



*We are one-stop total solution provider of
UHP gas delivering components*

www.asflow.com

Headquarters / R&D Center

38, Jeongnamsandan-ro, Jeongnam-myeon, Hwaseong-si, Gyeonggi-do, Korea (18514)
TEL. 82-31-352-2301 FAX. 82-31-352-2309

Sales Office

B - 3321, 27, Dongtancheomdansaneop 1-ro, Hwaseong-si, Gyeonggi-do, Korea (18469)



FITTINGS PIPES & TUBES

Your One-stop Total Solution Provider for UHP Gas Delivery System

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YOUR ONE-STOP TOTAL SOLUTION PROVIDER FOR UHP GAS DELIVERY SYSTEM

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Fittings

Our expertise in design, manufacturing and materials ensures our fittings to meet or to exceed our customers' expectation for quality



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Metal Seal Fittings



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Specification

Pressure ratings comply with calculations in accordance with ANSI code for Pressure Piping B31.3, Process Piping.

Working pressure ratings determined at room temperature with gasket materials shown.

Plating :

Female nuts are plated with silver. Chemical processes used for cleaning, electropolishing, and passivation may remove plating.
Damaged or removed plating may cause thread galling, damage of fitting components and prevention of a proper seal.

Packing :

Packing is performed in cleaning room (Class 100) All Products are double packed.
Metal seal fittings of both EP and BA fittings are covered with blue and yellow caps respectively.

Cleaning :

Passivation and Ultra-sonic cleaning with minimum 18MΩ of D.I water after passivation.

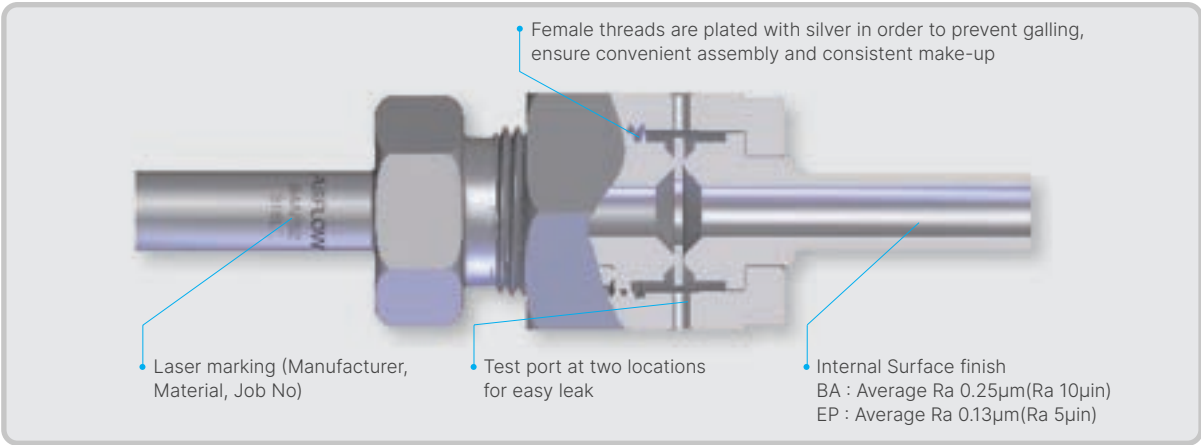
Materials

	Material	Designator	Specification
Body	SUS316L Single Melt (VOD)	SM	ASTM A276 / A479
	SUS316L Double Melt (VAR)	DM	JIS 4303 MOD
	Hastelloy C-22	HS	ASTM B 622
Gasket	SUS316L	316L	ASTM A167
	Nickel	Ni	ASTM B162
Nut	SUS316 / 316L	316 / 316L	ASTM A276
	SUS304	304	ASTM A 493 / JIS G 4318

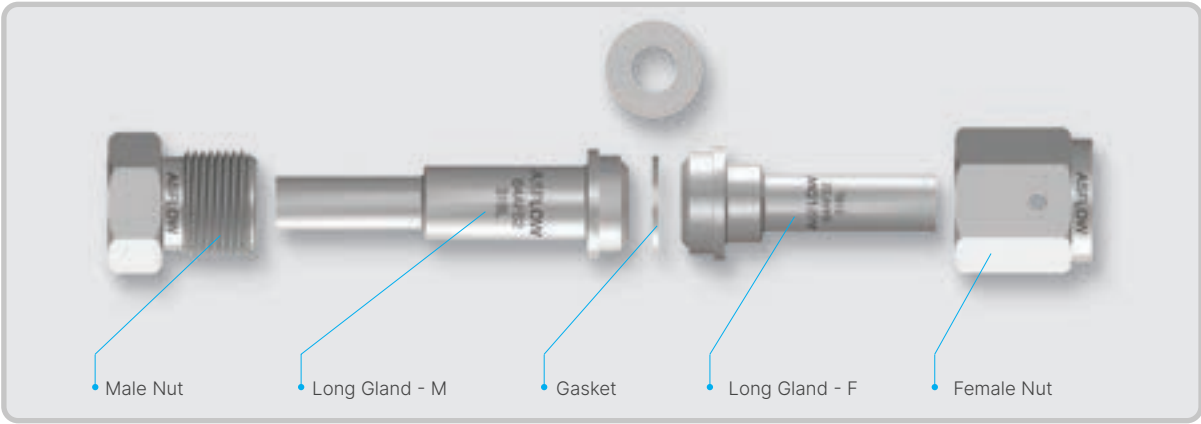
Internal Surface Finish Levels

Designator	Surface Finish (Ry)	Surface Finish (Ra)
	Maximum	Maximum
BA	3.0 μm	10 μinch
EP	0.7 μm	5 μinch

Feature



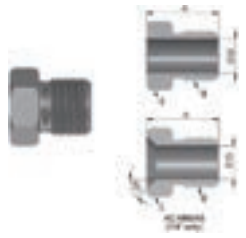
Assembly



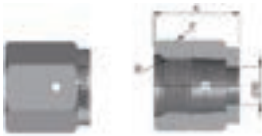
Ordering Information

AC		MN		08		Only for Reducing		Ni			
Classifications		Product		Size		Size		Material (Only for Gasket)			
Classifications		Product						Size			
AC	Clean Fittings	MN	Male Nut	ALGM	ATW Long Gland-M	MEC	Male Elbow	02	1/8"	6M	6mm
		FN	Female Nut	MGF	Micro Gland-F	MUT	Male Union Tee	04	1/4"	8M	6mm
		GSK	Gasket with Retainer	MGM	Micro Gland-M	MUC	Male Union Cross	06	3/8"	10M	10mm
		PGSK	Plate Gasket	CLC	Close Coupling	BWC	B/W Connector	08	1/2"	12M	12mm
		BGSK	Blind Gasket	BHU	Bulkhead Union	HG	HVCR Gland	10	5/8"	18M	18mm
		CP	Cap	DMU	Double Male Union	HMN	HVCR Male Nut	12	3/4"		
		PG	Plug	MUE	Male Union Elbow	HFN	HVCR Female Nut	16	1"		
		LGF	Long Gland-F	MC	Male Connector						
		LGM	Long Gland-M								
		ALGF	ATW Long Gland-F								

Male Nut

	Ordering No.	Head Size	ID (mm)	A (mm)	F (Hex Flat) (mm)	M
	AC-MN02	1/8"	5.30	12.70	9.52	5/16-24UNF
	AC-MN04	1/4"	9.10	18.30	15.90	9/16-18UNF
	AC-MN04S	1/4"	9.10	18.30	15.90	9/16-18UNF
	AC-MN08	1/2"	15.50	20.00	23.80	7/8-14UNF
	AC-MN12	3/4"	22.60	25.40	33.30	1-1/4-18UNEF
	AC-MN16	1"	30.50	30.20	41.30	1-1/2-20UN

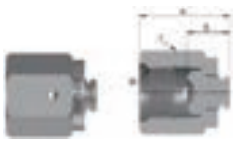
Female Nut

	Ordering No.	Head Size	ID (mm)	A (mm)	F (Hex Flat) (mm)	M
	AC-FN02	1/8"	5.30	13.50	11.11	5/16-24UNF
	AC-FN04	1/4"	9.10	20.75	19.05	9/16-18UNF
	AC-FN08	1/2"	15.50	22.50	26.90	7/8-14UNF
	AC-FN12	3/4"	22.60	28.50	38.10	1-1/4-18UNEF
	AC-FN16	1"	30.50	34.00	44.50	1-1/2-20UN

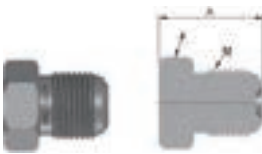
Gasket

Gasket with Retainer	Ordering No.	Head Size	OD (mm)	ID (mm)	A (mm)
 •Materials : SUS 316L/Nickel	AC-GSK04	1/4"	11.85	5.50	0.80
	AC-GSK08	1/2"	19.27	11.10	0.80
	AC-GSK12	3/4"	27.90	16.80	0.80
	AC-GSK16	1"	34.20	22.60	0.75
	AC-PGSK04	1/4"	12.70	5.50	0.75
	AC-PGSK08	1/2"	19.80	11.10	0.75
	AC-PGSK12	3/4"	29.00	16.80	0.75
	AC-PGSK16	1"	35.80	22.60	0.75
	AC-BGSK04	1/4"	12.40	-	0.80
	AC-BGSK08	1/2"	19.80	-	0.80
	AC-BGSK12	3/4"	29.00	-	0.80
	AC-BGSK16	1"	35.80	-	0.80

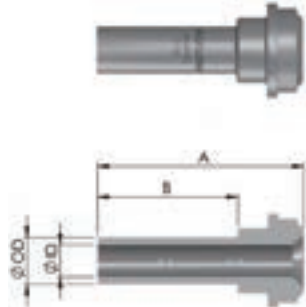
Cap

	Ordering No.	Head Size	A (mm)	B (mm)	F (Hex Flat) (mm)	M
	AC-CP04	1/4"	22.90	11.30	19.10	9/16-18UNF
	AC-CP08	1/2"	25.60	12.20	27.00	7/8-14UNF
	AC-CP12	3/4"	32.80	13.70	38.10	1-1/4-18UNEF
	AC-CP16	1"	39.40	16.00	44.50	1-1/2-20UN

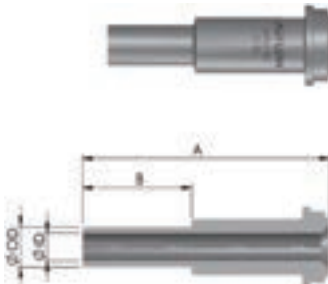
Plug

	Ordering No.	Head Size	A (mm)	F (Hex Flat) (mm)	M
	AC-PG02	1/8"	17.30	9.52	5/16-24UNF
	AC-PG04	1/4"	23.20	15.90	9/16-18UNF
	AC-PG08	1/2"	27.30	23.80	7/8-14UNF
	AC-PG12	3/4"	36.30	33.30	1-1/4-18UNEF
	AC-PG16	1"	38.60	41.30	1-1/2-20UN

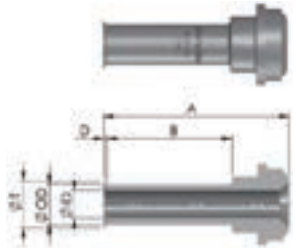
Long Gland-F

	Ordering No.	Head Size	Tube Size (OD)	OD (mm)	ID (mm)	A (mm)	B (mm)
	AC-LGF02	1/8"	1/8"	3.18	1.78	27.40	19.05
	AC-LGF04	1/4"	1/4"	6.35	4.35	27.94	19.05
	AC-LGF06	3/8"	3/8"	9.53	7.53	28.45	19.05
	AC-LGF08	1/2"	1/2"	12.70	10.22	28.45	19.05
	AC-LGF0804	1/2"	1/4"	6.35	4.35	28.45	19.05
	AC-LGF12	3/4"	3/4"	19.05	15.75	34.50	19.05
	AC-LGF1204	3/4"	1/4"	6.35	4.35	34.50	19.05
	AC-LGF1206	3/4"	3/8"	9.53	7.53	34.50	19.05
	AC-LGF1208	3/4"	1/2"	12.70	10.22	34.50	19.05
	AC-LGF16	1"	1"	25.40	22.10	38.60	19.05
	AC-LGF1604	1"	1/4"	6.35	4.35	38.60	19.05
	AC-LGF1606	1"	3/8"	9.53	7.53	38.60	19.05
	AC-LGF1608	1"	1/2"	12.70	10.22	38.60	19.05
	AC-LGF1612	1"	3/4"	19.05	15.75	38.60	19.05
	AC-LGF046M	1/4"	6M	6.00	4.00	27.94	19.05
	AC-LGF048M	1/4"	8M	8.00	6.00	27.94	19.05
	AC-LGF0810M	1/2"	10M	10.00	8.00	28.45	19.05
	AC-LGF0812M	1/2"	12M	12.00	10.00	28.45	19.05
	AC-LGF1218M	3/4"	18M	18.00	15.00	34.50	19.05

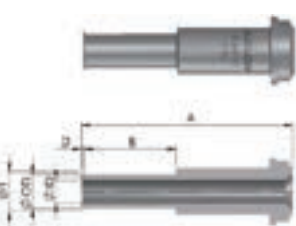
Long Gland-M

	Ordering No.	Head Size	Tube Size (OD)	OD (mm)	ID (mm)	A (mm)	B (mm)
	AC-LGM02	1/8"	1/8"	3.18	1.78	36.00	19.05
	AC-LGM0402	1/4"	1/8"	3.18	1.74	43.18	19.05
	AC-LGM04	1/4"	1/4"	6.35	4.35	43.18	19.05
	AC-LGM06	3/8"	3/8"	9.53	7.53	45.47	19.05
	AC-LGM08	1/2"	1/2"	12.70	10.22	45.47	19.05
	AC-LGM0804	1/2"	1/4"	6.35	4.35	45.47	19.05
	AC-LGM12	3/4"	3/4"	19.05	15.75	51.56	19.05
	AC-LGM1204	3/4"	1/4"	6.35	4.35	51.56	19.05
	AC-LGM1206	3/4"	3/8"	9.53	7.53	51.56	19.05
	AC-LGM1208	3/4"	1/2"	12.70	10.22	51.56	19.05
	AC-LGM16	1"	1"	25.40	22.10	58.93	19.05
	AC-LGM1604	1"	1/4"	6.35	4.35	58.93	19.05
	AC-LGM1606	1"	3/8"	9.53	7.53	58.93	19.05
	AC-LGM1608	1"	1/2"	12.70	10.22	58.93	19.05
	AC-LGM1612	1"	3/4"	19.05	15.75	58.93	19.05
	AC-LGM046M	1/4"	6M	6.00	4.00	43.18	19.05
	AC-LGM048M	1/4"	8M	8.00	6.00	43.18	19.05
	AC-LGM0810M	1/2"	10M	10.00	8.00	45.47	19.05
	AC-LGM0812M	1/2"	12M	12.00	10.00	45.47	19.05
	AC-LGM1218M	3/4"	18M	18.00	15.00	51.56	19.05

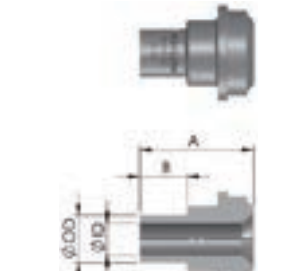
ATW Long Gland-F

	Ordering No.	Head Size	Tube Size (OD)	OD (mm)	ID (mm)	A (mm)	B (mm)	D (mm)	T (mm)
	AC-ALGF04	1/4"	1/4"	6.35	4.35	28.50	19.10	0.50	7.37
	AC-ALGF06	3/8"	3/8"	9.53	7.53	29.26	19.10	0.75	10.41
	AC-ALGF08	1/2"	1/2"	12.70	10.22	29.52	19.10	1.02	13.97
	AC-ALGF0804	1/2"	1/4"	6.35	4.35	29.00	19.10	0.50	7.37

ATW Long Gland-M

	Ordering No.	Head Size	Tube Size (OD)	OD (mm)	ID (mm)	A (mm)	B (mm)	D (mm)	T (mm)
	AC-ALGM04	1/4"	1/4"	6.35	4.35	28.50	19.10	0.50	7.37
	AC-ALGM06	3/8"	3/8"	9.53	7.53	29.26	19.10	0.75	10.41
	AC-ALGM08	1/2"	1/2"	12.70	10.22	29.52	19.10	1.02	13.97
	AC-ALGM0804	1/2"	1/4"	6.35	4.35	29.00	19.10	0.50	7.37
	AC-ALGM12	3/4"	3/4"	19.05	15.75	52.62	19.10	1.02	20.32
	AC-ALGM16	1"	1"	25.40	22.10	59.92	20.00	1.02	26.92

