



**BUENO TECHNOLOGY CO., LTD.**

<http://www.buenoeco.com>

# FLOW CONTROL

Ideal For.....

**Electrochemical**

**Petrochemical**

**Semiconductor**

**Optoelectronic**

**Pharmaceutical**

**Food and Beverage**

**Air and Water**



**BUENO TECHNOLOGY CO., LTD**  
<http://www.buenoeco.com>

## Company Milestones

- Year 1969, Bueno Technology Co., Ltd was founded in Taiwan, Production of PTFE components began.**
- Year 1976, Production of plastic injection began.**
- Year 1994, Lost wax foundry established in Taiwan.**
- Year 1998, Production of PFA lined valves, PFA lined fitting and pipes began. ISO 9001 certified.**
- Year 2001, SHANGHAI plant established.**
- Year 2003, Installation of clean rooms. Production of clean valves began.**
- Year 2005, Production of PFA tubings began.**
- Year 2007, CE and ISO 14001 certified. VIETNAM plant established. Production of PFA fittings began.**
- Year 2010, PED of Vietnam plant is approved. Shanghai plant got Manufacture Licence of Special Equipment (pressure piping)**
- Year 2015, VIETNAM plant approved for DGR 97/23/EC and AD20000-W0/TDR**

## Quality Policy

1. Customer Satisfaction First.
2. All members participation.
3. Always improving, always excelling, produce profit, sustain operation.

## Environmental policy

1. Prevent pollution  
Pollution prevention is an important responsibility for the good of our society
2. Environmental protection  
Abide by environmental protection laws, to protect our natural environment
3. Resources prudence  
All members shall participate in preserving resource.
4. Perpetual improvement  
Constant improvement is our promise.

## Company Profile

**Bueno** Technology is a versatile manufacturer established in 1969, specializing in providing sophisticated flow control products. We manufacture high-purity, water and oil-free valves, fittings, and components in Class 1000 clean rooms for pharmaceutical, semiconductor, optoelectronic, electrochemical and petrochemical industries, where safety and stability of the manufacturing process are a major concern. Our corporate philosophy is to offer the market innovative PFA lined valves and fittings, PFA tubings, pipes and fittings, conventional valves and parts, PTFE components, lost wax castings, plastic products, graphite, spiral wound gasket and to place the highest priority on safety, long service life, low operation and maintenance cost.

Every single product of Bueno is made from the highest quality materials using advanced technology, while every stage of the manufacturing process is conducted and monitored by highly competent employees. Combined with thorough testing and complete customer support, the company supplies its customers with products of maximum efficiency and minimum long-term costs at a competitive price.

Bueno is firmly determined to constantly improve itself in order to conform to the top international standards, and maintain its leadership in the local market. Our never-ending commitment has won us a significant position in the industry, and the support of our business partners from all over the globe. We are resolved to conduct our business with progress, great competence, innovation, and unyielding integrity.

## ISO Certificate

CE0035



AD 2 000



ISO 14 001



ISO 9001



## Plant Introduction

### ◆ Tainan Plant-Headquarters

16514 square meters

220 workers

Products:

- 1.PTFE valves and components
- 2.Castings & machining parts
- 3.Valve balls & stems
- 4.PFA/PTFE lined fittings & valves
- 5.Plastic injection parts
- 6.Fittings and valves
- 7.PFA fittings, tubings, and pipings

### ◆ Shanghai Plant

30744 square meters

280 workers

Products:

- 1.PTFE valves and components
- 2.Castings & machining parts
- 3.Valve balls & stems
- 4.PTFE/PFA lined fittings & valves
- 5.Fittings and valves.

### ◆ Vietnam Plant

66800 square meters,

250 Workers

Products:

- 1.PTFE valves and components
- 2.Castings & machining parts
- 3.Valve balls
- 4.Fittings and valves

## Clean Rooms- Class 1000 , Class 10000 & Class 100000



## Inspection Equipments



▲ Elongation Tester,



▲ Metallographic



▲ Spark Tester



▲ 3-D



▲ Spectrometer



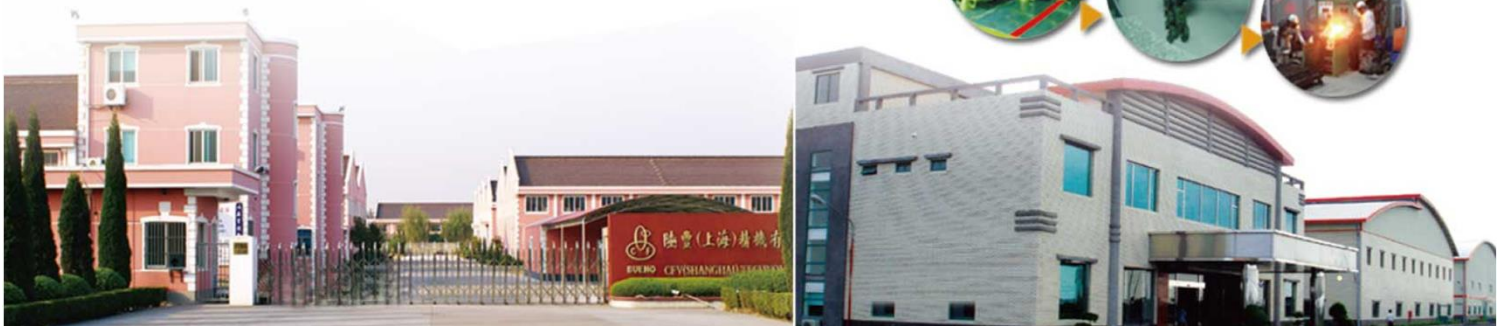
▲ Grinding Machine



▲ Helium Tester



▲ Surface Roughness Tester

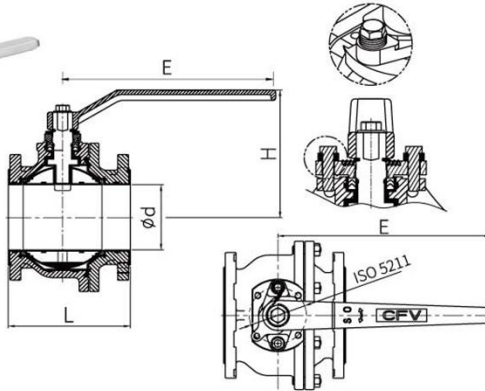


# PRODUCT LIST

ITEM	SPECIFICATIONS	MAT'L	Pressure	Fig. No#	Size	Page
<b>PFA PRODUCTS</b>						
<b>PFA Lined Valves</b>	<b>Two-Piece Flange Ball Valves</b>	CF8	150 LB	PB12	1/2"~6"	P1
		Ductile Iron	150 LB	PB12D	1/2"~6"	P1
		CF8	150 LB	PB21	1/2"~4"	P1
		SCS13A	JIS10K	PB16	15A~100A	P2
		1.4308	PN16	PB31	DN15~DN100	P2
		EN-JS1040	PN16	PB31D	1/2"~4"	P2
	<b>Check Valves</b>	CF8	150 LB	PC-11	1/2"~4"	P3
		WCB	150 LB	PC-11W	1/2"~4"	P3
		1.4308	PN16	PC-31	DN15~DN100	P4
		1.0619	PN16	PC-31W	DN15~DN100	P4
		SCS13A	JIS10K	PC-51	15A~100A	P5
		SCW410	JIS10K	PC-51W	15A~100A	P5
	<b>Diaphragm Valves</b>	CF8	150 LB	PD-11	1/2"~4"	P6
		WCB	150 LB	PD-11W	1/2"~4"	P6
		1.4308	PN16	PD-31	DN15~DN100	P7
		1.0619	PN16	PD-31W	DN15~DN100	P7
SCS13A		JIS10K	PD-51	15A~100A	P8	
SCW410		JIS10K	PD-51W	15A~100A	P8	
<b>Plug Valves</b>	FCD	150 LB	PP-11D	1/2"~3"	P8	
<b>PFA lined fittings &amp; pipes</b>						P9~12
<b>PFA Tube</b>						P13
<b>FIT-ONE Introduction</b>						P14~16
<b>PFA fitting</b>				MC,ME		P17
				MBT,FC		P18
				FE,UT		P19
				U,UE		P20
				RUT		P21
				RU,RUE		P22
				PMU,UF,UA		P23
				UA,RUA		P24
				UEA,RUEA		P25
				RA,EA,TA		P26
				RTA,RUTA		P27
				UTA		P28
		<b>Impact Ring Type Fittings</b>		MCT		P29
		<b>FIT-ONE Fitting for Quartz Tube</b>		RU-Q,RUE-Q		P30
<b>Special Flaring Tool</b>						P32
<b>PFA On-Off Valve</b>				JHAW,JHA	H3~H4	P33
<b>PFA Needle Valve</b>				JHAW,JHA	H1~H2	P34
<b>VALVES</b>						
<b>Investment Casting Valves</b>	1-PC Ball valve, threaded ends	CF8M/CF8	1000PSI	BB-101	1/4"~2"	P35
	2-PC Ball valve, threaded ends	CF8M/WCB	1000PSI	BB-201	1/4"~3"	P35
	3-PC Ball valve, heavy duty	CF8M/WCB	1000PSI	BB-301	1/4"~2 1/2"	P36
	3-PC Ball valve, socket weld ends	CF8M	1000PSI	BB-311K	1/2"~4"	P36
	3-PC Ball valve, butt-weld ends	CF8M	1000PSI	BB-311L	1/2"~4"	P36
	3-PC Ball valve, threaded ends	CF8M	1000PSI	BB-311	1/4"~4"	P37
	3-PC Ball valve, BW ends, short type	CF8M	1000PSI	BB-311S	1/2"~4"	P37
	3-PC Ball valve, threaded ends	CF8M	1000PSI	BB-312TH	1/2"~4"	P38
	Clean valve	CF8M	1000PSI	BB-312L	1/2"~12"	P38
	Sanitary valve	CF8M/CW12MW	1000PSI	BB-312TC	1/2"~4"	P39
		CF8M/CW12MW	1000PSI	BB-311TC	1/2"~4"	P39
	Butterfly valve	F316L	145PSI	SUB-71	1"~6"	P39
	2-pc Ball valve, flange type	Cast Iron	200PSI	F605D	2"~10"	P40
		CF8/CF8M/WCB	150LB	F601	1/2"~10"	P40
		SCS13A/SCS14A	JIS10K	F602	15A~250A	P41
		SCW410	JIS10K	F602D	15A~150A	P41
		FCD 450	JIS10K	F602D	15A~150A	P41
		1.4308/1.4408	PN16	F603	DN15~DN250	P42
		1.0619	PN16	F603	DN15~DN250	P42
		SCS13A/SCS14A	JIS20K	F604	15A~100A	P42
		SCPH2	JIS20K	F604	15A~100A	P42
		CF8/CF8M/WCB	300LB	F606	1/2"~4"	P43
	3-way Ball valve, flange type	FCD 450	JIS10K	BBW602	40A.65A	P43
	<b>Valve Accessories</b>					
<b>Valve Parts</b>	<b>PTFE components</b>					P44
	<b>Plastic injection parts</b>					P44
	<b>Metal casting &amp; machined parts</b>					P45
<b>Actuator</b>						P46

# PFA LINED 2-WAY BALL VALVES

## PB12 CLASS 150LB



### DIMENSIONS UNIT:mm

SIZE	$\phi d$	H	E	L	ISO 5211	SIZE	$\phi d$	H	E	L	ISO 5211
1/2"	15	83	145	108	F04	2-1/2"	65	168	350	190	F07
3/4"	20	84	145	117	F04	3"	80	177	350	203	F07
1"	25	101	165	127	F05	4"	100	233	400	229	F10
1-1/2"	40	128	225	165	F07	6"	145	282	466.5	267	F12
2"	50	136	225	178	F07						

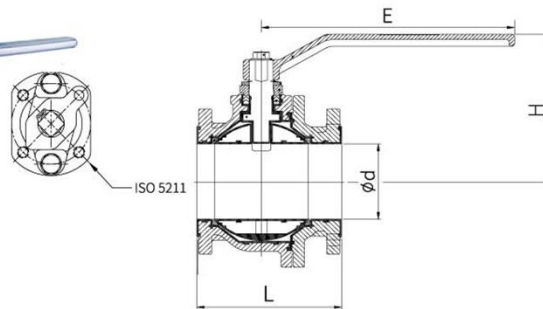
### SPECIFICATIONS

**Size range** 1/2"~6"  
**Pressure grade** CLASS 150 LB  
**Operating temperature** -30°C~+160°C  
**Valve body design** ASME B16.34  
**Maximum operating pressure** 275psi  
**Joints** flange ASME B16.5 CLASS 150 RF  
**Face to face** ASME B16.10  
**Testing standard** API 598

### MATERIALS LIST

Designation	Material
BODY	ASTM A351-CF8+PFA Lined
CAP	ASTM A351-CF8+PFA Lined
STEM	ASTM A276-304+PFA Lined
BALL	A351 CF8+PFA Lined
HANDLE	ASTM A351-CF8
SEAT	TFM-1600

## PB12D CLASS 150LB



### DIMENSIONS UNIT:mm

SIZE	$\phi d$	H	E	L	ISO 5211	SIZE	$\phi d$	H	E	L	ISO 5211
1/2"	15	83	145	108	F04	2-1/2"	65	168	350	190	F07
3/4"	20	84	145	117	F04	3"	80	177	350	203	F07
1"	25	101	165	127	F05	4"	100	233	400	229	F10
1-1/2"	40	128	225	165	F07	6"	145	282	466.5	267	F12
2"	50	136	225	178	F07						

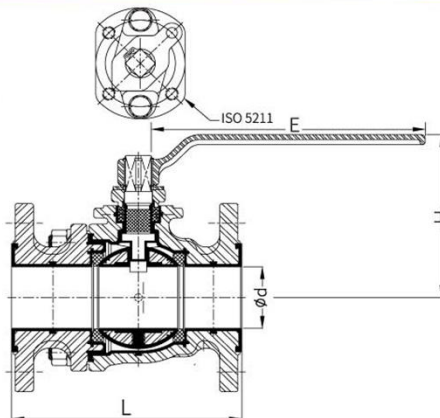
### SPECIFICATIONS

**Size range** 1/2"~6"  
**Pressure grade** CLASS 150 LB  
**Operating temperature** -10°C~+160°C  
**Valve body design** B16.42 & EN12516  
**Maximum operating pressure** 250 psi  
**Joints** flange ASME B16.5 CLASS 150RF  
**Face to face** ASME B16.10  
**Testing standard** API 598

### MATERIALS LIST

Designation	Material(ASTM)
BODY	ASTM A395-FCD+PFA Lined
CAP	ASTM A395-FCD+PFA Lined
STEM	ASTM A276-304+PFA Lined
BALL	A351-CF8+PFA Lined
HANDLE	ASTM-A216-WCB
SEAT	TFM-1600

## PB21 CLASS 150LB



### DIMENSIONS UNIT:mm

SIZE	$\phi d$	H	E	L	ISO 5211	SIZE	$\phi d$	H	E	L	ISO 5211
1/2"	15	81	145	130	F04	2"	50	132	225	203	F07
3/4"	20	83	145	150	F04	2-1/2"	65	164	350	222	F07
1"	25	98	165	152	F05	3"	80	173	365	241	F07
1-1/2"	40	124	225	178	F07	4"	100	229	400	292	F10

### SPECIFICATIONS

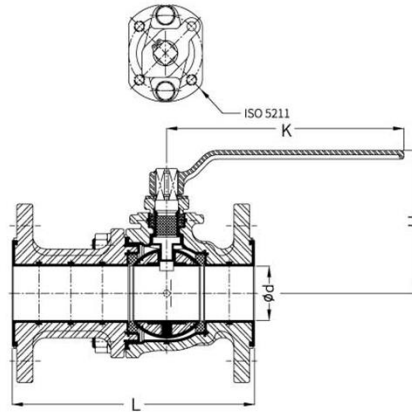
**Size range** 1/2"~4"  
**Pressure grade** CLASS 150 LB  
**Operating temperature** -30°C~+160°C  
**Valve body design** ASME B16.34  
**Maximum operating pressure** 275 psi  
**Joints** flange ASME B16.5 CLASS 150RF  
**Face to face** BUENO-standard  
**Testing standard** API 598

### MATERIALS LIST

Designation	Material(ASTM)
BODY	A351-CF8+PFA Lined
CAP	A351-CF8+PFA Lined
STEM	ASTM A276-304+PFA Lined
BALL	A351-CF8+PFA Lined
HANDLE	ASTM A351-CF8
SEAT	TFM-1600

# PFA LINED 2-WAY BALL VALVES

## PB16 JIS 10K



### DIMENSIONS UNIT:mm

SIZE	L	φd	H	K	ISO 5211	SIZE	L	φd	H	K	ISO 5211
1/2"	140	15	81	145	F04	2"	216	50	132	225	F07
3/4"	152	20	83	145	F04	2-1/2"	240	65	164	350	F07
1"	165	25	98	165	F05	3"	250	80	173	350	F07
1-1/2"	191	40	124	225	F07	4"	280	100	229	400	F10

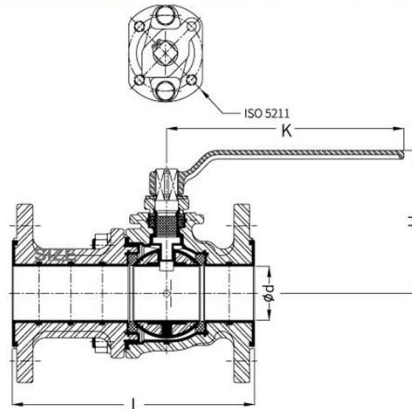
### SPECIFICATIONS

**Size Range** 15A~100A  
**Pressure grade** JIS 10K  
**Operating temperature** -30°C~+160°C  
**Valve body design** ASME B16.34  
**Maximum operating pressure** 1.37 Mpa  
**Joints** flange JIS B2220-10K RF  
**Face to face** BUENO STANDARD  
**Testing standard** JIS B2003

### MATERIALS LIST

Designation	Material
BODY	JIS G5121-SCS13A+PFA
CAP	JIS G5121-SCS13A+PFA
STEM	ASTM A276-304+PFA
BALL	ASTM A351-CF8+PFA
HANDLE	ASTM A351-CF8
SEAT	TFM-1600

## PB31 PN16



### DIMENSIONS UNIT:mm

SIZE	L	φd	H	K	ISO 5211	SIZE	L	φd	H	K	ISO 5211
DN15	130	15	81	145	F04	DN50	230	50	132	225	F07
DN20	150	20	83	145	F04	DN65	290	65	164	350	F07
DN25	160	25	98	165	F05	DN80	310	80	173	350	F07
DN40	200	40	124	225	F07	DN100	350	100	229	400	F10

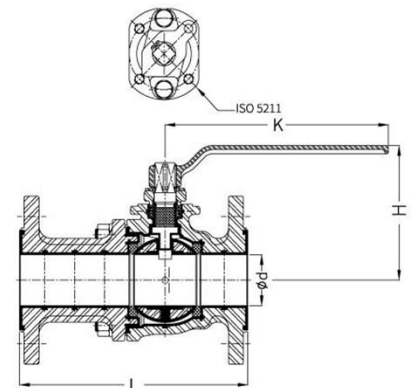
### SPECIFICATIONS

**Size Range** DN15~DN100  
**Pressure grade** PN16  
**Operating temperature** -30°C~+160°C  
**Valve body design** ASME B16.34 & EN12516  
**Maximum operating pressure** 236 PSI  
**Joints** flange EN1092-1 PN16  
**Face to face** EN558  
**Testing standard** BS EN12266-1

### MATERIALS LIST

Designation	Material
BODY	EN10213-4/1.4308+PFA Lined
CAP	EN10213-4/1.4308+PFA Lined
BALL	EN10213-4/1.4308+PFA Lined
SEAT	TFM 1600
STEM	ASTM-A276-304+PFA Lined
HANDLE	ASTM-A351-CF8

## PB31D PN16



### DIMENSIONS UNIT:mm

SIZE	L	φd	H	K	ISO 5211	SIZE	L	φd	H	K	ISO 5211
DN15	130	15	81	145	F04	DN50	230	50	132	225	F07
DN20	150	20	83	145	F04	DN65	290	65	164	350	F07
DN25	160	25	98	165	F05	DN80	310	80	173	350	F07
DN40	200	40	124	225	F07	DN100	350	100	229	400	F10

### SPECIFICATIONS

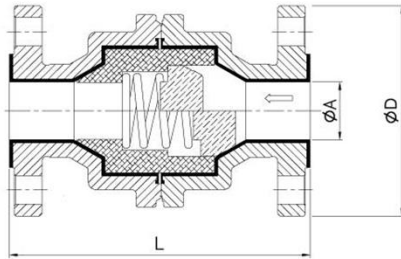
**Size Range** DN15~DN100  
**Pressure grade** PN16  
**Operating temperature** -10°C~+160°C  
**Valve body design** ASME B16.42 & EN12516  
**Maximum operating pressure** 250 PSI  
**Joints** flange EN1092-2 PN16  
**Face to face** EN558  
**Testing standard** BS EN12266-1

### MATERIALS LIST

Designation	Material
BODY	EN1563/EN-JS1040+PFA Lined
CAP	EN1563/EN-JS1040+PFA Lined
BALL	EN10213-4/1.4308+PFA Lined
SEAT	TFM 1600
STEM	ASTM-A276-304+PFA Lined
HANDLE	ASTM-A216-WCB

# PFA LINED CHECK VALVES

## PC11 CLASS 150 LB



### DIMENSIONS UNIT:mm

SIZE	IMPERIAL	φA	L	φD	SIZE	IMPERIAL	φA	L	φD
15	1/2"	15	130	89	50	2"	51	230	152
20	3/4"	20	150	98.6	65	2-1/2"	65	290	178
25	1"	25	160	108	80	3"	76	310	190.5
40	1-1/2"	38.5	200	127	100	4"	102	350	228.6

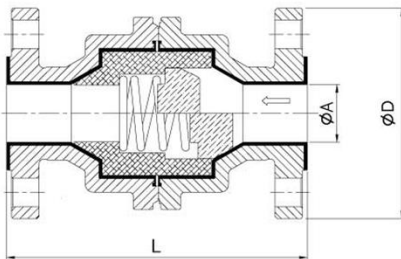
### SPECIFICATIONS

**Size range** 1/2"~ 4"  
**Pressure Grade** CLASS 150 LB  
**Maximum operating pressure**  
 FLOW: 275 psi (19 bar)  
 CHECK: 150 psi (10 bar)  
**Valve body design** ASME B16.34  
**Face to face** ISO 5752  
**Operating temperature** -30°C ~100°C  
**Joints** ASME B16.5 class 150 RF  
 Universal Installation Orientation  
 Low Pressure Applications and No Back Pressure to seat  
 Lining thickness is at least 3mm  
**Testing standard** ASME B16.34

### MATERIALS LIST

Designation	Material
BODY	A351-CF8+PFA Lined
CAP	A351-CF8+PFA Lined
SLEEVE	PTFE
DISC	PTFE
SPRING	SUS304*WPA+PFA
WASHER	PTFE

## PC-11W CLASS 150 LB



### DIMENSIONS UNIT:mm

SIZE	IMPERIAL	φA	L	φD	SIZE	IMPERIAL	φA	L	φD
15	1/2"	15	130	89	50	2"	51	230	152
20	3/4"	20	150	98.6	65	2-1/2"	65	290	178
25	1"	25	160	108	80	3"	76	310	190.5
40	1-1/2"	38.5	200	127	100	4"	102	350	228.6

### SPECIFICATIONS

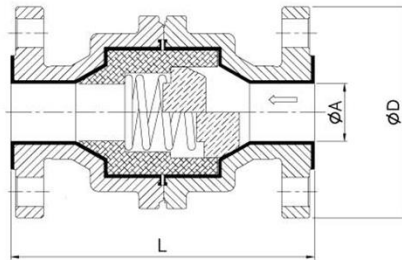
**Size range** 1/2"~ 4"  
**Pressure Grade** CLASS 150 LB  
**Maximum operating pressure**  
 FLOW: 275 psi (19 bar)  
 CHECK: 150 psi (10 bar)  
**Valve body design** ASME B16.34  
**Operating temperature** -30°C ~100°C  
**Face to face** ISO 5752  
**Joints** ASME B16.5 class 150 RF  
 Universal Installation Orientation  
 Low Pressure Applications and No Back Pressure to seat  
 Lining thickness is at least 3mm  
**Testing standard** ASME B16.34

### MATERIALS LIST

Designation	Material
BODY	A216-WCB+PFA Lined
CAP	A216-WCB+PFA Lined
SLEEVE	PTFE
DISC	PTFE
SPRING	SUS304*WPA+PFA
WASHER	PTFE

# PFA LINED CHECK VALVES

## PC-31 PN16



### DIMENSIONS UNIT:mm

SIZE	IMPERIAL	φA	L	φD	SIZE	IMPERIAL	φA	L	φD
15	1/2"	15	130	95	50	2"	51	230	165
20	3/4"	20	150	105	65	2-1/2"	65	290	185
25	1"	25	160	115	80	3"	76	310	200
40	1-1/2"	38.5	200	150	100	4"	102	350	220

### SPECIFICATIONS

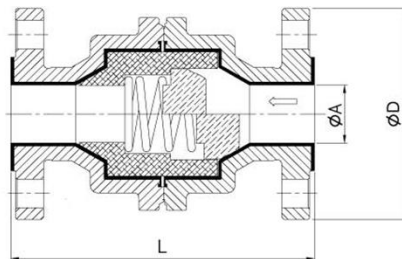
- Size range** DN15~DN100
- Pressure Grade** PN16
- Maximum operating pressure**  
FLOW : 232 psi (16 bar)  
CHECK : 150 psi (10 bar)
- Valve body design** EN 12516
- Face to face** ISO 5752
- Operating temperature**  
-30°C ~100°C
- Joints** EN 1092-1
- Universal Installation Orientation
- Low Pressure Applications and No Back Pressure to seat
- Lining thickness is at least 3mm
- Testing standard** EN12266-1

### MATERIALS LIST

Designation	Material
BODY	1.4308+PFA Lined
CAP	1.4308+PFA Lined
SLEEVE	PTFE
DISC	PTFE
SPRING	SUS304*WPA+PFA
WASHER	PTFE

PFA LINED CHECK VALVES

## PC-31W PN16



### DIMENSIONS UNIT:mm

SIZE	IMPERIAL	φA	L	φD	SIZE	IMPERIAL	φA	L	φD
15	1/2"	15	130	95	50	2"	51	230	165
20	3/4"	20	150	105	65	2-1/2"	65	290	185
25	1"	25	160	115	80	3"	76	310	200
40	1-1/2"	38.5	200	150	100	4"	102	350	220

### SPECIFICATIONS

- Size range** DN15~DN100
- Pressure Grade** PN16
- Maximum operating pressure**  
FLOW: 232 psi (16 bar)  
CHECK: 150 psi (10 bar)
- Valve body design** EN 12516
- Face to face** ISO 5752
- Operating temperature** -30°C ~100°C
- Joints** EN 1092-1
- Universal Installation Orientation
- Low Pressure Applications and No Back Pressure to seat
- Lining thickness is at least 3mm
- Testing standard** EN12266-1

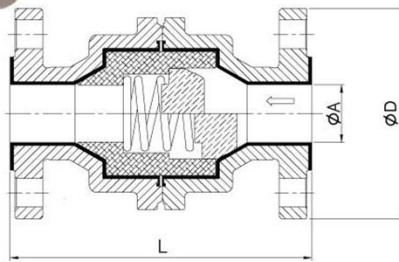
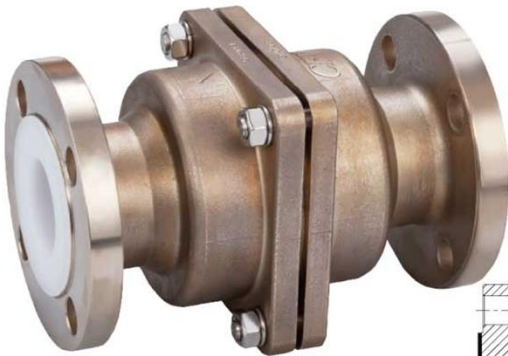
### MATERIALS LIST

Designation	Material
BODY	1.0619+PFA Lined
CAP	1.0619+PFA Lined
SLEEVE	PTFE
DISC	PTFE
SPRING	SUS304*WPA+PFA
WASHER	PTFE



# PFA LINED CHECK VALVES

## PC-51 JIS 10K



### DIMENSIONS UNIT:mm

SIZE	IMPERIAL	φA	L	φD	SIZE	IMPERIAL	φA	L	φD
15	1/2"	15	130	95	50	2"	51	230	155
20	3/4"	20	150	100	65	2-1/2"	65	290	175
25	1"	25	160	125	80	3"	76	310	185
40	1-1/2"	38.5	200	140	100	4"	102	350	210

