ASME Accredited
Nuclear & ISO9001
Quality System

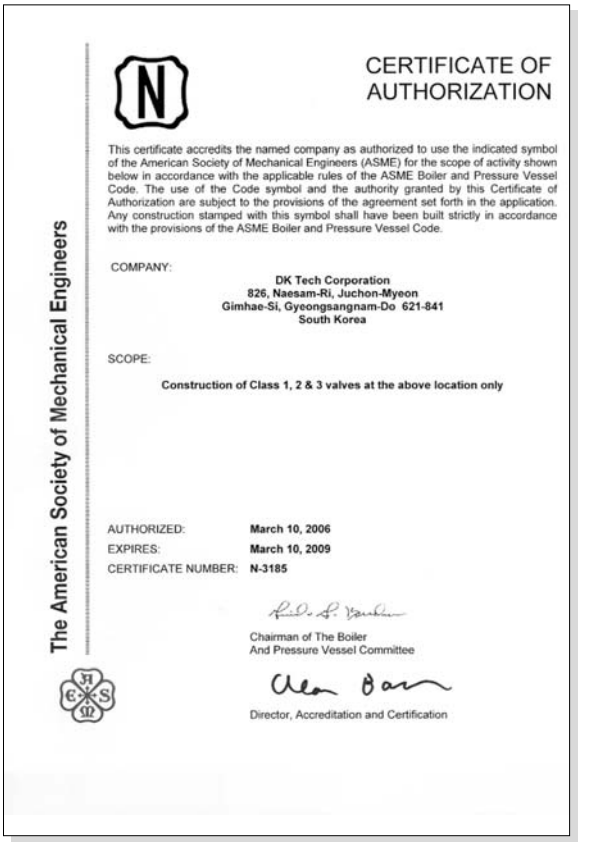
for JIS & KS

ISO 9001 Certified Fitting
and Valve Manufacturer

Bite Type
Tube Fittings

Catalog No.02-2
November, 2001

Dk Tech Corporation



The American Society of Mechanical Engineers

CERTIFICATE OF AUTHORIZATION

This certificate accredits the named company as authorized to use the indicated symbol of the American Society of Mechanical Engineers (ASME) for the scope of activity shown below in accordance with the applicable rules of the ASME Boiler and Pressure Vessel Code. The use of the Code symbol and the authority granted by this Certificate of Authorization are subject to the provisions of the agreement set forth in the application. Any construction stamped with this symbol shall have been built strictly in accordance with the provisions of the ASME Boiler and Pressure Vessel Code.

COMPANY:

DK Tech Corporation
826, Naesam-Ri, Juchon-Myeon
Gimhae-Si, Gyeongsangnam-Do 621-841
South Korea

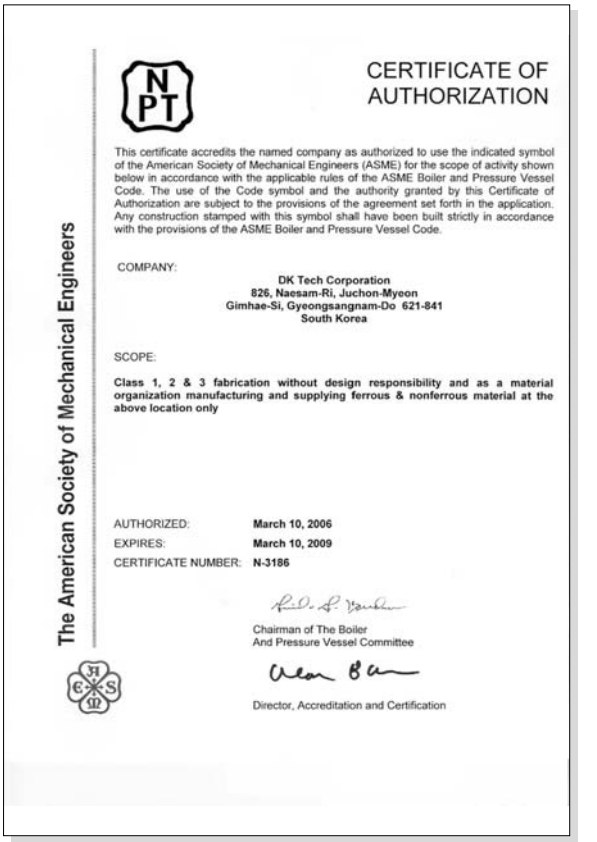
SCOPE:

