

Bite Type Tube Fittings (JIS B2351)

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03

General Information For Our Bite Type Tube Fittings.

HANSUN bite type tube fittings are precision-machined, under strict quality control. HANSUN bite type tube fittings are the flareless tube fitting with the visible bite. This added safety feature makes them the preferred fitting for non-flared tube connections.

How Do They Work?

The bite type flareless hydraulic tube fitting is designed to work on medium to heavy wall tubing that is hard to flare.

It consists of three parts :

1. body, 2. sleeve, 3. nut. (As shown in Fig-1)

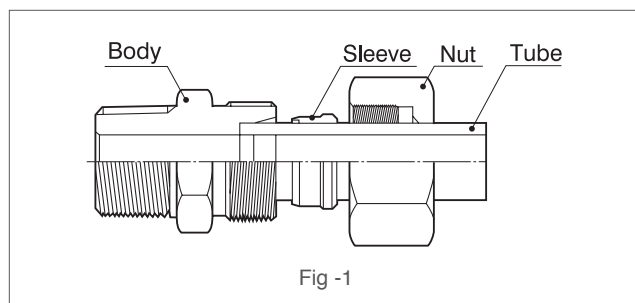


Fig - 1

The sleeve is driven forward on the tube by the nut.

As the sleeve moves forward it meets the seal seat angle of the body which causes the sleeve to cam inward into the tube. The sleeve then bites into the tube causing a small ridge of tube material to be pushed up in front of the biting edge of the sleeve. (As shown in Fig-2&3)

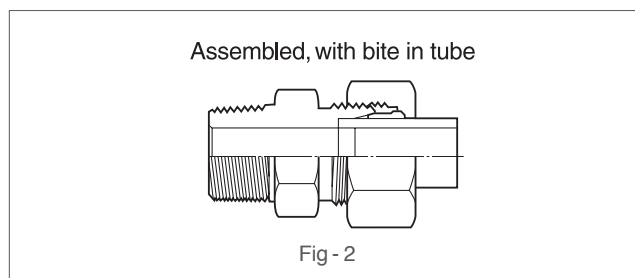


Fig - 2

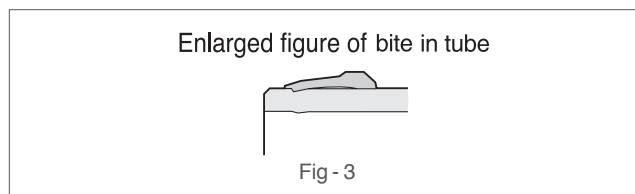


Fig - 3

The make-up of the fitting is critical in that the tube must be bottomed against the tube stop in the body or presetting tool during make up. If it is not bottomed the tube will move forward with the sleeve and a bite will not be achieved make sure the tube is bottomed.

A check is possible to see if the tube is bottomed during make up, To make this check inspect the end of the tube and see if a circular appearing ring has been impressed into the tube end face. This impression may be caused by the tube stop which has a slight reverse angle rather than a flat face.

Material Specifications

Parts	Steel	Stainless Steel	Brass
Forged body	S20C-S48C	SUS316 or A182 F316	C3771
Bar Stock Body	S20C-S48C	SUS316 or A276/A479 S316	C3604
Cold Formed Nut	S10C-S20C or JIS G3507		
Bar Stock Nut	S20C-S48C	SUS316-SUS304 or A276/A479 S316/S304	C3604
Sleeve	S10C	SUS316-SUS304 or A276/A479 S316/S304	C3604

Gasket and O-ring Temperature Ratings

Component	Material	Temperature Ratings
O-ring	NBR(Buna N)	-31°F to 230°F of (-35°C to 110°C)
	FKM(Viton®)	-20°F to 400°F (-28°C to 204°C)
SGC	Copper	-325°F to 400°F (-198°C to 204°C)
SGB	NBR(Buna N)	-13°F to 230°F of (-25°C to 110°C)
	FKM(Viton®)	5°F to 400°F (-15°C to 204°C)
Thread sealant teflon tape		-320°F to 450°F (-196°C to 232°C)

Applicable Pressure Rating

Our standard specifications of the fittings are as follows

Fitting Size (applicable Tube O.D)	4 ~ 15	16 ~ 22	25 ~ 28	30 ~ 38	40 ~ 45
Rated pressure (kgf/cm ²)	500	400	350	250	210
Max.working temperature (°C)	300				

The Rated Pressure for the fittings are determined based on the results of the design specification confirmed by severe repetitive tests; the rated pressures are determined for each size of fittings while the safety factor of as much as 4 is taken into account in the design.

Suitable Tubing Materials

Common material of tubing includes :

Steel - Seamless, fully annealed, also welded and redrawn type suitable for bending. Maximum hardness, Rockwell B72.

Stainless Steel - Seamless, fully annealed, also welded redrawn, fully annealed suitable for bending. Maximum hardness, Rockwell B90.

Copper - Seamless coils, soft or light annealed, Maximum hardness Rockwell F55. Straight lengths. light drawn and general purpose. Maximum hardness of 60 on Rockwell 30T scale.

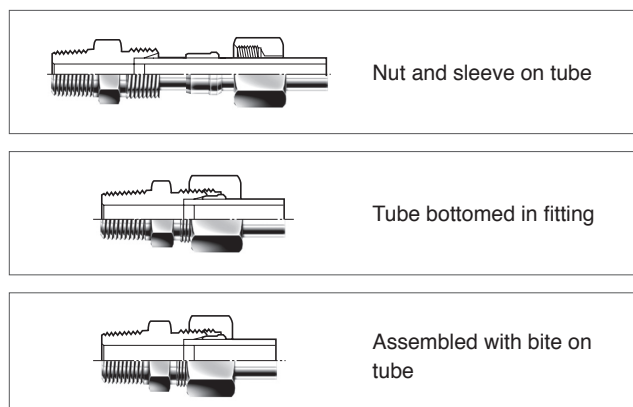
Assembly Instructions

Cutting The Tube

Cut tube squarely and de-burr lightly the end both internally and externally.

Sleeve Placement

Slip nut and sleeve onto tubing. Be sure the long straight end of the sleeve points toward tube end.



Lubrication

Lightly lubricate threads on tool or body as well as the tail and lead end of the sleeve with extreme friction lubricant.

Pre-Setting

Insert tube end into tool or fitting until it sits on the shoulder(to hold tube motionless during pre-setting) and screw the nut down with finger tight.

Final Setting

Wrench nut down 1-1/2 turns to pre-set the sleeve(Reliable make-up of all flareless tube fittings is dependent upon the sleeve traveling a prescribed distance into tapered fitting throat in order to bite into the tube and effect a positive grip and seal.

Reassemble For Final Installation

Insert the tube into the fitting body and wrench the nut down until a sudden increase in torque occurs. From this point turn the nut an additional 1/4 to 1/3 turn(1-1/2 to 2 wrench flats) to again spring the sleeve into place to seal against the tubing and the fitting body.

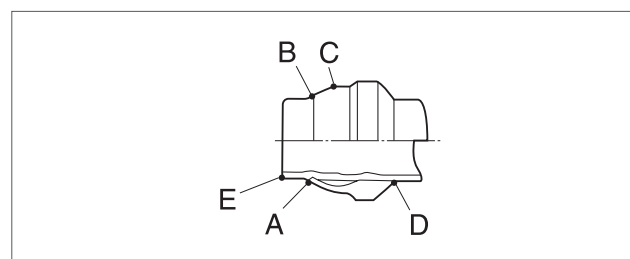
Inspection Of Bite

All HANSUN bite type tube fittings must be disassembled and inspected for proper make-up before final assembly.

Detailed inspection procedures are outlined below and must be followed regardless of the method used to pre-set the sleeve to the tube.

You Should Make Certain That

1. A ridge of metal has been raised above the tube surfaces, to a height of at least 50% of the thickness of the sleeve leading edge, completely around the tube(A)
2. While the leading edge of the sleeve may be coined flat(B) there is a slight bow to the balance of the pilot section(C)
3. The tail or back end of the sleeve is snugged against the tube(D)
4. There is a slight indentation all around the end of the tube(E) that indicates the tube was bottomed in the tool or fitting during pre-setting (unless evidence of this complete contact is visible the sleeve cannot be considered properly pre-set).
5. Avoid rotating the sleeve. Steel sleeve should not be capable of moving back and forth along tube, beyond the bite area(stainless steel sleeve will move more than steel because of its spring back characteristics).



Trouble Shooting

Problems with bite type hydraulic fittings are most often traced to faulty make-up procedures. Look for the following :

1. Tube not bottomed

Check for the indentation on the tube end or compare length from end of tube to the front end of the sleeve with that of a known good assembly.

2. Lack of bite

inspect for turned up ridge of material. A failure to achieve this ridge can be traced either to the fact that the nut was not tightened enough or that the tube was not bottomed against the stop which allowed the tube to travel forward with the sleeve.

3. Sleeve cocked on tube

The sleeve is cocked on the tube when the tube assembly is off axis with that of the body. Generally this condition is caused by faulty tube bending. All bent tube assemblies should drop into the fitting body prior to make up.

4. No bite

If all of the above checks have been made and the sleeve still shows no sign of biting the tube, it may be that the tube is too hard.

Straight Union
BU



134

Union Elbow
BL



134

Union Tee
BT



135

Straight Bulkhead Union
BBU



135

Bulkhead Elbow
BBL



136

Long Male Connector
BLMC



136

Male Connector
BMC-R



137

Male Connector (For Bonded Seal)
BMC-G



138

Male Connector (For O-Ring)
BOM



139

Male Elbow
BLM



140

Long Male Elbow
BLLM



141

O-Seal Male Elbow
BOLM



141

Banjo Elbow
BSLM



142

Male Branch Tee
BBTM



142

Male Run Tee
BRTM



143

Bulkhead Female Connector
BBFC



143

Female Connector
BFC



144

Gauge Connector
BGC



144

Female Elbow
BLF



145

Female Branch Tee
BBTF



145

Female Run Tee
BRTF



146

Presetting Jig
BJ



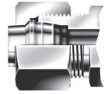
146

Cap
BC



147

Plug
BP



147

Nut
BN



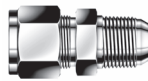
148

Sleeve
BS



148

Hose Male Union
BHUM



149

Hose Female Union
BHUF



149

Hose Bulkhead Male Union
BHBM



150

Hose Bulkhead Female Union
BHBF



150

Hose Male Elbow
BHLM



151

Hose Female Elbow
BHLF



151

Hose Bulkhead Male Elbow
BHBLM



152

Hose Bulkhead Female Elbow
BHBLF



152

Welding Connector
BCW



153

Welding Bulkhead Union
BBUW



153

Adapter
BA-R



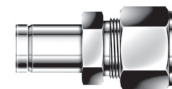
154

Adapter (For Copper Gasket)
BA-G



154

Reducer
BR



155

Positionable Elbow
BLA



155

Positionable Branch Tee
BBTA



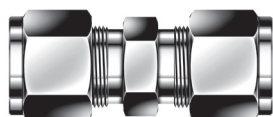
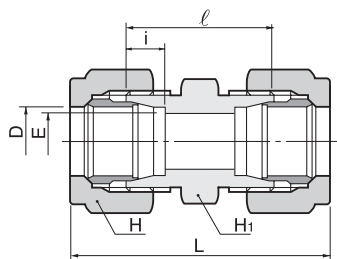
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Positionable Run Tee
BRTA



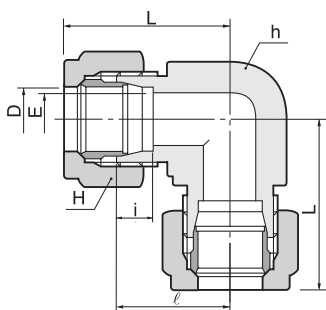
156

Straight Union

BU

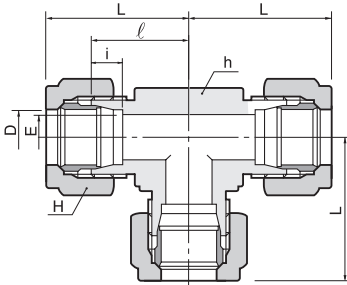
Part No.	Tube O.D		E	Width across flat		i	ℓ	Approx L
	D			H ₁	H			
BU-06	6		4	14	14	7	30	51
BU-08	8		6	17	17	7	31	52
BU-10	10		8	17	19	7	31	54
BU-12	12		10	19	22	7	31	54
BU-15	15		12	24	27	7.5	36	61
BU-16	16		13	27	30	7.5	36	61
BU-18	18		14	27	32	8	36	61
BU-20	20		17	30	36	8	38	63
BU-22	22		18	32	36	9	38	63
BU-25	25		20	36	41	10	38	66
BU-28	28		22	41	46	10	43	71
BU-30	30		25	41	46	10	43	72
BU-32	32		26	46	50	11	44	73
BU-35	35		28	46	55	11	44	79
BU-38	38		32	50	60	12	46	85
BU-40	40		32	55	60	12	55	94
BU-42	42		34	55	60	12	55	94
BU-06A	1/8	10.5	8	17	19	7	31	54
BU-08A	1/4	13.8	11	22	24	7.5	38	60
BU-10A	3/8	17.3	14	27	32	8	38	61
BU-15A	1/2	21.7	18	32	36	9	38	63
BU-20A	3/4	27.2	22	41	46	10	43	71
BU-25A	1	34.0	28	46	55	11	44	79
BU-32A	1-1/4	42.7	34	60	65	12	57	98
BU-40A	1-1/2	48.6	40	65	75	12	60	103

Union Elbow

BL

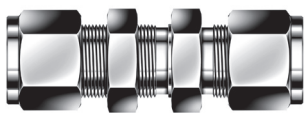
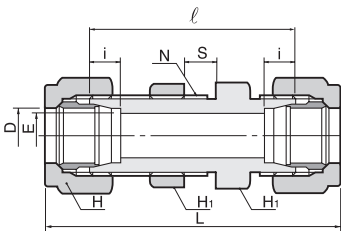
Part No.	Tube O.D		E	Width across flat		i	ℓ	Approx L
	D			h	H			
BL-06	6		4	14	14	7	20	30.5
BL-08	8		6	17	17	7	23	33.5
BL-10	10		8	17	19	7	23	34.5
BL-12	12		10	19	22	7	24	35.5
BL-15	15		12	24	27	7.5	29	41.5
BL-16	16		13	27	30	7.5	32	44.5
BL-18	18		14	27	32	8	32	44.5
BL-20	20		17	30	36	8	33	45.5
BL-22	22		18	32	36	9	34	46.5
BL-25	25		20	36	41	10	36	49.5
BL-28	28		22	41	46	10	41	55.0
BL-30	30		25	41	46	10	41	55.5
BL-32	32		26	46	50	11	45	59.5
BL-35	35		28	46	55	11	48	63.5
BL-38	38		32	50	60	12	50	69.5
BL-40	40		32	55	60	12	55	74.5
BL-42	42		34	55	60	12	55	74.5
BL-06A	1/8	10.5	8	17	19	7	23	34.5
BL-08A	1/4	13.8	11	22	24	7.5	28	40.0
BL-10A	3/8	17.3	14	27	32	8	32	44.5
BL-15A	1/2	21.7	18	32	36	9	34	46.5
BL-20A	3/4	27.2	22	41	46	10	41	55.0
BL-25A	1	34.0	28	46	55	11	46	63.5
BL-32A	1-1/4	42.7	34	60	65	12	57	77.5
BL-40A	1-1/2	48.6	40	65	75	12	62	83.5

