

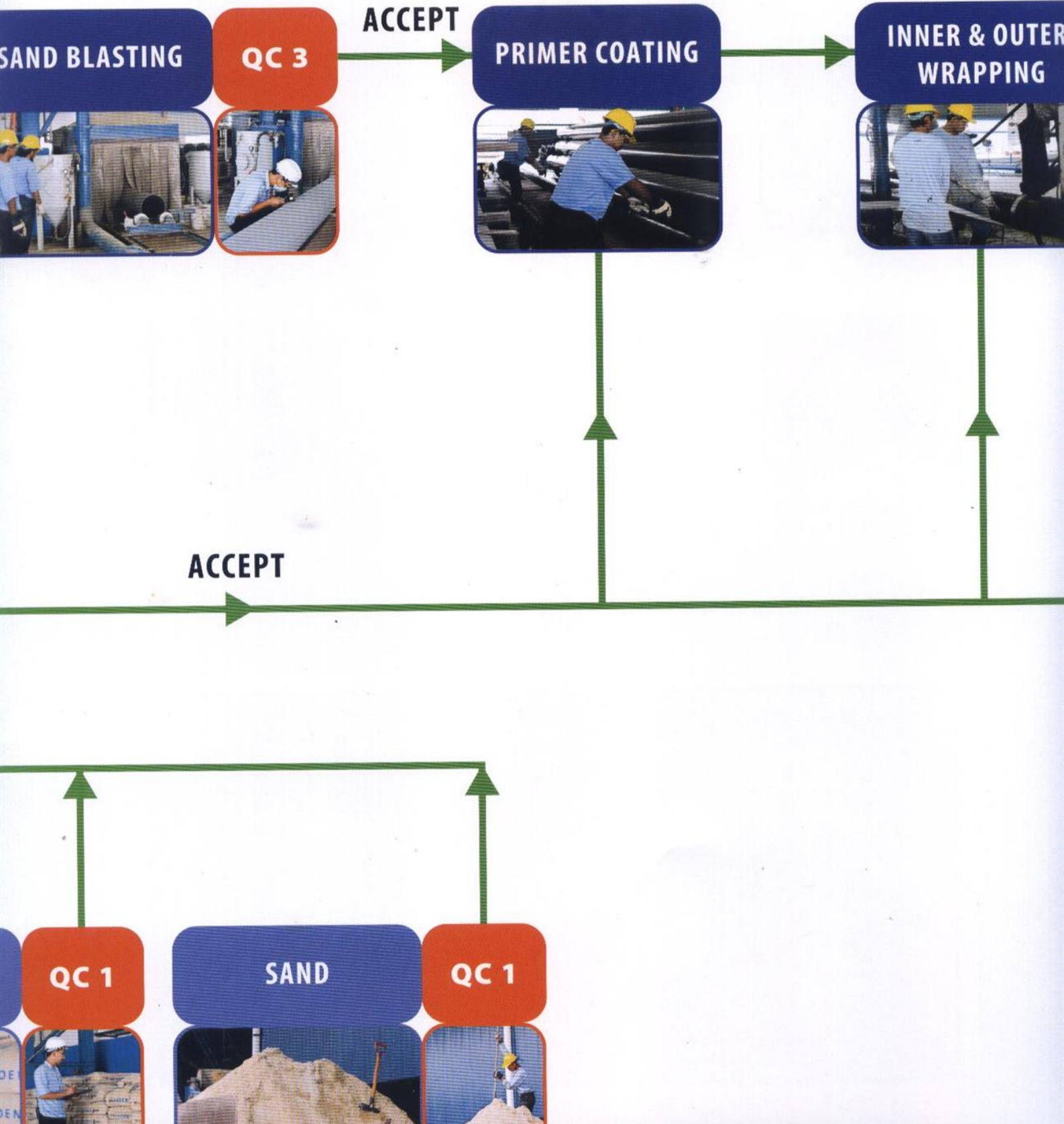


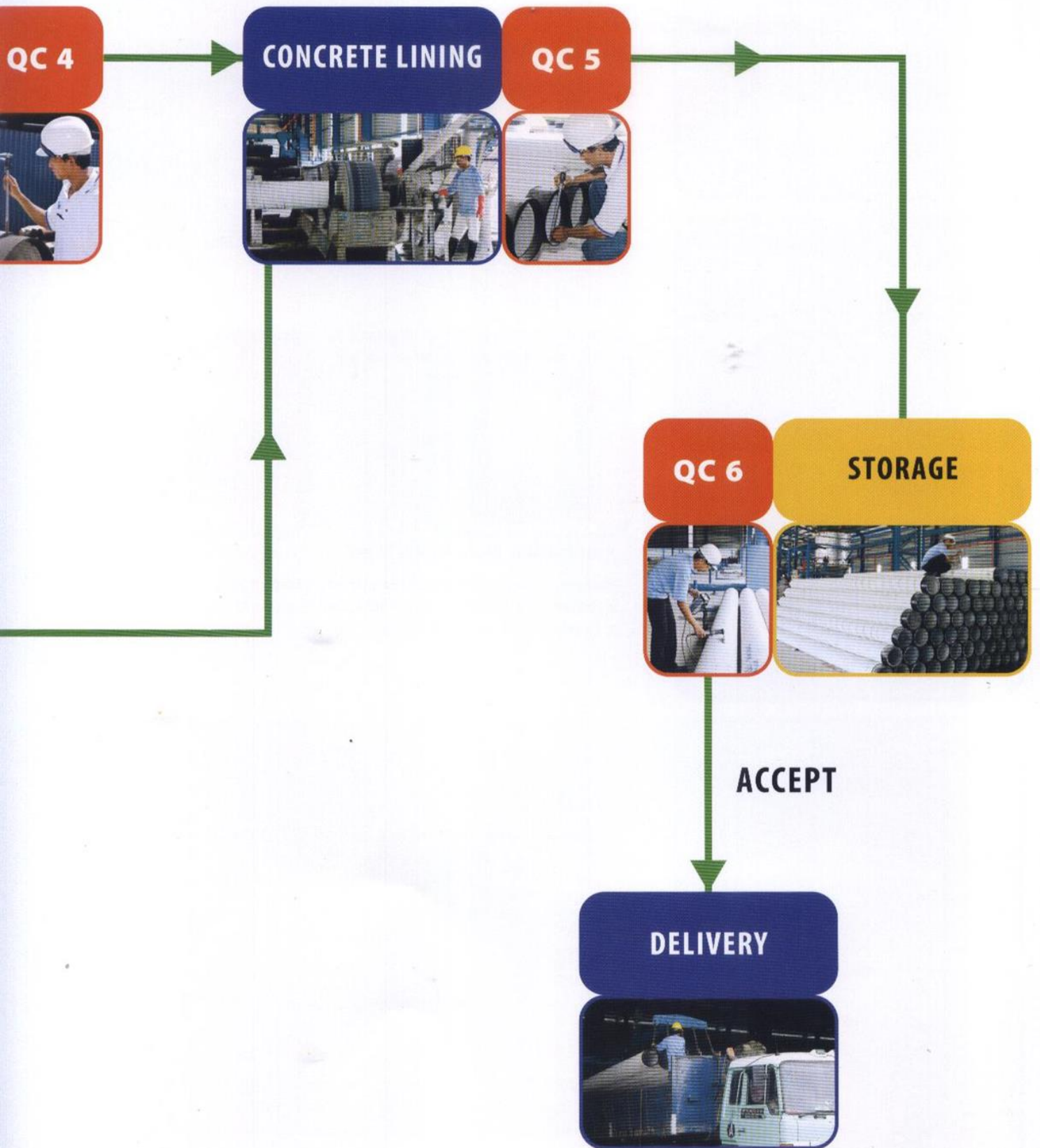
CONNECTING
THE NATION
WITH THE BEST



**L.B.H. BROTHER
INDUSTRIES SDN BHD**

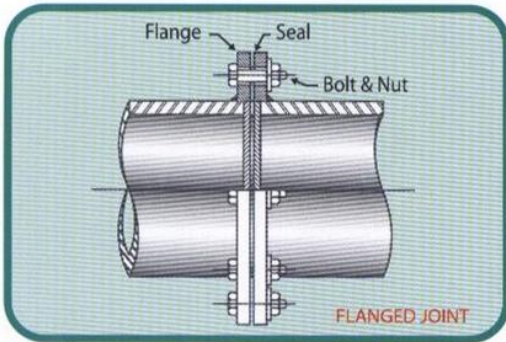
QUALITY CONTROL FLOW CHART





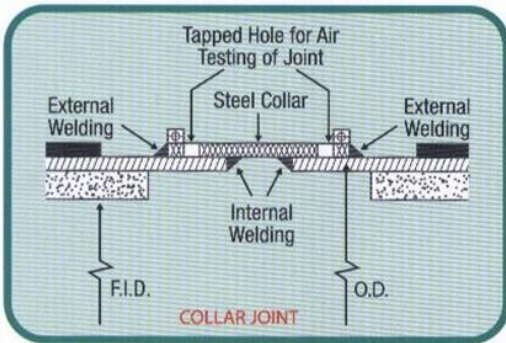
— PROCESS FLOW
 — REJECT

REMARKS :
 — CURING ACTIVITY



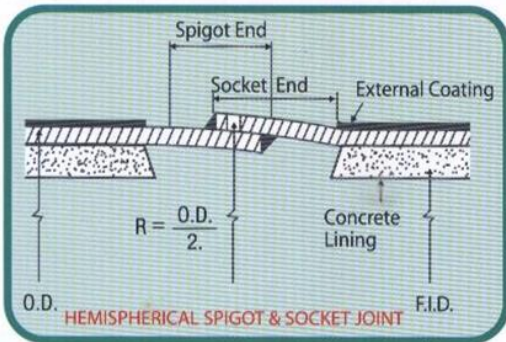
FLANGED JOINT

The dimension confirms with BS 4504. This type of joint is suitable for permanent or temporary installation.