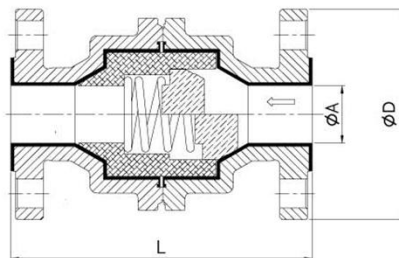
### SPECIFICATIONS

**Size range** 15A~100A  
**Pressure grade** JIS 10K  
**Maximum operating pressure**  
 FLOW : 200psi (14kgf / cm<sup>2</sup>)  
 CHECK : 150psi (10kgf / cm<sup>2</sup>)  
**Valve body thickness** ASME B16.34  
**Face to face** ISO 5752  
**Operating temperature** -30°C~100°C  
**Joints** JIS B2220 10K RF  
 Universal installation orientation  
 Low pressure applications and no back pressure to seat.  
 Lining thickness is at least 3mm  
**Testing standard** JIS B2003

### MATERIALS LIST

Designation	Material
BODY	SCS13A+PFA Lined
CAP	SCS13A+PFA Lined
SLEEVE	PTFE
DISC	PTFE
SPRING	SUS304*WPA+PFA
WASHER	PTFE

## PC-51W JIS 10K



### DIMENSIONS UNIT:mm

SIZE	IMPERIAL	φA	L	φD	SIZE	IMPERIAL	φA	L	φD
15	1/2"	15	130	95	50	2"	51	230	155
20	3/4"	20	150	100	65	2 1/2"	65	290	175
25	1"	25	160	125	80	3"	76	310	185
40	1 1/2"	38.5	200	140	100	4"	102	350	210

### SPECIFICATIONS

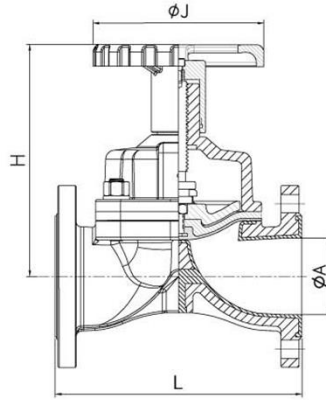
**Size range** 15A~100A  
**Pressure Grade** JIS 10K  
**Maximum operating pressure**  
 FLOW: 200 psi (14 kgf/cm<sup>2</sup>)  
 CHECK: 150 psi (10 kgf/cm<sup>2</sup>)  
**Valve body design** ASME B16.42  
**Face to face** ISO 5752  
**Operating temperature** -30°C ~100°C  
**Joints** JIS B2220 10K RF  
 Universal Installation Orientation  
 Low Pressure Applications and No Back Pressure to seat  
 Lining thickness is at least 3mm  
**Testing standard** JIS B2003

### MATERIALS LIST

Designation	Material
BODY	SCW410+PFA Lined
CAP	SCW410+PFA Lined
SLEEVE	PTFE
DISC	PTFE
SPRING	SUS304*WPA+PFA
WASHER	PTFE

# PFA LINED DIAPHRAGM VALVES

## PD-11 CLASS 150 LB



### DIMENSIONS UNIT:mm

SIZE		$\phi A$	H	$\phi J$	L	SIZE		$\phi A$	H	$\phi J$	L
in	mm					in	mm				
1/2"	15	15	100	100	108	2"	50	50	168	120	200
3/4"	20	19	103	100	146	2-1/2"	65	65	226	180	226
1"	25	25	108	100	146	3"	80	80	237	180	260
1-1/2"	40	40	153	120	175	4"	100	100	320	230	327

### SPECIFICATIONS

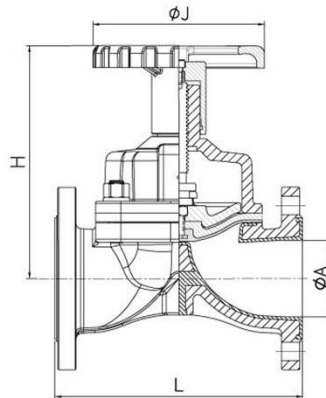
**Size range** 1/2"~ 4"  
**Pressure grade** CLASS 150 LB  
**Operating temperature** -30°C~+120°C  
**Valve body design** ASME B16.34  
**Maximum operating pressure**  
 1/2"~1" 14kgf/cm<sup>2</sup>(200psi)  
 1-1/2"~2" 12.3kgf/cm<sup>2</sup>(175psi)  
 2-1/2"~4" 10.5kgf/cm<sup>2</sup>(150psi)  
**Joints** flange ASME B16.5 CLASS 150 RF  
**Face to face** MSS SP-88

### MATERIALS LIST

Designation	Material
BODY	A351 CF8+PFA Lined
BONNET	A351 CF8
HANDLE	A351 CF8
STEM	SS304
DIAPHRAGM	PTFE

PFA LINED 2-WAY BALL VALVES

## PD-11W CLASS 150 LB



### DIMENSIONS UNIT:mm

SIZE		$\phi A$	H	$\phi J$	L	SIZE		$\phi A$	H	$\phi J$	L
in	mm					in	mm				
1/2"	15	15	100	100	108	2"	50	50	168	120	200
3/4"	20	19	103	100	146	2-1/2"	60	65	226	180	226
1"	25	25	108	100	146	3"	80	80	237	180	260
1-1/2"	40	40	153	120	175	4"	100	100	320	230	327

### SPECIFICATIONS

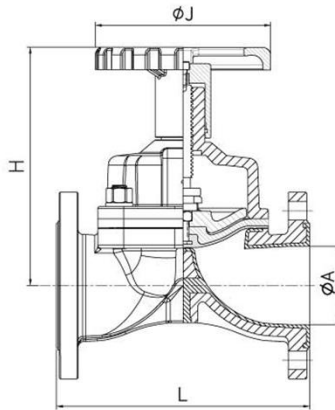
**Size range** 1/2"~ 4"  
**Pressure grade** CLASS 150 LB  
**Operating temperature** -30°C~+120°C  
**Valve body design** ASME B16.34  
**Maximum operating pressure**  
 1/2"~1" 14kgf/cm<sup>2</sup>(200psi)  
 1-1/2"~2" 12.3kgf/cm<sup>2</sup>(175psi)  
 2-1/2"~4" 10.5kgf/cm<sup>2</sup>(150psi)  
**Joints** flange ASME B16.5 CLASS 150 RF  
**Face to face** MSS SP-88

### MATERIALS LIST

Designation	Material
BODY	ASTM A216 Gr.WCB+PFA Lined
BONNET	ASTM A216 Gr.WCB
HANDLE	ASTM A351 CF8
STEM	SS304
DIAPHRAGM	PTFE

# PFA LINED DIAPHRAGM VALVES

## PD-31 PN16



### DIMENSIONS UNIT:mm

SIZE	DN	φA	H	φJ	L	SIZE	DN	φA	H	φJ	L
1/2"	15	15	100	100	130	2"	50	50	168	120	230
3/4"	20	19	103	100	150	2-1/2"	65	65	226	180	290
1"	25	25	108	100	160	3"	80	80	237	180	310
1-1/2"	40	40	153	120	200	4"	100	100	320	230	350

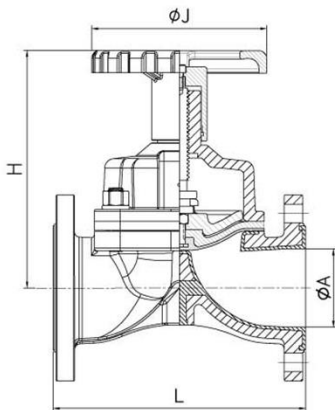
### SPECIFICATIONS

**Size range** DN15~DN100  
**Pressure grade** PN16  
**Operating temperature** -30°C~+120°C  
**Valve body design** EN12516  
**Maximum operating pressure**  
 DN15~DN25 14kgf/cm<sup>2</sup> (200psi)  
 DN40~DN50 12.3kgf/cm<sup>2</sup> (175psi)  
 DN65~DN100 10.5kgf/cm<sup>2</sup> (150psi)  
**Joints** EN 1092-1  
**Face to face** EN-588-1

### MATERIALS LIST

Designation	Material
BODY	1.4308+PFA Lined
BONNET	1.4308
HANDLE	1.4308
STEM	SS304
DIAPHRAGM	PTFE

## PD-31W PN16



### DIMENSIONS UNIT:mm

SIZE	DN	φA	H	φJ	L	SIZE	DN	φA	H	φJ	L
1/2"	15	15	100	100	130	2"	50	50	168	120	230
3/4"	20	19	103	100	150	2-1/2"	65	65	226	180	290
1"	25	25	108	100	160	3"	80	80	237	180	310
1-1/2"	40	40	153	120	200	4"	100	100	326	230	350

### SPECIFICATIONS

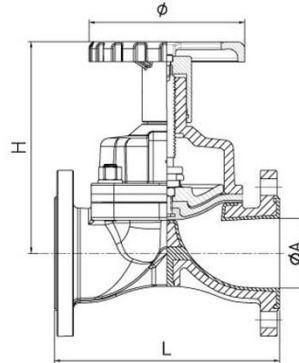
**Size range** DN15~DN100  
**Pressure grade** PN16  
**Operating temperature** -30°C~+120°C  
**Valve body design** EN12516  
**Maximum operating pressure**  
 DN15~DN25 14kgf/cm<sup>2</sup> (200psi)  
 DN40~DN50 12.3kgf/cm<sup>2</sup> (175psi)  
 DN65~DN100 10.5kgf/cm<sup>2</sup> (150psi)  
**Joints** EN 1092-1  
**Face to face** EN-588-1

### MATERIALS LIST

Designation	Material
BODY	1.0619+PFA Lined
BONNET	1.0619
HANDLE	1.0619
STEM	SS304
DIAPHRAGM	PTFE

# PFA LINED DIAPHRAGM VALVES

## PD-51 JIS 10K



### DIMENSIONS UNIT:mm

SIZE		φA	H	φJ	L	SIZE		φA	H	φJ	L
in	mm					in	mm				
1/2"	15	15	100	100	114	2"	50	50	168	120	196
3/4"	20	19	103	100	123	2-1/2"	65	65	226	180	222
1"	25	25	108	100	133	3"	80	80	237	180	260
1-1/2"	40	40	153	120	165	4"	100	100	320	230	313

### SPECIFICATIONS

**Size range** 15A~100A  
**Pressure grade** JIS 10K  
**Operating temperature** -30°C~+120°C  
**Valve body design** ASME B16.34  
**Maximum operating pressure**  
 15A~25A 14kgf/cm<sup>2</sup> (200psi)  
 40A~50A 12.3kgf/cm<sup>2</sup> (175psi)  
 65A~100A 10.5kgf/cm<sup>2</sup> (150psi)  
**Joints** JIS B2220 10K RF  
**Face to face** ISO 5752;BS-5156

### MATERIALS LIST

Designation	Material
BODY	SCS13A+PFA Lined
BONNET	SCS13A
HANDLE	SCS13A
STEM	SS304
DIAPHRAGM	PTFE

## PD-51W JIS 10K



### DIMENSIONS UNIT:mm

SIZE		φA	H	φJ	L	SIZE		φA	H	φJ	L
in	mm					in	mm				
1/2"	15	15	100	100	114	2"	50	48	168	120	196
3/4"	20	19	103	100	123	2-1/2"	65	65	226	180	222
1"	25	25	108	100	133	3"	80	80	237	180	260
1 1/2"	40	40	153	120	165	4"	100	100	320	230	313

### SPECIFICATIONS

**Size range** 15A~100A  
**Pressure grade** JIS 10K  
**Operating temperature** -30°C~+120°C  
**Valve body design** ASME B16.42  
**Maximum operating pressure**  
 15A~25A 14kgf/cm<sup>2</sup> (200psi)  
 40A~50A 12.3kgf/cm<sup>2</sup> (175psi)  
 65A~100A 10.5kgf/cm<sup>2</sup> (150psi)  
**Joints** JIS B2220 10K RF  
**Face to face** ISO 5752;BS-5156

### MATERIALS LIST

Designation	Material
BODY	SCW410+PFA Lined
BONNET	SCW410
HANDLE	SCW410
STEM	SS304
DIAPHRAGM	PTFE

# PFA LINED PLUG VALVES

## PP-11D CLASS 150 LB



### DIMENSIONS UNIT:mm

SIZE	φC	G	H	L	SIZE	φC	G	H	L
1/2"	60.5	174.5	90	108	1-1/2"	98.6	298.5	130	165
3/4"	69.9	174.5	90	117	2"	120.7	298.5	136	178
1"	79.2	226.5	105	127	3"	152.4	498.5	215	203

### SPECIFICATIONS

**Size range** 1/2"~3"  
**Pressure grade** ASME CLASS 150 LB  
**Valve body thickness** ASME B16.42  
**Face to face** ISO5752 / ASME B16.10  
**Operating temperature** -30°C~+160°C  
**Maximum operating pressure** 250psi  
**Shell Tightness Test** B16.42  
**Seat Tightness Test** MSS-SP-61

### MATERIALS LIST

Designation	Material
BODY	A395-FCD+PFA Lined
PLUG	A395-FCD+PFA Lined
HANDLE	ASTM A53 SCH40 pipe Carbon steel B7
DIAPHRAGM	PTFE

# PFA LINED PIPES AND FITTINGS

## Design

### PIPES AND FITTINGS

Our metal pipes and fittings are either manufactured via casting or through welding seamless pipes. The available dimensions are 1/2"~4", the thickness of pipes and fittings are in accordance with Schedule 40. The default materials used are as follow, if unspecified:

#### MATERIALS LIST

Designation	Carbon Steel	Stainless Steel
Fittings Seamless Pipe	ASTM A234 grade WPB	ASTM A403
Cast Steel	ASTM A216 grade WCB	ASTM A351
Pipe Seamless Pipe	ASTM A587 or ASTM A53 grade B	ASTM A312

#### SPECIFICATIONS

Fittings	ASME B16.5 CLASS 150
Pipes	ASME B36.10

### FLANGE

The default materials used are as following, if unspecified:

#### MATERIALS LIST

In accordance with ASTM A105 (If the fitting is made via casting, then the flange will be cast as part of the fitting)

In accordance with ASTM A182

#### SPECIFICATIONS

ASME B16.5 CLASS150

## Exhaust Hole

Each pipe and fittings has at least one 2mm diameter exhaust hole in order to release the gas trapped between the liner and the metal part. If the pipe exceeds 500mm in length, it will contain at least two exhaust holes. Reducing flanges do not have exhaust holes.

## Coating

- A. The standard application of coating contains two layers:  
 1) Base paint 2) Surface paint. The thickness is approximately 110 μ m.  
 B. Special requirements for coating are available upon request.

## Test

We uphold a full inspection policy that requires all finished lined pipe and fitting to pass the following tests before shipment. Other methods of testing can be done upon customer's demand.

- **Pressure Test** Applies max operating pressure\*1.5Air
- **Tight Test** Applies max operating pressure\*1.1
- **Coating** We pick products on random for testing with paint thickness tester.
- **Appearance**
  1. Each piece is checked for bubbles, pinholes, or other impairing defects before the lining process. Minor blemishes are processed during the coating step.
  2. Blistering and paint peeling are not allowed after coating

- **Spark Test 15~20KVDC**
- **Oil- and Water-Free Test**  
 Cleaned according to the standard of 1.0mg/ft (MAX)  
 We can also provide notarization from authorities upon request.



Pressure Test



Coating Test



Spark Test

## Welding

In accordance with ASME Boiler and meets the requirements of Pressure Vessel Code, clause nine.

## Liner Thickness

### PFA

	Size	Thickness
Pipes	1/2"~4"	1/2"~2" 2~2.5mm, 2-1/2"~6" 3~4mm
Fittings	1/2"~4"	1/2"~2" About 3mm 2-1/2"~6" About 4mm

## Procedures of Oil- & Water-Free treatment

Assign To Client's Requirement

1. AK3 oil removal (Heated)
2. Acid neutralization
3. Cleaning using RO water
4. Dry nitrogen air spraying
5. Channel seal packaging

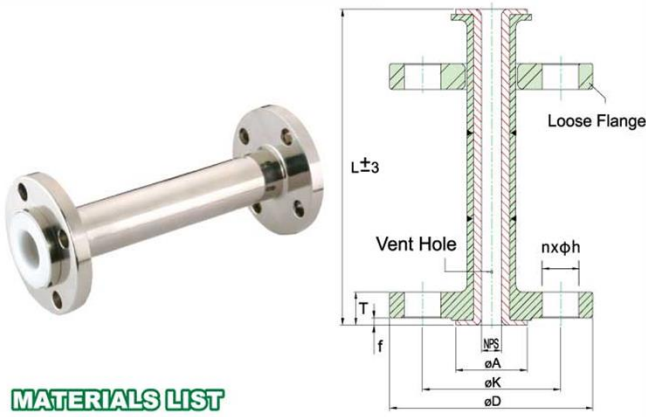
## Packaging and Storage

The exhaust holes are sealed before packaging.

### • Packaging

1. The ends of normal pipes and flanges are sealed with plastic plates to prevent damage to the liner.
2. For water- and oil-free lined pipes and fittings, the two ends are sealed with adhesive-free tapes (alternatively, the flanges can be sealed by plastic bags), and covered with end caps to prevent damage to the liner. Before storage and shipping, the products are labeled, numbered, and sorted according to order number, charge number, and content. After being properly ordered, they are collectively stored or shipped. The products are packaged with wooden crates when shipped; in addition, the interior of the crate contains a large plastic seal to prevent water and vapor permeation.

## PFA Lined Pipe



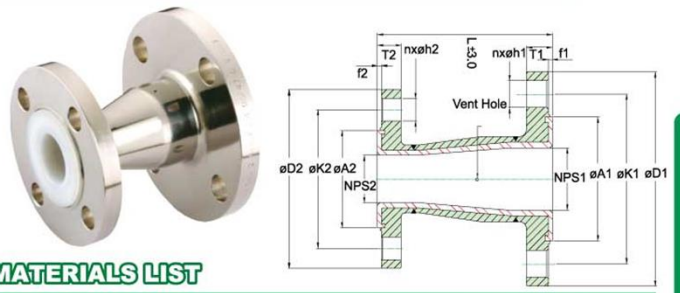
### MATERIALS LIST

Parts	Carbon Steel	Stainless Steel
Flange	ASTM A105	ASTM A182
Steel frame	ASTM A587 or ASTM A53 grade B	ASTM A312
Steel bend	according to SCH 40	
Standard	one fixed flange, one loose flange	
Liner	PFA	

### DIMENSIONS

NPS INCH	L/min.		ANSI B16.5 Class 150					
	L/min.	L/max.	φA	φK	φD	nxφh	T	f/PFA
1/2"	100	6000	32	60.5	89	4x16	14.2	3.0
3/4"	100	6000	40	69.9	98.6	4x16	14.2	3.0
1"	100	6000	48	79.2	108	4x16	14.2	3.0
1-1/2"	100	6000	69	98.6	127	4x16	17.3	3.0
2"	150	6000	87.9	120.7	152.4	4x19	18.8	3.0
2-1/2"	150	6000	100.6	139.7	177.8	4x19	21.7	4.1
3"	150	6000	127	152.4	190.5	4x19	23.2	4.1
4"	150	6000	153.2	190.5	228.6	8x19	28.0	4.1
6"	150	6000	212.7	241	279	8x22	29.4	4.1

## PFA Lined Concentric Reducer



### MATERIALS LIST

Parts	Carbon Steel	Stainless Steel
Flange	ASTM A105 or ASTM A216 WCB	ASTM A182 or ASTM A351
Steel frame	ASTM A234 grade WPB or ASTM A216 WCB	ASTM A403 or ASTM A351
Steel bend	according to SCH 40	
Standard	two fixed flanges	
Liner	PFA	

### DIMENSIONS

NPS INCH	L	NPS1/ANSI B16.5 Class 150					NPS2/ANSI B16.5 Class 150					f1	f2
		φA1	φK1	φD1	nxφh1	T1	φA2	φK2	φD2	nxφh2	T2	PFA	PFA
1"x1/2"	114	48	79.2	108	4x16	14.2	32	60.5	89	4x16	14.2	3.0	3.0
1"x3/4"	114	48	79.2	108	4x16	14.2	40	69.9	98.6	4x16	14.2	3.0	3.0
1-1/2"x3/4"	114	69	98.6	127	4x16	17.3	40	69.9	98.6	4x16	14.2	3.0	3.0
1-1/2"x1"	114	69	98.6	127	4x16	17.3	48	79.2	108	4x16	14.2	3.0	3.0
2"x1/2"	127	87.9	120.7	152.4	4x19	18.8	32	60.5	89	4x16	14.2	3.0	3.0
2"x3/4"	127	87.9	120.7	152.4	4x19	18.8	40	69.9	98.6	4x16	14.2	3.0	3.0
2"x1"	127	87.9	120.7	152.4	4x19	18.8	48	79.2	108	4x16	14.2	3.0	3.0
2"x1-1/2"	127	87.9	120.7	152.4	4x19	18.8	69	98.6	127	4x16	17.3	3.0	3.0
2-1/2"x1"	140	100.6	139.7	177.8	4x19	21.7	48	79.2	108	4x16	14.2	3.0	3.0
2-1/2"x1-1/2"	140	100.6	139.7	177.8	4x19	21.7	69	98.6	127	4x16	17.3	3.0	3.0
2-1/2"x2"	140	100.6	139.7	177.8	4x19	21.7	87.9	120.7	152.4	4x19	18.8	3.0	3.0
3"x1"	152	127	152.4	190.5	4x19	23.2	48	79.2	108	4x16	14.2	3.0	3.0
3"x1-1/2"	152	127	152.4	190.5	4x19	23.2	69	98.6	127	4x16	17.3	3.0	3.0
3"x2"	152	127	152.4	190.5	4x19	23.2	87.9	120.7	152.4	4x19	18.8	3.0	3.0
3"x2-1/2"	152	127	152.4	190.5	4x19	23.2	100.6	139.7	177.8	4x19	21.7	3.0	4.1
4"x1"	178	153.2	190.5	228.6	8x19	28.0	48	79.2	108	4x16	14.2	3.0	3.0
4"x1-1/2"	178	153.2	190.5	228.6	8x19	28.0	69	98.6	127	4x16	17.3	3.0	3.0
4"x2"	178	153.2	190.5	228.6	8x19	28.0	87.9	120.7	152.4	4x19	18.8	3.0	3.0
4"x3"	178	153.2	190.5	228.6	8x19	28.0	127	152.4	190.5	4x19	23.2	4.1	4.1
6"x2"	229	212.7	241	279	8x22	29.4	87.9	120.7	152.4	4x19	18.8	4.1	3.0
6"x3"	229	212.7	241	279	8x22	29.4	127	152.4	190.5	4x19	23.2	4.1	4.1
6"x4"	229	212.7	241	279	8x22	29.4	153.2	190.5	228.6	8x19	28.0	4.1	4.1

## PFA Lined 90° Elbow



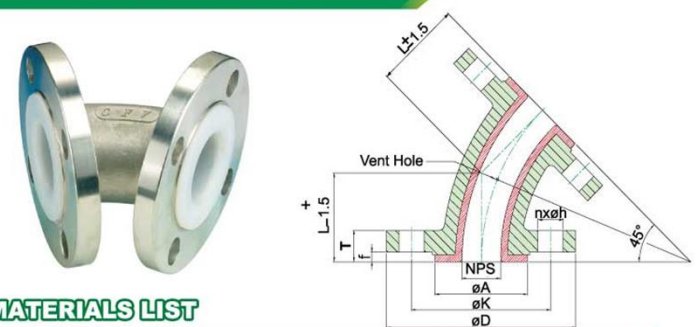
### MATERIALS LIST

Parts	Carbon Steel	Stainless Steel
Flange	ASTM A105 or ASTM A216 WCB	ASTM A182 or ASTM A351
Steel frame	ASTM A234 grade WPB or ASTM A216 WCB	ASTM A403 or ASTM A351
Steel bend	according to SCH 40	
Standard	two fixed flanges	
Liner	PFA	

### DIMENSIONS

NPS INCH	L	ANSI B16.5 Class 150					
		φA	φK	φD	nxφh	T	f/PFA
1/2"	70	32	60.5	89	4x16	14.2	3.0
3/4"	80	40	69.9	98.6	4x16	14.2	3.0
1"	89	48	79.2	108	4x16	14.2	3.0
1-1/2"	102	69	98.6	127	4x16	17.3	3.0
2"	114	87.9	120.7	152.4	4x19	18.8	3.0
2-1/2"	127	100.6	139.7	177.8	4x19	21.7	4.1
3"	140	127	152.4	190.5	4x19	23.2	4.1
4"	165	153.2	190.5	228.6	8x19	28.0	4.1
6"	203	212.7	241	279	8x22	29.4	4.1

## PFA Lined Elbow 45°



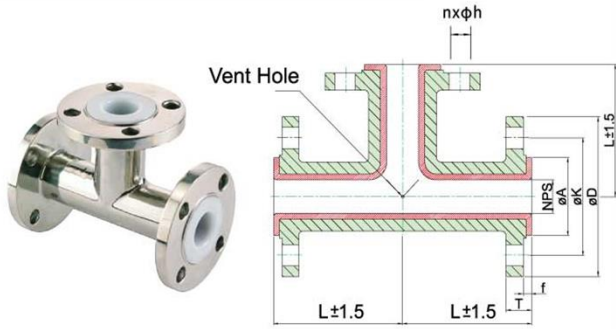
### MATERIALS LIST

Parts	Carbon Steel	Stainless Steel
Flange	ASTM A105 or ASTM A216 WCB	ASTM A182 or ASTM A351
Steel frame	ASTM A234 grade WPB or ASTM A216 WCB	ASTM A403 or ASTM A351
Steel bend	according to SCH 40	
Standard	two fixed flanges	
Liner	PFA	

### DIMENSIONS

NPS INCH	L	ANSI B16.5 Class 150					
		φA	φK	φD	nxφh	T	f/PFA
1/2"	45	32	60.5	89	4x16	14.2	3.0
3/4"	45	40	69.9	98.6	4x16	14.2	3.0
1"	44	48	79.2	108	4x16	14.2	3.0
1-1/2"	57	69	98.6	127	4x16	17.3	3.0
2"	64	87.9	120.7	152.4	4x19	18.8	3.0
2-1/2"	76	100.6	139.7	177.8	4x19	21.7	4.1
3"	76	127	152.4	190.5	4x19	23.2	4.1
4"	102	153.2	190.5	228.6	8x19	28.0	4.1
6"	127	212.7	241	279	8x22	29.4	4.1

## PFA Lined Equal Tee



### MATERIALS LIST

Parts	Carbon Steel	Stainless Steel
Flange	ASTM A105 or A216 WCB	ASTM A182 or A351
Steel frame	ASTM A234 grade WPB or A216 WCB	ASTM A403 or A351
Steel bend Standard	according to SCH 40 fixed flanges	
Liner	PFA	

### DIMENSIONS

NPS		ANSI B16.5 Class 150					
INCH	L	φA	φK	φD	nxφh	T	f/PFA
1/2"	70	32	60.5	89	4x16	14.2	3.0
3/4"	80	40	69.9	98.6	4x16	14.2	3.0
1"	89	48	79.2	108	4x16	14.2	3.0
1-1/2"	102	69	98.6	127	4x16	17.3	3.0
2"	114	87.9	120.7	152.4	4x19	18.8	3.0
2-1/2"	127	100.6	139.7	177.8	4x19	21.7	4.1
3"	140	127	152.4	190.5	4x19	23.2	4.1
4"	165	153.2	190.5	228.6	8x19	28.0	4.1
6"	203	212.7	241	279	8x22	29.4	4.1

## PFA Lined Reducing Tee



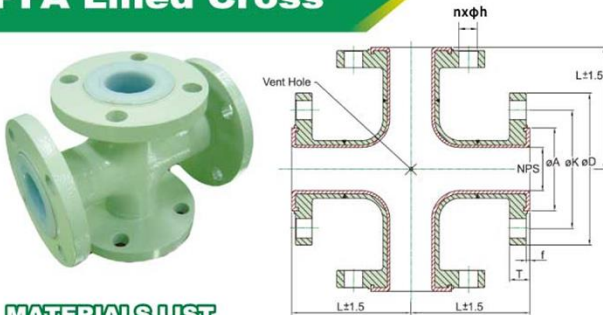
### MATERIALS LIST

Parts	Carbon Steel	Stainless Steel
Flange	ASTM A105 or ASTM A216 WCB	ASTM A182 or A351
Steel frame	ASTM A234 grade WPB or A216 WCB	ASTM A403 or A351
Steel bend Standard	according to SCH 40 fixed flanges	
Liner	PFA	