Union Tee

BT

Part No.	Tube O.D		E	Width across flat		i	ℓ	Approx L
	D			h	H			
BT-06	6		4	14	14	7	20	30.5
BT-08	8		6	17	17	7	23	33.5
BT-10	10		8	17	19	7	23	34.5
BT-12	12		10	19	22	7	24	35.5
BT-15	15		12	24	27	7.5	29	41.5
BT-16	16		13	27	30	7.5	32	44.5
BT-18	18		14	27	32	8	32	44.5
BT-20	20		17	30	36	8	33	45.5
BT-22	22		18	32	36	9	34	46.5
BT-25	25		20	36	41	10	36	49.5
BT-28	28		22	41	46	10	41	55.0
BT-30	30		25	41	46	10	41	55.5
BT-32	32		26	46	50	11	45	59.5
BT-35	35		28	46	55	11	46	63.5
BT-38	38		32	50	60	12	50	69.5
BT-40	40		32	55	60	12	55	74.5
BT-42	42		34	55	60	12	55	74.5
BT-06A	1/8	10.5	8	17	19	7	23	34.5
BT-08A	1/4	13.8	11	22	24	7.5	28	40.0
BT-10A	3/8	17.3	14	27	32	8	32	44.5
BT-15A	1/2	21.7	18	32	36	9	34	46.5
BT-20A	3/4	27.2	22	41	46	10	41	55.0
BT-25A	1	34.0	28	46	55	11	46	63.5
BT-32A	1-1/4	42.7	34	60	65	12	57	77.5
BT-40A	1-1/2	48.6	40	65	75	12	62	83.5

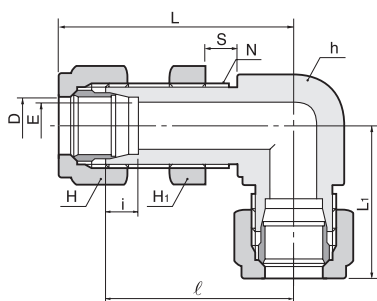
Straight Bulkhead Union

BBU

Part No.	Tube O.D		E	Width across flat		i	ℓ	Approx L	Panel Hole Drill Size N	Max. Panel Thickness S
	D			H ₁	H					
BBU-06	6		4	17	14	7	51	72	12.5	13
BBU-08	8		6	19	17	7	51	72	14.5	13
BBU-10	10		8	22	19	7	52	75	16.5	13
BBU-12	12		10	24	22	7	52	75	18.5	13
BBU-15	15		12	27	27	7.5	59	84	22.5	15
BBU-16	16		13	30	30	7.5	61	86	24.5	15
BBU-18	18		14	32	32	8	63	88	26.5	15
BBU-20	20		17	32	36	8	63	88	28.5	15
BBU-22	22		18	36	36	9	64	89	30.5	15
BBU-25	25		20	41	41	10	64	91	35.5	15
BBU-28	28		22	46	46	10	69	97	38.5	15
BBU-30	30		25	46	46	10	69	98	40.5	15
BBU-32	32		26	50	50	11	73	102	42.5	15
BBU-35	35		28	50	55	11	73	108	45.5	15
BBU-38	38		32	55	60	12	76	115	48.5	15
BBU-40	40		32	60	60	12	87	126	52.5	15
BBU-06A	1/8	10.5	8	22	19	7	52	75	16.5	13
BBU-08A	1/4	13.8	11	27	24	7.5	59	83	20.5	15
BBU-10A	3/8	17.3	14	32	32	8	63	88	26.5	15
BBU-15A	1/2	21.7	18	36	36	9	64	89	30.5	15
BBU-20A	3/4	27.2	22	46	46	10	69	97	38.5	15
BBU-25A	1	34.0	28	50	55	11	73	108	45.5	15
BBU-32A	1-1/4	42.7	34	65	65	12	90	131	56.5	15
BBU-40A	1-1/2	48.6	40	70	75	12	93	136	64.5	15

Bulkhead Elbow

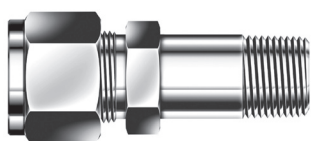
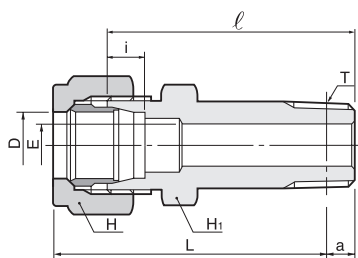
BBL



Part No.	Tube O.D	E	Width across flat			i	ℓ	Approx		Panel Hole Drill Size N	Max. Panel Thickness S
	D		h	H ₁	H			L ₁	L		
BBL-06	6	4	17	17	14	7	45	33.5	55.5	12.5	13
BBL-08	8	6	19	19	17	7	46	34.5	56.5	14.5	13
BBL-10	10	8	22	22	19	7	48	37.5	59.5	16.5	13
BBL-12	12	10	24	24	22	7	49	38.5	60.5	18.5	13
BBL-15	15	12	27	27	27	7.5	57	43.5	69.5	22.5	15
BBL-16	16	13	30	30	30	7.5	59	45.5	71.5	24.5	15
BBL-18	18	14	32	32	32	8	63	45.5	75.5	26.5	15
BBL-20	20	17	32	32	36	8	65	45.5	77.5	28.5	15
BBL-22	22	18	36	36	36	9	65	48.5	77.5	30.5	15
BBL-25	25	20	41	41	41	10	68	52.5	81.5	35.5	15
BBL-28	28	22	41	46	46	10	70	55	84	38.5	15
BBL-30	30	25	46	46	46	10	74	60.5	88.5	40.5	15

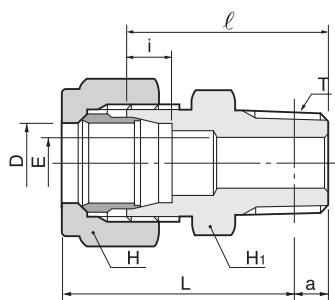
Long Male
Connector

BLMC



Part No.	Tube O.D		(PT) T	E	Basic Gauge length a	Width across flat		i	ℓ	Approx L
	D					H ₁	H			
BLMC-06-01R	6		1/8	4	3.97	14	14	7	63	69.5
BLMC-08-02R	8		1/4	6	6.01	17	17	7	70	74.5
BLMC-10-02R	10		1/4	7	6.01	17	19	7	71	76.5
BLMC-10-03R	10		3/8	8	6.35	19	19	7	72	77.0
BLMC-12-02R	12		1/4	7	6.01	19	22	7	71	76.5
BLMC-12-03R	12		3/8	9	6.35	19	22	7	72	77.0
BLMC-15-03R	15		3/8	9	6.35	24	27	7.5	81	87.0
BLMC-15-04R	15		1/2	12	8.16	24	27	7.5	86	90.5
BLMC-16-04R	16		1/2	12	8.16	27	30	7.5	86	90.5
BLMC-18-04R	18		1/2	12	8.16	27	32	8	86	90.5
BLMC-20-06R	20		3/4	16	9.53	30	36	8	92	95.0
BLMC-22-06R	22		3/4	16	9.53	32	36	9	93	96.0
BLMC-25-08R	25		1	20	10.39	36	41	10	99	102.0
BLMC-28-08R	28		1	22	10.39	41	46	10	104	107.5
BLMC-30-10R	30		1-1/4	25	12.70	46	46	10	109	111.0
BLMC-32-10R	32		1-1/4	26	12.70	46	50	11	110	112.0
BLMC-06A-02R	1/8	10.5	1/4	7	6.01	17	19	7	71	76.5
BLMC-08A-03R	1/4	13.8	3/8	9	6.35	22	24	7.5	81	86.5
BLMC-10A-03R	3/8	17.3	3/8	9	6.35	27	32	8	81	87.0
BLMC-15A-06R	1/2	21.7	3/4	16	9.53	32	36	9	93	96.0
BLMC-20A-08R	3/4	27.2	1	22	10.39	41	46	10	104	107.5

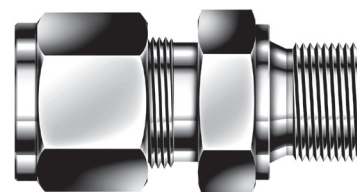
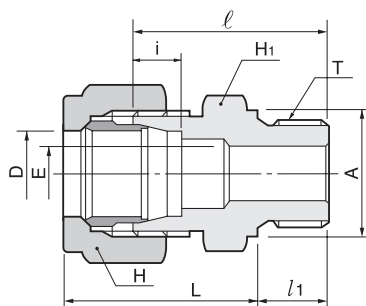
Male Connector

BMC-R

Part No.	Tube O.D		(PT) T	E	Basic Gauge length a	Width across flat		i	ℓ	Approx L
	D					H ₁	H			
BMC-06-01R	6		1/8	4	3.97	14	14	7	28	34.5
BMC-06-02R	6		1/4	4	6.01	17	14	7	33	37.5
BMC-06-03R	6		3/8	4	6.35	17	14	7	34	38.5
BMC-08-01R	8		1/8	4	3.97	17	17	7	29	35.5
BMC-08-02R	8		1/4	6	6.01	17	17	7	33	37.5
BMC-10-02R	10		1/4	7	6.01	17	19	7	33	38.5
BMC-10-03R	10		3/8	8	6.35	19	19	7	34	39.0
BMC-10-04R	10		1/2	8	8.16	22	19	7	39	42.5
BMC-12-02R	12		1/4	7	6.01	19	22	7	33	38.5
BMC-12-03R	12		3/8	9	6.35	19	22	7	34	39.0
BMC-12-04R	12		1/2	10	8.16	22	22	7	39	42.5
BMC-15-03R	15		3/8	9	6.35	24	27	7.5	37	43.0
BMC-15-04R	15		1/2	12	8.16	24	27	7.5	41	45.5
BMC-16-03R	16		3/8	9	6.35	27	30	7.5	37	43.0
BMC-16-04R	16		1/2	12	8.16	27	30	7.5	41	45.5
BMC-18-04R	18		1/2	12	8.16	27	32	8	41	45.5
BMC-20-04R	20		1/2	12	8.16	30	36	8	43	47.5
BMC-20-06R	20		3/4	16	9.53	30	36	8	45	48.0
BMC-22-04R	22		1/2	12	8.16	32	36	9	43	47.5
BMC-22-06R	22		3/4	16	9.53	32	36	9	45	48.0
BMC-25-08R	25		1	20	10.39	36	41	10	49	52.0
BMC-28-08R	28		1	22	10.39	41	46	10	51	54.5
BMC-30-08R	30		1	22	10.39	41	46	10	51	55.0
BMC-30-10R	30		1-1/4	25	12.70	46	46	10	55	57.0
BMC-32-10R	32		1-1/4	26	12.70	46	50	11	55	57.0
BMC-35-10R	35		1-1/4	28	12.70	46	55	11	55	60.0
BMC-38-12R	38		1-1/2	32	12.70	50	60	12	57	64.0
BMC-40-12R	40		1-1/2	32	12.70	55	60	12	62	69.0
BMC-42-12R	42		1-1/2	34	12.70	55	60	12	62	69.0
BMC-06A-01R	1/8	10.5	1/8	4	3.97	17	19	7	29	36.5
BMC-06A-02R	1/8	10.5	1/4	7	6.01	17	19	7	33	38.5
BMC-08A-02R	1/4	13.8	1/4	7	6.01	22	24	7.5	36	42.0
BMC-08A-03R	1/4	13.8	3/8	9	6.35	22	24	7.5	37	42.5
BMC-10A-03R	3/8	17.3	3/8	9	6.35	27	32	8	37	43.0
BMC-10A-04R	3/8	17.3	1/2	12	8.16	27	32	8	41	45.5
BMC-15A-04R	1/2	21.7	1/2	12	8.16	32	36	9	43	47.5
BMC-15A-06R	1/2	21.7	3/4	16	9.53	32	36	9	45	48.0
BMC-20A-06R	3/4	27.2	3/4	16	9.53	41	46	10	48	52.5
BMC-20A-08R	3/4	27.2	1	22	10.39	41	46	10	51	54.5
BMC-25A-08R	1	34.0	1	22	10.39	46	55	11	52	59.0
BMC-25A-10R	1	34.0	1-1/4	28	12.70	46	55	11	55	60.0
BMC-32A-10R	1-1/4	42.7	1-1/4	31	12.70	60	65	12	64	72.0
BMC-32A-12R	1-1/4	42.7	1-1/2	34	12.70	60	65	12	64	72.0
BMC-40A-12R	1-1/2	48.6	1-1/2	36	12.70	65	75	12	67	76.0
BMC-40A-16R	1-1/2	48.6	2	40	15.88	65	75	12	71	76.5

Male Connector
(For Bonded Seal)

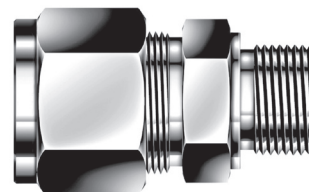
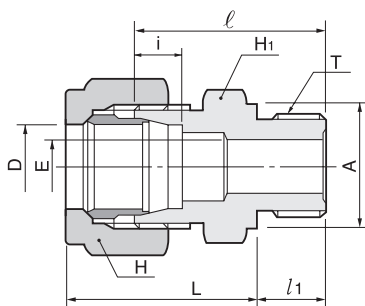
BMC-G