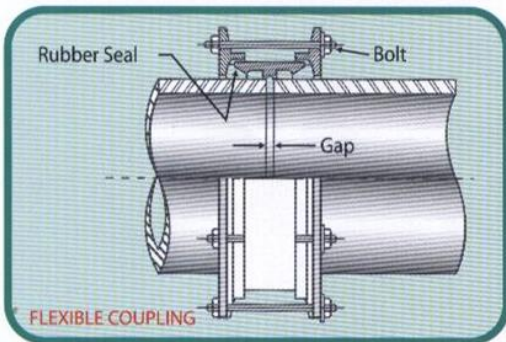
COLLAR JOINT

This type of joint is for permanent installation of plain ended pipe/fittings, with or without internal welding (depending on pipe size).



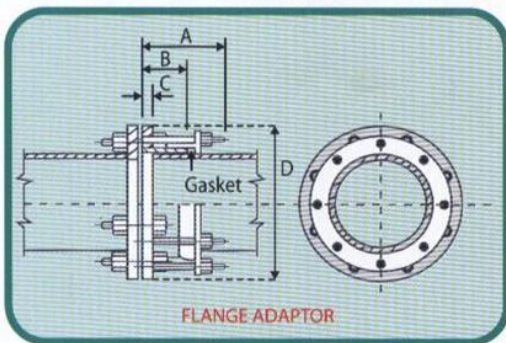
HEMISPHERICAL SPIGOT & SOCKET JOINT

This is the most popular and economical joint for long distance pipeline installation. It is also designed to take an angular deflection of up to 2° from axial to accommodate changes of pipe gradients.



FLEXIBLE COUPLING

This coupling is suitable for difficult terrain and when future dismantling is required. It is also capable of accommodating 3° to 6° deflection.



FLANGE ADAPTOR

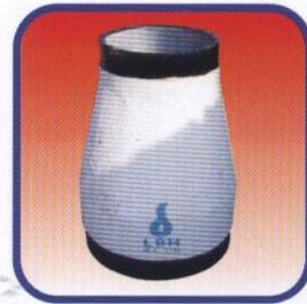
Most suitable for joining a plain ended pipe to a flanged pipe/fitting special such as valve, pump etc for easy dismantling for repairs and maintenance.