Construction of Class 1, 2 & 3 valves at the above location only

AUTHORIZED: March 10, 2006
EXPIRES: March 10, 2009
CERTIFICATE NUMBER: N-3185

Chairman of The Boiler
And Pressure Vessel Committee

Director, Accreditation and Certification



The American Society of Mechanical Engineers

CERTIFICATE OF AUTHORIZATION

This certificate accredits the named company as authorized to use the indicated symbol of the American Society of Mechanical Engineers (ASME) for the scope of activity shown below in accordance with the applicable rules of the ASME Boiler and Pressure Vessel Code. The use of the Code symbol and the authority granted by this Certificate of Authorization are subject to the provisions of the agreement set forth in the application. Any construction stamped with this symbol shall have been built strictly in accordance with the provisions of the ASME Boiler and Pressure Vessel Code.

COMPANY:

DK Tech Corporation
826, Naesam-Ri, Juchon-Myeon
Gimhae-Si, Gyeongsangnam-Do 621-841
South Korea

SCOPE:

Class 1, 2 & 3 fabrication without design responsibility and as a material organization manufacturing and supplying ferrous & nonferrous material at the above location only

AUTHORIZED: March 10, 2006
EXPIRES: March 10, 2009
CERTIFICATE NUMBER: N-3186

Chairman of The Boiler
And Pressure Vessel Committee

Director, Accreditation and Certification

HSB REGISTRATION SERVICES
WAYNE, PENNSYLVANIA
CRITICAL LOCATION - ASIA PACIFIC

Certificate of Registration

This is to certify that:

DK Tech Corporation
826, Naesam-Ri, Juchon-Myeon, Gimhae-Si,
Gyeongsangnam-Do, Korea

Has established and applied a Quality Management System for:

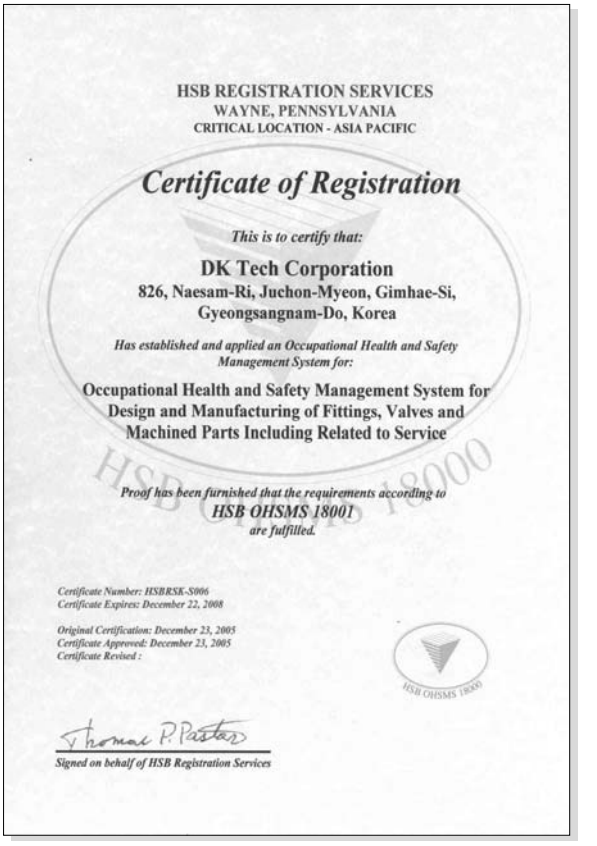
Design and Manufacturing of Fittings, Valves and Machined Parts Including Related to Service

Proof has been furnished that the requirements according to
ISO 9001:2000
are fulfilled.