Part No.	Tube O.D.		(PF) T	E	Width across flat		i	l	A	l ₁	Approx L
	D				H ₁	H					
BMC-06-01G	6		1/8	4	14	14	7	28	14	8	30.5
BMC-06-02G	6		1/4	4	19	14	7	33	18	12	31.5
BMC-08-01G	8		1/8	4	17	17	7	28	14	8	30.5
BMC-08-02G	8		1/4	6	19	17	7	33	18	12	31.5
BMC-10-02G	10		1/4	6	19	19	7	33	18	12	32.5
BMC-10-03G	10		3/8	8	22	19	7	34	21.5	12	33.5
BMC-12-02G	12		1/4	6	19	22	7	33	18	12	32.5
BMC-12-03G	12		3/8	8	22	22	7	34	21.5	12	33.5
BMC-12-04G	12		1/2	10	27	22	7	39	25.5	14	36.5
BMC-15-03G	15		3/8	8	24	27	7.5	37	21.5	12	37.5
BMC-15-04G	15		1/2	12	27	27	7.5	41	25.5	14	39.5
BMC-16-04G	16		1/2	12	27	30	7.5	41	25.5	14	39.5
BMC-18-04G	18		1/2	12	27	32	8	41	25.5	14	39.5
BMC-20-06G	20		3/4	16	32	36	8	46	31.5	16	42.5
BMC-22-04G	22		1/2	12	32	36	9	43	25.5	14	41.5
BMC-22-06G	22		3/4	16	32	36	9	46	31.5	16	42.5
BMC-25-06G	25		3/4	16	36	41	10	46	31.5	16	43.5
BMC-25-08G	25		1	20	41	41	10	50	38	18	45.5
BMC-28-08G	28		1	22	41	46	10	52	38	18	48.0
BMC-30-08G	30		1	22	41	46	10	52	38	18	48.5
BMC-30-10G	30		1-1/4	25	50	46	10	57	48.5	20	51.5
BMC-32-10G	32		1-1/4	26	50	50	11	57	48.5	20	51.5
BMC-35-10G	35		1-1/4	28	50	55	11	57	48.5	20	54.5
BMC-38-12G	38		1-1/2	32	55	60	12	58	53.5	21	56.5
BMC-40-12G	40		1-1/2	32	55	60	12	62	53.5	21	60.5
BMC-42-12G	42		1-1/2	34	55	60	12	62	53.5	21	60.5
BMC-06A-01G	1/8	10.5	1/8	4	17	19	7	29	14	8	32.5
BMC-06A-02G	1/8	10.5	1/4	6	19	19	7	33	18	12	32.5
BMC-08A-02G	1/4	13.8	1/4	6	22	24	7.5	36	18	12	36.0
BMC-08A-03G	1/4	13.8	3/8	8	22	24	7.5	36	21.5	12	36.0
BMC-10A-03G	3/8	17.3	3/8	8	27	32	8	38	21.5	12	38.5
BMC-10A-04G	3/8	17.3	1/2	12	27	32	8	41	25.5	14	39.5
BMC-15A-04G	1/2	21.7	1/2	12	32	36	9	43	25.5	14	41.5
BMC-15A-06G	1/2	21.7	3/4	16	32	36	9	46	31.5	16	42.5
BMC-20A-06G	3/4	27.2	3/4	16	41	46	10	50	31.5	16	48.0
BMC-20A-08G	3/4	27.2	1	22	41	46	10	52	38	18	48.0
BMC-25A-08G	1	34.0	1	22	46	55	11	54	38	18	53.5
BMC-25A-10G	1	34.0	1-1/4	28	50	55	11	57	48.5	20	54.5
BMC-32A-10G	1-1/4	42.7	1-1/4	31	60	65	12	63	48.5	20	63.5
BMC-32A-12G	1-1/4	42.7	1-1/2	34	60	65	12	64	53.5	21	63.5
BMC-40A-12G	1-1/2	48.6	1-1/2	36	65	75	12	65	53.5	21	65.5
BMC-40A-16G	1-1/2	48.6	2	40	70	75	12	73	66	25	69.5

Male Connector (For O-Ring)

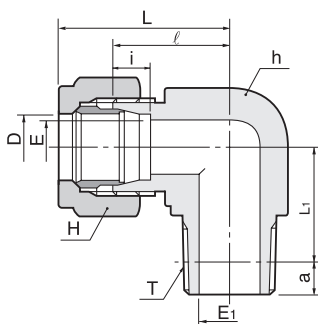
BOM



Part No.	Tube O.D.		(PF) T	E	Width across flat		i	A	l ₁	ℓ	Approx L
	D				H ₁	H					
BOM-06-01G	6		1/8	4	14	14	7	14	8	28	30.5
BOM-06-02G	6		1/4	4	19	14	7	19	12	33	31.5
BOM-08-01G	8		1/8	4	17	17	7	14	8	28	30.5
BOM-08-02G	8		1/4	6	19	17	7	19	12	33	31.5
BOM-10-02G	10		1/4	6	19	19	7	19	12	33	32.5
BOM-10-03G	10		3/8	8	22	19	7	22	12	34	33.5
BOM-12-02G	12		1/4	6	19	22	7	19	12	33	32.5
BOM-12-03G	12		3/8	8	22	22	7	22	12	34	33.5
BOM-12-04G	12		1/2	10	27	22	7	27	14	39	36.5
BOM-15-03G	15		3/8	8	24	27	7.5	22	12	37	37.5
BOM-15-04G	15		1/2	12	27	27	7.5	27	14	41	39.5
BOM-16-04G	16		1/2	12	27	30	7.5	27	14	41	39.5
BOM-18-04G	18		1/2	12	27	32	8	27	14	41	39.5
BOM-20-06G	20		3/4	16	36	36	8	36	16	46	42.5
BOM-22-06G	22		3/4	16	36	36	9	36	16	46	42.5
BOM-25-06G	25		3/4	16	36	41	10	36	16	46	43.5
BOM-25-08G	25		1	20	41	41	10	41	18	50	45.5
BOM-28-08G	28		1	22	41	46	10	41	18	52	48.0
BOM-30-08G	30		1	22	41	46	10	41	18	52	48.5
BOM-30-10G	30		1-1/4	25	50	46	10	50	20	57	51.5
BOM-32-10G	32		1-1/4	26	50	50	11	50	20	57	51.5
BOM-35-10G	35		1-1/4	28	50	55	11	50	20	57	54.5
BOM-38-12G	38		1-1/2	32	55	60	12	55	21	58	56.5
BOM-40-12G	40		1-1/2	32	55	60	12	55	21	62	60.5
BOM-42-12G	42		1-1/2	34	55	60	12	55	21	62	60.5
BOM-06A-01G	1/8	10.5	1/8	4	17	19	7	14	8	29	32.5
BOM-06A-02G	1/8	10.5	1/4	6	19	19	7	19	12	33	32.5
BOM-08A-02G	1/4	13.8	1/4	6	22	24	7.5	19	12	36	36.0
BOM-08A-03G	1/4	13.8	3/8	8	22	24	7.5	22	12	36	36.0
BOM-10A-03G	3/8	17.3	3/8	8	27	32	8	22	12	38	38.5
BOM-10A-04G	3/8	17.3	1/2	12	27	32	8	27	14	41	39.5
BOM-15A-04G	1/2	21.7	1/2	12	32	36	9	27	14	43	41.5
BOM-15A-06G	1/2	21.7	3/4	16	36	36	9	36	16	46	42.5
BOM-20A-06G	3/4	27.2	3/4	16	41	46	10	36	16	50	48.0
BOM-20A-08G	3/4	27.2	1	22	41	46	10	41	18	52	48.0
BOM-25A-08G	1	34.0	1	22	46	55	11	41	18	54	53.5
BOM-25A-10G	1	34.0	1-1/4	28	50	55	11	50	20	57	54.5
BOM-32A-10G	1-1/4	42.7	1-1/4	31	60	65	12	50	20	63	63.5
BOM-32A-12G	1-1/4	42.7	1-1/2	34	60	65	12	55	21	64	63.5
BOM-40A-12G	1-1/2	48.6	1-1/2	36	65	75	12	55	21	65	65.5
BOM-40A-16G	1-1/2	48.6	2	40	75	75	12	75	25	73	69.5

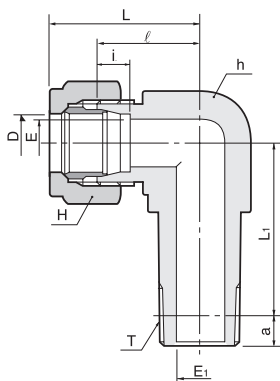
Male Elbow

BLM

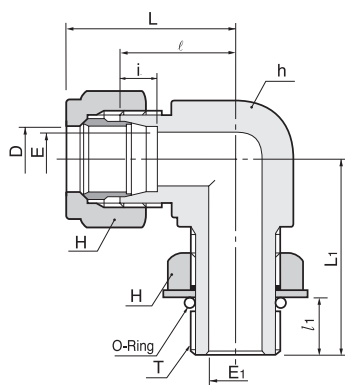


Part No.	Tube O.D		(PT) T	E	E ₁	Basic Gauge length a	Width across flat		i	ℓ	Approx	
	D						h	H			L	L ₁
BLM-06-01R	6		1/8	4	4	3.97	14	14	7	20	30.5	14.0
BLM-06-02R	6		1/4	4	7	6.01	17	14	7	23	33.5	17.0
BLM-08-01R	8		1/8	6	4	3.97	17	17	7	23	33.5	16.0
BLM-08-02R	8		1/4	6	7	6.01	17	17	7	23	33.5	18.0
BLM-10-02R	10		1/4	8	7	6.01	17	19	7	23	34.5	19.0
BLM-10-03R	10		3/8	8	9	6.35	19	19	7	24	35.5	19.5
BLM-10-04R	10		1/2	8	12	8.16	22	19	7	29	40.5	26.0
BLM-12-02R	12		1/4	10	7	6.01	19	22	7	24	35.5	20.0
BLM-12-03R	12		3/8	10	9	6.35	19	22	7	24	35.5	20.5
BLM-12-04R	12		1/2	10	12	8.16	24	22	7	29	40.5	26.0
BLM-15-03R	15		3/8	12	9	6.35	24	27	7.5	29	41.5	23.5
BLM-15-04R	15		1/2	12	12	8.16	24	27	7.5	29	41.5	26.0
BLM-16-03R	16		3/8	13	9	6.35	27	30	7.5	32	44.5	25.5
BLM-16-04R	16		1/2	13	12	8.16	27	30	7.5	32	44.5	27.0
BLM-18-03R	18		3/8	14	9	6.35	27	32	8	32	44.5	27.5
BLM-18-04R	18		1/2	14	12	8.16	27	32	8	32	44.5	30.0
BLM-20-04R	20		1/2	17	12	8.16	30	36	8	33	45.5	32.0
BLM-20-06R	20		3/4	17	16	9.53	30	36	8	33	45.5	30.5
BLM-22-04R	22		1/2	18	12	8.16	32	36	9	34	46.5	32.0
BLM-22-06R	22		3/4	18	16	9.53	32	36	9	34	46.5	32.5
BLM-25-06R	25		3/4	20	16	9.53	36	41	10	36	49.5	33.5
BLM-25-08R	25		1	20	22	10.39	36	41	10	36	49.5	35.5
BLM-28-06R	28		3/4	22	16	9.53	41	46	10	41	55.0	37.5
BLM-28-08R	28		1	22	22	10.39	41	46	10	41	55.0	39.5
BLM-30-08R	30		1	25	22	10.39	41	46	10	41	55.5	39.5
BLM-30-10R	30		1-1/4	25	31	12.70	46	46	10	46	60.5	42.5
BLM-32-10R	32		1-1/4	26	31	12.70	46	50	11	46	60.5	43.5
BLM-35-10R	35		1-1/4	28	31	12.70	46	55	11	46	63.5	45.5
BLM-38-12R	38		1-1/2	32	36	12.70	50	60	12	50	69.5	48.5
BLM-40-12R	40		1-1/2	32	36	12.70	55	60	12	55	74.5	49.5
BLM-42-12R	42		1-1/2	34	36	12.70	55	60	12	55	74.5	49.5
BLM-06A-01R	1/8	10.5	1/8	8	4	3.97	17	19	7	23	34.5	17.0
BLM-06A-02R	1/8	10.5	1/4	8	7	6.01	17	19	7	23	34.5	19.0
BLM-08A-02R	1/4	13.8	1/4	11	7	6.01	22	24	7.5	28	40.0	22.0
BLM-08A-03R	1/4	13.8	3/8	11	9	6.35	22	24	7.5	28	40.0	22.5
BLM-10A-03R	3/8	17.3	3/8	14	9	6.35	27	32	8	32	44.5	27.5
BLM-10A-04R	3/8	17.3	1/2	14	12	8.16	27	32	8	32	44.5	30.0
BLM-15A-04R	1/2	21.7	1/2	18	12	8.16	32	36	9	34	46.5	32.0
BLM-15A-06R	1/2	21.7	3/4	18	16	9.53	32	36	9	34	46.5	32.5
BLM-20A-06R	3/4	27.2	3/4	22	16	9.53	41	46	10	41	55.0	37.5
BLM-20A-08R	3/4	27.2	1	22	22	10.39	41	46	10	41	55.0	39.5
BLM-25A-08R	1	34.0	1	28	22	10.39	46	55	11	46	63.5	44.5
BLM-25A-10R	1	34.0	1-1/4	28	31	12.70	46	55	11	46	63.5	45.5
BLM-32A-10R	1-1/4	42.7	1-1/4	34	31	12.70	60	65	12	57	77.5	51.5
BLM-32A-12R	1-1/4	42.7	1-1/2	34	36	12.70	60	75	12	57	77.5	51.5
BLM-40A-12R	1-1/2	48.6	1-1/2	40	36	12.70	65	75	12	62	83.5	57.5
BLM-40A-16R	1-1/2	48.6	2	40	46	15.88	65	75	12	62	83.5	58.0

Long Male Elbow

BLLM

Part No.	Tube O.D (PT)		E	E ₁	Basic Gauge length a	Width across flat		i	ℓ	Approx	
	D	T				h	H			L	L ₁
BLLM-06-01R	6	1/8	4	4	3.97	14	14	7	20	30.5	36
BLLM-08-02R	8	1/4	6	7	6.01	17	17	7	23	33.5	43
BLLM-10-02R	10	1/4	8	7	6.01	17	19	7	23	34.5	46
BLLM-12-02R	12	1/4	10	7	6.01	19	22	7	24	35.5	52
BLLM-12-03R	12	3/8	10	9	6.35	19	22	7	24	35.5	53
BLLM-15-03R	15	3/8	12	9	6.35	24	27	7.5	29	41.5	61.5
BLLM-15-04R	15	1/2	12	12	8.16	24	27	7.5	29	41.5	67
BLLM-16-04R	16	1/2	13	12	8.16	27	30	7.5	32	44.5	70
BLLM-18-04R	18	1/2	14	12	8.16	27	32	8	32	44.5	77
BLLM-20-06R	20	3/4	17	16	9.53	30	36	8	33	45.5	82.5
BLLM-22-06R	22	3/4	18	16	9.53	32	36	9	34	46.5	83.5
BLLM-25-06R	25	3/4	20	16	9.53	36	41	10	36	49.5	90.5
BLLM-25-08R	25	1	20	22	10.39	36	41	10	36	49.5	91.5
BLLM-28-08R	28	1	22	22	10.39	41	46	10	41	55	104.5
BLLM-30-10R	30	1-1/4	25	31	12.70	46	46	10	46	60.5	104.5
BLLM-32-10R	32	1-1/4	26	31	12.70	46	50	11	46	60.5	104.5
BLLM-35-10R	35	1-1/4	28	31	12.70	46	55	11	46	63.5	121.5