Pipe



Bend



Taper



Tee

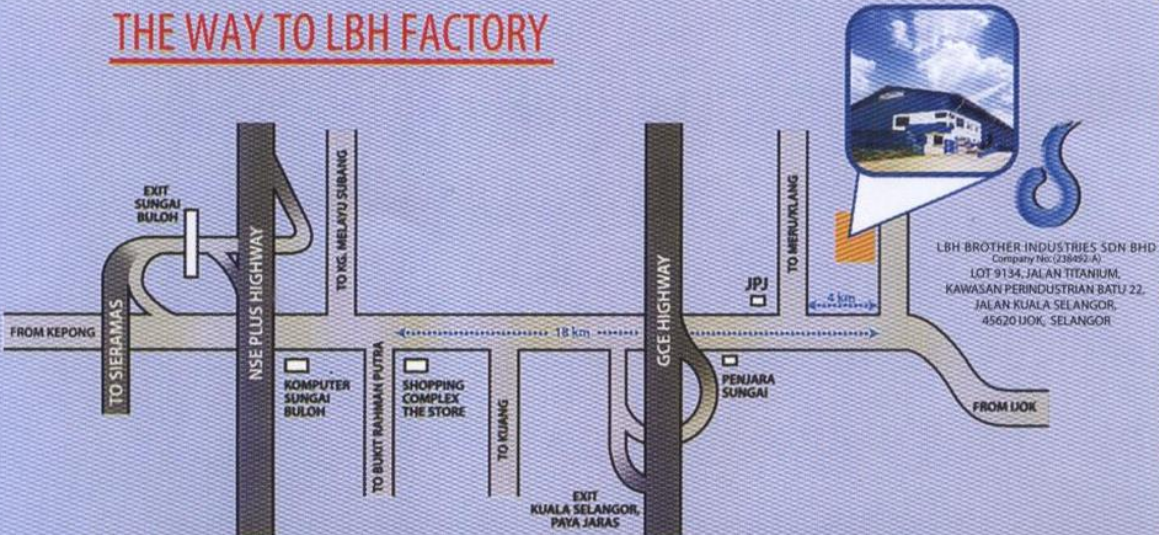


Flange Offtake Tee



Collar

THE WAY TO LBH FACTORY

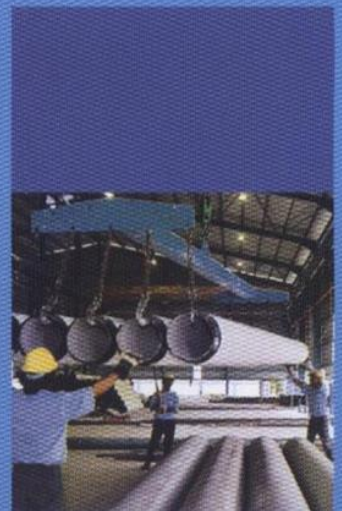


WHAT DRIVES OUR COMPANY?

Passion and commitment to be the best in developing quality products for Malaysia. LBH Brother Industries Sdn Bhd (LBHBI) is a fully committed manufacturer of Mild Steel Cement Lining Pipes and Fittings in Malaysia. Built on the unrivalled reputation of providing the best in Quality Products with an excellent workforce of committed and dedicated professionals and workers, we've streamlined our disciplines in propelling our products to the forefront of excellence with a corporate credo of providing - "Quality Assured, Service Guaranteed". It has deemed fruitful as our customers enjoyed the benefits of our company's vision and commitment, hitting an all-time high of 95% customer satisfaction. We won't just stop here but will continue to break borders to develop products of superior quality. Assurance granted.

With a humble beginning in 1992 as a family business under the leadership of Mr. Low Ban Hin and his brother, the company has come a long way. LBHBI grew impressively, moving on from their first operation premise to an "all new" production factory targeting to be one of the leading steel pipes manufacturer in Malaysia.

Recognizing that progress is imperative to success, LBH Brother Industries Sdn Bhd is constantly improving its operations and seeking out new opportunities for growth. LBHBI was certified with ISO 9001 : 2008 by BM TRADA and committed to fulfilling the needs and expectation of our customers through continual improvement utilizing our corporate "5 Excellence Pathway" (Excellent Management System, Excellent Products, Excellent Workforce, Excellent Infrastructure and Excellent Marketing). Product excellence has been and will always be our utmost priority at all times, with a new production line in a two acre land with the latest state-of-the-art cutting edge technology, and an increment of 40% production capacity to meet growing demand will be realized. That's your assurance of success.



ASSURANCE OF TOP QUALITY PRODUCTS

assurance of top quality products

As a certified company with ISO 9001:2008 by BM TRADA , we've a responsibility and commitment to uphold this industry standard. We believe quality is key to everything that we do. From sourcing of materials, manufacturing processes, quality control to customer service, no effort is spared in ensuring products of the highest quality are rolled out of our plant.

Our quality steel pipes are produced according to British Standards BS534:1990, BS3600:1976 and BS3601:1987 standards, and are certified by Ikram Quality & Certification Institute.

LBH Brother Industries Sdn Bhd places quality control at the heart of its operation. We believe in delivering the best products at the most competitive prices. That's why most of our raw materials are made in Malaysia and manufactured in accordance to requirement up to data specification.

Our plant manufacture pipes from 100mm to 600mm ND and fittings in sizes ranging from 100mm to 2,200mm ND in diameter, catering to a wide range of customers from JBA to township developers to hardware companies. Therefore, stringent control in the areas of inventory management, on-time delivery of products and other logistics are of utmost importance.

The most critical path is in the manufacturing process. At every step of the process, our QC engineers perform rigorous tests and thorough inspections. These include ultrasonic thickness testing, concrete test cube for strength, bitumen 'pin-hole' detection and more. No stone is unturned in our manufacturing process in order to produce the products of stringent quality that can only carry the brandname of LBH Brother Industries Sdn Bhd. Assurance has its price.



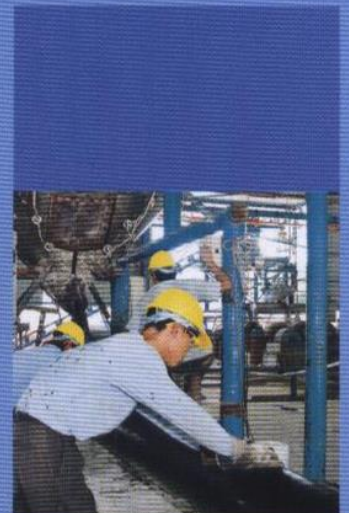
WE BUILD ON TOTAL CUSTOMER SATISFACTION

we build on customer total satisfaction

The real test of any product or service lies in the customer's satisfaction. This makes or breaks our reputation. That's why we make customer satisfaction our top priority.