Certificate Number: AP 1149
Certificate Expires: December 01, 2008

Original Certification: December 02, 2005
Certificate Approved: December 02, 2005
Certificate Revised:

Signed on behalf of HSB Registration Services



HSB REGISTRATION SERVICES
WAYNE, PENNSYLVANIA
CRITICAL LOCATION - ASIA PACIFIC

Certificate of Registration

This is to certify that:

DK Tech Corporation
826, Naesam-Ri, Juchon-Myeon, Gimhae-Si,
Gyeongsangnam-Do, Korea

Has established and applied an Occupational Health and Safety Management System for:

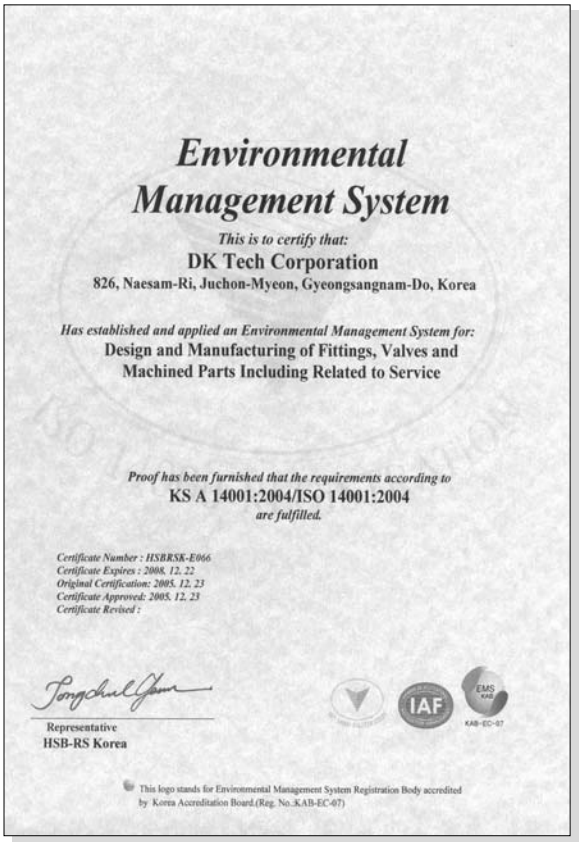
Occupational Health and Safety Management System for Design and Manufacturing of Fittings, Valves and Machined Parts Including Related to Service

Proof has been furnished that the requirements according to
HSB OHSMS 18001
are fulfilled.

Certificate Number: HSBRSK-S006
Certificate Expires: December 22, 2008

Original Certification: December 23, 2005
Certificate Approved: December 23, 2005
Certificate Revised :

Signed on behalf of HSB Registration Services



Environmental Management System

This is to certify that:
DK Tech Corporation
826, Naesam-Ri, Juchon-Myeon, Gyeongsangnam-Do, Korea

Has established and applied an Environmental Management System for:
Design and Manufacturing of Fittings, Valves and Machined Parts Including Related to Service

Proof has been furnished that the requirements according to
KS A 14001:2004/ISO 14001:2004
are fulfilled.

Certificate Number : HSBRSK-E066
Certificate Expires : 2008. 12. 22
Original Certification: 2005. 12. 23
Certificate Approved: 2005. 12. 23
Certificate Revised :

Representative
HSB-RS Korea

IAF KAB-EC-07

This logo stands for Environmental Management System Registration Body accredited by Korea Accreditation Board.(Reg. No.:KAB-EC-07)

American Petroleum Institute

Certificate of Authority to use the Official API Monogram
License Number: 6D-0593 ORIGINAL

The American Petroleum Institute hereby grants to
DK TECH CORPORATION
826, Naesam-RI
Juchon-Myeon
Gimhae City, Gyeongnam
South Korea

the right to use the Official API Monogram® on manufactured products under the conditions in the official publications of the American Petroleum Institute entitled API Spec Q1® and API Spec 6D and in accordance with the provisions of the License Agreement.

In all cases where the Official API Monogram is applied, the API Monogram should be used in conjunction with this certificate number: 6D-0593

The American Petroleum Institute reserves the right to revoke this authorization to use the Official API Monogram for any reason satisfactory to the Board of Directors of the American Petroleum Institute.
The scope of this license includes the following product: Ball Valves
QMS Exclusions: No Exclusions Identified as Applicable

Effective Date: SEPTEMBER 28, 2005
Expiration Date: JUNE 20, 2008

American Petroleum Institute
Director of Certification Programs

ABS
TYPE APPROVAL PROGRAM

CERTIFICATE OF
Manufacturing Assessment

This is to Certify that a representative of this Bureau did, at the request of
DK Tech Corporation