### DIMENSIONS

NPS INCH	L	NPS1/ANSI B16.5 Class 150					NPS2/ANSI B16.5 Class 150					f1	f2
		φA1	φK1	φD1	nxφh1	T1	φA2	φK2	φD2	nxφh2	T2	PFA	PFA
3/4"x1/2"	80	40	69.9	98.6	4x16	14.2	32	60.5	89	4x16	14.2	3.0	3.0
1"x1/2"	89	48	79.2	108	4x16	14.2	32	60.5	89	4x16	14.2	3.0	3.0
1"x3/4"	89	48	79.2	108	4x16	14.2	40	69.9	98.6	4x16	14.2	3.0	3.0
1-1/2"x1/2"	102	69	98.6	127	4x16	17.3	32	60.5	89	4x16	14.2	3.0	3.0
1-1/2"x3/4"	102	69	98.6	127	4x16	17.3	40	69.9	98.6	4x16	14.2	3.0	3.0
1-1/2"x1"	102	69	98.6	127	4x16	17.3	48	79.2	108	4x16	14.2	3.0	3.0
2"x1/2"	114	87.9	120.7	152.4	4x19	18.8	32	60.5	89	4x16	14.2	3.0	3.0
2"x3/4"	114	87.9	120.7	152.4	4x19	18.8	40	69.9	98.6	4x16	14.2	3.0	3.0
2"x1"	114	87.9	120.7	152.4	4x19	18.8	48	79.2	108	4x16	14.2	3.0	3.0
2"x1-1/2"	114	87.9	120.7	152.4	4x19	18.8	69	98.6	127	4x16	17.3	3.0	3.0
2-1/2"x1"	127	100.6	139.7	177.8	4x19	21.7	48	79.2	108	4x16	14.2	4.1	3.0
2-1/2"x1-1/2"	127	100.6	139.7	177.8	4x19	21.7	69	98.6	127	4x16	17.3	4.1	3.0
2-1/2"x2"	127	100.6	139.7	177.8	4x19	21.7	87.9	120.7	152.4	4x19	18.8	4.1	3.0
3"x1/2"	140	127	152.4	190.5	4x19	23.2	32	60.5	89	4x16	14.2	4.1	3.0
3"x1"	140	127	152.4	190.5	4x19	23.2	48	79.2	108	4x16	14.2	4.1	3.0
3"x1-1/2"	140	127	152.4	190.5	4x19	23.2	69	98.6	127	4x16	17.3	4.1	3.0
3"x2"	140	127	152.4	190.5	4x19	23.2	87.9	120.7	152.4	4x19	18.8	4.1	3.0
4"x1"	165	153.2	190.5	228.6	8x19	28.0	48	79.2	108	4x16	14.2	4.1	3.0
4"x1-1/2"	165	153.2	190.5	228.6	8x19	28.0	69	98.6	127	4x16	17.3	4.1	3.0
4"x2"	165	153.2	190.5	228.6	8x19	28.0	87.9	120.7	152.4	4x19	18.8	4.1	3.0
4"x3"	165	153.2	190.5	228.6	8x19	28.0	127	152.4	190.5	4x19	23.2	4.1	4.1
6"x2"	203	212.7	241	279	8x22	29.7	87.9	120.7	152.4	4x19	18.8	4.1	3.0
6"x3"	203	212.7	241	279	8x22	29.7	127	152.4	190.5	4x19	23.2	4.1	4.1
6"x4"	203	212.7	241	279	8x22	29.7	153.2	190.5	228.6	8x19	28.0	4.1	4.1

## PFA Lined Cross



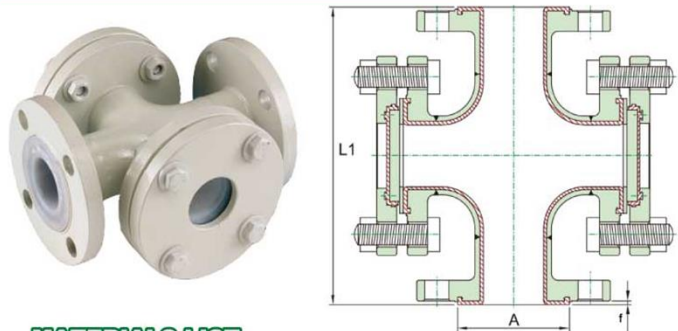
### MATERIALS LIST

Parts	Carbon Steel	Stainless Steel
Flange	ASTM A105 or A216 WCB	ASTM A182 or A351
Steel frame	ASTM A234 grade WPB or A216 WCB	ASTM A403 or A351
Steel bend Standard	according to SCH 40 fixed flanges	
Liner	PFA	

### DIMENSIONS

NPS		ANSI B16.5 Class 150					
INCH	L	φA	φK	φD	nxφh	T	f/PFA
1/2"	70	32	60.5	89	4x16	14.2	3.0
3/4"	80	40	69.9	98.6	4x16	14.2	3.0
1"	89	48	79.2	108	4x16	14.2	3.0
1-1/2"	102	69	98.6	127	4x16	17.3	3.0
2"	114	87.9	120.7	152.4	4x19	18.8	3.0
2-1/2"	127	100.6	139.7	177.8	4x19	21.7	4.1
3"	140	127	152.4	190.5	4x19	23.2	4.1
4"	165	153.2	190.5	228.6	8x19	28.0	4.1
6"	203	212.7	241	279	8x22	29.4	4.1

## PFA Lined Sight Glass



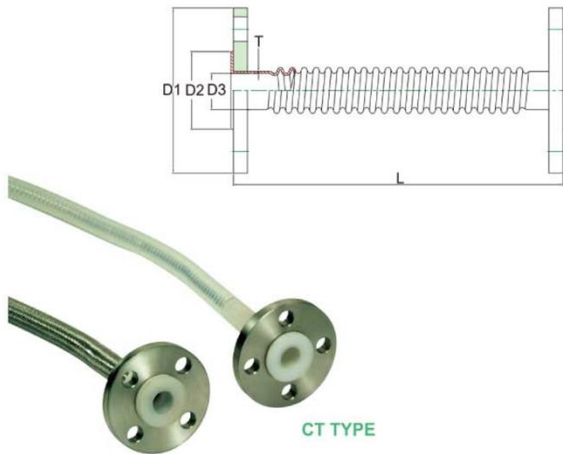
### MATERIALS LIST

Parts	Carbon Steel	Stainless Steel
Flange	ASTM A105 or ASTM A216 WCB	ASTM A182 or A351
Steel frame	ASTM A234 grade WPB or A216 WCB	ASTM A403 or A351
Steel bend Standard	according to SCH 40 fixed flanges	
Liner	PFA	

### DIMENSIONS

NPS INCH	L1	ANSI B16.5 Class 150		GLASS	
		φA	f/PFA	TK	OD
1"	178	48	3.0	TK	OD
1-1/2"	204	69	3.0	7mm	40mm
2"	228	87.9	3.0	8mm	70mm
2-1/2"	254	100.6	4.1	10mm	100mm
3"	280	127	4.1		
4"	330	153.2	4.1		
6"	406	212.7	4.1		

## PFA SPIRAL TUBE MCT & CT TYPE



**MCT TYPE**  
S.S Wiremesh TK. :1mm  
Material : 304

### SPECIFICATIONS

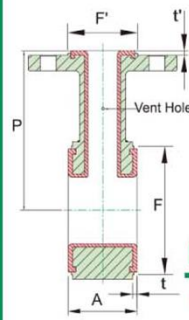
**FLANGE : ASME Class 150** Unit:mm

Nominal Size	15 1/2"	20 3/4"	25 1"	32 1-1/4"	40 1-1/2"	50 2"
D1	89.9	98.4	108	117.3	127	152
D2	34.9	42.9	50.8	63.5	73	92
D3	9.52	15.87	22.2	27.94	33.73	45.64
T	1.59	1.59	1.59	1.905	2.19	2.58

**FLANGE : JIS 10K** Unit:mm

Nominal Size	15 1/2"	20 3/4"	25 1"	32 1-1/4"	40 1-1/2"	50 2"
D1	95	100	125	135	140	155
D2	52	58	70	80	85	96
D3	9.52	15.87	22.2	27.94	33.73	45.64
T	1.5	1.5	1.5	1.9	2.19	2.58

## PFA Lined Instrument Connection



**Shell : ASTM A48 grade 25 Liner : PFA**

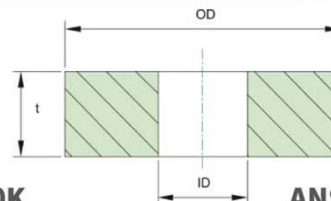
### DIMENSIONS

 UNIT:mm

Nominal Size	INCH	mm	F	F'	A	P	t	t'
1"x1"	1"	25x25	50.8	50.8	50	90	3	3
1-1/2"x1"	1-1/2"	40x25	73.2	50.8	50	100	3	3
2"x1"	2"	50x25	91.9	50.8	50	114	3	3
2-1/2"x1"	2-1/2"	65x25	104.6	50.8	50	127	4.1	3
3"x1"	3"	80x25	124	50.8	50	140	4.1	3
4"x1"	4"	100x25	157.2	50.8	50	165	4.1	3
6"x1"	6"	150x25	212.7	50.8	50	200	4.1	3

PFA Lined Pipe & Fitting

## Solid Spacer



**JIS 10K**

**Material : PTFE/TFM1600**

### DIMENSIONS

 UNIT:mm

Nominal Size	JIS	mm	OD	ID	t
10K 15	15	57.3	8.8	3~30	
10K 20	20	62.3	13.93	3~30	
10K 25	25	74.1	19.64	3~30	
10K 40	40	89.1	33.9	3~30	
10K 50	50	104.1	44.51	3~30	
10K 65	65	124.1	54.71	3~30	
10K 80	80	134.1	69.92	3~30	
10K 100	100	159.1	93.25	3~30	
10K 150	150	224	145	3~30	

**ANSI 150**

**Material : PTFE/TFM1600**

### DIMENSIONS

 UNIT:mm

Nominal Size	INCH	mm	OD	ID	t
1/2"	1/2"	15	46.5	15.0	3~30
3/4"	3/4"	20	57.2	13.93	3~30
1"	1"	25	66.3	19.64	3~30
1-1/2"	1-1/2"	40	85.3	33.9	3~30
2"	2"	50	105.1	44.51	3~30
3"	3"	80	136.1	69.92	3~30
4"	4"	100	175.1	93.25	3~30
6"	6"	150	224.4	145	3~30

## Armored Spacer

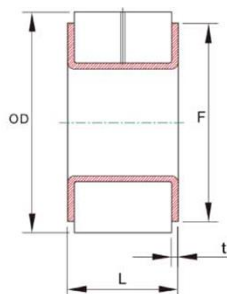
**Shell :**  
**ASTM A48 grade 25**  
**Liner : PFA**



### DIMENSIONS

 UNIT:mm

Nominal Size	INCH	mm	OD	ID	t	L
1"	1"	25	66.3	46.8	2	30~90
1-1/2"	1-1/2"	40	85.3	69.2	2	30~90
2"	2"	50	105.1	87.9	2	30~90
3"	3"	80	136.1	123	2.5	30~90
4"	4"	100	175.1	153.2	2.5	30~90
6"	6"	150	224.4	212.7	3.0	30~90



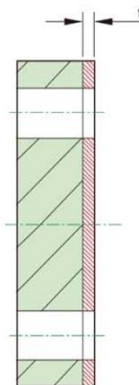
## PFA Lined Blind Flange

**Flange : ASTM A105**  
**Liner : PFA**

### DIMENSIONS

 UNIT:mm

Nominal Size	INCH	mm	t
1/2"	1/2"	15	3.0
3/4"	3/4"	20	3.0
1"	1"	25	3.0
1-1/2"	1-1/2"	40	3.0
2"	2"	50	3.0
3"	3"	80	3.0
4"	4"	100	3.0
6"	6"	150	3.0





# PFA TUBES AND PIPES



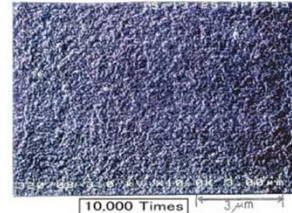
## FEATURES

- **Excellent chemical resistance** PFA does not interact with the vast majority of chemicals, and has extremely good resistance against chemicals and solutions in general.
- **Wide range of operation temperature** PFA has great thermal stability; the material can be used continuously at a maximum of 260 degree C without degrading, and its low permeability allows for operation in environments as low as -60 degree C.
- **Non-stick properties** PFA is a low friction material that is water and oil repellent.
- **Excellent weather ability** PFA does not wear or deform under the exposure of sunlight, rain, and exhaust gas. Its properties are not affected even when left under outdoor environments for an extended period of time.
- **Excellent insulation material** PFA has extremely low dielectric constant and dielectric dissipation.
- **Long product life** PFA has the lowest friction coefficient in all polymers; as a result, the material is highly resistant to wear and thus reduces the potential replacement costs.

## PFA PHYSICAL PROPERTIES

Item	Test Method	Unit	Standard Value
Density	JIS K 6890-5.2	-	2.12~2.17
Melting Point	JIS K 6890-5.3	°C	295~310
Tensile Strength	JIS K 6890-5.4	Mpa(kgf/cm <sup>2</sup> )	15.7(160)up
Elongation		%	150 up
MFR Value		g/10min	1~3

## SURFACE ROUGHNESS



## APPLICATION

Because PFA is possessed of against corrosion's feature, it is widely accepted in semiconductor, optoelectronics, pharmaceutical, food and beverage, petrochemical, refining, biochemical, cosmetics, and high purity water industries

## MATERIAL

PFA

## SPECIFICATION Unit:mm

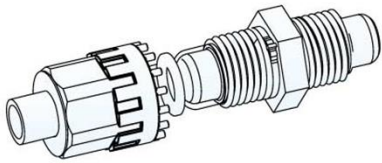
	Size	O.D.	I.D.	Wall TK.	Tolerance	
					O.D.	Wall TK.
mm size	3	3	2	0.5	±0.1	±0.05
	4	4	3	0.5	±0.1	±0.05
	6	6	4	1	±0.1	±0.06
	8	8	6	1	±0.12	±0.06
	10	10	8	1	±0.12	±0.06
	12	12	10	1	±0.12	±0.06
	19	19	15.8	1.6	±0.12	±0.10
	25	25	22	1.5	±0.2	±0.10
Inch size	1/8	3.18	2.18	0.5	±0.10	±0.05
	1/4	6.35	3.95	1.2	±0.10	±0.10
	3/8	9.53	6.35	1.6	±0.12	±0.10
			7.53	1	±0.12	±0.06
	1/2	12.7	9.53	1.6	±0.12	±0.10
	3/4	19.05	15.8	1.6	±0.12	±0.10
	1	25.4	22.2	1.6	±0.2	±0.10
	1 1/4	31.8	28	1.9	±0.25	±0.15
	1 1/2	38.1	33.7	2.2	±0.25	±0.15
	2	50.8	45.64	2.58	±0.25	±0.2

## REMARK

1. Length, tolerance the length of tube is shown as meter(s), tol is 0~≠2%.
2. Customize size order is accepted
3. Surface roughness is as per SEMI F52-1101,  $\mu\text{m} \leq 0.25$ ,  $\mu\text{in} \leq 10$ .
4. Metal Dissolving volume is as per SEMI F57-0301

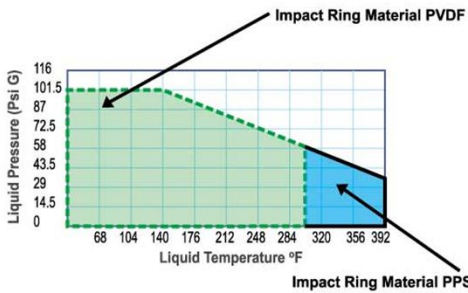
# COMPRESSION RING TYPE FITTINGS

## Fluoropolymer Fitting FIT-ONE



### SPECIFICATIONS

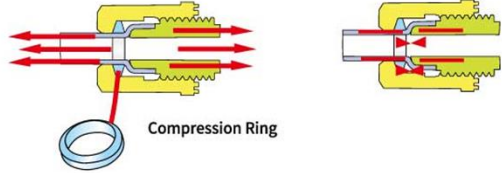
Maximum Operating Temperature: 392°F  
 (Varies upon the Material of Impact-Ring)  
 Maximum Operating Pressure: 101.5 Psi G  
 Applicable Fluid: Liquid  
 Applicable Tube Material: PFA or PTFE  
 Material: NUT: PFA  
 Body: PFA or PTFE



Designed with simplicity and easy of installation, **FIT-ONE** overcomes the shortcoming which flare type fittings have in common : **lacking resistivity**  
 The development of such revolutionary fitting is made possible by our business model, introducing the following features :

### High resistivity against pulling makes a reliable fitting

FIT-ONE Impact-Ring design is a perfect solution to the shortcoming of general flare type fitting.

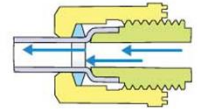


The Impact-Ring firmly grips the tube, achieving high resistivity against pull.

The screw nut will pressure the Impact-Ring when fastened to the designated location, securing the conjunction between the tube and the body.

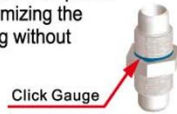
### Small fluid pressure loss and easy replacement of liquids

Low torque fastening nut helps securing the flow of fluid path minimizing the loss of fluid pressure while decreasing liquid remnants. As a result, the replacement of liquids can be carried out easily.

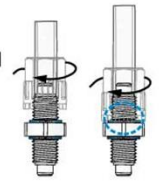


### Click-Gauge as the fastening reminder

The Click-Gauge indicates the optimal fastening location, maximizing the performance of the fitting without damaging it.



When the nut is fastened to the optimal location of the body, the gauge will notify the operator either through vibration or sound



## Assembly Method

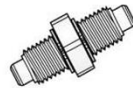
### Components and assembly tools



1. Compression Ring



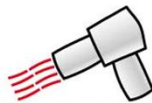
2. NUT



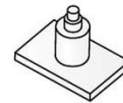
3. BODY



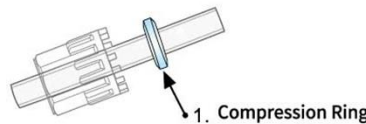
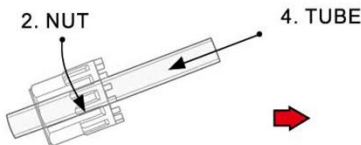
4. TUBE



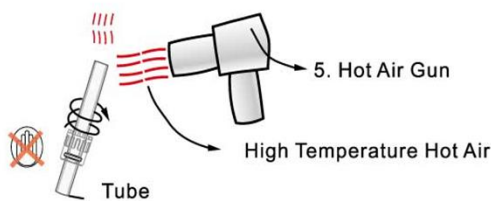
5. HOT AIR GUN



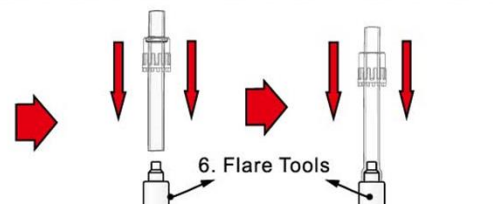
6. FLARE TOOLS



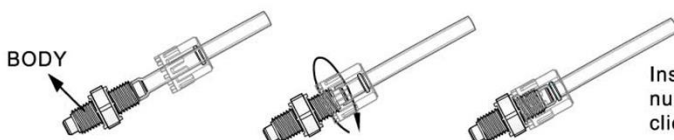
First insert a tube into the nut, then insert the Impact Ring..



!!! Require uniform heating!!!



Insert the tube into flare tool ASAP, and wait until tube is cooled down.



Insert flared PFA tube into the fitting body, then tighten the nut until the bottom paws of which contacts nut head and click-Gauge. (Notice : be careful of excessive )

# IMPACT RING TYPE FITTINGS

## Product Coding Rules



- The type code indicates the shape of Fitting ( e.g. MC Fitting etc ).
- The size code indicates the applicable fitting size and thread specification. The code is shown in the following chart.

### TYPE CODE

CODE	TYPE
MC	MALE CONNECTOR
ME	MALE ELBOW
MBT	MALE BRANCH TEE
FC	FEMALE CONNECTOR
FE	FEMALE ELBOW
UT	UNION TEE
U	UNION
UE	UNION ELBOW
EA	ELBOW ADAPTOR
RU	REDUCING UNION
RUE	REDUCING UNION ELBOW
PMU	PANEL MOUNT UNION
UF	UNION FLANGE
UA	UNION ADAPTOR
RUA	REDUCING UNION ADAPTOR
UEA	UNION ELBOW ADAPTOR
RUEA	REDUCING UNION ELBOW ADAPTOR
RA	REDUCING ADAPTOR
RUT	REDUCING UNION TEE
TA	TEE ADAPTOR
RTA	REDUCING TEE ADAPTOR
RUTA	REDUCING UNION TEE ADAPTOR
UTA	UNION TEE ADAPTOR
MCT	MALE CONNECTOR THROUGH
CP	CAP
E	FITTING END
UN	UNION NUT
HN	HALF NUT
RI	RING

### Inch tube size

Series	Spec.	Code
Inch Size	1/8"	H1
	1/4"	H2
	3/8"	H3
	1/2"	H4
	3/4"	H6
	1"	H8
	1 1/4"	H10
	1 1/2"	H12

### Metric tube size

Series	Spec.	Code
mm size	3	M3
	4	M4
	6	M6
	8	M8
	10	M10
	12	M12
	19	M19
25	M25	

### Taper thread size

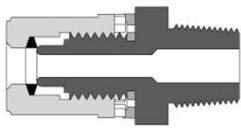
SIZE	Applicable Code	
	NPT	PT
1/8"	N1	R1
1/4"	N2	R2
3/8"	N3	R3
1/2"	N4	R4
3/4"	N6	R6
1"	N8	R8
1 1/4"	N10	R10
1 1/2"	N12	R12

e,q, :  
select RUT tupe with inch size  
tube of 3/4" 1/2" 3/4", the code  
to be RUT-H6-H4-H6

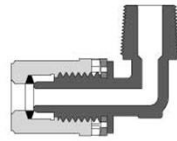
# IMPACT RING TYPE FITTINGS

## Fitting List

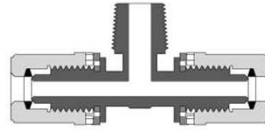
MC



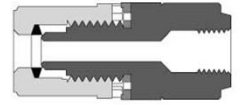
ME



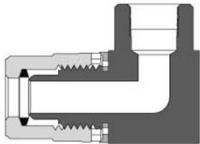
MBT



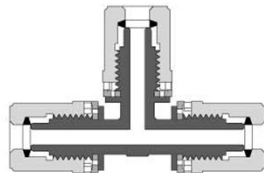
FC



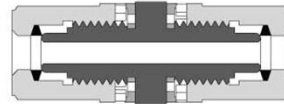
FE



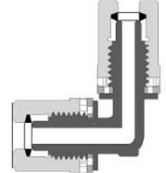
UT



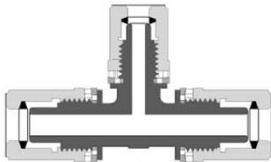
U



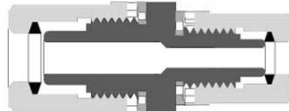
UE



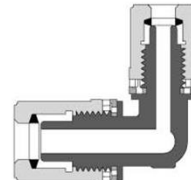
RUT



RU



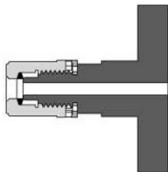
RUE



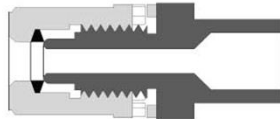
PMU



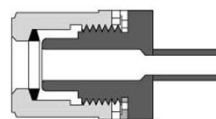
UF



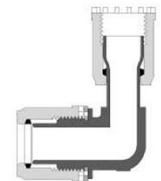
UA



RUA



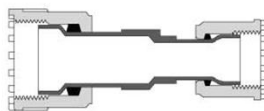
UEA



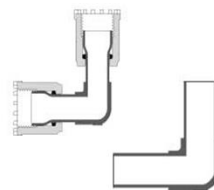
RUEA



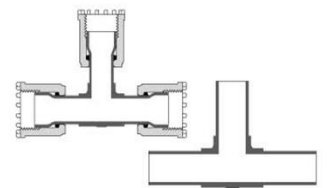
RA



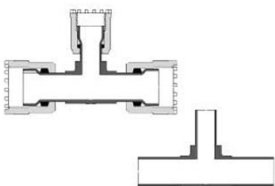
EA



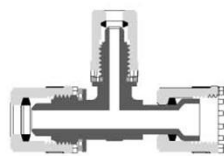
TA



RTA

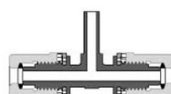


RUTA

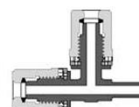


UTA

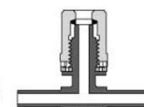
A type



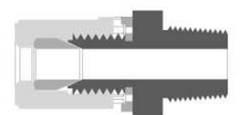
B type



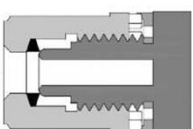
C type



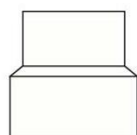
MCT



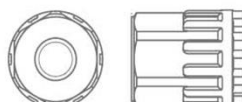
CP



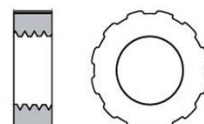
E



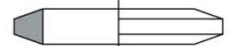
UN



HN



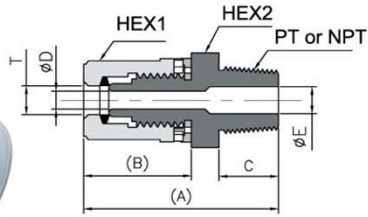
RI



IMPACT RING TYPE FITTINGS

# IMPACT RING TYPE FITTINGS

## MC Male Connector



INCH+NPT TYPE

	T	NPT	HEX1	HEX2	(A)	(B)	C	ØD	ØE
MC-H1-N1	3.18X2.18	1/8"	11	13	32.3	17.3	9	2	3
MC-H1-N2	"	1/4"	"	"	36.3	"	13	"	6
MC-H2-N1	6.35X3.95	1/8"	16	20	38.2	23.2	9	4	3
MC-H2-N2	"	1/4"	"	"	42.2	"	13	"	6
MC-H2-N3	"	3/8"	"	"	"	"	"	"	10
MC-H3-N2	9.53X6.35	1/4"	19	23	46.4	27.4	"	6.3	6.3
MC-H3-N3	"	3/8"	"	"	"	"	"	"	10
MC-H3-N4	"	1/2"	"	"	50.2	"	16.8	"	12
MC-H4-N2	12.7X9.53	1/4"	24	29	53.3	33	13	10	6
MC-H4-N3	"	3/8"	"	"	"	"	"	"	10
MC-H4-N4	"	1/2"	"	"	57.1	"	16.8	"	12
MC-H4-N6	"	3/4"	"	"	57.4	"	17.1	"	16
MC-H6-N4	19.05X15.8	1/2"	32	38	64.6	40.5	16.8	16	12
MC-H6-N6	"	3/4"	"	"	64.9	"	17.1	"	16
MC-H6-N8	"	1"	"	"	69.2	"	21.4	"	22
MC-H8-N6	25.4X22.2	3/4"	41	49	71.9	47.5	17.1	22	16
MC-H8-N8	"	1"	"	"	76.7	"	21.4	"	22
MC-H10-N10	31.8x28	1 1/4"	50	60	100.7	63.7	25	28	28
MC-H12-N12	38.1x33.7	1 1/2"	60	70	111	71	28	33.7	33.7

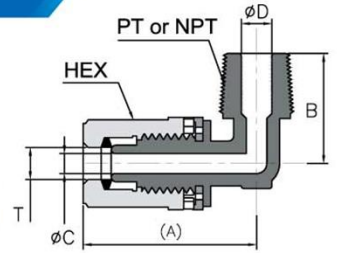
MM+PT TYPE

	T	PT	HEX1	HEX2	(A)	(B)	C	ØD	ØE
MC-M3-R1	3X2	1/8"	11	13	32.3	17.3	9	2	3
MC-M3-R2	"	1/4"	"	"	36.3	"	13	"	6
MC-M4-R1	4X3	1/8"	11	13	32.3	17.3	9	3	3
MC-M4-R2	"	1/4"	"	"	36.3	"	13	"	6
MC-M6-R1	6X4	1/8"	16	20	38.2	23.2	9	4	3
MC-M6-R2	"	1/4"	"	"	42.2	"	13	"	6
MC-M6-R3	"	3/8"	"	"	"	"	"	"	10
MC-M8-R1	8X6	1/8"	19	23	42.4	27.4	9	6.3	3
MC-M8-R2	"	1/4"	"	"	46.4	"	13	"	6.3
MC-M8-R3	"	3/8"	"	"	"	"	"	"	10
MC-M8-R4	"	1/2"	"	"	50.2	"	16.8	"	12
MC-M10-R2	10X8	1/4"	"	"	46.4	"	13	8	6
MC-M10-R3	"	3/8"	"	"	"	"	"	"	10
MC-M10-R4	"	1/2"	"	"	50.2	"	16.8	"	12
MC-M12-R2	12X10	1/4"	24	29	53.3	33	13	10	6
MC-M12-R3	"	3/8"	"	"	"	"	"	"	10
MC-M12-R4	"	1/2"	"	"	57.1	"	16.8	"	12
MC-M12-R6	"	3/4"	"	"	57.4	"	17.1	"	16
MC-M19-R4	19X15.8	1/2"	32	38	64.6	40.5	16.8	16	12
MC-M19-R6	"	3/4"	"	"	64.9	"	17.1	"	16
MC-M19-R8	"	1"	"	"	69.2	"	21.4	"	22
MC-M25-R6	25X22	3/4"	41	49	71.9	47.5	17.1	22	16
MC-M25-R8	"	1"	"	"	76.2	"	21.4	"	22

