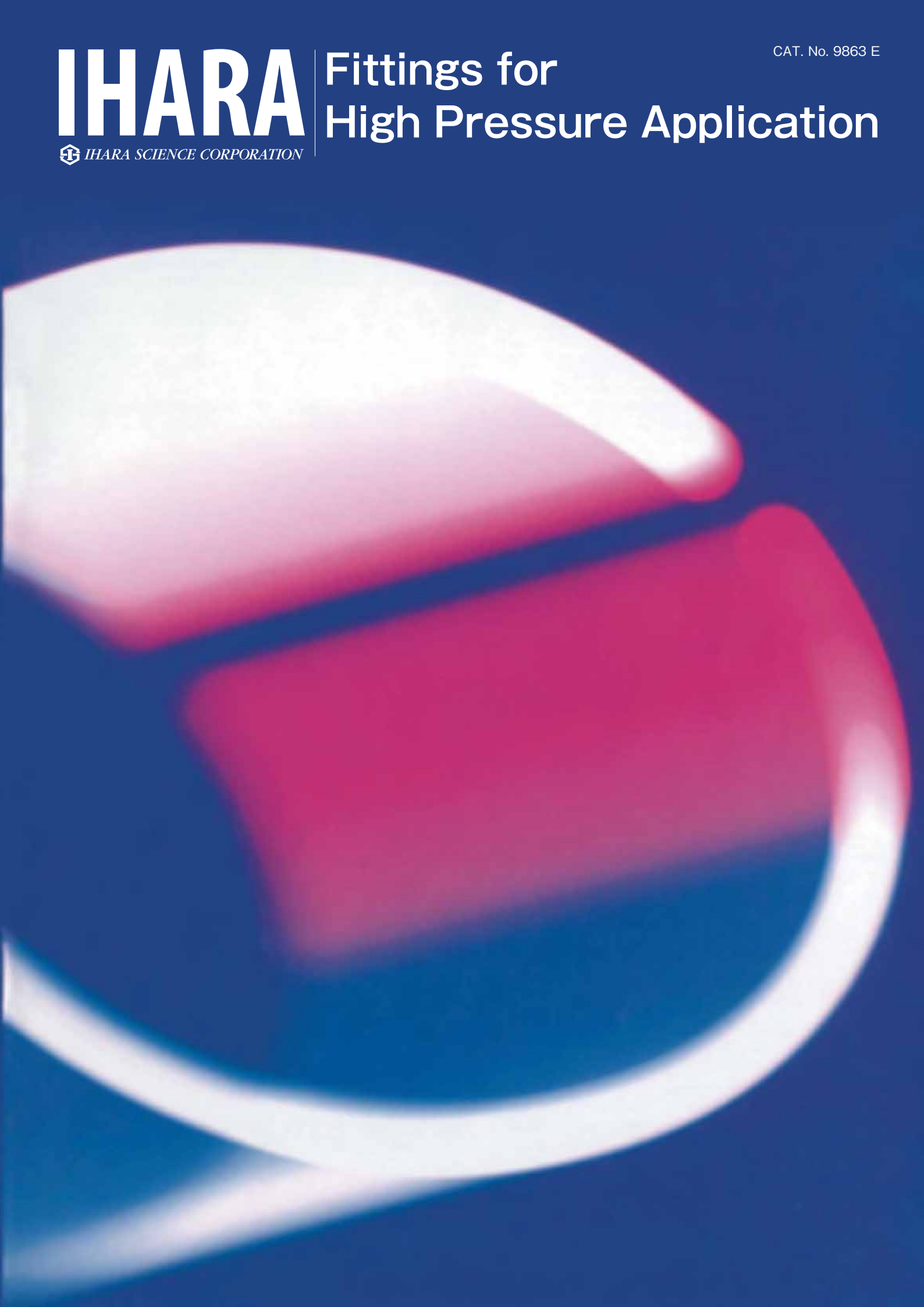
IHARA

IHARA SCIENCE CORPORATION

Fittings for High Pressure Application

CAT. No. 9863 E



Fittings for High Pressure Application VISUAL INDEX

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INTRODUCTION

Ihara Science Corporation is the leading manufacturer of high pressure fittings in Japan with more than 70 years of experience in development, design and production of high pressure fittings backed by track records not only in the hydraulic related industries but also in power generation including nuclear power plants, LNG and chemical plants as well as in steel mills where these fittings have been enjoying a very high share of the market. Users both domestic and overseas have high appraisal for the performance and quality of Ihara's high pressure fittings.

■FEATURES

(1)A Wide Range of Fittings

- ●We are striving to be able to achieve prompt delivery for high mix, small lot requirements.
- ●The design series also include fittings that may not be listed in this catalogue but mandatory required for the piping. Contact us with your any inquiries.
- ●We will be responding to any type of standards (which include JIS, ANSI, DIN, ISO, etc.), materials and configurations.

(2)We respond to all type of piping needs from Software to Hardware

- ●Upon receiving some special specifications, we will develop, an optimum piping design and fabrication by utilizing the back-up data (strength calculation, stress analysis, empirical values, etc.) accumulated through past experience.
- ●Our IPEC Plant can provide a complete range of services from piping design and fabrication to field installation work.

■QUALIFICATIONS, APPROVALS AND CERTIFICATIONS

●Shipbuilding Societies

Nihon Kaiji Kyokai
American Bureau of Shipping
Det Norske Veritas

●Nuclear Power Approval and Registered Vendor

Mitsubishi Heavy Industries, Ltd.
Hitachi, Ltd.
Toshiba Corp.
Fuji Electric Co., Ltd.
JGC Corporation
Toyo Engineering Corp.

●General Contractors (Registered Vendor)

Shell Internationale Petroleum
Maatschappij B.V.
Aramco Overseas Co.,
Bechtel International
Fluor International, Inc.
The M.W. Kellogg Co.,Inc.
Exxon Corp.

●Construction Work Approval

Minister of Construction Approval (General-56) No.6306 (Piping work and equipment and machinery installation work)

FAS STANDARDS (JAPAN HIGH PRESSURE FITTING ASSOCIATION STANDARDS)

Japan High Pressure Fitting Association was established in May, 1973 by 12 high pressure fitting manufacturers, and the Engineering Committee comprised by the member companies established the Japan High Pressure Fitting Association Standards (FAS Standards).

The following 4 Standards have been established by the Engineering Committee:

FAS 101: Steel Socket Weld Type Pipe Fittings for Special Piping Applications.
FAS 102: Steel Threaded Type Pipe Fittings for Special Piping Applications.
FAS 103: 35 MPa (350 kgf/cm^2) Butt Weld Type Pipe Flanges for Hydraulic Applications.
FAS 104: 21 MPa (210 kgf/cm^2) Steel Socket Weld Type and Threaded Type Union Pipe Fittings for Special Piping Applications.

Only members of the Society have the right to stamp FAS mark (registered trademark) on the products under these standards.

SOCKET WELD PIPE FITTINGS & THREADED PIPE FITTINGS

STANDARD SPECIFICATIONS

1. TYPES OF STEEL PIPES to be connected

JIS G3454 (Carbon Steel Pipes for General Service) STPG
JIS G3455 (Carbon Steel Pipes for High Pressure Service) STS
JIS G3456 (Carbon Steel Pipes for High Temperature Service) STPT
JIS G3458 (Alloy Steel Pipes) STPA
JIS G3459 (Stainless Steel Pipes) SUS-TP
JIS G3460 (Steel Pipes for Low Temperature Service) STPL

2. ASSOCIATED STANDARDS

●JIS B2316 Socket Weld Type Pipe Fittings for General Piping Applications
●JIS B2291 21 MPa Pipe Flanges for Hydraulic Applications
●JIS F7806 Socket Weld Type Flanges for 280K and 350K Hydraulic Steel Pipes for Ships
●FAS 101: Steel Socket Pipe Fitting Weld Type for Special Piping Applications
●FAS 102: Steel Threaded Pipe Fitting Weld Type for Special Piping Applications
●FAS 103: 35 MPa Butt Weld Type Pipe Flanges for Hydraulic Applications
●FAS 104: 21 MPa Steel Socket Weld Type and Threaded Type Union Pipe Fittings

3. MATERIAL FOR FITTINGS

The material of fittings shall coincide to the material of pipes to be connected as shown in Table 1.

Table 1

Division	Pipe Fittings Material	Symbol	Connecting Steel Pipe (reference)	
Carbon Steel	JIS G4051 S25C or ASTM A105	PT410	STPG410, STPT410	For general service
		————	STS370 STS410	For high pressure service
Alloy Steel	ASTM A182 F11	PA23	STPA23	For high temperature service
	ASTM A182 F22	PA24	STPA24	
	ASTM A182 F5	PA25	STPA25	
Stainless Steel	JIS G4303 SUS304	SUS304	SUS304TP	For corrosion resistance, For high temperature piping and low temperature piping
	JIS G4303 SUS304L	SUS304L	SUS304LTP	
	JIS G4303 SUS316	SUS316	SUS316TP	
	JIS G4303 SUS316L	SUS316L	SUS316LTP	
	JIS G4303 SUS321	SUS321	SUS321TP	
	JIS G4308 SUS304	SUS304	SUS304TP	
	JIS G4308 SUS316	SUS316	SUS316TP	
	JIS G4318 SUS304	SUS304	SUS304TP	
	JIS G4318 SUS304L	SUS304L	SUS304LTP	
	JIS G4318 SUS316	SUS316	SUS316TP	
	JIS G4318 SUS316L	SUS316L	SUS316LTP	
	JIS G4318 SUS321	SUS321	SUS321TP	
Steel for low temperature	ASTM A350 LF2	PL380	STPL380	For low temperature piping

Note: Material of standard products shall be carbon steel, SUS304 and SUS316.

4. PRESSURE RESISTANCE

1. Socket weld pipe fittings are warranted to withstand pressure equivalent to the hydrostatic test pressure specified in Japanese Industrial Standard (Chapter 4 of JIS B2316) for steel pipes indicated in Table 1, except for unions and flanges.
2. Threaded pipe fittings are warranted not to burst at hydrostatic pressure of 320 kgf/cm^2 and not to leak when retained for 3 minutes except for unions.
3. Refer to applicable pages in regards to unions and flanges.

5. DIMENSIONS AND DIMENSIONAL TOLERANCES

The respective dimensions are noted in the applicalble pages, and the applicable dimensional tolerances are as specified in Table 2 below.

Table 2

Items	Types of Pipe Fittings	Nominal Diameter			
		1/8&1/4	3/8–3/4	1–2	2–1/2&3
		Tolerances			
Socket bore (B)	All pipe fittings	+0.3 0			+0.4 0
Bore diameter (D)		+0.4			+0.8
Eccentricity of socket bore to bore diameter		±0.8			
Difference of socket bore axis to fitting bore axis		Less than 1.5/300			
Dimension from center to socket bottom shoulder (A)	45° elbow, 90° elbow, Tee, Cross	±0.8	±1.5	±2	±2.5
Dimension between socket bottom shoulders (E)	Coupling	±1.5	±3	±4	±5
Dimension from socket bottom shoulder to opposite end (F)	Half Coupling	±0.8	±1.5	±2	±2.5
Outer diameter of threaded pipe fitting	45° elbow, 90° elbow, Tee, Cross	+1.6 −0.5	+2.0 −0.5	+2.0 −1.0	
	Coupling, Boss, etc	+1.2 −0.5		±1.8% of OD	
Width across flats	All pipe fittings	Tolerance of type 2, B1 of JIS B1002			
Dimensional tolerances for other than specified above					

6. THREADS

Threads of the pipe fitting connection ends shall be JIS B0203 (taper threads for pipes) and JIS B0202 (parallel thread for pipes).

Threads for union nuts shall be JIS B0207 (metric fine screw threads).

7. MANUFACTURING PROCESS

Pipe fittings are produced by hot or cold plastic forming or machining material specified in Par. 3

Table 3

Material
JIS G4051 S25C ASTM A105
JIS G4303 SUS304 SUS304L SUS316 SUS316L JIS G4318 SUS304 SUS304L SUS316 SUS316L

8. INSPECTION

Pipe fittings are inspected at each production stage in accordance with applicable JIS and in-house inspection standards to insure stable high quality.

1. Material inspection

Material used for production of pipe fittings shall satisfy JIS or ASTM as well as in-house standards.

Following material inspection shall be performed:

a) Configuration and dimensional inspection
b) Visual inspection
c) Material confirmation inspection

In addition, following tests shall be performed as needed.

Liquid penetrant test
Ultrasonic test
Tensile test
Impact test
Corrosion test

2. Intermediate inspection

a) Configuration and dimensional inspection

b) Visual inspection

3. Final inspection

a) Configuration and dimensional inspection

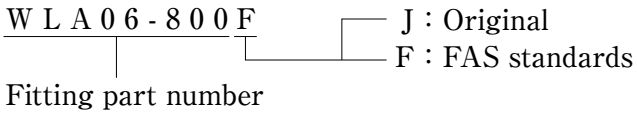
b) Visual inspection

9. PART NUMBERS FOR PIPE FITTINGS

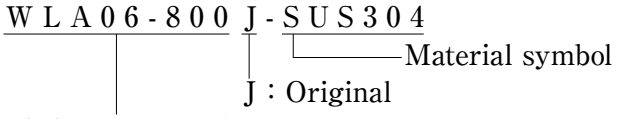
When placing your order indicate your requirements by part numbers shown in the respective pages of this catalogue together with the material symbols.
Material symbol indication is not required for carbon steel.

Example

〈Carbon Steel〉



〈Others〉 J：Only Original



10. MARKINGS

In principle, pipe fittings shall bear following markings:

1. Socket weld pipe fittings

a. Trademark

b. Symbol indicating type of material

c. Nominal size

d. Schedule number

e. Manufacturing lot number

Note: Manufacturing number markings shall be in principle in accordance with JIS B2316.

2. Threaded pipe fittings

a. Trademark

b. Symbol indicating type of material (not indicated for carbon steel)

c. Nominal size

d. Manufacturing lot number

11. OTHER TYPES

1. Reduced type of fittings are limited to those listed in this catalogue, but other sizes can be made available upon request. When inquiring please observe the following rules:

a. Two different size bores

Indicate the larger bore first ① followed by the smaller bore ②. Indicate in this numerical order.

b. Three different size bores

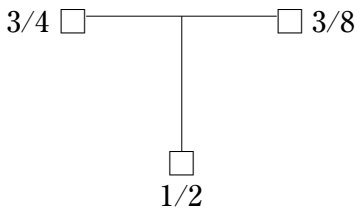
lndicate the larger bore of the two bores on the same center line first ① followed by the bore on the opposite end ②, and then the remaining bore ③. Indicate in the numerical order.

c. Four different bores

Indicate the largest bore first ① followed by the bore on the opposite end ②, and of the remaining two bores, indicate the larger bore ③ followed by the bore on the opposite end ④. Indicate in this numerical order.

Example: Steel socket weld reduction Tee: 3/4×3/8×1/2 (sch.80)

Note: In order to preclude any misunderstanding, a simple sketch with size indications as shown below is recommended.



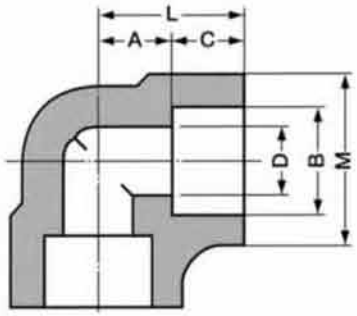
When the outside bore diameter is the same diameter as the largest bore diameter in principle, the outside bore diameter shall be the same as indicated in this catalogue in all of the above cases.

2. Pipe fittings listed in this catalogue include fittings available from stock shelves as well as fittings made upon orders, and it is therefore recommended to inquire first.

3. The manufacturer is constantly implementing improvements on their products, and therefore reserves the right to modify the actual products to be delivered from the products of this catalogue.