TUBE FITTING

ABS

CERTIFICATE OF
Design Assessment

This is to Certify that a representative of this Bureau did, at the request of
DK Tech Corporation

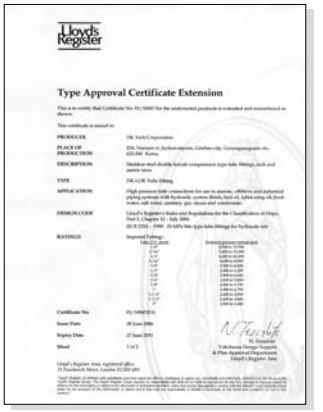
Type Approval Certificate
Germanischer Lloyd

Germanischer Lloyd

DNV
DET NORSKE VERITAS
TYPE APPROVAL CERTIFICATE

Pipe Couplings, Bite and Compression Type
with type designation(s)
DK-LOK: DU, DUR, DLU, DTU, DBU, DMC-N, DMC-R, DMC-G, DOM, DBMC, DLMA, DLMB, DRTM, DRTM, DFC, DGC, DBFC, DLF, DRTF, DBTF, DR, DBR, DAM, DAF, DFU, DBFU, DFA, DWC, DLW, DSWC, DLSW, DPA, DCA, DN, DFF, DFB

Manufactured by
DK Tech Corporation
Pusan 617-060, Republic of Korea



Lloyd's Register

Type Approval Certificate Extension

CERTIFICATE OF TYPE APPROVAL

PIPE FITTINGS

DK TECH CORPORATION

NIPPON KAIJI KYOKAI

Certificate
OF
APPROVAL FOR MECHANICAL JOINTS

THIS IS TO CERTIFY that the mechanical joints,

Approval Number : 06FY1018

TYPE APPROVAL CERTIFICATE

THIS IS TO CERTIFY

Bite Type Tube Fittings

DK Bite Type Tube Fitting is manufactured to JIS B2351 & KS B1535 under strict ISO 9001 procedure and Type approved by DNV - Norway.

Standard of DK Bite Type Fitting

Bite type fitting consists of three parts : Body, Sleeve and Nut, and is designed to work over medium and heavy wall tubing. See Fig-1

BODY, SHOULDER, SLEEVE, NUT & TUBE

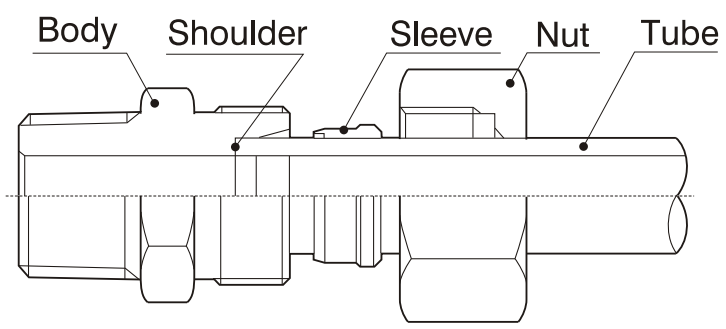


Fig-1

When tightening nut, sleeve is driven forward on the tube then bites the tube with the edge of sleeve. this is how sealing is achieved and results in internal ridge inside the tube. See Fig-2

Internal ridge on Tube

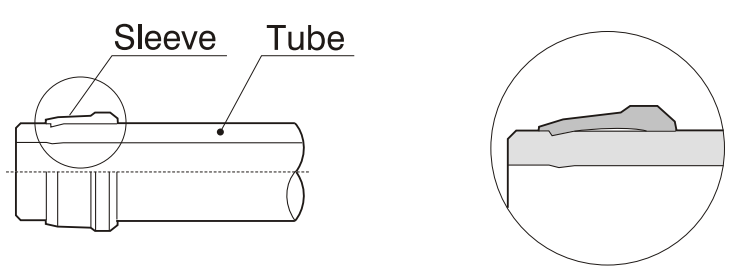


Fig-2

Typical Raw Material List

Parts	Carbon Steel	Stainless Steel	Brass
Forged Body	JIS G4051 S20C-S48C	SUS316-SUS304	JIS H3250 C3771
Bar stock Body	JIS G4051 S20C-S48C	SUS316-SUS304	JIS H3250 C3604
Cold Formed Nut	JIS G4051 S10C-S20C	SUS316-SUS304	
Bar stock Nut	JIS G4051 S20C-S48C	SUS316-SUS304	JIS H3250 C3604
Sleeve	JIS G4051 S10C	SUS316-SUS304	JIS H3250 C3604

Fitting Material Pressure Ranges

(Kg f/cm²)

O.D (mm)	4-5	6-22	25-28	30-38	40-50
C.steel & S.Steel	500	400	350	250	210
Brass	250	210	170	150	120

Pressure is rated at ambient temperature.