Micro Gland-F

	Ordering No.	Head Size	Tube Size (OD)	OD (mm)	ID (mm)	A (mm)	B (mm)
	AC-MGF02	1/8"	1/8"	3.18	1.75	14.70	6.35
	AC-MGF04	1/4"	1/4"	6.35	4.35	15.30	6.35
	AC-MGF06	3/8"	3/8"	9.53	7.53	15.80	6.35
	AC-MGF08	1/2"	1/2"	12.70	10.22	15.80	6.35
	AC-MGF0804	1/2"	1/4"	6.35	4.35	15.80	6.35
	AC-MGF046M	1/4"	6M	6.00	4.00	15.80	6.35
	AC-MGF048M	1/4"	8M	8.00	6.00	15.80	6.35
	AC-MGF0810M	1/2"	10M	10.00	8.00	15.80	6.35
	AC-MGF0812M	1/2"	12M	12.00	10.00	15.80	6.35

Micro Gland-M

	Ordering No.	Head Size	Tube Size (OD)	OD (mm)	ID (mm)	A (mm)	B (mm)
	AC-MGM02	1/8"	1/8"	3.18	1.75	23.40	6.35
	AC-MGM04	1/4"	1/4"	6.35	4.35	30.50	6.35
	AC-MGM06	3/8"	3/8"	9.53	7.53	32.80	6.35
	AC-MGM08	1/2"	1/2"	12.70	10.22	32.80	6.35
	AC-MGM0804	1/2"	1/4"	6.35	4.35	32.77	6.35
	AC-MGM046M	1/4"	6M	6.00	4.00	30.50	6.35
	AC-MGM048M	1/4"	8M	8.00	6.00	30.50	6.35
	AC-MGM0810M	1/2"	10M	10.00	8.00	32.80	6.35
	AC-MGM0812M	1/2"	12M	12.00	10.00	32.80	6.35

Close Coupling

	Ordering No.	Head Size	Tube Size (OD)	ID (mm)	A (mm)	F (Hex Flat) (mm)	M
	AC-CLC04	1/4"	1/4"	4.35	55.88	19.05	9/16-18UNF
	AC-CLC08	1/2"	1/2"	10.22	56.90	26.90	7/8-14UNF

Bulkhead Union

	Ordering No.	Head Size	ID (mm)	A (mm)	B (mm)	F (Hex Flat) (mm)	M
	AC-BHU04	1/4"	4.35	56.60	33.40	19.10	9/16-18UNF
	AC-BHU08	1/2"	10.22	65.30	37.60	27.00	7/8-14UNF
	AC-BHU12	3/4"	15.75	79.00	43.00	38.00	1-1/4-18UNEF
	AC-BHU16	1"	22.10	86.00	47.00	44.40	1-1/2-20UN

Double Male Union

	Ordering No.	Head Size	ID (mm)	A (mm)	F (Hex Flat) (mm)	M
	AC-DMU04	1/4"	4.35	39.40	16.00	9/16-18UNF
	AC-DMU08	1/2"	10.22	47.30	24.00	7/8-14UNF
	AC-DMU12	3/4"	15.75	62.00	33.30	1-1/4-18UNEF
	AC-DMU16	1"	22.10	65.80	42.80	1-1/2-20UN

Male Union Elbow

	Ordering No.	Head Size	ID (mm)	L (mm)	F (Body Cube) (mm)	M
	AC-MUE04	1/4"	4.35	27.00	16.00	9/16-18UNF
	AC-MUE08	1/2"	10.22	36.80	24.00	7/8-14UNF
	AC-MUE12	3/4"	15.75	48.77	33.30	1-1/4-18UNEF
	AC-MUE16	1"	22.10	50.80	42.80	1-1/2-20UN

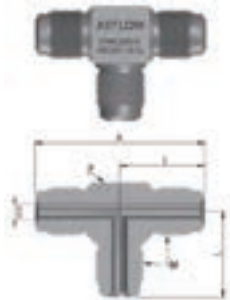
Male Connector

	Ordering No.	Head Size	T-NPT Size	ID (mm)	A (mm)	B (mm)	F (Hex Flat) (mm)	M
	AC-MC04	1/4"	1/4" NPT	4.35	37.84	14.22	15.90	9/16-18UNF
	AC-MC08	1/2"	1/2" NPT	10.22	46.74	19.05	23.80	7/8-14UNF
	AC-MC0804	1/2"	1/4" NPT	4.35	41.90	14.22	23.80	7/8-14UNF
	AC-MC0806	1/2"	3/8" NPT	7.53	41.90	14.22	23.80	7/8-14UNF
	AC-MC12	3/4"	3/4" NPT	15.75	55.63	19.05	33.30	1-1/4-18UNEF
	AC-MC1204	3/4"	1/4" NPT	4.35	50.80	14.22	33.30	1-1/4-18UNEF
	AC-MC1206	3/4"	3/8" NPT	7.53	50.80	14.22	33.30	1-1/4-18UNEF
	AC-MC1208	3/4"	1/2" NPT	10.22	55.63	19.05	33.30	1-1/4-18UNEF
	AC-MC1216	3/4"	1" NPT	15.75	61.74	23.88	41.30	1-1/4-18UNEF
	AC-MC16	1"	1" NPT	22.10	62.74	23.88	41.30	1-1/2-20UN
	AC-MC1604	1"	1/4" NPT	4.35	53.08	14.22	41.30	1-1/2-20UN
	AC-MC1606	1"	3/8" NPT	7.53	53.08	14.22	41.30	1-1/2-20UN
	AC-MC1608	1"	1/2" NPT	10.22	57.90	19.05	41.30	1-1/2-20UN
	AC-MC1612	1"	3/4" NPT	15.75	57.90	19.05	41.30	1-1/2-20UN

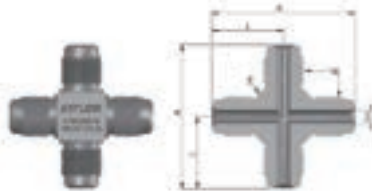
Male Elbow

	Ordering No.	Head Size	T-NPT Size	ID (mm)	A (mm)	B (mm)	F (Body Cube) (mm)	M
	AC-MEC04	1/4"	1/4" NPT	4.35	27.00	26.67	16.00	9/16-18UNF
	AC-MEC08	1/2"	1/2" NPT	10.22	36.80	36.83	24.00	7/8-14UNF
	AC-MEC0804	1/2"	1/4" NPT	4.35	36.80	26.22	24.00	7/8-14UNF
	AC-MEC0806	1/2"	3/8" NPT	7.53	36.80	26.22	24.00	7/8-14UNF
	AC-MEC12	3/4"	3/4" NPT	15.75	48.77	43.50	33.30	1-1/4-18UNEF
	AC-MEC1204	3/4"	1/4" NPT	4.35	48.77	30.87	33.30	1-1/4-18UNEF
	AC-MEC1206	3/4"	3/8" NPT	7.53	48.77	30.87	33.30	1-1/4-18UNEF
	AC-MEC1208	3/4"	1/2" NPT	10.22	48.77	35.70	33.30	1-1/4-18UNEF
	AC-MEC16	1"	1" NPT	22.10	50.80	45.28	42.80	1-1/2-20UN
	AC-MEC1604	1"	1/4" NPT	4.35	50.80	35.62	42.80	1-1/2-20UN
	AC-MEC1606	1"	3/8" NPT	7.53	50.80	35.62	42.80	1-1/2-20UN
	AC-MEC1608	1"	1/2" NPT	10.22	50.80	40.90	42.80	1-1/2-20UN
	AC-MEC1612	1"	3/4" NPT	15.75	50.80	40.90	42.80	1-1/2-20UN

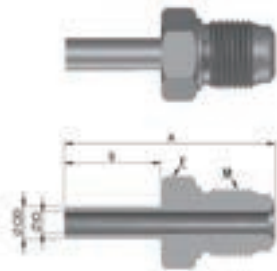
Male Union Tee

	Ordering No.	Head Size	ID (mm)	A (mm)	L (mm)	F (Body Cube) (mm)	M
	AC-MUT04	1/4"	4.35	54.00	27.00	16.00	9/16-18UNF
	AC-MUT08	1/2"	10.22	73.60	36.80	24.00	7/8-14UNF

Male Union Cross

	Ordering No.	Head Size	ID (mm)	A (mm)	L (mm)	F (Body Cube) (mm)	M
	AC-MUC04	1/4"	4.35	54.00	27.00	16.00	9/16-18UNF
	AC-MUC08	1/2"	10.22	73.60	36.80	24.00	7/8-14UNF

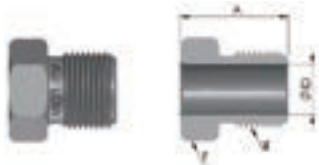
B/W Connector

	Ordering No.	Head Size	Tube Size (OD)	OD (mm)	ID (mm)	A (mm)	B (mm)	F (Hex Flat) (mm)	M
	AC-BWC04	1/4"	1/4"	6.35	4.35	42.67	19.10	15.90	9/16-18UNF
	AC-BWC08	1/2"	1/2"	12.70	10.22	46.72	19.10	23.80	7/8-14UNF
	AC-BWC0804	1/2"	1/4"	6.35	4.35	46.72	19.10	23.80	7/8-14UNF
	AC-BWC0806	1/2"	3/8"	9.53	7.53	46.72	19.10	23.80	7/8-14UNF

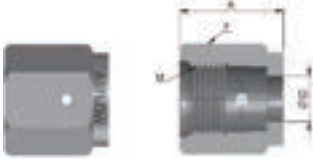
HVCR Gland

	Ordering No.	Head Size	Tube Size (OD)	OD (mm)	ID (mm)	ID1 (mm)	A (mm)	B (mm)
	AC-HG06	1/4"	3/8"	9.53	7.53	6.35	33.20	28.40

HVCR Male Nut

	Ordering No.	Head Size	ID (mm)	A (mm)	F (Hex Flat) (mm)	M
	AC-HMN04	1/4"	9.90	18.30	15.90	9/16-18UNF

HVCR Female Nut

	Ordering No.	Head Size	ID (mm)	A (mm)	F (Hex Flat) (mm)	M
	AC-HFN04	1/4"	9.90	20.75	19.05	9/16-18UNF

Weld Fittings



Index

20	Micro Elbow	20	Micro Reducing Elbow	20	Micro Tee	21	Micro Reducing Tee
							
21	Micro Cross	21	Micro Tribow	21	Micro 45° Elbow	22	Micro Reducing Union
							
22	Long Elbow	22	Long Tee	23	Long Reducing Tee	23	Long Reducing Union
							

Specification

Pressure ratings comply with calculations in accordance with ANSI code for Pressure Piping B31.3, Process Piping.

Working pressure ratings determined at room temperature with gasket materials shown.

Plating :

Female nuts are plated with silver. Chemical processes used for cleaning, electropolishing, and passivation may remove plating.
Damaged or removed plating may cause thread galling, damage of fitting components and prevention of a proper seal.

Packing :

Packing is performed in cleaning room (Class 100) All Products are double packed.

Cleaning :

Passivation and Ultra-sonic cleaning with minimum 18MΩ of D.I water after passivation.

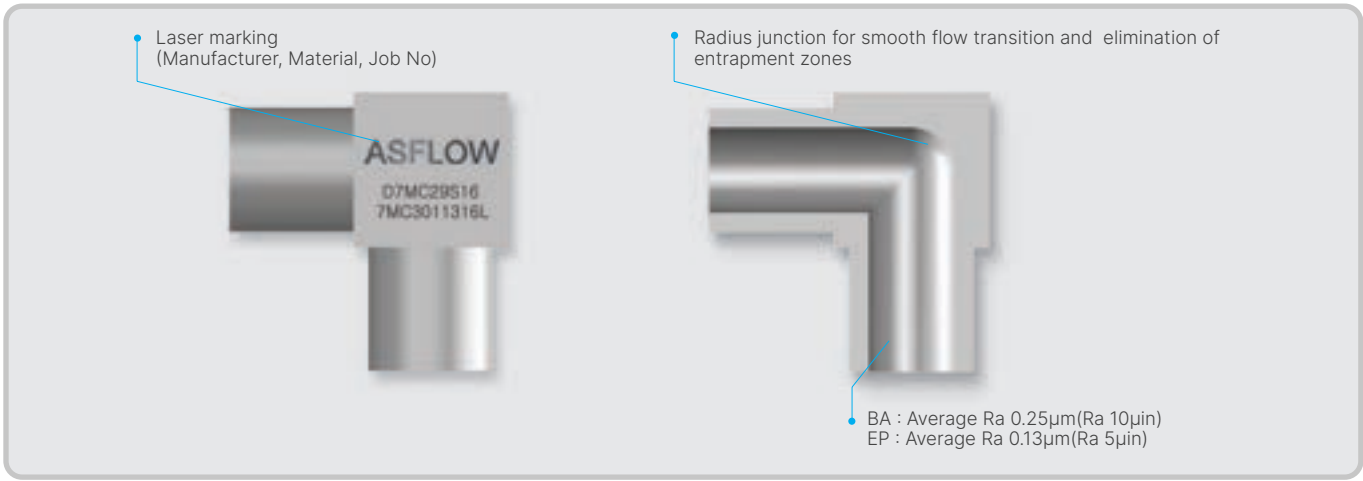
Materials

	Material	Designator	Specification
Body	SUS316L Single Melt (VOD)	SM	ASTM A276 / A479 JIS 4303 MOD ASTM B 622
	SUS316L Double Melt (VAR)	DM	
	Hastelloy C-22	HS	

Internal Surface Finish Levels

Designator	Surface Finish (Ry)	Surface Finish (Ra)
	Maximum	Maximum
BA	3.0 μm	10 μinch
EP	0.7 μm	5 μinch

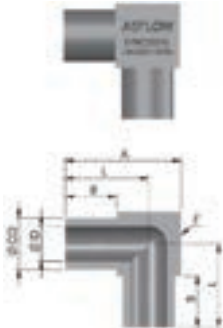
Feature



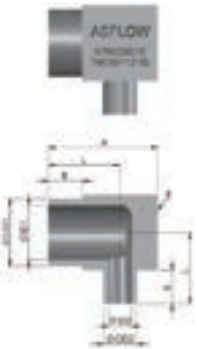
Ordering Information

AC		MN		08		Only for Reducing			
Classifications		Product		Size		Size			
Classifications	Product	Size	Size	Size	Size	Size	Size	Size	Size
AC	Clean Fittings	ME	Micro Elbow	MOE	Micro 45° Elbow	02	1/8"	6M	6mm
		MRE	Micro Reducing Elbow	MRU	Micro Reducing Union	04	1/4"	8M	8mm
		MT	Micro Tee	LE	Long Elbow	06	3/8"	10M	10mm
		MRT	Micro Reducing Tee	LT	Long Tee	08	1/2"	12M	12mm
		MCS	Micro Cross	LRT	Long Reducing Tee	10	5/8"	18M	18mm
		MTW	Micro Tribow	LRU	Long Reducing Union	12	3/4"		
						16	1"		

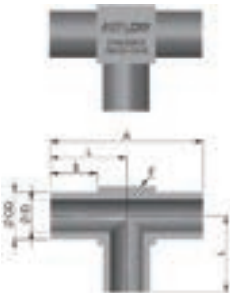
Micro Elbow

	Ordering No.	Size (OD)	OD (mm)	ID (mm)	A (mm)	B (mm)	L (mm)	F (Body Cube) (mm)
	AC-ME04	1/4"	6.35	4.35	14.29	6.35	10.32	7.94
	AC-ME06	3/8"	9.53	7.53	17.46	6.35	11.91	11.11
	AC-ME08	1/2"	12.70	10.22	20.46	6.35	13.50	14.29
	AC-ME12	3/4"	19.05	15.75	27.00	6.35	16.68	20.65
	AC-ME16	1"	25.4	22.1	33.35	6.35	19.85	27
	AC-ME6M	6M	6.00	4.00	14.29	6.35	10.32	7.94
	AC-ME8M	8M	8.00	6.00	17.46	6.35	11.91	11.11
	AC-ME10M	10M	10.00	8.00	17.46	6.35	11.91	11.11
	AC-ME12M	12M	12.00	10.00	20.64	6.35	13.50	14.29