WLA•WTA Socket Weld Pipe Fittings

90° Elbow WLA

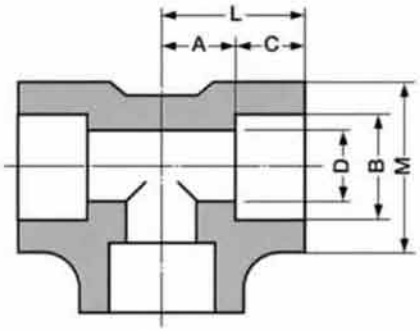


unit: mm

Part No.	Nominal sizes	B	C	D	M	A	L	Weight (kg)
Sch. 80								
WLA02−800F	1/4	14.3	10	9.4	23	11.1	21.1	0.097
WLA03−800F	3/8	17.8	11	12.7	28	13.5	24.5	0.13
WLA04−800F	1/2	22.2	13	16.1	34	15.9	28.9	0.24
WLA06−800F	3/4	27.7	14	21.4	39	19.1	33.1	0.33
WLA08−800F	1	34.5	16	27.2	47	22.2	38.2	0.52
WLA10−800F	1 1/4	43.2	18	35.5	57	27.0	45.0	0.82
WLA12−800F	1 1/2	49.1	19	41.2	64	31.8	50.8	1.05
WLA16−800F	2	61.1	22	52.7	77	38.1	60.1	1.81
WLA20−800F	2 1/2	77.1	26	65.9	96	41.3	67.3	3.17
WLA24−800F	3	90	29	78.1	110	57.2	86.2	5.14
Sch. 160								
WLA04−160F	1/2	22.2	14	12.3	39	19.1	33.1	0.46
WLA06−160F	3/4	27.7	16	16.2	47	22.2	38.2	0.90
WLA08−160F	1	34.5	18	21.2	57	27.0	45.0	1.22
WLA10−160F	1 1/4	43.2	19	29.9	64	31.8	50.8	1.65
WLA12−160F	1 1/2	49.1	22	34.4	77	38.1	60.1	2.95
WLA16−160F	2	61.1	26	43.1	96	41.3	67.3	5.53
WLA20−160F	2 1/2	77.1	29	57.3	110	57.2	86.2	7.93

Note; Dimensions of C, L and M for alloy steel and stainless steel products deviate from the above dimensions. (contact us)

Tee WTA



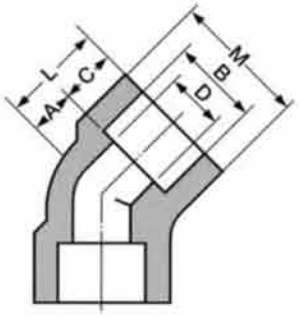
unit: mm

Part No.	Nominal sizes	B	C	D	M	A	L	Weight (kg)
Sch. 80								
WTA02−800F	1/4	14.3	10	9.4	23	11.1	21.1	0.11
WTA03−800F	3/8	17.8	11	12.7	28	13.5	24.5	0.19
WTA04−800F	1/2	22.2	13	16.1	34	15.9	28.9	0.30
WTA06−800F	3/4	27.7	14	21.4	39	19.1	33.1	0.39
WTA08−800F	1	34.5	16	27.2	47	22.2	38.2	0.61
WTA10−800F	1 1/4	43.2	18	35.5	57	27.0	45.0	0.93
WTA12−800F	1 1/2	49.1	19	41.2	64	31.8	50.8	1.18
WTA16−800F	2	61.1	22	52.7	77	38.1	60.1	2.06
WTA20−800F	2 1/2	77.1	26	65.9	96	41.3	67.3	3.51
WTA24−800F	3	90	29	78.1	110	57.2	86.2	5.97
Sch. 160								
WTA04−160F	1/2	22.2	14	12.3	39	19.1	33.1	0.64
WTA06−160F	3/4	27.7	16	16.2	47	22.2	38.2	0.99
WTA08−160F	1	34.5	18	21.2	57	27.0	45.0	1.53
WTA10−160F	1 1/4	43.2	19	29.9	64	31.8	50.8	1.80
WTA12−160F	1 1/2	49.1	22	34.4	77	38.1	60.1	3.70
WTA16−160F	2	61.1	26	43.1	96	41.3	67.3	5.90
WTA20−160F	2 1/2	77.1	29	57.3	110	57.2	86.2	8.98

Note; Dimensions of C, L and M for alloy steel and stainless steel products deviate from the above dimensions. (contact us)

WLB•WXA Socket Weld Pipe Fittings

45° Elbow WLB

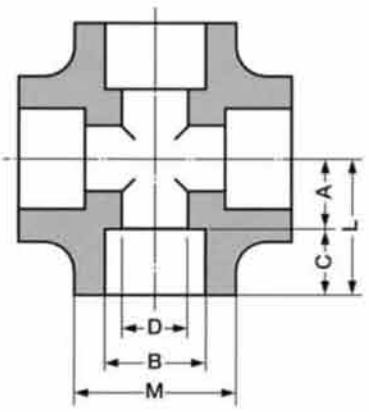


unit: mm

Part No.	Nominal sizes	B	C	D	M	A	L	Weight (kg)
Sch. 80								
WLB02—800F	1/4	14.3	10	9.4	23	7.9	17.9	0.087
WLB03—800F	3/8	17.8	11	12.7	28	7.9	18.9	0.11
WLB04—800F	1/2	22.2	13	16.1	34	11.1	24.1	0.20
WLB06—800F	3/4	27.7	14	21.4	39	12.7	26.7	0.29
WLB08—800F	1	34.5	16	27.2	47	14.3	30.3	0.45
WLB10—800F	1 1/4	43.2	18	35.5	57	17.5	35.5	0.69
WLB12—800F	1 1/2	49.1	19	41.2	64	20.6	39.6	0.92
WLB16—800F	2	61.1	22	52.7	77	25.4	47.4	1.48
WLB20—800F	2 1/2	77.1	26	65.9	96	28.6	54.6	2.38
WLB24—800F	3	90	29	78.1	110	31.8	60.8	3.04
Sch. 160								
WLB04—160F	1/2	22.2	14	12.3	39	12.7	26.7	0.41
WLB06—160F	3/4	27.7	16	16.2	47	14.3	30.3	0.66
WLB08—160F	1	34.5	18	21.2	57	17.5	35.5	1.04
WLB10—160F	1 1/4	43.2	19	29.9	64	20.6	39.6	1.28
WLB12—160F	1 1/2	49.1	22	34.4	77	25.4	47.4	2.24
WLB16—160F	2	61.1	26	43.1	96	28.6	54.6	4.04
WLB20—160F	2 1/2	77.1	29	57.3	110	31.8	60.8	5.92

Note; Dimensions of C, L and M for alloy steel and stainless steel products deviate from the above dimensions. (contact us)

Cross WXA



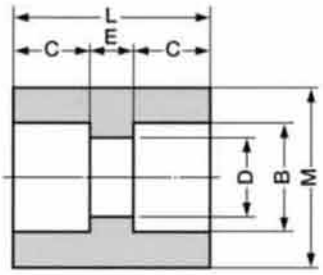
unit: mm

Part No.	Nominal sizes	B	C	D	M	A	L	Weight (kg)
Sch. 80								
WXA02—800J	1/4	14.3	12	9.4	23	11.1	23.1	0.16
WXA03—800J	3/8	17.8	13	12.7	27	13.5	26.5	0.25
WXA04—800J	1/2	22.2	13	16.1	33	15.9	28.9	0.42
WXA06—800J	3/4	27.7	16	21.4	39	19.1	35.1	0.60
Sch. 160								
WXA04—160J	1/2	22.2	15	12.3	39	19.1	34.1	0.78
WXA06—160J	3/4	27.7	16	16.2	47	22.2	38.2	1.20

Note; Dimensions of C, L and M for alloy steel and stainless steel products deviate from the above dimensions. (contact us)

WFC•WHC Socket Weld Pipe Fittings

Coupling WFC

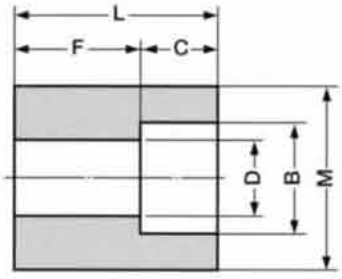


unit: mm

Part No.	Nominal sizes	B	C	D	E	M	L	Weight (kg)
Sch. 80								
WFC02−800F	1/4	14.3	10	9.4	6.4	22	26.4	0.049
WFC03−800F	3/8	17.8	10	12.7	6.4	26	26.4	0.064
WFC04−800F	1/2	22.2	10	16.1	9.5	32	29.5	0.11
WFC06−800F	3/4	27.7	13	21.4	9.5	38	35.5	0.17
WFC08−800F	1	34.5	13	27.2	12.7	46	38.7	0.25
WFC10−800F	1 1/4	43.2	13	35.5	12.7	55	38.7	0.33
WFC12−800F	1 1/2	49.1	13	41.2	12.7	63	38.7	0.43
WFC16−800F	2	61.1	16	52.7	19.1	75	51.1	0.71
WFC20−800F	2 1/2	77.1	16	65.9	19.1	95	51.1	1.17
WFC24−800F	3	90	16	78.1	19.1	110	51.1	1.50
Sch. 160								
WFC04−160F	1/2	22.2	13	12.3	9.5	34	35.5	0.17
WFC06−160F	3/4	27.7	13	16.2	9.5	42	35.5	0.25
WFC08−160F	1	34.5	13	21.2	12.7	52	38.7	0.42
WFC10−160F	1 1/4	43.2	13	29.9	12.7	60	38.7	0.49
WFC12−160F	1 1/2	49.1	16	34.4	12.7	68	44.7	0.70
WFC16−160F	2	61.1	16	43.1	19.1	85	51.1	1.32
WFC20−160F	2 1/2	77.1	16	57.3	19.1	100	51.1	1.60

Note; Dimensions of C, L and M for alloy steel and stainless steel products deviate from the above dimensions. (contact us)

Half Coupling WHC



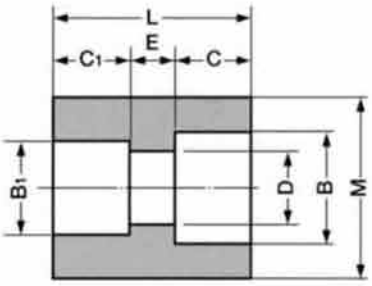
unit: mm

Part No.	Nominal sizes	B	C	D	F	M	L	Weight (kg)
Sch. 80								
WHC02−800F	1/4	14.3	10	9.4	15.9	22	25.9	0.055
WHC03−800F	3/8	17.8	10	12.7	17.5	26	27.5	0.077
WHC04−800F	1/2	22.2	10	16.1	22.2	32	32.2	0.14
WHC06−800F	3/4	27.7	13	21.4	23.8	38	36.8	0.20
WHC08−800F	1	34.5	13	27.2	28.6	46	41.6	0.31
WHC10−800F	1 1/4	43.2	13	35.5	30.2	55	43.2	0.42
WHC12−800F	1 1/2	49.1	13	41.2	31.8	63	44.8	0.57
WHC16−800F	2	61.1	16	52.7	41.3	75	57.3	0.91
WHC20−800F	2 1/2	77.1	16	65.9	42.9	95	58.9	1.56
WHC24−800F	3	90	16	78.1	44.5	110	60.5	2.04
Sch. 160								
WHC04−160F	1/2	22.2	13	12.3	22.2	34	35.2	0.19
WHC06−160F	3/4	27.7	13	16.2	23.8	42	36.8	0.30
WHC08−160F	1	34.5	13	21.2	28.6	52	41.6	0.52
WHC10−160F	1 1/4	43.2	13	29.9	30.2	60	43.2	0.64
WHC12−160F	1 1/2	49.1	16	34.4	31.8	68	47.8	0.89
WHC16−160F	2	61.1	16	43.1	41.3	85	57.3	1.71
WHC20−160F	2 1/2	77.1	16	57.3	42.9	100	58.9	2.18

Note; Dimensions of C, L and M for alloy steel and stainless steel products deviate from the above dimensions. (contact us)

WRC Socket Weld Pipe Fittings

Reducer WRC



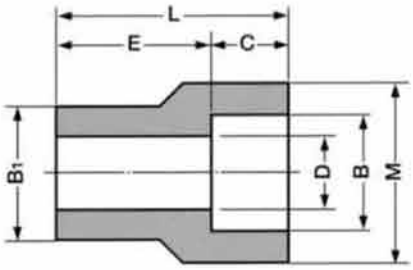
unit: mm

Part No.	Nominal sizes	B	B_1	C	C_1	D	E	M	L	Weight (kg)
Sch. 80										
WRC03—028F	3/8 × 1/4	17.8	14.3	10	10	9.4	6.4	26	26.4	0.074
WRC04—028F	1/2 × 1/4	22.2	14.3	10	10	9.4	9.5	32	29.5	0.14
WRC04—038F	1/2 × 3/8	22.2	17.8	10	10	12.7	9.5	32	29.5	0.13
WRC06—028F	3/4 × 1/4	27.7	14.3	13	10	9.4	12.5	38	35.5	0.24
WRC06—038F	3/4 × 3/8	27.7	17.8	13	10	12.7	12.5	38	35.5	0.22
WRC06—048F	3/4 × 1/2	27.7	22.2	13	10	16.1	12.5	38	35.5	0.20
WRC08—038F	1 × 3/8	34.5	17.8	13	10	12.7	15.7	46	38.7	0.37
WRC08—048F	1 × 1/2	34.5	22.2	13	10	16.1	15.7	46	38.7	0.35
WRC08—068F	1 × 3/4	34.5	27.7	13	13	21.4	15.7	46	38.7	0.31
WRC10—048F	1 1/4× 1/2	43.2	22.2	13	10	16.1	15.7	55	38.7	0.52
WRC10—068F	1 1/4× 3/4	43.2	27.7	13	13	21.4	12.7	55	38.7	0.47
WRC10—088F	1 1/4× 1	43.2	34.5	13	13	27.2	12.7	55	38.7	0.42
WRC12—068F	1 1/2× 3/4	49.1	27.7	13	13	21.4	12.7	63	38.7	0.66
WRC12—088F	1 1/2× 1	49.1	34.5	13	13	27.2	12.7	63	38.7	0.60
WRC12—108F	1 1/2×1 1/4	49.1	43.2	13	13	35.5	12.7	63	38.7	0.51
WRC16—088F	2 × 1	61.1	34.5	16	13	27.2	22.1	75	51.1	1.21
WRC16—108F	2 ×1 1/4	61.1	43.2	16	13	35.5	22.1	75	51.1	1.08
WRC16—128F	2 ×1 1/2	61.1	49.1	16	13	41.2	22.1	75	51.1	0.98
WRC20—108F	2 1/2×1 1/4	77.1	43.2	16	13	35.5	22.1	95	51.1	1.94
WRC20—128F	2 1/2×1 1/2	77.1	49.1	16	13	41.2	22.1	95	51.1	1.83
WRC20—168F	2 1/2× 2	77.1	61.1	16	16	52.7	19.1	95	51.1	1.56
WRC24—128F	3 ×1 1/2	90	49.1	16	13	41.2	22.1	110	51.1	2.59
WRC24—168F	3 × 2	90	61.1	16	16	52.7	19.1	110	51.1	2.32
WRC24—208F	3 ×2 1/2	90	77.1	16	16	65.9	19.1	110	51.1	1.92
Sch. 160										
WRC06—046F	3/4 ×1/2	27.7	22.2	13	13	12.3	9.5	42	35.5	0.28
WRC08—066F	1 ×3/4	34.5	27.7	13	13	16.2	12.7	52	38.7	0.47
WRC10—046F	1 1/4× 1/2	43.2	22.2	13	13	12.3	2.7	60	38.7	0.66
WRC10—066F	1 1/4× 3/4	43.2	27.7	13	13	16.2	12.7	60	38.7	0.63
WRC10—086F	1 1/4× 1	43.2	34.5	13	13	21.2	12.7	60	38.7	0.58
WRC12—066F	1 1/2× 3/4	49.1	27.7	16	13	16.2	15.7	68	44.7	0.95
WRC12—086F	1 1/2× 1	49.1	34.5	16	13	21.2	15.7	68	44.7	0.90
WRC12—106F	1 1/2×1 1/4	49.1	43.2	16	13	29.9	15.7	68	44.7	0.80
WRC16—086F	2 × 1	61.1	34.5	16	13	21.2	22.1	85	51.1	1.75
WRC16—106F	2 ×1 1/4	61.1	43.2	16	13	29.9	22.1	85	51.1	1.64
WRC16—126F	2 ×1 1/2	61.1	49.1	16	16	34.4	19.1	85	51.1	1.53
WRC20—106F	2 1/2×1 1/4	77.1	43.2	16	13	29.9	22.1	100	51.1	2.29
WRC20—126F	2 1/2×1 1/2	77.1	49.1	16	16	34.4	19.1	100	51.1	2.19
WRC20—166F	2 1/2× 2	77.1	61.1	16	16	43.1	19.1	100	51.1	1.98

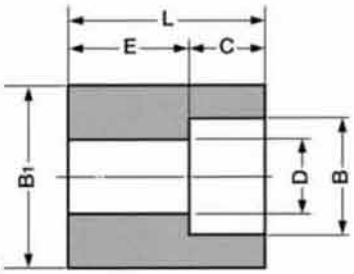
Note; Dimensions of C, L and M for alloy steel and stainless steel products deviate from the above dimensions. (contact us)