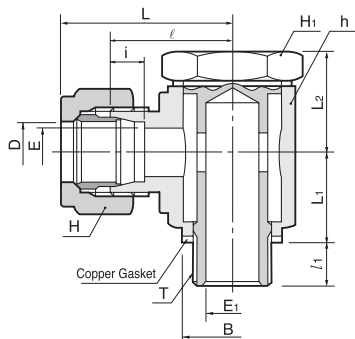
O-Seal Male Elbow

BOLM

Part No.	Tube O.D (PF)		E	E ₁	Width across flat			i	l ₁	ℓ	Approx	
	D	T			h	H ₁	H				L ₁	L
BOLM-06-01G	6	1/8	4	4	14	14	14	7	10	20	30	30.5
BOLM-08-02G	8	1/4	6	6	17	19	17	7	12	23	34	33.5
BOLM-10-02G	10	1/4	8	6	17	19	19	7	12	23	35	34.5
BOLM-12-02G	12	1/4	10	6	19	19	22	7	12	24	36	35.5
BOLM-12-03G	12	3/8	10	9	19	22	22	7	12	24	36	35.5
BOLM-12-04G	12	1/2	10	12	24	27	22	7	16	24	46	35.5
BOLM-15-03G	15	3/8	12	9	24	22	27	7.5	12	29	40	41.5
BOLM-15-04G	15	1/2	12	12	24	27	27	7.5	16	29	46	41.5
BOLM-16-04G	16	1/2	13	12	24	27	30	7.5	16	32	46	44.5
BOLM-18-04G	18	1/2	14	12	30	27	32	8	16	32	52	44.5
BOLM-20-06G	20	3/4	17	16	30	36	36	8	17	33	52	45.5
BOLM-22-06G	22	3/4	18	16	32	36	36	9	17	34	52	46.5
BOLM-25-06G	25	3/4	20	16	36	36	41	10	17	36	60	49.5
BOLM-25-08G	25	1	20	22	36	41	41	10	21	36	62	49.5
BOLM-28-08G	28	1	22	22	41	41	46	10	21	41	62	55
BOLM-30-08G	30	1	25	22	41	41	46	10	21	41	66	55.5
BOLM-30-10G	30	1-1/4	25	31	46	50	46	10	21	44	66	58.5
BOLM-32-10G	32	1-1/4	26	31	46	50	50	11	21	46	66	60.5
BOLM-35-10G	35	1-1/4	28	31	46	50	55	11	21	46	66	63.5
BOLM-38-12G	38	1-1/2	32	36	50	55	60	12	21	50	73	69.5

Banjo Elbow

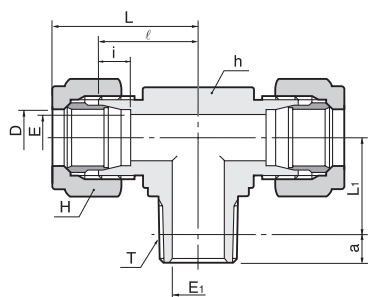
BSLM



Part No.	Tube O.D		(PF)	E ₁	E	Width across flat			i	l ₁	ℓ	Approx			B
	D		T			h	H ₁	H				L ₁	L ₂	L	
BSLM-06-01G	6		1/8	4	4	17	17	14	7	8	23	13	14	33.5	14
BSLM-08-02G	8		1/4	7	6	22	22	17	7	12	25	16	17	35.5	18
BSLM-10-02G	10		1/4	7	8	22	22	19	7	12	25	16	17	36.5	18
BSLM-12-03G	12		3/8	9	10	27	27	22	7	12	29	19	22	40.5	21.5
BSLM-15-04G	15		1/2	12	12	36	30	27	7.5	14	36	24	28	48.5	25.5
BSLM-16-04G	16		1/2	12	13	36	30	30	7.5	14	36	24	28	48.5	25.5
BSLM-18-04G	18		1/2	12	14	36	30	32	8	14	36	24	28	48.5	25.5
BSLM-20-06G	20		3/4	16	17	41	41	36	8	16	38	28	32	50.5	31.5
BSLM-22-06G	22		3/4	16	18	42	41	36	9	16	38	28	32	50.5	31.5
BSLM-25-08G	25		1	22	20	50	50	41	10	18	42	37	38	55.5	38
BSLM-28-08G	28		1	22	22	50	50	46	10	18	42	37	38	56	38
BSLM-06A-02G	1/8	10.5	1/4	7	8	22	22	19	7	12	25	16	17	36.5	18
BSLM-08A-03G	1/4	13.8	3/8	9	11	27	27	24	7.5	12	29	19	22	41	21.5
BSLM-10A-04G	3/8	17.3	1/2	12	14	36	30	32	8	14	36	24	28	48.5	25.5
BSLM-15A-06G	1/2	21.7	3/4	16	18	41	41	36	9	16	38	28	32	50.5	31.5
BSLM-20A-08G	3/4	27.2	1	22	22	50	50	46	10	18	42	37	38	56	38

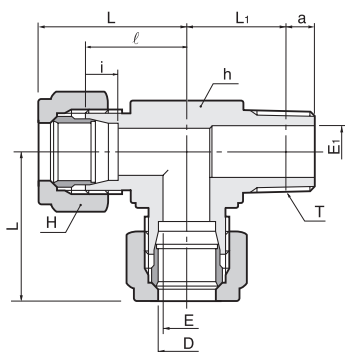
Male Branch Tee

BBTM



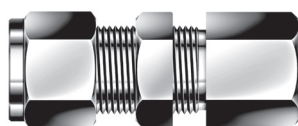
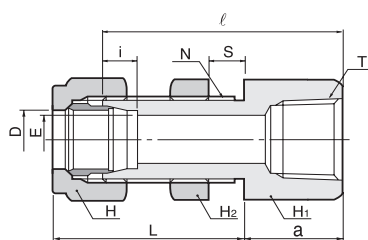
Part No.	Tube O.D		(PT) T	E	E ₁	Basic Gauge length a	Width across flat		i	ℓ	Approx	
	D						h	H			L	L ₁
BBTM-06-01R	6		1/8	4	4	3.97	14	14	7	20	30.5	14
BBTM-06-02R	6		1/4	4	7	6.01	17	14	7	23	33.5	17
BBTM-08-01R	8		1/8	6	4	3.97	17	17	7	23	33.5	16
BBTM-08-02R	8		1/4	6	7	6.01	17	17	7	23	33.5	18
BBTM-10-02R	10		1/4	8	7	6.01	17	19	7	23	34.5	19
BBTM-10-03R	10		3/8	8	9	6.35	19	19	7	24	35.5	19.5
BBTM-12-02R	12		1/4	10	7	6.01	19	22	7	24	35.5	18
BBTM-12-03R	12		3/8	10	9	6.35	19	22	7	24	35.5	20.5
BBTM-15-03R	15		3/8	12	9	6.35	24	27	7.5	29	41.5	23.5
BBTM-15-04R	15		1/2	12	12	8.16	24	27	7.5	29	41.5	26
BBTM-16-04R	16		1/2	13	12	8.16	27	30	7.5	32	44.5	27
BBTM-18-04R	18		1/2	14	12	8.16	27	32	8	32	44.5	30
BBTM-20-06R	20		3/4	17	16	9.53	30	36	8	33	45.5	30.5
BBTM-22-06R	22		3/4	18	16	9.53	32	36	9	34	46.5	32.5
BBTM-25-06R	25		3/4	20	16	9.53	36	41	10	36	49.5	33.5
BBTM-25-08R	25		1	20	22	10.39	36	41	10	36	49.5	35.5
BBTM-28-08R	28		1	22	22	10.39	41	46	10	41	55	39.5
BBTM-30-08R	30		1	25	22	10.39	41	46	10	41	55.5	39.5
BBTM-30-10R	30		1-1/4	25	31	12.70	46	46	10	46	60.5	42.5
BBTM-32-10R	32		1-1/4	26	31	12.70	46	50	11	46	60.5	43.5
BBTM-35-10R	35		1-1/4	28	31	12.70	46	55	11	46	63.5	45.5
BBTM-38-12R	38		1-1/2	32	36	12.70	50	60	12	50	69.5	48.5
BBTM-40-12R	40		1-1/2	32	36	12.70	55	60	12	55	74.5	49.5
BBTM-06A-02R	1/8	10.5	1/4	8	7	6.01	17	19	7	23	34.5	19
BBTM-08A-03R	1/4	13.8	3/8	11	9	6.35	22	24	7.5	28	40	22.5
BBTM-10A-04R	3/8	17.3	1/2	14	12	8.16	27	32	8	32	44.5	30
BBTM-15A-06R	1/2	21.7	3/4	18	16	9.53	32	36	9	34	46.5	32.5
BBTM-20A-08R	3/4	27.2	1	22	22	10.39	41	46	10	41	55	39.5
BBTM-25A-10R	1	34.0	1-1/4	28	31	12.70	46	55	11	46	63.5	45.5
BBTM-32A-12R	1-1/4	42.7	1-1/2	34	36	12.70	60	65	12	57	77.5	51.5
BBTM-40A-16R	1-1/2	48.6	2	40	46	15.88	65	75	12	62	83.5	58

Male Run Tee

BRTM

Part No.	Tube O.D		(PT)	E	E ₁	Basic Gauge length a	Width across flat		i	ℓ	Approx	
	D		T				h	H			L	L ₁
BRTM-06-01R	6		1/8	4	4	3.97	14	14	7	20	30.5	14
BRTM-06-02R	6		1/4	4	7	6.01	17	14	7	23	33.5	17
BRTM-08-01R	8		1/8	6	4	3.97	17	17	7	23	33.5	16
BRTM-08-02R	8		1/4	6	7	6.01	17	17	7	23	33.5	18
BRTM-10-02R	10		1/4	8	7	6.01	17	19	7	23	34.5	19
BRTM-10-03R	10		3/8	8	9	6.35	19	19	7	24	35.5	19.5
BRTM-12-02R	12		1/4	10	7	6.01	19	22	7	24	35.5	18
BRTM-12-03R	12		3/8	10	9	6.35	19	22	7	24	35.5	20.5
BRTM-15-03R	15		3/8	12	9	6.35	24	27	7.5	29	41.5	23.5
BRTM-15-04R	15		1/2	12	12	8.16	24	27	7.5	29	41.5	26
BRTM-16-04R	16		1/2	13	12	8.16	27	30	7.5	32	44.5	27
BRTM-18-04R	18		1/2	14	12	8.16	27	32	8	32	44.5	30
BRTM-20-06R	20		3/4	17	16	9.53	30	36	8	33	45.5	30.5
BRTM-22-06R	22		3/4	18	16	9.53	32	36	9	34	46.5	32.5
BRTM-25-06R	25		3/4	20	16	9.53	36	41	10	36	49.5	33.5
BRTM-25-08R	25		1	20	22	10.39	36	41	10	36	49.5	35.5
BRTM-28-08R	28		1	22	22	10.39	41	46	10	41	55	39.5
BRTM-30-08R	30		1	25	22	10.39	41	46	10	41	55.5	39.5
BRTM-30-10R	30		1-1/4	25	31	12.70	46	46	10	46	60.5	42.5
BRTM-32-10R	32		1-1/4	26	31	12.70	46	50	11	46	60.5	43.5
BRTM-35-10R	35		1-1/4	28	31	12.70	46	55	11	46	63.5	45.5
BRTM-38-12R	38		1-1/2	32	36	12.70	50	60	12	50	69.5	48.5
BRTM-40-12R	40		1-1/2	32	36	12.70	55	60	12	55	74.5	49.5
BRTM-06A-02R	1/8	10.5	1/4	8	7	6.01	17	19	7	23	34.5	19
BRTM-08A-03R	1/4	13.8	3/8	11	9	6.35	22	24	7.5	28	40	22.5
BRTM-10A-04R	3/8	17.3	1/2	14	12	8.16	27	32	8	32	44.5	30
BRTM-15A-06R	1/2	21.7	3/4	18	16	9.53	32	36	9	34	46.5	32.5
BRTM-20A-08R	3/4	27.2	1	22	22	10.39	41	46	10	41	55	39.5
BRTM-25A-10R	1	34.0	1-1/4	28	31	12.70	46	55	11	46	63.5	45.5
BRTM-32A-12R	1-1/4	42.7	1-1/2	34	36	12.70	60	65	12	57	77.5	51.5
BRTM-40A-16R	1-1/2	48.6	2	40	46	15.88	65	75	12	62	83.5	58

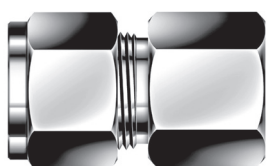
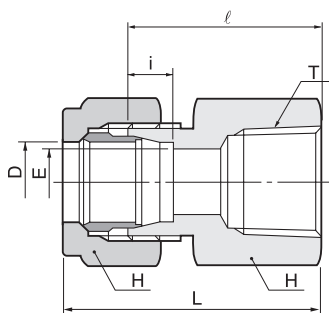
Bulkhead Female Connector

BBFC

Part No.	Tube O.D	(PT)	E	Width across flat			i	ℓ	a	Approx L	Panel Hole Drill Size N	Max. Panel Thickness S
	D	T		H ₁	H ₂	H						
BBFC-06-01R	6	1/8	4	17	17	14	7	45	13	42.5	12.5	13
BBFC-08-02R	8	1/4	6	19	19	17	7	50	18	42.5	14.5	13
BBFC-10-02R	10	1/4	8	19	22	19	7	50	18	43.5	16.5	13
BBFC-10-03R	10	3/8	8	24	22	19	7	52	20	43.5	16.5	13
BBFC-12-02R	12	1/4	10	19	24	22	7	50	18	43.5	18.5	13
BBFC-12-03R	12	3/8	10	24	24	22	7	52	20	43.5	18.5	13
BBFC-15-03R	15	3/8	12	27	27	27	7.5	57	20	49.5	22.5	15
BBFC-15-04R	15	1/2	12	30	27	27	7.5	62	25	49.5	22.5	15
BBFC-16-04R	16	1/2	13	30	30	30	7.5	62	25	49.5	24.5	15
BBFC-18-04R	18	1/2	14	30	32	32	8	64	25	51.5	26.5	15
BBFC-20-06R	20	3/4	17	36	32	36	8	66	27	51.5	28.5	15
BBFC-22-06R	22	3/4	18	36	36	36	9	66	27	51.5	30.5	15
BBFC-25-08R	25	1	20	46	41	41	10	70	31	52.5	35.5	15
BBFC-28-08R	28	1	22	46	46	46	10	72	31	55	38.5	15
BBFC-30-08R	30	1	25	46	46	46	10	72	31	55.5	40.5	15
BBFC-32-10R	32	1-1/4	26	55	46	50	11	78	35	57.5	42.5	15

Female Connector

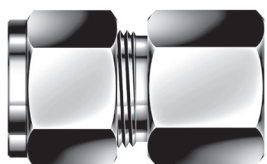
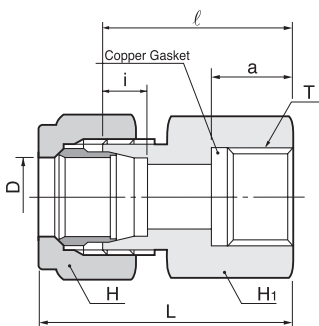
BFC



