



# PIPING APPLICATION SCHEDULE

| Piping system                  |                      | Pressure<br>[MPa (kg/cm <sup>2</sup> )]                 |               |               | Pipe                       |                                                                                         |        | Joint                           | Expansion                            | Valve          |                      |                                               | Packing                                                                   |                                            |
|--------------------------------|----------------------|---------------------------------------------------------|---------------|---------------|----------------------------|-----------------------------------------------------------------------------------------|--------|---------------------------------|--------------------------------------|----------------|----------------------|-----------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------|
|                                |                      | Nomi.                                                   | Work          | Test          | Nominal size<br>(mm)       | Material                                                                                |        |                                 |                                      | Thick.         | Nominal size<br>(mm) | Type                                          |                                                                           | Material                                   |
| Domestic fresh<br>water system | Cold pot.<br>water   | 0.98<br>(10.0)                                          | 0.78<br>(8.0) | 0.78<br>(8.0) | 100 & below                | Mannesmann pressfitting<br>Stainless steel AISI 316<br>(Mapress water pipe)<br>*6), *7) |        | Manufac-<br>turer's<br>standard | Flange<br>or<br>sleeve               | Offset<br>bend | 100 & below          | Ball or<br>non-return<br>pressfitting<br>type | Body: stainless steel 316<br>Ball : stainless steel 316                   | Non-asbestos<br>(V# 6500<br>or equivalent) |
|                                |                      |                                                         |               |               | 125 & above                | Stainless<br>steel<br>welded<br>*7)                                                     | SUS316 | Sch.10S                         | Flange<br>or<br>sleeve<br>or<br>butt | Offset<br>bend | 125 & above          | Butterfly<br>*4)                              | Body : cast iron<br>Disc : Stainless steel 316<br>Shaft : stainless steel |                                            |
|                                | Globe<br>&<br>others | Body: stainless steel 316<br>Disc : stainless steel 316 |               |               |                            |                                                                                         |        |                                 |                                      |                |                      |                                               |                                                                           |                                            |
|                                | Hot pot.<br>water    | 0.98<br>(10.0)                                          | 0.78<br>(8.0) | 0.78<br>(8.0) | 100 & below<br>125 & above | Mannesmann pressfitting<br>Stainless steel AISI 316<br>(Mapress water pipe)<br>*6), *7) |        | Manufac-<br>turer's<br>standard | Flange<br>or<br>sleeve               | Offset<br>bend | 100 & below          | Ball or<br>non-return<br>pressfitting<br>type | Body: stainless steel 316<br>Ball : stainless steel 316                   |                                            |
|                                |                      |                                                         |               |               |                            | Stainless<br>steel<br>welded<br>*7)                                                     | SUS316 | Sch.10S                         | Flange<br>or<br>sleeve<br>or<br>butt | Offset<br>bend | 125 & above          | Butterfly<br>*4)                              | Body : cast iron<br>Disc : Stainless steel 316<br>Shaft : stainless steel |                                            |
|                                |                      |                                                         |               |               |                            |                                                                                         |        |                                 |                                      |                |                      | Globe<br>&<br>others                          | Body: stainless steel 316<br>Disc : stainless steel 316                   |                                            |



Note :

- \*4) Butterfly valve shall be concentric type rubber lined internally.
- \*6) Copper pipe shall be used for cold and hot potable water pipes fitted on prefabricated bath rooms as per Manufacturer's standard.
- \*7) All cold potable water pipes and hot potable water pipes shall be insulated.





