41                  | 2.16           |
|                       | 2.30             | 6.05   | 7.702                      | 148                              | 35.5            | 23.7                          | 14.2            | 24.1                          | 9.6             | 4.39                  | 2.15           |
|                       | 2.50             | 6.55   | 8.339                      | 160                              | 38.1            | 25.5                          | 15.3            | 26.1                          | 10.4            | 4.38                  | 2.14           |
|                       | 2.80             | 7.29   | 9.285                      | 176                              | 41.9            | 28.2                          | 16.8            | 29.0                          | 11.6            | 4.36                  | 2.13           |
|                       | 3.20             | 8.26   | 10.53                      | 198                              | 46.7            | 31.6                          | 18.7            | 32.9                          | 13.2            | 4.33                  | 2.11           |

TIS 107-2566 Table ค.1

(JIS G3466)

Carbon Steel Square Tubes for  
General Structural

ท่อเหล็กรูปสี่เหลี่ยมผืนผ้า สำหรับงานโครงสร้าง

“Black Steel Pipe, Primer Coated Pipe and Pre-Galvanized Pipe”



|                    | Dimension Tolerances   |
|--------------------|------------------------|
| Length of Side     | H,B ≤ 100 mm : ±1.5 mm |
|                    | H,B > 100 mm : ±1.5%   |
| Thickness          | ±10%                   |
| Weight             | ±10%                   |
| Steel Pipe Surface | ● ● ●                  |

| Nominal Size<br>H x B | Thickness<br>(t) | Weight | Cross<br>Sectional<br>Area | Geometrical Moment of<br>Inertia |                 | Elastic Modulus of<br>Section |                 | Plastic Modulus of<br>Section |                 | Radius of<br>Gyration |                |
|-----------------------|------------------|--------|----------------------------|----------------------------------|-----------------|-------------------------------|-----------------|-------------------------------|-----------------|-----------------------|----------------|
|                       |                  |        |                            | I <sub>x</sub>                   | I <sub>y</sub>  | S <sub>x</sub>                | S <sub>y</sub>  | Z <sub>x</sub>                | Z <sub>y</sub>  | r <sub>x</sub>        | r <sub>y</sub> |
| mm.                   | mm               | kg/m   | cm <sup>2</sup>            | cm <sup>4</sup>                  | cm <sup>4</sup> | cm <sup>3</sup>               | cm <sup>3</sup> | cm <sup>3</sup>               | cm <sup>3</sup> | cm                    | cm             |
| 125 x 50              | 4.00             | 10.16  | 12.95                      | 238                              | 55.6            | 38.0                          | 22.2            | 40.5                          | 16.2            | 4.28                  | 2.07           |
|                       | 4.50             | 11.32  | 14.42                      | 261                              | 60.6            | 41.7                          | 24.2            | 45.1                          | 18.0            | 4.25                  | 2.05           |
|                       | 5.00             | 12.45  | 15.86                      | 283                              | 65.2            | 45.2                          | 26.1            | 49.6                          | 19.8            | 4.22                  | 2.03           |
|                       | 6.00             | 14.63  | 18.63                      | 322                              | 73.3            | 51.5                          | 29.3            | 58.2                          | 23.3            | 4.16                  | 1.98           |
|                       | 7.00             | 16.70  | 21.28                      | 340                              | 77.4            | 54.4                          | 31.0            | 65.2                          | 26.1            | 4.04                  | 1.93           |
|                       | 8.00             | 18.68  | 23.79                      | 364                              | 82.2            | 58.2                          | 32.9            | 72.6                          | 29.1            | 3.96                  | 1.88           |
| 125 x 75              | 1.60             | 4.89   | 6.232                      | 137                              | 62.8            | 21.9                          | 16.8            | 19.5                          | 11.7            | 4.69                  | 3.18           |
|                       | 1.80             | 5.49   | 6.987                      | 153                              | 70.1            | 24.5                          | 18.7            | 21.8                          | 13.1            | 4.68                  | 3.17           |
|                       | 2.00             | 6.07   | 7.737                      | 169                              | 77.1            | 27.0                          | 20.6            | 24.2                          | 14.5            | 4.67                  | 3.16           |
|                       | 2.30             | 6.95   | 8.852                      | 192                              | 87.5            | 30.6                          | 23.3            | 27.7                          | 16.6            | 4.65                  | 3.14           |
|                       | 2.50             | 7.53   | 9.589                      | 207                              | 94.3            | 33.0                          | 25.1            | 30.0                          | 18.0            | 4.64                  | 3.14           |
|                       | 2.80             | 8.39   | 10.68                      | 229                              | 104             | 36.6                          | 27.8            | 33.4                          | 20.0            | 4.63                  | 3.12           |
|                       | 3.20             | 9.52   | 12.13                      | 257                              | 117             | 41.1                          | 31.2            | 37.9                          | 22.7            | 4.60                  | 3.10           |
|                       | 4.00             | 11.73  | 14.95                      | 311                              | 141             | 49.7                          | 37.5            | 46.7                          | 28.0            | 4.56                  | 3.07           |
|                       | 4.50             | 13.08  | 16.67                      | 342                              | 155             | 54.8                          | 41.2            | 52.1                          | 31.3            | 4.53                  | 3.05           |
|                       | 5.00             | 14.41  | 18.36                      | 373                              | 168             | 59.6                          | 44.7            | 57.4                          | 34.4            | 4.51                  | 3.02           |
|                       | 6.00             | 16.98  | 21.63                      | 428                              | 192             | 68.5                          | 51.1            | 67.6                          | 40.6            | 4.45                  | 2.98           |
|                       | 7.00             | 19.45  | 24.78                      | 462                              | 207             | 73.9                          | 55.2            | 76.1                          | 45.7            | 4.35                  | 2.92           |
| 150 x 50              | 8.00             | 21.82  | 27.79                      | 501                              | 224             | 80.2                          | 59.7            | 85.1                          | 51.1            | 4.29                  | 2.87           |
|                       | 1.60             | 4.89   | 6.232                      | 169                              | 30.5            | 22.5                          | 12.2            | 23.4                          | 7.79            | 5.20                  | 2.21           |
|                       | 1.80             | 5.49   | 6.987                      | 188                              | 33.9            | 25.1                          | 13.6            | 26.2                          | 8.73            | 5.19                  | 2.20           |
|                       | 2.00             | 6.07   | 7.737                      | 208                              | 37.2            | 27.7                          | 14.9            | 29.0                          | 9.67            | 5.18                  | 2.19           |
|                       | 2.30             | 6.95   | 8.852                      | 236                              | 42.0            | 31.4                          | 16.8            | 33.2                          | 11.1            | 5.16                  | 2.18           |
|                       | 2.50             | 7.53   | 9.589                      | 254                              | 45.2            | 33.9                          | 18.1            | 36.0                          | 12.0            | 5.15                  | 2.17           |
|                       | 2.80             | 8.39   | 10.68                      | 281                              | 49.7            | 37.5                          | 19.9            | 40.1                          | 13.4            | 5.13                  | 2.16           |
|                       | 3.20             | 9.52   | 12.13                      | 316                              | 55.5            | 42.1                          | 22.2            | 45.5                          | 15.2            | 5.10                  | 2.14           |
|                       | 4.00             | 11.73  | 14.95                      | 381                              | 66.2            | 50.9                          | 26.5            | 56.1                          | 18.7            | 5.05                  | 2.10           |
|                       | 4.50             | 13.08  | 16.67                      | 420                              | 72.2            | 56.0                          | 28.9            | 62.5                          | 20.8            | 5.02                  | 2.08           |
|                       | 5.00             | 14.41  | 18.36                      | 456                              | 77.9            | 60.8                          | 31.2            | 68.8                          | 23.0            | 4.99                  | 2.06           |
|                       | 6.00             | 16.98  | 21.63                      | 524                              | 87.9            | 69.8                          | 35.2            | 81.1                          | 27.0            | 4.92                  | 2.02           |
| 150 x 75              | 7.00             | 19.45  | 24.78                      | 559                              | 93.8            | 74.6                          | 37.5            | 91.3                          | 30.5            | 4.79                  | 1.96           |
|                       | 8.00             | 21.82  | 27.79                      | 604                              | 100             | 80.6                          | 40.0            | 102                           | 34.1            | 4.71                  | 1.92           |
|                       | 2.00             | 6.86   | 8.737                      | 262                              | 90.5            | 35.0                          | 24.1            | 32.8                          | 16.4            | 5.48                  | 3.22           |
|                       | 2.30             | 7.85   | 10.00                      | 298                              | 103             | 39.8                          | 27.4            | 37.5                          | 18.8            | 5.46                  | 3.20           |
|                       | 2.50             | 8.51   | 10.84                      | 322                              | 111             | 42.9                          | 29.5            | 40.7                          | 20.3            | 5.45                  | 3.20           |
|                       | 2.80             | 9.49   | 12.08                      | 357                              | 122             | 47.6                          | 32.6            | 45.3                          | 22.7            | 5.43                  | 3.18           |
|                       | 3.20             | 10.78  | 13.73                      | 402                              | 137             | 53.6                          | 36.7            | 51.5                          | 25.7            | 5.41                  | 3.16           |
|                       | 4.00             | 13.30  | 16.95                      | 488                              | 166             | 65.1                          | 44.2            | 63.6                          | 31.8            | 5.37                  | 3.13           |
|                       | 4.50             | 14.85  | 18.92                      | 539                              | 183             | 71.9                          | 48.7            | 70.9                          | 35.5            | 5.34                  | 3.11           |
|                       | 5.00             | 16.37  | 20.86                      | 588                              | 198             | 78.4                          | 52.9            | 78.2                          | 39.1            | 5.31                  | 3.08           |
|                       | 6.00             | 19.34  | 24.63                      | 679                              | 228             | 90.5                          | 60.7            | 92.4                          | 46.2            | 5.25                  | 3.04           |
|                       | 7.00             | 22.20  | 28.28                      | 738                              | 248             | 98.5                          | 66.1            | 105                           | 52.2            | 5.15                  | 2.98           |
| 150 x 80              | 8.00             | 24.96  | 31.79                      | 806                              | 269             | 108                           | 71.7            | 117                           | 58.6            | 5.08                  | 2.93           |
|                       | 2.00             | 7.02   | 8.937                      | 273                              | 104             | 36.4                          | 26.1            | 33.5                          | 17.9            | 5.53                  | 3.42           |
|                       | 2.30             | 8.03   | 10.23                      | 311                              | 119             | 41.5                          | 29.6            | 38.4                          | 20.5            | 5.51                  | 3.40           |
|                       | 2.50             | 8.71   | 11.09                      | 336                              | 128             | 44.8                          | 31.9            | 41.6                          | 22.2            | 5.50                  | 3.39           |
|                       | 2.80             | 9.71   | 12.36                      | 372                              | 141             | 49.6                          | 35.3            | 46.4                          | 24.7            | 5.49                  | 3.38           |
|                       | 3.20             | 11.03  | 14.05                      | 419                              | 159             | 55.9                          | 39.7            | 52.7                          | 28.1            | 5.46                  | 3.36           |
| 150 x 80              | 4.00             | 13.62  | 17.35                      | 509                              | 192             | 67.9                          | 48.0            | 65.1                          | 34.7            | 5.42                  | 3.33           |

TIS 107-2566 Table ค.1

(JIS G3466)