WRM Socket Weld Pipe Fittings

Reducing Insert WRM



Type 1



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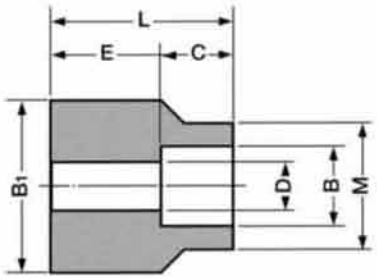
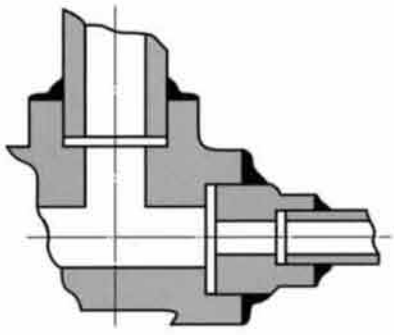


Type 3



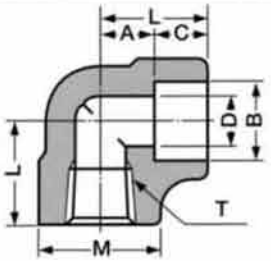
Example of Connection

unit: mm

Part No.	Nominal sizes	Type	B	B_1	C	D	E	M	L	Weight (kg)
Sch. 80										
WRM03—028J	3/8 × 1/4	1	14.3	17.3	10	9.4	21	22	31	0.049
WRM04—028J	1/2 × 1/4	2	14.3	21.7	10	9.4	15	—	25	0.051
WRM04—038J	1/2 × 3/8	1	17.8	21.7	10	12.7	24	26	34	0.071
WRM06—028J	3/4 × 1/4	2	14.3	27.2	10	9.4	19	—	29	0.11
WRM06—038J	3/4 × 3/8	2	17.8	27.2	10	12.7	19	—	29	0.093
WRM06—048J	3/4 × 1/2	1	22.2	27.2	10	16.1	26	32	36	0.12
WRM08—038J	1 × 3/8	3	17.8	34	10	12.7	28	26	38	0.18
WRM08—048J	1 × 1/2	2	22.2	34	10	16.1	22	—	32	0.16
WRM08—068J	1 × 3/4	1	27.7	34	13	21.4	29	38	42	0.19
WRM10—048J	1 1/4× 1/2	3	22.2	42.7	10	16.1	32	32	42	0.32
WRM10—068J	1 1/4× 3/4	2	27.7	42.7	13	21.4	24	—	37	0.29
WRM10—088J	1 1/4× 1	1	34.5	42.7	13	27.2	28	46	41	0.27
WRM12—068J	1 1/2× 3/4	3	27.7	48.6	13	21.4	36	38	49	0.47
WRM12—088J	1 1/2× 1	2	34.5	48.6	13	27.2	26	—	39	0.36
WRM12—108J	1 1/2×1 1/4	1	43.2	48.6	13	35.5	33	55	46	0.36
WRM16—088J	2 × 1	3	34.5	60.5	13	27.2	35	46	48	0.71
WRM16—108J	2 ×1 1/4	2	43.2	60.5	13	35.5	29	—	42	0.57
WRM16—128J	2 ×1 1/2	1	49.1	60.5	13	41.2	33	63	46	0.54
WRM20—108J	2 1/2×1 1/4	3	43.2	76.3	13	35.7	47	55	60	1.34
WRM20—128J	2 1/2×1 1/2	3	49.1	76.3	13	41.2	42	63	55	1.16
WRM20—168J	2 1/2× 2	2	61.1	76.3	16	52.7	39	—	55	0.94
WRM24—128J	3 ×1 1/2	3	49.1	89.1	13	41.2	51	63	64	2.01
WRM24—168J	3 × 2	3	61.1	89.1	16	52.7	43	75	59	1.56
WRM24—208J	3 ×2 1/2	1	77.1	89.1	16	65.9	44	95	60	1.36
Sch. 160										
WRM06—046J	3/4 ×1/2	1	22.2	27.2	13	12.3	26	34	39	0.16
WRM08—046J	1 ×1/2	2	22.2	34	13	12.3	22	—	35	0.19
WRM08—066J	1 ×3/4	1	27.7	34	13	16.2	29	42	42	0.26
WRM10—046J	1 1/4× 1/2	3	22.2	42.7	13	12.3	29	34	42	0.37
WRM10—066J	1 1/4× 3/4	2	27.7	42.7	13	16.2	27	—	40	0.32
WRM10—086J	1 1/4× 1	1	34.5	42.7	13	21.2	32	52	45	0.43
WRM12—066J	1 1/2× 3/4	3	27.7	48.6	13	16.2	35	42	48	0.55
WRM12—086J	1 1/2× 1	1	34.5	48.6	13	21.2	38	52	51	0.58
WRM12—106J	1 1/2×1 1/4	1	43.2	48.6	13	29.9	36	60	49	0.53
WRM16—086J	2 × 1	3	34.5	60.5	13	21.2	39	52	52	0.92
WRM16—106J	2 ×1 1/4	2	43.2	60.5	13	29.9	37	—	50	0.83
WRM16—126J	2 ×1 1/2	1	49.1	60.5	16	34.4	38	70	54	0.88
WRM20—106J	2 1/2×1 1/4	3	43.2	76.3	13	29.9	46	60	59	1.58
WRM20—126J	2 1/2×1 1/2	3	49.1	76.3	16	34.4	46	68	62	1.58
WRM20—166J	2 1/2× 2	1	61.1	76.3	16	43.1	54	85	70	1.74

SLD•SLE•STD Socket Weld Pipe Fittings

Special 90° Elbow SLD

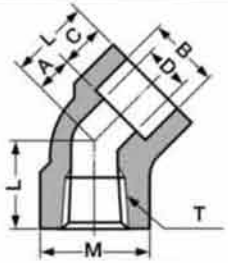


unit: mm

Part No.	Nominal sizes	B	C	D	M	A	L	T (Rc)	Weight (kg)
SLD02—028F	1/4	14.3	10	9.4	23	11.1	21.1	1/4	0.088
SLD03—038F	3/8	17.8	11	12.7	28	13.5	24.5	3/8	0.14
SLD04—048F	1/2	22.2	13	16.1	34	15.9	28.9	1/2	0.21
SLD06—068F	3/4	27.7	14	21.4	39	19.1	33.1	3/4	0.35
SLD08—088F	1	34.5	16	27.2	47	22.2	38.2	1	0.52
SLD10—108F	1 1/4	43.2	18	35.5	57	27.0	45	1 1/4	0.83
SLD12—128F	1 1/2	49.1	19	41.2	64	31.8	50.8	1 1/2	1.15
SLD16—168F	2	61.1	22	52.7	77	38.1	60.1	2	1.93

Note; Dimensions of C, L and M for alloy steel and stainless steel products deviate from the above dimensions. (contact us)

Special 45° Elbow SLE

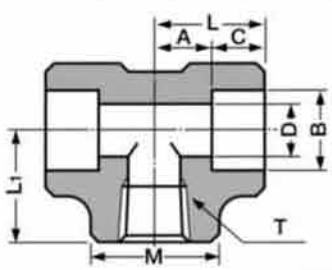


unit: mm

Part No.	Nominal sizes	B	C	D	M	A	L	T (Rc)	Weight (kg)
SLE02—028F	1/4	14.3	10	9.4	23	7.9	17.9	1/4	0.098
SLE03—038F	3/8	17.8	11	12.7	28	7.9	18.9	3/8	0.11
SLE04—048F	1/2	22.2	13	16.1	34	11.1	24.1	1/2	0.18
SLE06—068F	3/4	27.7	14	21.4	39	12.7	26.7	3/4	0.29
SLE08—088F	1	34.5	16	27.2	47	14.3	30.3	1	0.47
SLE10—108F	1 1/4	43.2	18	35.5	57	17.5	35.5	1 1/4	0.70
SLE12—128F	1 1/2	49.1	19	41.2	64	20.6	39.6	1 1/2	0.89
SLE16—168F	2	61.1	22	52.7	77	25.4	47.4	2	1.49

Note; Dimensions of C, L and M for alloy steel and stainless steel products deviate from the above dimensions. (contact us)

Special Tee STD



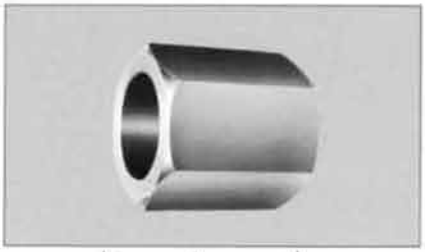
unit: mm

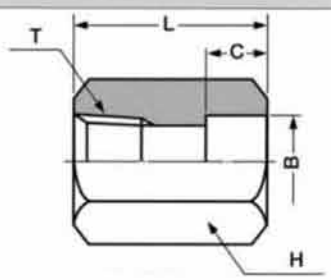
Part No.	Nominal sizes	B	C	D	M	A	L	L_1	T (Rc)	Weight (kg)
STD02—028F	1/4	14.3	10	9.4	23	11.1	21.1	21.1	1/4	0.12
STD03—038F	3/8	17.8	11	12.7	28	13.5	24.5	24.5	3/8	0.20
STD04—048F	1/2	22.2	13	16.1	34	15.9	28.9	28.9	1/2	0.27
STD06—068F	3/4	27.7	14	21.4	39	19.1	33.1	33.1	3/4	0.41
STD08—088F	1	34.5	16	27.2	47	22.2	38.2	38.2	1	0.66
STD10—108F	1 1/4	43.2	18	35.5	57	27	45	45	1 1/4	0.98
STD12—128F	1 1/2	49.1	19	41.2	64	31.8	50.8	50.8	1 1/2	1.29
STD16—168F	2	61.1	22	52.7	77	38.1	60.1	60.1	2	2.05

Note; Dimensions of C, L and M for alloy steel and stainless steel products deviate from the above dimensions. (contact us)

SFD•WLE•SLF Socket Weld Pipe Fittings

Special Coupling SFD

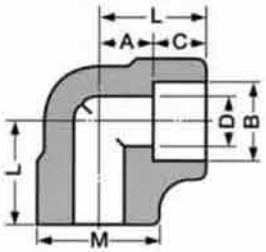




unit: mm

Part No.	Nominal sizes	B	C	L	H (HEX)	T (Rc)	Weight (kg)
SFD02—020J	1/4	14.3	10	30	22	1/4	0.069
SFD03—030J	3/8	17.8	10	30	27	3/8	0.10
SFD04—040J	1/2	22.2	10	40	32	1/2	0.18
SFD06—060J	3/4	27.7	13	43	41	3/4	0.32
SFD08—080J	1	34.5	13	50	46	1	0.41
SFD10—100J	1 1/4	43.2	13	55	55	1 1/4	0.60
SFD12—120J	1 1/2	49.1	13	55	65	1 1/2	0.89
SFD16—160J	2	61.1	16	64	75	2	1.17

Cylinder Elbow WLF

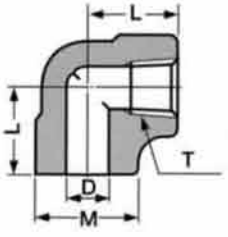


unit: mm

Part No.	Nominal sizes	B	C	D	M	A	L	Weight (kg)
WLF02—000F	1/4	14.3	10	9	23	11.1	21.1	0.089
WLF03—000F	3/8	17.8	11	11.5	28	13.5	24.5	0.14
WLF04—000F	1/2	22.2	13	15	34	15.9	28.9	0.23
WLF06—000F	3/4	27.7	14	19.5	39	19.1	33.1	0.38
WLF08—000F	1	34.5	16	25	47	22.2	38.2	0.58

Note; Dimensions of C, L and M for alloy steel and stainless steel products deviate from the above dimensions. (contact us)

Cylinder Elbow SLF



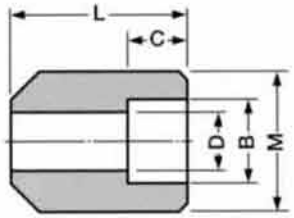
unit: mm

Part No.	Nominal sizes	D	M	L	T (Rc)	Weight (kg)
SLF02—000F	1/4	9	23	$21.1^{\pm 0.8}$	1/4	0.09
SLF03—000F	3/8	11.5	28	$24.5^{\pm 1}$	3/8	0.14
SLF04—000F	1/2	15	34	$28.9^{\pm 1}$	1/2	0.22
SLF06—000F	3/4	19.5	39	$33.1^{\pm 1}$	3/4	0.37
SLF08—000F	1	25	47	$38.2^{\pm 1.5}$	1	0.54

Note; Dimensions of C, L and M for alloy steel and stainless steel products deviate from the above dimensions. (contact us)

WBA•WBR Socket Weld Pipe Fittings

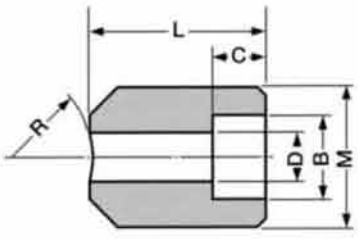
Boss Type A WBA



unit: mm

Part No.	Nominal sizes	B	C	D	M	L	Weight (kg)
Sch. 80							
WBA02—800J	1/4	14.3	10	9.4	22	40	0.085
WBA03—800J	3/8	17.8	10	12.7	26	47	0.13
WBA04—800J	1/2	22.2	10	16.1	32	47	0.19
WBA06—800J	3/4	27.7	13	21.4	38	50	0.26
WBA08—800J	1	34.5	13	27.2	46	50	0.36
WBA10—800J	1 1/4	43.2	13	35.5	55	50	0.45
WBA12—800J	1 1/2	49.1	13	41.2	65	50	0.65
WBA16—800J	2	61.1	16	52.7	75	60	0.88

Boss Type R WBR

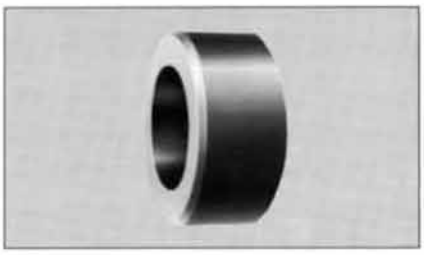


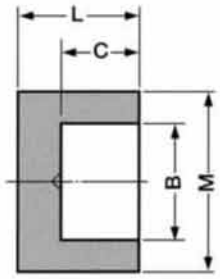
unit: mm

Part No.	Nominal sizes	B	C	D	M	L	R	Weight (kg)
Sch. 80								
WBR02—800J	1/4	14.3	10	9.4	22	40	25	0.085
WBR03—800J	3/8	17.8	10	12.7	26	47	25	0.13
WBR04—800J	1/2	22.2	10	16.1	32	47	30	0.19
WBR06—800J	3/4	27.7	13	21.4	38	50	30	0.26
WBR08—800J	1	34.5	13	27.2	46	50	40	0.35
WBR10—800J	1 1/4	43.2	13	35.5	55	50	45	0.45
WBR12—800J	1 1/2	49.1	13	41.2	65	50	55	0.63
WBR16—800J	2	61.1	16	52.7	75	60	60	0.81

WCA Socket Weld Pipe Fittings

Cap WCA



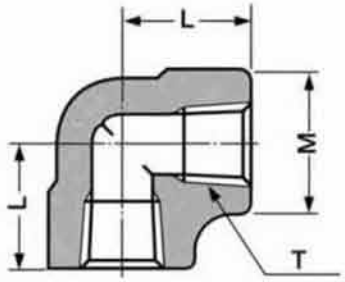


unit: mm

Part No.	Nominal sizes	B	C	M	L	Weight (kg)
Sch. 80						
WCA02—800F	1/4	14.3	10	22	14.5	0.047
WCA03—800F	3/8	17.8	10	26	15.0	0.063
WCA04—800F	1/2	22.2	10	32	19.5	0.095
WCA06—800F	3/4	27.7	13	38	20.0	0.16
WCA08—800F	1	34.5	13	46	21.3	0.25
WCA10—800F	1 1/4	43.2	13	55	22.6	0.41
WCA12—800F	1 1/2	49.1	13	63	23.5	0.54
WCA16—800F	2	61.1	16	75	28.2	0.88
WCA20—800F	2 1/2	77.1	16	95	31.3	1.64
WCA24—800F	3	90	16	110	33.3	2.19
Sch. 160						
WCA04—160F	1/2	22.2	13	34	20.2	0.15
WCA06—160F	3/4	27.7	13	42	21.8	0.23
WCA08—160F	1	34.5	13	52	23.6	0.41
WCA10—160F	1 1/4	43.2	13	60	24.8	0.56
WCA12—160F	1 1/2	49.1	16	68	29.3	0.79
WCA16—160F	2	61.1	16	85	32.4	1.37
WCA20—160F	2 1/2	77.1	16	100	35.2	2.07