Part No.	Tube O.D		(PT) T	E	Width across flat		i	ℓ	Approx L
	D				H ₁	H			
BFC-06-01R	6		1/8	4	17	14	7	25	35.5
BFC-08-02R	8		1/4	6	19	17	7	30	40.5
BFC-10-02R	10		1/4	8	19	19	7	30	41.5
BFC-10-03R	10		3/8	8	24	19	7	32	43.5
BFC-12-02R	12		1/4	10	19	22	7	30	41.5
BFC-12-03R	12		3/8	10	24	22	7	32	43.5
BFC-15-03R	15		3/8	12	24	27	7.5	34	46.5
BFC-15-04R	15		1/2	12	30	27	7.5	39	51.5
BFC-16-04R	16		1/2	13	30	30	7.5	39	51.5
BFC-18-04R	18		1/2	14	30	32	8	39	51.5
BFC-20-06R	20		3/4	17	36	36	8	41	53.5
BFC-22-06R	22		3/4	18	36	36	9	41	53.5
BFC-25-06R	25		3/4	20	36	41	10	41	54.5
BFC-25-08R	25		1	20	46	41	10	45	58.5
BFC-28-08R	28		1	22	46	46	10	47	61
BFC-30-08R	30		1	25	46	46	10	47	61.5
BFC-30-10R	30		1-1/4	25	55	46	10	51	65.5
BFC-32-10R	32		1-1/4	26	55	50	11	51	65.5
BFC-35-10R	35		1-1/4	28	55	55	11	51	68.5
BFC-38-12R	38		1-1/2	32	65	60	12	51	70.5
BFC-40-12R	40		1-1/2	32	65	60	12	55	74.5
BFC-42-12R	42		1-1/2	34	65	60	12	55	74.5
BFC-06A-02R	1/8	10.5	1/4	8	19	19	7	30	41.5
BFC-08A-03R	1/4	13.8	3/8	11	24	24	7.5	34	46
BFC-10A-04R	3/8	17.3	1/2	14	30	32	8	39	51.5
BFC-15A-06R	1/2	21.7	3/4	18	36	36	9	41	53.5
BFC-20A-08R	3/4	27.2	1	22	46	46	10	47	61
BFC-25A-10R	1	34.0	1-1/4	28	55	55	11	51	68.5
BFC-32A-12R	1-1/4	42.7	1-1/2	34	65	65	12	55	78.5
BFC-40A-16R	1-1/2	48.6	2	40	80	75	12	60	81.5

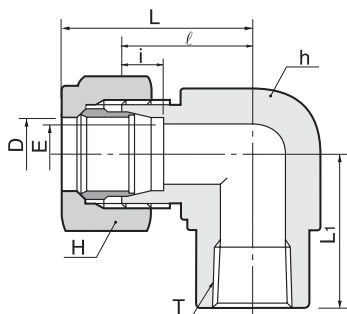
Gauge Connector

BGC

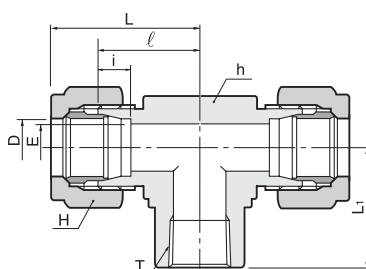


Part No.	Tube O.D		(PF) T	a	Width across flat		i	ℓ	Approx L
	D				H ₁	H			
BGC-06-02G	6		1/4	14	19	14	7	32	42.5
BGC-06-03G	6		3/8	15	24	14	7	34	44.5
BGC-06-04G	6		1/2	16	30	14	7	36	46.5
BGC-08-02G	8		1/4	14	19	17	7	32	42.5
BGC-08-03G	8		3/8	15	24	17	7	34	44.5
BGC-08-04G	8		1/2	16	30	17	7	36	46.5
BGC-10-02G	10		1/4	14	19	19	7	32	43.5
BGC-10-03G	10		3/8	15	24	19	7	34	45.5
BGC-10-04G	10		1/2	16	30	19	7	36	47.5
BGC-12-02G	12		1/4	14	19	22	7	32	43.5
BGC-12-03G	12		3/8	15	24	22	7	34	45.5
BGC-12-04G	12		1/2	16	30	22	7	36	47.5

Female Elbow

BLF

Part No.	Tube O.D	(PT)	E	Width across flat		i	ℓ	Approx	
	D	T		h	H			L ₁	L
BLF-08-02R	8	1/4	6	19	17	7	24	24	34.5
BLF-10-02R	10	1/4	8	19	19	7	24	24	35.5
BLF-12-02R	12	1/4	10	19	22	7	24	24	35.5
BLF-12-03R	12	3/8	10	24	22	7	29	29	40.5
BLF-15-03R	15	3/8	12	24	27	7.5	29	29	41.5
BLF-15-04R	15	1/2	12	30	27	7.5	33	33	45.5
BLF-16-04R	16	1/2	13	30	30	7.5	33	33	45.5
BLF-18-04R	18	1/2	14	30	32	8	33	33	45.5
BLF-20-06R	20	3/4	17	36	36	8	36	36	48.5
BLF-22-06R	22	3/4	18	36	36	9	36	36	48.5
BLF-25-06R	25	3/4	20	36	41	10	36	36	49.5
BLF-25-08R	25	1	20	46	41	10	36	46	59.5
BLF-28-08R	28	1	22	46	46	10	46	46	60
BLF-30-10R	30	1-1/4	25	55	46	10	46	55	69.5
BLF-32-10R	32	1-1/4	26	55	50	11	55	55	69.5
BLF-35-10R	35	1-1/4	28	55	55	11	55	55	72.5



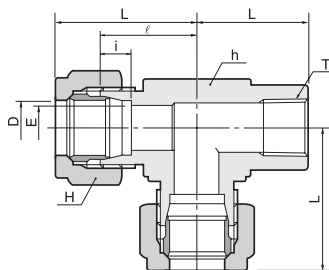
Female Branch Tee

BBTF

Part No.	Tube O.D		(PT)	E	Width across flat		i	ℓ	Approx	
	D		T		h	H			L	L ₁
BBTF-06-01R	6		1/8	4	17	14	7	23	34.5	24
BBTF-08-02R	8		1/4	6	19	17	7	24	34.5	24
BBTF-10-02R	10		1/4	8	19	19	7	24	35.5	24
BBTF-12-02R	12		1/4	10	19	22	7	24	35.5	24
BBTF-12-03R	12		3/8	10	24	22	7	29	40.5	29
BBTF-15-03R	15		3/8	12	24	27	7.5	29	41.5	29
BBTF-15-04R	15		1/2	12	30	27	7.5	33	45.5	33
BBTF-16-04R	16		1/2	13	30	30	7.5	33	45.5	33
BBTF-18-04R	18		1/2	14	30	32	8	33	45.5	33
BBTF-20-06R	20		3/4	17	36	36	8	36	48.5	36
BBTF-22-06R	22		3/4	18	36	36	9	36	48.5	36
BBTF-25-06R	25		3/4	20	36	41	10	36	49.5	36
BBTF-25-08R	25		1	20	46	41	10	46	59.5	46
BBTF-28-08R	28		1	22	46	46	10	46	60	46
BBTF-30-08R	30		1	25	46	46	10	46	60.5	46
BBTF-30-10R	30		1-1/4	25	55	46	10	55	69.5	55
BBTF-32-10R	32		1-1/4	26	55	50	11	55	69.5	55
BBTF-35-10R	35		1-1/4	28	55	55	11	55	72.5	55
BBTF-06A-02R	1/8	10.5	1/4	8	19	19	7	24	35.5	24
BBTF-08A-03R	1/4	13.8	3/8	11	24	24	7.5	29	41	29
BBTF-10A-04R	3/8	17.3	1/2	14	30	32	8	33	45.5	33
BBTF-15A-06R	1/2	21.7	3/4	18	36	36	9	36	48.5	36
BBTF-20A-08R	3/4	27.2	1	22	46	46	10	46	60	46
BBTF-25A-10R	1	34.0	1-1/4	28	55	55	11	55	72.5	55

Female Run Tee

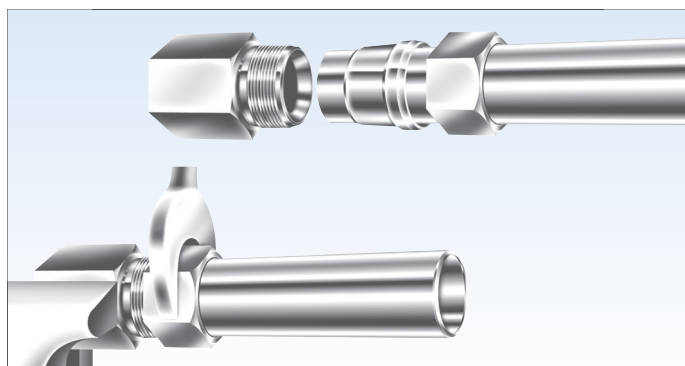
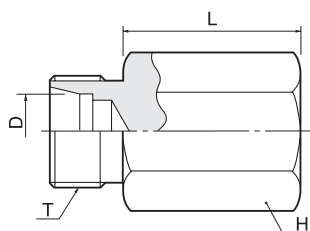
BRTF



Part No.	Tube O.D		(PT) T	E	Width across flat		i	ℓ	Approx	
	D				h	H			L	L ₁
BRTF-08-02R	8		1/4	6	19	17	7	24	34.5	24
BRTF-10-02R	10		1/4	8	19	19	7	24	35.5	24
BRTF-12-02R	12		1/4	10	19	22	7	24	35.5	24
BRTF-12-03R	12		3/8	10	24	22	7	29	40.5	29
BRTF-15-03R	15		3/8	12	24	27	7.5	29	41.5	29
BRTF-15-04R	15		1/2	12	30	27	7.5	33	45.5	33
BRTF-16-04R	16		1/2	13	30	30	7.5	33	45.5	33
BRTF-18-04R	18		1/2	14	30	32	8	33	45.5	33
BRTF-20-06R	20		3/4	17	36	36	8	36	48.5	36
BRTF-22-06R	22		3/4	18	36	36	9	36	48.5	36
BRTF-25-06R	25		3/4	20	36	41	10	36	49.5	36
BRTF-25-08R	25		1	20	46	41	10	46	59.5	46
BRTF-28-08R	28		1	22	46	46	10	46	60	46
BRTF-30-08R	30		1	25	46	46	10	46	60.5	46
BRTF-30-10R	30		1-1/4	25	55	46	10	55	69.5	55
BRTF-32-10R	32		1-1/4	26	55	50	11	55	69.5	55
BRTF-35-10R	35		1-1/4	28	55	55	11	55	72.5	55
BRTF-06A-02R	1/8	10.5	1/4	8	19	19	7	24	35.5	24
BRTF-08A-03R	1/4	13.8	3/8	11	24	24	7.5	29	41	29
BRTF-10A-04R	3/8	17.3	1/2	14	30	32	8	33	45.5	33
BRTF-15A-06R	1/2	21.7	3/4	18	36	36	9	36	48.5	36
BRTF-20A-08R	3/4	27.2	1	22	46	46	10	46	60	46
BRTF-25A-10R	1	34.0	1-1/4	28	55	55	11	55	72.5	55

Presetting Jig

BJ



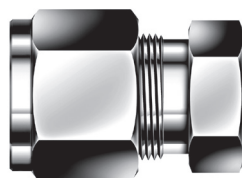
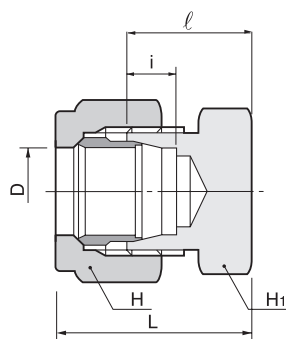
When assembling Bite type fitting in close corner or in cabinet it may be advantageous to use this jig. It allows presetting sleeve on to the tube in a more open or safe area. After using this jig, follow the reassembly instruction.

Tubing may occasionally stick in the jig after pull-up. When this happens, loosen the tube by gently rocking back and forth. Do not rock up and down or turn the tube as this may damage sealing surfaces of fitting.

Part No.	Tube O.D		L	H	T
	D				
BJ-06	6		40	17	M12 x 1.5
BJ-08	8		40	17	M14 x 1.5
BJ-10	10		40	17	M16 x 1.5
BJ-12	12		40	27	M18 x 1.5
BJ-15	15		40	27	M22 x 1.5
BJ-16	16		40	27	M24 x 1.5
BJ-18	18		40	27	M26 x 1.5
BJ-20	20		40	41	M28 x 1.5
BJ-22	22		40	41	M30 x 1.5
BJ-25	25		40	41	M35 x 1.5
BJ-28	28		40	41	M38 x 1.5
BJ-30	30		40	41	M40 x 1.5
BJ-32	32		40	55	M42 x 1.5
BJ-35	35		40	55	M45 x 1.5
BJ-38	38		50	55	M48 x 1.5
BJ-40	40		50	55	M52 x 2.0
BJ-42	42		50	55	M52 x 2.0
BJ-06A	1/8	10.5	40	17	M16 x 1.5
BJ-08A	1/4	13.8	40	27	M20 x 1.5
BJ-10A	3/8	17.3	40	27	M26 x 1.5
BJ-15A	1/2	21.7	40	41	M30 x 1.5
BJ-20A	3/4	27.2	40	41	M38 x 1.5
BJ-25A	1	34.0	40	55	M45 x 1.5
BJ-32A	1-1/4	42.7	50	65	M56 x 2.0
BJ-40A	1-1/2	48.6	50	65	M64 x 2.0

Cap

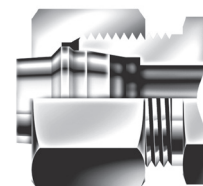
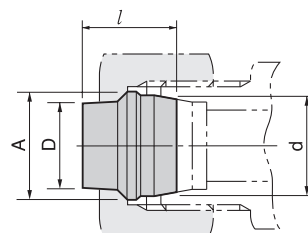
BC



Part No.	Tube O.D	Width across flat		i	l	Approx L
	D	H ₁	H			
BC-06	6	14	14	7	18	28.5
BC-08	8	17	17	7	19	29.5
BC-10	10	17	19	7	20	31.5
BC-12	12	19	22	7	20	31.5
BC-15	15	24	27	7.5	22	34.5
BC-16	16	27	30	7.5	24	36.5
BC-18	18	27	32	8	24	36.5
BC-20	20	30	36	8	24	36.5
BC-22	22	32	36	9	25	37.5
BC-25	25	36	41	10	25	38.5
BC-28	28	41	46	10	28	42
BC-30	30	41	46	10	28	42.5
BC-32	32	46	50	11	30	44.5