# PIPE TABLE (Steel pipe)

| Nominal diameter |          | External diameter (mm) | Pipe wall thickness (mm) |                      |        |                                                         |        |      |       |       |
|------------------|----------|------------------------|--------------------------|----------------------|--------|---------------------------------------------------------|--------|------|-------|-------|
| A (mm)           | B (inch) |                        | SGP                      | Sch.40               | Sch.80 | Sch.160                                                 | STD/WT | X/ST | SX/ST | XX/ST |
| 6                | 1/8      | 10.5                   | -                        | -                    | 2.4    | -                                                       | -      | -    | -     | -     |
| 10               | 3/8      | 17.3                   | 2.3                      | 2.3                  | 3.2    | -                                                       | -      | -    | -     | -     |
| 15               | 1/2      | 21.7                   | 2.8                      | 2.8                  | 3.7    | 4.7                                                     | -      | -    | -     | -     |
| 20               | 3/4      | 27.2                   | 2.8                      | 2.9                  | 3.9    | 5.5                                                     | -      | -    | -     | -     |
| 25               | 1        | 34.0                   | 3.2                      | 3.4                  | 4.5    | 6.4                                                     | -      | -    | -     | 9.0   |
| 32               | 1 1/4    | 42.7                   | 3.5                      | 3.6                  | 4.9    | 6.4                                                     | -      | -    | -     | -     |
| 40               | 1 1/2    | 48.6                   | 3.5                      | 3.7                  | 5.1    | 7.1                                                     | -      | -    | -     | 10.0  |
| 50               | 2        | 60.5                   | 3.8                      | 3.9                  | 5.5    | 8.7                                                     | -      | -    | -     | 11.0  |
| 65               | 2 1/2    | 76.3                   | 4.2                      | 5.2                  | 7.0    | 9.5                                                     | -      | -    | -     | 14.0  |
| 80               | 3        | 89.1                   | 4.2                      | 5.5                  | 7.6    | 11.1                                                    | -      | -    | -     | 16.0  |
| 100              | 4        | 114.3                  | 4.5                      | 6.0                  | 8.6    | 13.5                                                    | -      | -    | -     | 18.0  |
| 125              | 5        | 139.8                  | 4.5                      | 6.6                  | 9.5    | 15.9                                                    | -      | -    | -     | 20.0  |
| 150              | 6        | 165.2                  | 5.0                      | 7.1                  | 11.0   | 18.2                                                    | -      | -    | -     | 22.0  |
| 200              | 8        | 216.3                  | 5.8                      | 8.2                  | 12.7   | -                                                       | -      | -    | -     | 22.0  |
| 250              | 10       | 267.4                  | 6.6                      | 9.3                  | -      | -                                                       | -      | 12.7 | 16.0  | 22.0  |
| 300              | 12       | 318.5                  | 6.9                      | -                    | -      | -                                                       | 9.5    | 12.7 | 16.0  | 22.0  |
| 350              | 14       | 355.6                  | 7.9                      | -                    | -      | -                                                       | 9.5    | 12.7 | 16.0  | 22.0  |
| 400              | 16       | 406.4                  | 7.9                      | -                    | -      | -                                                       | 9.5    | 12.7 | 16.0  | 22.0  |
| 450              | 18       | 457.2                  | 7.9                      | -                    | -      | -                                                       | 9.5    | 12.7 | 16.0  | 22.0  |
| 500              | 20       | 508.0                  | 7.9                      | -                    | -      | -                                                       | 9.5    | 12.7 | 16.0  | 22.0  |
| 550              | 22       | 558.8                  | -                        | -                    | -      | -                                                       | 9.5    | 12.7 | 16.0  | 22.0  |
| 600              | 24       | 609.6                  | -                        | -                    | -      | -                                                       | 9.5    | 12.7 | 16.0  | 22.0  |
| 650              | 26       | 660.4                  | -                        | -                    | -      | -                                                       | 9.5    | 12.7 | 16.0  | 22.0  |
| 700              | 28       | 711.2                  | -                        | -                    | -      | -                                                       | 9.5    | 12.7 | 16.0  | 22.0  |
| 750              | 30       | 762.0                  | -                        | -                    | -      | -                                                       | 9.5    | 12.7 | 16.0  | 22.0  |
| Material         |          |                        | SGP                      | STPG370E or STPG370S |        | STPG370E or STPG370S or STPT370E or STPT370S or STPY400 |        |      |       |       |

Series of pipe wall thickness is as follows;

SGP :JIS SGP  
 Sch.40 :JIS Schedule 40  
 Sch.80 :JIS Schedule 80  
 Sch.160 :JIS Schedule 160  
 STD/WT :Mitsubishi, Standard Weight  
 X/ST :Mitsubishi, Extra Strong  
 SX/ST :Mitsubishi, Special-Extra Strong  
 XX/ST :Mitsubishi, Double-Extra Strong

Material;

SGP :JIS Carbon steel pipes for ordinary piping  
 STPG370E (STPG38E) :JIS Electric-resistance welded carbon steel pipes for pressure service  
 STPG370S (STPG38S) :JIS Seamless carbon steel pipes for pressure service  
 STPT370E (STPT38E) :JIS Electric-resistance welded carbon steel pipes for high temperature service  
 STPT370S (STPT38S) :JIS Seamless carbon steel pipes for high temperature service  
 STPY400 (STPY41) :JIS Electric arc welded carbon steel pipe