LBH Brother Industries Sdn Bhd is second to none when it comes to customer service. Most importantly, we strive to continuously improve our effective management system to enhance our customer satisfaction as they vary in expectations. Customer satisfaction expectations are LBH Brother Industries Sdn Bhd's top priority. Our track record of quality products and prompt delivery on which customer's trust are built have been the hallmark of our success. How has this been successful? Simple, our core values in deliverables, management, marketing, research and development goes through stringent evaluation and periodic upgrades capitalising on opportunities for improvement. We ensure our customers with products of highest quality and the best technical support by our principal features and the quality control that is built into every stage of the production process.

LBHBI is recognized synonymously with quality products, competitive pricing and full range of services to meet our customers' requirement. The trust of our customers with LBHBI is the source of our pride.



LBH BROTHER INDUSTRIES SDN BHD
PRODUCTS THAT HAS PARTNERED MALAYSIA'S GROWTH.

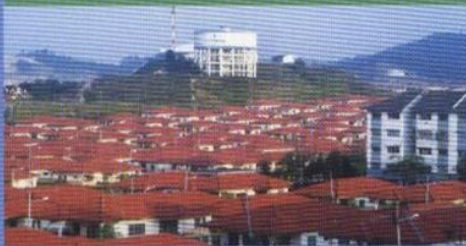
WATER TREATMENT PLANT



SERVICE RESERVOIR



HOUSING DEVELOPMENT



PIPE RELOCATION AT ROAD
UPGRADING PROJECT



PIPE LINE S-BEND



PIPE SPECIALS FOR
MAIN TRANSMISSION LINE



JKR STANDARD
TABLE 1

| Nominal Diameter (mm) | Outside Diameter (mm) | Minimum Nominal Thickness (mm) | Minimum Thickness of Concrete (mm) | Finished Internal Diameter (mm) | Total Pipe Weight MSCL (kg/m) |
|--------------------------|--------------------------|-----------------------------------|---------------------------------------|------------------------------------|----------------------------------|
| 100 | 121.9 | 4.1 | 10 | 93.7 | 20.17 |
| 150 | 177.3 | 4.1 | 10 | 149.1 | 30.05 |
| 200 | 232.2 | 4.1 | 10 | 204.0 | 41.20 |
| 250 | 286.0 | 4.1 | 10 | 257.8 | 51.11 |
| 300 | 345.4 | 5.8 | 10 | 313.8 | 75.91 |
| 350 | 399.3 | 5.8 | 13 | 361.7 | 97.60 |
| 400 | 453.1 | 5.8 | 13 | 415.5 | 111.13 |
| 450 | 507.0 | 5.8 | 13 | 469.4 | 124.68 |
| 500 | 560.3 | 5.8 | 13 | 522.7 | 138.09 |
| 600 | 667.0 | 6.5 | 13 | 628.0 | 176.10 |
| 650 | 692.0 | 7.4 | 13 | 651.2 | 197.72 |
| 700 | 754.0 | 7.4 | 19 | 701.2 | 243.75 |
| 750 | 804.0 | 7.4 | 19 | 751.2 | 260.28 |
| 800 | 854.0 | 7.4 | 19 | 801.2 | 276.80 |
| 900 | 954.0 | 7.4 | 19 | 901.2 | 309.85 |
| 1000 | 1054.0 | 8.0 | 19 | 1000.0 | 358.12 |
| 1100 | 1157.0 | 9.5 | 25 | 1088.0 | 478.78 |
| 1150 | 1219.0 | 9.5 | 25 | 1150.0 | 504.94 |
| 1200 | 1270.0 | 10.0 | 25 | 1200.0 | 541.71 |
| 1300 | 1372.0 | 11.0 | 25 | 1300.0 | 618.99 |
| 1400 | 1472.0 | 11.0 | 25 | 1400.0 | 664.88 |
| 1500 | 1576.0 | 13.0 | 25 | 1500.0 | 788.51 |
| 1600 | 1676.0 | 13.0 | 25 | 1600.0 | 839.33 |
| 1700 | 1776.0 | 13.0 | 25 | 1700.0 | 890.15 |
| 1800 | 1876.0 | 13.0 | 25 | 1800.0 | 940.97 |
| 1900 | 1976.0 | 13.0 | 25 | 1900.0 | 991.79 |
| 2000 | 2088.0 | 14.0 | 30 | 2000.0 | 1165.37 |
| 2100 | 2189.0 | 14.5 | 30 | 2100.0 | 1248.97 |
| 2200 | 2290.0 | 15.0 | 30 | 2200.0 | 1307.36 |