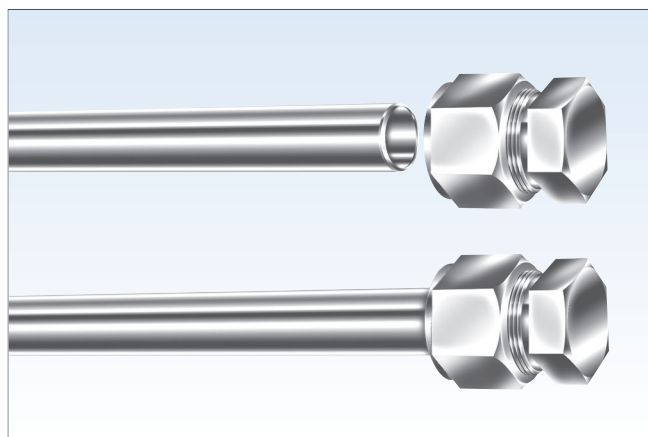
Plug

BP

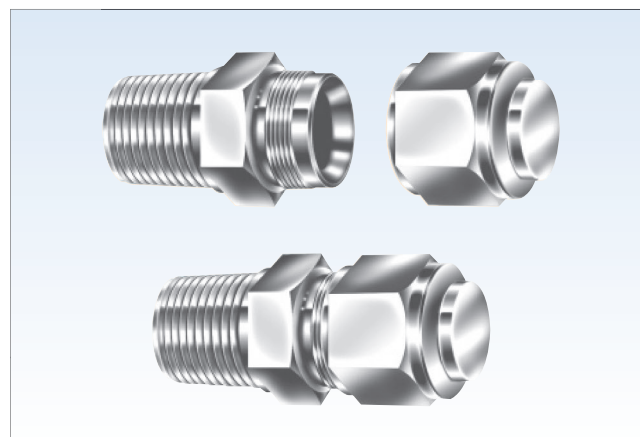


Part No.	Tube O.D	E	A	l
	D			
BP-06	6	8	9	13.5
BP-08	8	10	11	13.5
BP-10	10	12	13	14.5
BP-12	12	14	15	14.5
BP-15	15	17	18	16
BP-16	16	18	19	16
BP-18	18	20	21	17.5
BP-20	20	22	23	17.5
BP-22	22	24	25	17.5
BP-25	25	27.4	28.5	19
BP-28	28	30.4	31.5	19
BP-30	30	32.4	33.5	20
BP-32	32	34.4	35.5	20

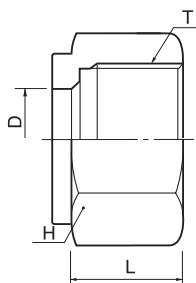
Cap for tube end



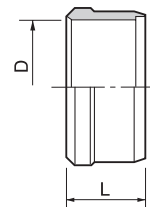
Plug for unused Bite type fitting port



Nut BN



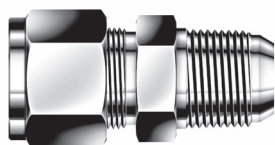
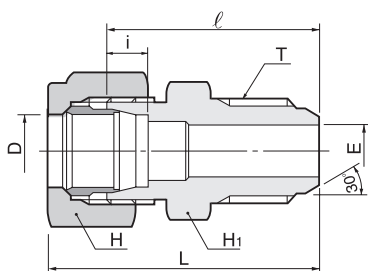
Sleeve BS



Part No.	Tube O.D		T	Width across flat H	L
	D				
BN-06	6		M12 x 1.5	14	15
BN-08	8		M14 x 1.5	17	15
BN-10	10		M16 x 1.5	19	16
BN-12	12		M18 x 1.5	22	16
BN-15	15		M22 x 1.5	27	19
BN-16	16		M24 x 1.5	30	19
BN-18	18		M26 x 1.5	32	19
BN-20	20		M28 x 1.5	36	19
BN-22	22		M30 x 1.5	36	19
BN-25	25		M35 x 1.5	41	20
BN-28	28		M38 x 1.5	46	21
BN-30	30		M40 x 1.5	46	22
BN-32	32		M42 x 1.5	50	22
BN-35	35		M45 x 1.5	55	25
BN-38	38		M48 x 1.5	60	27
BN-40	40		M52 x 2.0	60	29.5
BN-42	42		M52 x 2.0	60	29.5
BN-06A	1/8	10.5	M16 x 1.5	19	16
BN-08A	1/4	13.8	M20 x 1.5	24	18
BN-10A	3/8	17.3	M26 x 1.5	32	19
BN-15A	1/2	21.7	M30 x 1.5	36	19
BN-20A	3/4	27.2	M38 x 1.5	46	21
BN-25A	1	34.0	M45 x 1.5	55	25
BN-32A	1-1/4	42.7	M56 x 2.0	65	30.5
BN-40A	1-1/2	48.6	M64 x 2.0	75	31.5

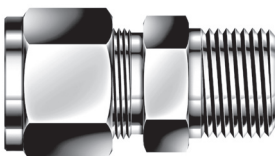
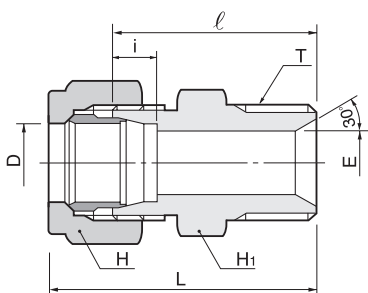
Part No.	Tube O.D		L
	D		
BS-06	6		9
BS-08	8		9
BS-10	10		10
BS-12	12		10
BS-15	15		10
BS-16	16		10
BS-18	18		10
BS-20	20		10
BS-22	22		10
BS-25	25		11
BS-28	28		11
BS-30	30		11
BS-32	32		11
BS-35	35		14
BS-38	38		14
BS-40	40		14
BS-42	42		14
BS-06A	1/8	10.5	10
BS-08A	1/4	13.8	10
BS-10A	3/8	17.3	10
BS-15A	1/2	21.7	10
BS-20A	3/4	27.2	11
BS-25A	1	34.0	14
BS-32A	1-1/4	42.7	14
BS-40A	1-1/2	48.6	14

Hose Male Union

BHUM

Part No.	Tube O.D	(PF) T	E	Width across flat		i	l	L
	D			H ₁	H			
BHUM-06-01G	6	1/8	4	14	14	7	34	44.5
BHUM-08-02G	8	1/4	6	17	17	7	35	45.5
BHUM-08-03G	8	3/8	6	19	17	7	37	47.5
BHUM-10-02G	10	1/4	6	17	19	7	35	46.5
BHUM-10-03G	10	3/8	8	19	19	7	37	48.5
BHUM-10-04G	10	1/2	8	22	19	7	40	51.5
BHUM-12-02G	12	1/4	6	19	22	7	35	46.5
BHUM-12-03G	12	3/8	9	19	22	7	37	48.5
BHUM-12-04G	12	1/2	10	22	22	7	40	51.5
BHUM-15-03G	15	3/8	9	24	27	7.5	40	52.5
BHUM-15-04G	15	1/2	12	24	27	7.5	42	54.5
BHUM-16-03G	16	3/8	9	27	30	7.5	40	52.5
BHUM-16-04G	16	1/2	12	27	30	7.5	42	54.5
BHUM-18-04G	18	1/2	12	27	32	8	42	54.5
BHUM-20-06G	20	3/4	16	30	36	8	46	58.5
BHUM-22-04G	22	1/2	12	32	36	9	44	56.5
BHUM-22-06G	22	3/4	16	32	36	9	46	58.5
BHUM-25-06G	25	3/4	16	36	41	10	47	60.5
BHUM-25-08G	25	1	20	36	41	10	49	62.5
BHUM-28-06G	28	3/4	16	41	46	10	49	63
BHUM-28-08G	28	1	22	41	46	10	51	65
BHUM-30-06G	30	3/4	16	41	46	10	49	63.5
BHUM-30-08G	30	1	22	41	46	10	51	65.5
BHUM-32-08G	32	1	22	46	50	11	52	66.5
BHUM-32-10G	32	1-1/4	28	46	50	11	56	70.5

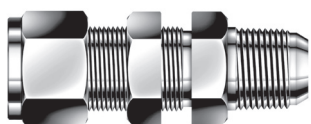
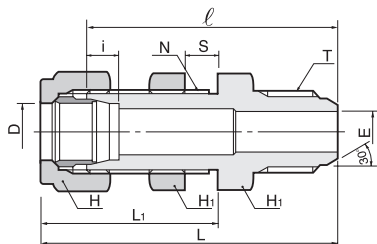
Hose Female Union

BHUF

Part No.	Tube O.D	(PF) T	E	Width across flat		i	l	L
	D			H ₁	H			
BHUF-06-01G	6	1/8	4	14	14	7	32	43.5
BHUF-08-02G	8	1/4	6	17	17	7	33	43.5
BHUF-08-03G	8	3/8	6	19	17	7	34	44.5
BHUF-10-02G	10	1/4	6	17	19	7	33	44.5
BHUF-10-03G	10	3/8	8	19	19	7	34	45.5
BHUF-10-04G	10	1/2	8	22	19	7	38	49.5
BHUF-12-02G	12	1/4	6	19	22	7	33	44.5
BHUF-12-03G	12	3/8	9	19	22	7	34	45.5
BHUF-12-04G	12	1/2	10	22	22	7	38	49.5
BHUF-15-03G	15	3/8	9	24	27	7.5	37	49.5
BHUF-15-04G	15	1/2	12	24	27	7.5	40	52.5
BHUF-16-03G	16	3/8	9	27	30	7.5	37	49.5
BHUF-16-04G	16	1/2	12	27	30	7.5	40	52.5
BHUF-18-04G	18	1/2	12	27	32	8	40	52.5
BHUF-20-06G	20	3/4	16	30	36	8	43	55.5
BHUF-22-04G	22	1/2	12	32	36	9	42	54.5
BHUF-22-06G	22	3/4	16	32	36	9	43	55.5
BHUF-25-06G	25	3/4	16	36	41	10	44	57.5
BHUF-25-08G	25	1	20	36	41	10	46	59.5
BHUF-28-06G	28	3/4	16	41	46	10	46	60
BHUF-28-08G	28	1	22	41	46	10	48	62
BHUF-30-06G	30	3/4	16	41	46	10	46	60.5
BHUF-30-08G	30	1	22	41	46	10	48	62.5
BHUF-32-08G	32	1	22	46	50	11	49	63.5
BHUF-32-10G	32	1-1/4	28	46	50	11	55	69.5
BHUF-38-12G	38	1-1/2	32	50	60	12	57	76.5
BHUF-40-12G	40	1-1/2	32	55	60	12	62	81.5

*Hose Bulkhead
Male Union*

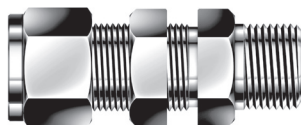
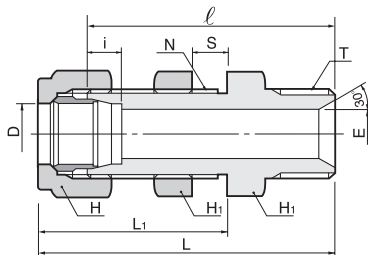
BHBM



Part No.	Tube O.D (PF)		E	Width across flat		i	ℓ	L ₁	L	Panel Hole Drill Size N	Max. Panel Thickness S
	D	T		H ₁	H						
BHBM-06-01G	6	1/8	4	17	14	7	54	42.5	63.5	12.5	13
BHBM-08-02G	8	1/4	6	19	17	7	55	42.5	65.5	14.5	13
BHBM-08-03G	8	3/8	6	19	17	7	57	42.5	67.5	14.5	13
BHBM-10-02G	10	1/4	6	22	19	7	56	43.5	67.5	16.5	13
BHBM-10-03G	10	3/8	8	22	19	7	58	43.5	69.5	16.5	13
BHBM-10-04G	10	1/2	8	22	19	7	60	43.5	71.5	16.5	13
BHBM-12-02G	12	1/4	6	24	22	7	56	43.5	67.5	18.5	13
BHBM-12-03G	12	3/8	9	24	22	7	58	43.5	69.5	18.5	13
BHBM-12-04G	12	1/2	10	24	22	7	60	43.5	71.5	18.5	13
BHBM-15-03G	15	3/8	9	27	27	7.5	63	49.5	75.5	22.5	15
BHBM-15-04G	15	1/2	12	27	27	7.5	65	49.5	77.5	22.5	15
BHBM-16-03G	16	3/8	9	30	30	7.5	65	49.5	77.5	24.5	15
BHBM-16-04G	16	1/2	12	30	30	7.5	67	49.5	79.5	24.5	15
BHBM-18-04G	18	1/2	12	32	32	8	69	51.5	81.5	26.5	15
BHBM-20-06G	20	3/4	16	32	36	8	71	51.5	83.5	28.5	15
BHBM-22-04G	22	1/2	12	36	36	9	70	51.5	82.5	30.5	15
BHBM-22-06G	22	3/4	16	36	36	9	72	51.5	84.5	30.5	15
BHBM-25-06G	25	3/4	16	41	41	10	72	52.5	87.5	35.5	15
BHBM-25-08G	25	1	20	41	41	10	74	52.5	89.5	35.5	15
BHBM-28-06G	28	3/4	16	46	46	10	75	55	89	38.5	15
BHBM-28-08G	28	1	22	46	46	10	77	55	91	38.5	15
BHBM-30-06G	30	3/4	16	46	46	10	75	55.5	89.5	40.5	15
BHBM-30-08G	30	1	22	46	46	10	77	55.5	91.5	40.5	15
BHBM-32-08G	32	1	22	50	50	11	81	57.5	95.5	42.5	15
BHBM-32-10G	32	1-1/4	28	50	50	11	85	57.5	99.5	42.5	15

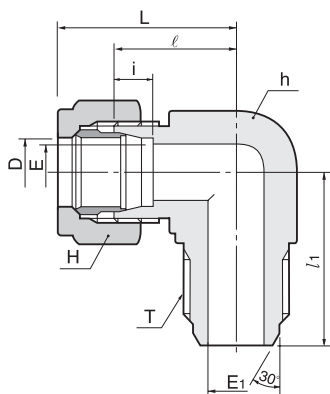
*Hose Bulkhead
Female Union*

BHBF



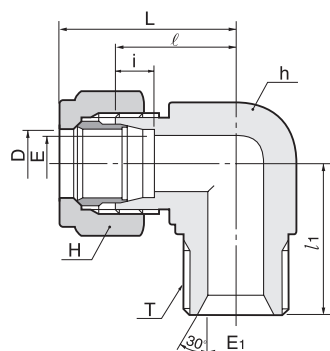
Part No.	Tube O.D (PF)		E	Width across flat		i	ℓ	L ₁	L	Panel Hole Drill Size N	Max. Panel Thickness S
	D	T		H ₁	H						
BHBF-06-01G	6	1/8	4	17	14	7	52	42.5	62.5	12.5	13
BHBF-08-02G	8	1/4	6	19	17	7	53	42.5	63.5	14.5	13
BHBF-08-03G	8	3/8	6	19	17	7	54	42.5	64.5	14.5	13
BHBF-10-02G	10	1/4	6	22	19	7	54	43.5	65.5	16.5	13
BHBF-10-03G	10	3/8	8	22	19	7	55	43.5	66.5	16.5	13
BHBF-10-04G	10	1/2	8	22	19	7	58	43.5	69.5	16.5	13
BHBF-12-02G	12	1/4	6	24	22	7	54	43.5	65.5	18.5	13
BHBF-12-03G	12	3/8	9	24	22	7	55	43.5	66.5	18.5	13
BHBF-12-04G	12	1/2	10	24	22	7	58	43.5	69.5	18.5	13
BHBF-15-03G	15	3/8	9	27	27	7.5	60	49.5	72.5	22.5	15
BHBF-15-04G	15	1/2	12	27	27	7.5	63	49.5	75.5	22.5	15
BHBF-16-03G	16	3/8	9	30	30	7.5	62	49.5	74.5	24.5	15
BHBF-16-04G	16	1/2	12	30	30	7.5	65	49.5	77.5	24.5	15
BHBF-18-04G	18	1/2	12	32	32	8	67	51.5	79.5	26.5	15
BHBF-20-06G	20	3/4	16	32	36	8	68	51.5	80.5	28.5	15
BHBF-22-04G	22	1/2	12	36	36	9	68	51.5	80.5	30.5	15
BHBF-22-06G	22	3/4	16	36	36	9	69	51.5	81.5	30.5	15
BHBF-25-06G	25	3/4	16	41	41	10	69	52.5	82.5	35.5	15
BHBF-25-08G	25	1	20	41	41	10	71	52.5	84.5	35.5	15
BHBF-28-08G	28	1	22	46	46	10	74	55	88	38.5	15
BHBF-30-06G	30	3/4	16	46	46	10	72	55.5	86.5	40.5	15
BHBF-30-08G	30	1	22	46	46	10	74	55.5	88.5	40.5	15
BHBF-32-08G	32	1	22	50	50	11	78	57.5	92.5	42.5	15
BHBF-32-10G	32	1-1/4	28	50	50	11	84	57.5	98.5	42.5	15
BHBF-38-12G	38	1-1/2	31	55	60	12	87	64.5	106.5	48.5	15
BHBF-40-12G	40	1-1/2	32	60	60	12	94	69.5	113.5	52.5	15