Allowable working temperature

1. For fitting materials

Material	Temperature
Steel	-40˚C to 120˚C (DIN 3859)
Brass	-60˚C to 175˚C
Stainless Steel	-60˚C to 400˚C (DIN 17440)

Note : temperature limits can greatly depend on the medium.

2.For Elastomer seals

Material	Temperature
NBR (e.g. Perbunan®)	-35˚C to 100˚C
FPM (e.g. Viton®)	-25˚C to 200˚C
PTEF (e.g. Teflon®)	-60˚C to 240˚C

Note : When seal is used in the fitting,compare allowable working temperature between seal and fitting material and apply the lowest temperature

Pressure reduction with temperature

Following pressure reduction is applicable to the rating in the fitting material pressure range for the elevated temperatures.

Materials of fittings	Temperature Range	Reduction of pressure
Steel	-40˚C to 120˚C	-
Brass	-60˚C to 175˚C	30%
Stainless Steel	-60˚C to 20˚C	-
Stainless Steel	50˚C	4%
Stainless Steel	100˚C	11%
Stainless Steel	200˚C	20%
Stainless Steel	300˚C	29%
Stainless Steel	400˚C	33%

Using the same tube material as fitting is essential for the same pressure reduction, thermal compatibility and corrosion resistance.

Surface protection

DK Steel Bite type fittings are galvanized and yellow or black passivated as standard.
All weldable fittings are phosphated.
Chrome plated on Brass Bite type fitting is available.

Tubing Selection

***Carbon Steel :**
Seamless, welded, fully annealed and redrawn tube suitable for bending with maximum hardness Rockwell B72

***Stainless Steel :**
Seamless, welded, fully annealed and redrawn tube suitable for bending with maximum hardness Rockwell B90

***Copper :**
For seamless coils, soft or light annealed, maximum hardness Rockwell F55.
For straight lengths, light drawn and general purpose, maximum hardness 60 on Rockwell 30T scale.

Note : Do not bend a tube placed in the fittings.This may cause leakage.

Assembly Instructions

Preparing the tube

Tube and Bite type tube fitting are an intrinsic part of a tube system, therefore Dk strongly advises you to take care in handling the tube in order to have the pressure -tight system.

1. Cut the tube square
2. Deburr inside and outside tube end

Tube Bending

Keeping a certain length of tubing straight from fitting shoulder to the starting point of tube bend prevents the deformed section at a bend entering the fitting. This will ensure safety system.

1. Minimum straight length of tube from the starting point of tube bend to the tube end may be 3 times height of the nut

Assembly Instructions

Step 1. Cut the tube at right angle with a reliable tube cutter and de-burr inside and outside tube end with a deburring tool.

Step 2. Set a nut and sleeve on the tube. Make sure the sleeve and the nut are facing the fitting.

Step 3. Lubricate fitting threads and sleeve. Insert tube end into fitting body until it is firmly seated on bottom (fitting shoulder) and hand-tighten the nut

Step 4. Tighten nut 1-1/2 turns with a wrench by holding fitting body with a back up wrench. Marking the nut may be necessary for counting the number of turn.

Note : In case of thin wall tubing make-up, more than 1-1/2 turns may be required.

Checking up the Bite condition

To ensure pressure-tight connection, all Dk Bite type fittings must be disassembled prior to service to check up if small ridge inside the tube is completely formed around front edge of sleeve. Otherwise tighten slightly more to have it.

Sleeve may rotate on the tube that doesn't mean wrong installation. The sleeve shall be refitted once the nut is retightened.

Note : In case you see no ridge formed on the tube, this would be possibly resulted from not fully bottomed tube or not fully tightened nut.
In heavy wall tubing, though you may not see the ridge, the pressure-tight seal is made as far as the sleeve firmly bites the tube and is constrained axially.