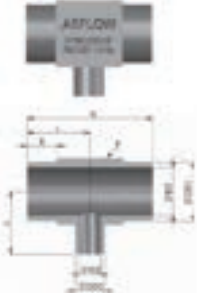
Micro Reducing Elbow

	Ordering No.	Size (OD1)	Size (OD2)	OD (mm)		ID (mm)		A (mm)	B (mm)	L (mm)	F (Body Cube) (mm)
	AC-MRE0402	1/4"	1/8"	6.35	3.18	4.35	1.75	14.30	6.35	10.32	7.94
	AC-MRE0604	3/8"	1/4"	9.53	6.35	7.53	4.35	17.46	6.35	11.91	11.11
	AC-MRE0804	1/2"	1/4"	12.70	6.35	10.22	4.35	20.46	6.35	13.50	14.29
	AC-MRE0806	1/2"	3/8"	12.70	9.53	10.22	7.53	20.46	6.35	13.50	14.29
	AC-MRE8M6M	8M	6M	8.00	6.00	6.00	4.00	17.46	6.35	11.91	11.11
	AC-MRE12M6M	12M	6M	12.00	6.00	10.00	4.00	20.46	6.35	13.50	14.29
	AC-MRE12M8M	12M	8M	12.00	8.00	10.00	6.00	20.46	6.35	13.50	14.29

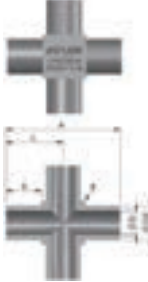
Micro Tee

	Ordering No.	Size (OD)	OD (mm)	ID (mm)	A (mm)	B (mm)	L (mm)	F (Body Cube) (mm)
	AC-MT02	1/8"	3.18	1.70	20.64	6.35	10.32	7.94
	AC-MT04	1/4"	6.35	4.35	20.64	6.35	10.32	7.94
	AC-MT06	3/8"	9.53	7.53	23.81	6.35	11.91	11.11
	AC-MT08	1/2"	12.70	10.22	26.99	6.35	13.50	14.29
	AC-MT12	3/4"	19.05	15.75	33.35	6.35	16.68	20.65
	AC-MT16	1"	25.4	22.1	39.7	6.35	19.85	27
	AC-MT6M	6M	6.00	4.00	20.64	6.35	10.32	7.94
	AC-MT8M	8M	8.00	6.00	23.81	6.35	11.91	11.11
	AC-MT10M	10M	10.00	8.00	23.81	6.35	11.91	11.11
	AC-MT12M	12M	12.00	10.00	26.99	6.35	13.50	14.29

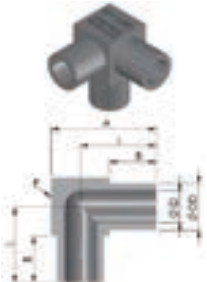
Micro Reducing Tee

	Ordering No.	Size (OD1)	Size (OD2)	OD (mm)		ID (mm)		A (mm)	B (mm)	L (mm)	F (Body Cube) (mm)
	AC-MRT0604	3/8"	1/4"	9.53	6.35	7.53	4.35	17.46	6.35	11.91	11.11
	AC-MRT0804	1/2"	1/4"	12.70	6.35	10.22	4.35	20.46	6.35	13.50	14.29
	AC-MRT0806	1/2"	3/8"	12.70	9.53	10.22	7.53	20.46	6.35	13.50	14.29
	AC-MRT8M6M	8M	6M	8.00	6.00	6.00	4.00	17.46	6.35	11.91	11.11
	AC-MRT10M6M	10M	6M	10.00	6.00	8.00	4.00	17.46	6.35	11.91	11.11
	AC-MRT12M6M	12M	6M	12.00	6.00	10.00	4.00	20.46	6.35	13.50	14.29
	AC-MRT12M8M	12M	8M	12.00	8.00	10.00	6.00	20.46	6.35	13.50	14.29

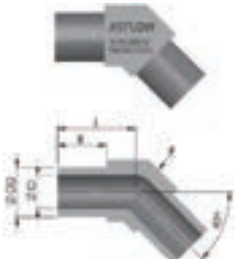
Micro Cross

	Ordering No.	Size (OD)	OD (mm)	ID (mm)	A (mm)	B (mm)	L (mm)	F (Body Cube) (mm)
	AC-MCS04	1/4"	6.35	4.35	20.64	6.35	10.32	7.94
	AC-MCS06	3/8"	9.53	7.53	23.81	6.35	11.91	11.11
	AC-MCS08	1/2"	12.70	10.22	26.99	6.35	13.50	14.29
	AC-MCS6M	6M	6.00	4.00	20.64	6.35	10.32	7.94
	AC-MCS8M	8M	8.00	6.00	23.81	6.35	11.91	11.11
	AC-MCS10M	10M	10.00	8.00	23.81	6.35	11.91	11.11
	AC-MCS12M	12M	12.00	10.00	26.99	6.35	13.50	14.29

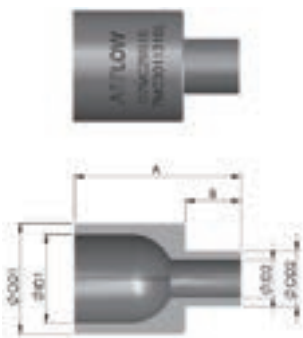
Micro Tribow

	Ordering No.	Size (OD)	OD (mm)	ID (mm)	A (mm)	B (mm)	L (mm)	F (Body Cube) (mm)
	AC-MTW04	1/4"	6.35	4.35	14.29	6.35	10.32	7.94
	AC-MTW06	3/8"	9.53	7.53	17.47	6.35	11.91	11.11
	AC-MTW08	1/2"	12.70	10.22	20.64	6.35	13.50	14.29

Micro 45° Elbow

	Ordering No.	Size (OD)	OD (mm)	ID (mm)	B (mm)	L (mm)	F (Body Cube) (mm)
	AC-MOE04	1/4"	6.35	4.35	6.35	10.32	7.94
	AC-MOE06	3/8"	9.53	7.53	6.35	11.91	11.11
	AC-MOE08	1/2"	12.70	10.22	6.35	13.50	14.29
	AC-MOE6M	6M	6.00	4.00	6.35	10.10	7.94
	AC-MOE8M	8M	8.00	6.00	6.35	11.91	11.11
	AC-MOE10M	10M	10.00	8.00	6.35	11.91	11.11
	AC-MOE12M	12M	12.00	10.00	6.35	13.49	14.29

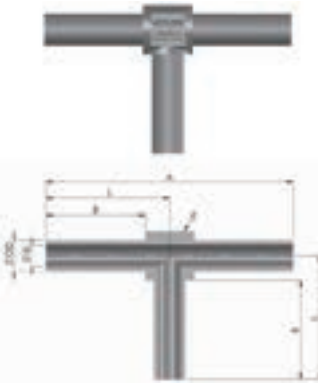
Micro Reducing Union

	Ordering No.	Size (OD1)	Size (OD2)	OD (mm)		ID (mm)		A (mm)	B (mm)
				OD1	OD2	ID1	ID2		
	AC-MRU0402	1/4"	1/8"	6.35	3.18	4.35	1.75	19.00	6.35
	AC-MRU0604	3/8"	1/4"	9.53	6.35	7.53	4.35	19.05	6.35
	AC-MRU0804	1/2"	1/4"	12.70	6.35	10.22	4.35	19.05	6.35
	AC-MRU0806	1/2"	3/8"	12.70	9.53	10.22	7.53	19.05	6.35
	AC-MRU8M6M	8M	6M	8.00	6.00	6.00	4.00	19.05	6.35
	AC-MRU10M6M	10M	6M	10.00	6.00	8.00	4.00	19.05	6.35
	AC-MRU10M8M	10M	6M	10.00	8.00	8.00	6.00	19.05	6.35
	AC-MRU12M6M	12M	6M	12.00	6.00	10.00	4.00	19.05	6.35
	AC-MRU12M8M	12M	8M	12.00	8.00	10.00	6.00	19.05	6.35
	AC-MRU12M10M	12M	8M	12.00	10.00	10.00	8.00	19.05	6.35

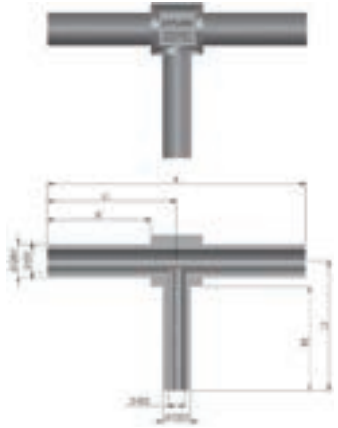
Long Elbow

	Ordering No.	Size (OD)	OD (mm)	ID (mm)	B (mm)	L (mm)	F (Body Cube) (mm)
	AC-LE04	1/4"	6.35	4.35	20.00	25.00	10.50
	AC-LE06	3/8"	9.53	7.53	20.00	26.00	12.50
	AC-LE08	1/2"	12.70	10.22	20.00	28.00	16.50
	AC-LE12	3/4"	19.05	15.75	23.00	34.00	23.00
	AC-LE16	1"	25.40	22.10	23.50	37.50	29.50
	AC-LE6M	6M	6.00	4.00	20.00	25.00	10.50
	AC-LE8M	8M	8.00	6.00	20.00	26.00	12.50
	AC-LE10M	10M	10.00	8.00	20.00	28.00	16.50
	AC-LE12M	12M	12.00	10.00	20.00	28.00	16.50
	AC-LE18M	18M	18.00	15.00	23.00	34.00	23.00

Long Tee

	Ordering No.	Size (OD)	OD (mm)	ID (mm)	A (mm)	B (mm)	L (mm)	F (Body Cube) (mm)
	AC-LT04	1/4"	6.35	4.35	50.00	20.00	25.00	10.50
	AC-LT06	3/8"	9.53	7.53	52.00	20.00	26.00	12.50
	AC-LT08	1/2"	12.70	10.22	56.00	20.00	28.00	16.50
	AC-LT12	3/4"	19.05	15.75	68.00	23.00	34.00	23.00
	AC-LT16	1"	25.40	22.10	75.00	23.50	37.50	29.50
	AC-LT6M	6M	6.00	4.00	50.00	20.00	25.00	10.50
	AC-LT8M	8M	8.00	6.00	52.00	20.00	26.00	12.50
	AC-LT10M	10M	10.00	8.00	56.00	20.00	28.00	16.50
	AC-LT12M	12M	12.00	10.00	56.00	20.00	28.00	16.50
	AC-LT18M	18M	18.00	15.00	68.00	23.00	34.00	23.00

Long Reducing Tee

	Ordering No.	Size (OD1)	Size (OD2)	OD (mm)		ID (mm)		A (mm)	B1 (mm)	L1 (mm)	B2 (mm)	L2 (mm)	F (Body Cube) (mm)
				OD1	OD2	ID1	ID2						
	AC-LRT0604	3/8"	1/4"	9.53	6.35	7.53	4.35	52.00	20.00	26.00	20.00	26.00	12.50
	AC-LRT0804	1/2"	1/4"	12.70	6.35	10.22	4.35	56.00	20.00	28.00	20.00	28.00	16.50
	AC-LRT0806	1/2"	3/8"	12.70	9.53	10.22	7.53	56.00	20.00	28.00	20.00	28.00	16.50
	AC-LRT1004	5/8"	1/4"	15.88	6.35	13.40	4.35	68.00	23.00	34.00	20.00	31.00	23.00
	AC-LRT1006	5/8"	3/8"	15.88	9.53	13.40	7.53	68.00	23.00	34.00	20.00	31.00	23.00
	AC-LRT1204	3/4"	1/4"	19.05	6.35	15.75	4.35	68.00	23.00	34.00	20.00	31.00	23.00
	AC-LRT1206	3/4"	3/8"	19.05	9.53	15.75	7.53	68.00	23.00	34.00	20.00	31.00	23.00
	AC-LRT1208	3/4"	1/2"	19.05	12.70	15.75	10.22	68.00	23.00	34.00	20.00	31.00	23.00
	AC-LRT1604	1"	1/4"	25.40	6.35	22.10	4.35	75.00	23.50	37.50	20.00	34.00	29.50
	AC-LRT1606	1"	3/8"	25.40	9.53	22.10	7.53	75.00	23.50	37.50	20.00	34.00	29.50
	AC-LRT1608	1"	1/2"	25.40	12.70	22.10	10.22	75.00	23.50	37.50	20.00	34.00	29.50
	AC-LRT1612	1"	3/4"	25.40	19.05	22.10	15.75	75.00	23.50	37.50	23.00	37.00	29.50

Long Reducing Union

	Ordering No.	Size (OD1)	Size (OD2)	OD (mm)		ID (mm)		A (mm)	B1 (mm)
				OD1	OD2	ID1	ID2		
	AC-LRU0402	1/4"	1/8"	6.35	3.18	4.35	1.75	38.00	19.00
	AC-LRU0604	3/8"	1/4"	9.53	6.35	7.53	4.35	39.00	19.00
	AC-LRU0804	1/2"	1/4"	12.70	6.35	10.22	4.35	39.00	19.00
	AC-LRU0806	1/2"	3/8"	12.70	9.53	10.22	7.53	39.00	19.00
	AC-LRU1204	3/4"	1/4"	19.05	6.35	15.75	4.35	42.90	19.00
	AC-LRU1206	3/4"	3/8"	19.05	9.53	15.75	7.53	42.90	19.00
	AC-LRU1208	3/4"	1/2"	19.05	12.70	15.75	10.22	42.90	19.00
	AC-LRU1604	1"	1/4"	25.40	6.35	22.10	4.35	44.50	19.00
	AC-LRU1606	1"	3/8"	25.40	9.53	22.10	7.53	44.50	19.00
	AC-LRU1608	1"	1/2"	25.40	12.70	22.10	10.22	44.50	19.00
	AC-LRU1612	1"	3/4"	25.40	19.05	22.10	15.75	48.50	23.00
	AC-LRU8M6M	8M	6M	8.00	6.00	6.00	4.00	39.00	19.00
	AC-LRU10M6M	10M	6M	10.00	6.00	8.00	4.00	39.00	19.00
	AC-LRU10M8M	10M	8M	10.00	8.00	8.00	6.00	39.00	19.00
	AC-LRU12M6M	12M	6M	12.00	6.00	10.00	4.00	39.00	19.00
	AC-LRU12M8M	12M	8M	12.00	8.00	10.00	6.00	39.00	19.00
	AC-LRU12M10M	12M	10M	12.00	10.00	10.00	8.00	39.00	19.00
	AC-LRU18M6M	18M	6M	18.00	6.00	15.00	4.00	42.90	19.00
	AC-LRU18M8M	18M	8M	18.00	8.00	15.00	6.00	42.90	19.00
	AC-LRU18M10M	18M	10M	18.00	10.00	15.00	8.00	42.90	19.00
	AC-LRU18M12M	18M	12M	18.00	12.00	15.00	10.00	42.90	19.00

Pipe & Tube Fittings



Index

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Specification

Pressure ratings comply with calculations in accordance with ANSI code for Pressure Piping B31.3, Process Piping.

Working pressure ratings determined at room temperature with gasket materials shown.

Plating :

Female nuts are plated with silver. Chemical processes used for cleaning, electropolishing, and passivation may remove plating.
Damaged or removed plating may cause thread galling, damage of fitting components and prevention of a proper seal.

Packing :

Packing is performed in cleaning room (Class 100) All Products are double packed.
Pipe & tube fittings are covered with different colors of caps to differentiate grades: blue for EP, white for BA, orange for MP and red for AP.

Cleaning :

Passivation and Ultra-sonic cleaning with minimum 18MΩ of D.I water after passivation.