Hose Male Elbow

BHLM

Part No.	Tube O.D	(PF) T	E	E ₁	Width across flat		i	ℓ	l ₁	L
	D	T			h	H				
BHLM-06-01G	6	1/8	4	4	14	14	7	20	25	33.5
BHLM-08-02G	8	1/4	6	6	17	17	7	23	25	33.5
BHLM-08-03G	8	3/8	6	9	19	17	7	24	28	34.5
BHLM-10-02G	10	1/4	8	6	19	19	7	24	28	35.5
BHLM-10-03G	10	3/8	8	9	19	19	7	24	28	35.5
BHLM-10-04G	10	1/2	8	12	24	19	7	29	34	40.5
BHLM-12-02G	12	1/4	10	6	19	22	7	24	28	35.5
BHLM-12-03G	12	3/8	10	9	19	22	7	24	28	35.5
BHLM-12-04G	12	1/2	10	12	24	22	7	29	34	40.5
BHLM-15-03G	15	3/8	12	9	24	27	7.5	29	33	41.5
BHLM-15-04G	15	1/2	12	12	24	27	7.5	29	34	41.5
BHLM-16-03G	16	3/8	13	9	27	30	7.5	32	36	44.5
BHLM-16-04G	16	1/2	13	12	27	30	7.5	32	38	44.5
BHLM-18-04G	18	1/2	14	12	27	32	8	32	38	44.5
BHLM-20-06G	20	3/4	17	16	30	36	8	33	41	45.5
BHLM-22-04G	22	1/2	18	12	32	36	9	34	40	46.5
BHLM-22-06G	22	3/4	18	16	32	36	9	34	42	46.5
BHLM-25-06G	25	3/4	20	16	36	41	10	36	44	49.5
BHLM-25-08G	25	1	20	20	36	41	10	36	46	49.5
BHLM-28-06G	28	3/4	22	16	41	46	10	41	47	55
BHLM-28-08G	28	1	22	22	41	46	10	41	49	55
BHLM-30-06G	30	3/4	25	16	41	46	10	41	47	55.5
BHLM-30-08G	30	1	25	22	41	46	10	41	49	55.5
BHLM-32-08G	32	1	26	22	46	50	11	46	54	60.5
BHLM-32-10G	32	1-1/4	26	28	46	50	11	46	56	60.5

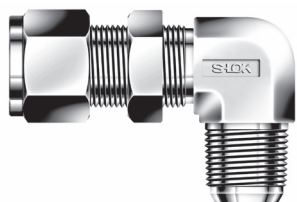
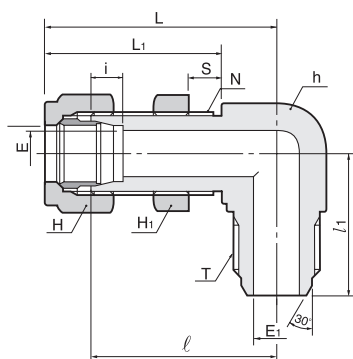
Hose Female Elbow

BHLF

Part No.	Tube O.D	(PF) T	E	E ₁	Width across flat		i	ℓ	l ₁	L
	D	T			h	H				
BHLF-08-02G	8	1/4	6	6	17	17	7	23	25	33.5
BHLF-08-03G	8	3/8	6	9	19	17	7	24	27	34.5
BHLF-10-02G	10	1/4	8	6	19	19	7	24	26	35.5
BHLF-10-03G	10	3/8	8	9	19	19	7	24	27	35.5
BHLF-10-04G	10	1/2	8	12	24	19	7	29	23	40.5
BHLF-12-02G	12	1/4	10	6	19	22	7	24	26	35.5
BHLF-12-03G	12	3/8	10	9	19	22	7	24	27	35.5
BHLF-12-04G	12	1/2	10	12	24	22	7	29	33	40.5
BHLF-15-03G	15	3/8	12	9	24	27	7.5	29	30	41.5
BHLF-15-04G	15	1/2	12	12	24	27	7.5	29	33	41.5
BHLF-16-03G	16	3/8	13	9	27	30	7.5	32	33	44.5
BHLF-16-04G	16	1/2	13	12	27	30	7.5	32	36	44.5
BHLF-18-04G	18	1/2	14	12	27	32	8	32	36	44.5
BHLF-20-06G	20	3/4	17	16	30	36	8	33	38	45.5
BHLF-22-04G	22	1/2	18	12	32	36	9	34	38	46.5
BHLF-22-06G	22	3/4	18	16	32	36	9	34	39	46.5
BHLF-25-06G	25	3/4	20	16	36	41	10	36	41	49.5
BHLF-25-08G	25	1	20	20	36	41	10	36	43	49.5
BHLF-28-06G	28	3/4	22	16	41	46	10	41	44	55
BHLF-28-08G	28	1	22	22	41	46	10	41	46	55
BHLF-30-06G	30	3/4	25	16	41	46	10	41	44	55.5
BHLF-30-08G	30	1	25	22	41	46	10	41	46	55.5
BHLF-32-08G	32	1	26	22	46	50	11	46	51	60.5
BHLF-32-10G	32	1-1/4	26	28	46	50	11	46	57	60.5
BHLF-38-12G	38	1-1/2	32	34	50	60	12	50	61	69.5
BHLF-40-12G	40	1-1/2	32	34	55	60	12	55	62	74.5

Hose Bulkhead
Male Elbow

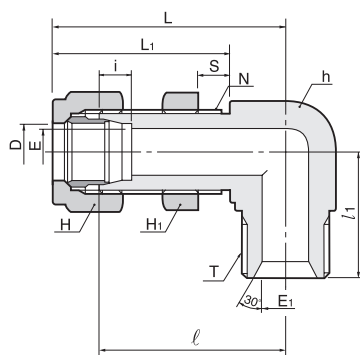
BHBLM



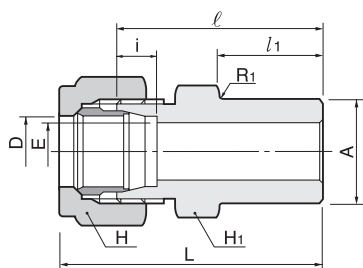
Part No.	Tube O.D (PF)		E	E ₁	Width across flat			i	ℓ	ℓ ₁	L ₁	L	Panel Hole Max. Panel	
	D	T			h	H ₁	H						N	S
BHBLM-06-01G	6	1/8	4	4	17	17	14	7	45	28	42.5	56.5	14.5	13
BHBLM-08-02G	8	1/4	6	6	19	19	17	7	46	28	42.5	56.5	14.5	13
BHBLM-08-03G	8	3/8	6	9	19	19	17	7	46	30	42.5	56.5	14.5	13
BHBLM-10-02G	10	1/4	8	6	22	22	19	7	48	28	43.5	59.5	16.5	13
BHBLM-10-03G	10	3/8	8	9	22	22	19	7	48	30	43.5	59.5	16.5	13
BHBLM-10-04G	10	1/2	8	12	24	22	19	7	49	35	43.5	60.5	16.5	13
BHBLM-12-02G	12	1/4	10	6	24	24	22	7	49	31	43.5	60.5	18.5	13
BHBLM-12-03G	12	3/8	10	9	24	24	22	7	49	33	43.5	60.5	18.5	13
BHBLM-12-04G	12	1/2	10	12	24	24	22	7	49	35	43.5	60.5	18.5	13
BHBLM-15-03G	15	3/8	12	9	27	27	27	7.5	57	36	49.5	69.5	22.5	15
BHBLM-15-04G	15	1/2	12	12	27	27	27	7.5	57	37	49.5	69.5	22.5	15
BHBLM-16-03G	16	3/8	13	9	30	30	30	7.5	59	37	49.5	71.5	24.5	15
BHBLM-16-04G	16	1/2	13	12	30	30	30	7.5	59	38	49.5	71.5	24.5	15
BHBLM-18-04G	18	1/2	14	12	32	32	32	8	63	39	51.5	75.5	26.5	15
BHBLM-20-06G	20	3/4	16	16	32	32	36	8	65	40	51.5	77.5	28.5	15
BHBLM-22-04G	22	1/2	18	12	36	36	36	9	65	40	51.5	77.5	30.5	15
BHBLM-22-06G	22	3/4	18	16	36	36	38	9	65	40	51.5	77.5	30.5	15
BHBLM-25-06G	25	3/4	20	16	41	41	41	10	68	43	52.5	81.5	35.5	15
BHBLM-25-08G	25	1	20	20	41	41	41	10	68	43	52.5	81.5	35.5	15
BHBLM-28-06G	28	3/4	22	16	46	46	46	10	74	48	55	88	38.5	15
BHBLM-28-08G	28	1	22	22	46	46	46	10	74	48	55	88	38.5	15
BHBLM-30-06G	30	3/4	25	16	46	46	46	10	74	48	55.5	88.5	40.5	15
BHBLM-30-08G	30	1	25	22	46	46	46	10	74	48	55.5	88.5	40.5	15

Hose Bulkhead
Female Elbow

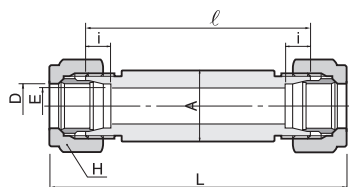
BHBLF



Part No.	Tube O.D (PF)		E	E ₁	Width across flat			i	ℓ	ℓ ₁	L ₁	L	Panel Hole Max. Panel	
	D	T			h	H ₁	H						N	S
BHBLF-06-01G	6	1/8	4	4	17	17	14	7	45	26	42.5	56.5	14.5	13
BHBLF-08-02G	8	1/4	6	6	19	19	17	7	46	26	42.5	56.5	14.5	13
BHBLF-08-03G	8	3/8	6	9	19	19	17	7	46	27	42.5	56.5	14.5	13
BHBLF-10-02G	10	1/4	8	6	22	22	19	7	48	28	43.5	59.5	16.5	13
BHBLF-10-03G	10	3/8	8	9	22	22	19	7	48	29	43.5	59.5	16.5	13
BHBLF-10-04G	10	1/2	8	12	24	22	19	7	49	33	43.5	60.5	16.5	13
BHBLF-12-02G	12	1/4	10	6	24	24	22	7	49	30	43.5	60.5	18.5	13
BHBLF-12-03G	12	3/8	10	9	24	24	22	7	49	30	43.5	60.5	18.5	13
BHBLF-12-04G	12	1/2	10	12	24	24	22	7	49	33	43.5	60.5	18.5	13
BHBLF-15-03G	15	3/8	12	9	27	27	27	7.5	57	33	49.5	69.5	22.5	15
BHBLF-15-04G	15	1/2	12	12	27	27	27	7.5	57	36	49.5	69.5	22.5	15
BHBLF-16-03G	16	3/8	13	9	30	30	30	7.5	59	34	49.5	71.5	24.5	15
BHBLF-16-04G	16	1/2	13	12	30	30	30	7.5	59	37	49.5	71.5	24.5	15
BHBLF-18-04G	18	1/2	14	12	32	32	32	8	63	37	51.5	75.5	26.5	15
BHBLF-20-06G	20	3/4	16	16	32	32	36	8	65	40	51.5	77.5	28.5	15
BHBLF-22-04G	22	1/2	18	12	36	36	36	9	65	40	51.5	77.5	30.5	15
BHBLF-22-06G	22	3/4	18	16	36	36	36	9	65	40	51.5	77.5	30.5	15
BHBLF-25-06G	25	3/4	20	16	41	41	41	10	68	43	52.5	81.5	35.5	15
BHBLF-25-08G	25	1	20	20	41	41	41	10	68	43	52.5	81.5	35.5	15
BHBLF-28-06G	28	3/4	22	16	46	46	46	10	74	48	55	88	38.5	15
BHBLF-28-08G	28	1	22	22	46	46	46	10	74	48	55	88	38.5	15
BHBLF-30-06G	30	3/4	25	16	46	46	46	10	74	48	55.5	88.5	40.5	15
BHBLF-30-08G	30	1	25	22	46	46	46	10	74	48	55.5	88.5	40.5	15

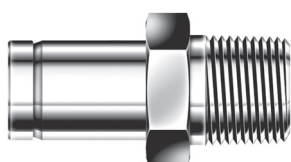
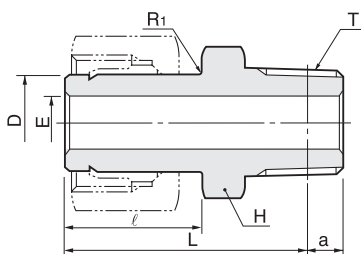
Welding
Connector**BCW**