One of Dk Bite Type Fitting benefits is reusable many times. Further to check up the bite condition, you need to know how to do reassembly.

Bite Type Tube Fittings

Reassembly Instructions

Fitting can be used many times. To ensure this, parts must be clean and free of defects.

Step 1. Insert the tube into fitting body until sleeve seats firmly in the fitting and hand-tighten the nut.

Step 2. Tighten the nut with a wrench by holding the fitting body with a backup wrench until a sharp rise in torque is felt.
Further tighten the nut 1/4 to 1/2 turn.

Now the reassembly is complete and ready to service.

In most cases, leakage problem occurs :

1. When the tube is not fully bottomed
2. When the nut is not tightened enough
3. When the tube is of scratches or oval

If you still face a leakage problem even if you went through above 1 to 3, it may be the problem of extremely hard tube which is not suitable for bending.

Note : Steel sleeve is not supposed to be loose back and forth beyond bite point whereas Stainless sleeve could possibly move back and forth due to its more spring-like characteristics.

Safe Component Selection

The selection of component for any applications, system design must be considered to ensure safe performance. Component function, material compatibility, component ratings, proper installation, operation and maintenance remain the sole responsibility of the system designer and the user. Dk Tech accepts no liability for any improper installation, operation and maintenance.

Note : All the information here are not for design purpose just reference only and the accuracy of information here is not liability of our company.

Ordering Information

Fittings ends and configuration are identified by symbolized letters and the series of numbers.

Example : B ① MC ② 06 ③ - 02 ④ R ⑤ - C ⑥

① DK Bite Type Fitting designated as B
② Name of Fittings : See products Index
③ Tube O.D. : See Tube and Pipe O.D. Designator
④ Pipe Threads : See Pipe Thread Designator
⑤ Pipe Thread Symbols : See Pipe Thread Symbol Designator
⑥ Material : See Fitting Material Designator

③ Tube and Pipe O.D. Designator

Metric Tube	O.D	4	6	8	10	12.....30.....50			
	Designation	04	06	08	10	12.....30.....50			
SCH. Pipe	Nominal Dia.	1/8	1/4	3/8	1/2	3/4	1	1-1/4	1-1/2
	O.D	10.5	13.8	17.3	21.7	27.2	34.0	42.7	48.6
	Designation	06A	08A	10A	15A	20A	25A	32A	40A

④ Pipe Thread Designator

Thread	1/8	1/4	3/8	1/2	3/4	1	1-1/4	1-1/2	2
Designation	01	02	03	04	06	08	10	12	16

⑤ Pipe Thread Symbol Designator

Type	Symbol	Specification
Taper Threads	R	JIS B 0203 (PT), ISO 7/1
	N	ANSI B1.20.1 (NPT)
Parallel Threads	G	JIS B0202 (PF), ISO 228/1

⑥ Fitting Material Designator

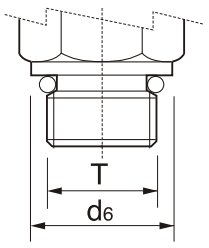
Fitting Material	S.S316	S.S304	C.Steel	Brass
Identifier	S	4	C	B

Custom designs

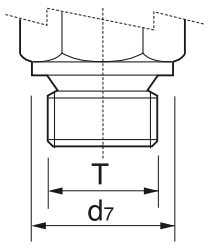
Custom designs are welcome to help our customer go round a problem. You may therefore no longer need to redesign or increase the cost of your installation by being with us next to you.

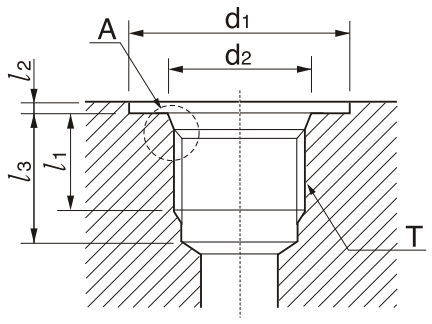
Male Stud form and Sealing to JIS B2351

Male stud form A
Sealing by O-ring
or Bonded Seal.