SLA·SLC Threaded Pipe Fittings

90° Elbow SLA

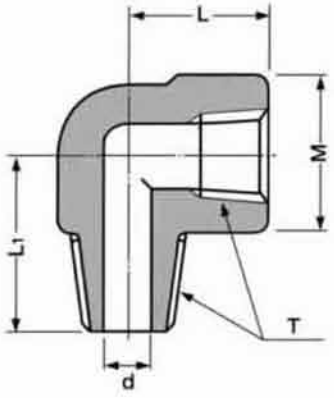


unit: mm

Part No.	T (Rc)	M	L	Weight (kg)
SLA02—000F	1/4	23	21.1	0.09
SLA03—000F	3/8	28	24.5	0.16
SLA04—000F	1/2	34	28.9	0.25
SLA06—000F	3/4	39	33.1	0.35
SLA08—000F	1	47	38.2	0.57
SLA10—000F	1 1/4	57	45.0	0.95
SLA12—000F	1 1/2	64	50.8	1.28
SLA16—000F	2	77	60.1	1.89

Note; L dimension for alloy steel and stainless steel is not the same. Stainless steel products deviate from the above dimensions. (contact us)

Street Elbow SLC



unit: mm

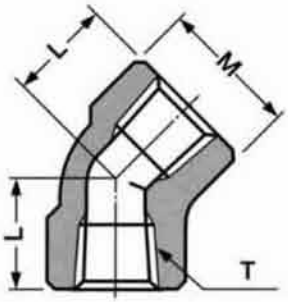
Part No.	T (R×Rc)	d	M	L	L_1	Weight (kg)
SLC02—000J	1/4	6	22	14	27	0.057
SLC03—000J	3/8	9	26	23	29	0.10
○ SLC04—000J	1/2	12	32	26	36	0.19
○ SLC06—000J	3/4	16	38	31	42	0.29
○ SLC08—000J	1	20	44	33	46	0.39
○ SLC10—000J	1 1/4	28	55	36	54.5	0.77
○ SLC12—000J	1 1/2	32	65	38	59.5	1.25
○ SLC16—000J	2	40	80	46	72	1.95

○Parkerizing

Note; L dimension for alloy steel and stainless steel is not the same. Stainless steel products deviate from the above dimensions. (contact us)

SLB•STA Threaded Pipe Fittings

45° Elbow SLB

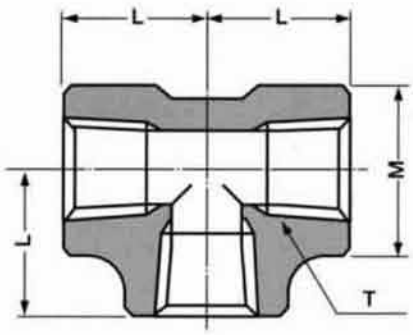


unit: mm

Part No.	T (Rc)	M	L	Weight (kg)
SLB02—000F	1/4	23	17.9	0.09
SLB03—000F	3/8	28	18.9	0.13
SLB04—000F	1/2	34	24.1	0.23
SLB06—000F	3/4	39	26.7	0.31
SLB08—000F	1	47	30.3	0.50
SLB10—000F	1 1/4	57	35.5	0.75
SLB12—000F	1 1/2	64	39.6	0.95
SLB16—000F	2	77	47.4	1.57

Note; L dimension for alloy steel and stainless steel is not the same. Stainless steel products deviate from the above dimensions. (contact us)

Tee STA



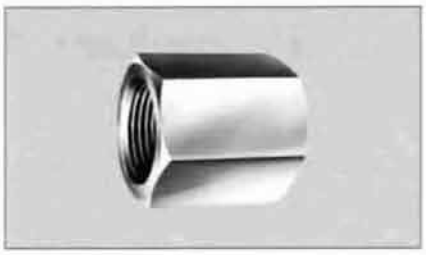
unit: mm

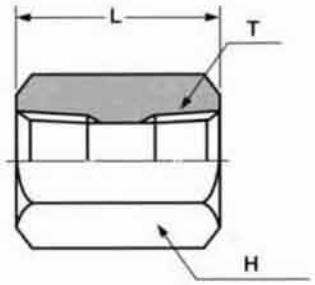
Part No.	T (Rc)	M	L	Weight (kg)
STA02—000F	1/4	23	21.1	0.12
STA03—000F	3/8	28	24.5	0.21
STA04—000F	1/2	34	28.9	0.33
STA06—000F	3/4	39	33.1	0.45
STA08—000F	1	47	38.2	0.71
STA10—000F	1 1/4	57	45.0	1.18
STA12—000F	1 1/2	64	50.8	1.56
STA16—000F	2	77	60.1	2.45

Note; L dimension for alloy steel and stainless steel is not the same. Stainless steel products deviate from the above dimensions. (contact us)

SFC·SRC Threaded Pipe Fittings

Coupling SFC



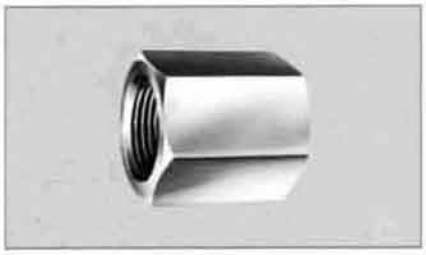


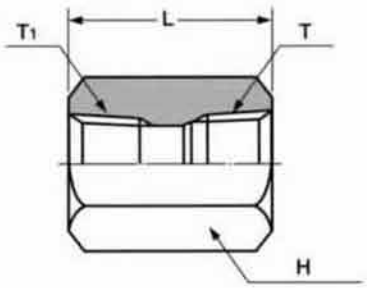
unit: mm

Part No.	T (Rc)	H (HEX)	L	Weight (kg)
SFC01—000J	1/8	19	30	0.059
SFC02—000F	1/4	22	30	0.075
SFC03—000F	3/8	24	30	0.074
SFC04—000F	1/2	32	40	0.19
SFC06—000F	3/4	36	42	0.21
SFC08—000F	1	46	50	0.43
SFC10—000F	1 1/4	55	55	0.61
SFC12—000F	1 1/2	65	55	0.89
SFC16—000F	2	75	64	1.17

Note; L dimensions for alloy steel and stainless steel products deviate from the above dimensions. (contact us)

Reducer SRC





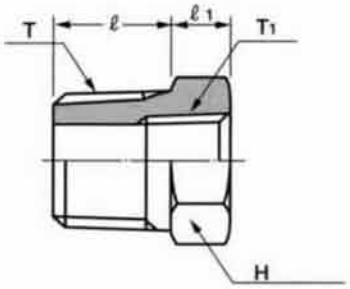
unit: mm

Part No.	T×T1 (Rc)	H (HEX)	L	Weight (kg)
SRC03—020F	3/8 × 1/4	24	30	0.083
SRC04—020F	1/2 × 1/4	32	40	0.22
SRC04—030F	1/2 × 3/8	32	40	0.21
SRC06—020F	3/4 × 1/4	36	42	0.28
SRC06—030F	3/4 × 3/8	36	42	0.27
SRC06—040F	3/4 × 1/2	36	42	0.25
SRC08—030F	1 × 3/8	46	50	0.55
SRC08—040F	1 × 1/2	46	50	0.53
SRC08—060F	1 × 3/4	46	50	0.50
SRC10—040F	1 1/4 × 1/2	55	55	0.81
SRC10—060F	1 1/4 × 3/4	55	55	0.77
SRC10—080F	1 1/4 × 1	55	55	0.71
SRC12—060F	1 1/2 × 3/4	65	55	1.14
SRC12—080F	1 1/2 × 1	65	55	1.08
SRC12—100F	1 1/2 × 1 1/4	65	55	0.97
SRC16—080F	2 × 1	75	64	1.64
SRC16—100F	2 × 1 1/4	75	64	1.51
SRC16—120F	2 × 1 1/2	75	64	1.41

Note; L dimensions for alloy steel and stainless steel products deviate from the above dimensions. (contact us)

SBU·SNP Threaded Pipe Fittings

Bushing SBU

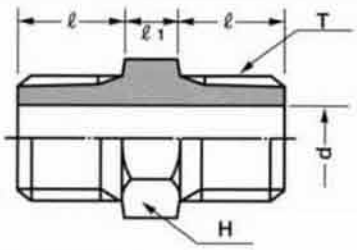


unit: mm

	Part No.	T×T1 (R×Rc)	H (HEX)	ℓ	ℓ1	Weight (kg)
	SBU03—020F	3/8 × 1/4	19	14	8	0.025
○	SBU04—020F	1/2 × 1/4	24	17	9	0.06
○	SBU04—030F	1/2 × 3/8	24	17	9	0.046
○	SBU06—020F	3/4 × 1/4	30	19	10	0.12
○	SBU06—030F	3/4 × 3/8	30	19	10	0.10
○	SBU06—040F	3/4 × 1/2	30	19	10	0.079
○	SBU08—020F	1 × 1/4	36	22	11	0.22
○	SBU08—030F	1 × 3/8	36	22	11	0.20
○	SBU08—040F	1 × 1/2	36	22	11	0.18
○	SBU08—060F	1 × 3/4	36	22	11	0.13
○	SBU10—040F	1 1/4 × 1/2	46	24	12	0.37
○	SBU10—060F	1 1/4 × 3/4	46	24	12	0.31
○	SBU10—080F	1 1/4 × 1	46	24	12	0.23
○	SBU12—040F	1 1/2 × 1/2	50	24	14	0.51
○	SBU12—060F	1 1/2 × 3/4	50	24	14	0.46
○	SBU12—080F	1 1/2 × 1	50	24	14	0.37
○	SBU12—100F	1 1/2 × 1 1/4	50	24	14	0.22
○	SBU16—060F	2 × 3/4	65	28	16	0.94
○	SBU16—080F	2 × 1	65	28	16	0.90
○	SBU16—100F	2 × 1 1/4	65	28	16	0.68
○	SBU16—120F	2 × 1 1/2	65	28	16	0.54

○Parkerizing

Nipple SNP



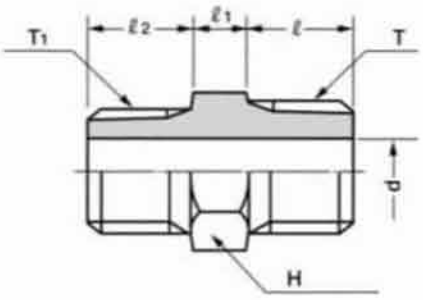
unit: mm

	Part No.	T (R)	d	H (HEX)	ℓ	ℓ1	Weight (kg)
	SNP01—000J	1/8	4	12	9	6	0.013
	SNP02—000F	1/4	7	17	13	8	0.032
	SNP03—000F	3/8	9	19	14	8	0.048
○	SNP04—000F	1/2	12	24	17	9	0.083
○	SNP06—000F	3/4	16	30	19	10	0.14
○	SNP08—000F	1	20	36	22	11	0.26
○	SNP10—000F	1 1/4	28	46	24	12	0.41
○	SNP12—000F	1 1/2	32	50	24	14	0.53
○	SNP16—000F	2	40	65	28	16	0.99

○Parkerizing

SRN·SSS Threaded Pipe Fittings

Reducing Nipple SRN

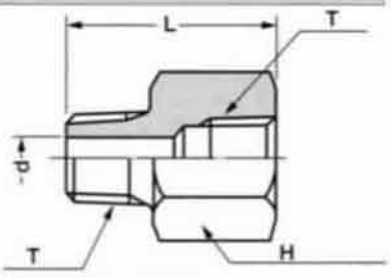


unit: mm

	Part No.	T×T1 (R)	d	H (HEX)	ℓ	ℓ1	ℓ2	Weight (kg)
	SRN03−020F	3/8 × 1/4	7	19	14	8	13	0.045
○	SRN04−020F	1/2 × 1/4	7	24	17	9	13	0.078
○	SRN04−030F	1/2 × 3/8	9	24	17	9	14	0.079
○	SRN06−020F	3/4 × 1/4	7	30	19	10	13	0.13
○	SRN06−030F	3/4 × 3/8	9	30	19	10	14	0.14
○	SRN06−040F	3/4 × 1/2	12	30	19	10	17	0.14
○	SRN08−030F	1 × 3/8	9	36	22	11	14	0.25
○	SRN08−040F	1 × 1/2	12	36	22	11	17	0.25
○	SRN08−060F	1 × 3/4	16	36	22	11	19	0.25
○	SRN10−040F	1 1/4 × 1/2	12	46	24	12	17	0.45
○	SRN10−060F	1 1/4 × 3/4	16	46	24	12	19	0.44
○	SRN10−080F	1 1/4 × 1	20	46	24	12	22	0.44
○	SRN12−060F	1 1/2 × 3/4	16	50	24	14	19	0.59
○	SRN12−080F	1 1/2 × 1	20	50	24	14	22	0.59
○	SRN12−100F	1 1/2 × 1 1/4	28	50	24	14	24	0.55
○	SRN16−080F	2 × 1	20	65	28	16	22	1.09
○	SRN16−100F	2 × 1 1/4	28	65	28	16	24	1.03
○	SRN16−120F	2 × 1 1/2	32	65	28	16	24	1.01

○Parkerizing

Street Socket Type A SSS



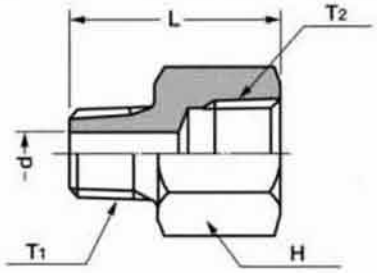
unit: mm

	Part No.	T (R×Rc)	d	L	H (HEX)	Weight (kg)
	SSS02−020J	1/4	7	33	22	0.058
	SSS03−030J	3/8	9	36	24	0.075
○	SSS04−040J	1/2	12	45	32	0.16
○	SSS06−060J	3/4	16	50	36	0.22
○	SSS08−080J	1	20	58	46	0.42
○	SSS10−100J	1 1/4	28	67	55	0.65
○	SSS12−120J	1 1/2	32	69	65	0.96
○	SSS16−160J	2	40	79	75	1.39

○Parkerizing

SSS·SSF·SPA Threaded Pipe Fittings

Street Socket Type B SSS

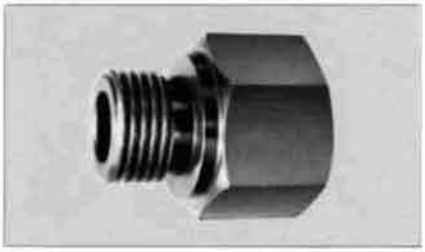


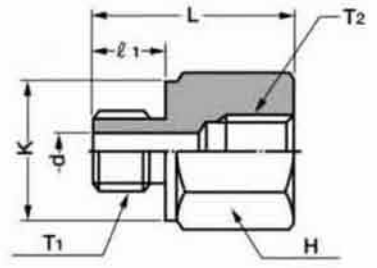
unit: mm

	Part No.	$T_1 \times T_2$ (R×Rc)	d	L	H (HEX)	Weight (kg)
	SSS02—030J	1/4 × 3/8	7	35	24	0.064
	SSS03—040J	3/8 × 1/2	9	41	32	0.15
○	SSS04—060J	1/2 × 3/4	12	48	36	0.20
○	SSS06—080J	3/4 × 1	16	55	46	0.39
○	SSS08—100J	1 × 1 1/4	20	64	55	0.63
○	SSS10—120J	1 1/4 × 1 1/2	28	69	65	0.94
○	SSS12—160J	1 1/2 × 2	32	75	75	1.31

○Parkerizing

Street Socket Type C SSF

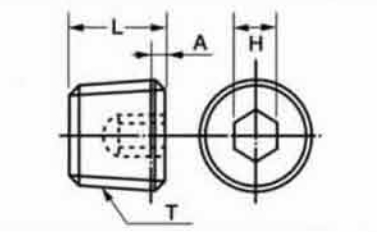




unit: mm

Part No.	T_1 (G)	T_2 (Rc)	d	K	ℓ_1	L	H (HEX)	O-Ring	Weight (kg)
SSF02—020J	1/4	1/4	6	19	12	33	22	P11	0.061
SSF03—030J	3/8	3/8	8	22	12	35	24	P14	0.076
SSF04—040J	1/2	1/2	12	27	14	42	32	P18	0.16
SSF06—060J	3/4	3/4	16	36	16	47	36	P24	0.21
SSF08—080J	1	1	22	41	18	55	46	P29	0.40
SSF10—100J	1 1/4	1 1/4	28	50	20	63	55	P38	0.64
SSF12—120J	1 1/2	1 1/2	31	55	21	66	65	P44	0.96
SSF16—160J	2	2	36	75	25	76	75	P56	1.39