Materials

	Material	Designator	Specification
Body	304	AP / MP	KSD3576 (JIS G 3459)
	316L	MP / BA / EP	

Internal Surface Finish Levels

Designator	Surface Finish (Ry)	Surface Finish (Ra)
	Maximum	Maximum
AP	-	200 μinch
MP	4.0 μm	20 μinch
BA	3.0 μm	10 μinch
EP	0.7 μm	5 μinch

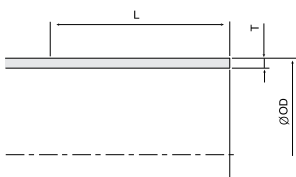
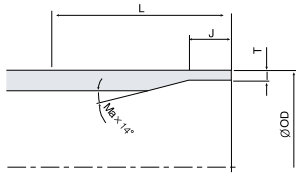
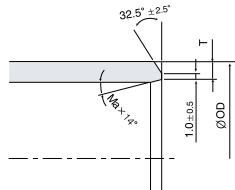
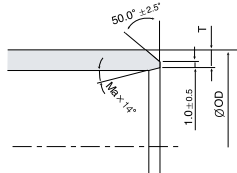
Ordering Information



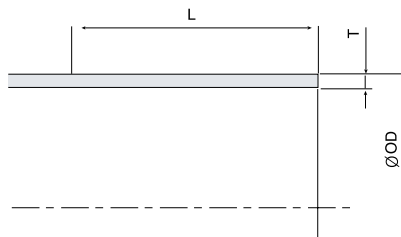
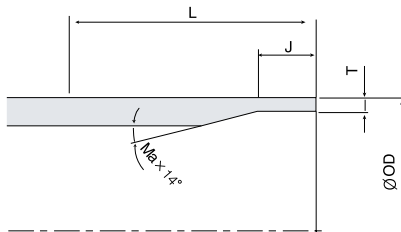
Classifications		Product				Size			
AB	Pipe&Tube Fittings	90E	90° Elbow	JR	Joint Reducer	04	1/4"	40	2-1/2"
		45E	45° Elbow	JCR	Joint Cap Reducer	06	3/8"	48	3"
		CP	Cap	MLT	Multi Tee	08	1/2"	64	4"
		ET	Equal Tee	MJT	Multi Joint Tee	10	5/8"	80	5"
		RT	Reducing Tee	CL	Clean Lap	12	3/4"	96	6"
		CR	Cap Reducer	FL	Flange	16	1"	* Pipe Size : __A	
		ER	Ecc Reducer	BF	Blind Flange	20	1-1/4"		
		CNR	Con Reducer	TF	Tube Flange	24	1-1/2"		
		JT	Joint Tee	PF	Pipe Flange	32	2"		

Classifications		Product				Size					
ACX	Coaxial Fittings	90E	90° Elbow	SL	Sleeve (Half Tube)	04	1/4"	20	1-1/4"	48	3"
		45E	45° Elbow	OT	Over Tube	06	3/8"	24	1-1/2"	64	4"
		RE	Con Reducer	TM	Terminator	08	1/2"	32	2"	80	5"
		ET	Equal Tee			10	5/8"	40	2-1/2"	96	6"
		RT	Reducing Tee			12	3/4"		* Pipe Size : __A		
		SS	Stop Spacer			16	1"				

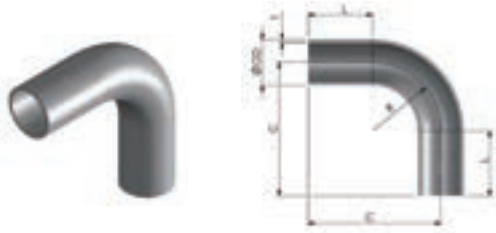
Pipe Size

Auto Welding Standard Form				Manual Welding Standard Form		
I	II			III	IV	
						
(unit = mm)						
Size	Outer Diameter	Thickness		Straight End Length	Thinning Length	
	OD	T = 5S	T = 10S	L	J = 5S	J = 10S
8A	13.8	1.20	1.7	29	4	5
10A	17.3	1.20	1.7	36	4	5
15A	21.7	1.65	2.1	36	5	6
20A	27.2	1.65	2.1	36	5	6
25A	34.0	1.65	2.8	36	5	7
32A	42.7	1.65	2.8	46	5	7
40A	48.6	1.65	2.8	46	5	7
50A	60.5	1.65	2.8	46	5	7
65A	76.3	2.1	3.0	51	6	8
80A	89.1	2.1	3.0	51	6	8
100A	114.3	2.1	3.0	51	6	8
125A	139.8	2.8	3.4	56	7	9
150A	165.2	2.8	3.4	56	7	9
200A	216.3	2.8	4.0	56	7	10
250A	267.4	3.4	4.0			
300A	318.5	4.0	4.5			
350A	355.6	4.0	5.0			
400A	406.4	4.5	5.0			
450A	457.2	4.5	5.0			
500A	508.0	5.0	5.5			
550A	558.8	5.0	5.5			
600A	609.6	5.0	6.5			

Tube Size

I			II	
				
(unit = mm)				
Size	Outer Diameter	Thickness	Straight End Length	Thinning Length
	OD	T	L	J
1/4"	6.35	1.0 (0.89)	29	4
3/8"	9.53	1.0 (0.89)	36	4
1/2"	12.7	1.0 (1.24)	36	4
5/8"	15.88	1.0 (1.24)	36	4
3/4"	19.05	1.65 (1.24)	36	5
1"	25.4	1.65 (1.24)	46	5
1-1/4"	31.8	1.65	46	5
1-1/2"	38.1	1.65	46	5
2"	50.8	1.65	51	5
2-1/2"	63.5	1.65	51	5
3"	76.2	1.65	51	5
4"	101.6	2.1	56	6
5"	127.0	2.77 (3.05)	56	8
6"	152.4	2.77 (3.05)	56	8

90° Elbow

Auto Welding	Manual Welding
	

* Please refer to **page 28 and 29** for thickness(T) of straight end length.

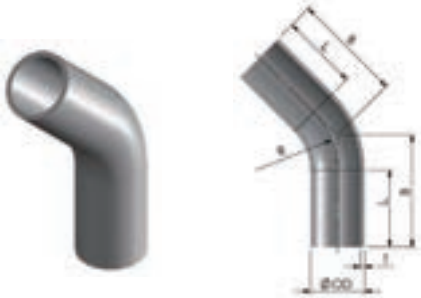
Auto Welding - Tube Size														(unit = mm)
(Long Radius)														
Size	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"
OD	6.35	9.53	12.7	15.88	19.05	25.4	31.8	38.1	50.8	63.5	76.2	101.6	127.0	152.4
R	20	23	25	28	30	33	47.6	57.2	76.2	95.3	95.3	133.4	190.5	228.6
C	49	52	54	64	66	69	84	104	123	147	147	185	250	290
L	29	29	29	36	36	36	36	46	46	51	51	51	56	56

Auto Welding - Pipe Size														(unit = mm)
(Long Radius)														
Size	8A	10A	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A
OD	13.8	17.3	21.7	27.2	34.0	42.7	48.6	60.5	76.3	89.1	114.3	139.8	165.2	216.3
R	25.4	25.4	38.1	38.1	38.1	47.6	57.2	76.2	95.3	114.3	152.4	190.5	228.6	304.8
C	55	62	75	75	75	94	104	123	147	166	204	250	290	375
L	29	36	36	36	36	46	46	46	51	51	51	56	56	56

(Short Radius)														
Size	8A	10A	15A	20A	25A	32A	40A	50A	65A	80A	100A	-	-	-
OD	13.8	17.3	21.7	27.2	34.0	42.7	48.6	60.5	76.3	89.1	114.3	-	-	-
R	12.7	12.7	12.7	19.1	25.4	31.8	38.1	50.8	63.5	76.2	101.6	-	-	-
C	42	49	49	56	62	78	85	97	115	128	153	-	-	-
L	29	29	29	36	36	36	36	46	46	51	51	-	-	-

Manual Welding – Pipe Size (unit = mm)						
(Long Radius)						
Size	100A	125A	150A	200A	250A	300A
OD	114.3	139.8	165.2	216.3	267.4	318.5
R = C	152.4	190.5	228.6	304.8	381.0	457.2
(Short Radius)						
Size	-	125A	150A	200A	250A	300A
OD	-	139.8	165.2	216.3	267.4	318.5
R = C	-	127.0	152.4	203.2	254.0	304.8

45° Elbow

Auto Welding	Manual Welding
	

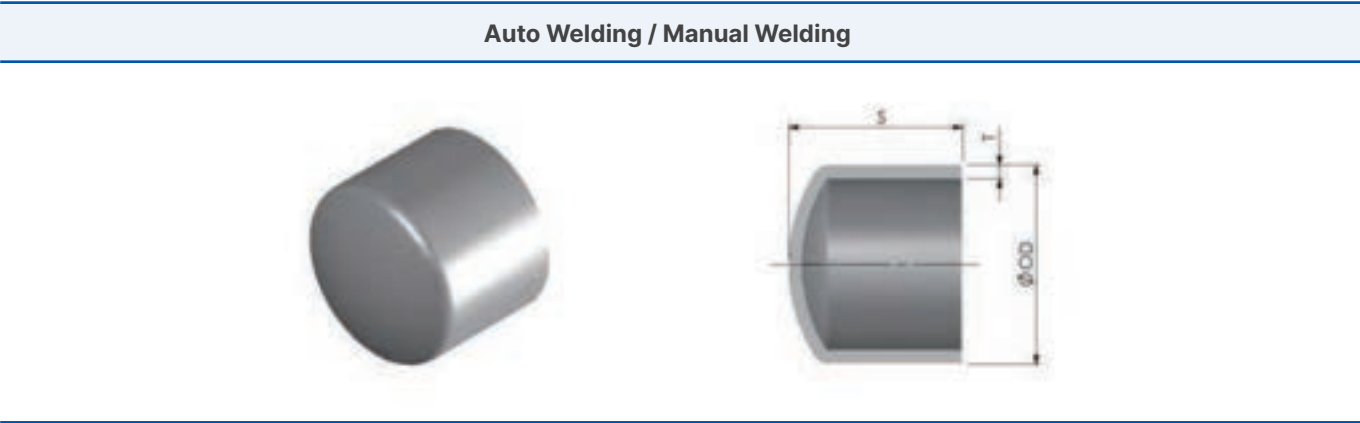
* Please refer to **page 28 and 29** for thickness(T) of straight end length.

Auto Welding - Tube Size													(unit = mm)	
Size	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"
OD	6.35	9.53	12.7	15.88	19.05	25.4	31.8	38.1	50.8	63.5	76.2	101.6	127.0	152.4
R	20	23	25	28	30	33	47.6	57.2	76.2	95.3	95.3	133.4	190.5	228.6
B	38	39	40	48	49	50	56	70	78	91	91	107	140	155
L	29	29	29	36	36	36	36	46	46	51	51	51	56	56

Auto Welding - Pipe Size													(unit = mm)	
Size	8A	10A	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A
OD	13.8	17.3	21.7	27.2	34.0	42.7	48.6	60.5	76.3	89.1	114.3	139.8	165.2	216.3
R	25.4	25.4	38.1	38.1	38.1	47.6	57.2	76.2	95.3	114.3	152.4	190.5	228.6	304.8
B	40	47	52	52	52	66	70	78	91	99	115	145	155	195
L	29	36	36	36	36	46	46	46	51	51	51	56	56	56

Manual Welding – Pipe Size (unit = mm)						
Size	100A	125A	150A	200A	250A	300A
OD	114.3	139.8	165.2	216.3	267.4	318.5
R	152.4	190.5	228.6	304.8	381	457.2
B	63.1	78.9	94.7	126.3	157.8	189.4

Cap



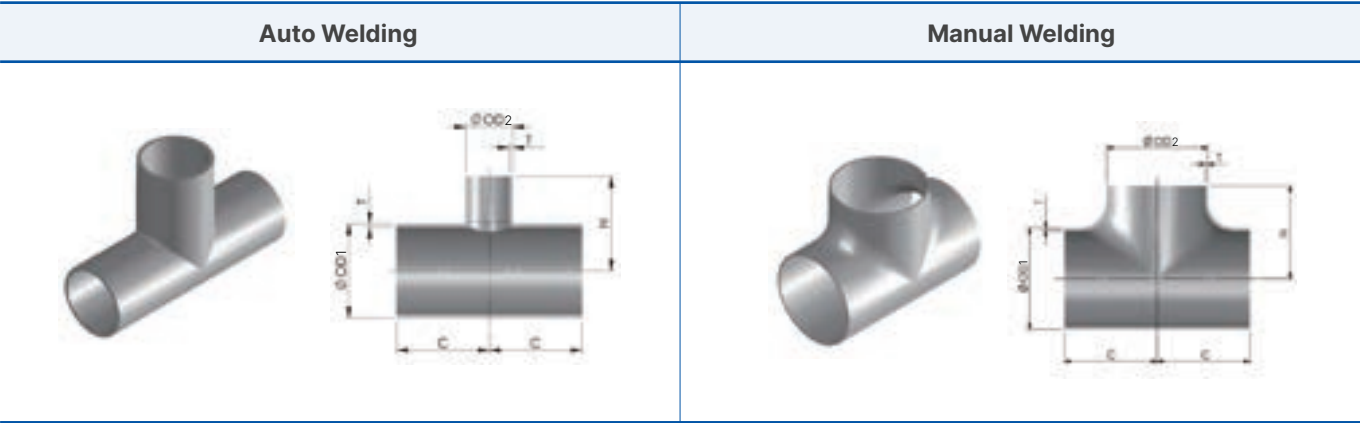
* Please refer to **page 28 and 29** for thickness(T) of straight end length.

Auto Welding – Tube Size (unit = mm)												
Size	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"
OD	6.35	9.53	12.7	15.88	19.05	25.4	31.8	38.1	50.8	63.5	76.2	101.6
S	12.7	12.7	12.7	12.7	19.1	25.4	38.1	38.1	38.1	38.1	38.1	63.5

Auto Welding – Pipe Size (unit = mm)														
Size	8A	10A	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A
OD	13.8	17.3	21.7	27.2	34.0	42.7	48.6	60.5	76.3	89.1	114.3	139.8	165.2	216.3
S	12.7	19.1	25.4	25.4	38.1	38.1	38.1	38.1	38.1	50.8	63.5	76.2	88.9	101.6

Manual Welding – Pipe Size (unit = mm)						
Size	100A	125A	150A	200A	250A	300A
OD	114.3	139.8	165.2	216.3	267.4	318.5
S	63.5	76.2	88.9	101.6	127	152.4

Equal Tee



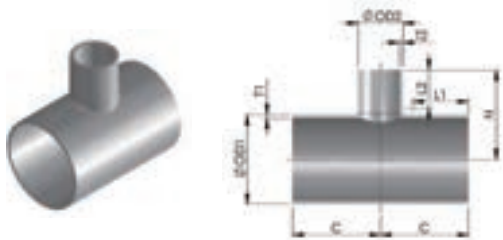
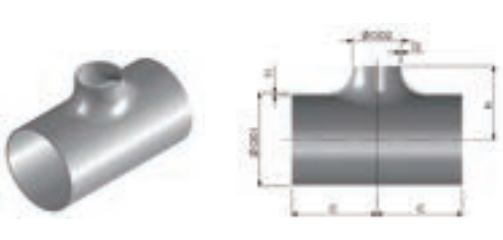
* Please refer to **page 28 and 29** for thickness(T) of straight end length.

Auto Welding – Tube Size														(unit = mm)
Size	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"
OD	6.35	9.53	12.7	15.88	19.05	25.4	31.8	38.1	50.8	63.5	76.2	101.6	127.0	152.4
C = N	35	37	39	49	52	55	59	74	77	90	97	110	140	160

Auto Welding – Pipe Size														(unit = mm)
Size	8A	10A	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A
OD	13.8	17.3	21.7	27.2	34.0	42.7	48.6	60.5	76.3	89.1	114.3	139.8	165.2	216.3
C = N	42	49	59	65	68	88	95	102	121	130	145	160	170	190

Manual Welding – Pipe Size (unit = mm)						
Size	100A	125A	150A	200A	250A	300A
OD	114.3	139.8	165.2	216.3	267.4	318.5
C = N	104.8	123.8	142.9	177.8	215.9	254

Reducing Tee

Auto Welding / Manual Welding of Large Diameter Side	Manual Welding
	

* Please refer to **page 28 and 29** for thickness(T) of straight end length.