INCH+PT TYPE

	T	PT	HEX1	HEX2	(A)	(B)	C	ØD	ØE
MC-H1-R1	3.18X2.18	1/8"	11	13	32.3	17.3	9	2	3
MC-H1-R2	"	1/4"	"	"	36.3	"	13	"	6
MC-H2-R1	6.35X3.95	1/8"	16	20	38.2	23.2	9	4	3
MC-H2-R2	"	1/4"	"	"	42.2	"	13	"	6
MC-H2-R3	"	3/8"	"	"	"	"	"	"	10
MC-H3-R2	9.53X6.35	1/4"	19	23	46.4	27.4	"	6.3	6.3
MC-H3-R3	"	3/8"	"	"	"	"	"	"	10
MC-H3-R4	"	1/2"	"	"	50.2	"	16.8	"	12
MC-H4-R2	12.7X9.53	1/4"	24	29	53.3	33	13	10	6
MC-H4-R3	"	3/8"	"	"	"	"	"	"	10
MC-H4-R4	"	1/2"	"	"	57.1	"	16.8	"	12
MC-H4-R6	"	3/4"	"	"	57.4	"	17.1	"	16
MC-H6-R4	19.05X15.8	1/2"	32	38	64.6	40.5	16.8	16	12
MC-H6-R6	"	3/4"	"	"	64.9	"	17.1	"	16
MC-H6-R8	"	1"	"	"	69.2	"	21.4	"	22
MC-H8-R6	25.4X22.2	3/4"	41	49	71.9	47.5	17.1	22	16
MC-H8-R8	"	1"	"	"	76.2	"	21.4	"	22

## ME Male Elbow



INCH+NPT TYPE

	T	NPT	HEX	(A)	B	ØC	ØD	W
ME-H1-N1	3.18X2.18	1/8"	11	24.8	17.5	2	3	7.6
ME-H1-N2	"	1/4"	"	"	21.5	"	6	"
ME-H2-N1	6.35X3.95	1/8"	16	33.7	18	4	3	10
ME-H2-N2	"	1/4"	"	"	22	"	6	"
ME-H2-N3	"	3/8"	"	"	"	"	10	"
ME-H3-N2	9.53X6.35	1/4"	19	39.9	24	6.3	6	14
ME-H3-N3	"	3/8"	"	"	"	"	10	"
ME-H3-N4	"	1/2"	"	"	27.8	"	12	"
ME-H4-N2	12.7X9.53	1/4"	24	48.5	26.5	10	6	18
ME-H4-N3	"	3/8"	"	"	"	"	10	"
ME-H4-N4	"	1/2"	"	"	30.3	"	12	"
ME-H4-N6	"	3/4"	"	"	30.6	"	16	"
ME-H6-N3	19.05X15.8	3/8"	32	61	31	16	10	27
ME-H6-N4	"	1/2"	"	"	34.8	"	12	"
ME-H6-N6	"	3/4"	"	"	37.1	"	16	"
ME-H8-N6	25.4X22.2	"	41	73	42.1	22	"	34
ME-H8-N8	"	1"	"	"	46.4	"	22	"

MM +PT TYPE

	T	PT	HEX	(A)	B	ØC	ØD	W
ME-M3-R1	3X2	1/8"	11	24.8	17.5	2	3	7.6
ME-M3-R2	"	1/4"	"	"	21.5	"	6	"
ME-M4-R1	4X3	1/8"	"	"	17.5	3	3	"
ME-M4-R2	"	1/4"	"	"	21.5	"	6	"
ME-M6-R1	6X4	1/8"	16	33.7	18	4	3	10
ME-M6-R2	"	1/4"	"	"	22	"	6	"
ME-M6-R3	"	3/8"	"	"	"	"	10	"
ME-M8-R1	8x6	1/8"	19	39.9	20	6.3	3	14
ME-M8-R2	"	1/4"	"	"	24	"	6	"
ME-M8-R3	"	3/8"	"	"	"	"	10	"
ME-M8-R4	"	1/2"	"	"	27.8	"	12	"
ME-M10-R2	10x8	1/4"	"	"	24	8	6	"
ME-M10-R3	"	3/8"	"	"	"	"	10	"
ME-M10-R4	"	1/2"	"	"	27.8	"	12	"
ME-M12-R2	12x10	1/4"	24	48.5	26.5	10	6	18
ME-M12-R3	"	3/8"	"	"	"	"	10	"
ME-M12-R4	"	1/2"	"	"	30.3	"	12	"
ME-M12-R6	"	3/4"	"	"	30.6	"	16	"
ME-M19-R4	19x15.8	1/2"	32	61	34.8	16	12	27
ME-M19-R6	"	3/4"	"	"	37.1	"	16	"
ME-M25-R4	25x22	1/2"	41	73	39.8	22	12	34
ME-M25-R6	"	3/4"	"	"	42.1	"	16	"
ME-M25-R8	"	1"	"	"	46.4	"	22	"

INCH+PT TYPE

	T	PT	HEX	(A)	B	ØC	ØD	W
ME-H1-R1	3.18X2.18	1/8"	11	24.8	17.5	2	3	7.6
ME-H1-R2	"	1/4"	"	"	21.5	"	6	"
ME-H2-R1	6.35X3.95	1/8"	16	33.7	18	4	3	10
ME-H2-R2	"	1/4"	"	"	22	"	6	"
ME-H2-R3	"	3/8"	"	"	"	"	10	"
ME-H3-R2	9.53X6.35	1/4"	19	39.9	24	6.3	6	14
ME-H3-R3	"	3/8"	"	"	"	"	10	"
ME-H3-R4	"	1/2"	"	"	27.8	"	12	"
ME-H4-R2	12.7X9.53	1/4"	24	48.5	26.5	10	6	18
ME-H4-R3	"	3/8"	"	"	"	"	10	"
ME-H4-R4	"	1/2"	"	"	30.3	"	12	"
ME-H4-R6	"	3/4"	"	"	30.6	"	16	"
ME-H6-R4	19.05X15.8	1/2"	32	61	34.8	16	12	27
ME-H6-R6	"	3/4"	"	"	37.1	"	16	"
ME-H8-R6	25.4X22.2	"	41	73	42.1	22	"	34
ME-H8-R8	"	1"	"	"	46.4	"	22	"

UNIT:MM

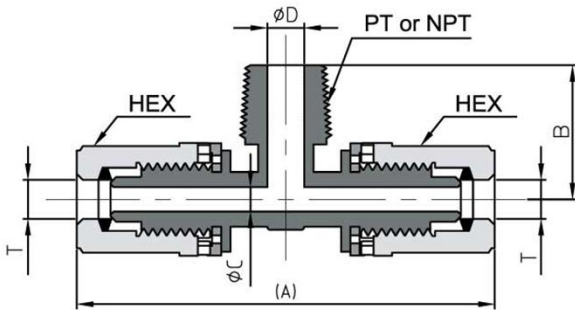
Listed sizes are for reference only.

"T" indicates the O.D and I.D of applied tube.

"W" indicates the dimension of the Fitting body width.

# IMPACT RING TYPE FITTINGS

## MBT Male Branch Tee



### INCH TYPE

	T	NPT	HEX	(A)	B	ØC	ØD	W
MBT-H2-N1	6.35X3.95	1/8"	16	67.4	18	4	3	10
MBT-H2-N2	"	1/4"	"	"	22	"	6	"
MBT-H2-N3	"	3/8"	"	"	"	"	10	"
MBT-H3-N2	9.53X6.35	1/4"	19	79.7	24	6.3	6	14
MBT-H3-N3	"	3/8"	"	"	"	"	10	"
MBT-H3-N4	"	1/2"	"	"	27.8	"	12	"
MBT-H4-N2	12.7X9.53	1/4"	24	97	26.5	10	6	18
MBT-H4-N3	"	3/8"	"	"	"	"	10	"
MBT-H4-N4	"	1/2"	"	"	30.3	"	12	"
MBT-H6-N4	19.05X15.8	"	32	122	34.8	16	"	27
MBT-H6-N6	"	3/4"	"	"	37.1	"	16	"
MBT-H8-N6	25.4X22.2	"	41	146	42.1	22	"	34
MBT-H8-N8	"	1"	"	"	46.4	"	22	"

### MM TYPE

	T	PT	HEX	(A)	B	ØC	ØD	W
MBT-M6-R1	6X4	1/8"	16	67.4	18	4	3	10
MBT-M6-R2	"	1/4"	"	"	22	"	6	"
MBT-M6-R3	"	3/8"	"	"	"	"	10	"
MBT-M8-R1	8X6	1/8"	19	79.7	20	6.3	3	14
MBT-M8-R2	"	1/4"	"	"	24	"	6	"
MBT-M8-R3	"	3/8"	"	"	"	"	10	"
MBT-M10-R2	10X8	1/4"	"	"	"	8	6	"
MBT-M10-R3	"	3/8"	"	"	"	"	10	"
MBT-M10-R4	"	1/2"	"	"	27.8	"	12	"
MBT-M12-R2	12X10	1/4"	24	97	26.5	10	6	18
MBT-M12-R3	"	3/8"	"	"	"	"	10	"
MBT-M12-R4	"	1/2"	"	"	30.3	"	12	"
MBT-M19-R4	19X15.8	"	32	122	34.8	16	"	27
MBT-M19-R6	"	3/4"	"	"	37.1	"	16	"
MBT-M25-R6	25X22	"	41	146	42.1	22	"	34
MBT-M25-R8	"	1"	"	"	46.4	"	22	"

Listed sizes are for reference only.

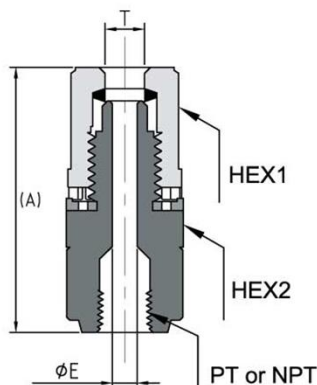
"T" indicates the O.D and I.D of applied tube.

"W" indicates the dimension of the Fitting body width.

UNIT:MM

IMPACT RING TYPE FITTINGS

## FC Female Connector



### INCH TYPE

	T	NPT	HEX1	HEX2	(A)	ØE
FC-H2-N1	6.35X3.95	1/8"	16	20	40.2	4
FC-H2-N2	"	1/4"	"	"	43.2	"
FC-H2-N3	"	3/8"	"	23	43.7	"
FC-H3-N2	9.53X6.35	1/4"	19	"	47.4	6.3
FC-H3-N3	"	3/8"	"	"	47.9	"
FC-H3-N4	"	1/2"	"	29	51.9	"
FC-H4-N2	12.7X9.53	1/4"	24	"	54.3	10
FC-H4-N3	"	3/8"	"	"	54.8	"
FC-H4-N4	"	1/2"	"	"	58.8	"
FC-H6-N4	19.05X15.8	"	32	38	66.3	16
FC-H6-N6	"	3/4"	"	"	66.8	"
FC-H8-N6	25.4X22.2	"	41	49	73.8	22
FC-H8-N8	"	1"	"	"	77.8	"

### MM TYPE

	T	PT	HEX1	HEX2	(A)	ØE
FC-M6-R1	6X4	1/8"	16	20	40.2	4
FC-M6-R2	"	1/4"	"	"	43.2	"
FC-M6-R3	"	3/8"	"	23	43.7	"
FC-M8-R1	8X6	1/8"	19	"	44.4	6.3
FC-M8-R2	"	1/4"	"	"	47.4	"
FC-M8-R3	"	3/8"	"	"	47.9	"
FC-M10-R2	10X8	1/4"	"	"	47.4	8
FC-M10-R3	"	3/8"	"	"	47.9	"
FC-M10-R4	"	1/2"	"	29	51.9	"
FC-M12-R2	12X10	1/4"	24	"	54.3	10
FC-M12-R3	"	3/8"	"	"	54.8	"
FC-M12-R4	"	1/2"	"	"	58.8	"
FC-M19-R4	19X15.8	"	32	38	66.3	16
FC-M19-R6	"	3/4"	"	"	66.8	"
FC-M25-R6	25X22	"	41	49	73.8	22
FC-M25-R8	"	1"	"	"	77.8	"

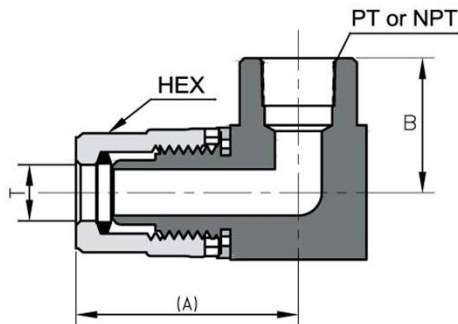
Listed sizes are for reference only.

"T" indicates the O.D and I.D of applied tube.

UNIT:MM

# IMPACT RING TYPE FITTINGS

## FE Female Elbow



### INCH TYPE

	T	NPT	HEX	(A)	B	W
FE-H2-N1	6.35X3.95	1/8"	16	33.2	21	20
FE-H2-N2	"	1/4"	"	34.7	24	23
FE-H2-N3	"	3/8"	"	36.2	24.5	26
FE-H3-N2	9.53X6.35	1/4"	19	38.9	25.5	23
FE-H3-N3	"	3/8"	"	40.4	26	26
FE-H3-N4	"	1/2"	"	43.6	30	32.5
FE-H4-N2	12.7X9.53	1/4"	24	47.5	28.5	29
FE-H4-N3	"	3/8"	"	"	29	"
FE-H4-N4	"	1/2"	"	49.3	33	32.5
FE-H6-N4	19.05X15.8	"	32	59.5	37.5	38
FE-H6-N6	"	3/4"	"	61.5	38	42
FE-H8-N6	25.4X22.2	"	41	72	43.5	49
FE-H8-N8	"	1"	"	74.5	47.5	54

### MM TYPE

	T	PT	HEX	(A)	B	W
FE-M6-R1	6X4	1/8"	16	33.2	21	20
FE-M6-R2	"	1/4"	"	34.7	24	23
FE-M6-R3	"	3/8"	"	36.2	24.5	26
FE-M8-R1	8X6	1/8"	19	38.9	21	20
FE-M8-R2	"	1/4"	"	40.4	25.5	23
FE-M8-R3	"	3/8"	"	43.6	26	26
FE-M10-R2	10X8	1/4"	"	38.9	25.5	23
FE-M10-R3	"	3/8"	"	40.4	26	26
FE-M10-R4	"	1/2"	"	43.6	30	32.5
FE-M12-R2	12X10	1/4"	24	47.5	28.5	29
FE-M12-R3	"	3/8"	"	"	29	"
FE-M12-R4	"	1/2"	"	49.3	33	32.5
FE-M19-R4	19X15.8	"	32	59.5	37.5	38
FE-M19-R6	"	3/4"	"	61.5	38	42
FE-M25-R6	25X22	"	41	72	43.5	49
FE-M25-R8	"	1"	"	74.5	47.5	54

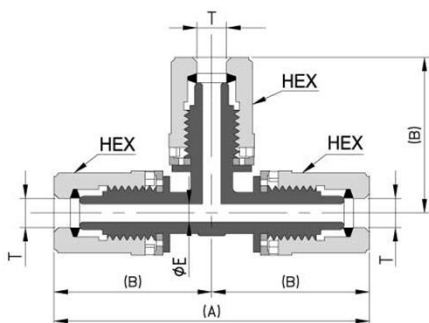
UNIT:MM

Listed sizes are for reference only.

"T" indicates the O.D and I.D of applied tube.

"W" indicates the dimension of the Fitting body width.

## UT Union Tee



### INCH TYPE

	T	HEX	ØE	(A)	(B)	W
UT-H1	3.18X2.18	11	2	49.5	24.8	7.6
UT-H2	6.35X3.95	16	4	67.4	33.7	10
UT-H3	9.53X6.35	19	6.3	79.7	39.9	14
UT-H4	12.7X9.53	24	10	97	48.5	18
UT-H6	19.05X15.8	32	16	122	61	27
UT-H8	25.4X22.2	41	22	146	73	34
UT-H10	31.8X28	50	28	191.4	95.7	42
UT-H12	38.1X33.7	60	33.7	215.8	107.9	50

### MM TYPE

	T	HEX	ØE	(A)	(B)	W
UT-M3	3X2	11	2	49.5	24.8	7.6
UT-M4	4X3	"	3	"	"	"
UT-M6	6X4	16	4	67.4	33.7	10
UT-M8	8X6	19	6.3	79.7	39.9	14
UT-M10	10X8	"	8	"	"	"
UT-M12	12X10	24	10	97	48.5	18
UT-M19	19X15.8	32	16	122	61	27
UT-M25	25X22	41	22	146	73	34

UNIT:MM

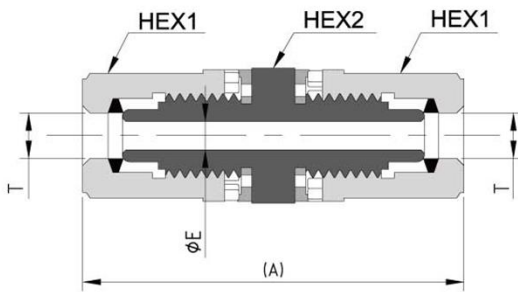
Listed sizes are for reference only.

"T" indicates the O.D and I.D of applied tube.

"W" indicates the dimension of the Fitting body width.

# IMPACT RING TYPE FITTINGS

## U Union



### INCH TYPE

	T	HEX1	HEX2	(A)	øE
U-H1	3.18X2.18	11	13	40.7	2
U-H2	6.35X3.95	16	20	52.4	4
U-H3	9.53X6.35	19	23	60.7	6.3
U-H4	12.7X9.53	24	29	73.3	10
U-H6	19.05X15.8	32	38	88.3	16
U-H8	25.4X22.2	41	49	102.3	22
U-H10	31.8X28	50	60	139.4	28
U-H12	38.1X33.7	60	70	154.1	33.7

### MM TYPE

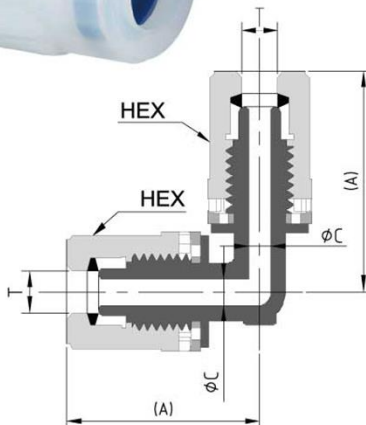
	T	HEX1	HEX2	(A)	øE
U-M3	3X2	11	13	40.7	2
U-M4	4X3	"	"	"	3
U-M6	6x4	16	20	52.4	4
U-M8	8x6	19	23	60.7	6.3
U-M10	10x8	"	"	"	8
U-M12	12X10	24	29	73.3	10
U-M19	19x15.8	32	38	88.3	16
U-M25	25x22	41	49	102.3	22

UNIT:MM

Listed sizes are for reference only.  
"T" indicates the O.D and I.D of applied tube.

IMPACT RING TYPE FITTINGS

## UE Union Elbow



### INCH TYPE

	T	HEX	(A)	øC	W
UE-H1	3.18X2.18	11	24.8	2	7.6
UE-H2	6.35X3.95	16	33.7	4	10
UE-H3	9.53X6.35	19	39.9	6.3	14
UE-H4	12.7X9.53	24	48.5	10	18
UE-H6	19.05X15.8	32	61	16	27
UE-H8	25.4X22.2	41	73	22	34
UE-H10	31.8X28	50	95.7	28	42
UE-H12	38.1X33.7	60	107.9	33.7	50

### MM TYPE

	T	HEX	(A)	øC	W
UE-M3	3X2	11	24.8	2	7.6
UE-M4	4X3	"	"	3	"
UE-M6	6X4	16	33.7	4	10
UE-M8	8X6	19	39.9	6.3	14
UE-M10	10X8	"	"	8	"
UE-M12	12X10	24	48.5	10	18
UE-M19	19X15.8	32	61	16	27
UE-M25	25X22	41	73	22	34

UNIT:MM

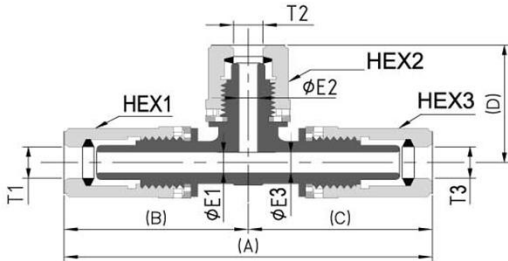
Listed sizes are for reference only.  
"T" indicates the O.D and I.D of applied tube.  
"W" indicates the dimension of the Fitting body width.



# IMPACT RING TYPE FITTINGS

## RUT

### Reducing Union Tee



#### INCH TYPE

	T1	T2	T3	HEX1	HEX2	HEX3	ØE1	ØE2	ØE3	(A)	(B)	(C)	(D)	W
RUT-H1-H2-H1	3.18X2.18	6.35X3.95	3.18X2.18	11	16	11	2	4	2	49.5	24.8	24.8	31.2	7.6
RUT-H2-H1-H2	6.35X3.95	3.18X2.18	6.35X3.95	16	11	16	4	2	4	67.4	33.7	33.7	27.3	10
RUT-H2-H3-H2	"	9.53X6.35	"	"	19	"	"	6.3	"	"	"	"	37.9	"
RUT-H3-H2-H2	9.53X6.35	6.35X3.95	"	19	16	"	6.3	4	"	75.6	39.9	35.7	35.7	14
RUT-H3-H2-H3	"	"	9.53X6.35	"	19	"	"	6.3	6.3	79.7	"	39.9	"	"
RUT-H3-H3-H2	"	9.53X6.35	6.35X3.95	"	19	16	"	6.3	4	75.6	"	35.7	39.9	"
RUT-H3-H4-H3	"	12.7X9.53	9.53X6.35	"	24	19	"	10	6.3	79.7	"	39.9	48	"
RUT-H4-H2-H2	12.7X9.53	6.35X3.95	6.35X3.95	24	16	16	10	4	4	86.7	48.5	38.2	38.2	18
RUT-H4-H2-H4	"	"	12.7X9.53	"	"	24	"	"	10	97	"	48.5	"	"
RUT-H4-H3-H3	"	9.53X6.35	9.53X6.35	"	19	19	"	6.3	6.3	90.9	"	42.4	42.4	"
RUT-H4-H3-H4	"	"	12.7X9.53	"	24	10	"	10	10	97	"	48.5	"	"
RUT-H4-H4-H2	"	12.7X9.53	6.35X3.95	"	24	16	"	10	4	86.7	"	38.2	48.5	"
RUT-H4-H4-H3	"	"	9.53X6.35	"	19	"	"	6.3	6.3	90.9	"	42.4	"	"
RUT-H4-H6-H4	"	19.05X15.8	12.7X9.53	"	32	24	"	16	10	97	"	48.5	58.5	"
RUT-H6-H2-H6	19.05X15.8	6.35X3.95	19.05X15.8	32	16	32	16	4	16	122	61	61	42.7	27
RUT-H6-H3-H6	"	9.53X6.35	"	"	19	"	"	6.3	"	"	"	"	46.9	"
RUT-H6-H4-H4	"	12.7X9.53	12.7X9.53	"	24	24	"	10	10	114	"	53	53	"
RUT-H6-H4-H6	"	"	19.05X15.8	"	"	32	"	"	16	122	"	61	"	"
RUT-H6-H6-H2	"	19.05X15.8	6.35X3.95	"	32	16	"	16	4	103.7	"	42.7	61	"
RUT-H6-H6-H3	"	"	9.53X6.35	"	19	"	"	6.3	6.3	107.8	"	46.9	"	"
RUT-H6-H6-H4	"	"	12.7X9.53	"	24	"	"	10	114	"	53	"	"	"
RUT-H6-H8-H6	"	25.4X22.2	19.05X15.8	"	41	32	"	22	16	122	"	61	70	"
RUT-H8-H2-H8	25.4X22.2	6.35X3.95	25.4X22.2	41	16	41	22	4	22	146	73	73	47.7	34
RUT-H8-H3-H8	"	9.53X6.35	"	"	19	"	"	6.3	"	"	"	"	51.9	"
RUT-H8-H4-H8	"	12.7X9.53	"	"	24	"	"	10	"	"	"	"	58	"
RUT-H8-H6-H6	"	19.05X15.8	19.05X15.8	"	32	32	"	16	16	139	"	66	66	"
RUT-H8-H6-H8	"	"	25.4X22.2	"	"	41	"	"	22	146	"	73	"	"
RUT-H8-H8-H4	"	25.4X22.2	12.7X9.53	"	41	24	"	22	10	131	"	58	73	"
RUT-H8-H8-H6	"	"	19.05X15.8	"	"	32	"	"	16	139	"	66	"	"
RUT-H10-H6-H10	31.8X28	19.05X15.8	31.8X28	50	32	50	28	16	28	191.4	95.7	95.7	72	41.6
RUT-H10-H8-H10	"	25.4X22.2	"	"	41	"	"	22	"	"	"	"	79	"
RUT-H12-H6-H12	38.1X33.7	19.05X15.8	38.1X33.7	60	32	60	33.7	16	33.7	215.8	107.9	107.9	76.8	49.6
RUT-H12-H8-H12	"	25.4X22.2	"	"	41	"	"	22	"	"	"	"	83.9	"
RUT-H12-H10-H12	"	31.8X28	"	"	50	"	"	28	"	"	"	"	100.5	"

#### MM TYPE

	T1	T2	T3	HEX1	HEX2	HEX3	ØE1	ØE2	ØE3	(A)	(B)	(C)	(D)	W
RUT-M3-M6-M3	3X2	6X4	3X2	11	16	11	2	4	2	49.5	24.8	24.8	31.2	7.6
RUT-M6-M3-M6	6X4	3X2	6X4	16	11	16	4	2	4	67.4	33.7	33.7	27.3	10
RUT-M6-M4-M6	"	4X3	"	"	"	"	"	3	"	"	"	"	"	"
RUT-M6-M8-M6	"	8X6	"	"	19	"	"	6.3	"	"	"	"	37.9	"
RUT-M8-M6-M6	8X6	6X4	"	19	16	"	6.3	4	"	75.6	39.9	35.7	35.7	14
RUT-M8-M6-M8	"	"	8X6	"	"	19	"	6.3	6.3	79.7	"	39.9	"	"
RUT-M8-M8-M6	"	8X6	6X4	"	19	16	"	6.3	4	75.6	"	35.7	39.9	"
RUT-M8-M12-M8	"	12X10	8X6	"	24	19	"	10	6.3	79.7	"	39.9	48	"
RUT-M10-M6-M10	10X8	6X4	10X8	"	16	"	8	4	8	"	"	"	35.7	"
RUT-M10-M8-M10	"	8X6	"	"	19	"	"	6.3	"	"	"	"	39.9	"
RUT-M12-M6-M6	12X10	6X4	6X4	24	16	16	10	4	4	86.7	48.5	38.2	38.2	18
RUT-M12-M6-M12	"	"	12X10	"	"	24	"	"	10	97	"	48.5	"	"
RUT-M12-M8-M8	"	8X6	8X6	"	19	19	"	6.3	6.3	90.9	"	42.4	42.4	"
RUT-M12-M8-M12	"	"	12X10	"	"	24	"	"	10	97	"	48.5	"	"
RUT-M12-M10-M12	"	10X8	"	"	"	"	8	"	"	"	"	"	"	"
RUT-M12-M12-M6	"	12X10	6X4	"	24	16	"	10	4	86.7	"	38.2	48.5	"
RUT-M12-M12-M8	"	"	8X6	"	"	19	"	"	6.3	90.9	"	42.4	"	"
RUT-M12-M19-M12	"	19X15.8	12X10	"	32	24	"	16	10	97	"	48.5	58.5	"
RUT-M19-M6-M19	19X15.8	6X4	19X15.8	32	16	32	16	4	16	122	61	61	42.7	27
RUT-M19-M10-M19	"	10X8	"	"	19	"	"	8	"	"	"	"	46.9	"
RUT-M19-M12-M12	"	12X10	12X10	"	24	24	"	10	10	114	"	53	53	"
RUT-M19-M12-M19	"	"	19X15.8	"	"	32	"	"	16	122	"	61	"	"
RUT-M19-M19-M6	"	19X15.8	6X4	"	32	16	"	16	4	103.7	"	42.7	61	"
RUT-M19-M19-M8	"	"	8X6	"	"	19	"	"	6.3	107.8	"	46.9	"	"
RUT-M19-M19-M10	"	"	10X8	"	"	"	"	"	8	"	"	"	"	"
RUT-M19-M19-M12	"	"	12X10	"	"	24	"	"	10	114	"	53	"	"
RUT-M19-M25-M19	"	25X22	19X15.8	"	41	32	"	22	16	122	"	61	70	"
RUT-M25-M6-M25	25X22	6X4	25X22	41	16	41	22	4	22	146	73	73	47.7	34
RUT-M25-M8-M25	"	8X6	"	"	19	"	"	6.3	"	"	"	"	51.9	"
RUT-M25-M12-M25	"	12X10	"	"	24	"	"	10	"	"	"	"	58	"
RUT-M25-M19-M19	"	19X15.8	19X15.8	"	32	32	"	16	16	139	"	66	66	"
RUT-M25-M19-M25	"	"	25X22	"	"	41	"	"	22	146	"	73	"	"
RUT-M25-M25-M12	"	25X22	12X10	"	41	24	"	22	10	131	"	58	73	"
RUT-M25-M25-M19	"	"	19X15.8	"	"	32	"	"	16	139	"	66	"	"

Listed sizes are for reference only.