Hollow hex Plug SPA



unit: mm

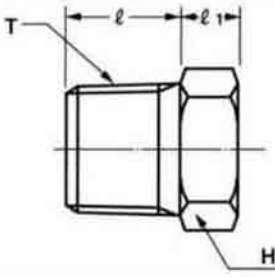
	Part No.	T (R)	H	L	A	Weight (kg)
◆	SPA01—000J	1/8	5	7	0.45	0.003
◆	SPA02—000J	1/4	6	9	0.7	0.008
◆	SPA03—000J	3/8	8	10	0.7	0.012
◆	SPA04—000J	1/2	10	12	0.9	0.024
◆	SPA06—000J	3/4	14	14	0.9	0.041
◆	SPA08—000J	1	17	16.5	1.1	0.088
◆	SPA10—000J	1 1/4	22	19	1.1	0.14
◆	SPA12—000J	1 1/2	22	20	1.1	0.23
◆	SPA16—000J	2	27	22	1.1	0.35

◆Triiron tetraoxide

Material: S45C or S25C
A indicates the position of standard bore

SPB·SPE·SPC Threaded Pipe Fittings

Hexagon Head Plug SPB

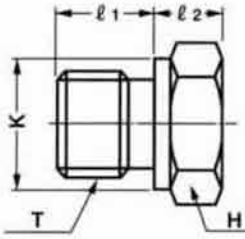


unit: mm

Part No.	T (R)	H (HEX)	ℓ	ℓ 1	Weight (kg)
SPB02—000F	1/4	17	13	8	0.029
SPB03—000F	3/8	19	14	8	0.043
○ SPB04—000F	1/2	24	17	9	0.077
○ SPB06—000F	3/4	30	19	10	0.13
○ SPB08—000F	1	36	22	11	0.25
○ SPB10—000F	1 1/4	46	24	12	0.45
○ SPB12—000F	1 1/2	50	24	14	0.60
○ SPB16—000F	2	65	28	16	1.11

○Parkerizing

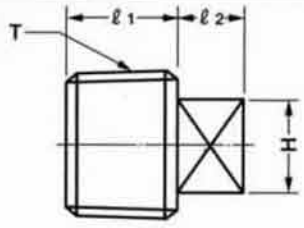
Hexagon Head Plug SPE



unit: mm

Part No.	T (G)	ℓ 1	ℓ 2	K	H (HEX)	O-Ring	Weight (kg)
SPE01—000J	1/8	8	7	14	14	P 8	0.012
SPE02—000J	1/4	12	9	19	19	P11	0.032
SPE03—000J	3/8	12	10	21	22	P14	0.049
SPE04—000J	1/2	14	13	27	27	P18	0.095
SPE06—000J	3/4	16	16	36	36	P24	0.20
SPE08—000J	1	18	18	41	41	P29	0.31
SPE10—000J	1 1/4	20	21	50	50	P38	0.55
SPE12—000J	1 1/2	21	21	55	55	P44	0.70
SPE16—000J	2	25	23	75	75	P56	1.38

Square Head Plug SPC



unit: mm

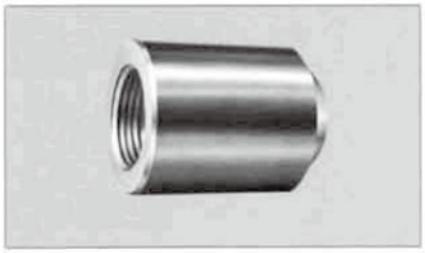
Part No.	T (R)	H	ℓ 1	ℓ 2	Weight (kg)
SPC01—000J	1/8	7	9	7	0.007
SPC02—000J	1/4	9	12	8	0.016
SPC03—000J	3/8	12	13	9	0.03
○ SPC04—000J	1/2	14	16	10	0.054
○ SPC06—000J	3/4	17	18	11	0.096
○ SPC08—000J	1	19	20	12	0.16
○ SPC10—000J	1 1/4	24	22	13	0.28
○ SPC12—000J	1 1/2	27	22	14	0.37
○ SPC16—000J	2	32	26	15	0.66

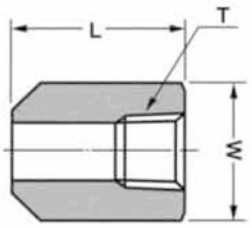
○Parkerizing

Material: S10 or S25C

SBA•SBR Threaded Pipe Fittings

Boss Type A SBA

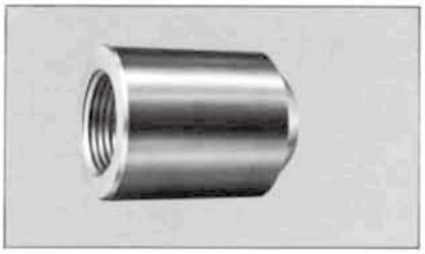


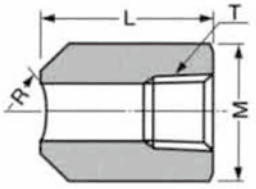


unit: mm

Part No.	T (Rc)	M	L	Weight (kg)
SBA02—000J	1/4	22	40	0.084
SBA03—000J	3/8	26	50	0.14
SBA04—000J	1/2	32	50	0.20
SBA06—000J	3/4	38	50	0.26
SBA08—000J	1	46	50	0.35
SBA10—000J	1 1/4	55	50	0.44
SBA12—000J	1 1/2	65	50	0.63
SBA16—000J	2	75	60	0.86

Boss Type R SBR



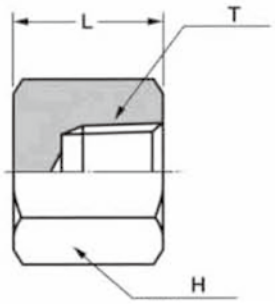


unit: mm

Part No.	SIZE	T (Rc)	M	L	R	Weight (kg)
SBR02—000J	1/4	1/4	22	40	25	0.084
SBR03—000J	3/8	3/8	26	50	25	0.14
SBR04—000J	1/2	1/2	32	50	30	0.20
SBR06—000J	3/4	3/4	38	50	30	0.26

SCA·SMC Threaded Pipe Fittings

Cap SCA

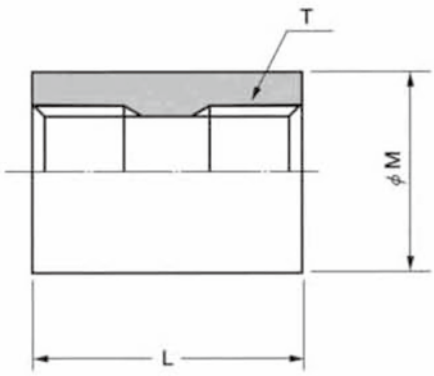


unit: mm

Part No.	T (Rc)	H (HEX)	L	Weight (kg)
SCA01—000J	1/8	19	21	**0.042**
SCA02—000F	1/4	22	21	**0.056**
SCA03—000F	3/8	24	21	**0.059**
SCA04—000F	1/2	32	28	**0.15**
SCA06—000F	3/4	36	30	**0.18**
SCA08—000F	1	46	35	**0.36**
SCA10—000F	1 1/4	55	39	**0.53**
SCA12—000F	1 1/2	65	40	**0.79**
SCA16—000F	2	75	47	**1.16**

Note; Stainless steel products deviate from the above dimensions. (contact us)

Socket SMC



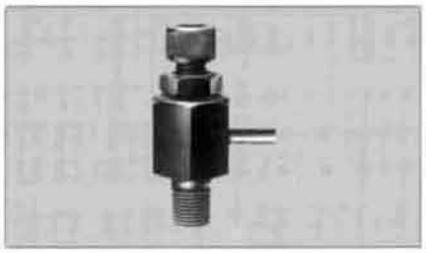
unit: mm

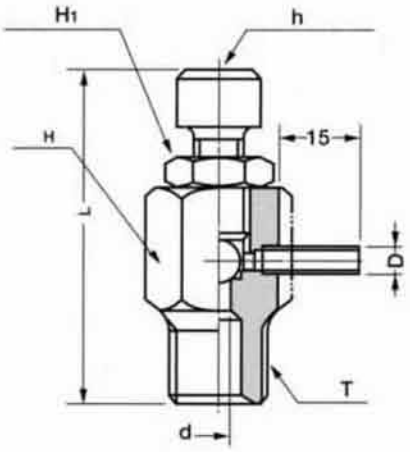
Part No.	T (Rc)	M	L	Weight (kg)
SMC02—000F	1/4	22	30	**0.062**
SMC03—000F	3/8	26	30	**0.079**
SMC04—000F	1/2	32	40	**0.16**
SMC06—000F	3/4	38	42	**0.21**
SMC08—000F	1	46	50	**0.34**
SMC10—000F	1 1/4	55	55	**0.47**
SMC12—000F	1 1/2	63	55	**0.62**
SMC16—000F	2	75	64	**0.89**

Note; Stainless steel products deviate from the above dimensions. (contact us)

SAP•SGA Threaded Pipe Fittings

Air Bleeding Valve SAP



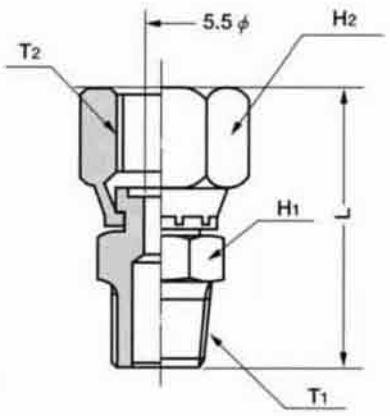


unit: mm

Part No.	T (R)	D	d	h (HEX Hole)	H_1 (HEX)	H (HEX)	L	Nominal Sizes of Steel Ball	Weight (kg)
SAP01—000J	1/8	4	3	6	13	14	51	7/32	0.046
SAP02—000J	1/4	4	3	6	13	14	53	7/32	0.056
SAP03—000J	3/8	6	4	10	19	27	66	5/16	0.20
SAP04—000J	1/2	6	4	10	19	27	69	5/16	0.22

Note; Stainless steel products deviate from the above dimensions. (contact us)

Adapter for Pressure Gauge SGA



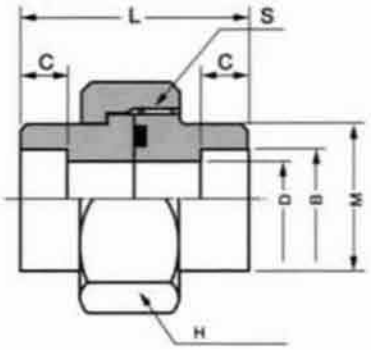
unit: mm

Part No.	H_1 (HEX)	H_2 (HEX)	L	T_1 (R)	T_2 (R)	Applicable Gasket	Weight (kg)
SGA02—000J	17	19	39	1/4	1/4	KP-B-01	0.060
SGA03—000J	22	22	42	3/8	3/8	P6	0.080
SGA04—000J	24	27	49	1/2	1/2	P6	0.12

Note; Applicable gascket material: Size 1/4: Chrome skin
Size 3/8, 1/2: JIS B2401-1B (O-ring)
Stainless steel products deviate from the above dimensions. (contact us)

WUA Socket Weld Pipe Fittings

Union Type A WUA



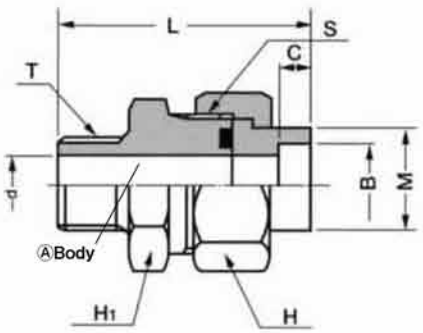
unit: mm

Part No.	Nominal sizes	B	C	D	M	L	H (OCT)	S	O-Ring	Weight (kg)
WUA02—000J	1/4	14.3	10	9.4	22	40	36	M30X2	P18	0.18
WUA03—000J	3/8	17.8	10	12.7	27	41	41	M36X2	P20	0.24
WUA04—000J	1/2	22.2	10	16.1	32	47	46	M39X2	G25	0.34
WUA06—000J	3/4	27.7	13	21.4	38	53	55	M48X2	G30	0.56
WUA08—000J	1	34.5	13	27.2	47	59	65	M56X2	G35	0.82
WUA10—000J	1 1/4	43.2	13	35.5	58	64	80	M68X2	G45	1.36
WUA12—000J	1 1/2	49.1	13	41.2	63	76	85	M72X2	G50	1.77
WUA16—000J	2	61.1	16	52.7	81	76	104	M90X2	G65	2.60

Note; O-ring is JIS B2401-1B. Rated pressure: 21MPa (210kgf/cm²)
Operating temperature: Less than 120℃
Stainless steel products deviate from the above dimensions. (contact us)

WUB・WUC Socket Weld Pipe Fittings

Union Type B WUB



unit: mm

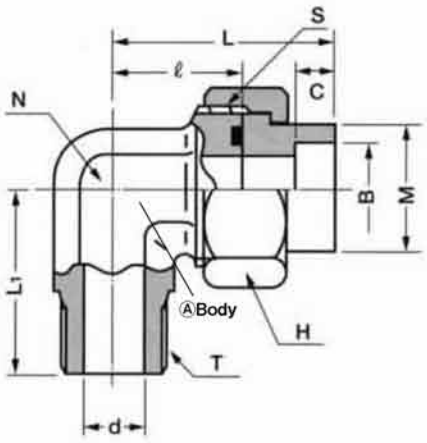
Part No.	Nominal sizes	B	C	d	M	L	H (OCT)	H1 (HEX)	T (R)	S	O-Ring	Weight (kg)
WUB02−020J	1/4	14.3	10	7	22	59	36	32	1/4	M30X2	P18	0.26
WUB02−030J	1/4	14.3	10	9	22	60	36	32	3/8	M30X2	P18	0.27
WUB03−030J	3/8	17.8	10	9	27	62.5	41	41	3/8	M36X2	P20	0.39
◎ WUB03−040J	3/8	17.8	10	12	27	66.5	41	41	1/2	M36X2	P20	0.40
◎ WUB04−040J	1/2	22.2	10	12	32	70.5	46	41	1/2	M39X2	G25	0.49
◎ WUB04−060J	1/2	22.2	10	16	32	72.5	46	41	3/4	M39X2	G25	0.50
◎ WUB06−060J	3/4	27.7	13	16	38	80.5	55	50	3/4	M48X2	G30	0.84
◎ WUB06−080J	3/4	27.7	13	20	38	84.5	55	50	1	M48X2	G30	0.88
◎ WUB08−080J	1	34.5	13	20	47	88.5	65	60	1	M56X2	G35	1.24
◎ WUB08−100J	1	34.5	13	25	47	91.5	65	60	1 1/4	M56X2	G35	1.30
◎ WUB10−100J	1 1/4	43.2	13	25	58	99	80	70	1 1/4	M68X2	G45	2.07
◎ WUB10−120J	1 1/4	43.2	13	32	58	99	80	70	1 1/2	M68X2	G45	2.01
◎ WUB12−120J	1 1/2	49.1	13	32	63	108	85	75	1 1/2	M72X2	G50	2.51
◎ WUB12−160J	1 1/2	49.1	13	38	63	112	85	75	2	M72X2	G50	2.61
◎ WUB16−160J	2	61.1	16	38	81	114	104	95 (OCT)	2	M90X2	G65	3.93

◎「Ⓐ Body」Parkerizing

Body material: S45C

Note; O-ring is JIS B2401-1B. Rated pressure: 21MPa (210kgf/cm²)
Operating temperature: Less than 120℃
Stainless steel products deviate from the above dimensions. (contact us)