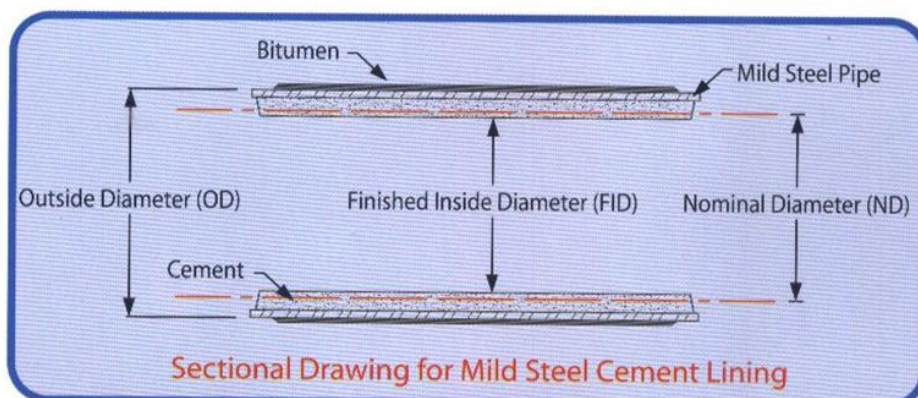
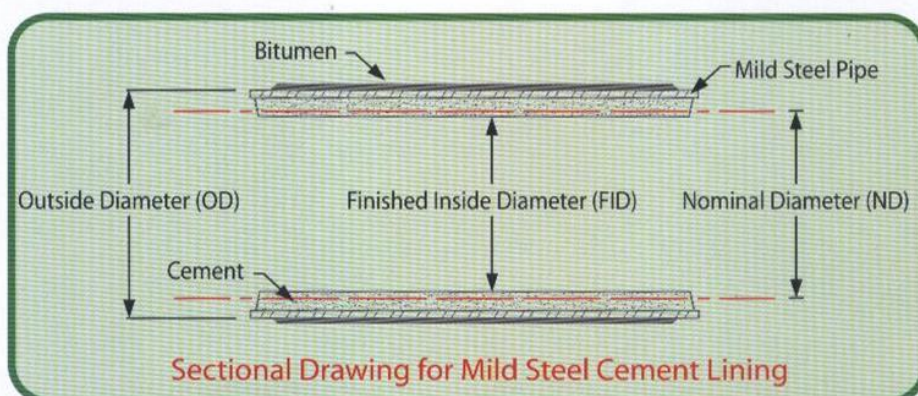


TABLE 2

| Nominal Diameter | Outside Diameter | Minimum Nominal Thickness | Minimum Thickness of Concrete | Thickness of Bitumen Sheating Material | Steel Pipe Weight | Hydraulic Test Pressure (Steel 430) |
|------------------|------------------|---------------------------|-------------------------------|--|-------------------|-------------------------------------|
| (mm) | (mm) | (mm) | (mm) | (mm) | (kg/m) | (bar) |
| 100 | 114.3 | 3.6 | 6 | 3.0 | 9.83 | 70 |
| 150 | 168.3 | 3.6 | 6 | 3.0 | 14.60 | 70 |
| 200 | 219.1 | 4.0 | 10 | 4.5 | 21.20 | 70 |
| 250 | 273.0 | 4.0 | 10 | 4.5 | 26.50 | 64 |
| 300 | 323.9 | 4.0 | 10 | 4.5 | 31.60 | 54 |
| 350 | 355.6 | 4.5 | 13 | 6.0 | 39.00 | 56 |
| 400 | 406.4 | 4.5 | 13 | 6.0 | 44.60 | 49 |
| 450 | 457.0 | 5.0 | 13 | 6.0 | 55.70 | 48 |
| 500 | 508.0 | 5.0 | 13 | 6.0 | 62.00 | 43 |
| 550 | 559.0 | 6.3 | 13 | 6.0 | 85.90 | 50 |
| 600 | 610.0 | 6.3 | 13 | 6.0 | 93.80 | 45 |
| 650 | 660.0 | 6.3 | 19 | 6.0 | 102.00 | 42 |
| 700 | 711.0 | 6.3 | 19 | 6.0 | 109.00 | 39 |
| 750 | 762.0 | 6.3 | 19 | 6.0 | 117.00 | 36 |
| 800 | 813.0 | 7.1 | 19 | 6.0 | 141.00 | 38 |
| 850 | 864.0 | 7.1 | 19 | 6.0 | 150.00 | 36 |
| 900 | 914.0 | 7.1 | 19 | 6.0 | 159.00 | 34 |
| 1000 | 1016.0 | 7.1 | 19 | 6.0 | 177.00 | 31 |
| 1200 | 1219.0 | 8.0 | 19 | 6.0 | 239.00 | 29 |
| 1400 | 1422.0 | 8.8 | 25 | 6.0 | 307.00 | 27 |
| 1600 | 1626.0 | 10.0 | 25 | 6.0 | 399.00 | 27 |
| 1800 | 1829.0 | 11.0 | 25 | 6.0 | 493.00 | 26 |
| 2000 | 2032.0 | 12.5 | 25 | 6.0 | 623.00 | 27 |
| 2200 | 2235.0 | 14.2 | 25 | 6.0 | 778.00 | 28 |