Carbon Steel Square Tubes for  
General Structural

ท่อเหล็กรูปสี่เหลี่ยมผืนผ้า สำหรับงานโครงสร้าง

“Black Steel Pipe, Primer Coated Pipe and Pre-Galvanized Pipe”



| Dimension Tolerances |                        |
|----------------------|------------------------|
| Length of Side       | H,B ≤ 100 mm : ±1.5 mm |
|                      | H,B > 100 mm : ±1.5%   |
| Thickness            | ±10%                   |
| Weight               | ±10%                   |
| Steel Pipe Surface   | ● ● ●                  |

| Nominal Size<br>H x B | Thickness<br>(t) | Weight | Cross<br>Sectional<br>Area | Geometrical Moment of<br>Inertia |                 | Elastic Modulus of<br>Section |                 | Plastic Modulus of<br>Section |                 | Radius of<br>Gyration |                |
|-----------------------|------------------|--------|----------------------------|----------------------------------|-----------------|-------------------------------|-----------------|-------------------------------|-----------------|-----------------------|----------------|
|                       |                  |        |                            | I <sub>x</sub>                   | I <sub>y</sub>  | S <sub>x</sub>                | S <sub>y</sub>  | Z <sub>x</sub>                | Z <sub>y</sub>  | r <sub>x</sub>        | r <sub>y</sub> |
| mm.                   | mm               | kg/m   | cm <sup>2</sup>            | cm <sup>4</sup>                  | cm <sup>4</sup> | cm <sup>3</sup>               | cm <sup>3</sup> | cm <sup>3</sup>               | cm <sup>3</sup> | cm                    | cm             |
| 150 x 80              | 4.50             | 15.20  | 19.37                      | 563                              | 212             | 75.0                          | 52.9            | 72.6                          | 38.7            | 5.39                  | 3.30           |
|                       | 5.00             | 16.76  | 21.36                      | 614                              | 230             | 81.9                          | 57.5            | 80.1                          | 42.7            | 5.36                  | 3.28           |
|                       | 6.00             | 19.81  | 25.23                      | 710                              | 264             | 94.7                          | 66.1            | 94.6                          | 50.5            | 5.31                  | 3.24           |
|                       | 7.00             | 22.75  | 28.98                      | 774                              | 289             | 103                           | 72.1            | 107                           | 57.1            | 5.21                  | 3.18           |
|                       | 8.00             | 25.59  | 32.59                      | 847                              | 314             | 113                           | 78.5            | 120                           | 64.1            | 5.14                  | 3.13           |
| 150 x 100             | 2.50             | 9.49   | 12.09                      | 390                              | 210             | 52.0                          | 42.0            | 45.3                          | 30.2            | 5.68                  | 4.17           |
|                       | 2.80             | 10.59  | 13.48                      | 433                              | 233             | 57.7                          | 46.6            | 50.6                          | 33.7            | 5.67                  | 4.16           |
|                       | 3.20             | 12.03  | 15.33                      | 488                              | 262             | 65.1                          | 52.5            | 57.5                          | 38.3            | 5.64                  | 4.14           |
|                       | 4.00             | 14.87  | 18.95                      | 595                              | 319             | 79.3                          | 63.7            | 71.1                          | 47.4            | 5.60                  | 4.10           |
|                       | 4.50             | 16.62  | 21.17                      | 658                              | 352             | 87.7                          | 70.4            | 79.4                          | 52.9            | 5.58                  | 4.08           |
|                       | 5.00             | 18.33  | 23.36                      | 719                              | 384             | 95.9                          | 76.8            | 87.6                          | 58.4            | 5.55                  | 4.06           |
|                       | 6.00             | 21.69  | 27.63                      | 835                              | 444             | 111                           | 88.8            | 104                           | 69.1            | 5.50                  | 4.01           |
|                       | 7.00             | 24.95  | 31.78                      | 917                              | 489             | 122                           | 97.7            | 118                           | 78.4            | 5.41                  | 3.95           |
|                       | 8.00             | 28.10  | 35.79                      | 1,010                            | 536             | 134                           | 107             | 132                           | 88.1            | 5.35                  | 3.90           |
| 200 x 50              | 2.50             | 9.49   | 12.09                      | 537                              | 59.3            | 53.7                          | 23.7            | 60.5                          | 15.1            | 6.66                  | 2.22           |
|                       | 2.80             | 10.59  | 13.48                      | 595                              | 65.3            | 59.5                          | 26.1            | 67.4                          | 16.9            | 6.64                  | 2.20           |
|                       | 3.20             | 12.03  | 15.33                      | 671                              | 73.1            | 67.1                          | 29.2            | 76.6                          | 19.2            | 6.62                  | 2.18           |
|                       | 4.00             | 14.87  | 18.95                      | 816                              | 87.4            | 81.6                          | 35.0            | 94.7                          | 23.7            | 6.56                  | 2.15           |
|                       | 4.50             | 16.62  | 21.17                      | 901                              | 95.6            | 90.1                          | 38.2            | 106                           | 26.5            | 6.53                  | 2.13           |
|                       | 5.00             | 18.33  | 23.36                      | 984                              | 103             | 98.4                          | 41.3            | 117                           | 29.2            | 6.49                  | 2.10           |
|                       | 6.00             | 21.69  | 27.63                      | 1,140                            | 117             | 114                           | 46.9            | 138                           | 34.5            | 6.42                  | 2.06           |
|                       | 7.00             | 24.95  | 31.78                      | 1,240                            | 126             | 124                           | 50.6            | 157                           | 39.2            | 6.28                  | 2.01           |
|                       | 8.00             | 28.10  | 35.79                      | 1,350                            | 136             | 135                           | 54.3            | 176                           | 44.1            | 6.20                  | 1.96           |
| 200 x 75              | 2.50             | 10.47  | 13.34                      | 659                              | 144             | 65.9                          | 38.3            | 66.7                          | 25.0            | 7.03                  | 3.28           |
|                       | 2.80             | 11.68  | 14.88                      | 731                              | 159             | 73.1                          | 42.4            | 74.4                          | 27.9            | 7.01                  | 3.27           |
|                       | 3.20             | 13.29  | 16.93                      | 826                              | 179             | 82.6                          | 47.7            | 84.6                          | 31.7            | 6.99                  | 3.25           |
|                       | 4.00             | 16.44  | 20.95                      | 1,010                            | 216             | 101                           | 57.7            | 105                           | 39.3            | 6.94                  | 3.21           |
|                       | 4.50             | 18.38  | 23.42                      | 1,120                            | 239             | 112                           | 63.6            | 117                           | 43.9            | 6.91                  | 3.19           |
|                       | 5.00             | 20.30  | 25.86                      | 1,220                            | 260             | 122                           | 69.3            | 129                           | 48.5            | 6.87                  | 3.17           |
|                       | 6.00             | 24.05  | 30.63                      | 1,420                            | 299             | 142                           | 79.8            | 153                           | 57.4            | 6.81                  | 3.13           |
|                       | 7.00             | 27.69  | 35.28                      | 1,560                            | 329             | 156                           | 87.7            | 174                           | 65.4            | 6.70                  | 3.07           |
|                       | 8.00             | 31.24  | 39.79                      | 1,720                            | 359             | 172                           | 95.8            | 196                           | 73.6            | 6.62                  | 3.03           |
| 200 x 100             | 2.50             | 11.45  | 14.59                      | 781                              | 270             | 78.1                          | 53.9            | 73.0                          | 36.5            | 7.32                  | 4.30           |
|                       | 2.80             | 12.78  | 16.28                      | 867                              | 299             | 86.7                          | 59.8            | 81.4                          | 40.7            | 7.30                  | 4.28           |
|                       | 3.20             | 14.54  | 18.53                      | 981                              | 337             | 98.1                          | 67.5            | 92.6                          | 46.3            | 7.28                  | 4.27           |
|                       | 4.00             | 18.01  | 22.95                      | 1,200                            | 411             | 120                           | 82.2            | 115                           | 57.4            | 7.23                  | 4.23           |
|                       | 4.50             | 20.15  | 25.67                      | 1,330                            | 455             | 133                           | 90.9            | 128                           | 64.2            | 7.20                  | 4.21           |
|                       | 5.00             | 22.26  | 28.36                      | 1,460                            | 497             | 146                           | 99.4            | 142                           | 70.9            | 7.17                  | 4.19           |
|                       | 6.00             | 26.40  | 33.63                      | 1,700                            | 577             | 170                           | 115             | 168                           | 84.1            | 7.12                  | 4.14           |
|                       | 7.00             | 30.44  | 38.78                      | 1,890                            | 640             | 189                           | 128             | 194                           | 97.0            | 6.98                  | 4.06           |
|                       | 8.00             | 34.38  | 43.79                      | 2,090                            | 705             | 209                           | 141             | 219                           | 109.5           | 6.91                  | 4.01           |
|                       | 9.00             | 38.21  | 48.67                      | 2,280                            | 764             | 228                           | 153             | 243                           | 121.7           | 6.84                  | 3.96           |
|                       | 10.00            | 41.94  | 53.42                      | 2,440                            | 818             | 244                           | 164             | 267                           | 133.6           | 6.76                  | 3.91           |
|                       | 12.00            | 49.09  | 62.53                      | 2,610                            | 876             | 261                           | 175             | 313                           | 156.3           | 6.46                  | 3.74           |
|                       | 12.70            | 51.49  | 65.59                      | 2,680                            | 898             | 268                           | 180             | 328                           | 164.0           | 6.39                  | 3.70           |
| 200 x 150             | 4.00             | 21.15  | 26.95                      | 1,580                            | 1,020           | 158                           | 136             | 135                           | 101             | 7.67                  | 6.16           |
|                       | 4.50             | 23.68  | 30.17                      | 1,760                            | 1,130           | 176                           | 151             | 151                           | 113             | 7.64                  | 6.13           |
|                       | 5.00             | 26.18  | 33.36                      | 1,930                            | 1,250           | 194                           | 166             | 167                           | 125             | 7.62                  | 6.11           |

TIS 107-2566 Table ค.1

(JIS G3466)

Carbon Steel Square Tubes for  
General Structural

ท่อเหล็กรูปสี่เหลี่ยมผืนผ้า สำหรับงานโครงสร้าง

“Black Steel Pipe, Primer Coated Pipe and Pre-Galvanized Pipe”



| Dimension Tolerances |                        |
|----------------------|------------------------|
| Length of Side       | H,B ≤ 100 mm : ±1.5 mm |
|                      | H,B > 100 mm : ±1.5%   |
| Thickness            | ±10%                   |
| Weight               | ±10%                   |
| Steel Pipe Surface   | ● ● ●                  |