Union Type C WUC



unit: mm

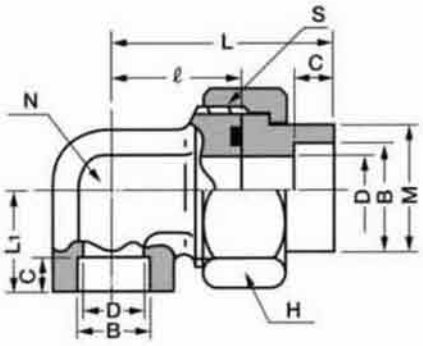
Part No.	Nominal sizes	B	C	d	M	ℓ	L	L1	N	H (OCT)	T (R)	S	O-Ring	Weight (kg)
WUC02−020J	1/4	14.3	10	7	22	29	48	32	22	36	1/4	M30X2	P18	0.27
WUC02−030J	1/4	14.3	10	9	22	29	48	33	22	36	3/8	M30X2	P18	0.27
WUC03−030J	3/8	17.8	10	9	27	30	49.5	38	27	41	3/8	M36X2	P20	0.38
◎ WUC03−040J	3/8	17.8	10	12	27	30	49.5	40	27	41	1/2	M36X2	P20	0.39
◎ WUC04−040J	1/2	22.2	10	12	32	33	56.5	45	30	46	1/2	M39X2	G25	0.54
◎ WUC04−060J	1/2	22.2	10	16	32	33	56.5	47	30	46	3/4	M39X2	G25	0.55
◎ WUC06−060J	3/4	27.7	13	16	38	40	65.5	52	36	55	3/4	M48X2	G30	0.88
◎ WUC06−080J	3/4	27.7	13	20	38	40	65.5	54	36	55	1	M48X2	G30	0.90
◎ WUC08−080J	1	34.5	13	20	47	45	73.5	60	46	65	1	M56X2	G35	1.56
◎ WUC08−100J	1	34.5	13	25	47	45	73.5	63	46	65	1 1/4	M56X2	G35	1.60
◎ WUC10−100J	1 1/4	43.2	13	25	58	48	81	72	50	80	1 1/4	M68X2	G45	2.54
◎ WUC10−120J	1 1/4	43.2	13	32	58	48	81	72	50	80	1 1/2	M68X2	G45	2.44
◎ WUC12−120J	1 1/2	49.1	13	32	63	57	95	72	60	85	1 1/2	M72X2	G50	2.88
◎ WUC12−160J	1 1/2	49.1	13	38	63	57	95	76	60	85	2	M72X2	G50	2.96
◎ WUC16−160J	2	61.1	16	38	81	60	98	82	65	104	2	M90X2	G65	3.85

◎「Ⓐ Body」Parkerizing

Note; O-ring is JIS B2401-1B. Rated pressure: 21MPa (210kgf/cm²)
Operating temperature: Less than 120℃
For stainless steel, the nut configuration up to 1[B] (08) is hex.
Also the configuration and dimension of the body are not the same.
Stainless steel products deviate from the above dimensions. (contact us)

WUD•WUH Socket Weld Pipe Fittings

Union Type D WUD

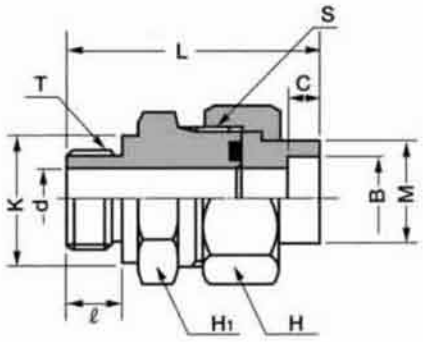


unit: mm

Part No.	Nominal sizes	B	C	D	M	ℓ	L	L_1	H (OCT)	S	O-Ring	N	Weight (kg)
WUD02—020J	1/4	14.3	10	9.4	22	30	49	21	36	M30×2	P18	22	0.26
WUD03—030J	3/8	17.8	10	12.7	27	32	51.5	24	41	M36×2	P20	27	0.37
WUD04—040J	1/2	22.2	10	16.1	32	34	57.5	26	46	M39×2	G25	32	0.51
WUD06—060J	3/4	27.7	13	21.4	38	41	66.5	32	55	M48×2	G30	36	0.82
WUD08—080J	1	34.5	13	27.2	47	46	74.5	35	65	M56×2	G35	41	1.25
WUD10—100J	1 1/4	43.2	13	35.5	58	50	83	40	80	M68×2	G45	50	1.97
WUD12—120J	1 1/2	49.1	13	41.2	63	58	96	45	85	M72×2	G50	60	2.65
WUD16—160J	2	61.1	16	52.7	81	64	102	55	104	M90×2	G65	70	3.94

Note; O-ring is JIS B2401-1B. Rated pressure: 21MPa (210kgf/cm²)
Operating temperature: Less than 120℃
Stainless steel products deviate from the above dimensions. (contact us)

Union Type H WUH



unit: mm

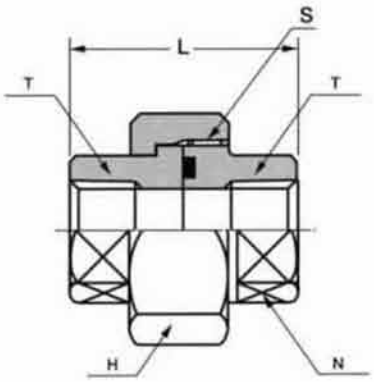
Part No.	Nominal sizes	B	C	d	K	M	ℓ	L	H (OCT)	H_1 (HEX)	T (G)	S	O-Ring	Weight (kg)
WUH02—030J	1/4	14.3	10	7	22	22	12	63	36	32	3/8	M30×2	P18	0.29
WUH03—040J	3/8	17.8	10	12	27	27	14	67	41	41	1/2	M36×2	P20	0.41
WUH04—060J	1/2	22.2	10	16	36	32	16	73	46	41	3/4	M39×2	G25	0.52
WUH06—080J	3/4	27.7	13	20	41	38	18	87	55	50	1	M48×2	G30	0.92
WUH08—100J	1	34.5	13	28	50	47	20	93	65	60	1 1/4	M56×2	G35	1.32
WUH10—120J	1 1/4	43.2	13	32	55	58	21	101	80	70	1 1/2	M68×2	G45	2.06
WUH12—160J	1 1/2	49.1	13	40	75	63	25	114	85	75	2	M72×2	G50	2.68
WUH16—160J	2	61.1	16	40	75	81	25	115	104	95	2	M90×2	G65	4.00

Body material: S45C

Note; O-ring is JIS B2401-1B. Rated pressure: 21MPa (210kgf/cm²)
Operating temperature: Less than 120℃
Stainless steel products deviate from the above dimensions. (contact us)

SUA・WUF Threaded Pipe Fittings

Union SUA

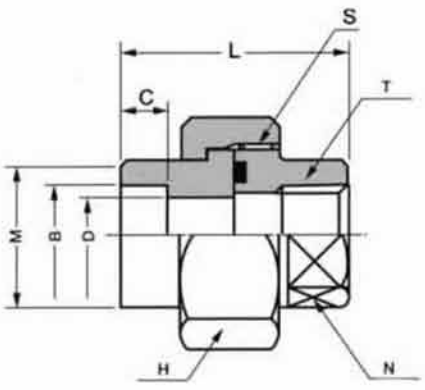


unit: mm

Part No.	T (Rc)	N (OCT)	L	H (OCT)	S	O-Ring	Weight (kg)
SUA02—000J	1/4	20	39.5	36	M30×2	P18	0.17
SUA03—000J	3/8	24	41.5	41	M36×2	P20	0.23
SUA04—000J	1/2	29	49	46	M39×2	G25	0.33
SUA06—000J	3/4	35	55	55	M48×2	G30	0.54
SUA08—000J	1	44	59.5	65	M56×2	G35	0.80
SUA10—000J	1 1/4	54	67.5	80	M68×2	G45	1.34
SUA12—000J	1 1/2	60	79	85	M72×2	G50	1.74
SUA16—000J	2	75	82	104	M90×2	G65	2.55

Note; O-ring is JIS B2401-1B. Rated pressure: 21MPa (210kgf/cm²)
Operating temperature: Less than 120℃
Stainless steel products deviate from the above dimensions. (contact us)

Union Type F WUF



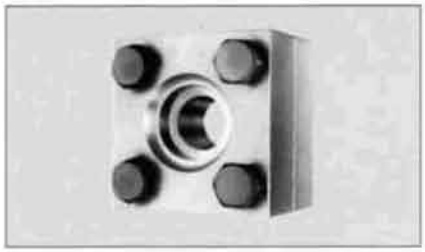
unit: mm

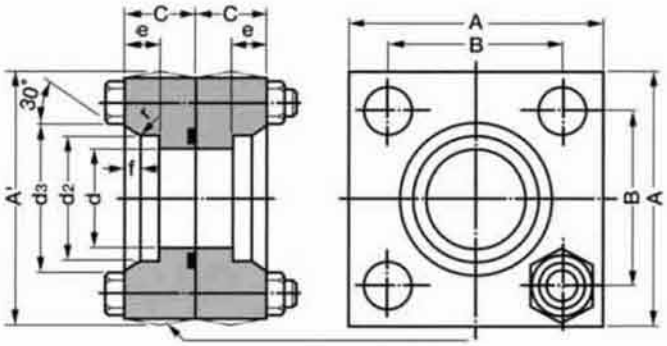
Part No.	Nominal sizes	B	C	D	M	L	N (OCT)	H (OCT)	S	T (R)	O-Ring	Weight (kg)
WUF02—020J	1/4	14.3	10	9.4	22	39	20	36	M30×2	1/4	P18	0.18
WUF03—030J	3/8	17.8	10	12.7	27	41	24	41	M36×2	3/8	P20	0.23
WUF04—040J	1/2	22.2	10	16.1	32	48	29	46	M39×2	1/2	G25	0.33
WUF06—060J	3/4	27.7	13	21.4	38	54	35	55	M48×2	3/4	G30	0.54
WUF08—080J	1	34.5	13	27.2	47	58.5	44	65	M56×2	1	G35	0.80
WUF10—100J	1 1/4	43.2	13	35.5	58	66.5	54	80	M68×2	1 1/4	G45	1.36
WUF12—120J	1 1/2	49.1	13	41.2	63	78	60	85	M72×2	1 1/2	G50	1.77
WUF16—160J	2	61.1	16	52.7	81	79	75	104	M90×2	2	G65	2.58

Note; O-ring is JIS B2401-1B. Rated pressure: 21MPa (210kgf/cm²)
Operating temperature: Less than 120℃
Stainless steel products deviate from the above dimensions. (contact us)

FA-A Pipe Flange for 21MPa Hydraulic Use Based on JIS B2291-1994

Pipe Flange Assembly for 21MPa Hydraulic Use FA-A





Configuration by forging

FA-A type

unit: mm

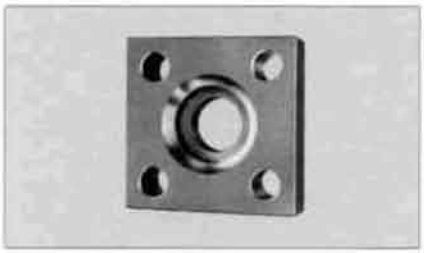
Part No.	Nominal sizes of matching tubes	A	Max A'	B	C	d	d_2	d_3	e	f	r	BOLT	O-Ring JIS B2401-B	Weight (kg)
FA-A-10	3/8	63	67	40	22	11	$17.8^{+0.2}_{0}$	28	11	3.5	5	M10× 55	G25	1.42
FA-A-15	1/2	63	67	40	22	16	$22.2^{+0.2}_{0}$	32	11	3.5	5	M10× 55	G25	1.41
FA-A-20	3/4	68	72	45	22	20	$27.7^{+0.2}_{0}$	38	12	4.0	5	M10× 55	G30	1.50
FA-A-25	1	80	85	53	28	25	$34.5^{+0.3}_{0}$	45	14	4.0	5	M12× 70	G35	2.94
FA-A-32	1 1/4	90	95	63	28	31.5	$43.2^{+0.3}_{0}$	56	16	6.0	5	M12× 70	G40	3.30
FA-A-40	1 1/2	100	106	70	36	37.5	$49.1^{+0.3}_{0}$	63	18	7.0	5	M16× 90	G50	5.40
FA-A-50	2	112	118	80	36	47.5	$61.1^{+0.3}_{0}$	75	20	7.0	5	M16× 90	G60	6.20
FA-A-65	2 1/2	140	148	100	45	60	$77.1^{+0.4}_{0}$	95	22	9.5	6	M20×115	G75	12.40
FA-A-80	3	155	163	112	45	71	$90.0^{+0.4}_{0}$	108	25	11.0	6	M22×115	G85	15.50

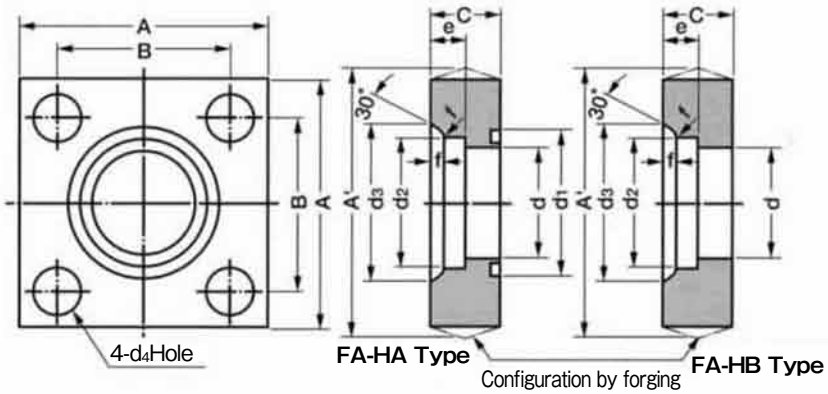
This table shows when { FA-HA-(all types)(P36) / FA-HB-(all types)(P36) } are as a set, and the bolt strength is 8T.

Note; Stainless steel products deviate from the above dimensions. (contact us)

FA-HA·FA-HB Pipe Flange for 21MPa Hydraulic Use Based on JIS B2291-1994

Pipe Flange for 21MPa Hydraulic Use FA-HA·FA-HB





FA-HA type

unit: mm

Part No.	Equivalent JIS description	Nominal sizes of matching tubes	A	Max A'	B	C	d	d_1	d_2	d_3	d_4	e	f	r	Reference	
															BOLT	O-Ring
FA-HA-10		3/8	63	67	40	22	11	30	$17.8^{+0.2}_{0}$	28	11	11	3.5	5	M10	G25
FA-HA-15	SHA15	1/2	63	67	40	22	16	30	$22.2^{+0.2}_{0}$	32	11	11	3.5	5	M10	G25
FA-HA-20	SHA20	3/4	68	72	45	22	20	35	$27.7^{+0.2}_{0}$	38	11	12	4.0	5	M10	G30
FA-HA-25	SHA25	1	80	85	53	28	25	40	$34.5^{+0.3}_{0}$	45	13	14	4.0	5	M12	G35
FA-HA-32	SHA32	1 1/4	90	95	63	28	31.5	45	$43.2^{+0.3}_{0}$	56	13	16	6.0	5	M12	G40
FA-HA-40	SHA40	1 1/2	100	106	70	36	37.5	55	$49.1^{+0.3}_{0}$	63	18	18	7.0	5	M16	G50
FA-HA-50	SHA50	2	112	118	80	36	47.5	65	$61.1^{+0.3}_{0}$	75	18	20	7.0	5	M16	G60
FA-HA-65	SHA65	2 1/2	140	148	100	45	60	80	$77.1^{+0.4}_{0}$	95	22	22	9.5	6	M20	G75
FA-HA-80	SHA80	3	155	163	112	45	71	90	$90.0^{+0.4}_{0}$	108	24	25	11.0	6	M22	G85

FA-HB type

unit: mm

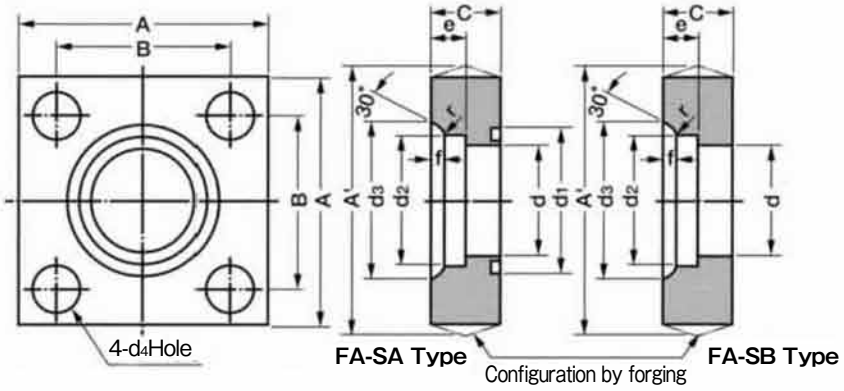
Part No.	Equivalent JIS description	Nominal sizes of matching tubes	A	Max A'	B	C	d	d_2	d_3	d_4	e	f	r	Reference	
														BOLT	O-Ring
FA-HB-10		3/8	63	67	40	22	11	$17.8^{+0.2}_{0}$	28	11	11	3.5	5	M10	G25
FA-HB-15	SHB15	1/2	63	67	40	22	16	$22.2^{+0.2}_{0}$	32	11	11	3.5	5	M10	G25
FA-HB-20	SHB20	3/4	68	72	45	22	20	$27.7^{+0.2}_{0}$	38	11	12	4.0	5	M10	G30
FA-HB-25	SHB25	1	80	85	53	28	25	$34.5^{+0.3}_{0}$	45	13	14	4.0	5	M12	G35
FA-HB-32	SHB32	1 1/4	90	95	63	28	31.5	$43.2^{+0.3}_{0}$	56	13	16	6.0	5	M12	G40
FA-HB-40	SHB40	1 1/2	100	106	70	36	37.5	$49.1^{+0.3}_{0}$	63	18	18	7.0	5	M16	G50
FA-HB-50	SHB50	2	112	118	80	36	47.5	$61.1^{+0.3}_{0}$	75	18	20	7.0	5	M16	G60
FA-HB-65	SHB65	2 1/2	140	148	100	45	60	$77.1^{+0.4}_{0}$	95	22	22	9.5	6	M20	G75
FA-HB-80	SHB80	3	155	163	112	45	71	$90.0^{+0.4}_{0}$	108	24	25	11.0	6	M22	G85

Items of this table are to be treated as individual items, and the bolts and O-Ring Listed as reference are not included as standard accessories.