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**PIPE TABLE (Stainless steel pipe)**

| Nominal<br>diameter<br>(mm) | External<br>diameter<br>(mm) | Pipe wall thickness (mm) |         |        |        |
|-----------------------------|------------------------------|--------------------------|---------|--------|--------|
|                             |                              | Sch.10S                  | Sch.20S | Sch.40 | Sch.80 |
| 6                           | 10.5                         | 1.2                      | 1.5     | 1.7    | 2.4    |
| 8                           | 13.8                         | 1.65                     | 2.0     | 2.2    | 3.0    |
| 10                          | 17.3                         | 1.65                     | 2.0     | 2.3    | 3.2    |
| 15                          | 21.7                         | 2.1                      | 2.5     | 2.8    | 3.7    |
| 20                          | 27.2                         | 2.1                      | 2.5     | 2.9    | 3.9    |
| 25                          | 34.0                         | 2.8                      | 3.0     | 3.4    | 4.5    |
| 32                          | 42.7                         | 2.8                      | 3.0     | 3.6    | 4.9    |
| 40                          | 48.6                         | 2.8                      | 3.0     | 3.7    | 5.1    |
| 50                          | 60.5                         | 2.8                      | 3.5     | 3.9    | 5.5    |
| 65                          | 76.3                         | 3.0                      | 3.5     | 5.2    | 7.0    |
| 80                          | 89.1                         | 3.0                      | 4.0     | 5.5    | 7.6    |
| 90                          | 101.6                        | 3.0                      | 4.0     | 5.7    | 8.1    |
| 100                         | 114.3                        | 3.0                      | 4.0     | 6.0    | 8.6    |
| 125                         | 139.8                        | 3.4                      | 5.0     | 6.6    | 9.5    |
| 150                         | 165.2                        | 3.4                      | 5.0     | 7.1    | 11.0   |
| 200                         | 216.3                        | 4.0                      | 6.5     | 8.2    | 12.7   |
| 250                         | 267.4                        | 4.0                      | 6.5     | 9.3    | 16.1   |
| 300                         | 318.5                        | 4.5                      | 6.5     | 10.3   | 17.4   |

Material; JIS SUS316TP : Stainless steel pipes

JIS SUS316LTP : Stainless steel pipes



**PIPE TABLE (Mapress water pipe)**

| Nominal diameter<br>(mm) | External diameter<br>(mm) | Pipe wall thickness<br>(mm) |
|--------------------------|---------------------------|-----------------------------|
| 12                       | 15                        | 1.0                         |
| 15                       | 18                        | 1.0                         |
| 20                       | 22                        | 1.2                         |
| 25                       | 28                        | 1.2                         |
| 32                       | 35                        | 1.5                         |
| 40                       | 42                        | 1.5                         |
| 50                       | 54                        | 1.5                         |
| 65                       | 76.1                      | 2.0                         |
| 80                       | 88.9                      | 2.0                         |
| 100                      | 108                       | 2.0                         |

Material; Austenitic stainless steel Cr-Ni-Mo steel  
material No. 1.4401 to DIN 17455 (BS 316S16)





**PIPE TABLE (Copper pipe)**

| Nominal<br>diameter<br>(mm) | External<br>diameter<br>(mm) | Pipe wall thickness (mm) |      |            |
|-----------------------------|------------------------------|--------------------------|------|------------|
|                             |                              | STD/WT                   | X/ST | 70K Series |
| 4                           | 6                            | 1.0                      | 1.0  | -          |
| 6                           | 10                           | 1.6                      | 1.6  | 1.6        |
| 10                          | 15                           | 1.6                      | 1.6  | 2.3        |
| 15                          | 20                           | 1.8                      | 1.8  | 3.0        |
| 20                          | 25                           | 2.0                      | 2.0  | 3.3        |
| 25                          | 30                           | 2.0                      | 2.0  | 3.9        |
| 40                          | 45                           | 2.0                      | 2.6  | -          |
| 50                          | 55                           | 2.0                      | 2.9  | -          |
| 65                          | 70                           | 2.6                      | 3.5  | -          |
| 80                          | 85                           | 2.6                      | 4.0  | -          |
| 100                         | 110                          | 3.2                      | 5.0  | -          |
| 125                         | 140                          | 3.5                      | 6.0  | -          |
| 150                         | 160                          | 4.0                      | 7.0  | -          |
| 200                         | 210                          | 4.5                      | 8.0  | -          |

Material; JIS C1220 : Phosphorus-deoxidized copper seamless pipe

Note:

- 1) Each series of pipe shall be applied depending on working pressure as follows.  
STD/WT series (Mitsubishi, Standard Weight) : 5 kg/cm<sup>2</sup> & below  
X/ST series (Mitsubishi, Extra Strong) : 10 kg/cm<sup>2</sup> & below  
70 K series : 70 kg/cm<sup>2</sup> & below
- 2) Thickness of refrigerant pipe shall be in accordance with the manufacturer's standard.