| Nominal Size<br>H x B | Thickness<br>(t) | Weight | Cross<br>Sectional<br>Area | Geometrical Moment of<br>Inertia |                 | Elastic Modulus of<br>Section |                 | Plastic Modulus of<br>Section |                 | Radius of<br>Gyration |                |
|-----------------------|------------------|--------|----------------------------|----------------------------------|-----------------|-------------------------------|-----------------|-------------------------------|-----------------|-----------------------|----------------|
|                       |                  |        |                            | I <sub>x</sub>                   | I <sub>y</sub>  | S <sub>x</sub>                | S <sub>y</sub>  | Z <sub>x</sub>                | Z <sub>y</sub>  | r <sub>x</sub>        | r <sub>y</sub> |
| mm.                   | mm               | kg/m   | cm <sup>2</sup>            | cm <sup>4</sup>                  | cm <sup>4</sup> | cm <sup>3</sup>               | cm <sup>3</sup> | cm <sup>3</sup>               | cm <sup>3</sup> | cm                    | cm             |
| 200 x 150             | 6.00             | 31.11  | 39.63                      | 2,270                            | 1,460           | 227                           | 194             | 198                           | 149             | 7.57                  | 6.06           |
|                       | 7.00             | 35.94  | 45.78                      | 2,540                            | 1,630           | 254                           | 218             | 227                           | 170             | 7.49                  | 6.00           |
|                       | 8.00             | 40.66  | 51.79                      | 2,830                            | 1,820           | 283                           | 242             | 256                           | 192             | 7.43                  | 5.95           |
|                       | 9.00             | 45.27  | 57.67                      | 3,100                            | 1,990           | 310                           | 265             | 285                           | 214             | 7.37                  | 5.90           |
|                       | 10.00            | 49.79  | 63.42                      | 3,350                            | 2,140           | 335                           | 286             | 313                           | 235             | 7.32                  | 5.85           |
| 250 x 150             | 4.00             | 24.29  | 30.95                      | 2,700                            | 1,230           | 216                           | 165             | 193                           | 116             | 9.34                  | 6.32           |
|                       | 4.50             | 27.21  | 34.67                      | 3,000                            | 1,370           | 240                           | 183             | 217                           | 130             | 9.31                  | 6.29           |
|                       | 5.00             | 30.11  | 38.36                      | 3,300                            | 1,510           | 264                           | 201             | 240                           | 144             | 9.28                  | 6.27           |
|                       | 6.00             | 35.82  | 45.63                      | 3,890                            | 1,770           | 311                           | 236             | 285                           | 171             | 9.23                  | 6.23           |
|                       | 7.00             | 41.43  | 52.78                      | 4,380                            | 1,990           | 350                           | 266             | 327                           | 196             | 9.14                  | 6.17           |
|                       | 8.00             | 46.94  | 59.79                      | 4,890                            | 2,220           | 391                           | 296             | 370                           | 222             | 9.08                  | 6.12           |
|                       | 9.00             | 52.34  | 66.67                      | 5,370                            | 2,430           | 430                           | 324             | 412                           | 247             | 9.02                  | 6.07           |
|                       | 10.00            | 57.64  | 73.42                      | 5,830                            | 2,630           | 466                           | 351             | 454                           | 272             | 8.96                  | 6.03           |
| 260 x 180             | 4.00             | 26.81  | 34.15                      | 3,360                            | 1,920           | 258                           | 213             | 222                           | 154             | 9.92                  | 7.49           |
|                       | 4.50             | 30.04  | 38.27                      | 3,740                            | 2,140           | 288                           | 237             | 249                           | 172             | 9.89                  | 7.47           |
|                       | 5.00             | 33.25  | 42.36                      | 4,120                            | 2,350           | 317                           | 261             | 275                           | 191             | 9.86                  | 7.45           |
|                       | 6.00             | 39.59  | 50.43                      | 4,860                            | 2,760           | 374                           | 307             | 328                           | 227             | 9.81                  | 7.40           |
|                       | 7.00             | 45.83  | 58.38                      | 5,490                            | 3,130           | 422                           | 347             | 377                           | 261             | 9.73                  | 7.34           |
|                       | 8.00             | 51.96  | 66.19                      | 6,150                            | 3,490           | 473                           | 388             | 427                           | 295             | 9.68                  | 7.30           |
|                       | 9.00             | 57.99  | 73.87                      | 6,770                            | 3,840           | 521                           | 427             | 476                           | 329             | 9.62                  | 7.25           |
|                       | 10.00            | 63.92  | 81.42                      | 7,360                            | 4,170           | 566                           | 464             | 524                           | 363             | 9.56                  | 7.20           |
| 300 x 100             | 4.00             | 24.29  | 30.95                      | 3,320                            | 595             | 221                           | 119             | 232                           | 77              | 10.4                  | 4.39           |
|                       | 4.50             | 27.21  | 34.67                      | 3,700                            | 660             | 247                           | 132             | 260                           | 87              | 10.3                  | 4.36           |
|                       | 5.00             | 30.11  | 38.36                      | 4,070                            | 723             | 271                           | 145             | 288                           | 96              | 10.3                  | 4.34           |
|                       | 6.00             | 35.82  | 45.63                      | 4,780                            | 842             | 319                           | 169             | 342                           | 114             | 10.2                  | 4.30           |
|                       | 9.00             | 52.34  | 66.67                      | 6,560                            | 1,140           | 437                           | 228             | 495                           | 165             | 9.97                  | 4.15           |
|                       | 10.00            | 57.64  | 73.42                      | 7,110                            | 1,220           | 474                           | 245             | 544                           | 181             | 9.90                  | 4.11           |
|                       | 12.00            | 67.93  | 86.53                      | 7,810                            | 1,340           | 521                           | 269             | 630                           | 210             | 9.64                  | 4.00           |
|                       | 12.70            | 71.43  | 90.99                      | 8,090                            | 1,390           | 539                           | 277             | 662                           | 221             | 9.57                  | 3.96           |
| 300 x 150             | 4.00             | 27.43  | 34.95                      | 4,200                            | 1,450           | 280                           | 193             | 262                           | 131             | 11.0                  | 6.44           |
|                       | 4.50             | 30.75  | 39.17                      | 4,680                            | 1,610           | 312                           | 215             | 294                           | 147             | 10.9                  | 6.41           |
|                       | 5.00             | 34.03  | 43.36                      | 5,150                            | 1,770           | 344                           | 236             | 325                           | 163             | 10.9                  | 6.39           |
|                       | 6.00             | 40.53  | 51.63                      | 6,070                            | 2,080           | 405                           | 277             | 387                           | 194             | 10.9                  | 6.35           |
|                       | 9.00             | 59.40  | 75.67                      | 8,470                            | 2,880           | 564                           | 384             | 562                           | 281             | 10.6                  | 6.20           |
|                       | 10.00            | 65.49  | 83.42                      | 9,210                            | 3,130           | 614                           | 417             | 619                           | 310             | 10.6                  | 6.15           |
|                       | 12.00            | 77.35  | 98.53                      | 10,300                           | 3,500           | 687                           | 466             | 720                           | 360             | 10.4                  | 6.04           |
|                       | 12.70            | 81.40  | 103.7                      | 10,700                           | 3,630           | 714                           | 484             | 757                           | 379             | 10.3                  | 6.00           |
| 300 x 200             | 4.00             | 30.57  | 38.95                      | 5,070                            | 2,740           | 338                           | 274             | 292                           | 195             | 11.4                  | 8.38           |
|                       | 4.50             | 34.28  | 43.67                      | 5,660                            | 3,050           | 378                           | 305             | 328                           | 218             | 11.4                  | 8.36           |
|                       | 5.00             | 37.96  | 48.36                      | 6,240                            | 3,360           | 416                           | 336             | 363                           | 242             | 11.4                  | 8.34           |
|                       | 6.00             | 45.24  | 57.63                      | 7,370                            | 3,960           | 491                           | 396             | 432                           | 288             | 11.3                  | 8.29           |
|                       | 9.00             | 66.47  | 84.67                      | 10,400                           | 5,560           | 691                           | 556             | 630                           | 420             | 11.1                  | 8.14           |
|                       | 10.00            | 73.34  | 93.42                      | 11,300                           | 6,060           | 754                           | 606             | 694                           | 463             | 11.1                  | 8.09           |
|                       | 12.00            | 86.77  | 110.5                      | 12,800                           | 6,850           | 853                           | 685             | 810                           | 540             | 10.9                  | 7.96           |
|                       | 12.70            | 91.37  | 116.4                      | 13,300                           | 7,140           | 889                           | 714             | 852                           | 568             | 10.8                  | 7.93           |
| 350 x 150             | 4.00             | 30.57  | 38.95                      | 6,130                            | 1,660           | 351                           | 221             | 341                           | 146             | 12.6                  | 6.53           |
|                       | 4.50             | 34.28  | 43.67                      | 6,840                            | 1,850           | 391                           | 247             | 382                           | 164             | 12.5                  | 6.51           |
|                       | 5.00             | 37.96  | 48.36                      | 7,540                            | 2,030           | 431                           | 271             | 423                           | 181             | 12.5                  | 6.49           |
|                       | 6.00             | 45.24  | 57.63                      | 8,910                            | 2,390           | 509                           | 319             | 504                           | 216             | 12.4                  | 6.44           |

TIS 107-2566 Table ค.1

(JIS G3466)

Carbon Steel Square Tubes for  
General Structural

ท่อเหล็กรูปสี่เหลี่ยมผืนผ้า สำหรับงานโครงสร้าง

“Black Steel Pipe, Primer Coated Pipe and Pre-Galvanized Pipe”



| Dimension Tolerances |                        |
|----------------------|------------------------|
| Length of Side       | H,B ≤ 100 mm : ±1.5 mm |
|                      | H,B > 100 mm : ±1.5%   |
| Thickness            | ±10%                   |
| Weight               | ±10%                   |
| Steel Pipe Surface   | ● ● ●                  |

| Nominal Size<br>H x B | Thickness<br>(t) | Weight | Cross<br>Sectional<br>Area | Geometrical Moment of<br>Inertia |                 | Elastic Modulus of<br>Section |                 | Plastic Modulus of<br>Section |                 | Radius of<br>Gyration |                |
|-----------------------|------------------|--------|----------------------------|----------------------------------|-----------------|-------------------------------|-----------------|-------------------------------|-----------------|-----------------------|----------------|
|                       |                  |        |                            | I <sub>x</sub>                   | I <sub>y</sub>  | S <sub>x</sub>                | S <sub>y</sub>  | Z <sub>x</sub>                | Z <sub>y</sub>  | r <sub>x</sub>        | r <sub>y</sub> |
| mm.                   | mm               | kg/m   | cm <sup>2</sup>            | cm <sup>4</sup>                  | cm <sup>4</sup> | cm <sup>3</sup>               | cm <sup>3</sup> | cm <sup>3</sup>               | cm <sup>3</sup> | cm                    | cm             |
| 350 x 150             | 9.00             | 66.47  | 84.67                      | 12,500                           | 3,330           | 714                           | 444             | 735                           | 315             | 12.2                  | 6.30           |
|                       | 10.00            | 73.34  | 93.42                      | 13,600                           | 3,620           | 779                           | 482             | 810                           | 347             | 12.1                  | 6.25           |
|                       | 12.00            | 86.77  | 110.5                      | 15,300                           | 4,070           | 877                           | 543             | 946                           | 405             | 11.9                  | 6.14           |
|                       | 12.70            | 91.37  | 116.4                      | 16,000                           | 4,230           | 913                           | 564             | 994                           | 426             | 11.9                  | 6.10           |
| 350 x 250             | 4.00             | 36.85  | 46.95                      | 8,530                            | 5,120           | 487                           | 409             | 411                           | 293             | 13.5                  | 10.4           |
|                       | 4.50             | 41.34  | 52.67                      | 9,530                            | 5,720           | 545                           | 457             | 461                           | 329             | 13.5                  | 10.4           |
|                       | 5.00             | 45.81  | 58.36                      | 10,500                           | 6,310           | 601                           | 505             | 511                           | 365             | 13.4                  | 10.4           |
|                       | 6.00             | 54.66  | 69.63                      | 12,500                           | 7,460           | 712                           | 597             | 609                           | 435             | 13.4                  | 10.4           |
|                       | 9.00             | 80.60  | 102.7                      | 17,700                           | 10,600          | 1,010                         | 848             | 892                           | 637             | 13.2                  | 10.2           |
|                       | 10.00            | 89.04  | 113.4                      | 19,400                           | 11,600          | 1,110                         | 927             | 985                           | 704             | 13.1                  | 10.2           |
|                       | 12.00            | 105.60 | 134.5                      | 22,200                           | 13,300          | 1,270                         | 1,060           | 1,160                         | 825             | 13.0                  | 10.0           |
| 400 x 200             | 11.30            | 141.8  | 141.8                      | 23,200                           | 13,900          | 1,330                         | 1,110           | 1,220                         | 869             | 12.9                  | 9.98           |
|                       | 4.50             | 41.34  | 52.67                      | 11,300                           | 3,910           | 566                           | 391             | 527                           | 263             | 14.7                  | 8.62           |
|                       | 5.00             | 45.81  | 58.36                      | 12,500                           | 4,310           | 625                           | 431             | 584                           | 292             | 14.6                  | 8.60           |
|                       | 6.00             | 54.66  | 69.63                      | 14,800                           | 5,090           | 740                           | 509             | 696                           | 348             | 14.6                  | 8.55           |
|                       | 9.00             | 80.60  | 102.7                      | 21,000                           | 7,200           | 1,050                         | 720             | 1,020                         | 510             | 14.4                  | 8.41           |
|                       | 10.00            | 89.04  | 113.4                      | 23,000                           | 7,860           | 1,150                         | 786             | 1,130                         | 563             | 14.3                  | 8.36           |
|                       | 12.00            | 105.60 | 134.5                      | 26,200                           | 8,980           | 1,310                         | 898             | 1,320                         | 660             | 14.1                  | 8.25           |
| 400 x 200             | 12.70            | 111.30 | 141.8                      | 27,400                           | 9,370           | 1,370                         | 937             | 1,420                         | 709             | 13.9                  | 8.13           |

TIS 107-2566 Table ค.2

(ASTM A500)