Note; Stainless steel products deviate from the above dimensions. (contact us)

FA-SA·FA-SB Pipe Flange for 21MPa Hydraulic Use Based on JIS B2291-1994

Pipe Flange for 21MPa Hydraulic Use FA-SA·FA-SB



(In case of FA-SB, d_4 will be M thread of d_5.)

FA-SA type

unit: mm

Part No.	Equivalent JIS description	Nominal sizes of matching tubes	A	Max A'	B	C	d	d_1	d_2	d_3	d_4	e	f	r	Reference	
															BOLT	O-Ring
FA-SA-10		3/8	54	58	36	22	11	30	$17.8^{+0.2}_{0}$	28	11	11	3.5	5	M10	G25
FA-SA-15	SSA15	1/2	54	58	36	22	16	30	$22.2^{+0.2}_{0}$	32	11	11	3.5	5	M10	G25
FA-SA-20	SSA20	3/4	58	62	40	22	20	35	$27.7^{+0.2}_{0}$	38	11	12	4.0	5	M10	G30
FA-SA-25	SSA25	1	68	73	48	28	25	40	$34.5^{+0.3}_{0}$	45	13	14	4.0	5	M12	G35
FA-SA-32	SSA32	1 1/4	76	81	56	28	31.5	45	$43.2^{+0.3}_{0}$	56	13	16	6.0	5	M12	G40
FA-SA-40	SSA40	1 1/2	92	98	65	36	37.5	55	$49.1^{+0.3}_{0}$	63	18	18	7.0	5	M16	G50
FA-SA-50	SSA50	2	100	106	73	36	47.5	65	$61.1^{+0.3}_{0}$	75	18	20	7.0	5	M16	G60
FA-SA-65	SSA65	2 1/2	128	136	92	45	60	80	$77.1^{+0.4}_{0}$	95	22	22	9.5	6	M20	G75
FA-SA-80	SSA80	3	140	148	103	45	71	90	$90.0^{+0.4}_{0}$	108	24	25	11.0	6	M22	G85

FA-SB type

unit: mm

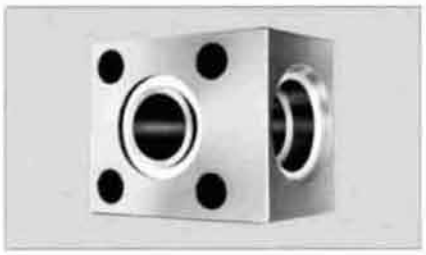
Part No.	Equivalent JIS description	Nominal sizes of matching tubes	A	Max A'	B	C	d	d_2	d_3	e	d_5	f	r	Reference	
														BOLT	O-Ring
FA-SB-10		3/8	54	58	36	22	11	$17.8^{+0.2}_{0}$	28	11	M10×1.5	3.5	5	M10	G25
FA-SB-15	SSB15	1/2	54	58	36	22	16	$22.2^{+0.2}_{0}$	32	11	M10×1.5	3.5	5	M10	G25
FA-SB-20	SSB20	3/4	58	62	40	22	20	$27.7^{+0.2}_{0}$	38	12	M10×1.5	4.0	5	M10	G30
FA-SB-25	SSB25	1	68	73	48	28	25	$34.5^{+0.3}_{0}$	45	14	M12×1.75	4.0	5	M12	G35
FA-SB-32	SSB32	1 1/4	76	81	56	28	31.5	$43.2^{+0.3}_{0}$	56	16	M12×1.75	6.0	5	M12	G40
FA-SB-40	SSB40	1 1/2	92	98	65	36	37.5	$49.1^{+0.3}_{0}$	63	18	M16×2	7.0	5	M16	G50
FA-SB-50	SSB50	2	100	106	73	36	47.5	$61.1^{+0.3}_{0}$	75	20	M16×2	7.0	5	M16	G60
FA-SB-65	SSB65	2 1/2	128	136	92	45	60	$77.1^{+0.4}_{0}$	95	22	M20×2.5	9.5	6	M20	G75
FA-SB-80	SSB80	3	140	148	103	45	71	$90.0^{+0.4}_{0}$	108	25	M22×2.5	11.0	6	M22	G85

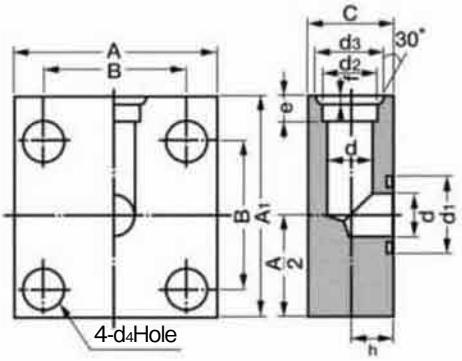
Items of this table are to be treated as individual items, and the bolts and O-Ring Listed as reference are not included as standard accessories.

Note; Stainless steel products deviate from the above dimensions. (contact us)

FA-LA Pipe Flange for 21MPa Hydraulic Use Based on JIS B2291-1994

Pipe Flange for 21MPa Hydraulic Use FA-LA





FA-LA type

unit: mm

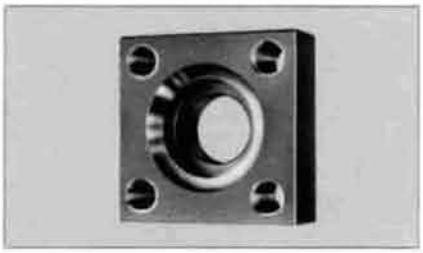
Part No.	Equivalent JIS description	Nominal sizes of matching tubes	A	A_1	B	C	h	d	d_1	d_2	d_3	d_4	e	f	r	Reference	
																BOLT	O-Ring
FA-LA-10		3/8	54	63	36	40	20	11	30	$17.8^{+0.2}_{0}$	28	11	11	3.5	5	M10	G25
FA-LA-15	LSA15	1/2	54	63	36	40	20	16	30	$22.2^{+0.2}_{0}$	32	11	11	3.5	5	M10	G25
FA-LA-20	LSA20	3/4	58	70	40	45	22.5	20	35	$27.7^{+0.2}_{0}$	38	11	12	4.0	5	M10	G30
FA-LA-25	LSA25	1	68	82	48	50	25	25	40	$34.5^{+0.3}_{0}$	45	13	14	4.0	5	M12	G35
FA-LA-32	LSA32	1 1/4	76	92	56	63	31.5	31.5	45	$43.2^{+0.3}_{0}$	56	13	16	6.0	5	M12	G40
FA-LA-40	LSA40	1 1/2	92	110	65	71	35.5	37.5	55	$49.1^{+0.3}_{0}$	63	18	18	7.0	5	M16	G50
FA-LA-50	LSA50	2	100	125	73	85	42.5	47.5	65	$61.1^{+0.3}_{0}$	75	18	20	7.0	5	M16	G60
FA-LA-65	LSA65	2 1/2	128	150	92	106	53	60	80	$77.1^{+0.4}_{0}$	95	22	22	9.5	6	M20	G75
FA-LA-80	LSA80	3	140	170	103	118	59	71	90	$90.0^{+0.4}_{0}$	108	24	25	11.0	6	M22	G85

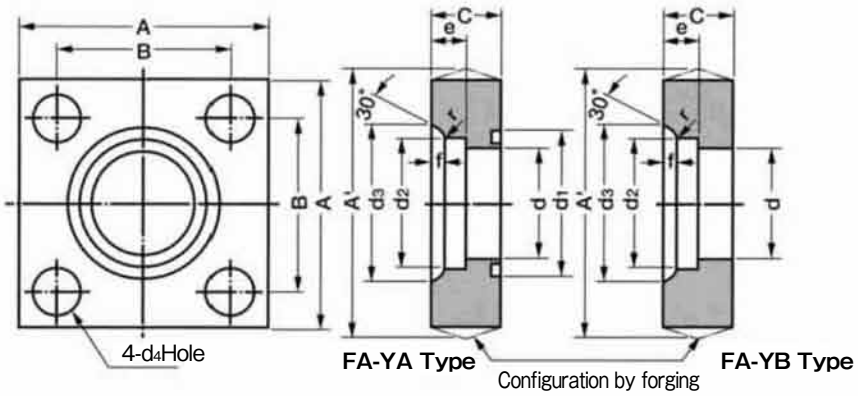
Items of this table are to be treated as individual items, and the bolts and O-Ring Listed as reference are not included as standard accessories.

Note; Stainless steel products deviate from the above dimensions. (contact us)

FA-YA•FA-YB Pipe Flange for 280K Hydraulic Use Based on JIS F7806-1996

Pipe Flange for 280K Hydraulic Use FA-YA•FA-YB





FA-YA type

unit: mm

Part No.	Equivalent JIS description	Nominal sizes of matching tubes	A	Max A'	B	C	d	d_1	d_2	d_3	d_4	e	f	r	Reference BOLT	Reference O-Ring	Weight (kg)
FA-YA15	280KA15	½	66	70	43	22	12.3	24	$22.2^{+0.2}_{0}$	34	11	12	4.0	5	M10	P20	0.63
FA-YA20	280KA20	¾	72	76	48	25	16.2	30	$27.7^{+0.2}_{0}$	40	11	12	4.5	5	M10	G25	0.85
FA-YA25	280KA25	1	85	91	58	35	21.2	35	$34.5^{+0.3}_{0}$	48	13.5	14	5.0	5	M12	G30	1.64
FA-YA32	280KA32	1¼	98	104	68	35	29.9	45	$43.2^{+0.3}_{0}$	60	17.5	18	6.5	5	M16	G40	2.03
FA-YA40	280KA40	1½	105	112	74	40	34.4	50	$49.1^{+0.3}_{0}$	66	17.5	20	7.5	5	M16	G45	2.66
FA-YA50	280KA50	2	130	139	90	50	43.1	60	$61.1^{+0.3}_{0}$	79	22	20	8.0	5	M20	G55	5.14
FA-YA65	280KA65	2½	150	161	108	60	57.3	75	$77.1^{+0.4}_{0}$	100	24	25	10.0	6	M22	G70	7.95
FA-YA80	280KA80	3	170	181	120	65	66.9	85	$90.0^{+0.4}_{0}$	114	26	25	12.0	6	M24	G80	11.00

FA-YB type

unit: mm

Part No.	Equivalent JIS description	Nominal sizes of matching tubes	A	Max A'	B	C	d	d_2	d_3	d_4	e	f	r	Reference BOLT	Reference O-Ring	Weight (kg)
FA-YB15	280KB15	½	66	70	43	22	12.3	$22.2^{+0.2}_{0}$	34	11	12	4.0	5	M10	P20	0.63
FA-YB20	280KB20	¾	72	76	48	25	16.2	$27.7^{+0.2}_{0}$	40	11	12	4.0	5	M10	G25	0.85
FA-YB25	280KB25	1	85	91	58	35	21.2	$34.5^{+0.3}_{0}$	48	13.5	14	5.0	5	M12	G30	1.64
FA-YB32	280KB32	1¼	98	104	68	35	29.9	$43.2^{+0.3}_{0}$	60	17.5	18	6.5	5	M16	G40	2.03
FA-YB40	280KB40	1½	105	112	74	40	34.4	$49.1^{+0.3}_{0}$	66	17.5	20	7.5	5	M16	G45	2.66
FA-YB50	280KB50	2	130	139	90	50	43.1	$61.1^{+0.3}_{0}$	79	22	20	8.0	5	M20	G55	5.14
FA-YB65	280KB65	2½	150	161	108	60	57.3	$77.1^{+0.4}_{0}$	100	24	25	10.0	6	M22	G70	7.95
FA-YB80	280KB80	3	170	181	120	65	66.9	$90.0^{+0.4}_{0}$	114	26	25	12.0	6	M24	G80	11.00

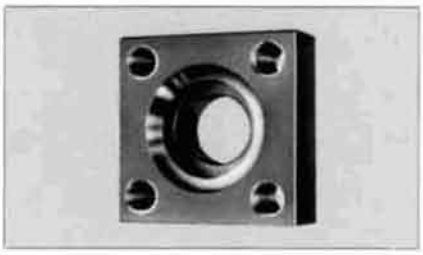
Items of this table are to be treated as individual items, and the bolts and O-Ring Listed as reference are not included as standard accessories.

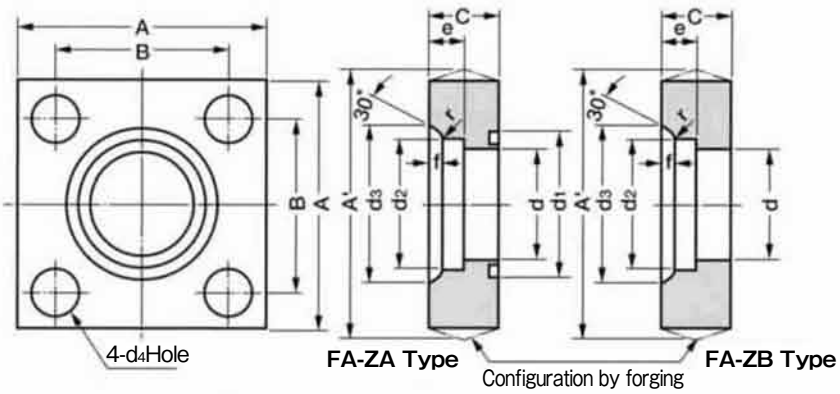
Note; Stainless steel products deviate from the above dimensions. (contact us)

FA-ZA•FA-ZB

Pipe Flange for 35MPa Hydraulic Use Based on JIS F7806-1996

Pipe Flange for 35MPa Hydraulic Use FA-ZA•FA-ZB





FA-ZA type

unit: mm

Part No.	Equivalent JIS description	Nominal sizes of matching tubes	A	Max A'	B	C	d	d_1	d_2	d_3	d_4	e	f	r	Reference BOLT	Reference O-Ring	Weight (kg)
FA-ZA-15	350KA15	½	68	73	45	28	12.3	24	$22.2^{+0.2}_{0}$	37.5	11	12	4	5	M10	P20	0.88
FA-ZA-20	350KA20	¾	82	87	55	30	16.2	30	$27.7^{+0.2}_{0}$	43.5	13.5	12	5	5	M12	G25	1.34
FA-ZA-25	350KA25	1	95	101	65	35	21.2	35	$34.5^{+0.3}_{0}$	53	17.5	14	5.5	6	M16	G30	2.02
FA-ZA-32	350KA32	1¼	100	106	70	35	23.3	40	$43.2^{+0.3}_{0}$	63	17.5	18	7	6	M16	G35	2.16
FA-ZA-40	350KA40	1½	105	112	75	42	28.2	45	$49.1^{+0.3}_{0}$	70	17.5	20	8	6	M16	G40	2.84
FA-ZA-50	350KA50	2	132	140	92	50	38.3	55	$61.1^{+0.3}_{0}$	84	22	25	9	6	M20	G50	5.30
FA-ZA-65	350KA65	2½	160	170	112	60	48.3	65	$77.1^{+0.4}_{0}$	105	26	30	12	7	M24	G60	9.92
FA-ZA-80	350KA80	3	190	202	130	68	58.7	75	$90.0^{+0.4}_{0}$	120	33	30	13.5	7	M30	G70	14.80

FA-ZB type

unit: mm

Part No.	Equivalent JIS description	Nominal sizes of matching tubes	A	Max A'	B	C	d	d_2	d_3	d_4	e	f	r	Reference BOLT	Reference O-Ring	Weight (kg)
FA-ZB-15	350KB15	½	68	73	45	28	12.3	$22.2^{+0.2}_{0}$	37.5	11	12	4	5	M10	P20	0.88
FA-ZB-20	350KB20	¾	82	87	55	30	16.2	$27.7^{+0.2}_{0}$	43.5	13.5	12	5	5	M12	G25	1.34
FA-ZB-25	350KB25	1	95	101	65	35	21.2	$34.5^{+0.3}_{0}$	53	17.5	14	5.5	6	M16	G30	2.02
FA-ZB-32	350KB32	1¼	100	106	70	35	23.3	$43.2^{+0.3}_{0}$	63	17.5	18	7	6	M16	G35	2.16
FA-ZB-40	350KB40	1½	105	112	75	42	28.2	$49.1^{+0.3}_{0}$	70	17.5	20	8	6	M16	G40	2.84
FA-ZB-50	350KB50	2	132	140	92	50	38.3	$61.1^{+0.3}_{0}$	84	22	25	9	6	M20	G50	5.30
FA-ZB-65	350KB65	2½	160	170	112	60	48.3	$77.1^{+0.4}_{0}$	105	26	30	12	7	M24	G60	9.92
FA-ZB-80	350KB80	3	190	202	130	68	58.7	$90.0^{+0.4}_{0}$	120	33	30	13.5	7	M30	G70	14.80

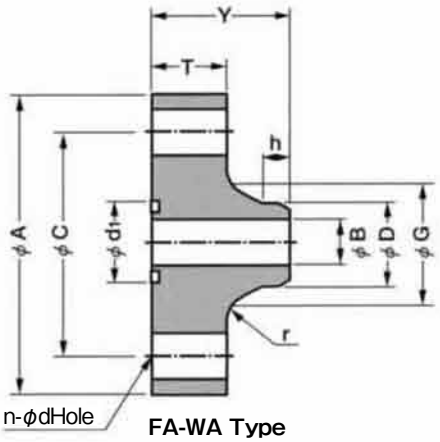
Items of this table are to be treated as individual items, and the bolts and O-Ring Listed as reference are not included as standard accessories.