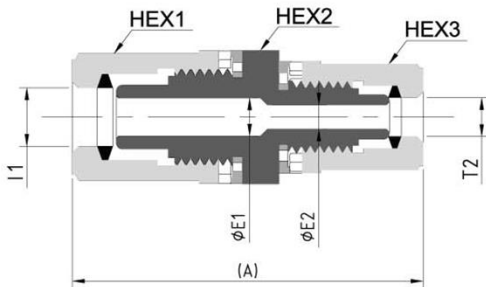
"T1" and "T2" indicates the O.D and I.D of applied tube.

"W" indicates the dimension of the Fitting body width.

UNIT:MM

# IMPACT RING TYPE FITTINGS

## RU Reducing Union



### INCH TYPE

	T1	T2	HEX1	HEX2	HEX3	(A)	ØE1	ØE2
RU-H2-H1	6.35X3.95	3.18X2.18	16	20	11	46.5	4	2
RU-H3-H2	9.53X6.35	6.35X3.95	19	23	16	56.6	6.3	4
RU-H4-H2	12.7X9.53	"	24	29	"	63.5	10	"
RU-H4-H3	"	9.53X6.35	"	"	19	67.7	"	6.3
RU-H6-H2	19.05X15.8	6.35X3.95	32	38	16	71	16	4
RU-H6-H3	"	9.53X6.35	"	"	19	75.1	"	6.3
RU-H6-H4	"	12.7X9.53	"	"	24	80.8	"	10
RU-H8-H4	25.4X22.2	"	41	49	"	87.8	22	"
RU-H8-H6	"	19.05X15.8	"	"	32	95.3	"	16
RU-H10-H6	31.8X28	"	50	60	"	116.2	28	"
RU-H10-H8	"	25.4X22.2	"	"	41	123.2	"	22
RU-H12-H6	38.1X33.7	19.05X15.8	60	70	32	123.5	33.7	16
RU-H12-H8	"	25.4X22.2	"	"	41	130.5	"	22
RU-H12-H10	"	31.8X28	"	"	50	146.7	"	28

### MM TYPE

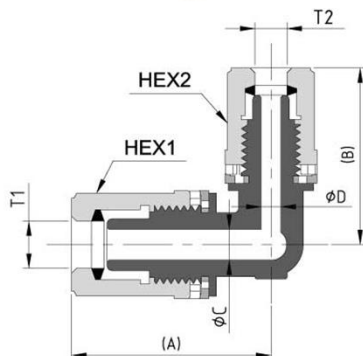
	T1	T2	HEX1	HEX2	HEX3	(A)	ØE1	ØE2
RU-M6-M3	6x4	3X2	16	20	11	46.5	4	2
RU-M6-M4	"	4X3	"	"	"	"	"	3
RU-M8-M6	8x6	6x4	19	23	16	56.6	6.3	4
RU-M10-M6	10x8	"	"	"	"	"	8	"
RU-M10-M8	"	8x6	"	"	19	60.7	"	6.3
RU-M12-M6	12x10	6x4	24	29	16	63.5	10	4
RU-M12-M8	"	8x6	"	"	19	67.7	"	6.3
RU-M12-M10	"	10x8	"	"	"	"	"	8
RU-M19-M6	19x15.8	6X4	32	38	16	71	16	4
RU-M19-M10	"	10x8	"	"	19	75.1	"	8
RU-M19-M12	"	12x10	"	"	24	80.8	"	10
RU-M25-M12	25x22	"	41	49	"	87.8	22	"
RU-M25-M19	"	19x15.8	"	"	32	95.3	"	16

UNIT:MM

Listed sizes are for reference only.

"T1" and "T2" indicates the O.D and I.D of applied tube.

## RUE Reducing Union Elbow



### INCH TYPE

	T1	T2	HEX1	HEX2	(A)	(B)	ØC	ØD	W
RUE-H2-H1	6.35X3.95	3.18X2.18	16	11	33.7	27.3	4	2	10
RUE-H3-H2	9.53X6.35	6.35X3.95	19	16	39.9	35.7	6.3	4	14
RUE-H4-H2	12.7X9.53	"	24	"	48.5	38.2	10	"	18
RUE-H4-H3	"	9.53X6.35	"	19	"	42.4	"	6.3	"
RUE-H6-H3	19.05X15.8	"	32	"	61	46.9	16	"	27
RUE-H6-H4	"	12.7X9.53	"	24	"	53	"	10	"
RUE-H8-H4	25.4X22.2	"	41	"	73	58	22	"	34
RUE-H8-H6	"	19.05X15.8	"	32	"	66	"	16	"
RUE-H10-H6	31.8X28	"	50	"	95.7	72	28	"	42
RUE-H10-H8	"	25.4X22.2	"	41	"	79	"	22	"
RUE-H12-H6	38.1X33.7	19.05X15.8	60	32	107.9	76.8	33.7	16	50
RUE-H12-H8	"	25.4X22.2	"	41	"	83.9	"	22	"
RUE-H12-H10	"	31.8X28	"	50	"	100.5	"	28	"

### MM TYPE

	T1	T2	HEX1	HEX2	(A)	(B)	ØC	ØD	W
RUE-M6-M3	6X4	3X2	16	11	33.7	27.3	4	2	10
RUE-M6-M4	"	4X3	"	"	"	"	"	3	"
RUE-M8-M6	8X6	6X4	19	16	39.9	35.7	6.3	4	14
RUE-M10-M6	10X8	"	"	"	"	"	8	"	"
RUE-M10-M8	"	8X6	"	19	"	39.9	"	6.3	"
RUE-M12-M6	12X10	6X4	24	16	48.5	38.2	10	4	18
RUE-M12-M8	"	8X6	"	19	"	42.4	"	6.3	"
RUE-M12-M10	"	10X8	"	"	"	"	"	8	"
RUE-M19-M10	19X15.8	"	32	"	61	46.9	16	"	27
RUE-M19-M12	"	12X10	"	24	"	53	"	10	"
RUE-M25-M12	25X22	"	41	"	73	58	22	"	34
RUE-M25-M19	"	19X15.8	"	32	"	66	"	16	"

UNIT:MM

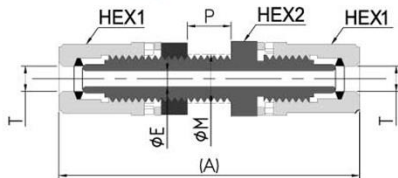
Listed sizes are for reference only.

"T1" and "T2" indicates the O.D and I.D of applied tube.

"W" indicates the dimension of the Fitting body width.

# IMPACT RING TYPE FITTINGS

## PMU Panel Mount Union



### INCH TYPE

	T	ØM	P	HEX1	HEX2	(A)	ØE
PMU-H1	3.18X2.18	8.5	10	11	13	55.5	2
PMU-H2	6.35X3.95	12.5	"	16	20	68.4	4
PMU-H3	9.53X6.35	18.5	"	19	23	76.7	6.3
PMU-H4	12.7X9.53	22.5	"	24	29	90.6	10
PMU-H6	19.05X15.8	31	"	32	38	105.6	16
PMU-H8	25.4X22.2	41	"	41	49	119.6	22

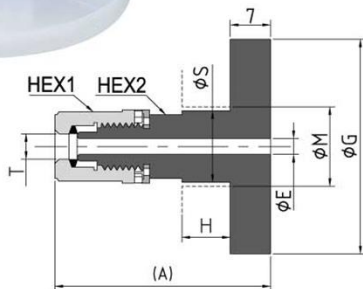
### MM TYPE

	T	ØM	P	HEX1	HEX2	(A)	ØE
PMU-M3	3X2	8.5	10	11	13	55.5	2
PMU-M4	4X3	"	"	"	"	"	3
PMU-M6	6X4	12.5	"	16	20	68.4	4
PMU-M8	8X6	18.5	"	19	23	76.7	6.3
PMU-M10	10X8	"	"	"	"	"	8
PMU-M12	12X10	22.5	"	24	29	90.6	10
PMU-M19	19X15.8	31	"	32	38	105.6	16
PMU-M25	25X22	41	"	41	49	119.6	22

UNIT:MM

Listed sizes are for reference only.  
"P" indicates the maximum thickness of the panel.  
"M" indicates the diameter of panel mount hole size.  
"T" indicates the O.D and I.D of applied tube.

## UF Union Flange



### INCH TYPE

	T	Flange	HEX1	HEX2	H	(A)	ØE	ØG	ØS	ØM
UF-H2-15/20A	6.35X3.95	10K-15/20A	16	20	14	50.2	4	54	22	23
UF-H3-15/20A	9.53X6.35	"	19	23	"	54.4	6.3	"	25	26
UF-H3-25/32A	"	10K-25/32A	"	"	"	"	"	70	"	"
UF-H4-15/20A	12.7X9.53	10K-15/20A	24	29	"	61.3	10	54	31.5	32.5
UF-H4-25/32A	"	10K-25/32A	"	"	"	"	"	70	"	"
UF-H6-15/20A	19.05X15.8	10K-15/20A	32	38	16	70.8	16	54	41	42
UF-H6-25/32A	"	10K-25/32A	"	"	"	"	"	70	"	"
UF-H8-25/32A	25.4X22.2	10K-25/32A	41	49	"	77.8	22	"	53	54
UF-H10-40/50A	31.8X28	10K-40/50A	50	60	"	101.7	28	85	65	66
UF-H12-40/50A	38.1X33.7	"	60	64	"	109	33.7	"	68	69

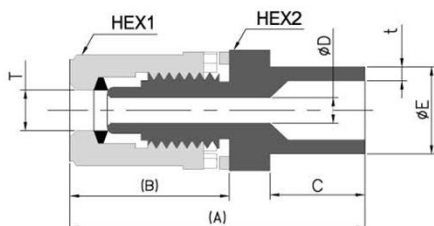
### MM TYPE

	T	Flange	HEX1	HEX2	H	(A)	ØE	ØG	ØS	ØM
UF-M6-15/20A	6X4	10K-15/20A	16	20	14	50.2	4	54	22	23
UF-M8-15/20A	8X6	10K-15/20A	19	23	"	54.4	6.3	"	25	26
UF-M8-25/32A	"	10K-25/32A	"	"	"	"	"	70	"	"
UF-M10-15/20A	10X8	10K-15/20A	"	"	"	"	8	54	"	"
UF-M10-25/32A	"	10K-25/32A	"	"	"	"	"	70	"	"
UF-M12-15/20A	12X10	10K-15/20A	24	29	"	61.3	10	54	31.5	32.5
UF-M12-25/32A	"	10K-25/32A	"	"	"	"	"	70	"	"
UF-M19-15/20A	19X15.8	10K-15/20A	32	38	16	70.8	16	54	41	42
UF-M19-25/32A	"	10K-25/32A	"	"	"	"	"	70	"	"
UF-M25-25/32A	25X22	10K-25/32A	41	49	"	77.8	22	"	53	54

UNIT:MM

Listed sizes are for reference only.  
"T" indicates the O.D and I.D of applied tube.  
The Flange type is JIS 10K.

## UA (Pipe welding type) UNION ADAPTOR



### INCH TYPE

	T	HEX1	HEX2	(A)	(B)	C	ØD	ØE	t
UA-H2-B2	6.35X3.95	16	20	43.2	23.2	14	4	13.7	2.2
UA-H2-B4	"	"	"	68.2	"	39	"	21.3	2.8
UA-H3-B2	9.53X6.35	19	23	47.4	27.4	14	6.3	13.7	2.2
UA-H3-B4	"	"	"	72.4	"	39	"	21.3	2.8
UA-H3-B6	"	"	"	"	"	"	"	26.7	2.9
UA-H4-B2	12.7X9.53	24	29	54.3	33	14	10	13.7	2.2
UA-H4-B4	"	"	"	79.3	"	39	"	21.3	2.8
UA-H4-B6	"	"	"	"	"	"	"	26.7	2.9
UA-H4-B8	"	"	"	"	"	"	"	33.4	3.4
UA-H6-B4	19.05X15.8	32	38	86.8	40.5	"	16	21.3	2.8
UA-H6-B6	"	"	"	"	"	"	"	26.7	2.9
UA-H6-B8	"	"	"	"	"	"	"	33.4	3.4
UA-H8-B6	25.4X22.2	41	49	93.8	47.5	"	22	26.7	2.9
UA-H8-B8	"	"	"	"	"	"	"	33.4	3.4

### MM TYPE

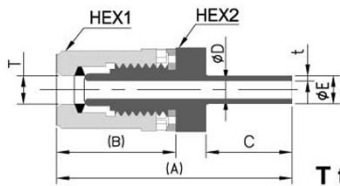
	T	HEX1	HEX2	(A)	(B)	C	ØD	ØE	t
UA-M6-B2	6X4	16	20	43.2	23.2	14	4	13.7	2.2
UA-M6-B4	"	"	"	68.2	"	39	"	21.3	2.8
UA-M10-B2	10X8	19	23	47.4	27.4	14	8	13.7	2.2
UA-M10-B4	"	"	"	72.4	"	39	"	21.3	2.9
UA-M10-B6	"	"	"	"	"	"	"	26.7	2.8
UA-M12-B2	12X10	24	29	54.3	33	14	10	13.7	2.2
UA-M12-B4	"	"	"	79.3	"	39	"	21.3	2.8
UA-M12-B6	"	"	"	"	"	"	"	26.7	2.9
UA-M12-B8	"	"	"	"	"	"	"	33.4	3.4
UA-M19-B4	19X15.8	32	38	86.8	40.5	"	16	21.3	2.8
UA-M19-B6	"	"	"	"	"	"	"	26.7	2.9
UA-M19-B8	"	"	"	"	"	"	"	33.4	3.4
UA-M25-B6	25X22	41	49	93.8	47.5	"	22	26.7	2.9
UA-M25-B8	"	"	"	"	"	"	"	33.4	3.4

UNIT:MM

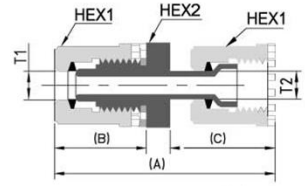
Listed sizes are for reference only.  
"T" indicates the O.D and I.D of applied tube.  
Customized product accepted.

# IMPACT RING TYPE FITTINGS

## UA UNION ADAPTOR (Pipe welding type)



T type



S type

### INCH TYPE

	T	HEX1	HEX2	(A)	(B)	C	ØD	ØE	t
UA-H2-TH2	6.35X3.95	16	20	46.2	23.2	17	4	6.35	1.2
UA-H3-TH3	9.53X6.35	19	23	54.4	27.4	21	6.3	9.53	1.6
UA-H4-TH4	12.7X9.53	24	29	65.3	33	25	10	12.7	1.6
UA-H6-TH6	19.05X15.8	32	38	78.8	40.5	31	16	19.05	1.6
UA-H8-TH8	25.4X22.2	41	49	92.8	47.5	38	22	25.4	1.6

### MM TYPE

	T	HEX1	HEX2	(A)	(B)	C	ØD	ØE	t
UA-M6-TH2	6X4	16	20	46.2	23.2	17	4	6.35	1.2
UA-M8-TH3	8X6	19	23	54.4	27.4	21	6.3	9.53	1.6
UA-M12-TH4	12X10	24	29	65.3	33	25	10	12.7	1.6
UA-M19-TH6	19X15.8	32	38	78.8	40.5	31	16	19.05	1.6
UA-M25-TH8	25X22	41	49	92.8	47.5	38	22	25.4	1.6

UNIT:MM

Listed sizes are for reference only.

"T1" and "T2" indicates the O.D and I.D of applied tube.

### INCH TYPE

	T1	T2	HEX1	HEX2	(A)	(B)	(C)
UA-H2-TH2S	6.35X3.95	M6,H2	16	20	57.6	23.2	28.4
UA-H3-TH3S	9.53X6.35	M8,H3	19	23	64.6	27.4	31.2
UA-H4-TH4S	12.7X9.53	M12,H4	24	29	79.3	33	39
UA-H6-TH6S	19.05X15.8	M19,H6	32	38	94.8	40.5	47
UA-H8-TH8S	25.4X22	M25,H8	41	49	115.5	47.5	60.7

### MM TYPE

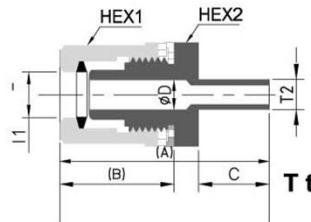
	T1	T2	HEX1	HEX2	(A)	(B)	(C)
UA-M6-TH2S	6X4	M6,H2	16	20	57.6	23.2	28.4
UA-M8-TH3S	8X6	M8,H3	19	23	64.6	27.4	31.2
UA-M12-TH4S	12X10	M12,H4	24	29	79.3	33	39
UA-M19-TH6S	19X15.8	M19,H6	32	38	94.8	40.5	47
UA-M25-TH8S	25X22	M25,H8	41	49	115.5	47.5	60.7

UNIT:MM

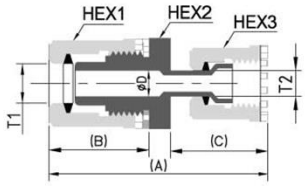
Listed sizes are for reference only.

"T1" and "T2" indicates the O.D and I.D of applied tube.

## RUA REDUCING UNION ADAPTOR ( S type )



T type



S type

### INCH TYPE

	T1	T2	HEX1	HEX2	(A)	(B)	C	ØD
RUA-H2-TH3	6.35x3.95	9.53X6.35	16	20	50.2	23.2	21	4
RUA-H2-TH4	"	12.7X9.53	"	"	54.2	"	25	"
RUA-H2-TH6	"	19.05X15.8	"	"	60.2	"	31	"
RUA-H3-TH2	9.53X6.35	9.53X6.35	19	23	50.4	27.4	17	6.3
RUA-H3-TH4	"	12.7X9.53	"	"	58.4	"	25	"
RUA-H3-TH6	"	19.05X15.8	"	"	64.4	"	31	"
RUA-H4-TH3	12.7X9.53	9.53X6.35	24	29	61.3	33	21	10
RUA-H4-TH6	"	19.05X15.8	"	"	71.3	"	31	"
RUA-H4-TH8	"	25.4X22.2	"	"	78.3	"	38	"
RUA-H6-TH3	19.05X15.8	9.53X6.35	32	38	68.8	40.5	21	16
RUA-H6-TH4	"	12.7X9.53	"	"	72.8	"	25	"
RUA-H6-TH6	"	25.4X22.2	"	"	85.8	"	38	"
RUA-H8-TH6	25.4X22.2	19.05X15.8	41	49	85.8	47.5	31	22

### MM TYPE

	T1	T2	HEX1	HEX2	(A)	(B)	C	ØD
RUA-M6-TH3	6X4	9.53X6.35	16	20	50.2	23.2	21	4
RUA-M6-TH4	"	12.7X9.53	"	"	54.2	"	25	"
RUA-M6-TH6	"	19.05X15.8	"	"	60.2	"	31	"
RUA-M8-TH2	8X6	6.35X3.95	19	23	50.4	27.4	17	6.3
RUA-M8-TH4	"	12.7X9.53	"	"	58.4	"	25	"
RUA-M8-TH6	"	19.05X15.8	"	"	64.4	"	31	"
RUA-M12-TH3	12X10	9.53X6.35	24	29	61.3	33	21	10
RUA-M12-TH6	"	19.05X15.8	"	"	71.3	"	31	"
RUA-M12-TH8	"	25.4X22.2	"	"	78.3	"	38	"
RUA-M19-TH3	19X15.8	9.53X6.35	32	38	68.8	40.5	21	16
RUA-M19-TH4	"	12.7X9.53	"	"	72.8	"	25	"
RUA-M19-TH6	"	25.4X22.2	"	"	85.8	"	38	"
RUA-M25-TH6	25X22	19.05X15.8	41	49	85.8	47.5	31	22

UNIT:MM

Listed sizes are for reference only.

"T1" and "T2" indicates the O.D and I.D of applied tube.

### INCH TYPE

	T1	T2	HEX1	HEX2	HEX3	(A)	(B)	(C)	ØD
RUA-H2-TH3S	6.35x3.95	M8,H3	16	20	19	60.4	23.2	31.2	4
RUA-H2-TH4S	"	M12,H4	"	"	24	68.2	"	39	"
RUA-H2-TH6S	"	M19,H6	"	"	32	76.2	"	47	"
RUA-H3-TH2S	9.53X6.35	M6,H2	19	23	16	61.8	27.4	28.4	6.3
RUA-H3-TH4S	"	M12,H4	"	"	24	72.4	"	39	"
RUA-H3-TH6S	"	M19,H6	"	"	32	80.4	"	47	"
RUA-H4-TH3S	12.7X9.53	M8,H3	24	29	19	71.5	33	31.2	10
RUA-H4-TH6S	"	M19,H6	"	"	32	87.3	"	47	"
RUA-H4-TH8S	"	M25,H8	"	"	41	101	"	60.7	"
RUA-H6-TH3S	19.05X15.8	M8,H3	32	38	19	79	40.5	31.2	16
RUA-H6-TH4S	"	M12,H4	"	"	24	86.8	"	39	"
RUA-H6-TH8S	"	M25,H8	"	"	41	108.5	"	60.7	"
RUA-H8-TH6S	25.4X22.2	M19,H6	41	49	32	101.8	47.5	47	22

### MM TYPE

	T1	T2	HEX1	HEX2	HEX3	(A)	(B)	(C)	ØD
RUA-M6-TH3S	6X4	M8,H3	16	20	19	60.4	23.2	31.2	4
RUA-M6-TH4S	"	M12,H4	"	"	24	68.2	"	39	"
RUA-M6-TH6S	"	M19,H6	"	"	32	76.2	"	47	"
RUA-M8-TH2S	8X6	M6,H2	19	23	16	61.8	27.7	28.4	6.3
RUA-M8-TH4S	"	M12,H4	"	"	24	72.4	"	39	"
RUA-M8-TH6S	"	M19,H6	"	"	32	80.4	"	47	"
RUA-M12-TH3S	12X10	M8,H3	24	29	19	71.5	33	31.2	10
RUA-M12-TH6S	"	M19,H6	"	"	32	87.3	"	47	"
RUA-M12-TH8S	"	M25,H8	"	"	41	101	"	60.7	"
RUA-M19-TH3S	19X15.8	M8,H3	32	38	19	79	41	31.2	16
RUA-M19-TH4S	"	M12,H4	"	"	24	86.8	"	39	"
RUA-M19-TH8S	"	M25,H8	"	"	41	108.5	"	60.7	"
RUA-M25-TH6S	25X22	M19,H6	41	49	32	101.8	48	47	22

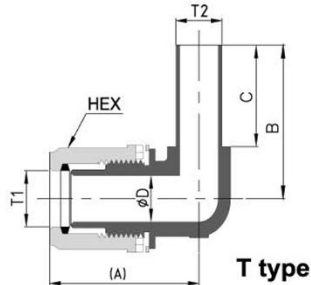
UNIT:MM

Listed sizes are for reference only.

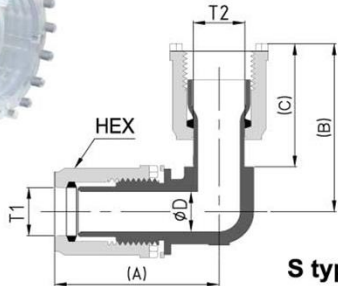
"T1" and "T2" indicates the O.D and I.D of applied tube.

# IMPACT RING TYPE FITTINGS

## UEA Union Elbow Adapter ( S type )



**T type**



**S type**

### INCH TYPE ( T type )

	T1	T2	HEX	(A)	B	C	ØD	W
UEA-H2-TH2	6.35X3.95	6.35X3.95	16	33.7	26	17	4	10
UEA-H3-TH3	9.53X6.35	9.53X6.35	19	39.9	32	21	6.3	14
UEA-H4-TH4	12.7X9.53	12.7X9.53	24	48.5	38.5	25	10	18
UEA-H6-TH6	19.05X15.8	19.05X15.8	32	61	49	31	16	27
UEA-H8-TH8	25.4X22.2	25.4X22.2	41	73	61	38	22	34

### MM TYPE

	T1	T2	HEX	(A)	B	C	ØD	W
UEA-M6-TH2	6X4	6.35X3.95	16	33.7	26	17	4	10
UEA-M8-TH3	8X6	9.53X6.35	19	39.9	32	21	6.3	14
UEA-M10-TH3	10X8	"	"	"	"	"	8	"
UEA-M12-TH4	12X10	12.7X9.5	24	48.5	38.5	25	10	18
UEA-M19-TH6	19X15.8	19X15.8	32	61	49	31	16	27
UEA-M25-TH8	25X22	25.4X22.2	41	73	61	38	22	34

UNIT:MM

Listed sizes are for reference only.

"T1" indicates the O.D and I.D of applied tube.

### INCH TYPE ( S type )

	T1	T2	HEX	(A)	(B)	(C)	ØD	W
UEA-H2-TH2S	6.35X3.95	M6·H2	16	33.7	37.4	28.4	4	10
UEA-H3-TH3S	9.53X6.35	M8·H3	19	39.9	42.2	31.2	6.3	14
UEA-H4-TH4S	12.7X9.53	M12·H4	24	48.5	52.5	39	10	18
UEA-H6-TH6S	19.05X15.8	M19·H6	32	61	65	47	16	27
UEA-H8-TH8S	25.4X22.2	M25·H8	41	73	83.7	60.7	22	34

### MM TYPE

	T1	T2	HEX	(A)	(B)	(C)	ØD	W
UEA-M6-TH2S	6X4	M6·H2	16	33.7	37.4	28.4	4	10
UEA-M8-TH3S	8X6	M8·H3	19	39.9	42.2	31.2	6.3	14
UEA-M10-TH3S	10X8	"	"	"	"	"	8	"
UEA-M12-TH4S	12X10	M12·H4	24	48.5	52.5	39	10	18
UEA-M19-TH6S	19X15.8	M19·H6	32	61	65	47	16	27
UEA-M25-TH8S	25X22	M25·H8	41	73	83.7	60.7	22	34

UNIT:MM

Listed sizes are for reference only.

"T1" indicates the O.D and I.D of applied tube.

"T2" indicates the size (Code) of applied Fitting body.

"W" indicates the dimension of the Fitting body width.

Due to flare design, the dimensions of "B" and "C" are for reference only.