PIPES SPECIALS & FITTINGS



A) BENDS

TABLE 3

| Pipe N.D. mm | Pipe O.D. mm | Type 1 | Type 2 | | | | Type 3 | |
|-----------------|-----------------|-------------------|-----------------|----------|-----------------|----------|-----------------|----------|
| | | Not more than 30° | Over 30° to 45° | | Over 45° to 60° | | Over 60° to 90° | |
| | | L1 mm | R mm | L2 mm | R mm | L2 mm | R mm | L3 mm |
| 100 | 114.3 | 175 | 150 | 200 | 150 | 250 | 150 | 300 |
| 150 | 168.3 | 225 | 225 | 300 | 225 | 300 | 225 | 400 |
| 200 | 219.1 | 300 | 300 | 350 | 300 | 400 | 300 | 500 |
| 250 | 273 | 375 | 375 | 450 | 375 | 500 | 375 | 650 |
| 300 | 323.9 | 375 | 450 | 450 | 450 | 500 | 450 | 700 |
| 350 | 355.6 | 450 | 525 | 550 | 525 | 600 | 525 | 800 |
| 400 | 406.4 | 450 | 600 | 600 | 600 | 600 | 600 | 850 |
| 450 | 457 | 450 | 675 | 600 | 450 | 600 | 450 | 850 |
| 500 | 508 | 450 | 750 | 600 | 500 | 600 | 500 | 850 |
| 550 | 559 | 450 | 825 | 650 | 550 | 600 | 550 | 850 |
| 600 | 610 | 550 | 900 | 750 | 600 | 750 | 600 | 1000 |
| 650 | 660 | 550 | 975 | 750 | 650 | 750 | 650 | 1000 |
| 700 | 711 | 550 | 1050 | 800 | 700 | 750 | 700 | 1100 |
| 750 | 762 | 600 | 1125 | 850 | 750 | 850 | 750 | 1100 |
| 800 | 813 | 600 | 1200 | 850 | 800 | 850 | 800 | 1200 |
| 850 | 864 | 600 | 1275 | 850 | 850 | 850 | 850 | 1200 |
| 900 | 914 | 600 | 1350 | 900 | 900 | 900 | 900 | 1300 |
| 1000 | 1016 | 750 | 1500 | 1100 | 1000 | 1100 | 1000 | 1500 |
| 1200 | 1219 | 850 | 1800 | 1200 | 1200 | 1200 | 1200 | 1700 |
| 1400 | 1422 | 850 | 2100 | 1300 | 1400 | 1300 | 1400 | 1900 |
| 1600 | 1626 | 900 | 2400 | 1400 | 1600 | 1400 | 1600 | 2100 |
| 1800 | 1829 | 900 | 2700 | 1500 | 1800 | 1500 | 1800 | 2200 |
| 2000 | 2032 | 1000 | 3000 | 1600 | 2000 | 1600 | 2000 | 2500 |
| 2200 | 2235 | 1000 | 3300 | 1700 | 2200 | 1700 | 2200 | 2600 |