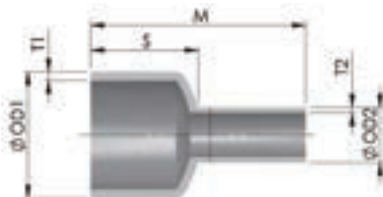
Auto Welding – Tube Size (unit = mm)							
OD1	OD2	C	N	OD1	OD2	C	N
3/8"	1/4"	37	37	3"	1/2" ~ 1/4", 8A	60	71
1/2"	3/8", 1/4"	39	39		1-1/4" ~ 5/8", 25A ~ 10A	72	79
3/4"	1/2" ~ 1/4", 8A	47	44		2", 1-1/2", 50A, 40A, 32A	90	90
	5/8", 10A"	52	52	4"	2-1/2", 65A	97	97
1"	1/2" ~ 1/4", 8A	47	47		1/2" ~ 1/4", 8A	61	87
	3/4", 5/8", 15A, 10A	55	55		1-1/4" ~ 5/8", 25A ~ 10A	72	95
1-1/4"	1/2" ~ 1/4", 8A	47	50	4"	2", 1-1/2", 50A, 40A, 32A	90	105
	1", 3/4", 5/8", 25A ~ 10A	59	59		3", 2-1/2", 80A, 65A	110	110
1-1/2"	1/2" ~ 1/4", 8	57	54	5"	1/2" ~ 1/4", 8A	70	100
	1-1/4" ~ 5/8", 25A ~ 10A	68	62		1-1/4" ~ 5/8", 25A ~ 10A	90	110
2"	1/2" ~ 1/4", 8A	57	57		2", 1-1/2", 50A, 40A, 32A	110	120
	1 1/4" ~ 5/8", 25A ~ 10A	68	65	6"	4", 3", 2-1/2", 100A, 80A, 65A	140	140
	1 1/2", 40A, 32A	77	77		1/2" ~ 1/4", 8A	80	115
2-1/2"	1/2" ~ 1/4", 8A	61	63		1-1/4" ~ 5/8", 25A ~ 10A	100	125
	1-1/4" ~ 5/8", 25A ~ 10A	72	71		2", 1-1/2", 50A, 40A, 32A	120	135
	2", 1-1/2", 50A, 40A, 32A	90	83		4", 3", 2-1/2", 100A, 80A, 65A	140	145
					5", 125A	160	160

Manual Welding – Pipe Size (unit = mm)							
OD1	OD2	C	N	OD1	OD2	C	N
100A	-	-	-	250A	125A	215.9	190.5
125A	100A	123.8	117.5		150A		193.7
150A	125A	142.9	136.5		200A		203.2
200A	125A	177.8	161.9	300A	125A	254	215.9
	150A	177.8	168.3		150A		219.1
	-	-	-		200A		228.6
	-	-	-		250A		241.3

Auto Welding – Pipe Size (unit = mm)							
OD1	OD2	C	N	OD1	OD2	C	N
8A	1/2" ~ 1/4"	42	42	80A	1/2" ~ 1/4", 8A	61	77
10A	1/2" ~ 1/4", 8A	47	44		1-1/4" ~ 5/8", 25A ~ 10A	72	85
15A	1/2" ~ 1/4", 8A	47	44		2", 1-1/2", 50A, 40A, 32A	88	96
	3/4", 5/8", 10	52	52		3", 2-1/2", 65A	103	103
20A	1/2" ~ 1/4", 8	47	47	100A	1/2" ~ 1/4", 8A	61	90
	1", 3/4", 5/8", 15A, 10 ^a	55	55		1-1/4" ~ 5/8", 25A ~ 10A	72	98
25A	1/2" ~ 1/4", 8A	47	50		2", 1-1/2", 50A, 40A, 32A	88	109
	1-1/4" ~ 5/8", 20A ~ 10A	59	59		3", 2-1/2", 65A	116	116
32A	1/2" ~ 1/4", 8A	57	54	125A	1/2" ~ 1/4", 8A	80	110
	1-1/4" ~ 5/8", 25A ~ 10A	68	62		1-1/4" ~ 5/8", 25A ~ 10A	100	120
40A	1/2" ~ 1/4", 8A	57	57		2", 1-1/2", 50A, 40A, 32A	120	130
	1-1/4" ~ 5/8", 25A ~ 10A	68	65		4", 3", 2-1/2", 100A, 80A, 65A	140	140
50A	1-1/2", 32A	77	77	150A	5"	160	160
	1/2" ~ 1/4", 8A	57	63		1/2" ~ 1/4", 8A	90	130
	1-1/4" ~ 5/8", 25A ~ 10A	68	71		1-1/4" ~ 5/8", 25A ~ 10A	110	140
65A	2", 1-1/2", 40A, 32A	83	83		2", 1-1/2", 50A, 40A, 32A	130	150
	1/2" ~ 1/4", 8A	61	71	200A	4", 3", 2-1/2", 100A, 80A, 65A	150	160
	1-1/4" ~ 5/8", 25A ~ 10A	72	79		5", 125A	170	170
	2", 1-1/2", 50A, 40A, 32A	88	90		1/2" ~ 1/4", 8A	100	150
	2-1/2"	97	97		1-1/4" ~ 5/8", 25A ~ 10A	120	160
	-	-	-		2", 1-1/2", 50A, 40A, 32A	140	170
	-	-	-		4", 3", 2-1/2", 100A, 80A, 65A	160	180
	-	-	-		6", 5", 150A, 125A	180	190
	-	-	-				

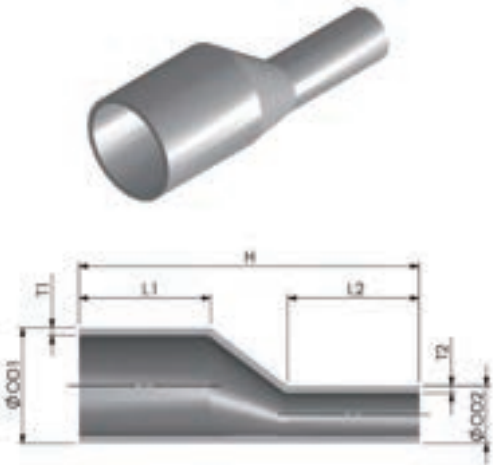
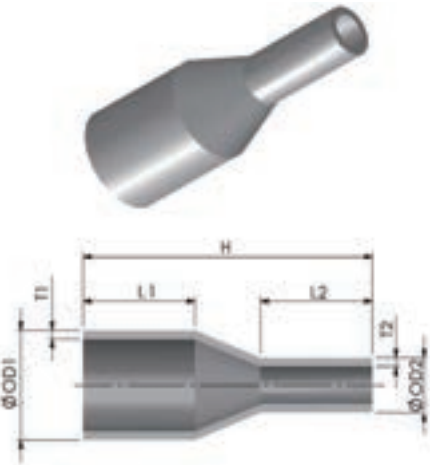
Manual Welding of Large Diameter Side Automatic Welding of Branch Pipe/Small Diameter sides (with Straight Length end) Fittings (unit = mm)							
OD1	OD2	C	N	OD1	OD2	C	N
250A	1/2" ~ 1/4", 8A	110	180	300A	1/2" ~ 1/4", 8A	120	200
	1", 3/4", 25A ~ 10A	130	190		1", 3/4", 25A ~ 10A	140	210
	50A, 40A, 32A	150	200		50A, 40A, 32A	160	220
	100A, 80A, 65A	170	210		100A, 80A, 65A	180	230
	150A, 125A	190	220		150A, 125A	200	240
	200A	210	240		200A	220	260

Cap Reducer

Auto Welding / Manual Welding of Large Diameter Side							
							
* Please refer to page 28 and 29 for thickness(T) of straight end length.							
Auto Welding – Tube Size							(unit = mm)
OD1	OD2	S	M	OD1	OD2	S	M
3/8"	1/4"	-	-	3"	1/2" ~ 1/4", 8A	38.1	73
1/2"	3/8", 1/4"	-	-		1-1/4" ~ 5/8", 25A ~ 10A		80
3/4"	1/2" ~ 1/4", 8A	19.1	54		2", 1-1/2", 50A, 40A, 32A		(90)
	5/8", 10A		60		2-1/2", 65A		(95)
1"	1/2" ~ 1/4", 8A	25.4	60	4"	1/2" ~ 1/4", 8A	63.5	98
	3/4", 5/8", 15A, 10A		67		1-1/4" ~ 5/8", 25A ~ 10A		105
1-1/4"	1/2" ~ 1/4", 8A	38.1	73		2", 1-1/2", 50A, 40A, 32A		115
	1", 3/4", 5/8", 20A ~ 10A		80		3", 2-1/2", 80A, 65A		(125)
1-1/2"	1/2" ~ 1/4", 8A	38.1	73	5"	1/2" ~ 1/4", 8A	-	-
	1-1/4" ~ 5/8", 25A ~ 10A		80		1-1/4" ~ 5/8", 25A ~ 10A		
2"	1/2" ~ 1/4", 8A	38.1	73		2", 1-1/2", 50A, 40A, 32A		
	1-1/4" ~ 5/8", 25A ~ 10A		80		4", 3", 2-1/2", 100A, 80A, 65A		
	1-1/2", 40A, 32A		(90)		1/2" ~ 1/4", 8A		
2-1/2"	1/2" ~ 1/4", 8A	38.1	73	6"	1-1/4" ~ 5/8", 25A ~ 10A	-	-
	1-1/4" ~ 5/8", 25A ~ 10A		80		2", 1-1/2", 50A, 40A, 32A		
	2", 1-1/2", 50A, 40A, 32A		(90)		4", 3", 2-1/2", 100A, 80A, 65A		
	-		-		5", 125A		
"Extrusion process + short pipe-matching TIG welding" technique is applied to branch part and smaller diameter side.							

Auto Welding – Pipe Size								(unit = mm)
OD1	OD2	S	M	OD1	OD2	S	M	
8A	1/2" ~ 1/4"	-	-	80A	1/2" ~ 1/4", 8A	50.8	85	
10A	1/2" ~ 1/4", 8A	-	-		1-1/4" ~ 5/8", 25A ~ 10A		92	
15A	1/2" ~ 1/4", 8A	25.4	60		2", 1-1/2", 50A, 40A, 32A		102	
	3/4", 5/8", 10		(67)		3", 2-1/2", 65A		(110)	
20A	1/2" ~ 1/4", 8	25.4	60	100A	1/2" ~ 1/4", 8A	63.5	98	
	1", 3/4", 5/8", 15A, 10 ^a		67		1-1/4" ~ 5/8", 25A ~ 10A		105	
25A	1/2" ~ 1/4", 8A	38.1	73		2", 1-1/2", 50A, 40A, 32A		115	
	1-1/4" ~ 5/8", 20A ~ 10A		(80)		3", 2-1/2", 65A		(125)	
32A	1/2" ~ 1/4", 8A	38.1	73	125A	1/2" ~ 1/4", 8A	76.2	120	
	1-1/4" ~ 5/8", 25A ~ 10A		80		1-1/4" ~ 5/8", 25A ~ 10A		130	
40A	1/2" ~ 1/4", 8A	38.1	73		2", 1-1/2", 50A, 40A, 32A		140	
	1-1/4" ~ 5/8", 25A ~ 10A		80		4", 3", 2-1/2", 100A, 80A, 65A		(150)	
	1-1/2", 32A		(90)		5"		(160)	
50A	1/2" ~ 1/4", 8A	38.1	73	150A	1/2" ~ 1/4", 8A	88.9	130	
	1-1/4" ~ 5/8", 25A ~ 10A		(90)		1-1/4" ~ 5/8", 25A ~ 10A		140	
	2", 1-1/2", 40A, 32A		(100)		2", 1-1/2", 50A, 40A, 32A		150	
65A	1/2" ~ 1/4", 8A	38.1	73		4", 3", 2-1/2", 100A, 80A, 65A		160	
	1-1/4" ~ 5/8", 25A ~ 10A		80		5", 125A		(170)	
	2", 1-1/2", 50A, 40A, 32A		(90)	200A	1/2" ~ 1/4", 8A	101.6	140	
	2-1/2"		(100)		1-1/4" ~ 5/8", 25A ~ 10A		150	
	-	-	2", 1-1/2", 50A, 40A, 32A		160			
	-	-	4", 3", 2-1/2", 100A, 80A, 65A		170			
	-	-	-	6", 5", 150A, 125A	(180)			
	"Extrusion process + short pipe-matching TIG welding" technique is applied to branch part and smaller diameter side.							
Manual Welding of Large Diameter Side								
Automatic Welding of Branch Pipe/Small Diameter sides (with Straight Length end) Fittings								
(unit = mm)								
OD1	OD2	S	M	OD1	OD2	S	M	
250A	1/2" ~ 1/4", 8A	127	170	300A	1/2" ~ 1/4", 8A	152.4	200	
	1", 3/4", 25A ~ 10A		180		1", 3/4", 25A ~ 10A		210	
	50A, 40A, 32A		190		50A, 40A, 32A		220	
	100A, 80A, 65A		200		100A, 80A, 65A		230	
	150A, 125A		210		150A, 125A		240	

Ecc Reducer / Con Reducer

Auto Welding	
Ecc Reducer	Con Reducer
	

* Please refer to **page 28 and 29** for outside deamenter(OD), thickness(T) and length(L) of straight end length.
* For a size "H" in brackets, please contact us.

Auto Welding – Tube Size (unit = mm)					
OD1	OD2	H	OD1	OD2	H
1/4"	-	60 (70)	1-1/2"	1-1/4" ~ 1/4", 25A ~ 8A	85 (125)
3/8"	1/4"	60 (70)	2"	1-1/2" ~ 1/4", 40A ~ 8A	95 (130)
1/2"	3/8", 1/4"	60 (75)	2-1/2"	2" ~ 1/4", 50A ~ 8A	105 (140)
5/8"	1/2" ~ 1/4", 8	70 (90)	3"	2-1/2" ~ 1/4", 50A ~ 8A	110 (165)
3/4"	5/8" ~ 1/4", 10A, 8A	75 (100)	4"	3" ~ 1/4", 80A ~ 8A	130 (175)
1"	3/4" ~ 1/4", 15A ~ 8A	75 (105)	5"	4" ~ 1/4", 100A ~ 8A	180 (230)
1-1/4"	1" ~ 1/4", 20A ~ 8A	75 (120)	6"	5" ~ 1/4", 125A ~ 8A	200 (250)

Auto Welding – Pipe Size (unit = mm)					
OD1	OD2	H	OD1	OD2	H
8A	1/2" ~ 1/4"	60 (80)	50A	2" ~ 1/4", 40A ~ 8A	95 (140)
10A	1/2" ~ 1/4", 8A	70 (90)	65A	3" ~ 1/4", 50A ~ 8A	105 (165)
15A	3/4" ~ 1/4", 10A, 8A	75 (100)	80A	3" ~ 1/4", 65A ~ 8A	110 (170)
20A	1" ~ 1/4", 15A ~ 8A	75 (105)	100A	4" ~ 1/4", 80A ~ 8A	180
25A	1-1/4" ~ 1/4", 20A ~ 8A	75 (120)	125A	5" ~ 1/4", 100A ~ 8A	250
32A	1-1/2" ~ 1/4", 25A ~ 8A	85 (125)	150A	6" ~ 1/4", 125A ~ 8A	260
40A	1-1/2" ~ 1/4", 32A ~ 8A	95 (130)	200A	6" ~ 1/4", 150A ~ 8A	280

Manual Welding	
Ecc Reducer	Con Reducer
	

* Please refer to **page 28 and 29** for thickness(T) of straight end length.

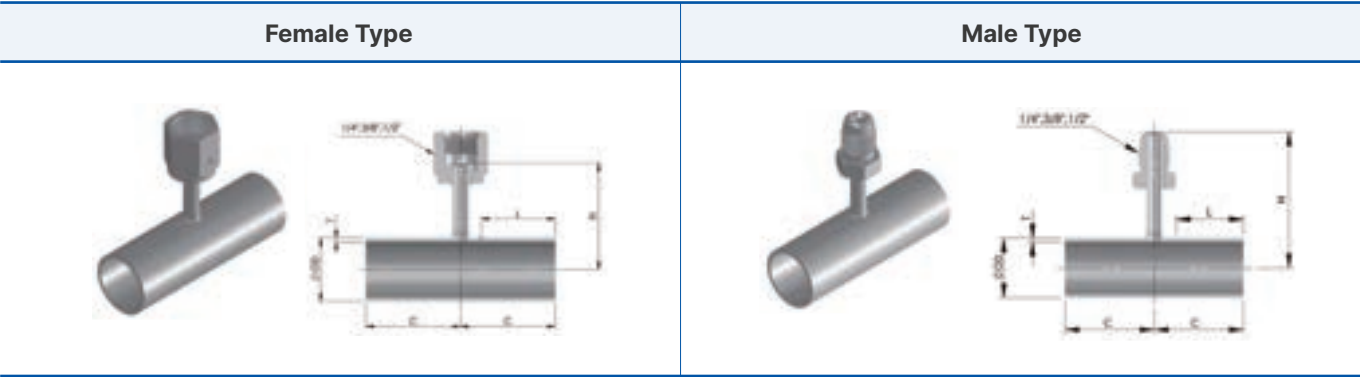
Manual Welding – Pipe Size (unit = mm)					
OD1	OD2	H	OD1	OD2	H
100A	-	-	200A	150A, 125A	152.4
125A	100A	127	250A	125A, 150A, 200A	177.8
150A	125A	139.7	300A	125A, 150A, 200A, 250A	203.2

Manual Welding of Large Diameter Side	
Ecc Reducer	Con Reducer
	

* Please refer to **page 28 and 29** for thickness(T) of straight end length.