## RUEA REDUCING UNION ADAPTOR ( S type )



### INCH TYPE ( T type )

	T1	T2	HEX	(A)	B	C	ØD	W
RUEA-H2-TH4	6.35X3.95	12.7X9.53	16	38.2	38.5	25	4	18
RUEA-H6-TH8	19.05X15.8	25.4X22.2	32	66	61	38	16	34
RUEA-H8-TH6	25.4X22.2	19.05X15.8	41	73	54	31	22	"

### MM TYPE

	T1	T2	HEX	(A)	B	C	ØD	W
RUEA-M6-TH4	6X4	12.7X9.53	16	38.2	38.5	25	4	18
RUEA-M19-TH8	19X15.8	25.4X22.2	32	66	61	38	16	34
RUEA-M25-TH6	25X22	19.05X15.8	41	73	54	31	22	"

### INCH TYPE ( S type )

	T1	T2	HEX	(A)	(B)	(C)	ØD	W
RUEA-H2-TH4S	6.35X3.95	M12·H4	16	38.2	52.5	39	4	18
RUEA-H6-TH8S	19.05X15.8	M25·H8	32	66	83.7	60.7	16	34
RUEA-H8-TH6S	25.4X22.2	M19·H6	41	73	70	47	22	"

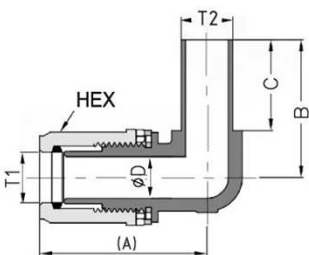
### MM TYPE

	T1	T2	HEX	(A)	(B)	(C)	ØD	W
RUEA-M6-TH4S	6X4	M12·H4	16	38.2	52.5	39	4	18
RUEA-M19-TH8S	19X15.8	M25·H8	32	66	83.7	60.7	16	34
RUEA-M25-TH6S	25X22	M19·H6	41	73	70	47	22	"

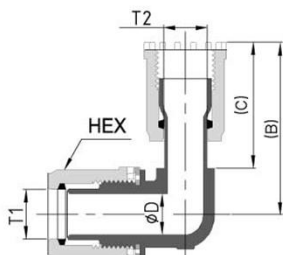
UNIT:MM

Listed sizes are for reference only.

"T1" & "T2" indicates the O.D and I.D of applied tube.



**T type**



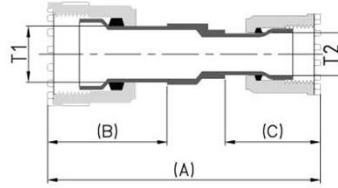
**S type**

# IMPACT RING TYPE FITTINGS

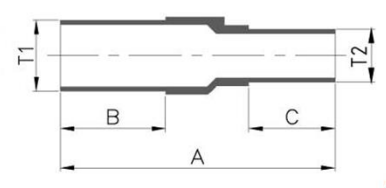
## RA REDUCING ADAPTOR



Flare type



Weld type



INCH TYPE (Flare type)

	T1	T2	(A)	(B)	(C)
RA-TH10S-TH6S	H10	M19,H6	152.5	75.4	47
RA-TH10S-TH8S	"	M25,H8	166.2	"	60.7
RA-TH12S-TH6S	H12	M19,H6	164.5	87.4	47
RA-TH12S-TH8S	"	M25,H8	178.2	"	60.7
RA-TH12S-TH10S	"	H10	192.9	"	75.4

INCH TYPE (Weld type)

	T1	T2	A	B	C
RA-TH10-TH6	31.8X28	19.05X15.8	111.1	50	31
RA-TH10-TH8	"	25.4X22.2	118.1	"	38
RA-TH12-TH6	38.1X33.7	19.05X15.8	119.1	58	31
RA-TH12-TH8	"	25.4X22.2	126.1	"	38
RA-TH12-TH10	"	31.8X28	138.1	"	50

UNIT:MM

Listed sizes are for reference only.

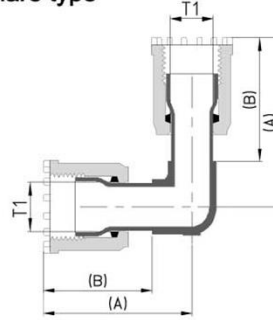
"T1" & "T2" indicates the O.D and I.D of applied tube.

IMPACT RING TYPE FITTINGS

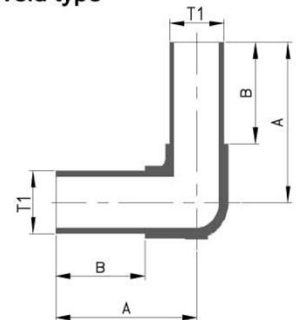
## EA ELBOW ADAPTOR



Flare type



Weld type



INCH TYPE (Flare type)

	T1	(A)	(B)	W
EA-TH6S	M19,H6	65	47	23
EA-TH8S	M25,H8	83.7	60.7	29
EA-TH10S	H10	104.4	75.4	36.6
EA-TH12S	H12	121.3	87.5	42.6

INCH TYPE (Weld type)

	T1	A	B	W
EA-TH6	19.05X15.8	49	31	23
EA-TH8	25.4X22.2	61	38	29
EA-TH10	31.8X28	79	50	36.6
EA-TH12	38.1X33.7	91.9	58	42.6

UNIT:MM

Listed sizes are for reference only.

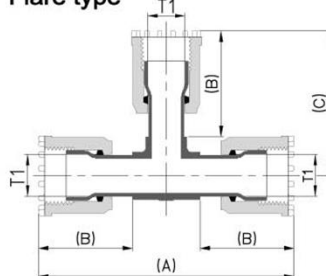
"T1" indicates the O.D and I.D of applied tube.

"W" indicates the dimension of the Fitting body width.

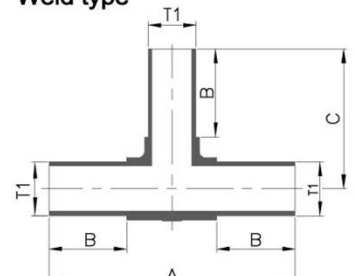
## TA TEE ADAPTOR



Flare type



Weld type



INCH TYPE (Flare type)

	T1	(A)	(B)	(C)	W
TA-TH6S	M19,H6	130	47	65	23
TA-TH8S	M25,H8	167.4	60.7	83.7	29
TA-TH10S	H10	208.8	75.4	104.4	36.6
TA-TH12S	H12	242.6	87.4	121.3	42.6

INCH TYPE (Weld type)

	T1	A	B	C	W
TA-TH6	19.05X15.8	98	31	49	23
TA-TH8	25.4X22.2	122	38	61	29
TA-TH10	31.8X28	158	50	79	36.6
TA-TH12	38.1X33.7	183.7	58	91.8	42.6

UNIT:MM

Listed sizes are for reference only.

"T1" indicates the O.D and I.D of applied tube.

"W" indicates the dimension of the Fitting body width.

# IMPACT RING TYPE FITTINGS

## RTA REDUCING TEE ADAPTOR



INCH TYPE (Flare type)

	T1	T2	(A)	(B)	(C)	(D)	W
RTA-TH8S-TH6S-TH8S	M25,H8	M19,H6	167.4	60.7	47	70	29
RTA-TH10S-TH8S-TH10S	H10	M25,H8	208.8	75.4	60.7	89.7	36.6

INCH TYPE (Weld type)

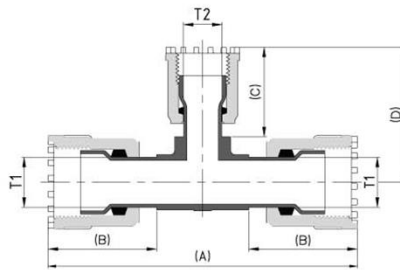
	T1	T2	A	B	C	D	W
RTA-TH8-TH6-TH8	25.4X22.2	19.05X15.8	122	38	31	54	29
RTA-TH10-TH8-TH10	31.8X28	25.4X22.2	158	50	38	67	36.6

UNIT:MM

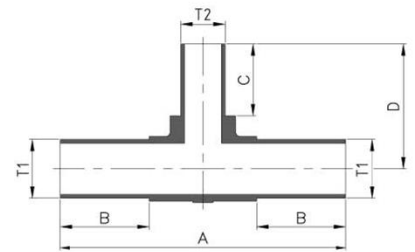
Listed sizes are for reference only.

T1 and T2 indicates the O.D and I.D of applied tube.

"W" indicates the dimension of the Fitting body width.



Flare type



Weld type

## RUTA REDUCING UNION TEE ADAPTOR



INCH TYPE (T type)

	T1	T2	T3	HEX1	HEX2	(A)	(B)	(C)	(D)	(E)
RUTA-H3-H4-TH4	9.53X6.35	12.7X9.53	12.7X9.53	19	24	80.9	42.4	38.5	25	48.3
RUTA-H3-H2-TH3	9.53X6.35	6.35X3.95	9.53X6.35	19	16	71.9	39.9	32	21	35.7

MM TYPE

	T1	T2	T3	HEX1	HEX2	(A)	(B)	(C)	(D)	(E)
RUTA-M8-M12-TH4	8x6	12x10	12.7X9.53	19	24	80.9	42.4	38.5	25	48.5
RUTA-M8-M6-TH3	8x6	6x4	9.53X6.35	19	16	71.9	39.9	32	21	35.7

UNIT:MM

INCH TYPE (S type)

	T1	T2	T3	HEX1	HEX2	HEX3	(A)	(B)	(C)	(D)
RUTA-H3-H4-TH4S	9.53X6.35	12.7X9.53	M12,H4	19	24	24	94.9	42.4	52.5	48.5
RUTA-H3-H2-TH3S	9.53X6.35	6.35X3.95	M8,H3	19	16	19	82.1	39.9	42.2	35.7

MM TYPE

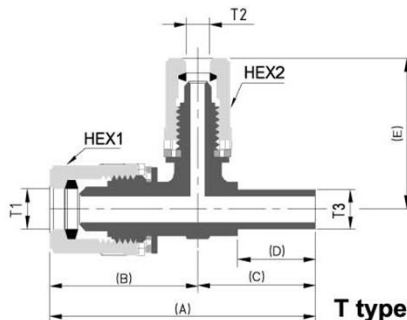
	T1	T2	T3	HEX1	HEX2	HEX3	(A)	(B)	(C)	(D)
RUTA-M8-M12-TH4S	8x6	12x10	M12,H4	19	24	24	94.9	42.4	52.5	48.5
RUTA-M8-M6-TH3S	8x6	6x4	M8,H3	19	16	19	82.1	39.9	42.2	35.7

UNIT:MM

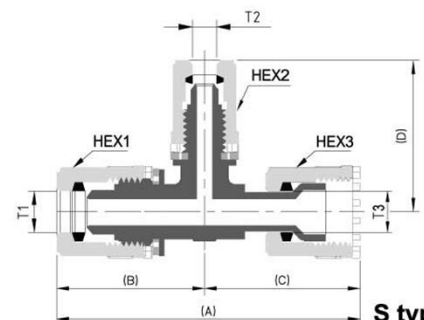
Listed sizes are for reference only.

T1, T2 and T3 indicates the O.D and I.D of applied tube.

Customized product accepted.



T type

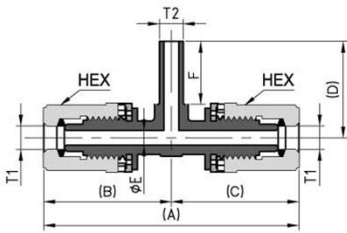


S type

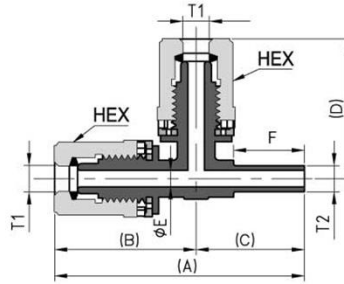
# IMPACT RING TYPE FITTINGS

## UTA (T type) UNION TEE ADAPTOR

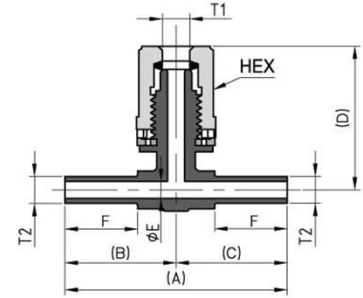
A Type



B Type



C Type



INCH TYPE

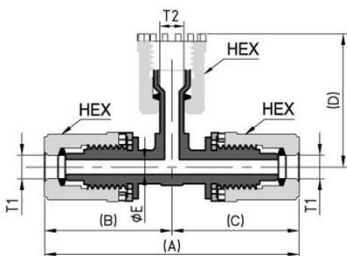
Type	T1	T2	HEX	(A)	(B)	(C)	(D)	ØE	F	w
UTA-H2-TH2-H2	A 6.35X3.95	6.35X3.95	16	67.4	33.7	33.7	26	4	17	10
UTA-TH2-H2-TH2	C "	"	"	52	26	26	33.7	"	"	"
UTA-H3-TH3-H3	A 9.53X6.35	9.53X6.35	19	79.7	39.9	39.9	32	6.3	21	14
UTA-H6-TH6-H6	A 19.05X15.8	19.05X15.8	32	122	61	61	49	16	31	27
UTA-H6-H6-TH6	B "	"	"	110	"	49	61	"	"	"
UTA-H4-TH4-H4	A 12.7X9.53	12.7X9.53	74	97	48.5	48.5	38.5	10	25	18

MM TYPE

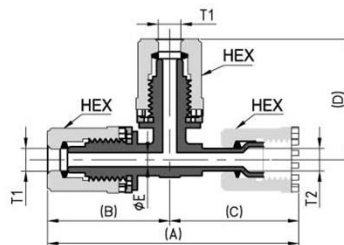
Type	T1	T2	HEX	(A)	(B)	(C)	(D)	ØE	F	w
UTA-M6-TH2-M6	A 6X4	6.35X3.95	16	67.4	33.7	33.7	26	4	17	10
UTA-TH2-M6-TH2	C "	"	"	52	26	26	33.7	"	"	"
UTA-M8-TH3-M8	A 8X6	9.53X6.35	19	79.7	39.9	39.9	32	6.3	21	14
UTA-M19-TH6-M19	A 19X15.8	19.05X15.8	32	122	61	61	49	16	31	27
UTA-M19-M19-TH6	B "	"	"	110	"	49	61	"	"	"
UTA-M12-TH4-M12	A 12X10	12.7X9.53	24	97	48.5	48.5	38.5	10	25	18

## UTA (S type) UNION TEE ADAPTOR

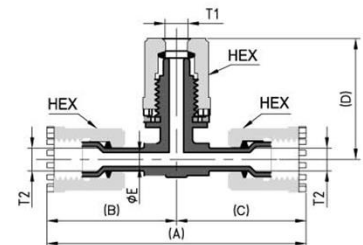
A Type



B Type



C Type



INCH TYPE

Type	T1	T2	HEX	(A)	(B)	(C)	(D)	ØE	w
UTA-H2-TH2S-H2	A 6.35X3.95	M6,H2	16	67.4	33.7	33.7	37.4	4	10
UTA-TH2S-H2-TH2S	C "	"	"	74.8	37.4	37.4	33.7	"	"
UTA-H3-TH3S-H3	A 9.53X6.35	M8,H3	19	79.7	39.9	39.9	42.2	6.3	14
UTA-H6-TH6S-H6	A 19.05X15.8	M19,H6	32	122	61	61	65	16	27
UTA-H6-H6-TH6S	B "	"	"	126	"	65	61	"	"
UTA-H4-TH4S-H4	A 12.7X9.53	M12,H4	24	97	48.5	48.5	52.5	10	18

MM TYPE

Type	T1	T2	HEX	(A)	(B)	(C)	(D)	ØE	w
UTA-M6-TH2S-M6	A 6X4	M6,H2	16	67.4	33.7	33.7	37.4	4	10
UTA-TH2S-M6-TH2S	C "	"	"	74.8	37.4	37.4	33.7	"	"
UTA-M8-TH3S-M8	A 8X6	M8,H3	19	79.7	39.9	39.9	42.2	6.3	14
UTA-M19-TH6S-M19	A 19X15.8	M19,H6	32	122	61	61	65	16	27
UTA-M19-M19-TH6S	B "	"	"	126	"	65	61	"	"
UTA-M12-TH4S-M12	A 12X10	M12,H4	24	97	48.5	48.5	52.5	10	18

IMPACT RING TYPE FITTINGS



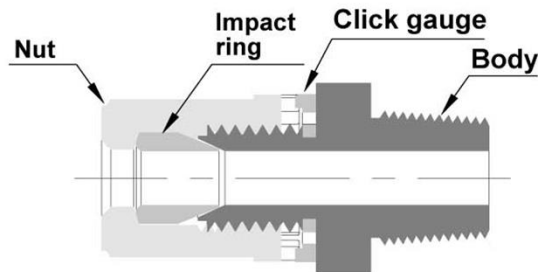
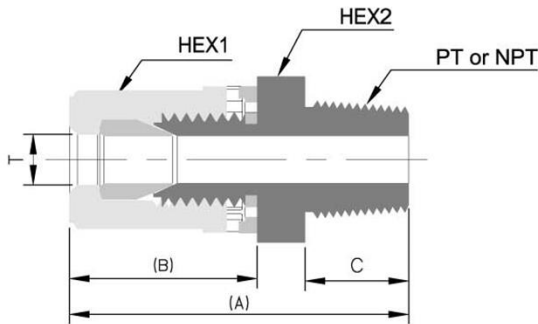
# IMPACT RING TYPE FITTINGS

## MCT MALE CONNECTOR THROUGH



### INCH+NPT TYPE

	T	NPT	HEX1	HEX2	(A)	(B)	C
MCT-H1-N1	3.18X2.18	1/8"	11	13	32.3	17.3	9
MCT-H2-N1	6.35X3.95	"	16	20	38.2	23.2	"
MCT-H2-N2	"	1/4"	"	"	42.2	"	13
MCT-H2-N3	"	3/8"	"	"	"	"	"
MCT-H3-N3	9.53X6.35	"	19	23	46.4	27.4	"
MCT-H3-N4	"	1/2"	"	"	50.2	"	16.8
MCT-H4-N4	12.7X9.53	"	24	29	57.1	33	"
MCT-H4-N6	"	3/4"	"	"	57.4	"	17.1
MCT-H6-N6	19.05X15.8	"	32	38	64.9	40.5	"
MCT-H6-N8	"	1"	"	"	69.2	"	21.4
MCT-H8-N8	25.4X22.2	"	41	49	76.2	47.5	"



### MM+PT TYPE

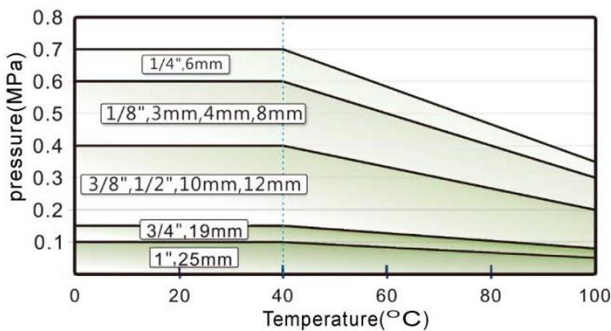
	T	PT	HEX1	HEX2	(A)	(B)	C
MCT-M3-R1	3X2	1/8"	11	13	32.3	17.3	9
MCT-M4-R1	4X3	"	"	"	"	"	"
MCT-M4-R2	"	1/4"	"	"	36.3	"	13
MCT-M6-R1	6X4	1/8"	16	20	38.2	23.2	9
MCT-M6-R2	"	1/4"	"	"	42.2	"	13
MCT-M6-R3	"	3/8"	"	"	"	"	"
MCT-M8-R2	8X6	1/4"	19	23	46.4	27.4	13
MCT-M8-R3	"	3/8"	"	"	"	"	"
MCT-M8-R4	"	1/2"	"	"	50.2	"	16.8
MCT-M10-R3	10x8	3/8"	"	"	46.4	"	13
MCT-M10-R4	"	1/2"	"	"	50.2	"	16.8
MCT-M12-R4	12x10	"	24	29	57.1	33	"
MCT-M12-R6	"	3/4"	"	"	57.4	"	17.1
MCT-M19-R6	19X15.8	"	32	38	64.9	40.5	"
MCT-M19-R8	"	1"	"	"	69.2	"	21.4
MCT-M25-R8	25X22	"	41	49	76.2	47.5	"

### INCH+PT TYPE

	T	PT	HEX1	HEX2	(A)	(B)	C
MCT-H1-R1	3.18X2.18	1/8"	11	13	32.3	17.3	9
MCT-H2-R1	6.35X3.95	"	16	20	38.2	23.2	"
MCT-H2-R2	"	1/4"	"	"	42.2	"	13
MCT-H2-R3	"	3/8"	"	"	"	"	"
MCT-H3-R3	9.53X6.35	"	19	23	46.4	27.4	"
MCT-H3-R4	"	1/2"	"	"	50.2	"	16.8
MCT-H4-R4	12.7X9.53	"	24	29	57.1	33	"
MCT-H4-R6	"	3/4"	"	"	57.4	"	17.1
MCT-H6-R6	19.05X15.8	"	32	38	64.9	40.5	"
MCT-H6-R8	"	1"	"	"	69.2	"	21.4
MCT-H8-R8	25.4X22.2	"	41	49	76.2	47.5	"

UNT:MM

Listed sizes are for reference only.  
"T" indicates the O.D and I.D of applied tube.



### Assembly method

- ① Insert tube into the nut, then impact ring and body in order.
- ② It is assembled complete when protrudent jaw of nut touches click gauge or fasten sound is heard .

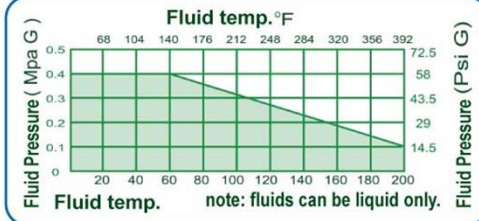
# FIT-ONE FITTING FOR QUARTZ TUBE

## FIT-ONE FITTING for QUARTZ TUBE

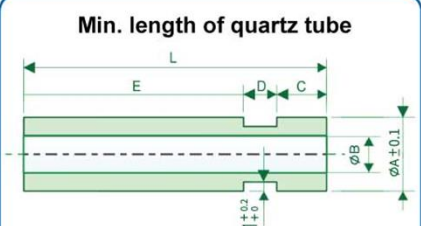


### Function Chart

Temp.	°C	0~60	61~100	100~200
Pressure	MpaG	0.4	0.2	0.1



### Applicable to quartz tube



### Cross Sectioned Drawing

NO.	ITEM	Material
1	Body	PFA
2	Nut	PFA
3	Ferrule	PTFE
4	Stopper	PFA
5	Quartz Glass Tube	Quartz
6	Click Gauge	ETFE
7	PFA Tube	PFA
8	Compression Ring	PVDE/PPS

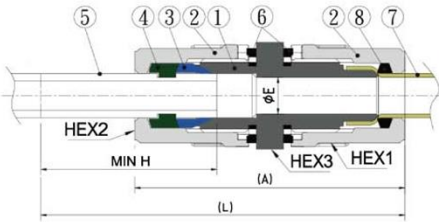
quartz tube size	φA	φB	C	D	E	L
φ8xφ4	8	4	6	4	31	41
φ10xφ6	10	6	9	4.5	26.5	40
φ12xφ8	12	8	11	5	32.6	48.6
φ16xφ12	16	12	13	6	42.4	61.4
φ19xφ15	19	15	13.5	6.5	41.6	61.6
φ20xφ16	20	16	13.5	6.5	42.5	62.5
φ25xφ20	25	20	23	8	43.75	74.75

FIT-ONE FITTING FOR QUARTZ TUBE

### INCH TYPE

	quartz tube O.D.	quartz tube I.D.	PFA tube O.D.	PFA tube I.D.	HEX1	HEX2	HEX3	(L)	(A)	H	φE
RU-QM8-H3	8	4	9.53	6.35	19	19	23	83	60.7	41	6.3
RU-QM12-H4	12	8	12.7	9.53	24	24	29	99.9	73.3	48.6	10
RU-QM16-H6	16	12	19.05	15.8	32	32	38	122.7	88.3	61.4	16
RU-QM19-H6	19	15	19.05	15.8	"	"	"	122.9	"	61.6	"
RU-QM20-H6	20	16	19.05	15.8	"	"	"	122.8	"	62.5	"
RU-QM25-H8	25	20	25.4	22.2	41	41	49	142.3	102.3	74.8	22

### RU-Q



### MM TYPE

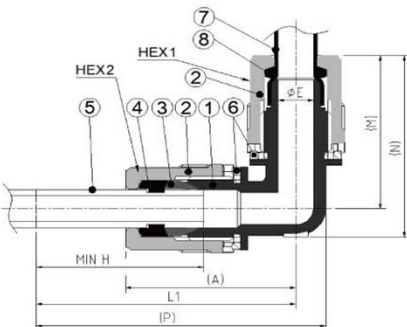
	quartz tube O.D.	quartz tube I.D.	PFA tube O.D.	PFA tube I.D.	HEX1	HEX2	HEX3	(L)	(A)	H	φE
RU-QM8-M8	8	4	8	6	19	19	23	83	60.7	41	6.3
RU-QM10-M10	10	6	10	8	"	"	"	82.5	"	40	8
RU-QM12-M12	12	8	12	10	24	24	29	99.9	73.3	48.6	10
RU-QM16-M19	16	12	19	15.8	32	32	38	122.7	88.3	61.4	16
RU-QM19-M19	19	15	19	15.8	"	"	"	122.9	"	61.6	"
RU-QM20-M19	20	16	19	15.8	"	"	"	122.8	"	62.5	"
RU-QM25-M25	25	20	25	22	41	41	49	142.3	102.3	74.8	22

UNIT:MM

### INCH TYPE

	quartz tube O.D.	quartz tube I.D.	PFA tube O.D.	PFA tube I.D.	HEX1	HEX2	(P)	(A)	H	L1	(M)	(N)	φE
RUE-QM8-H3	8	4	9.53	6.35	19	19	68.9	39.9	41	61.9	39.9	46.9	6.3
RUE-QM12-H4	12	8	12.7	9.53	24	24	84.1	48.5	48.6	75.1	48.5	57.5	10
RUE-QM16-H6	16	12	19.05	15.8	32	32	107.4	61	61.4	94.4	61	74.5	16
RUE-QM19-H6	19	15	19.05	15.8	"	"	107.6	"	61.6	94.6	"	"	"
RUE-QM20-H6	20	16	19.05	15.8	"	"	108.5	"	62.5	95	"	"	"
RUE-QM25-H8	25	20	25.4	22.2	41	41	129.5	73	74.8	112.5	73	90	22

### RUE-Q

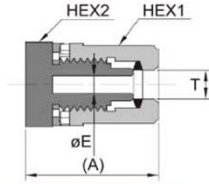


### MM TYPE

	quartz tube O.D.	quartz tube I.D.	PFA tube O.D.	PFA tube I.D.	HEX1	HEX2	(P)	(A)	H	L1	(M)	(N)	φE
RUE-QM8-M8	8	4	8	6	19	19	68.9	39.9	41	61.9	39.9	46.9	6.3
RUE-QM10-M10	10	6	10	8	"	"	"	"	40	"	"	"	8
RUE-QM12-M12	12	8	12	10	24	24	84.1	48.5	48.6	75.1	48.5	57.5	10
RUE-QM16-M19	16	12	19	15.8	32	32	107.4	61	61.4	94.4	61	74.5	16
RUE-QM19-M19	19	15	19	15.8	"	"	107.6	"	61.6	94.6	"	"	"
RUE-QM20-M19	20	16	19	15.8	"	"	108.52	"	62.5	95	"	"	"
RUE-QM25-M25	25	20	25	22	41	41	129.5	73	74.8	112.5	73	90	22

# IMPACT RING TYPE FITTINGS

## CP Cap



### INCH TYPE

	T	HEX1	HEX2	(A)	ΦE
CP-H2	6.35X3.95	16	20	29.2	4
CP-H3	9.53X6.35	19	23	33.4	6.3
CP-H4	12.7X9.53	24	29	40.3	10
CP-H6	19.05X15.8	32	38	47.8	16
CP-H8	25.4X22.2	41	49	54.8	22
CP-H10	31.8X28	50	60	75.7	28
CP-H12	38.1X33.7	60	70	83	33.7

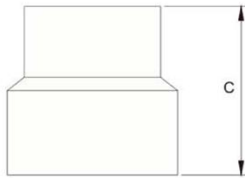
### MM TYPE

	T	HEX1	HEX2	(A)	ΦE
CP-M6	6X4	16	20	29.2	4
CP-M8	8X6	19	23	33.4	6.3
CP-M10	10X8	"	"	"	8
CP-M12	12X10	24	29	40.3	10
CP-M19	19X15.8	32	38	47.8	16
CP-M25	25X22	41	49	54.8	22

UNIT:MM

Listed sizes are for reference only.  
"T" indicates the O.D and I.D of applied tube.

## E Fitting End



### INCH TYPE

	T	C
E-H1X10	3.18X2.18	7
E-H2X10	6.35X3.95	9.4
E-H3X10	9.53X6.35	13.7
E-H4X10	12.7X9.53	15.8
E-H6X10	19.05X15.8	17.6
E-H8X10	25.4X22.2	22.5
E-H10X10	31.8X28	30.5
E-H12X10	38.1X33.7	34

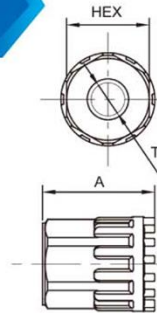
### MM TYPE

	T	C
E-M3X10	3X2	7
E-M4X10	4X3	"
E-M6X10	6X4	9.4
E-M8X10	8X6	13.7
E-M10X10	10X8	12
E-M12X10	12X10	15.8
E-M19X10	19X15.8	17.6
E-M25X10	25X22	22.5

UNIT:MM

Listed sizes are for reference only.  
"T" indicates the O.D and I.D of applied tube.