Rectangular Hollow Section for  
Structural Purposes

ท่อเหล็กรูปสี่เหลี่ยมผืนผ้า สำหรับงานโครงสร้าง

“Black Steel Pipe, Primer Coated Pipe and Pre-Galvanized Pipe”



| Dimension Tolerances |                        |
|----------------------|------------------------|
| Length of Side       | H,B ≤ 100 mm : ±1.5 mm |
|                      | H,B > 100 mm : ±1.5%   |
| Thickness            | ±10%                   |
| Weight               | ±10%                   |
| Steel Pipe Surface   | ● ● ●                  |

| Nominal Size<br>H x B       | Thickness<br>(t) | Weight | Cross<br>Sectional<br>Area | Geometrical Moment of<br>Inertia |                 | Elastic Modulus of<br>Section |                 | Plastic Modulus of<br>Section |                 | Radius of<br>Gyration |                |
|-----------------------------|------------------|--------|----------------------------|----------------------------------|-----------------|-------------------------------|-----------------|-------------------------------|-----------------|-----------------------|----------------|
|                             |                  |        |                            | I <sub>x</sub>                   | I <sub>y</sub>  | S <sub>x</sub>                | S <sub>y</sub>  | Z <sub>x</sub>                | Z <sub>y</sub>  | r <sub>x</sub>        | r <sub>y</sub> |
| mm.                         | mm               | kg/m   | cm <sup>2</sup>            | cm <sup>4</sup>                  | cm <sup>4</sup> | cm <sup>3</sup>               | cm <sup>3</sup> | cm <sup>3</sup>               | cm <sup>3</sup> | cm                    | cm             |
| 76.2 x 50.8<br>(3" x 2")    | 3.58             | 6.43   | 8.250                      | 63.0                             | 33.4            | 16.5                          | 13.2            | 15.7                          | 10.5            | 2.76                  | 2.01           |
|                             | 4.78             | 8.32   | 10.64                      | 77.5                             | 40.8            | 20.3                          | 16.1            | 20.3                          | 13.5            | 2.70                  | 1.96           |
|                             | 6.35             | 10.56  | 13.13                      | 86.8                             | 45.7            | 22.8                          | 18.0            | 25.0                          | 16.7            | 2.57                  | 1.87           |
| 101.6 x 50.8<br>(4" x 2")   | 3.96             | 8.60   | 11.04                      | 140                              | 47.0            | 27.6                          | 18.5            | 28.0                          | 14.0            | 3.56                  | 2.06           |
|                             | 4.78             | 10.21  | 13.07                      | 161                              | 53.7            | 31.8                          | 21.1            | 33.2                          | 16.6            | 3.51                  | 2.03           |
|                             | 6.35             | 13.09  | 16.36                      | 186                              | 61.8            | 36.7                          | 24.3            | 41.6                          | 20.8            | 3.38                  | 1.94           |
| 101.6 x 76.2<br>(4" x 3")   | 3.96             | 10.24  | 13.05                      | 188                              | 120             | 37.0                          | 31.6            | 33.1                          | 16.6            | 3.80                  | 3.04           |
|                             | 4.78             | 12.11  | 15.50                      | 218                              | 139             | 43.0                          | 36.6            | 39.4                          | 19.7            | 3.75                  | 3.00           |
|                             | 6.35             | 15.62  | 19.58                      | 260                              | 166             | 51.1                          | 43.5            | 49.7                          | 24.9            | 3.64                  | 2.91           |
| 127.0 x 76.2<br>(5" x 3")   | 4.78             | 13.85  | 17.92                      | 378                              | 171             | 59.6                          | 44.8            | 56.9                          | 34.1            | 4.59                  | 3.08           |
|                             | 6.35             | 17.89  | 22.81                      | 456                              | 205             | 71.8                          | 53.9            | 72.4                          | 43.5            | 4.47                  | 3.00           |
|                             | 7.92             | 21.61  | 27.52                      | 526                              | 235             | 82.8                          | 61.7            | 87.4                          | 52.4            | 4.37                  | 2.92           |
| 152.4 x 76.2<br>(6" x 3")   | 4.78             | 15.74  | 20.35                      | 596                              | 202             | 78.2                          | 52.9            | 77.5                          | 38.8            | 5.41                  | 3.15           |
|                             | 6.35             | 20.42  | 26.03                      | 726                              | 245             | 95.3                          | 64.2            | 99.2                          | 49.6            | 5.28                  | 3.07           |
|                             | 7.92             | 24.78  | 31.55                      | 845                              | 282             | 111                           | 74.1            | 120                           | 60.1            | 5.18                  | 2.99           |
| 152.4 x 101.6<br>(6" x 4")  | 4.78             | 17.65  | 22.78                      | 728                              | 389             | 95.6                          | 76.6            | 86.8                          | 57.9            | 5.65                  | 4.13           |
|                             | 6.35             | 22.94  | 29.26                      | 898                              | 479             | 118                           | 94.4            | 111                           | 74.3            | 5.54                  | 4.05           |
|                             | 7.92             | 27.93  | 35.57                      | 1,060                            | 561             | 138                           | 110             | 136                           | 90.3            | 5.45                  | 3.97           |
|                             | 9.52             | 32.65  | 44.74                      | 1,370                            | 707             | 179                           | 139             | 170                           | 114             | 5.52                  | 3.97           |
| 203.2 x 101.6<br>(8" x 4")  | 4.78             | 21.44  | 28.22                      | 1,530                            | 518             | 151                           | 102             | 143                           | 71.7            | 7.37                  | 4.28           |
|                             | 6.35             | 28.00  | 37.10                      | 1,980                            | 661             | 195                           | 130             | 188                           | 94.2            | 7.31                  | 4.22           |
|                             | 7.92             | 34.25  | 45.77                      | 2,400                            | 791             | 237                           | 156             | 233                           | 116             | 7.25                  | 4.16           |
|                             | 9.52             | 40.28  | 54.41                      | 2,810                            | 912             | 276                           | 180             | 276                           | 138             | 7.18                  | 4.09           |
| 203.2 x 152.4<br>(8" x 6")  | 4.78             | 25.07  | 33.08                      | 2,010                            | 1,290           | 198                           | 169             | 168                           | 126             | 7.80                  | 6.25           |
|                             | 6.35             | 32.80  | 43.55                      | 2,610                            | 1,670           | 257                           | 219             | 221                           | 166             | 7.74                  | 6.18           |
|                             | 7.92             | 39.16  | 53.82                      | 3,170                            | 2,020           | 312                           | 265             | 273                           | 205             | 7.68                  | 6.12           |
|                             | 9.52             | 47.21  | 64.08                      | 3,710                            | 2,350           | 366                           | 309             | 326                           | 244             | 7.61                  | 6.06           |
| 254.0 x 152.4<br>(10" x 6") | 6.35             | 37.85  | 50.00                      | 4,460                            | 2,010           | 351                           | 264             | 318                           | 191             | 9.44                  | 6.34           |
|                             | 7.92             | 46.49  | 61.86                      | 5,440                            | 2,440           | 428                           | 320             | 393                           | 236             | 9.38                  | 6.28           |
|                             | 9.52             | 54.80  | 73.75                      | 6,400                            | 2,850           | 504                           | 374             | 468                           | 281             | 9.31                  | 6.21           |
| 304.8 x 203.2<br>(12" x 8") | 12.70            | 93.41  | 122.6                      | 15,600                           | 8,220           | 1,030                         | 809             | 934                           | 623             | 11.3                  | 8.19           |
| 406.4 x 203.2<br>(16" x 8") | 12.70            | 113.66 | 148.4                      | 31,700                           | 10,600          | 1,560                         | 1,040           | 1,508                         | 754             | 14.6                  | 8.44           |

Cold Formed Welded Structural Hollow Section

ท่อเหล็กรูปสี่เหลี่ยมผืนผ้า สำหรับงานโครงสร้าง

“Black Steel Pipe, Primer Coated Pipe and Pre-Galvanized Pipe”



| Dimension Tolerances |                        |
|----------------------|------------------------|
| Length of Side       | H,B ≤ 100 mm : ±1.5 mm |
|                      | H,B > 100 mm : ±1.5%   |
| Thickness            | ±10%                   |
| Weight               | ±10%                   |
| Steel Pipe Surface   | ● ● ●                  |

| Nominal Size<br>H x B | Thickness<br>(t) | Weight | Cross<br>Sectional<br>Area | Geometrical Moment of<br>Inertia |                 | Elastic Modulus of<br>Section |                 | Plastic Modulus of<br>Section |                 | Radius of<br>Gyration |                |
|-----------------------|------------------|--------|----------------------------|----------------------------------|-----------------|-------------------------------|-----------------|-------------------------------|-----------------|-----------------------|----------------|
|                       |                  |        |                            | I <sub>x</sub>                   | I <sub>y</sub>  | S <sub>x</sub>                | S <sub>y</sub>  | Z <sub>x</sub>                | Z <sub>y</sub>  | r <sub>x</sub>        | r <sub>y</sub> |
| mm.                   | mm               | kg/m   | cm <sup>2</sup>            | cm <sup>4</sup>                  | cm <sup>4</sup> | cm <sup>3</sup>               | cm <sup>3</sup> | cm <sup>3</sup>               | cm <sup>3</sup> | cm                    | cm             |
| 40 x 20               | 2.00             | 1.68   | 2.14                       | 4.05                             | 1.34            | 2.02                          | 1.34            | 2.14                          | 1.07            | 1.38                  | 0.793          |
|                       | 2.50             | 2.03   | 2.59                       | 4.69                             | 1.54            | 2.35                          | 1.54            | 2.59                          | 1.30            | 1.35                  | 0.770          |
|                       | 3.00             | 2.36   | 3.01                       | 5.21                             | 1.68            | 2.60                          | 1.68            | 3.01                          | 1.51            | 1.32                  | 0.748          |
| 50 x 30               | 2.00             | 2.31   | 2.94                       | 9.54                             | 4.29            | 3.81                          | 2.86            | 3.68                          | 2.21            | 1.80                  | 1.21           |
|                       | 2.50             | 2.82   | 3.59                       | 11.3                             | 5.05            | 4.52                          | 3.37            | 4.49                          | 2.69            | 1.77                  | 1.19           |
|                       | 3.00             | 3.30   | 4.21                       | 12.8                             | 5.70            | 5.13                          | 3.80            | 5.26                          | 3.16            | 1.75                  | 1.16           |
|                       | 4.00             | 4.20   | 5.35                       | 15.3                             | 6.69            | 6.10                          | 4.46            | 6.69                          | 4.01            | 1.69                  | 1.12           |
| 60 x 40               | 2.00             | 2.93   | 3.74                       | 18.4                             | 9.83            | 6.14                          | 4.92            | 5.61                          | 3.74            | 2.22                  | 1.62           |
|                       | 2.50             | 3.60   | 4.59                       | 22.1                             | 11.7            | 7.36                          | 5.87            | 6.89                          | 4.59            | 2.19                  | 1.60           |
|                       | 3.00             | 4.25   | 5.41                       | 25.4                             | 13.4            | 8.46                          | 6.72            | 8.12                          | 5.41            | 2.17                  | 1.58           |
|                       | 4.00             | 5.45   | 6.95                       | 31.0                             | 16.3            | 10.3                          | 8.14            | 10.4                          | 6.95            | 2.11                  | 1.53           |
|                       | 5.00             | 6.56   | 8.36                       | 35.3                             | 18.4            | 11.8                          | 9.21            | 12.5                          | 8.36            | 2.06                  | 1.48           |
| 100 x 50              | 2.50             | 5.56   | 7.09                       | 91.2                             | 31.1            | 18.2                          | 12.4            | 17.7                          | 8.86            | 3.59                  | 2.09           |
|                       | 3.00             | 6.60   | 8.41                       | 106                              | 36.1            | 21.3                          | 14.4            | 21.0                          | 10.5            | 3.56                  | 2.07           |
|                       | 4.00             | 8.59   | 10.9                       | 134                              | 44.9            | 26.8                          | 18.0            | 27.3                          | 13.6            | 3.50                  | 2.03           |
|                       | 5.00             | 10.50  | 13.4                       | 158                              | 52.5            | 31.6                          | 21.0            | 33.5                          | 16.8            | 3.44                  | 1.98           |
|                       | 6.00             | 12.30  | 15.6                       | 179                              | 58.7            | 35.8                          | 23.5            | 39.0                          | 19.5            | 3.38                  | 1.94           |
|                       | 6.30             | 12.50  | 15.9                       | 176                              | 58.2            | 35.1                          | 23.3            | 39.8                          | 19.9            | 3.32                  | 1.91           |
| 120 x 80              | 3.00             | 8.96   | 11.4                       | 230                              | 123             | 38.4                          | 30.9            | 34.2                          | 22.8            | 4.49                  | 3.29           |
|                       | 4.00             | 11.70  | 14.9                       | 295                              | 157             | 49.1                          | 39.3            | 44.7                          | 29.8            | 4.44                  | 3.24           |
|                       | 5.00             | 14.40  | 18.4                       | 353                              | 188             | 58.9                          | 46.9            | 55.2                          | 36.8            | 4.39                  | 3.20           |
|                       | 6.00             | 17.00  | 21.6                       | 406                              | 215             | 67.7                          | 53.8            | 64.8                          | 43.2            | 4.33                  | 3.15           |
|                       | 6.30             | 17.50  | 22.2                       | 408                              | 217             | 68.1                          | 54.3            | 66.6                          | 44.4            | 4.28                  | 3.12           |
|                       | 8.00             | 21.40  | 27.2                       | 476                              | 252             | 79.3                          | 62.9            | 81.6                          | 54.4            | 4.18                  | 3.04           |
| 150 x 100             | 4.00             | 14.90  | 18.9                       | 595                              | 319             | 79.3                          | 63.7            | 70.9                          | 47.3            | 5.60                  | 4.10           |
|                       | 5.00             | 18.30  | 23.4                       | 719                              | 384             | 95.9                          | 76.8            | 87.8                          | 58.5            | 5.55                  | 4.05           |
|                       | 6.00             | 21.70  | 27.6                       | 835                              | 444             | 111                           | 88.8            | 104                           | 69.0            | 5.50                  | 4.01           |
|                       | 6.30             | 22.40  | 28.5                       | 848                              | 453             | 113                           | 90.5            | 107                           | 71.3            | 5.45                  | 3.98           |
|                       | 8.00             | 27.70  | 35.2                       | 1,008                            | 536             | 134                           | 107             | 132                           | 88.0            | 5.35                  | 3.90           |
|                       | 10.00            | 33.40  | 42.6                       | 1,162                            | 614             | 155                           | 123             | 160                           | 107             | 5.22                  | 3.80           |
| 200 x 100             | 4.00             | 18.00  | 22.9                       | 1,200                            | 411             | 120                           | 82.2            | 115                           | 57.3            | 7.23                  | 4.23           |
|                       | 5.00             | 22.30  | 28.4                       | 1,459                            | 497             | 146                           | 99.4            | 142                           | 71.0            | 7.17                  | 4.19           |
|                       | 6.00             | 26.40  | 33.6                       | 1,703                            | 577             | 170                           | 115             | 168                           | 84.0            | 7.12                  | 4.14           |
|                       | 6.30             | 27.40  | 34.8                       | 1,739                            | 591             | 174                           | 118             | 174                           | 87.0            | 7.06                  | 4.12           |
|                       | 8.00             | 33.90  | 43.2                       | 2,091                            | 705             | 209                           | 141             | 216                           | 108             | 6.95                  | 4.04           |
|                       | 10.00            | 41.30  | 52.6                       | 2,444                            | 818             | 244                           | 164             | 263                           | 132             | 6.82                  | 3.94           |
| 250 x 150             | 5.00             | 30.10  | 38.4                       | 3,304                            | 1,508           | 264                           | 201             | 240                           | 144             | 9.28                  | 6.27           |
|                       | 6.00             | 35.80  | 45.6                       | 3,886                            | 1,768           | 311                           | 236             | 285                           | 171             | 9.23                  | 6.23           |
|                       | 6.30             | 37.20  | 47.4                       | 4,001                            | 1,825           | 320                           | 243             | 296                           | 178             | 9.18                  | 6.20           |
|                       | 8.00             | 46.50  | 59.2                       | 4,886                            | 2,219           | 391                           | 296             | 370                           | 222             | 9.08                  | 6.12           |
|                       | 10.00            | 57.00  | 72.6                       | 5,825                            | 2,634           | 466                           | 351             | 454                           | 272             | 8.96                  | 6.02           |
| 300 x 100             | 6.00             | 35.80  | 45.6                       | 4,777                            | 842             | 318                           | 168             | 342                           | 114             | 10.2                  | 4.30           |
|                       | 6.30             | 37.20  | 47.4                       | 4,907                            | 868             | 327                           | 174             | 356                           | 119             | 10.2                  | 4.28           |
|                       | 8.00             | 46.50  | 59.2                       | 5,978                            | 1,045           | 399                           | 209             | 444                           | 148             | 10.0                  | 4.20           |
|                       | 10.00            | 57.00  | 72.6                       | 7,106                            | 1,224           | 474                           | 245             | 545                           | 182             | 9.90                  | 4.11           |
|                       | 12.00            | 66.00  | 84.1                       | 7,808                            | 1,343           | 521                           | 269             | 631                           | 210             | 9.64                  | 4.00           |
|                       | 12.50            | 68.30  | 87.0                       | 8,010                            | 1,374           | 534                           | 275             | 653                           | 218             | 9.59                  | 3.97           |