Manual Welding of Large Diameter Side Automatic Welding of Branch Pipe/Small Diameter sides (with Straight Length end) Fittings (unit = mm)					
OD1	OD2	H	OD1	OD2	H
100A	-	-	250A	150A, 125A	250
125A	100A, 80A, 65A, 50A	190		200A	270
150A	125A, 100A, 80A, 65A	205	300A	150A, 125A	280
200A	150A, 125A, 100A	220		200A	300

Joint Tee

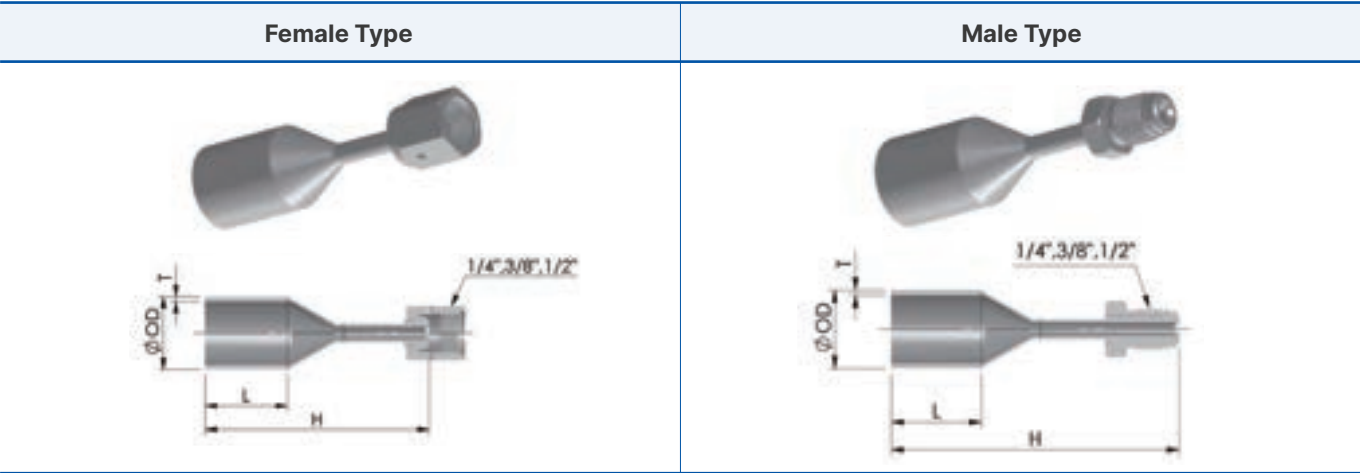


* Please refer to **page 28 and 29** for thickness(T) of straight end length.
* "Extrusion process + joint-matching TIG welding" technique is applied to joint part.
* There are some cases where N measurements are different from the standard measurements shown here.
* Please check your requisite measurement with drawings and working plans.

Auto Welding – Tube Size																(unit = mm)
Size			1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"
OD			6.35	9.53	12.7	15.88	19.05	25.4	31.8	38.1	50.8	63.5	76.2	101.6	127.0	152.4
C			43	45	45	52	52	55	59	68	68	72	72	72	90	110
L			29	29	29	36	36	36	36	46	46	51	51	51	56	56
FEMALE	N	1/4"	32.2	33.8	35.4	36.9	38.5	41.7	44.9	48.1	54.4	60.8	67.1	80.9	94.27	106.97
		3/8"	32.7	33.8	35.4	37.4	38.5	41.7	44.9	48.1	54.4	60.8	67.1	81.4	94.77	107.47
		1/2"	32.7	34.3	35.9	37.4	39	42.2	45.4	48.6	54.9	61.3	67.6	81.4	94.77	107.47
MALE	N	1/4"	47.4	49	50.6	52.1	53.7	56.9	60.1	63.3	69.6	76	82.3	96.1	109.47	122.17
		3/8"	49.7	51.3	52.9	54.4	56	59.2	62.4	65.6	71.9	78.3	84.6	98.4	111.77	124.47
		1/2"	49.7	51.3	52.9	54.4	56	59.2	62.4	65.6	71.9	78.3	84.6	98.4	111.77	124.47

Auto Welding – Pipe Size																(unit = mm)
Size			8A	10A	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A
OD			13.8	17.3	21.7	27.2	34.0	42.7	48.6	60.5	76.3	89.1	114.3	139.8	165.2	216.3
C			45	52	52	55	59	68	68	68	72	72	72	100	110	120
L			29	36	36	36	36	46	46	46	51	51	51	56	56	56
FEMALE	N	1/4"	36.1	38.85	40.5	42.6	46	50.35	53.3	59.25	67.65	74.05	87.25	100.7	113.4	138.95
		3/8"	36.6	39.35	41	43.1	46.5	50.85	53.8	59.75	68.15	74.55	87.75	101.2	113.9	139.45
		1/2"	36.6	39.35	41	43.1	46.5	50.85	53.8	59.75	68.15	74.55	87.75	101.2	113.9	139.45
MALE	N	1/4"	51.3	54.05	55.7	57.8	61.2	65.6	68.5	74.5	82.9	89.3	102.45	115.9	128.6	154.15
		3/8"	53.6	56.35	58	60.1	63.5	67.9	70.8	76.8	85.2	91.6	104.75	118.2	130.9	156.45
		1/2"	53.6	56.35	58	60.1	63.5	67.9	70.8	76.8	85.2	91.6	104.75	118.2	130.9	156.45

Joint Reducer

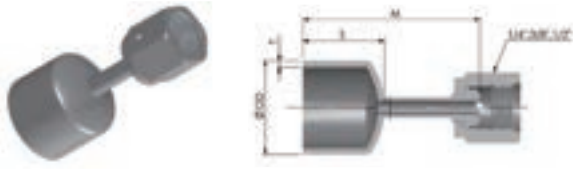
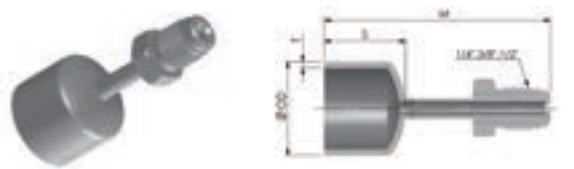


* Please refer to **page 28 and 29** for thickness(T) of straight end length.

Auto Welding – Tube Size																(unit = mm)
Size		1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"	
OD		6.35	9.53	12.7	15.88	19.05	25.4	31.8	38.1	50.8	63.5	76.2	101.6	127.0	152.4	
L		29	29	29	36	36	36	36	46	46	51	51	51	56	56	
FEMALE	H	1/4"	88 (98)	88 (98)	88 (103)	98 (118)	103 (128)	103 (133)	103 (148)	113 (153)	123 (158)	133 (168)	138 (193)	158 (203)	208 (258)	228 (278)
		3/8"	88.5 (98.5)	88.5 (98.5)	88.5 (103.5)	98.5 (118.5)	103 (128.5)	103 (133.5)	103 (148.5)	113.5 (153.5)	123.5 (158.5)	133.5 (168.5)	138.5 (193.5)	158.5 (203.5)	208.5 (258.5)	228.5 (278.5)
		1/2"	88.5 (98.5)	88.5 (98.5)	88.5 (103.5)	98.5 (118.5)	103.5 (128.5)	103.5 (133.5)	103.5 (148.5)	113.5 (153.5)	123.5 (158.5)	133.5 (168.5)	138.5 (193.5)	158.5 (203.5)	208.5 (258.5)	228.5 (278.5)
MALE	H	1/4"	103.2 (113.2)	103.2 (113.2)	103.2 (118.2)	113.5 (133.5)	118.2 (143.2)	118.2 (148.2)	118.2 (163.2)	128.2 (168.2)	173.2 (138.2)	148.2 (183.2)	153.2 (208.2)	173.2 (218.2)	223.2 (273.2)	243.2 (293.2)
		3/8"	105.5 (115.5)	105.5 (115.5)	105.5 (120.5)	115.5 (135.5)	120.5 (145.5)	120.5 (150.5)	120.5 (165.5)	130.5 (170.5)	140.5 (175.5)	150.5 (185.5)	155.5 (210.5)	175.5 (220.5)	225.5 (275.5)	245.5 (295.5)
		1/2"	105.5 (115.5)	105.5 (115.5)	105.5 (120.5)	115.5 (135.5)	120.5 (145.5)	120.5 (150.5)	120.5 (165.5)	130.5 (170.5)	140.5 (175.5)	150.5 (185.5)	155.5 (210.5)	175.5 (220.5)	225.5 (275.5)	245.5 (295.5)

Auto Welding – Pipe Size															(unit = mm)	
Size		8A	10A	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A	
OD		13.8	17.3	21.7	27.2	34.0	42.7	48.6	60.5	76.3	89.1	114.3	139.8	165.2	216.3	
L		29	36	36	36	36	46	46	46	51	51	51	56	56	56	
FEMALE	H	1/4"	88 (108)	98 (118)	103 (128)	103 (133)	103 (148)	113 (153)	123 (158)	123 (168)	133 (193)	138 (198)	208	278	288	308
		3/8"	88.5 (108.5)	98.5 (118.5)	103 (128.5)	103 (133.5)	103 (148.5)	113.5 (153.5)	123.5 (158.5)	123.5 (168.5)	133.5 (193.5)	138.5 (198.5)	208.5	278.5	288.5	308.5
		1/2"	88.5 (108.5)	98.5 (118.5)	103.5 (128.5)	103.5 (133.5)	103.5 (148.5)	113.5 (153.5)	123.5 (158.5)	123.5 (168.5)	133.5 (193.5)	138.5 (198.5)	208.5	278.5	288.5	308.5
MALE	H	1/4"	103.2 (123.2)	113.2 (133.2)	118.2 (143.2)	118.2 (148.2)	118.2 (163.2)	128.2 (168.2)	138.2 (173.2)	138.2 (183.2)	148.2 (208.2)	153.2 (213.2)	223.2	293.2	303.2	323.2
		3/8"	105.5 (125.5)	115.5 (135.5)	120.5 (145.5)	120.5 (150.5)	120.5 (165.5)	130.5 (170.5)	140.5 (175.5)	140.5 (185.5)	150.5 (210.5)	155.5 (215.5)	225.5	295.5	305.5	325.5
		1/2"	105.5 (125.5)	115.5 (135.5)	120.5 (145.5)	120.5 (150.5)	120.5 (165.5)	130.5 (170.5)	140.5 (175.5)	140.5 (185.5)	150.5 (210.5)	155.5 (215.5)	225.5	295.5	305.5	325.5

Joint Cap Reducer

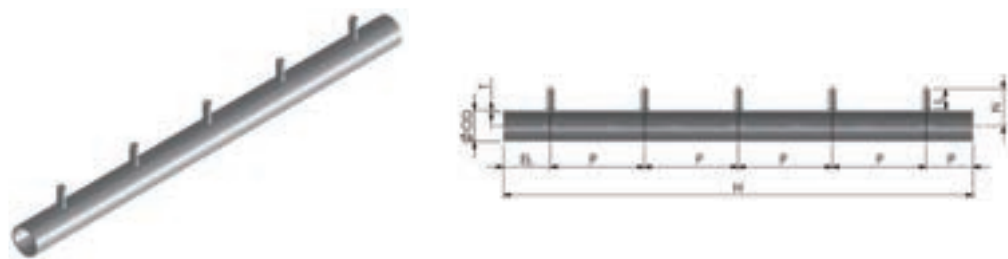
Female Type	Male Type
	

- * Please refer to **page 28 and 29** for thickness(T) of straight end length.
- * "Extrusion process + joint-matching TIG welding" technique is applied to joint part.
- * There are some cases where N measurements are different from the standard measurements shown here.
- * Please check your requisite measurement with drawings and working plans.

Auto Welding – Tube Size															(unit = mm)	
Size			1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"
OD			6.35	9.53	12.7	15.88	19.05	25.4	31.8	38.1	50.8	63.5	76.2	101.6	127.0	152.4
S			12.7	12.7	12.7	12.7	19.1	25.4	38.1	38.1	38.1	38.1	38.1	63.5	-	-
FEMALE	M	1/4"	40.7	40.7	40.7	40.7	47.6	54.1	66.8	66.9	66.9	67	68.6	91.5	-	-
		3/8"	41.2	41.2	41.2	41.2	47.5	53.7	66.6	66.7	66.8	66.8	68.5	92	-	-
		1/2"	41.2	41.2	41.2	41.2	47.1	53.8	66.7	66.9	66.1	67.2	67.9	92	-	-
MALE	M	1/4"	55.9	55.9	55.9	55.9	62.8	59.3	82	82.1	82.1	82.2	83.8	106.7	-	-
		3/8"	58.2	58.2	58.2	58.2	65	71.2	84.1	84.2	84.3	84.3	86	109	-	-
		1/2"	58.2	58.2	58.2	58.2	64.1	70.8	83.7	83.9	83.1	84.2	84.9	109	-	-

Auto Welding – Pipe Size (unit = mm)															
Size		8A	10A	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A
OD		13.8	17.3	21.7	27.2	34.0	42.7	48.6	60.5	76.3	89.1	114.3	139.8	165.2	216.3
S		12.7	19.1	25.4	25.4	38.1	38.1	38.1	38.1	38.1	50.8	63.5	76.2	88.9	101.6
FEMALE	M	1/4"	40.7	47.1	54	54.1	66.8	66.9	67	67	67.5	80.2	91.5	104.2	129.6
		3/8"	41.2	47.6	53.6	53.8	66.6	66.7	66.7	66.8	67.3	80.1	92	104.7	130.1
		1/2"	41.2	47.6	54.3	53.9	66.8	66.9	67	67.1	67.7	80.4	92	104.7	130.1
MALE	M	1/4"	55.9	62.3	69.2	69.3	82	82.1	82.1	82.2	82.7	95.4	106.7	132.1	144.8
		3/8"	58.2	64.6	71.1	71.3	84.1	84.2	84.2	84.3	84.8	97.6	109	121.7	134.4
		1/2"	58.2	64.6	71.3	70.9	83.8	83.9	84	84.1	84.7	97.4	109	121.7	134.4

Multi Tee

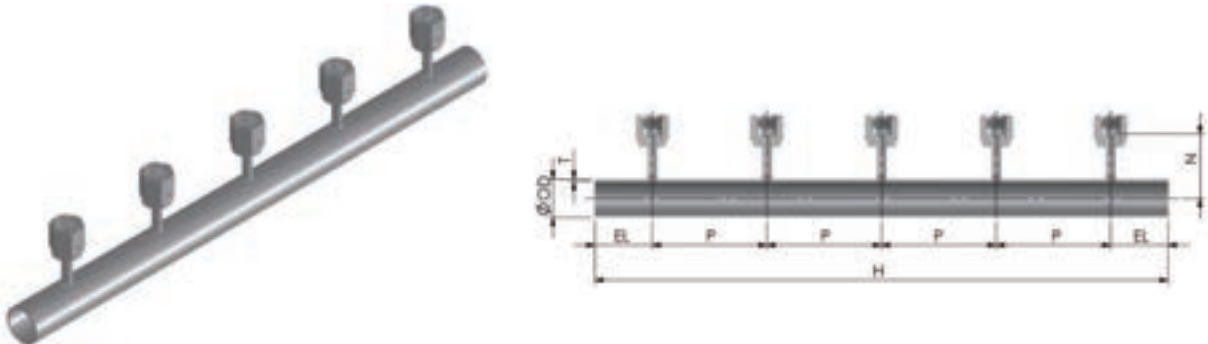
Auto Welding


- * Please refer to **page 28 and 29** for thickness(T) of straight end length.
- * "Extrusion process + branch tube-matching TIG welding" technique is applied to branch part.

Auto Welding – Tube Size													(unit = mm)
Size		1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"
OD		6.35	9.53	12.7	15.88	19.05	25.4	31.8	38.1	50.8	63.5	76.2	101.6
L		29	29	29	36	36	36	36	46	46	51	51	51
N		35	37	39	44	44	47	50	54	57	63	71	87
Length at End		EL	76.2										
Pitch		P	152.4										
H (Total Length)	Number of Branch	2	304.8										
		3	457.2										
		4	609.6										
		5	762										
OD of Branch Tube		19.05 (12.7, 21.7, 27.2, 25.4, 34, 35, 38.1, 45, 48.6, 60.5)											

Auto Welding – Pipe Size																	(unit = mm)	
Size		8A	10A	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A	250A	300A	
OD		13.8	17.3	21.7	27.2	34.0	42.7	48.6	60.5	76.3	89.1	114.3	139.8	165.2	216.3	267.4	318.5	
L		29	36	36	36	36	46	46	46	51	51	51	56	56	56			
N		42	44	44	47	50	54	57	63	71	77	90	90	90	90	90	90	
Length at End	EL	60									70							
Pitch		P	125 (120, 150, 200, 300, 320)									145						
H (Total Length)	Number of Branch	2	250									290						
		3	375 (200, 370, 600, 620, 900, 960)									435 (430, 620, 960)						
		4	500									580						
		5	625 (620, 725, 960, 990, 1000, 1200, 1600, 2000, 3000)															
OD of Branch Tube		19.05 (12.7, 21.7, 27.2, 25.4, 34, 35, 38.1, 45, 48.6, 60.5)																

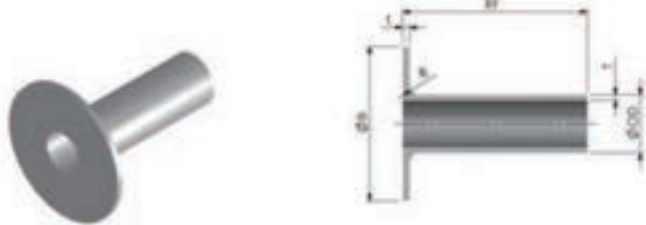
Multi Joint Tee

Auto Welding													
													
* Please refer to page 28 and 29 for thickness(T) of straight end length. * "Extrusion process + branch tube-matching TIG welding" technique is applied to branch part. * There are some cases where J-TEE N measurements are different from the standard measurements shown here, so please check your requisite measurement with drawings and working plans.													