## UN Union Nut



### INCH TYPE

	T	A	HEX
UN-H1X10	3.18X2.18	16.3	11
UN-H2X10	6.35X3.95	21.7	16
UN-H3X10	9.53X6.35	25.9	19
UN-H4X10	12.7X9.53	31	24
UN-H6X10	19.05X15.8	38.5	32
UN-H8X5	25.4X22.2	45.5	41
UN-H10	31.8X28	60.7	50
UN-H12	38.1X33.7	68	60

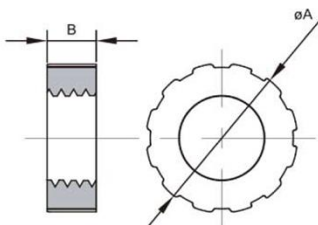
### MM TYPE

	T	A	HEX
UN-M3X10	3X2	16.3	11
UN-M4X10	4X3	"	"
UN-M6X10	6X4	21.7	16
UN-M8X10	8X6	25.9	19
UN-M10X10	10X8	25.9	"
UN-M12X10	12X10	31	24
UN-M19X10	19X15.8	38.5	32
UN-M25X5	25X22	45.5	41

UNIT:MM

Listed sizes are for reference only.  
"T" indicates the O.D and I.D of applied tube.

## HN Half Nut



### INCH TYPE

	T	ΦA	B
HN-H1	3.18X2.18	12.5	5
HN-H2	6.35X3.95	18.5	6
HN-H3	9.53X6.35	22	"
HN-H4	12.7X9.53	27.7	7.3
HN-H6	19.05X15.8	37	"
HN-H8	25.4X22.2	50.1	"

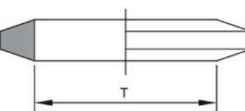
### MM TYPE

	T	ΦA	B
HN-M3X10	3X2	12.5	5
HN-M4X10	4X3	"	"
HN-M6X10	6X4	18.5	6
HN-M8/M10X10	8X6/10X8	22	"
HN-M12X10	12X10	27.7	7.3
HN-M19X10	19X15.8	37	"
HN-M25X10	25X22	50.1	"

UNIT:MM

Listed sizes are for reference only.  
"T" indicates the O.D and I.D of applied tube.

## RI Ring



### MAT' L:PVDF INCH TYPE

	T
RI-H1VX10	3.18X2.18
RI-H2VX10	6.35X3.95
RI-H3VX10	9.53X6.35
RI-H4VX10	12.7X9.53
RI-H6VX10	19.05X15.8
RI-H8VX10	25.4X22.2
RI-H10VX10	31.8X28
RI-H12VX10	38.1X33.7

### MAT' L:PVDF MM TYPE

	T
RI-M3VX10	3x2
RI-M4VX10	4x3
RI-M6VX10	6X4
RI-M8VX10	8X6
RI-M10VX10	10X8
RI-M12VX10	12X10
RI-M19VX10	19X15.8
RI-M25VX10	25X22

### MAT' L:PPS INCH TYPE

	T
RI-H1SX10	3.18X2.18
RI-H2SX10	6.35X3.95
RI-H3SX10	9.53X6.35
RI-H4SX10	12.7X9.53
RI-H6SX10	19.05X15.8
RI-H8SX10	25.4X22.2
RI-H10SX10	31.8X28
RI-H12SX10	38.1X33.7

### MAT' L:PPS MM TYPE

	T
RI-M6SX10	6X4
RI-M8SX10	8X6
RI-M10SX10	10X8
RI-M12SX10	12X10
RI-M19SX10	19X15.8
RI-M25SX10	25X22

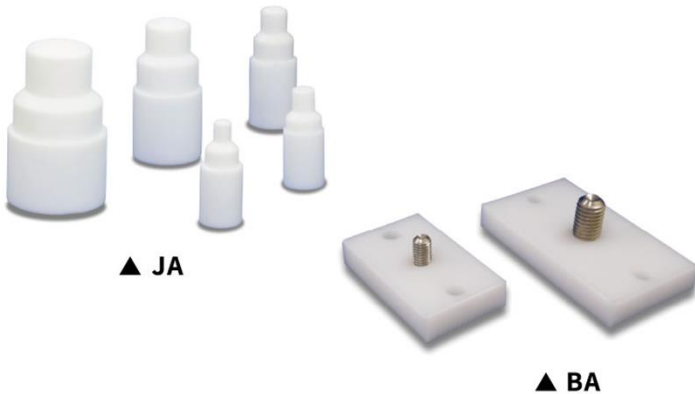
UNIT:MM

UNIT:MM

Listed sizes are for reference only.  
"T" indicates the O.D and I.D of applied tube.

# SPECIAL FLARING TOOL FOR FIT-ONE

## HOT FLARING TOOLS



Be sure to use our special nut wrench for cool flaring . Heat flaring is the basic, but cool flaring only is possible on some fixed sizes. ( only heat flaring on sizes 1-1/4", 1-1/2" ; only cool flaring on 1/8", 3mm and 4mm ) Connection method of fitting refers to operation manual.

Tube size		Applicable tools	
Inch series	mm series	Tool No.	Tool base No.
1/4" (6.35x3.95)	6x4	JA-H2/M6	BA-1
3/8" (9.53x6.35)	8x6	JA-H3/M8	
--	10x8	JA-M10	
1/2" (12.7x9.53)	12x10	JA-H4/M12	BA-2
3/4" (19.05x15.8)	19x15.8	JA-H6/M19	
1" (25.4x22.2)	25x22	JA-H8/M25	
1 1/4" (31.8x28)	--	JA-H10	not required
1 1/2" (38.1x33.7)	--	JA-H12	

SPECIAL FLARING TOOL FOR FIT-ONE

## COLD FLARING TOOLS



Tube size		Applicable tools	
Inch series	mm series	Tool No.	Attachment
1/8" (3.18x2.18)	3x2	JC-H1/M3	JC-AP depending on requirement
--	4x3	JC-M4	
1/4" (6.35x3.95)	6x4	JC-H2/M6	
3/8" (9.53x6.35)	--	JC-H3	
--	8x6	JC-M8	
--	10x8	JC-M10	
1/2" (12.7x9.53)	12x10	JC-H4/M12	
3/4" (19.05x15.8)	19x15.8	JC-H6/M19	
1" (25.4x22.2)	25x22	JC-H8/M25	

NOTE: JC-AP required or not depends on tool body  
Welcome to contact us if JC-AP is required .

## SPECIAL WRENCH FOR FIT-ONE



Tube size		Wrench no.
Inch series	mm series	
1/4" (6.35x3.95)	6x4	SP-H2/M6
3/8" (9.53x6.35)	8x6-10x8	SP-H3/M8/M10
1/2" (12.7x9.53)	12x10	SP-H4/M12
3/4" (19.05x15.8)	19x15.8	SP-H6/M19
1" (25.4x22.2)	25 x22	SP-H8/M25
1 2/4" (31.8x28)	--	SP-H10
1 1/2" (38.1x33.7)	--	SP-H12

## PORTABLE TUBE FLARING HEATING MACHINE

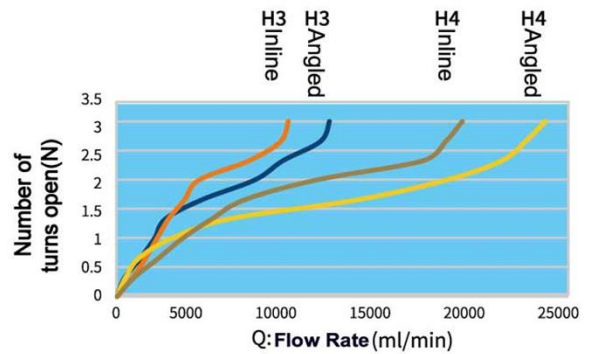


- \* Easy to carry, good for use in clean room
- \* Safty - overheat prevention
- \* Quick flaring within 20 sec., suitable for various plastic mat'ls.
- \* Size range : 1/4"-1" (M6-M25)
- \* Product specification  
Voltage: 110V ,300W  
Fuse: 4A-500V  
Max. usage temp.: 350°C  
Size:24\*15\*15cm,weight : 6kgs

# PFA ON-OFF VALVE

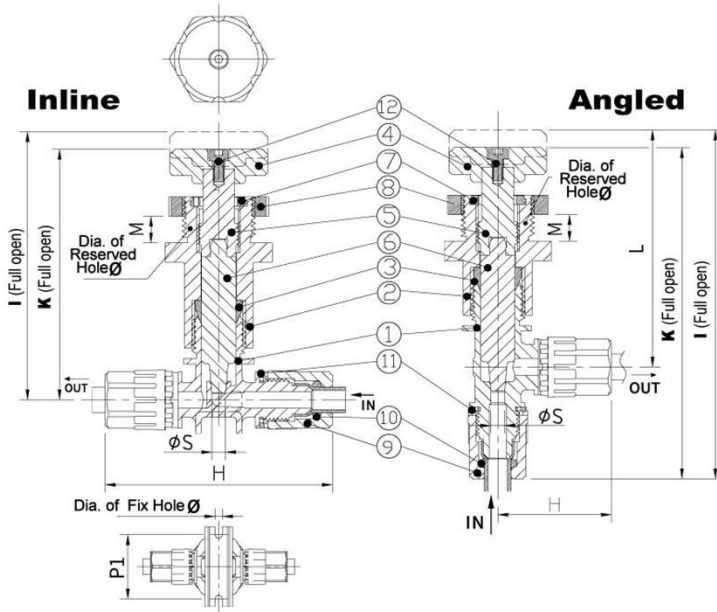


Flow Curves



Function Chart

Operation method	Manual
Connection	Fit-one fitting
Max.operating pressure	0.7MPa
Max.operating temp.	100°C
Environment temp.	60°C



Item No.	Description	Material	Q'ty
01	Body	PFA	1
02	Nut	PP	1
03	Ferrule	PTFE	1
04	Stem(Handle)	PP	1
05	Stem(Middle)	PP	1
06	Stem(Needle)	PFA	1
07	Stopper	PP	1
08	Lock Nut	PFA	1
09	Nut(Tube End)	PFA	2
10	Compression Ring	PVDF	2
11	Lock Ring	ETFE	2
12	Hex. Socket Bolt	PPS	1

	NO.	SIZE	$\phi S$	I (Ref.)	K (Ref.)	J	H	L	P1	Dia. of Fix Hole $\phi$	Dia. of Reserved Hole $\phi$	M	INLET/OUTLET	Hex. Socket Bolt
<b>Inline</b>	JHAW-M12	M12	8	114.5	107.3		106		48	7	38	Ma x 10	12x10	M6xP1x10L
	JHAW-H4	1/2"	8	114.5	107.3		106		48	7	38	Ma x 10	12.7x9.53	M6xP1x10L
	JHAW-M8	M8	5	100.8	94.3		84.7		40	4.5	29	Ma x 10	8x6	M4xP0.7x8L
	JHAW-H3	3/8"	5	100.8	94.3		84.7		40	4.5	29	Ma x 10	9.53x6.35	M4xP0.7x8L
<b>Angled</b>	JHA-M12	M12	8	152.9	145.7	27	53	99.9			38	Ma x 10	12x10	M6xP1x10L
	JHA-H4	1/2"	8	152.9	145.7	27	53	99.9			38	Ma x 10	12.7x9.53	M6xP1x10L
	JHA-M8	M8	5	131.4	124.8	18	42.4	89.0			29	Ma x 10	8x6	M4xP0.7x8L
	JHA-H3	3/8"	5	131.4	124.8	18	42.4	89.0			29	Ma x 10	9.53x6.35	M4xP0.7x8L

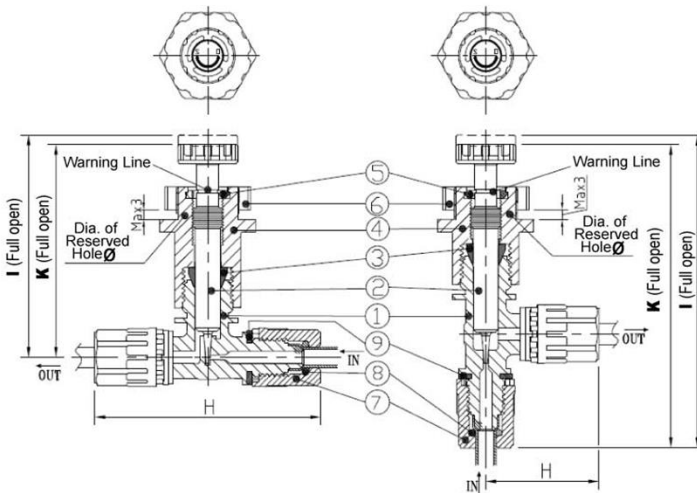
J indicates the dimension of the body width

# PFA NEEDLE VALVE

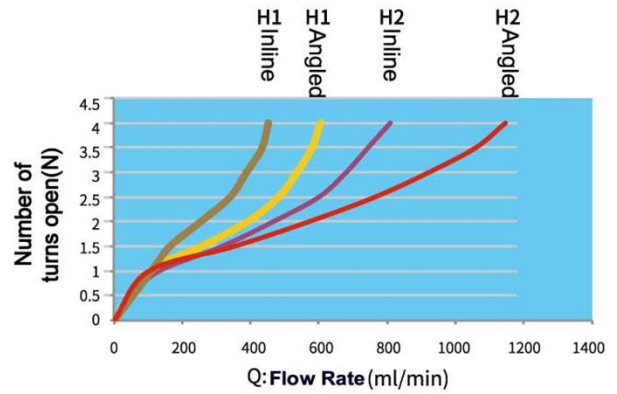


**Inline**

**Angled**



## Flow Curves



## Function Chart

Operation method	Manual
Connection	Fit-one fitting
Max.operating pressure	0.7MPa
Max.operating temp.	100°C
Enviroment temp.	60°C

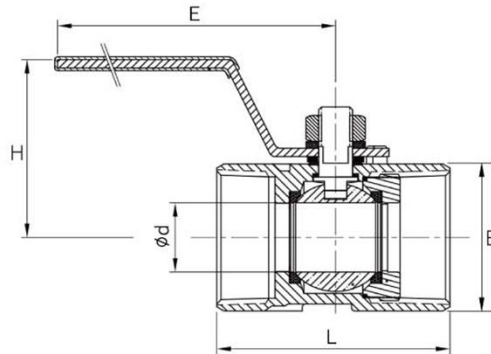
Item No.	Description	Material	Q'ty
01	Body	PFA	1
02	Nut	PP	1
03	Ferrule	PTFE	1
04	Stem(Handle)	PP	1
05	Stem(Middle)	PP	1
06	Stem(Needle)	PFA	1
07	Stopper	PP	1
08	Lock Nut	PFA	1
09	Nut(Tube End)	PFA	2
10	Compression Ring	PVDF	2
11	Lock Ring	ETFE	2
12	Hex. Socket Bolt	PPS	1

	NO.	SIZE	ØS	I (Ref.)	K (Ref.)	J	H	L	Dia. of Reserved Hole	M	INLET/OUTLET	Hex. Socket Bolt
<b>Inline</b>	JHAW-M6	M6	1.6	70.1	67.2	14	71.4		22	Ma x 3	6x4	M4xP0.7x8L
	JHAW-H2	H2	1.6	70.1	67.2	14	71.4		22	Ma x 3	6.35x3.95	M4xP0.7x8L
	JHAW-M3	M3	1.6	70.1	67.2	14	58.6		22	Ma x 3	3x2	M4xP0.7x8L
	JHAW-H1	H1	1.6	70.1	67.2	14	58.6		22	Ma x 3	3.18x2.18	M4xP0.7x8L
<b>Angled</b>	JHA-M6	M6	1.6	98.5	95.6	14	35.7	70.3	22	Ma x 3	6x4	M4xP0.7x8L
	JHA-H2	H2	1.6	98.5	95.6	14	35.7	70.3	22	Ma x 3	6.35x3.95	M4xP0.7x8L
	JHA-M3	M3	1.6	92.1	89.1	14	29.3	67.4	22	Ma x 3	3x2	M4xP0.7x8L
	JHA-H1	H1	1.6	92.1	89.1	14	29.3	67.4	22	Ma x 3	3.18x2.18	M4xP0.7x8L

J indicates the dimension of the body width

# ONE PIECE BALL VALVES

**BB-101**  
**1000PSI**



## DIMENSIONS UNIT:mm

SIZE	d	φL	B	H	E	SIZE	d	φL	B	H	E
1/4"	5	39.4	16.5	31	57.8	1"	15	70.7	37.5	50	104
3/8"	7	44.2	20.5	37	69	1 1/4"	20	77	47	55	104
1/2"	9.2	56.6	24.5	43	89	1 1/2"	25	83	53	69	123
3/4"	12.5	59	31.5	47	89	2"	32	100	64.5	75	123

## SPECIFICATIONS

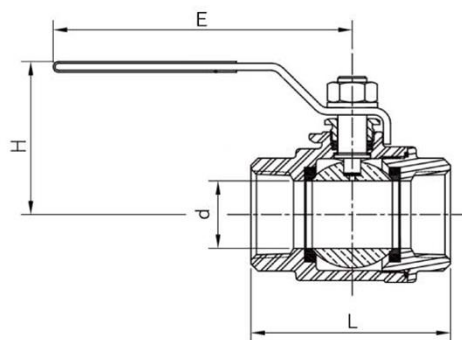
**Size Range** 1/4"~2"  
 For chemical and industrial applications  
 Blow-out proof stem design  
 100% tested air under water at 100psi, open and closed positions  
**Working pressure** 1000 psi W.O.G  
**Temperature range** -20° to 450° F  
**End types** threaded

## MATERIALS LIST

Designation	Material
BODY	ASTM A351 GR.CF8M/CF8
BALL	ASTM A351 GR.CF8M/CF8
STEM	ASTM A276 TYPE316/304
GASKET	PTFE
SEAT	TFM-1600
HANDLE	ASTM A276 TYPE 304

# TWO-PIECE BALL VALVES

**BB-201**  
**1000PSI**



## DIMENSIONS UNIT:mm

SIZE	φd	E	H	L	SIZE	φd	E	H	L	SIZE	φd	E	H	L
1/4"	11.6	100	50	53.8	1"	25	148	73	82.8	2"	50	164	94	124.3
3/8"	12.5	100	50	53.8	1-1/4"	32	148	75	92.1	2-1/2"	65	248	135	162
1/2"	15	125	56	59.7	1-1/2"	38	164	85	111	3"	80	248	144	176
3/4"	20	125	58	71										

## SPECIFICATIONS

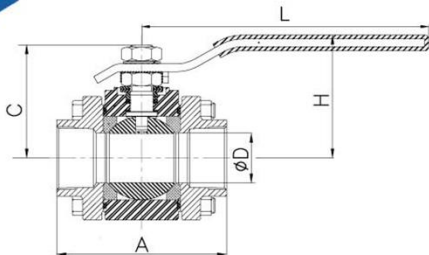
**Size range** 1/4"~3"  
 For food and general chemical service applications  
 Adjustable stem packing  
 Blow-out proof stem design  
 Body and end caps quality investment casting  
 Available in carbon or stainless steel body construction  
 Design for easy actuator mounting  
 100% tested by air under water, at 100psi open and closed positions  
**Temperature Range** -20° to 450° F  
**End type** Threaded  
**Working Pressure** 1/4"~2" 1000 psi W.O.G  
 2-1/2"~3" 800 psi W.O.G

## MATERIALS LIST

Designation	Material
BODY	ASTM A351 GR.CF8M/A216 WCB
END CAP	ASTM A351 GR.CF8M/A216 WCB
BALL	ASTM A351 GR.CF8M/CF8
STEM	SS316
BALL SEATS	PTFE
HANDLE	SS304

# THREE-PIECE BALL VALVES

## BB-301 HEAVY DUTY H-PERFORMANCE



### DIMENSIONS

SIZE in mm	UNIT:mm					SIZE in mm	UNIT:mm						
	A	C	ØD	H	L		A	C	ØD	H	L		
1/4"	8	66.0	38.1	11.2	45.2	119.4	1-1/4"	32	108.0	60.7	25.4	65.5	147.1
3/8"	10	66.0	38.1	11.2	45.2	119.4	1-1/2"	40	116.1	73.2	31.8	78.7	182.1
1/2"	15	66.0	38.1	11.2	45.2	119.4	2"	50	128	78.2	38.1	83.6	182.1
3/4"	20	71.1	40.4	14.2	47.5	119.4	2-1/2"	65	151.4	88.4	50.8	93.2	267.0
1"	25	94.0	55.9	20.6	62.0	147.1							

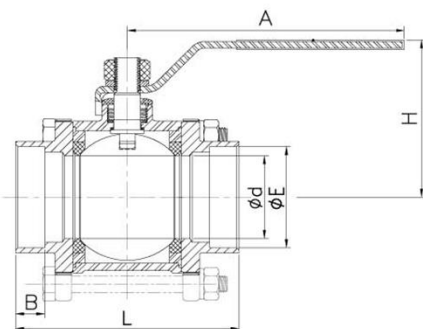
### SPECIFICATIONS

Size Range 1/4"~2-1/2"  
 Blow-out proof stem design / Reduced port  
 ISO5211 mounting pad  
 Chemical, food, oil / gas, etc.  
 All S.S weld ends in S.S 316L / CF3M  
 100% tested air under water at 80psi, open and closed positions  
**Working pressure** 1000psi WOG  
**End types** threaded, socket welding, butt welding

### MATERIALS LIST

Designation	STAINLESS STEEL	CARBON STEEL
BODY	ASTM A351 GR.CF8M	ASTM A216 GR.WC8
CAP	ASTM A351 GR.CF3M	ASTM A216 GR.WC8
BALL	ASTM A351 GR.CF8M	ASTM A351 Gr. CF8
STEM	ASTM A276 TYPE 316	ASTM A276 TYPE304
HANDLE	ASTM A276 TYPE 304	ASTM A276 TYPE304
SEAT	PTFE	PTFE

## BB-311K SOCKET WELD ENDS



### DIMENSIONS

SIZE	UNIT:mm						SIZE	UNIT:mm					
	L	B	Ød	ØE	H	A		L	B	Ød	ØE	H	A
1/2"	65.4	16	15	22	49.1	120	2"	133.4	25	50	61.5	93.2	164
3/4"	79	18	20	27.4	52.7	120	2-1/2"	162.8	28	65	74.2	134	248
1"	86	19	25	34.1	72.7	148	3"	183	30	80	90	143.5	248
1-1/4"	105	22	32	42.9	77.1	148	4"	227.2	35	100	115.5	177	246
1-1/2"	119.5	22	38	49	85.1	164							

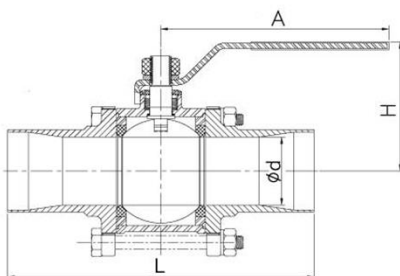
### SPECIFICATIONS

Size Range 1/2"~4"  
 Adjustable stem packing  
 Blow-out proof stem design / Full port  
 Body and end caps quality investment casting  
 In-line repairable  
 Available in carbon or stainless steel body construction  
 100% tested by air under water, at 100psi, open and closed positions  
**Working Pressure** 1/2"~2" 1000 psi W.O.G  
 2-1/2"~3" 800 psi W.O.G  
 4" 600 psi W.O.G  
**Temperature Range** -20° to 450°F  
**End type** Socket weld ends (ASME B16.11)

### MATERIALS LIST

Designation	Material
BODY	ASTM A351 GR.CF8M
CAP	ASTM A351 GR.CF8M
BALL	ASTM A351-CF8M
STEM	ASTM A276-316
SEAT	PTFE
HANDLE	ASTM A276-304

## BB-311L BUTT-WELD ENDS



### DIMENSIONS

SIZE	UNIT:mm				SIZE	UNIT:mm			
	L	Ød	H	A		L	Ød	H	A
1/2"	179.4	15	49.1	120	2"	222.4	50	93.2	164
3/4"	184	20	52.7	120	1-1/2"	244.8	65	134	248
1"	190	25	72.7	148	3"	257	80	143.5	248
1-1/4"	198.2	32	77.1	148	4"	280.2	100	177	246
1-1/2"	211.4	38	85.1	164					

### SPECIFICATIONS

Size Range 1/2"~4"  
 Adjustable stem packing  
 Blow-out proof stem design / Full port  
 Body and end caps quality investment casting  
 In-line repairable  
 Available in carbon or stainless steel body construction  
 100% Helium test  
**Working Pressure** 1/2"~2" 1000 psi W.O.G  
 2-1/2"~3" 800 psi W.O.G  
 4" 600 psi W.O.G  
**Temperature Range** -20° to 450°F  
**End type** Butt-welding

### MATERIALS LIST

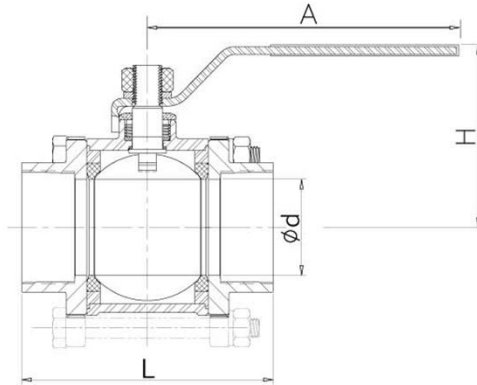
Designation	Material
BODY	ASTM A351 GR.CF8M
CAP	ASTM A351 GR.CF3M
BALL	ASTM A351-CF8M
STEM	ASTM A276-316
SEAT	PTFE
HANDLE	ASTM A276-304

THREE-PIECE BALL VALVES



# THREE-PIECE BALL VALVES

## BB-311 THREADED ENDS



### DIMENSIONS UNIT:mm

SIZE	A	L	φd	H	SIZE	A	L	φd	H
1/4"	100	60	9.5	51	1-1/2"	164	119.5	38	85.1
3/8"	100	60	9.5	51	2"	164	133.4	50	93.2
1/2"	120	65.4	15	49.1	2-1/2"	248	162.8	65	134
3/4"	120	79	20	52.7	3"	248	183	80	143.5
1"	148	86	25	72.7	4"	246	227.2	100	177
1-1/4"	148	105	32	77.1					

### SPECIFICATIONS

#### Size Range 1/2"~4"

Adjustable stem packing / Full port

Blow-out proof stem design

In-line repairable

Available in carbon or stainless steel body construction

100% tested by air under water, at 80psi, open

and closed positions

**Working Pressure** 1/4"~2" 1000 psi W.O.G  
2-1/2"~3" 800 psi W.O.G  
4" 600 psi W.O.G

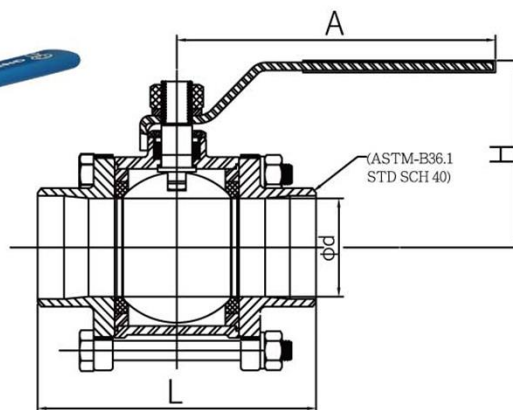
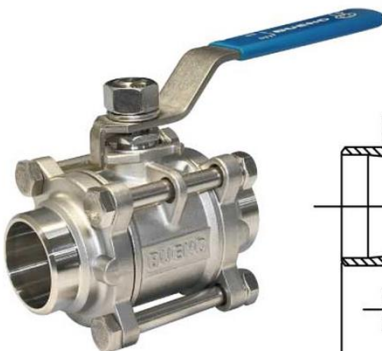
**Temperature Range** -20° to 450° F

**End type** Threaded

### MATERIALS LIST

Designation	Material
BODY	ASTM A351 GR.CF8M
CAP	ASTM A351 GR.CF8M
BALL	ASTM A351-CF8M
STEM	ASTM A276 TYPE 316
SEAT	PTFE
HANDLE	ASTM A276-304

## BB-311S BW ENDS, SHORT TYPE



### DIMENSIONS UNIT:mm

SIZE	A	L	φd	H	SIZE	A	L	φd	H		
in mm					in mm						
1/2"	15A	120	75	15	49.1	2"	50A	164	150	50	93.2
3/4"	20A	120	90	20	52.7	2 1/2"	65A	248	175	65	134
1"	25A	148	100	25	72.7	3"	80A	248	210	80	143.5
1 1/4"	32A	148	110	32	77.1	4"	100A	246	260	100	177
1 1/2"	40A	164	125	38	85.1						