Cold Formed Welded Structural Hollow Section

ท่อเหล็กรูปสี่เหลี่ยมผืนผ้า สำหรับงานโครงสร้าง

“Black Steel Pipe, Primer Coated Pipe and Pre-Galvanized Pipe”



| Dimension Tolerances |                        |
|----------------------|------------------------|
| Length of Side       | H,B ≤ 100 mm : ±1.5 mm |
|                      | H,B > 100 mm : ±1.5%   |
| Thickness            | ±10%                   |
| Weight               | ±10%                   |
| Steel Pipe Surface   | ● ● ●                  |

| Nominal Size<br>H x B | Thickness<br>(t) | Weight | Cross<br>Sectional<br>Area | Geometrical Moment of<br>Inertia |                 | Elastic Modulus of<br>Section |                 | Plastic Modulus of<br>Section |                 | Radius of<br>Gyration |                |
|-----------------------|------------------|--------|----------------------------|----------------------------------|-----------------|-------------------------------|-----------------|-------------------------------|-----------------|-----------------------|----------------|
|                       |                  |        |                            | I <sub>x</sub>                   | I <sub>y</sub>  | S <sub>x</sub>                | S <sub>y</sub>  | Z <sub>x</sub>                | Z <sub>y</sub>  | r <sub>x</sub>        | r <sub>y</sub> |
| mm.                   | mm               | kg/m   | cm <sup>2</sup>            | cm <sup>4</sup>                  | cm <sup>4</sup> | cm <sup>3</sup>               | cm <sup>3</sup> | cm <sup>3</sup>               | cm <sup>3</sup> | cm                    | cm             |
| 300 x 150             | 6.00             | 40.50  | 51.6                       | 6,074                            | 2,080           | 405                           | 277             | 387                           | 194             | 10.8                  | 6.35           |
|                       | 6.30             | 42.20  | 53.7                       | 6,266                            | 2,150           | 418                           | 287             | 403                           | 201             | 10.8                  | 6.32           |
|                       | 8.00             | 52.80  | 67.2                       | 7,684                            | 2,623           | 512                           | 350             | 504                           | 252             | 10.7                  | 6.25           |
|                       | 10.00            | 64.80  | 82.6                       | 9,209                            | 3,125           | 614                           | 417             | 620                           | 310             | 10.6                  | 6.15           |
|                       | 12.00            | 75.40  | 96.1                       | 10,300                           | 3,498           | 687                           | 466             | 721                           | 360             | 10.4                  | 6.03           |
|                       | 12.50            | 78.10  | 99.5                       | 10,590                           | 3,595           | 706                           | 479             | 746                           | 373             | 10.3                  | 6.01           |
| 300 x 200             | 6.00             | 45.20  | 57.6                       | 7,370                            | 3,962           | 491                           | 396             | 432                           | 288             | 11.3                  | 8.29           |
|                       | 6.30             | 47.10  | 60.0                       | 7,624                            | 4,104           | 508                           | 410             | 450                           | 300             | 11.3                  | 8.27           |
|                       | 8.00             | 59.10  | 75.2                       | 9,389                            | 5,042           | 626                           | 504             | 564                           | 376             | 11.2                  | 8.19           |
|                       | 10.00            | 72.70  | 92.6                       | 11,310                           | 6,058           | 754                           | 606             | 695                           | 463             | 11.1                  | 8.09           |
|                       | 12.00            | 84.80  | 108                        | 12,790                           | 6,854           | 853                           | 685             | 810                           | 540             | 10.9                  | 7.96           |
|                       | 12.50            | 88.00  | 112                        | 13,180                           | 7,060           | 879                           | 706             | 840                           | 560             | 10.8                  | 7.94           |
| 350 x 250             | 6.00             | 54.70  | 69.6                       | 12,460                           | 7,458           | 712                           | 597             | 609                           | 435             | 13.4                  | 10.3           |
|                       | 6.30             | 57.00  | 72.6                       | 12,920                           | 7,744           | 738                           | 620             | 635                           | 454             | 13.3                  | 10.3           |
|                       | 8.00             | 71.60  | 91.2                       | 16,000                           | 9,573           | 914                           | 766             | 798                           | 570             | 13.2                  | 10.2           |
|                       | 10.00            | 88.40  | 113                        | 19,410                           | 11,590          | 1,109                         | 927             | 989                           | 706             | 13.1                  | 10.1           |
|                       | 12.00            | 104.00 | 132                        | 22,200                           | 13,260          | 1,268                         | 1,061           | 1,155                         | 825             | 13.0                  | 10.0           |
|                       | 12.50            | 108.00 | 137                        | 22,920                           | 13,690          | 1,310                         | 1,095           | 1,199                         | 856             | 12.9                  | 9.99           |
| 400 x 200             | 8.00             | 71.60  | 91.2                       | 18,970                           | 6,517           | 949                           | 652             | 912                           | 456             | 14.4                  | 8.45           |
|                       | 12.50            | 108.00 | 137                        | 27,100                           | 9,260           | 1,355                         | 926             | 1,370                         | 685             | 14.1                  | 8.22           |



# TIS 1228

## Lip channel section

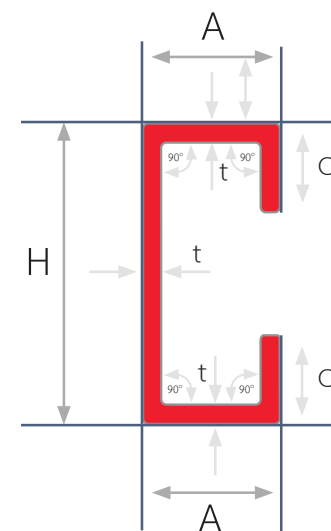
### Cold Formed Structural Steel Sections : Lip channel section

เหล็กงานโครงสร้างรูปพรรณขึ้นรูปเย็น (เหล็กรูปตัวซีมีขอบ)

“Black Steel Pipe and Primer Coated Pipe”



| Grade   | Mechanical Properties (Min) |                  |                   |              |            |
|---------|-----------------------------|------------------|-------------------|--------------|------------|
|         | Yield Strength              | Tensile Strength | Nominal thickness | Gauge length | Elongation |
|         | MPa                         | MPa              | mm                | mm           | %          |
| SSCS330 | 205                         | 300 - 450        | ไม่เกิน 5         | 50           | 26         |
|         |                             |                  | มากกว่า 5 ถึง 6   | 200          | 21         |
| SSCS400 | 245                         | 400 - 510        | ไม่เกิน 5         | 50           | 21         |
|         |                             |                  | มากกว่า 5 ถึง 6   | 200          | 17         |
| SSCS490 | 285                         | 490 - 610        | ไม่เกิน 5         | 50           | 19         |
|         |                             |                  | มากกว่า 5 ถึง 6   | 200          | 15         |
| SSCS540 | 400                         | ต่ำกว่า 540      | ไม่เกิน 5         | 50           | 16         |
|         |                             |                  | มากกว่า 5 ถึง 6   | 200          | 13         |



| Dimensional Tolerances       |                              |                                                                            |
|------------------------------|------------------------------|----------------------------------------------------------------------------|
| Specified Item and Dimension |                              | Dimensional Tolerances                                                     |
| A B หรือ H                   | < 150 mm                     | ±1.5 mm                                                                    |
|                              | 150 mm ถึง < 300 mm          | ±2.0 mm                                                                    |
|                              | ตั้งแต่ 300 mm ขึ้นไป        | ±3.0 mm                                                                    |
| C                            |                              | ±2.0 mm                                                                    |
| ความหนาหน้า (t)              | 1.6 mm ถึงน้อยกว่า 2.0 mm *  | ±0.22 mm                                                                   |
|                              | 2.0 mm ถึงน้อยกว่า 2.5 mm *  | ±0.25 mm                                                                   |
|                              | 2.5 mm ถึงน้อยกว่า 3.15 mm * | ±0.28 mm                                                                   |
|                              | 3.15 mm ถึงน้อยกว่า 4.0 mm * | ±0.30 mm                                                                   |
|                              | 4.0 mm ถึงน้อยกว่า 5.0 mm *  | ±0.45 mm                                                                   |
|                              | 5.0 mm ถึง 6.0 mm *          | ±0.60 mm                                                                   |
| ความโค้งของด้านประชิด        |                              | ± 1.5°                                                                     |
| ความโค้ง                     |                              | ไม่เกิน 0.2% ของความยาวทั้งสิ้น                                            |
| มวลต่อเมตร                   |                              | ± 10%                                                                      |
| ความยาว                      | ≤ 7 m                        | + 40 mm                                                                    |
|                              |                              | 0                                                                          |
|                              | < 7 m                        | + 40 mm<br>และ + 5 mm ในทุก 1 m<br>หรือเศษของเมตรของส่วนที่ยาวเกิน 7 m (1) |
|                              |                              | 0                                                                          |