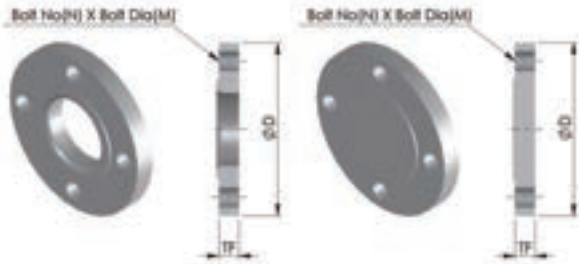
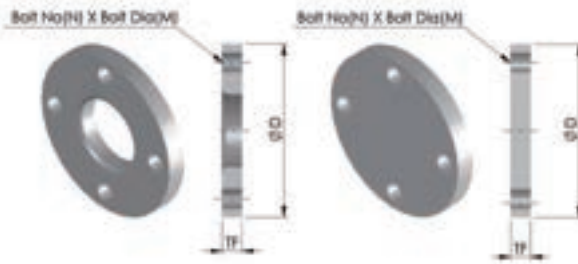
Auto Welding – Tube Size													
(unit = mm)													
Size		1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"
OD		6.35	9.53	12.7	15.88	19.05	25.4	31.8	38.1	50.8	63.5	76.2	101.6
N	FEMALE	32	33.5	35	36.5	38	42	45.5	48	55	61.5	68	81
Length at End		EL	76.2										
Pitch		P	152.4										
H (Total Length)	Number of Branch	2	304.8										
		3	457.2										
		4	609.6										
		5	762										

Auto Welding – Pipe Size																		(unit = mm)	
Size		8A	10A	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A	250A	300A		
OD		13.8	17.3	21.7	27.2	34.0	42.7	48.6	60.5	76.3	89.1	114.3	139.8	165.2	216.3	267.4	318.5		
N	FEMALE	35	37	39.5	42.5	46.5	51	54	60	68	74.5	87	87	87	87	87	87		
Length at End		EL	60								70								
Pitch		P	125 (120, 150, 200, 300, 320)							145									
H (Total Length)	Number of Branch	2	250							290									
		3	375 (200, 370, 600, 620, 900, 960)							435 (430, 620, 960)									
		4	500							580									
		5	625 (620, 725, 960, 990, 1000, 1200, 1600, 2000, 3000)																

Clean Lap

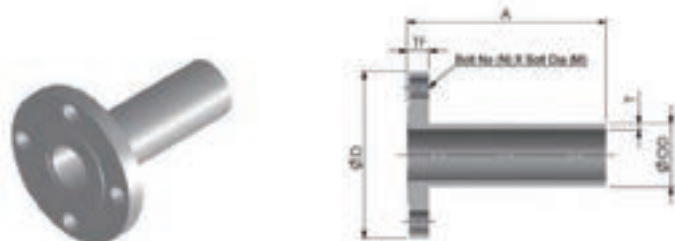
Auto Welding / Manual Welding													
													
Auto Welding – Tube Size													
(unit = mm)													
Size	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"			
OD	19.05	25.4	31.8	38.1	50.8	63.5	76.2	101.6	127.0	152.4			
RF	55	55	55	70	70	70	75	75	85	90			
B	51	56	67	76	81	96	116	136	182	212			
t	2	2	2	2	2	2	2	2.5	3	3			
R	3	3	3	3	3	4	4	5	5	5			
Auto Welding – Pipe Size													
(unit = mm)													
Size	10A	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A
OD	17.3	21.7	27.2	34.0	42.7	48.6	60.5	76.3	89.1	114.3	139.8	165.2	216.3
RF	55	55	55	55	70	70	70	75	75	75	85	90	90
B	JIS 5K	39	44	49	59	70	75	85	110	121	141	176	206
	JIS 10K	46	51	56	67	76	81	96	116	126	151	182	212
t	2	2	2	2	2	2	2	2	2.5	2.5	3	3	3
R	3	3	3	3	3	3	3	4	4	5	5	5	5
Manual Welding – Pipe Size													
(unit = mm)													
Size		100A	125A	150A	200A	250A	300A						
OD		114.3	139.8	165.2	216.3	267.4	318.5						
RF		50	50	50	65	65	65						
B	JIS 5K	151	182	212	262	324	368						
	JIS 10K	151	182	212	262	324	368						
t		2.5	3	3	3	3.5	4						
R		5	5	5	5	5	5						

Flange / Blind

RF Type					FF Type											
																
Auto Welding – Tube Size											(unit = mm)					
Size	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"						
OD	19.05	25.4	31.8	38.1	50.8	63.5	76.2	101.6	127.0	152.4						
D	95	100	125	135	140	155	175	195	250	280						
TF	12	14	14	16	16	16	18	18	20	22						
N	4	4	4	4	4	4	4	8	8	8						
M	M12	M12	M16	M16	M16	M16	M16	M16	M20	M20						
Auto Welding – Pipe Size											(unit = mm)					
Size	10A	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A	250A	300A	
OD	17.3	21.7	27.2	34.0	42.7	48.6	60.5	76.3	89.1	114.3	139.8	165.2	216.3	267.4	318.5	
JIS 5K	D	75	80	85	95	115	120	130	155	180	200	235	265	320	385	430
	TF	9	9	10	10	12	12	14	14	14	16	16	18	20	22	22
	N	4	4	4	4	4	4	4	4	4	8	8	8	8	12	12
	M	M10	M10	M10	M10	M12	M12	M12	M12	M16	M16	M16	M16	M20	M22	M22
JIS 10K	D	90	95	100	125	135	140	155	175	185	210	250	280	330	440	445
	TF	12	12	14	14	16	16	16	18	18	18	20	22	22	24	24
	N	4	4	4	4	4	4	4	4	8	8	8	8	12	12	16
	M	M12	M12	M12	M16	M16	M16	M16	M16	M16	M16	M20	M20	M20	M22	M22
Manual Welding – Pipe Size											(unit = mm)					
Size		100A		125A		150A		200A		250A		300A				
OD		114.3		139.8		165.2		216.3		267.4		318.5				
JIS 5K	D	200		235		265		320		385		430				
	TF	16		16		18		20		22		22				
	N	8		8		8		8		12		12				
	M	M16		M16		M16		M20		M22		M22				
JIS 10K	D	210		250		280		330		440		445				
	TF	18		20		22		22		24		24				
	N	8		8		8		12		12		16				
	M	M16		M20		M20		M20		M22		M22				

Tube Flange / Pipe Flange

Auto Welding / Manual Welding



Auto Welding – Tube Size

(unit = mm)

Size	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	5"	6"
OD	19.05	25.4	31.8	38.1	50.8	63.5	76.2	101.6	127.0	152.4
A	100	100	100	100	100	100	100	100	200	200
D	95	100	125	135	140	155	175	195	250	280
TF	12	14	14	16	16	16	18	18	20	22
N	4	4	4	4	4	4	4	8	8	8
M	M12	M12	M16	M16	M16	M16	M16	M16	M20	M20

Auto Welding – Pipe Size

(unit = mm)

Size	10A	15A	20A	25A	32A	40A	50A	65A	80A	100A	125A	150A	200A	250A	300A
OD	17.3	21.7	27.2	34.0	42.7	48.6	60.5	76.3	89.1	114.3	139.8	165.2	216.3	267.4	318.5
A	100	100	100	100	100	100	100	100	100	200	200	200	200	200	200
D	90	95	100	125	135	140	155	175	185	210	250	280	330	440	445
TF	12	12	14	14	16	16	16	18	18	18	20	22	22	24	24
N	4	4	4	4	4	4	4	4	8	8	8	8	12	12	16
M	M12	M12	M12	M16	M16	M16	M16	M16	M16	M16	M20	M20	M20	M22	M22

* Pipe flanges and polished flanges are RF type.

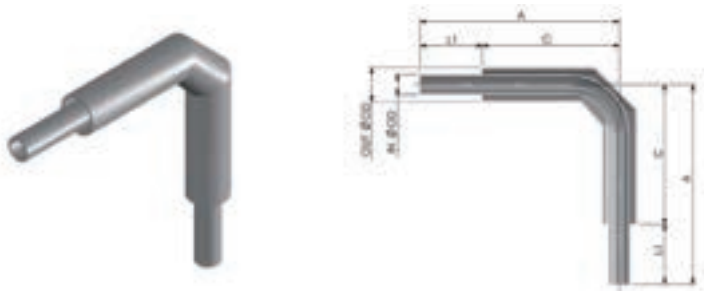
Manual Welding – Pipe Size

(unit = mm)

Size	100A	125A	150A	200A	250A	300A
OD	114.3	139.8	165.2	216.3	267.4	318.5
A	200	200	200	200	200	200
D	210	250	280	330	440	445
TF	18	20	22	22	24	24
N	8	8	8	12	12	16
M	M16	M20	M20	M20	M22	M22

* Pipe flanges and polished flanges are RF type.

Coaxial 90° Elbow



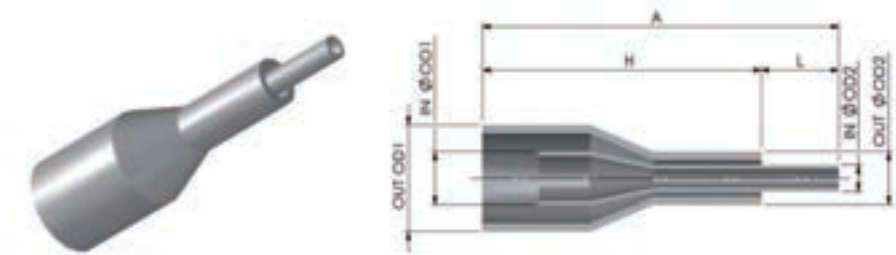
(unit = mm)														
Size	Inner	1/4"		3/8"		1/2"		3/4"		1"		1-1/2"	2"	10A
	Outer	1/2"	8A	3/4"	10A	3/4"	15A	1"	20A	1-1/2"	25A	2"	2-1/2"	20A
OD	Inner	6.35		9.53		12.7		19.05		25.4		38.1	50.8	17.3
	Outer	12.7	13.8	19.05	17.3	19.05	21.7	25.40	27.2	38.1	34.0	50.8	63.5	27.2
L1		29		29		29		36		36		46	46	36
C		54	55	66	62	66	75	69	75	107	75	123	147	75
A		83	84	95	91	95	104	105	111	143	111	169	193	111

Coaxial 45° Elbow



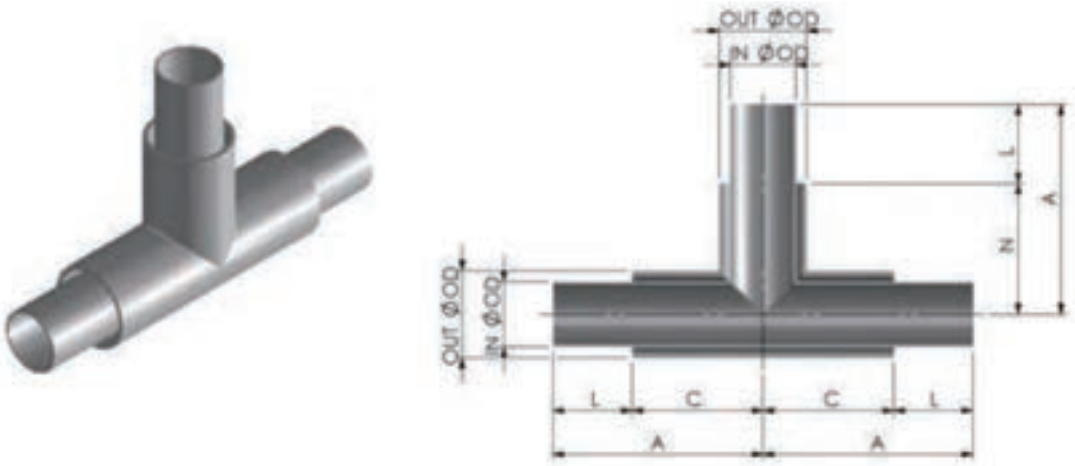
(unit = mm)														
Size	Inner	1/4"		3/8"		1/2"		3/4"		1"		1-1/2"	2"	10A
	Outer	1/2"	8A	3/4"	10A	3/4"	15A	1"	20A	1-1/2"	25A	2"	2-1/2"	20A
OD	Inner	6.35		9.53		12.7		19.05		25.4		38.1	50.8	17.3
	Outer	12.7	13.8	19.05	17.3	19.05	21.7	25.40	27.2	38.1	34.0	50.8	63.5	27.2
L1		29		29		29		36		36		46	46	36
L2		40	40	49	47	49	52	69	52	69	52	78	91	52
B		69	69	78	76	78	81	105	88	105	88	124	137	88

Coaxial Con Reducer



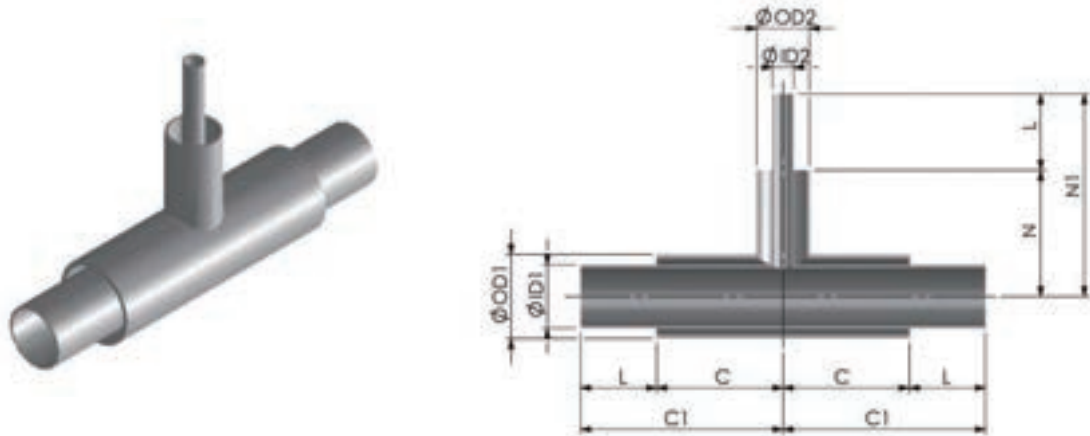
(unit = mm)						
Inner OD		Outer OD		H	A	L
Large End (ID1)	Small End (ID2)	Large End (OD1)	Small End (OD2)			
3/8"	1/4"	3/4"	1/2", 8A	100	129	29
		10	1/2", 8A	90	119	
1/2"	3/8", 1/4"	3/4"	5/8", 1/2", 10A, 8A	100	129	29
		15	5/8", 1/2", 10A, 8A	100	129	
3/4"	1/2", 3/8", 1/4", 10A	20A	15A, 10A, 8A, 3/4", 1/2", 20A	105	141	36
		1"	3/4", 5/8", 1/2" 15A, 10A, 8A	105	141	
1"	3/4", 1/2", 3/8", 1/4", 15A, 10A	1-1/4"	1", 3/4", 20A, 5/8" ~ 1/2", 15A ~ 8A	125	161	36
		25A	25A ~ 8A, 1", 3/4", 1/2"	120	156	
1-1/2"	1", 3/4", 25A, 1/2" ~ 1/4", 20A ~ 10A	2"	1-1/4", 1", 40A, 3/4", 1/2", 32A ~ 8A	130	176	46
2"	1-1/2", 1", 3/4" ~ 1/4", 32A ~ 10A	2-1/2"	2", 1-1/4", 50A, 1" ~ 1/2", 40A ~ 8A	140	186	46
10A	1/2", 3/8", 1/4"	20A	15A, 10A, 8A, 3/4", 1/2"	105	141	36
15A	10A, 3/4", 1/2", 3/8", 1/4"	25A	20A, 15A, 10A, 8A, 1", 3/4", 1/2"	120	156	36
20A	15A, 10A, 1", 3/4", 1/2", 3/8", 1/4"	32A	25A, 20A, 15A, 1-1/4", 10A, 8A, 1" ~ 1/2"	125	161	36
25A	20A, 15A, 10A, 1", 3/4", 1/2", 3/8", 1/4"	40A	32A ~ 15A, 10A, 8A, 1-1/4" ~ 1/2"	130	166	36
32A	25A, 20A, 15A, 1-1/2", 10A, 1" ~ 1/4"	50A	40A, 32A, 25A, 20A, 2", 15A ~ 8A, 1-1/4" ~ 1/2"	140	186	46