### SPECIFICATIONS

#### Size Range 1/2"~4"

Adjustable stem packing / Full port

Blow-out proof stem design

In-line repairable

**Working Pressure** 1/2"~2" 1000 psi W.O.G  
2-1/2"~3" 800 psi W.O.G  
4" 600 psi W.O.G

**Temperature Range** -20° to 450° F

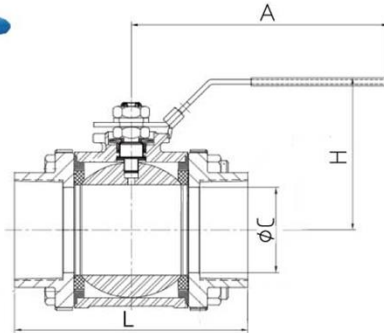
**End type** BW ends, short type

### MATERIALS LIST

Designation	Material
BODY	ASTM A351 GR.CF8M
CAP	ASTM A351 GR.CF8M
BALL	ASTM A351-CF8M
STEM	ASTM A276 TYPE 316
SEAT	PTFE
HANDLE	ASTM A276-304

# THREE-PIECE BALL VALVES

## BB-312H THREADED ENDS



### DIMENSIONS UNIT:mm

SIZE		A	C	L	H	SIZE		A	C	L	H
in	mm					in	mm				
1/2"	15A	120	15	65.4	65.2	2"	50A	164	50	133.4	103.4
3/4"	20A	120	20	79	68.4	2 1/2"	65A	222	65	162.8	125.7
1"	25A	147	25	86	77.4	3"	80A	222	80	183	133.4
1 1/4"	32A	147	32	105	82.4	4"	100A	298	100	227	163.3
1 1/2"	40A	164	38	119.4	94.4						

### SPECIFICATIONS

Size Range 1/2"~4"

ISO5211 mounting pad / Full port

**Working pressure** 1/2"~2" 1000 psi W.O.G  
2 1/2"~3" 800 psi W.O.G  
4" 600 psi W.O.G

**End types** threaded

**Locking lever handle**

### MATERIALS LIST

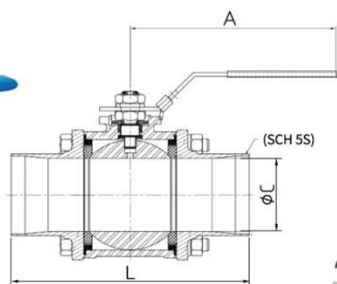
Designation	Material
BODY	ASTM A351-CF8M
CAP	ASTM A351-CF8M
BALL	ASTM A351-CF8M
STEM	ASTM A276-316
SEAT	PTFE
HANDLE	ASTM A276-304

THREE-PIECE BALL VALVES

## BB-312L CLEAN VALVES



DIMENSIONS(1/2"-4")



DIMENSIONS(5"-12")

### DIMENSIONS UNIT:mm

SIZE	A	$\phi C$	L	SIZE	A	$\phi C$	L	SIZE	$\phi C$	L
1/2"	120	15	179.4	2"	164	50	222.4	5"	114	493
3/4"	120	20	184	2-1/2"	222	65	244.8	6"	150	515
1"	147	25	190	3"	222	80	257	8"	200	560
1-1/4"	147	32	198.2	4"	298	100	280.2	10"	250	620
1-1/2"	164	38	211.4					12"	300	676

### SPECIFICATIONS

Size Range 1/2"~12"

**Pressure rating** vacuum to 800 PSI

**Operating temperature** -60°C-160°C

Polished to 180 Grit/10-16min (0.25 to 0.40min)

**Options** pneumatic actuator or electric actuator

Clean room class 1000 assembly and test

Pipe end 5S,10S

UP & DOWN steam purge port

AP, MP, MP+EP grade process

BODY, CAP, BALL, STEM-HASTELLOY C, MONEL

SEAT-PEEK, PCTFE, DELRIN, UHMWPE

BA or EP polishing for flow channel is available on request

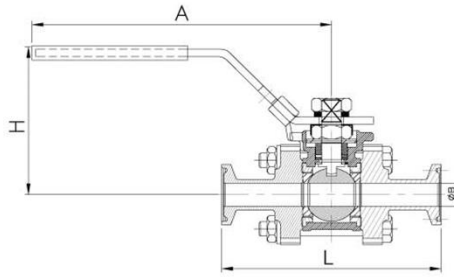
**End types** butt welding

### MATERIALS LIST

Designation	Material
BODY	ASTM A351-CF8M
CAP	ASTM A351-CF8M
STEM	ASTM A276-316
SEAT	ASTM A351-CF8M
HANDLE	ASTM A276-304

# SANITARY VALVES

## BB-312TC T-CLAMP ENDS



### DIMENSIONS UNIT:mm

SIZE	A	φB	L	H	SIZE	A	φB	L	H		
in mm					in mm						
1/2"	15A	120	9.5	89	59.6	2"	50A	164	47.5	156	103.4
3/4"	20A	120	15.75	101	68.4	2 1/2"	65A	222	60.2	197	125.7
1"	25A	147	22.1	114	77.4	3"	80A	222	72.9	229	133.4
1 1/2"	40A	164	34.8	140	94.4	4"	100A	298	97.6	243	163.3

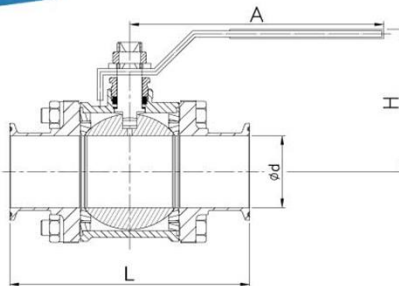
## SPECIFICATIONS

**Size range** 1/2"~4"  
Adjustable stem packing  
Blow-out proof stem design  
Body and end caps quality investment casting  
In-line repairable  
Available in carbon or stainless steel body construction  
100% tested by air under water, at 80psi, open and closed positions  
**Working Pressure** 1/2"~4" 1000 psi W.O.G  
**Temperature Range** -20° to 450°F  
**Locking lever handle**

### MATERIALS LIST

Designation	Material
BODY	ASTM A351-CF8M
	ASTM A494-CW12MW
CAP	ASTM A351-CF8M
	ASTM A494-CW12MW
BALL	ASTM A351-CF8M
	ASTM A494-CW12MW
STEM	ASTM A276-316
SEAT	TFM-1600
HANDLE	ASTM A276-304

## BB-311TC T-CLAMP ENDS



### DIMENSIONS UNIT:mm

SIZE	L	φd	H	A	SIZE	L	φd	H	A
1/2"	89	9.5	51	120	2"	156	47.5	93.2	164
3/4"	101	15.75	58.7	120	2-1/2"	197	60.2	134	248
1"	114	22.1	72.7	148	3"	229	72.9	143.5	248
1-1/2"	140	34.8	85.1	164	4"	243	97.6	177	246

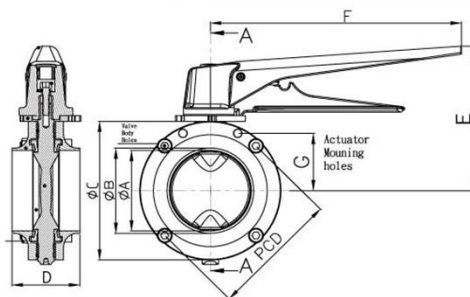
## SPECIFICATIONS

**Size range** 1/2"~4"  
Adjustable stem packing  
Blow-out proof stem design  
Body and end caps quality investment casting  
In-line repairable  
Available in carbon or stainless steel body construction  
100% tested by air under water, at 80psi, open and closed positions  
**Working Pressure** 1/2"~2" 1000 psi W.O.G  
2 1/2"~3" 800 psi W.O.G  
4" 600 PSI W.O.G  
**Temperature Range** -20° to 450°F

### MATERIALS LIST

Designation	Material
BODY	ASTM A351-CF8M
	ASTM A494-CW12MW
CAP	ASTM A351-CF8M
	ASTM A494-CW12MW
BALL	ASTM A351-CF8M
	ASTM A494-CW12MW
STEM	ASTM A276-316
SEAT	TFM-1600
HANDLE	ASTM A276-304

## SBU-71 S.S Hygienic Butterfly Valve



### DIMENSIONS UNIT:mm

SIZE	φA	φB	φC	D	E	F	G	PCD
in								
1"	22.3	25.8	69	50	83.5	154.2	26.5	59
1-1/2"	35	38.5	79	50	88.5	154.2	31.5	69
2"	47.7	51.2	94	50	96	154.2	38	84
2-1/2"	60.4	63.9	104	50	101	154.2	43	95
3"	73.1	76.6	124	60	112	185	50	111
4"	98.5	102	151	70	125.5	185	63.5	139
6"	148.4	153	223	80	183.5	266	98.5	207

## SPECIFICATIONS

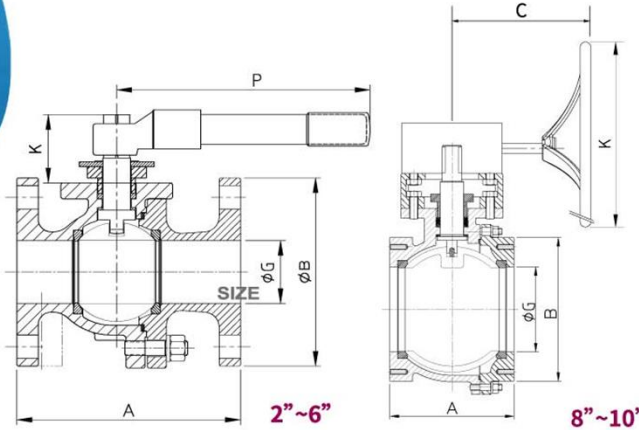
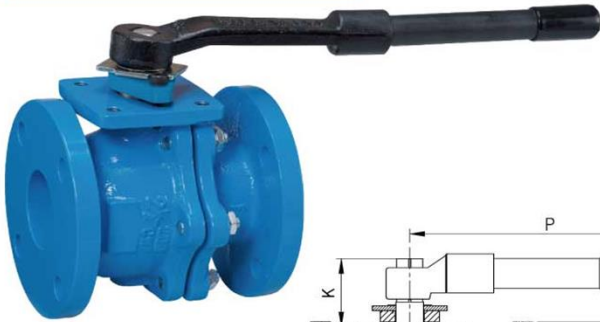
**Size Range** 1"~6"  
**Maximum operating pressure** 10 Bar (at 20°C)  
**Recommended working pressure** 6 Bar (at 20°C)  
**General temperature range** -10°C~+95°C  
**Standard type** ISO 2037 / BS 4825-1/ AS1528-1  
**End connections** butt weld(std)  
for inch tubing(O.D.tubes)

### MATERIALS LIST

Designation	Material
BODY	ASTM A182-F316L
DISC STEM	ASTM A351/CF8M
SEAT	SILICON (WHITE) FDA
HANDLE ASSEMBLY	ASTM A351 CF8
NOTCH PLATE	ASTM A351 CF8

# TWO-PIECE FLANGE BALL VALVES

## F605D 200PSI CWP



### DIMENSIONS UNIT:mm

SIZE	A	ØB	ØG	P	K	SIZE	A	ØB	ØG	C	K
2"	178	152	50.8	229	55	8"	292	343	203	337	508
2-1/2"	191	178	63.5	406	53	10"	330	406	254	337	508
3"	203	190	76.2	406	54.5						
4"	229	229	101.6	500	57						
6"	267	279	152.4	660	73						

### SPECIFICATIONS

**Size range** 2"~10"

Fused epoxy coating on all valve surfaces  
8" comes standard with manual gear operator

**Face-to-face dimensions**

(ANSI B16.10) for cast iron flange standard, class 125 (ANSI B16.1)

**Maximum Temperature** 160°C for 2"~6"  
60°C for 8"~10"

**Maximum Working Pressure**

200 psi(14 bars) CWP

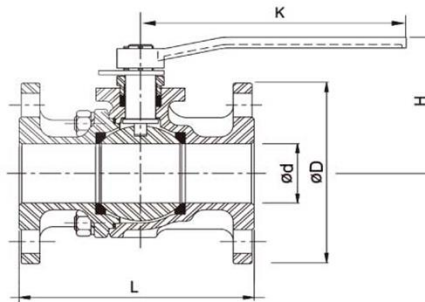
### MATERIALS LIST

**Designation Material**

BODY	CAST IRON,ASTM A126 CLASS B
CAP	CAST IRON,ASTM A126 CLASS B
BALL	ASTM A351-CF8
STEM	AISI-304
SEAT	PTFE
HANDLE	WPB SCH40 PIPE
HANDWHEEL	DUCTILE IRON

TWO-PIECE FLANGE BALL VALVES

## F601 CLASS 150LB



### DIMENSIONS UNIT:mm

SIZE	Ød	K	H	L	ØD	SIZE	Ød	K	H	L	ØD
1/2"	15	145	73	108	88.9	3"	80	320	151	203	190.5
3/4"	20	145	79	117	98.6	4"	100	320	165	229	228.6
1"	25	165	91	127	108	5"	125	514	207	356	254
1-1/4"	32	165	94	140	117.3	6"	150	514	225	394	279.4
1-1/2"	38	230	113	165	127	8"	200	1000	290.4	457	343
2"	50	230	122	178	152.4	10"	250	1000	347	533	405
2-1/2"	65	230	144	190	177.8						

### SPECIFICATIONS

**Size Range** 1/2"~10"

Blow-out proof stem

Anti-static design is standard

**Valve body design** B16.34

**Temperature range** -20° to 450° F

**Face to face** ASME B16.10

**Flange dimensions** ASME B16.5

**Mounting pad** ISO 5211

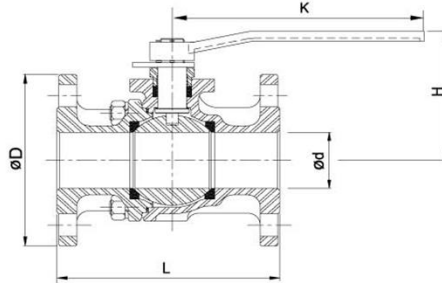
### MATERIALS LIST

**Designation Material**

BODY&CAP	CF8/CF8M/WCB
SEAT	TFM1600
HANDLE	CF8/WCB
	WPB SCH40-1" PIPE
BALL	CF8/CF8M
STEM	SUS304/SUS316/SUS316L

# TWO-PIECE FLANGE BALL VALVES

## F602 JIS 10K



### DIMENSIONS UNIT:mm

SIZE	φd	K	H	L	φD	SIZE	φd	K	H	L	φD
1/2"	15	145	73	108	95	3"	80	320	151	203	185
3/4"	20	145	79	117	100	4"	100	320	165	229	210
1"	25	165	91	127	125	5"	125	514	207.5	356	250
1-1/4"	32	165	94	140	135	6"	150	514	225	340	280
1-1/2"	38	230	113	165	140	8"	200	1000	290.4	450	330
2"	50	230	122	178	155	10"	250	1000	347	533	400
2-1/2"	65	230	144	190	175						

### SPECIFICATIONS

**Size range** 15A~250A

Blow-out proof stem / Full port

Anti-Static design is standard

**Valve body design** ASME B16.34

**Temperature range** -29°C to 232°C

**Face to face** JIS B 2002

**Flange dimensions** JIS B 2212

**Pressure rating** JIS B 2212

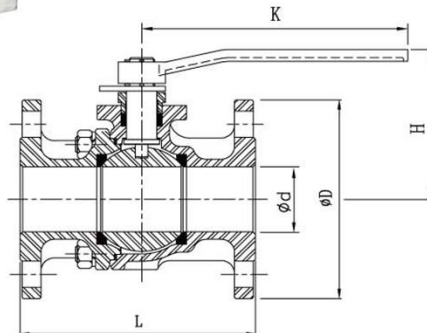
**Mounting pad** ISO 5211

**Pressure test** JIS 10K

### MATERIALS LIST

Designation	Material
BODY&CAP	SCS13A/SCS14A/SCW410
SEAT	TFM-1600
HANDLE	CF8/WCB
	WPB SCH40-1" PIPE
BALL	SCS13A/SCS14A/SCS16A
STEM	SUS304/SUS316/SUS316L

## F602D JIS 10K



### DIMENSIONS UNIT:mm

SIZE	φd	φD	K	L	H	SIZE	φd	φD	K	L	H
1/2"	15	95	145	108	73	2-1/2"	65	175	230	190	144
3/4"	20	100	145	117	79	3"	80	185	320	203	151
1"	25	125	165	127	91	4"	100	210	320	229	165
1-1/4"	32	135	165	140	94	5"	125	250	514	356	207.5
1-1/2"	38	140	230	165	113	6"	150	280	514	394	225
2"	50	155	230	178	122						

### SPECIFICATIONS

**Size range** 15A~250A

Blow-out proof stem

Anti-Static design is standard

**Wall thickness** ASME B16.42

**Temperature range** -29°C to 232°C

**Face to face** JIS B 2002

**Flange dimensions** JIS B 2239

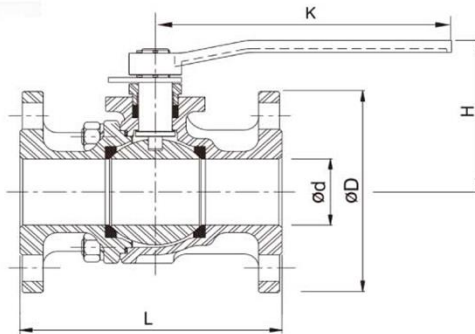
**Mounting pad** ISO 5211

### MATERIALS LIST

Designation	Material
BODY	FCD 450
CAP	FCD 450
BALL	1/2"~1" ASTM A276 GR.304 ASTM A351 GR.CF8
	1 1/4"~6" ASTM A351 GR.CF8
STEM	SUS304/SUS316/SUS316L
SEAT	PTFE
HANDLE	CF8 / WCB

## TWO-PIECE FLANGE BALL VALVES

### F603 PN16



#### DIMENSIONS UNIT:mm

SIZE	φd	φD	H	L	K	SIZE	φd	φD	H	L	K
1/2"	15	95	73	130	145	3"	80	200	151	310	320
3/4"	20	105	79	150	145	4"	100	220	165	350	320
1"	25	115	91	160	165	5"	125	250	207.5	400	514
1-1/4"	32	140	94	180.3	165	6"	150	285	225	480	514
1-1/2"	38	150	113	200	230	8"	200	340	290.4	600	1000
2"	50	165	122	230	230	10"	250	405	347	730	1000
2-1/2"	65	185	144	290	230						

#### SPECIFICATIONS

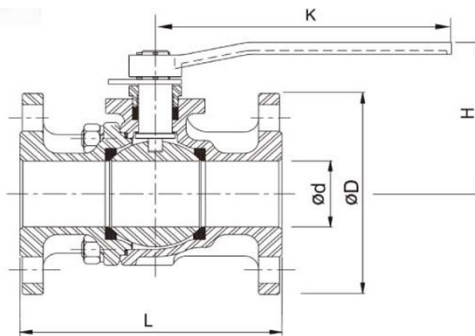
**Size range** DN15~DN250  
 Blow-out proof stem / Full port  
 Anti-Static design is standard  
**Valve body design** ASME B16.34  
**Temperature range** -29° to 232°F  
**Flange dimensions** EN1092-1  
**Mounting pad** ISO 5211  
**Pressure rating** PN16  
**Face to face** EN 558

#### MATERIALS LIST

Designation	Material
BODY & CAP	1.4308/1.4408/1.0619
SEAT	TFM-1600
HANDLE	1/2"~6" CF8/WCB 8"~10" WPB SCH40-1" PIPE
BALL	1.4308/1.4408
STEM	SUS304/SUS316/SUS316L

TWO-PIECE FLANGE BALL VALVES

### F604 JIS-20K



#### DIMENSIONS UNIT:mm

SIZE	φd	φD	H	L	K	SIZE	φd	φD	H	L	K
1/2"	15	95	73	140	145	2"	50	155	122	216	230
3/4"	20	100	79	152	145	2-1/2"	65	175	144	241	230
1"	25	125	91	165	165	3"	80	200	156	282	320
1-1/4"	32	135	94	178	165	4"	100	225	170	305	320
1-1/2"	38	140	113	190	230						

#### SPECIFICATIONS

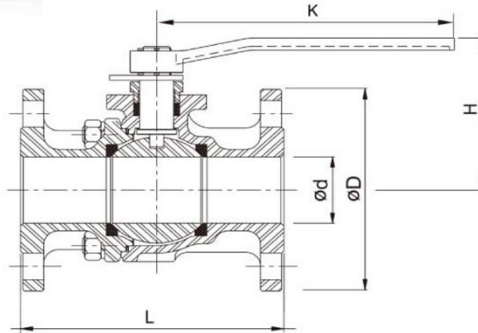
**Size range** 15A~250A  
 Blow-out proof stem / Full port  
 Anti-static stem design  
**Valve body design**  
 ASME B16.34 CLASS 300  
**Temperature range** -29°C to 232°F  
**Flange dimensions** JIS B2220-20K-RF  
**Face to face** JIS B2002  
**Mounting pad** ISO 5211

#### MATERIALS LIST

Designation	Material
BODY & CAP	SCS13A/SCS14A/SCPH2
SEAT	TFM-1600
HANDLE	CF8/WCB
BALL	ASTM A351 Gr.CF8/CF8M
STEM	SUS304/SUS316

## TWO-PIECE FLANGE BALL VALVES

### F606 CLASS 300 LB



#### DIMENSIONS UNIT:mm

SIZE	$\phi d$	$\phi D$	H	L	K	SIZE	$\phi d$	$\phi D$	H	L	K
1/2"	15	95	73	140	145	2"	50	165	122	216	230
3/4"	20	115	79	152	145	2-1/2"	65	190	144	241	230
1"	25	125	91	165	165	3"	80	210	156	282	320
1-1/4"	32	135	94	178	165	4"	100	255	170	305	320
1-1/2"	38	155	113	190	230						

#### SPECIFICATIONS

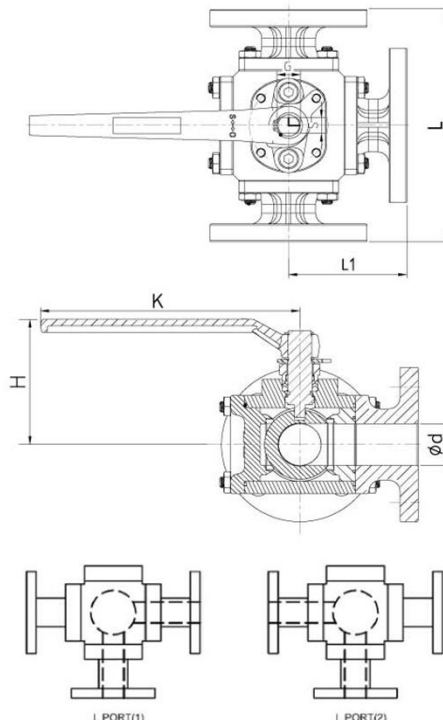
- Size range** 1/2"~4"
- Blow-out proof stem / Full port
- Anti-Static design is standard
- Valve body design**  
ASME B16.34 CLASS 300
- Temperature range** -29° to 232°F
- Flange dimensions**  
ASME B16.5 CLASS 300 RF
- Mounting pad** ISO 5211
- Pressure rating**  
ASME B16.34 CLASS 300
- Face to face** ASME B16.10 CLASS

#### MATERIALS LIST

Designation	Material
BODY & CAP	CF8/CF8M/WCB
SEAT	TFM-1600
HANDLE	CF8/WCB
BALL	ASTM A351 Gr.CF8/CF8M
STEM	SUS304/SUS316

## THREE-WAY FLANGE BALL VALVES

### BBW602 JIS 10K



#### DIMENSIONS UNIT:mm

SIZE	$\phi d$	K	L	L1	H
1-1/2"	38	200	211	105.5	114
2-1/2"	63	325	320	160	146

#### SPECIFICATIONS

- Ball** L-PORT
- Blow-out proof stem / Full port
- Anti-Static design is standard
- Wall thickness** ASME B16.42
- Temperature range** -29° to 232°F
- Flange dimensions** JIS 10K B 2239
- Mounting pad** ISO 5211

#### MATERIALS LIST

Designation	Material
BODY	FCD 450
CAP	FCD 450
STEM	AISI-304
BALL	ASTM-A351-CF8
SEAT	PTFE
BLIND CAP	FCD 450
HANDLE	ASTM-A216-WCB

# VALVE ACCESSORIES

## PTFE Products

The majority of Bueno PTFE components are made from PTFE or reinforced PTFE. The major advantage of using the PTFE material in valve design, is that due to its extremely low leaching and resistance to chemicals, PTFE is ideal for both high purity and highly corrosive applications.

**Valve / Fitting / Ball / Seat / O-Ring / Bellow / Diaphragm**

**Piston Ring and Rod Ring / Bolt & Nut / Bridge PTFE Sliding Pad**

**Sheet / Tube, Rod / Tube Connector**



## Plastic and Rubber Products

**Flange Cap**

**Butterfly Valve Seat**

**Customized Products**





# VALVE ACCESSORIES

## Metal Products

Investment Castings and Machined Metal Products

The most common materials we pour are CF8M / CF8 CF3M, HASTELLOY C, ALLOY 20, CA15, MONEL, STELLITE 6, SUPER DUPLEX, CX2MW, CW12MW, CD3MN

Contact us if required materials not listed above.

### Valve Body, Valve Cap

### Valve Ball

### Valve Stem

### Hardware Part

### Motor Pump Shaft

### Fitting

### Motor Parts

### Medical Part

### Customized Products



# ACTUATOR

## Pneumatic Actuator - Operating Conditions

### PRESSURE RANGES

2 bar(29 psi) to 8 bar(116 psi) double acting  
3 bar(44 psi) to 8 bar(116 psi) spring return

### TEMPERATURE RANGES

Std. (NBR O-ring) -20°C (-4°F) to +80°C(+178°F)  
Lower Temp. (HNBR O-ring) -40°C(-40°F) to +80°C(178°F)  
High Temp. (Viton O-ring) -15°C(+5°F) to 150°C(300°F)

\* Note: Special grease is required for low and high temperature service condition.

### WIDE RANGE AVAILABLE

The actuator range consists of 14 sizes, with torques from 9Nm(80in.lbs) to 3,920Nm(34,660in.lbs) at 6 bar (87 psig) air supply.

### OPERATING MEDIA

Filtered dry or lubricated air for non-corrosive gas, water or light hydraulic oil.  
The maximum particle size must not exceed 30 microns.

### STROKE ADJUSTMENT

0° and 90° with standard adjustment +/- 5°

### LUBRICATION

All moving parts are factory lubricated for entire life cycle of actuator.

### CONSTRUCTION

Twin piston rack and pinion actuator design, suitable for indoor and outdoor installation.

### CONNECTIONS

Bottom drilling complies with ISO 5211 / DIN 3337 to match valve.  
Interface for solenoid valve, shaft top end and top drilling for assembling accessories are in accordance with VDI/VDE-3845, NAMUR standard.



### INSPECTION

Every actuator is hydraulically tested, certified and guaranteed for a minimum of 100,000 cycles.

ACTUATOR

## Pneumatic Actuator Features

### INDICATOR

A position indicator with Namur mounting is standard on all NUTORK pneumatic actuators for mounting accessories.

### PINION

The hardened alloy steel pinion is precision ground and Nickel plated (over 15  $\mu$ m) in order to reduce friction, provide maximum wear resistance. Full conformance with the newest standards of ISO5211 & DIN3337. The dimensions can be customized and as options, stainless steel and aluminum alloy are also available.

### ACTUATOR BODY

The aluminum extrusion is hard anodized (over 30  $\mu$ m) to protect against wear and corrosion while reducing piston friction to the absolute minimum. Other options such as Nickel, Ceramic, PTFE, Polyester coated are available.

### END CAPS

Epoxy coated (over 80  $\mu$ m) die cast aluminum end caps provide maximum resistance against potentially corrosive elements. Other treatments such as Nickel, Ceramic, PTFE, Polyester coated are available.

\* We reserve the rights to adjust contents of this catalogue.

### PISTONS

The precisely-balanced and hard anodized treatment (over 30  $\mu$ m) die cast aluminum pistons are fitted with high quality rings and guides. The twin rack and piston design creates a constant torque output on all actuators.

### TRAVEL ADJUSTMENT

The standard adjustment is +/-5° in both the open and closed positions through easily accessible external adjustment bolts.

### HIGH PERFORMANCE SPRINGS

The high tensile steel springs are coated with Epoxy coated for corrosion resistance and longer service.  
The pre-loaded springs can be safely & rapidly disassembled.

### BEARINGS & GUIDES

The highly durable compound material provides high trust stability with minimum friction and long life.

### O-RINGS

NBR O-ring provide trouble-free operation at standard temperature ranges. Viton and HNBR O-rings are available for high or low temperature applications.



# BUENO TECHNOLOGY CO., LTD.

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