\* ความหนาขึ้นอยู่กับผู้ผลิตและผู้ออกแบบ



# TIS 1228

## Lip channel section

### Cold Formed Structural Steel Sections : Lip channel section

เหล็กงานโครงสร้างรูปพรรณขึ้นรูปเย็น (เหล็กรูปตัวซีมีขอบ)

“Black Steel Pipe and Primer Coated Pipe”



| Nominal Size<br>H x A x C | Thick-ness<br>(t) | Weight<br>kg/m | Cross Sectional Area<br>cm <sup>2</sup> | Center of Gravity |                | Geometrical Moment of Inertia |                 | Radius of Gyration |                | Modulus of Section |                 | Center of Shear |                |
|---------------------------|-------------------|----------------|-----------------------------------------|-------------------|----------------|-------------------------------|-----------------|--------------------|----------------|--------------------|-----------------|-----------------|----------------|
|                           |                   |                |                                         | C <sub>x</sub>    | C <sub>y</sub> | I <sub>x</sub>                | I <sub>y</sub>  | I <sub>x</sub>     | I <sub>y</sub> | Z <sub>x</sub>     | Z <sub>y</sub>  | S <sub>x</sub>  | S <sub>y</sub> |
|                           |                   |                |                                         | cm                | cm             | cm <sup>4</sup>               | cm <sup>4</sup> | cm                 | cm             | cm <sup>3</sup>    | cm <sup>3</sup> | cm              | cm             |
| 60 x 30 x 10              | 1.6               | 1.63           | 2.072                                   | 0                 | 1.06           | 11.60                         | 2.56            | 2.37               | 1.11           | 3.88               | 1.32            | 2.50            | 0              |
|                           | 2.3               | 2.25           | 2.872                                   | 0                 | 1.06           | 15.60                         | 3.32            | 2.33               | 1.07           | 5.20               | 1.71            | 2.50            | 0              |
| 75 x 45 x 15              | 1.6               | 2.32           | 2.952                                   | 0                 | 1.72           | 27.10                         | 8.71            | 3.03               | 1.72           | 7.24               | 3.13            | 4.10            | 0              |
|                           | 2.0               | 2.86           | 3.637                                   | 0                 | 1.72           | 33.00                         | 10.50           | 3.01               | 1.70           | 8.79               | 3.76            | 4.00            | 0              |
|                           | 2.3               | 3.25           | 4.137                                   | 0                 | 1.72           | 37.10                         | 11.80           | 3.00               | 1.69           | 9.90               | 4.24            | 4.00            | 0              |
| 100 x 50 x 20             | 1.6               | 2.88           | 3.672                                   | 0                 | 1.87           | 58.40                         | 14.00           | 3.99               | 1.95           | 11.70              | 4.47            | 4.50            | 0              |
|                           | 2.3               | 4.06           | 5.172                                   | 0                 | 1.86           | 80.70                         | 19.00           | 3.95               | 1.92           | 16.10              | 6.06            | 4.40            | 0              |
|                           | 3.2               | 5.50           | 7.007                                   | 0                 | 1.86           | 107.00                        | 24.50           | 3.90               | 1.87           | 21.30              | 7.81            | 4.40            | 0              |
|                           | 4.0               | 6.71           | 8.548                                   | 0                 | 1.86           | 127.00                        | 28.70           | 3.85               | 1.83           | 25.40              | 9.13            | 4.30            | 0              |
|                           | 4.5               | 7.43           | 9.469                                   | 0                 | 1.86           | 139.00                        | 30.90           | 3.82               | 1.81           | 27.70              | 9.82            | 4.30            | 0              |
| 120 x 40 x 20             | 3.2               | 5.50           | 7.007                                   | 0                 | 1.32           | 144.00                        | 15.30           | 4.53               | 1.48           | 24.00              | 5.71            | 3.40            | 0              |
| 120 x 60 x 20             | 2.3               | 4.78           | 6.092                                   | 0                 | 2.13           | 140.00                        | 31.30           | 4.79               | 2.27           | 23.30              | 8.10            | 5.10            | 0              |
|                           | 3.2               | 6.51           | 8.287                                   | 0                 | 2.12           | 186.00                        | 40.90           | 4.74               | 2.22           | 31.00              | 10.50           | 4.90            | 0              |
| 120 x 60 x 25             | 4.5               | 9.20           | 11.720                                  | 0                 | 2.25           | 252.00                        | 58.00           | 4.63               | 2.22           | 41.90              | 15.50           | 5.30            | 0              |
| 125 x 50 x 20             | 2.3               | 4.51           | 5.747                                   | 0                 | 1.69           | 137.00                        | 20.60           | 4.88               | 1.89           | 21.90              | 6.22            | 4.10            | 0              |
|                           | 3.2               | 6.13           | 7.807                                   | 0                 | 1.68           | 181.00                        | 26.60           | 4.82               | 1.85           | 29.00              | 8.02            | 4.00            | 0              |
|                           | 4.0               | 7.50           | 9.548                                   | 0                 | 1.68           | 217.00                        | 33.10           | 4.77               | 1.81           | 34.70              | 9.38            | 4.00            | 0              |
|                           | 4.5               | 8.32           | 10.590                                  | 0                 | 1.68           | 238.00                        | 33.50           | 4.74               | 1.78           | 38.00              | 10.00           | 4.00            | 0              |
|                           | 2.3               | 4.96           | 6.322                                   | 0                 | 1.55           | 210.00                        | 21.90           | 5.77               | 1.86           | 28.00              | 6.33            | 3.80            | 0              |
| 150 x 50 x 20             | 3.2               | 6.76           | 8.607                                   | 0                 | 1.54           | 280.00                        | 28.30           | 5.71               | 1.81           | 37.40              | 8.19            | 3.80            | 0              |
|                           | 4.5               | 9.20           | 11.720                                  | 0                 | 1.54           | 368.00                        | 35.70           | 5.60               | 1.75           | 49.00              | 10.50           | 3.70            | 0              |
| 150 x 65 x 20             | 2.3               | 5.50           | 7.012                                   | 0                 | 2.12           | 248.00                        | 41.10           | 5.94               | 2.42           | 33.00              | 9.37            | 5.20            | 0              |
|                           | 3.2               | 7.51           | 9.567                                   | 0                 | 2.11           | 332.00                        | 53.80           | 5.89               | 2.37           | 44.30              | 12.20           | 5.10            | 0              |
|                           | 4.0               | 9.22           | 11.750                                  | 0                 | 2.11           | 401.00                        | 63.70           | 5.84               | 2.33           | 53.50              | 14.50           | 5.00            | 0              |
| 150 x 75 x 20             | 3.2               | 8.01           | 10.210                                  | 0                 | 2.51           | 366.00                        | 76.40           | 5.99               | 2.74           | 48.90              | 15.30           | 5.10            | 0              |
|                           | 4.0               | 9.85           | 12.550                                  | 0                 | 2.51           | 445.00                        | 91.00           | 5.95               | 2.69           | 59.30              | 18.20           | 5.80            | 0              |
|                           | 4.5               | 11.00          | 13.970                                  | 0                 | 2.50           | 489.00                        | 99.20           | 5.92               | 2.66           | 65.20              | 19.80           | 6.00            | 0              |
| 150 x 75 x 25             | 3.2               | 8.27           | 10.530                                  | 0                 | 2.66           | 375.00                        | 83.60           | 5.97               | 2.82           | 50.00              | 17.30           | 6.40            | 0              |
|                           | 4.0               | 10.20          | 12.950                                  | 0                 | 2.65           | 455.00                        | 99.80           | 5.93               | 2.78           | 60.60              | 20.60           | 6.30            | 0              |
|                           | 4.5               | 11.30          | 14.420                                  | 0                 | 2.65           | 501.00                        | 109.00          | 5.90               | 2.75           | 66.90              | 22.50           | 6.30            | 0              |
| 200 x 75 x 20             | 3.2               | 9.27           | 11.810                                  | 0                 | 2.19           | 716.00                        | 84.10           | 7.79               | 2.67           | 71.60              | 15.80           | 5.40            | 0              |
|                           | 4.0               | 11.40          | 14.550                                  | 0                 | 2.19           | 871.00                        | 100.00          | 7.74               | 2.62           | 87.10              | 18.90           | 5.30            | 0              |
|                           | 4.5               | 12.70          | 16.220                                  | 0                 | 2.19           | 963.00                        | 109.00          | 7.71               | 2.60           | 96.30              | 20.60           | 5.30            | 0              |
| 200 x 75 x 25             | 3.2               | 9.52           | 12.130                                  | 0                 | 2.33           | 736.00                        | 92.30           | 7.70               | 2.76           | 73.60              | 17.80           | 5.70            | 0              |
|                           | 4.0               | 11.70          | 14.950                                  | 0                 | 2.32           | 895.00                        | 110.00          | 7.74               | 2.72           | 89.50              | 21.30           | 5.70            | 0              |
|                           | 4.5               | 13.10          | 16.670                                  | 0                 | 2.32           | 990.00                        | 121.00          | 7.61               | 2.69           | 99.00              | 23.30           | 5.60            | 0              |
| 250 x 75 x 25             | 4.5               | 14.90          | 18.920                                  | 0                 | 2.07           | 1,690.00                      | 129.00          | 9.44               | 2.62           | 135.00             | 23.80           | 5.10            | 0              |



TIS 2817  
Lip channel section

Cold Formed Coated Structural Steel Sections For General Structure : Lip channel section

เหล็กโครงสร้างรูปพรรณขึ้นรูปเย็นเคลือบโลหะ สำหรับงานโครงสร้างทั่วไป (เหล็กชุบตัวซีมีขอบ)