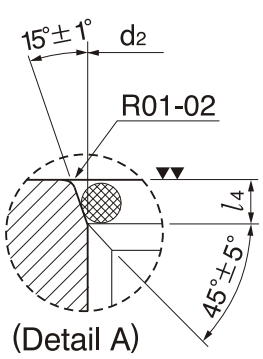


Male stud form B
Sealing by Copper
Gasket.

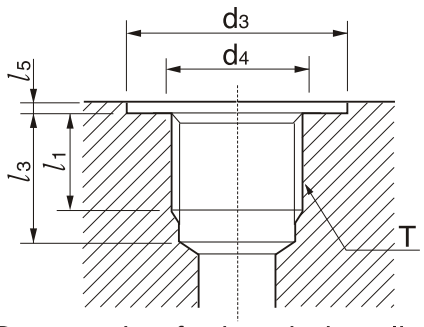




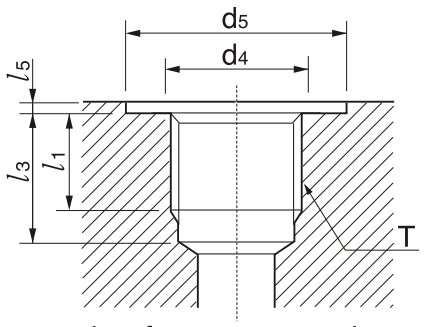
Port tapping for O-ring sealing.



(Detail A)



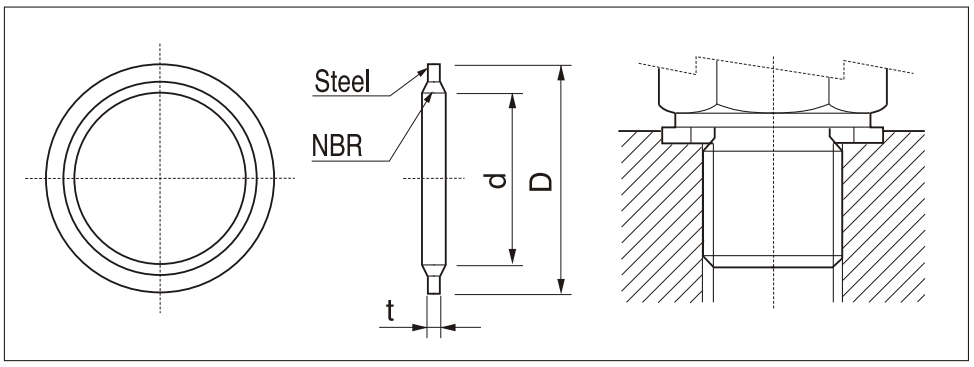
Port tapping for bonded sealing.



Port tapping for copper gasket sealing.

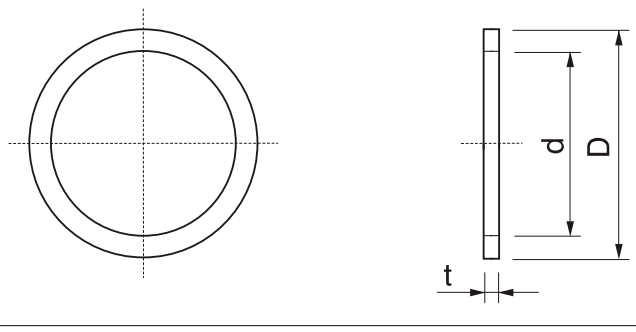
T	d1	d2 +0.1 0	d3 +0.3 0	Max d4	d5 +0.3 0	d6	d7	Min l1	Max l2	Min l3	l4 +0.4 0	l5	Suitable Seal		
													O-Ring	Bonded Seal	Copper Gasket
PF 1/8	18	11.6	17.4	9.7	18.2	14	14	10	1	15	2	1	P 8	BBG-01	BCG-01
PF 1/4	24	15.6	20.9	13.1	22.2	19	18	14	1.5	20	2.5	1	P11	BBG-02	BCG-02
PF 3/8	28	18.6	24.4	16.6	26.2	22	21.5	14	2	20	2.5	1	P14	BBG-03	BCG-03
PF 1/2	34	22.6	29.4	20.9	32.2	27	25.5	17	2.5	25	2.5	1	P18	BBG-04	BCG-04
PF 3/4	45	29.8	34.9	26.4	38.2	36	31.5	19	2.5	27	3.5	1	P24	BBG-06	BCG-06
PF 1	51	35.8	41.9	33.2	42.3	41	38	22	2.5	31	3.5	1	P29	BBG-08	BCG-08
PF 1-1/4	62	44.8	50.9	41.9	53.3	50	48.5	24	2.5	33	3.5	1	P38	BBG-10	BCG-10
PF 1-1/2	68	50.8	57.4	47.8	60.3	55	53.5	25	2.5	34	3.5	1	P44	BBG-12	BCG-12
PF 2	76	67.2	69.4	59.6	72.3	75	66	29	2.5	38	3.5	1	P56	BBG-16	BCG-16