Part No.	Tube O.D		A	E	Width across flat		ℓ	i	l_1	L
	D				H ₁	H				
BCW-06	6		12	4	14	14	29	7	11	39.5
BCW-08	8		14	6	17	17	34	7	15	44.5
BCW-10	10		16	8	17	19	34	7	15	45.5
BCW-12	12		18	10	19	22	34	7	15	45.5
BCW-15	15		21	12	24	27	40	7.5	18	52.5
BCW-16	16		22	13	27	30	44	7.5	22	56.5
BCW-18	18		25	14	27	32	44	8	22	56.5
BCW-20	20		28	17	30	36	46	8	22	58.5
BCW-22	22		28	18	32	36	46	9	22	58.5
BCW-25	25		33	20	36	41	51	10	26	64.5
BCW-28	28		36	22	41	46	55	10	28	69
BCW-30	30		39	25	41	46	55	10	28	69.5
BCW-32	32		40	26	46	50	56	11	28	70.5
BCW-35	35		43	28	46	55	56	11	28	73.5
BCW-38	38		45	32	50	60	58	12	28	77.5
BCW-40	40		46	32	55	60	65	12	30	84.5
BCW-06A	1/8	10.5	16	8	17	19	34	7	15	45.5
BCW-08A	1/4	13.8	19	11	22	24	40	7.5	18	52
BCW-10A	3/8	17.3	24	14	27	32	44	8	22	56.5
BCW-15A	1/2	21.7	28	18	32	36	46	9	22	58.5
BCW-20A	3/4	27.2	33	22	41	46	52	10	25	66
BCW-25A	1	34.0	40	28	46	55	56	11	28	73.5
BCW-32A	1-1/4	42.7	47	34	60	65	65	12	28	85.5
BCW-40A	1-1/2	48.6	55	40	65	75	70	12	30	91.5

Welding Bulkhead
Union**BBUW**

Part No.	Tube O.D		A	E	Width across flat	ℓ	i	L
	D				H			
BBUW-06	6		16	4	14	74	7	95
BBUW-08	8		16	6	17	74	7	95
BBUW-10	10		19	8	19	74	7	97
BBUW-12	12		20	10	22	74	7	97
BBUW-15	15		25	12	27	78	7.5	103
BBUW-16	16		28	13	30	78	7.5	103
BBUW-18	18		28	14	32	78	8	103
BBUW-20	20		32	17	36	78	8	103
BBUW-22	22		32	18	36	78	9	103
BBUW-25	25		38	20	41	78	10	105
BBUW-28	28		39	22	46	82	10	110
BBUW-30	30		46	25	46	82	10	111
BBUW-32	32		46	26	50	82	11	111
BBUW-35	35		46	28	55	82	11	117
BBUW-38	38		55	32	60	82	12	121
BBUW-40	40		55	32	60	90	12	129
BBUW-06A	1/8	10.5	19	8	19	74	7	97
BBUW-08A	1/4	13.8	22	11	24	78	7.5	102
BBUW-10A	3/8	17.3	28	14	32	78	8	103
BBUW-15A	1/2	21.7	32	18	36	78	9	103
BBUW-20A	3/4	27.2	39	22	46	82	10	110
BBUW-25A	1	34.0	46	28	55	82	11	117
BBUW-32A	1-1/4	42.7	58	34	65	90	12	131
BBUW-40A	1-1/2	48.6	65	40	75	90	12	133

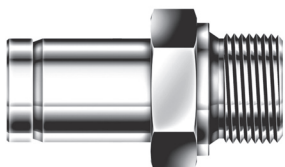
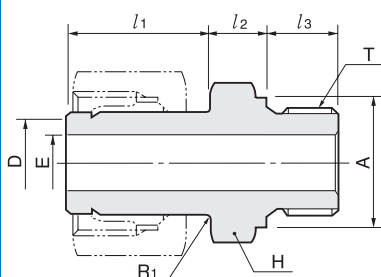
Adapter

BA-R

Part No.	Tube O.D		(PT)	E	Basic Gauge length a	Width across flat	ℓ	L
	D		T			H		
BA-06-01R	6		1/8	3	3.97	12	20	32
BA-08-02R	8		1/4	5	6.01	14	20	35
BA-10-02R	10		1/4	6	6.01	14	21	36
BA-10-03R	10		3/8	6	6.35	19	21	36.5
BA-12-02R	12		1/4	7	6.01	14	22	37
BA-12-03R	12		3/8	8	6.35	19	22	37.5
BA-15-03R	15		3/8	8	6.35	19	24	40.5
BA-15-04R	15		1/2	10	8.16	22	24	43
BA-16-04R	16		1/2	11	8.16	22	24	43
BA-18-04R	18		1/2	12	8.16	22	24	43
BA-20-06R	20		3/4	14	9.53	27	25	46.5
BA-22-06R	22		3/4	14	9.53	27	26	47.5
BA-25-06R	25		3/4	16	9.53	27	28	49.5
BA-25-08R	25		1	17	10.39	36	28	52.5
BA-28-08R	28		1	18	10.39	36	28	52.5
BA-30-08R	30		1	20	10.39	36	29	53.5
BA-30-10R	30		1-1/4	20	12.70	46	29	55
BA-32-10R	32		1-1/4	22	12.70	46	30	56
BA-38-12R	38		1-1/2	26	12.70	50	36	64.5
BA-40-12R	40		1-1/2	28	12.70	50	36	64
BA-06A-02R	1/8	10.5	1/4	6	6.01	14	21	36
BA-08A-03R	1/4	13.8	3/8	9	6.35	19	22	38.5
BA-10A-04R	3/8	17.3	1/2	11	8.16	22	24	43
BA-15A-06R	1/2	21.7	3/4	14	9.53	27	26	47.5
BA-20A-08R	3/4	27.2	1	18	10.39	36	28	52.5
BA-25A-10R	1	34.0	1-1/4	23	12.70	46	33	59
BA-32A-12R	1-1/4	42.7	1-1/2	29	12.70	50	36	67
BA-40A-16R	1-1/2	48.6	2	33	15.88	65	37	72

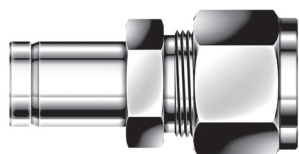
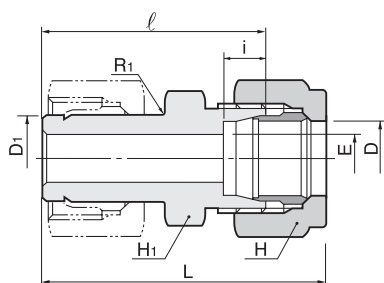
Adapter

(For Copper Gasket)

BA-G

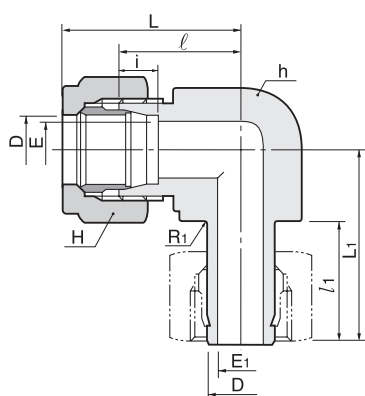
Part No.	Tube O.D D	(PF) T	E	Width across flat H	A	l_1	l_2	l_3
BA-06-01G	6	1/8	3	14	14	20	8	8
BA-08-02G	8	1/4	5	19	18	20	9	12
BA-10-02G	10	1/4	6	19	18	21	9	12
BA-10-03G	10	3/8	6	22	21.5	21	10	12
BA-12-02G	12	1/4	7	19	18	22	9	12
BA-12-03G	12	3/8	8	22	21.5	22	10	12
BA-15-03G	15	3/8	8	22	21.5	24	10	12
BA-15-04G	15	1/2	10	27	25.5	24	13	14
BA-16-04G	16	1/2	11	27	25.5	24	13	14
BA-18-04G	18	1/2	12	27	25.5	24	13	14
BA-20-06G	20	3/4	14	32	31.5	25	16	16
BA-22-06G	22	3/4	14	32	31.5	26	16	16
BA-25-06G	25	3/4	16	32	31.5	28	16	16
BA-25-08G	25	1	17	41	38	28	18	18
BA-28-08G	28	1	18	41	38	28	18	18
BA-30-08G	30	1	20	41	38	29	21	18
BA-30-10G	30	1-1/4	20	50	48.5	29	21	20
BA-32-10G	32	1-1/4	22	50	48.5	30	21	20
BA-38-12G	38	1-1/2	26	55	53.5	36	21	21
BA-40-12G	40	1-1/2	28	55	53.5	36	21	21
BA-06A-02G	1/8	10.5	1/4	6	19	18	9	12
BA-08A-03G	1/4	13.8	3/8	9	22	21.5	10	12
BA-10A-04G	3/8	17.3	1/2	11	27	25.5	13	14
BA-15A-06G	1/2	21.7	3/4	14	32	31.5	16	16
BA-20A-08G	3/4	27.2	1	18	41	38	18	18
BA-25A-10G	1	34.0	1-1/4	23	50	48.5	21	20
BA-32A-12G	1-1/4	42.7	1-1/2	29	55	53.5	23	21
BA-40A-16G	1-1/2	48.6	2	33	70	66	28	24

Reducer

BR

Part No.	Tube O.D				E	Width across flat		i	ℓ	L
	D ₁		D			H ₁	H			
BR-08-06	8		6		4	14	14	7	39	49.5
BR-10-06	10		6		4	14	14	7	40	50.5
BR-10-08	10		8		6	17	17	7	40	50.5
BR-12-06	12		6		4	14	14	7	41	51.5
BR-12-08	12		8		6	17	17	7	41	51.5
BR-12-10	12		10		8	17	19	7	41	52.5
BR-15-08	15		8		6	17	17	7	43	53.5
BR-15-10	15		10		8	17	19	7	43	54.5
BR-16-06	16		6		4	17	14	7	43	53.5
BR-16-10	16		10		8	17	19	7	43	54.5
BR-16-12	16		12		10	19	22	7	43	54.5
BR-18-10	18		10		8	19	19	7	44	55.5
BR-18-15	18		15		12	24	27	7.5	45	57.5
BR-20-06	20		6		4	22	14	7	45	55.5
BR-20-12	20		12		10	22	22	7	45	56.5
BR-20-16	20		16		13	27	30	7.5	47	59.5
BR-22-15	22		15		12	24	27	7.5	48	60.5
BR-22-18	22		18		14	27	32	8	48	60.5
BR-25-16	25		16		13	27	30	7.5	50	62.5
BR-25-20	25		20		17	30	36	8	52	64.5
BR-28-18	28		18		14	30	32	8	52	64.5
BR-28-22	28		22		18	32	36	9	52	64.5
BR-30-20	30		20		17	32	36	8	53	65.5
BR-30-25	30		25		20	36	41	10	54	67.5
BR-32-25	32		25		20	36	41	10	55	68.5
BR-35-22	35		22		18	36	36	9	58	70.5
BR-35-28	35		28		22	41	46	10	60	74
BR-38-25	38		25		20	41	41	10	61	74.5
BR-38-30	38		30		25	41	46	10	63	77.5
BR-08A-6A	1/4	13.8	1/8	10.5	8	17	19	7	41	52.5
BR-10A-6A	3/8	17.3	1/8	10.5	8	19	19	7	44	55.5
BR-10A-8A	3/8	17.3	1/4	13.8	11	22	24	7.5	46	58
BR-15A-8A	1/2	21.7	1/4	13.8	11	24	24	7.5	48	60
BR-15A-10A	1/2	21.7	3/8	17.3	14	27	32	8	48	60.5
BR-20A-10A	3/4	27.2	3/8	17.3	14	30	32	8	52	64.5
BR-20A-15A	3/4	27.2	1/2	21.7	18	32	36	9	52	64.5
BR-25A-15A	1	34	1/2	21.7	18	36	36	9	58	70.5
BR-25A-20A	1	34	3/4	27.2	22	41	46	10	60	74

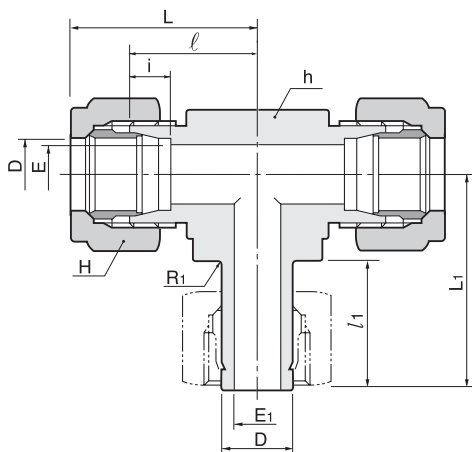
Positionable Elbow

BLA

Part No.	Tube O.D	E	E ₁	Width across flat		i	ℓ	l ₁	L	L ₁
	D			h	H					
BLA-10	10	8	6	17	19	7	23	21	34.5	35
BLA-12	12	10	8	19	22	7	24	22	35.5	36
BLA-15	15	12	10	24	27	7.5	29	24	44.5	40
BLA-16	16	13	11	27	30	7.5	32	24	44.5	43
BLA-18	18	14	12	27	32	8	32	24	44.5	43
BLA-20	20	17	14	30	36	8	33	25	45.5	45
BLA-22	22	18	14	32	36	9	34	26	46.5	46
BLA-25	25	20	17	36	41	10	36	28	49.5	48
BLA-28	28	22	18	41	46	10	41	28	55	53
BLA-30	30	25	20	41	46	10	41	29	55.5	54
BLA-32	32	26	22	46	50	11	50	30	64.5	66
BLA-38	38	32	26	50	60	12	50	36	69.5	72

Positionable Branch Tee

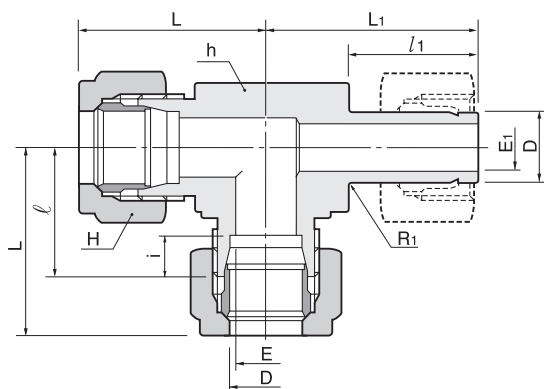
BBTA



Part No.	Tube O.D	E	E ₁	Width across flat		i	ℓ	l ₁	L	L ₁
	D			h	H					
BBTA-10	10	8	6	17	19	7	23	21	34.5	35
BBTA-12	12	10	8	19	22	7	24	22	35.5	37
BBTA-15	15	12	10	24	27	7.5	32	24	44.5	43
BBTA-16	16	13	11	27	30	7.5	32	24	44.5	43
BBTA-18	18	14	12	27	32	8	32	24	44.5	43
BBTA-20	20	17	14	30	36	8	33	25	45.5	45
BBTA-22	22	18	14	32	36	9	34	26	46.5	46
BBTA-25	25	20	17	36	41	10	36	28	49.5	49

Positionable Run Tee

BRTA



Part No.	Tube O.D	E	E ₁	Width across flat		i	ℓ	l ₁	L	L ₁
	D			h	H					
BRTA-10	10	8	6	17	19	7	23	21	34.5	35
BRTA-12	12	10	8	19	22	7	24	22	35.5	37
BRTA-15	15	12	10	24	27	7.5	32	24	44.5	43
BRTA-16	16	13	11	27	30	7.5	32	24	44.5	43
BRTA-18	18	14	12	27	32	8	32	24	44.5	43
BRTA-20	20	17	14	30	36	8	33	25	45.5	45
BRTA-22	22	18	14	32	36	9	34	26	46.5	46
BRTA-25	25	20	17	36	41	10	36	28	49.5	49