Note; Stainless steel products deviate from the above dimensions. (contact us)

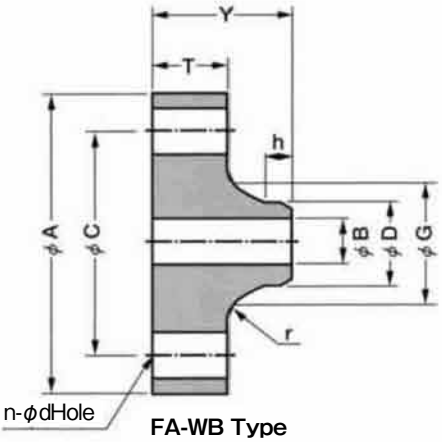
FA-WA•FA-WB

Butt Welding Type Pipe Flange
for 35MPa (350kgf/cm²)
Hydraulic Use Based on FAS 103-1996

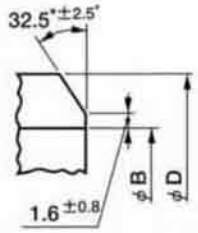
Pipe Flange for 35MPa (350kgf/cm²) Hydraulic Use FA-WA•FA-WB



FA-WA Type



FA-WB Type



(Height of root surface)

FA-WA type

unit: mm

Part No.	Equivalent JIS description	Nominal sizes of matching tubes	A	$B^{0}_{-0.5}$	C	D^{+1}_{0}	G	T	h	Y	r	n-d	d_1	Reference BOLT	Reference O-Ring	Weight (kg)
FA-WA-15	BWA15	½	90	12.3	63	21.7	32	25	7	43	5	4-13	24	M12	P20	1.25
FA-WA-20	BWA20	¾	98	16.2	71	27.2	40	25	9	47	5	4-13	30	M12	G25	1.51
FA-WA-25	BWA25	1	120	21.2	88	34.0	48	30	10	55	6	4-18	35	M16	G30	2.73
FA-WA-32	BWA32	1¼	135	23.3	103	42.7	63	30	15	66	6	4-18	40	M16	G35	3.69
FA-WA-40	BWA40	1½	145	28.2	113	48.6	73	35	16	77	6	4-18	45	M16	G40	5.00
FA-WA-50	BWA50	2	175	38.3	135	60.5	88	40	17	88	6	4-22	55	M20	G50	8.19
FA-WA-65	BWA65	2½	185	48.3	150	76.3	108	45	21	101	7	8-18	65	M16	G60	10.65
FA-WA-80	BWA80	3	215	58.7	175	89.1	127	50	23	115	7	8-22	75	M20	G70	16.00

FA-WB type

unit: mm

Part No.	Equivalent JIS description	Nominal sizes of matching tubes	A	$B^{0}_{-0.5}$	C	D^{+1}_{0}	G	T	h	Y	r	n-d	Reference BOLT	Reference O-Ring	Weight (kg)
FA-WB-15	BWB15	½	90	12.3	63	21.7	32	25	7	43	5	4-13	M12	P20	1.25
FA-WB-20	BWB20	¾	98	16.2	71	27.2	40	25	9	47	5	4-13	M12	G25	1.51
FA-WB-25	BWB25	1	120	21.2	88	34.0	48	30	10	55	6	4-18	M16	G30	2.73
FA-WB-32	BWB32	1¼	135	23.3	103	42.7	63	30	15	66	6	4-18	M16	G35	3.69
FA-WB-40	BWB40	1½	145	28.2	113	48.6	73	35	16	77	6	4-18	M16	G40	5.00
FA-WB-50	BWB50	2	175	38.3	135	60.5	88	40	17	88	6	4-22	M20	G50	8.19
FA-WB-65	BWB65	2½	185	48.3	150	76.3	108	45	21	101	7	8-18	M16	G60	10.65
FA-WB-80	BWB80	3	215	58.7	175	89.1	127	50	23	115	7	8-22	M20	G70	16.00

Items of this table are to be treated as individual items, and the bolts and O-Ring Listed as reference are not included as standard accessories.

Note; Stainless steel products deviate from the above dimensions. (contact us)

LIST OF MAIN MATERIAL AND MATERIAL SYMBOLS FOR TUBE FITTINGS

List of Main Material for Tube Fittings

Division	Applicable JIS steel tubes	Tube fittings material	Tube fittings material symbols	Chemical composition %					
				C	Si	Mn	P	S	Ni
Carbon steel	STPG370,410 STS370,410 STPT370,410	S25C	※1) PT410	0.22~0.28	0.15~0.35	0.30~0.60	0.030 or Less	0.035 or Less	
		※2) ASTM A105		*0.25 or Less	0.35 or Less	*0.60~1.00	0.040 or Less	0.050 or Less	—
		SGD4K	—	0.20~0.25	0.35 or Less	0.30~0.60	0.045 or Less	0.045 or Less	—
Alloy steel	STPA12	ASTM A182-F1	PA12	0.28 or Less	0.15~0.35	0.60~0.90	0.045 or Less	0.045 or Less	—
	STPA23	ASTM A182-F11	PA23	0.10~0.20	0.50~1.00	0.30~0.80	0.040 or Less	0.040 or Less	—
	STPA24	ASTM A182-F22	PA24	0.15 or Less	0.50 or Less	0.30~0.60	0.040 or Less	0.040 or Less	—
	STPA25	ASTM A182-F5	PA25	0.15 or Less	0.50 or Less	0.30~0.60	0.030 or Less	0.030 or Less	0.50 or Less
Stainless steel	SUS304TP	JISG4303 SUS304	SUS304	0.08 or Less	1.00 or Less	2.00 or Less	0.045 or Less	0.030 or Less	8.00~10.50
	SUS304LTP	SUS304L	SUS304L	0.030 or Less	1.00 or Less	2.00 or Less	0.045 or Less	0.030 or Less	9.00~13.00
	SUS316TP	SUS316	SUS316	0.08 or Less	1.00 or Less	2.00 or Less	0.045 or Less	0.030 or Less	10.00~14.00
	SUS316LTP	SUS316L	SUS316L	0.30 or Less	1.00 or Less	2.00 or Less	0.045 or Less	0.030 or Less	12.00~15.00
	SUS321	SUS321	SUS321	0.08 or Less	1.00 or Less	2.00 or Less	0.045 or Less	0.030 or Less	9.00~13.00
Low temperature steel	STPL380	ASTM A350-LF2	PL380	0.30 or Less	0.15~0.30	1.35 or Less	0.035 or Less	0.040 or Less	—
	STPL450	ASTM A350-LF3	PL450	0.20 or Less	0.20~0.35	0.90 or Less	0.035 or Less	0.040 or Less	3.25~3.75

Chemical composition %					Mechanical Properties				
Cr	Mo	Cu	Ni	Others	Yield Strength N/mm²	Tensil Strength N/mm²	Elongation %	Reduction of Area %	Hardness HB
					—	—	27 or Over		
—	—	—	—	—	—	—	24 or Over	—	—
—	—	—	—	—	—	—	—	—	—
—	0.44~0.65	—	—	—	—	—	20.0 or Over	30.0 or Over	143~192
1.00~1.50	0.44~0.65	—	—	—	—	—	20.0 or Over	30.0 or Over	143~207
2.00~2.50	0.87~1.13	—	—	—	—	—	20.0 or Over	30.0 or Over	156~207
4.0 ~ 6.0	0.44~0.65	—	—	—	—	—	20.0 or Over	35.0 or Over	143~217
18.00~20.00	—	—	—	—	205 or Over	520 or Over	40 or Over	60 or Over	187 or Less
18.00~20.00	—	—	—	—	175 or Over	480 or Over	40 or Over	60 or Over	187 or Less
16.00~18.00	2.00~3.00	—	—	—	205 or Over	520 or Over	40 or Over	60 or Over	187 or Less
16.00~18.00	2.00~3.00	—	—	—	175 or Over	480 or Over	40 or Over	60 or Over	187 or Less
17.00~18.00	—	—	—	Ti 5XC% or Over	205 or Over	520 or Over	40 or Over	50 or Over	187 or Less
—	—	—	—	—	—	—	22 or Over	30 or Over	197 or Less
—	—	—	—	—	—	—	22 or Over	35 or Over	197 or Less

※1) In regards 10 PT410, it is rquested that S25C is specified in case JIS B8243 (construction of preasure vessel) and technical standard for high pressure gas regulation (Notice No.350) should apply.
※2) Chemical compositiono of marked※ is based on IHARA's original standard and slight different from ASTM Standard.

LIST OF MAIN MATERIAL AND MATERIAL SYMBOLS FOR TUBE FITTINGS

Type symbols by material and corresponding steel tubes

Division	Type symbol by material	Corresponding steel tubes	Application
Carbon steel	PS370	STPG370 of JIS G3454 STPG370 of JIS G3455	For pressurized piping
	PS410	STPG410 of JIS G3454 STPG410 of JIS G3455	
	PS480	STPG480 of JIS G3455	
	PT370	STPG370 of JIS G3454 STPG370 of JIS G3456	For high temperature piping
	PT410	STPG410 of JIS G3454 STPG410 of JIS G3456	
	PT480	STPG480 of JIS G3456	
	PL380	STPL380 of JIS G3460	For low temperature piping
Alloy steel	PA12	STPA12 of JIS G3458	For high temperature piping
	PA22	STPA22 of JIS G3458	
	PA23	STPA23 of JIS G3458	
	PA24	STPA24 of JIS G3458	
	PA25	STPA25 of JIS G3458	
	PA26	STPA26 of JIS G3458	
	PL450	STPL450 of JIS G3460	For low temperature piping
	PL690	STPL690 of JIS G3460	
Stainless steel	SUS304	SUS304TP of JIS G3459	For corrosion resistance and high temperature piping. Can be used for low temperature piping except SUS329J1, SUS329J3L, SUS329J4L, and SUS405
	SUS304H	SUS304HTP of JIS G3459	
	SUS304L	SUS304LTP of JIS G3459	
	SUS309S	SUS309STP of JIS G3459	
	SUS310	SUS310TP of JIS G3459	
	SUS310S	SUS310STP of JIS G3459	
	SUS316	SUS316TP of JIS G3459	
	SUS316H	SUS316HTP of JIS G3459	
	SUS316L	SUS316LTP of JIS G3459	
	SUS316Ti	SUS316TiTP of JIS G3459	
	SUS317	SUS317TP of JIS G3459	
	SUS317L	SUS317LTP of JIS G3459	
	SUS321	SUS321TP of JIS G3459	
	SUS321H	SUS321HTP of JIS G3459	
	SUS347	SUS347TP of JIS G3459	
	SUS347H	SUS347HTP of JIS G3459	
	SUS836L	SUS836LTP of JIS G3459	
	SUS890L	SUS890LTP of JIS G3459	
	SUS329J1	SUS329J1TP of JIS G3459	
	SUS329J3L	SUS329J3LTP of JIS G3459	
	SUS329J4L	SUS329J4LTP of JIS G3459	
	SUS405	SUS405TP of JIS G3459	
	SUS430	SUS430TP of JIS G3459	

COMPARISON TABLE OF RELATED MATERIAL

The material of this comparison table are not identical but indicate equivalent material.

Division	Steel	Type of JIS standard	ASTM standard			
		Steel tube	Tube fitting material symbols	Forged material	Steel tube	Steel Plate
Carbon steel	Common carbon steel	SGP	—	A668-A	A53-F	A283-A
	Si killed carbon steel	STPT370	WPA	A105	A106-GrA	A283-GrA
		STPT410	WPB	A105	A106-GrB	A515-65,70
		STPT480	WPC	—	A106-GrC	—
Alloy steel	1/2 Mo steel	STPA12	WP1	A182-F1	A335-P1	A204-GrB
	1Cr-1/2 Mo steel	STPA22	WP12	A182-F12	A335-P12	A387-GrB
	1-1/4Cr-1/2 Mo steel	STPA23	WP11	A182-F11	A335-P11	A387-GrC
	2-1/4Cr-1 Mo steel	STPA24	WP22	A182-F22	A335-P22	A387-GrD
	5Cr-1/2 Mo steel	STPA25	WP5	A182-F5	A335-P5	A357
	9Cr-1 Mo steel	STPA26	WP9	A182-F9	A335-P9	—
Low temperature steel	Aℓ killed steel	STPL380	WPL6	A350-LF2	A333-6	A516-60
	3-1/2 Ni steel	STPL450	WPL3	A350-LF3	A333-3	A203-D
Stainless steel	18-8 stainless steel	SUS304TP	WP304	A182-F304	A312-TP304	A240-Type304
	18-8 stainless steel for high temperature	SUS304HTP	WP304H	A182-F304H	A312-TP304H	A240-Type304H
	Low carbon 18-8 stainless steel	SUS304LTP	WP304L	A182-F304L	A312-TP304L	A240-Type304L
	22-12 stainless steel	SUS309STP	WP309	—	A312-TP309	A240-Type309S
	22-20 stainless steel	SUS310STP	WP310	A182-F310	A312-TP310	A240-Type310S
	18-8-(Nb+Ta) stainless steel	SUS347TP	WP347	A182-F347	A312-TP347	A240-Type347
	18-8-Mo stainless steel	SUS316TP	WP316	A182-F316	A312-TP316	A240-Type316
	18-8-Mo stainless steel for high temperature	SUS316HTP	WP316H	A182-F316H	A312-TP316H	A240-Type316H
	Low carbon 18-8-Mo stainless steel	SUS316LTP	WP316L	A182-F316L	A312-TP316L	A240-Type316L
	18-8-Ti stainless steel	SUS321TP	WP321	A182-F321	A312-TP321	A240-Type321
	18-8-Ti stainless steel for high temperature	SUS321HTP	WP321H	A182-F321H	A312-TP321H	A240-Type321H
	18-8-(Nb+Ta) stainless steel for high temperature	SUS347HTP	WP347H	A182-F347H	A312-TP347H	A240-Type347H
	25-5 Mo Stainless steel	SUS329JITP	—	—	A268-TP329	—

⚠ WARNING If you don’ t select and handle fittings, valves and related accessories in an adequate manner, it may damage human beings and applicable systems.
Within the responsibility and authorization of users and piping designers, fittings, valves and related accessories shall be adequately selected, assembled, used and maintained based on the applicable conditions and product conformity to the system to be applied. Please read carefully our operation manual and feel free to contact with Ihara if you have any question or request.

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