| Nominal Size  | Thick-ness | Weight | Cross Sectional Area | Center of Gravity |                | Geometrical Moment of Inertia |                 | Radius of Gyration |                | Modulus of Section |                 | Center of Shear |                |
|---------------|------------|--------|----------------------|-------------------|----------------|-------------------------------|-----------------|--------------------|----------------|--------------------|-----------------|-----------------|----------------|
|               |            |        |                      | C <sub>x</sub>    | C <sub>y</sub> | I <sub>x</sub>                | I <sub>y</sub>  | I <sub>x</sub>     | I <sub>y</sub> | Z <sub>x</sub>     | Z <sub>y</sub>  | S <sub>x</sub>  | S <sub>y</sub> |
| H x B         | (t)        |        |                      | cm                | cm             | cm <sup>4</sup>               | cm <sup>4</sup> | cm                 | cm             | cm <sup>3</sup>    | cm <sup>3</sup> | cm              | cm             |
| mm            | mm         | kg/m   | cm <sup>2</sup>      | cm                | cm             | cm <sup>4</sup>               | cm <sup>4</sup> | cm                 | cm             | cm <sup>3</sup>    | cm <sup>3</sup> | cm              | cm             |
| 75 x 45 x 15  | 1.6        | 2.32   | 2.952                | 0                 | 1.72           | 27.1                          | 8.71            | 3.03               | 1.72           | 7.24               | 3.13            | 4.1             | 0              |
|               | 2.0        | 2.86   | 3.637                | 0                 | 1.72           | 33.0                          | 10.5            | 3.01               | 1.70           | 8.79               | 3.76            | 4.0             | 0              |
|               | 2.3        | 3.25   | 4.137                | 0                 | 1.72           | 37.1                          | 11.8            | 3.00               | 1.69           | 9.90               | 4.24            | 4.0             | 0              |
| 100 x 50 x 20 | 1.6        | 2.88   | 3.672                | 0                 | 1.87           | 58.4                          | 14.0            | 3.99               | 1.95           | 11.7               | 4.47            | 4.5             | 0              |
|               | 2.3        | 4.06   | 5.172                | 0                 | 1.86           | 80.7                          | 19.0            | 3.95               | 1.92           | 16.1               | 6.06            | 4.4             | 0              |
|               | 3.2        | 5.50   | 7.007                | 0                 | 1.86           | 107                           | 24.5            | 3.90               | 1.87           | 21.3               | 7.81            | 4.4             | 0              |
|               | 4.0        | 6.71   | 8.548                | 0                 | 1.86           | 127                           | 28.7            | 3.85               | 1.83           | 25.4               | 9.13            | 4.3             | 0              |
| 120 x 40 x20  | 3.2        | 5.50   | 7.007                | 0                 | 1.32           | 144                           | 15.3            | 4.53               | 1.48           | 24.0               | 5.71            | 3.4             | 0              |
|               | 2.3        | 4.78   | 6.092                | 0                 | 2.13           | 140                           | 31.3            | 4.79               | 2.27           | 23.3               | 8.10            | 5.1             | 0              |
| 120 x 60 x 20 | 3.2        | 6.51   | 8.287                | 0                 | 2.12           | 186                           | 40.9            | 4.74               | 2.22           | 31.0               | 10.5            | 4.9             | 0              |
|               | 4.5        | 9.20   | 11.72                | 0                 | 2.25           | 252                           | 58.0            | 4.63               | 2.22           | 41.9               | 15.5            | 5.3             | 0              |
| 125 x 50 x 20 | 2.3        | 4.51   | 5.747                | 0                 | 1.69           | 137                           | 20.6            | 4.88               | 1.89           | 21.9               | 6.22            | 4.1             | 0              |
|               | 3.2        | 6.13   | 7.807                | 0                 | 1.68           | 181                           | 26.6            | 4.82               | 1.85           | 29.0               | 8.02            | 4.0             | 0              |
|               | 4.0        | 7.50   | 9.548                | 0                 | 1.68           | 217                           | 33.1            | 4.77               | 1.81           | 34.7               | 9.38            | 4.0             | 0              |
|               | 4.5        | 8.32   | 10.59                | 0                 | 1.68           | 238                           | 33.5            | 4.74               | 1.78           | 38.0               | 10.0            | 4.0             | 0              |
| 150 x 50 x 20 | 2.3        | 4.96   | 6.322                | 0                 | 1.55           | 210                           | 21.9            | 5.77               | 1.86           | 28.0               | 6.33            | 3.8             | 0              |
|               | 3.2        | 6.76   | 8.607                | 0                 | 1.54           | 280                           | 28.3            | 5.71               | 1.81           | 37.4               | 8.19            | 3.8             | 0              |
|               | 4.5        | 9.20   | 11.72                | 0                 | 1.54           | 368                           | 35.7            | 5.60               | 1.75           | 49.0               | 10.5            | 3.7             | 0              |



PACIFIC PIPE

SUMMARY STANDARD SPECIFICATIONS

| Specification | Scope                                                                | Grade    | % Chemical Composition Percentage (Max) |      |               |       |       | Mechanical Properties (Min) |                  |                                |                                      |
|---------------|----------------------------------------------------------------------|----------|-----------------------------------------|------|---------------|-------|-------|-----------------------------|------------------|--------------------------------|--------------------------------------|
|               |                                                                      |          | C                                       | Si   | Mn            | P     | S     | Yield Strength              | Tensile Strength | Elongation%                    |                                      |
|               |                                                                      |          |                                         |      |               |       |       | MPa                         | MPa              | Tube Axis Direction            | Perpendicular to Tube Axis Direction |
| TIS 107       | Carbon Steel Tube for General Structure : Round Pipe                 | STK290   | -                                       | -    | -             | 0.050 | 0.050 | -                           | 290              | 30                             | 25                                   |
|               |                                                                      | STK400   | 0.25                                    | -    | -             | 0.040 | 0.040 | 235                         | 400              | 23                             | 18                                   |
|               |                                                                      | STK490   | 0.18                                    | 0.55 | 1.65          | 0.035 | 0.035 | 315                         | 490              | 23                             | 18                                   |
|               |                                                                      | STK500   | 0.24                                    | 0.35 | 0.30 ถึง 1.30 | 0.040 | 0.040 | 355                         | 500              | 15                             | 10                                   |
|               |                                                                      | STK540   | 0.23                                    | 0.55 | 1.30 ถึง 1.50 | 0.040 | 0.040 | 390                         | 540              | 20                             | 16                                   |
|               | Carbon Steel Tube for General Structure : Square & Rectangular Pipe  | STKR290  | -                                       | -    | -             | 0.050 | 0.050 | -                           | 290              | 30                             |                                      |
|               |                                                                      | STKR400  | 0.25                                    | -    | -             | 0.040 | 0.040 | 245                         | 400              | 23                             |                                      |
|               |                                                                      | STKR490  | 0.18                                    | 0.55 | 1.50          | 0.040 | 0.040 | 325                         | 490              | 23                             |                                      |
|               | Cold Formed Structural Steel Sections : Lip Channel Steel            | SSCS 400 | 0.28                                    | -    | -             | 0.060 | 0.060 | 245                         | 400 - 540        | t ≤ 5 mm = 21<br>t > 5 mm = 17 |                                      |
|               |                                                                      |          |                                         |      |               |       |       |                             |                  |                                |                                      |
| TIS 2817      | Cold Formed Coated Structural Steel Sections : Lip Channel Steel     | G340     | -                                       | -    | -             | -     | -     | 245                         | 340              | 20                             |                                      |
|               |                                                                      | G400     | -                                       | -    | -             | -     | -     | 295                         | 400              | 18                             |                                      |
|               |                                                                      | G440     | -                                       | -    | -             | -     | -     | 335                         | 440              | 18                             |                                      |
|               |                                                                      | G490     | -                                       | -    | -             | -     | -     | 365                         | 490              | 16                             |                                      |
|               |                                                                      | G540     | -                                       | -    | -             | -     | -     | 400                         | 540              | 16                             |                                      |
|               |                                                                      | G570     | -                                       | -    | -             | -     | -     | 560                         | 570              | -                              |                                      |
| JIS G3444     | Carbon Steel Tubes for General Structure : Round Pipe                | STK290   | -                                       | -    | -             | 0.050 | 0.050 | -                           | 290              | 30                             | 25                                   |
|               |                                                                      | STK400   | 0.25                                    | -    | -             | 0.040 | 0.040 | 235                         | 400              | 23                             | 18                                   |
|               |                                                                      | STK490   | 0.18                                    | 0.55 | 1.65          | 0.035 | 0.035 | 315                         | 490              | 23                             | 18                                   |
|               |                                                                      | STK500   | 0.24                                    | 0.35 | 0.30 ถึง 1.30 | 0.040 | 0.040 | 355                         | 500              | 15                             | 10                                   |
|               |                                                                      | STK540   | 0.23                                    | 0.55 | 1.30 ถึง 1.50 | 0.040 | 0.040 | 390                         | 540              | 20                             | 16                                   |
| JIS G3466     | Carbon Steel Tubes for General Structure : Square & Rectangular Pipe | STKR400  | 0.25                                    | -    | -             | 0.040 | 0.040 | 245                         | 400              | 23                             |                                      |
|               |                                                                      | STKR490  | 0.18                                    | 0.55 | 1.65          | 0.035 | 0.035 | 325                         | 490              | 23                             |                                      |

| Specification | Scope                                                                               | Grade   | % Chemical Composition Percentage (Max) |      |      |       |       |      |       | Mechanical Properties (Min) |                  |                     |                                      |
|---------------|-------------------------------------------------------------------------------------|---------|-----------------------------------------|------|------|-------|-------|------|-------|-----------------------------|------------------|---------------------|--------------------------------------|
|               |                                                                                     |         | C                                       | Si   | Mn   | P     | S     | Cu   | N     | Yield Strength              | Tensile Strength | Elongation%         |                                      |
|               |                                                                                     |         |                                         |      |      |       |       |      |       | MPa                         | MPa              | Tube Axis Direction | Perpendicular to Tube Axis Direction |
| ASTM A500     | Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes | Grade A | 0.30                                    | -    | 1.40 | 0.045 | 0.045 | 0.18 |       | 230                         | 310              | 25                  |                                      |
|               |                                                                                     | Grade B | 0.30                                    | -    | 1.40 | 0.045 | 0.045 | 0.18 |       | 290                         | 400              | 23                  |                                      |
|               |                                                                                     | Grade C | 0.27                                    | -    | 1.40 | 0.045 | 0.045 | 0.18 |       | 315                         | 425              | 21                  |                                      |
|               |                                                                                     | Grade D | 0.30                                    | -    | 1.40 | 0.045 | 0.045 | 0.18 |       | 250                         | 400              | 23                  |                                      |
| BS EN10219    | Cold formed welded structural hollow sections of non-alloy and fine grain steels    | S235JRH | 0.17                                    | -    | 1.40 | 0.040 | 0.040 |      | 0.009 | 235                         | 360-510          | 24                  |                                      |
|               |                                                                                     | S275J0H | 0.20                                    | -    | 1.50 | 0.035 | 0.035 |      | 0.009 | 275                         | 410-580          | 20                  |                                      |
|               |                                                                                     | S275J2H | 0.20                                    | -    | 1.50 | 0.030 | 0.030 |      | -     | 275                         | 410-580          | 20                  |                                      |
|               |                                                                                     | S355J0H | 0.22                                    | 0.55 | 1.60 | 0.035 | 0.035 |      | 0.009 | 355                         | 470-680          | 20                  |                                      |
|               |                                                                                     | S355J2H | 0.22                                    | 0.55 | 1.60 | 0.030 | 0.030 |      | -     | 355                         | 470-680          | 20                  |                                      |
|               |                                                                                     | S355K2H | 0.22                                    | 0.55 | 1.60 | 0.030 | 0.030 |      | -     | 355                         | 470-680          | 20                  |                                      |

| Specification | Dimensional Tolerances                                                                                                                  |                                                                                                                                                                                                             |                                                                                   |                    |                                                     |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------|-----------------------------------------------------|
|               | Diameter                                                                                                                                | Wall Thickness                                                                                                                                                                                              | Weight (Kg/m)                                                                     | Length             | Unstraight-ness                                     |
| TIS 107       | CHS<br>OD < 50 mm : ± 0.5 mm<br>OD ≥ 50 mm : ± 1%                                                                                       | W<br>t < 12 mm : +15% to - 12.5%<br>t ≥ 12 mm : +15% to - 1.5 mm                                                                                                                                            | ± 10%                                                                             | 0, +Not Specified  | 0.3% max. of the entire length                      |
|               | SHS and RHS<br>H,B ≤ 100 mm : ± 1.5 mm<br>> 100 mm : ± 1.5%                                                                             | W<br>t all : ±10%                                                                                                                                                                                           |                                                                                   |                    |                                                     |
| TIS 1228      | Length of side<br>A : ±1.5 mm<br>H < 150 mm : ±1.5 mm<br>150 mm ≤ H < 300 mm : ±2.0 mm<br>H ≥ 300 mm : ±3.0 mm<br>C : ±2.0 mm           | t = 1.6 mm : ±0.22 mm<br>t = 2.0 & 2.3 mm : ±0.25 mm<br>t = 2.8 mm : ±0.28 mm<br>t = 3.2 mm : ±0.30 mm<br>t = 4.0 & 4.5 mm : ±0.45 mm<br>t = 6.00 mm : ±0.60 mm                                             | ± 10%                                                                             | 0, + 40            | 0.2% max. of the entire length                      |
| TIS 2817      | Length of side<br>A, B, H<br>< 150 mm : ±1.5 mm<br>150 mm to < 300 : ±2.0 mm<br>mm ≥ 300 mm : ±3.0 mm<br>C : ±2.0 mm                    | 1.6 mm ≤ t < 2.0 mm : ±0.22 mm<br>2.0 mm ≤ t < 2.5 mm : ±0.25 mm<br>2.5 mm ≤ t < 3.15 mm : ±0.28 mm<br>3.15 mm ≤ t < 4.0 mm : ±0.30 mm<br>4.0 mm ≤ t < 5.0 mm : ±0.45 mm<br>t = 5.0 mm to 6.0 mm : ±0.60 mm | ± 10%                                                                             | 0, + 40            | 0.2% max. of the entire length                      |
| JIS G3444     | Class 1<br>Under 50 mm : ± 0.50 mm<br>50 mm or over : ± 1%                                                                              | Class 1<br>Under 4 mm : +0.6 mm, -0.5 mm<br>4 mm or over to excl.12 mm : +15%, -12.5%<br>12 mm or over : +15%, -1.5 mm                                                                                      | W = 0.02466t (D - t) ;<br>D is outside diameter (mm)<br>t is wall thickness (mm)  | -0, +Not specified | Not specified                                       |
| JIS G3466     | 100 mm or under : ± 1.5 mm<br>Over 100 mm : ± 1.5%                                                                                      | Under 3 mm : ± 0.3 mm<br>3 mm or over : ± 10%                                                                                                                                                               | W = 0.0157t (A+B-3.287t) ;<br>A,B is side length (mm)<br>t is wall thickness (mm) | -0, +Not specified | 0.3% max of the entire length                       |
| ASTM A500     | Round Pipe<br>NPS ≤ 1 1/2" : ± 0.5%<br>NPS ≥ 2" : ± 0.75%                                                                               | All thickness : ± 10%                                                                                                                                                                                       | ± 10%                                                                             | 0, +50             | 10 L / 5 ; L = length (m)                           |
|               | Square & Rectangular Pipe<br>OD ≤ 65 : ± 0.50 mm<br>65 < OD ≤ 90 : ± 0.60 mm<br>90 < OD ≤ 140 : ± 0.80 mm<br>OD > 140 : ± 0.01 times OD | All thickness : ± 10%                                                                                                                                                                                       | ± 10%                                                                             | 0, +50             | 10 L / 5 ; L = length (m)                           |
| BS EN10219    | Round Pipe<br>± 1 % with a minimum of ± 0.5 mm and a maximum of ±1 0 mm                                                                 | T ≤ 5 mm : ± 10% : ± 10%<br>T > 5 mm : ± 0.5 mm : ± 0.5 mm                                                                                                                                                  | ± 6 %                                                                             | 0, +50             | 0.20 % of total length and 3 mm over any 1 m length |
|               | Square & Rectangular Pipe<br>H, B <100 : ± 1 % with a minimum of ± 0.5 mm<br>100 ≤ H, B ≤ 200 : ± 0.8 %<br>H,B > 200 : ± 0.6 %          | T ≤ 5 mm : ± 10% : ± 10%<br>T > 5 mm : ± 0.5 mm : ± 0.5 mm                                                                                                                                                  | ± 6 %                                                                             | 0, +50             | 0.15 % of total length and 3 mm over any 1 m length |