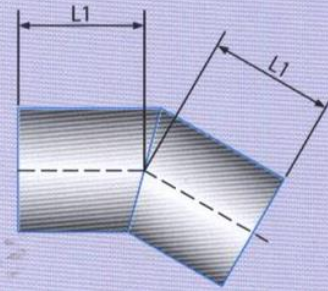


Figure 1: Gusseted bend type 1 not more than 30°

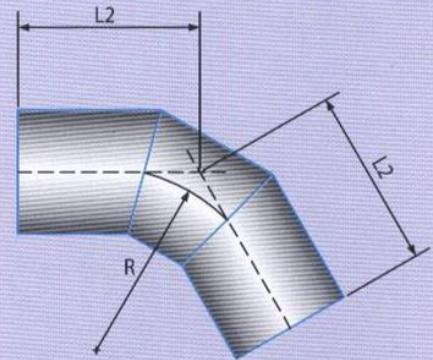


Figure 2: Gusseted bend type 2 over 30° upto 60°

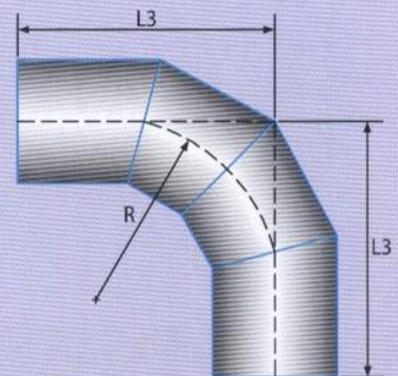


Figure 3: Gusseted bend type 3 over 60° up to 90°

PIPES SPECIALS & FITTINGS



B) TEES

TABLE 4

| Nominal Diameter mm | Barrel | | Branch | | |
|------------------------|-----------------------------|--|-----------------------------|---------------------------------|---------|
| | Outside Diameter A mm | C mm | Outside Diameter B mm | 0.5 times OD of barrel 'A' plus | |
| | | | | D mm | F mm |
| 100 | 114.3 | 270 | 114.3 | 200 | 130 |
| 150 | 168.3 | 290 | 168.3 | 200 | 140 |
| 200 | 219.1 | 370 | 219.1 | 250 | 150 |
| 250 | 273 | 410 | 273 | 250 | 160 |
| 300 | 323.9 | 450 | 323.9 | 250 | 180 |
| 350 | 355.6 | 530 | 355.6 | 300 | 200 |
| 400 | 406.4 | 600 | 406.4 | 300 | 230 |
| 450 to 700 | 457 to 711 | 1.5 times OD of branch 'B' but with a min. of 0.5 times OD of barrel 'A' | 457 to 711 | 300 | 300 |
| 750 to 900 | 762 to 914 | | 762 to 914 | 380 | 300 |
| 1000 to 2200 | 1016 to 2235 | | 1016 to 2220 | 380 | 380 |

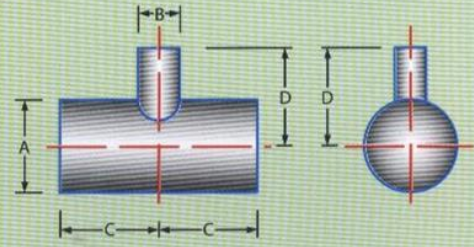


Figure 4 : Plain End Tee for Slip-on Type Coupling and Butt Welded Joint

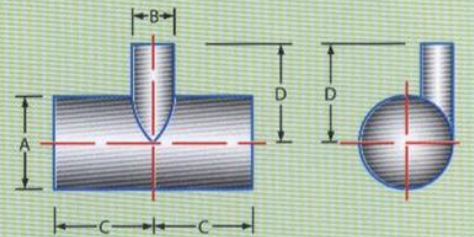


Figure 5 : Plain End Level-Inverted Tee

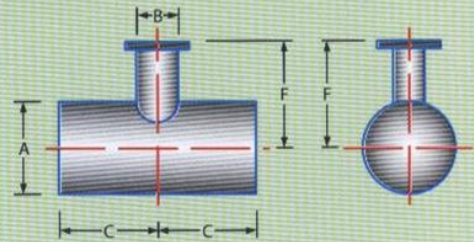


Figure 6 : Tee with Flanged Branch

C) TAPER

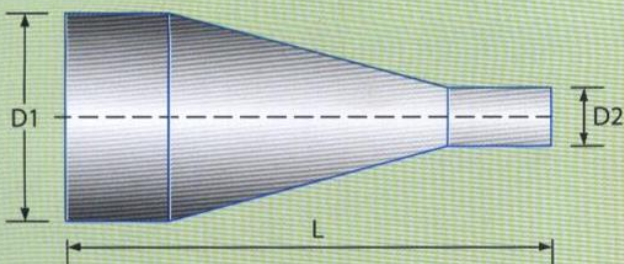


Figure 7 : Concentric Taper

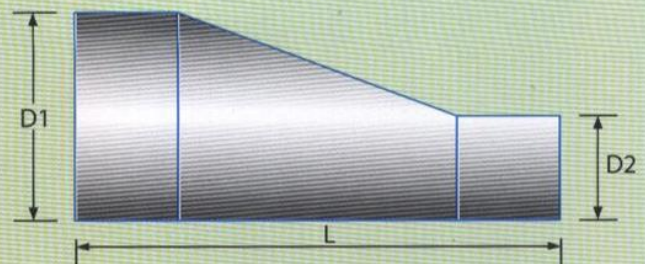


Figure 8 : Eccentric or Flat Taper

PRODUCTION PROCESS & QA