Coaxial Equal Tee



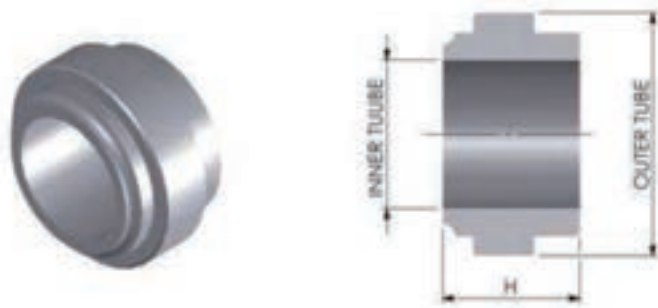
(unit = mm)																		
Size	Inner	1/4"		3/8"		1/2"		3/4"		1"		1-1/2"	2"	10A	15A	20A	25A	32A
	Outer	1/2"	8A	3/4"	10A	3/4"	15A	1"	20A	1-1/2"	25A	2"	2-1/2"	20A	25A	32A	40A	50A
OD	Inner	6.35		9.53		12.7		19.05		25.4		38.1	50.8	17.3	21.7	27.2	34.0	42.7
	Outer	12.7	13.8	19.05	17.3	19.05	21.7	25.40	27.2	38.1	34.0	50.8	63.5	27.2	34.0	42.7	48.6	60.5
C = N		39	42	52	49	52	59	55	65	74	68	77	90	65	68	88	95	102
L		29		29		29		36		36		46	46	36	36	36	36	46
A		68	71	81	78	81	88	91	101	110	104	123	136	101	104	124	131	148

Coaxial Reducing Tee



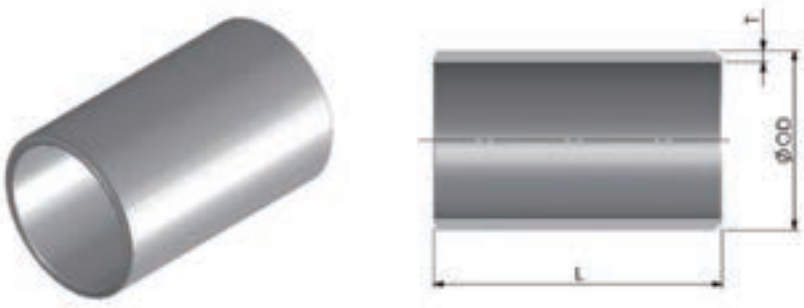
(unit = mm)								
Inner OD		Outer OD		Inner		Outer		L
Large End (ID1)	Small End (ID2)	Large End (OD1)	Small End (OD2)	C1	N1	C	N	
3/8"	1/4"	3/4", 10A	1/2", 8A	76	73	47	44	29
1/2"	1/4"	3/4", 15A	1/2", 8A	76	73	47	44	29
	3/8"		5/8", 10A					
3/4"	1/4"	20A, 1"	8A, 1/2"	83	83	47	47	36
	1/2", 3/8"		3/4", 5/8", 15A, 10A					
1"	1/4"	1-1/4", 25A	8A, 1/2"	93	90	57	54	36
	3/4", 1/2", 3/8", 1/4", 15A, 10A		25A ~ 10A, 1", 5/8", 3/4"	83	86	47	50	36
1-1/2"	1/4"	2"	8A, 1/2"	103	103	57	57	46
	1" ~ 3/8", 10A, 15A		10A, 5/8", 15A, 3/4", 20A, 1", 25A, 1-1/4"					
	20A, 25A		32A, 40A					
2"	1/4"	2-1/2"	8A, 1/2"	103	103	57	57	46
	1" ~ 3/8", 10A, 15A		25A ~ 10A, 1-1/4" ~ 5/8"					
	20A, 25A		32A, 40A, 50A, 2"					
	1-1/2", 32A		32A, 40A, 50A, 2"					
10A	1/4"	20A	8A, 1/2"	83	83	47	47	36
	3/8", 1/2"		10A, 15A, 5/8", 3/4"					
15A	1/4"	25A	8A, 1/2"	83	86	47	50	36
	10A, 3/4", 1/2", 3/8"		10A, 15A, 20A, 5/8", 3/4", 1"					
20A	1/4"	32A	8A, 1/2"	93	90	57	54	36
	15A, 10A, 1", 3/4", 1/2", 3/8"		25A ~ 10A, 1-1/4" ~ 5/8"					
25A	1/4"	40A	8A, 1/2"	93	93	57	57	36
	15A, 10A, 1", 3/4", 1/2", 3/8"		25A ~ 10A, 1-1/4" ~ 5/8"					
	20A		32A					
32A	1/4"	50A	8A, 1/2"	103	109	57	63	46
	1" ~ 3/8", 10A, 15A		25A ~ 10A, 1-1/4" ~ 5/8"					
	25A, 20A		40A, 32A					

Coaxial Stop Spacer



(unit = mm)																		
Size	Inner	1/4"		3/8"		1/2"		3/4"		1"		1-1/2"	2"	10A	15A	20A	25A	32A
	Outer	1/2"	8A	3/4"	10A	3/4"	15A	1"	20A	1-1/2"	25A	2"	2-1/2"	20A	25A	32A	40A	50A
OD	Inner	6.35		9.53		12.7		19.05		25.4		38.1	50.8	17.3	21.7	27.2	34.0	42.7
	Outer	12.7	13.8	19.05	17.3	19.05	21.7	25.40	27.2	38.1	34.0	50.8	63.5	27.2	34.0	42.7	48.6	60.5
H		9	9	9	9	9	9	12	12	12	12	12	12	12	12	12	12	12

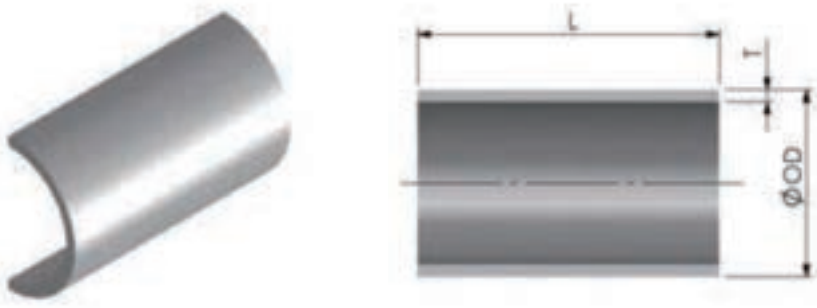
Coaxial Over Tube



* Please refer to **page 28 and 29** for thickness(T) of straight end length.

(unit = mm)																				
Size	Outer	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	8A	10A	15A	20A	25A	32A	40A	50A	65A	80A	100A
OD	Outer	15.88	19.05	21.7	28.8	35.7	41.8	54.6	76.2	15.88	19.05	25.4	31.8	38.1	48.6	53.1	65.7	81.6	96.5	122.0
L		78	78	78	92	92	92	112	112	78	78	92	92	92	92	92	112	140	180	200

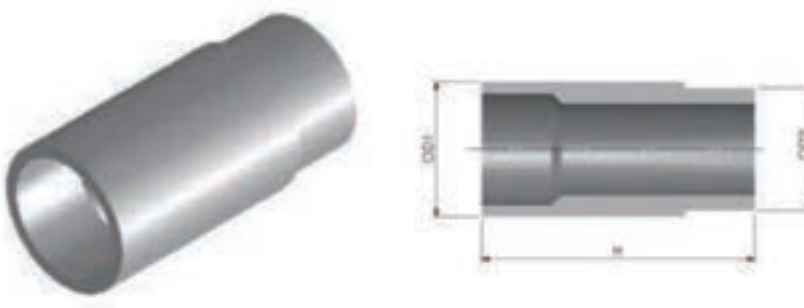
Coaxial Sleeve (Half Tube)



* Please refer to **page 28 and 29** for thickness(T) of straight end length.

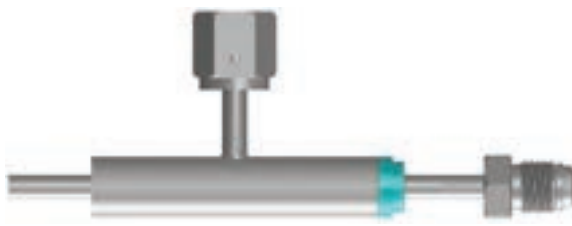
(unit = mm)																		
Size	Inner	1/4"		3/8"		1/2"		3/4"		1"		1-1/2"	2"	10A	15A	20A	25A	32A
	Outer	1/2"	8A	3/4"	10A	3/4"	15A	1"	20A	1-1/2"	25A	2"	2-1/2"	20A	25A	32A	40A	50A
OD	Inner	6.35		9.53		12.7		19.05		25.4		38.1	50.8	17.3	21.7	27.2	34.0	42.7
	Outer	12.7	13.8	19.05	17.3	19.05	21.7	25.40	27.2	38.1	34.0	50.8	63.5	27.2	34.0	42.7	48.6	60.5
L		58	58	58	58	58	58	72	72	72	72	92	92	72	72	72	72	92

Coaxial Terminator

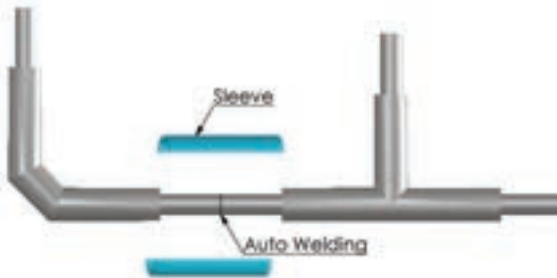
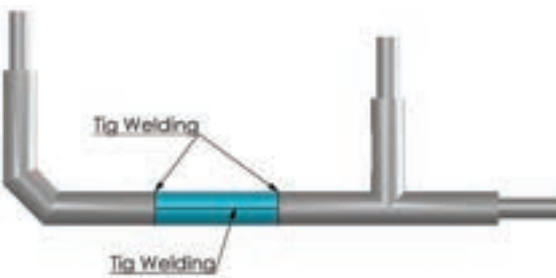


(unit = mm)																		
Size	Inner	1/4"		3/8"		1/2"		3/4"		1"		1-1/2"	2"	10A	15A	20A	25A	32A
	Outer	1/2"	8A	3/4"	10A	3/4"	15A	1"	20A	1-1/2"	25A	2"	2-1/2"	20A	25A	32A	40A	50A
OD	Inner (OD2)	10.9		14.1		17.3		23.6		30.0		42.7	51.1	17.6	22.0	27.5	34.3	47.3
	Outer (OD1)	12.7	13.8	19.05	17.3	19.05	21.7	25.40	27.2	38.1	34.0	50.8	63.5	27.2	34.0	42.7	48.6	60.5
H		39		39		39		46		46		56	56	46	46	46	46	56

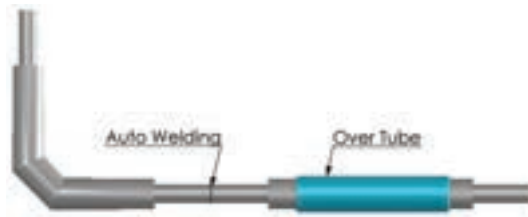
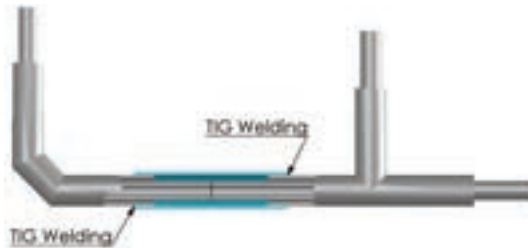
Coaxial Others

STOP SPACER + GLAND -F	STOP SPACER + GLAND -M
	
PURGE TEE (FEMALE)	PURGE TEE (MALE)
	
	

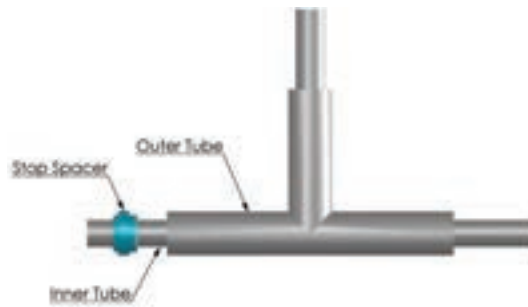
How to use Sleeve (Half Tube)

STEP 1	STEP 2
	

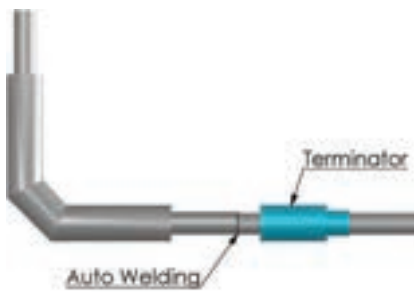
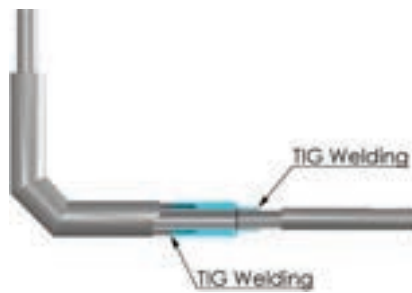
How to use Over Tube

STEP 1	STEP 2
	

How to use Stop Spacer

STEP 1	STEP 2
	

How to use Terminator

STEP 1	STEP 2
	

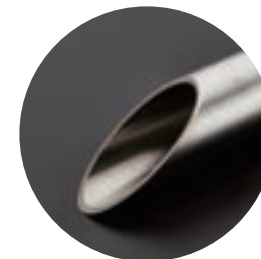
Pipes & Tubes

ASFLOW Pipes & Tubes prevent out-gassing and improve corrosion resistance while providing excellent compatibility with speciality gases and chemicals.



EP Grade Electro Polished

- Seamless or Welded
- ASTM A269 / A632 / B622
- JIS G3459 / G3468
- Materials : 316L, 316L VIM-VAR, Hastelloy C-22



BA Grade Bright Annealed

- Seamless or Welded
- ASTM A269 / A632 / B622
- JIS G3459 / G3468
- Materials : 316L, Hastelloy C-22



MP Grade Mechanically Polished

- Seamless or Welded
- ASTM A269 / A632
- JIS G3459 / G3468
- Materials : 304, 316L

Pipe Size

Size	Outer Diameter OD (mm)	Thickness (mm)		Length
		T = 5S	T = 10S	
8A	13.8	1.2	1.65	4 m / 6 m (20 ft)
10A	17.3	1.2	1.65	
15A	21.7	1.65	2.1	
20A	27.2	1.65	2.1	
25A	34.0	1.65	2.8	
32A	42.7	1.65	2.8	
40A	48.6	1.65	2.8	
50A	60.5	1.65	2.8	
65A	76.3	2.1	3.0	
80A	89.1	2.1	3.0	
100A	114.3	2.1	3.0	4 m
125A	139.8	2.8	3.4	
150A	165.2	2.8	3.4	
200A	216.3	2.8	4.0	
250A	267.4	3.4	4.0	
300A	318.5	4.0	4.5	
350A	355.6	4.0	5.0	
400A	406.4	4.5	5.0	
450A	457.2	4.5	5.0	
500A	508.0	5.0	5.5	
550A	558.8	5.0	5.5	
600A	609.6	5.5	6.5	
* Sizes not shown on this catalog are available at a customers' request. Please contact us.				

Tube Size

Size	Outer Diameter OD (mm)	Thickness T (mm)	Length
1/4"	6.35	1.0 (0.89)	4 m / 6 m (20 ft)
3/8"	9.53	1.0 (0.89)	
1/2"	12.7	1.0 (1.24)	
5/8"	15.88	1.0 (1.24)	
3/4"	19.05	1.65 (1.24)	
1"	25.4	1.65 (1.24)	
1-1/4"	31.8	1.65	
1-1/2"	38.1	1.65	
2"	50.8	1.65	
2-1/2"	63.5	1.65	
3"	76.2	1.65	
4"	101.6	2.11	
5"	127	2.77 (3.05)	
6"	152.4	2.77 (3.05)	
* Sizes not shown on this catalog are available at a customers' request. Please contact us.			