| Application                | Project                                                                                 | Province    |
|----------------------------|-----------------------------------------------------------------------------------------|-------------|
| อาคาร / สำนักงาน           | โครงการสำนักงาน น็อคดาวน์                                                               | ระยอง       |
|                            | โครงการสำนักงาน รสา                                                                     | กรุงเทพฯ    |
|                            | โครงการโรงเรียนชำนาญสามัคคีวิทยา                                                        | ระยอง       |
|                            | โครงการอาคารผู้โดยสาร อาคารสำนักงาน สนามบินสุวรรณภูมิ                                   | สมุทรปราการ |
|                            | อาคารพักอาศัยสำนักงานปลัดกระทรวงกลาโหมพื้นที่ศรีสมาน                                    | นนทบุรี     |
|                            | กองบัญชาการศูนย์ปฏิบัติการต่อต้านการก่อการร้ายสากลของกองบัญชาการกองทัพไทย               | กรุงเทพฯ    |
|                            | โครงการรอลล์ฟินีซิง บ้านปิ่นชลบุรี                                                      | ชลบุรี      |
|                            | โครงการอาคาร True Digital Park                                                          | กรุงเทพฯ    |
|                            | โครงการปรับปรุงอาคารนิยะ                                                                | กรุงเทพฯ    |
|                            | โครงการ สำนักงานทรัพยากรน้ำ                                                             | กรุงเทพฯ    |
| ห้างสรรพสินค้า             | โครงการ เทมินอล21 พระราม3                                                               | นครราชสีมา  |
|                            | โครงการ Avenue ลาซาล                                                                    | กรุงเทพฯ    |
|                            | โครงการ Riverdail Entrance                                                              | นนทบุรี     |
|                            | โครงการ The Nine Center Tiwanon                                                         | นนทบุรี     |
|                            |                                                                                         |             |
| คอนโดมิเนียม               | โครงการแชปเตอร์วัน ทองหล่อ                                                              | กรุงเทพฯ    |
|                            | โครงการไมเคิซ สุขุมวิท50                                                                | กรุงเทพฯ    |
| รถไฟฟ้ารางคู่ / งานยกระดับ | โครงการรถไฟฟ้า สายสีเหลือง สายสีชมพู                                                    | กรุงเทพฯ    |
|                            | โครงการรถไฟฟ้า สายสีส้ม                                                                 | กรุงเทพฯ    |
|                            | โครงการรถไฟฟ้า รางคู่ บางใหญ่ กาญจนบุรี                                                 | กาญจนบุรี   |
|                            | โครงการทางด่วน บางใหญ่ กาญจนบุรี                                                        | กาญจนบุรี   |
|                            | โครงการพัฒนาเส้นทางทางท่องเที่ยว สมุทรสาคร (28/2563)                                    | สมุทรสาคร   |
|                            | โครงการเพิ่มความปลอดภัยบริเวณทางข้ามหน้าโรงเรียน (กทม) (1/2562)                         | กรุงเทพฯ    |
|                            | โครงการ อำนาจความปลอดภัย ถนน สาย นบ.1011 (นนทบุรี) (20/2562)                            | นนทบุรี     |
|                            | โครงการก่อสร้างทางพิเศษ สายพระราม3 - ดาวคะนอง วงแหวนรอบนอก กรุงเทพมหานครด้านฝั่งตะวันตก | กรุงเทพฯ    |
|                            | โครงการก่อสร้างทางพิเศษ สายพระราม3 - ดาวคะนอง วงแหวนรอบนอก กรุงเทพมหานครด้านฝั่งตะวันตก | กรุงเทพฯ    |
|                            | โครงการก่อสร้างรถไฟฟ้าทางคู่ช่วงลพบุรี - ปากน้ำโพ สัญญาที่ 1                            | ลพบุรี      |
| เสาเข็ม                    | โครงการก่อสร้างรถไฟฟ้าทางคู่ช่วงลพบุรี - ปากน้ำโพ สัญญาที่ 2                            | ลพบุรี      |
|                            |                                                                                         |             |
| โชว์รูม                    | โครงการบารานีพาร์ค (ริมเกล้า)                                                           | กรุงเทพฯ    |
|                            | โครงการพัฒนาที่ราชพัสดุแปลงที่ตั้งโรงงานซีเรียซิกสาม (The Custom House)                 | กรุงเทพฯ    |
|                            | โครงการศูนย์บริการ มาสด้า อ่อนนุช ลาดกระบัง                                             | กรุงเทพฯ    |
|                            | โชว์รูมอิซูซุ แม่กรอง                                                                   | สมุทรสงคราม |
|                            | โชว์รูมเบนซ์เกดรา อโยธยา                                                                | อยุธยา      |
|                            | โชว์รูม มาสด้า บางบอน                                                                   | กรุงเทพฯ    |
|                            | โชว์รูมและศูนย์บริการ มาสด้า สุขสวัสดิ์                                                 | กรุงเทพฯ    |
|                            | โชว์รูมและศูนย์บริการ มาสด้าบางบอน                                                      | กรุงเทพฯ    |
|                            | โชว์รูมและศูนย์บริการ อิซูซุ แสงฟ้า (สามโคก)                                            | ปทุมธานี    |
|                            | โชว์รูมและสำนักงาน อิซูซุกองเทพ (บางเสาธง)                                              | กรุงเทพฯ    |
| Application                | Project                                                                                 | Province    |
| โชว์รูม                    | โชว์รูม Mercedes Benz Primus Autohaus ถนนประดิษฐ์มนูธรรม                                | กรุงเทพฯ    |
|                            | โชว์รูมอิซูซุบางเค็ม                                                                    | เพชรบุรี    |
|                            | โชว์รูมนิสสัน เทพารักษ์                                                                 | สมุทรปราการ |
|                            | โชว์รูมโตโยต้า บ้านบึง                                                                  | ชลบุรี      |
| โรงแรม                     | โครงการโรงแรม สวนนงนุช                                                                  | ชลบุรี      |
|                            | โครงการโรงแรม อันดาซ รีสอร์ท พัทยา                                                      | ชลบุรี      |
|                            | โครงการไลฟ์ ลาตฟร้าว2                                                                   | กรุงเทพฯ    |
| โรงไฟฟ้า                   | โรงไฟฟ้าปลวกแดง                                                                         | ระยอง       |
|                            | โรงไฟฟ้าส่งออกต่างประเทศ                                                                | ชลบุรี      |
| โรงงาน                     | โครงการ JD Food Factory                                                                 | สมุทรสาคร   |
|                            | โครงการปรับปรุงโรงงาน เวอร์ชวล                                                          | นนทบุรี     |
|                            | โรงงาน EA                                                                               | ฉะเชิงเทรา  |
|                            | โครงการ SIAM KUBOTA                                                                     | กรุงเทพฯ    |
|                            | โครงการไดเอินอิเล็กทรอนิกส์                                                             | ฉะเชิงเทรา  |
|                            | โรงงานปฏิกูลจาก บางปลา                                                                  | สมุทรสาคร   |
|                            | โครงการก่อสร้างโรงงานผลิตยารังสิต ระยะที่ 2                                             | ปทุมธานี    |
|                            | โครงการ Riverdail Entrance                                                              | กรุงเทพฯ    |
| โรงพยาบาล                  | โรงงานขวดแก้ว FGA FURNACE                                                               | ปทุมธานี    |
|                            | โรงงาน New Factory Apex Circuit Sinsakorn IEST                                          | สมุทรสงคราม |
|                            | โรงงาน เอเซีย พิด ซีพีเอ็มเอ็นที                                                        | นครปฐม      |
|                            |                                                                                         |             |
| คลังสินค้า                 | โครงการ โรงพยาบาลเลิดสิน                                                                | กรุงเทพฯ    |
|                            | โรงจอดรถ โรงพยาบาลภูมิพล                                                                | กรุงเทพฯ    |
|                            | อาคารศูนย์การเป็นเลิศทางการแพทย์ ไรคมะเร็งครบวงจร โรงพยาบาลจุฬาลงกรณ์                   | กรุงเทพฯ    |
|                            |                                                                                         |             |
| คลังสินค้า                 | โครงการ คลังสินค้า Tip 9                                                                | สมุทรปราการ |
|                            | โครงการ WHA ESIE2 Brose (บ่อวิน ชลบุรี)                                                 | ชลบุรี      |
|                            | โครงการ ตะกร้าใส่ปลาห้องเย็น ยูนิคอร์น                                                  | สมุทรสาคร   |
|                            | คลังสินค้า Pioneer Logistics                                                            | สมุทรปราการ |
|                            | คลังสินค้า One Roof Concep                                                              | สมุทรปราการ |
|                            | คลังสินค้า เซโก คัลเลอร์                                                                | สมุทรปราการ |
|                            | คลังสินค้า กองทัพอากาศ                                                                  | กรุงเทพฯ    |
|                            | คลังสินค้า พรราว แอสเซ็ท                                                                | กรุงเทพฯ    |
|                            | คลังสินค้า โรงงานควรวินทองแค                                                            | สระบุรี     |
|                            | คลังสินค้า โรงงานยูนิลีเวอร์ ลาดกระบัง                                                  | กรุงเทพฯ    |
| ฟาร์มปศุสัตว์              | คลังสินค้า URC New RMPM ชลบุรี                                                          | ชลบุรี      |
|                            | คลังสินค้า โอบี เดลเวลลอปเม้นท์                                                         | กรุงเทพฯ    |
|                            | คลังสินค้า ซี.อี.เมค เอ็นจิเนียริง                                                      | กรุงเทพฯ    |
|                            |                                                                                         |             |
| สนามกีฬา/สถานที่สาธารณะ    | โรงเลี้ยงไก่                                                                            | ชลบุรี      |
|                            | โรงคัดไข่เค็มสเย์กส์ - กบินทร์บุรี                                                      | ปราจีนบุรี  |
| สนามกีฬา/สถานที่สาธารณะ    | อาคารสนามกีฬา ราชภัฏอุดรธานี                                                            | อุดรธานี    |
|                            | สนามเทนนิส                                                                              | อุดรธานี    |



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