Bonded Seal



PART No.	Male Thread	d	D	t
BBG-01	PF 1/8	9.9	17	2
BBG-02	PF 1/4	13.3	20.5	2
BBG-03	PF 3/8	16.8	24	2
BBG-04	PF 1/2	21.1	29	2
BBG-06	PF 3/4	26.6	34.5	2
BBG-08	PF 1	33.4	41.5	2.3
BBG-10	PF 1-1/4	42.1	50.5	2.3
BBG-12	PF 1-1/2	48.0	57	2.3
BBG-16	PF 2	59.8	69	2.3

Copper Gasket



PART No	Male Thread	d	D	t
BCG-01	PF 1/8	10	18	2
BCG-02	PF 1/4	14	22	2
BCG-03	PF 3/8	17	26	2
BCG-04	PF 1/2	22	32	2
BCG-06	PF 3/4	27	38	2
BCG-08	PF 1	34	42	2
BCG-10	PF 1-1/4	43	53	2
BCG-12	PF 1-1/2	49	60	2
BCG-16	PF 2	61	72	2

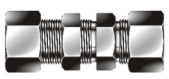
Bite Type Tube Fittings

Index

BU Straight Union 8

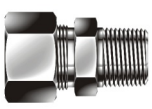
BL Union Elbow 8

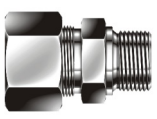
BT Union Tee 9

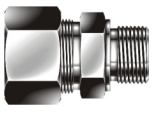
BBU Straight Bulkhead Union  9

BBL Bulkhead Elbow 10

BLMC Long Male Connector 10

BMC-R Male Connector  11

BMC-G Male Connector  12

BOM Male Connector (For O-Ring)  13

BLM Male Elbow 14

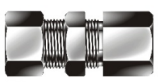
BLLM Long Male Elbow 15

BOLM O-Seal Male Elbow 15

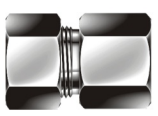
BSLM Banjo Elbow 16

BBTM Male Branch Tee 16

BRTM Male Run Tee 17

BBFC Bulkhead Female Connector  17

BFC Female Connector 18

BGC Gauge Connector  18

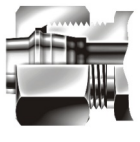
BLF Female Elbow 19

BBTF Female Branch Tee 19

BRTF Female Run Tee 20

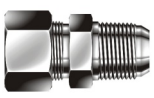
BJ Jig 20

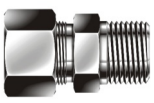
BC Cap 21

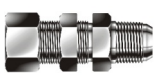
BP Plug  21

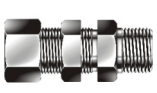
BN Nut 22

BS Sleeve 22

BHUM Hose Male Union  23

BHUF Hose Female Union  23

BHBM Hose Bulkhead Male Union  24

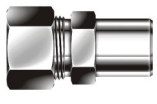
BHBF Hose Bulkhead Female Union  24

BHLM Hose Male Elbow 25

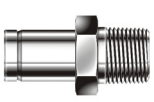
BHLF Hose Female Elbow 25

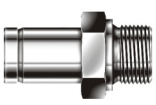
BHBLM Hose Bulkhead Male Elbow 26

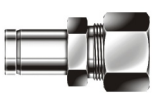
BHBLF Hose Bulkhead Female Elbow 26

BCW Welding Connector  27

BBUW Welding Bulkhead Union 27

BA-R Adapter  28

BA-G Adapter (For Copper Gasket)  28

BR Reducer  29

BLA Positionable Elbow 29

BBTA Positionable Branch Tee 30

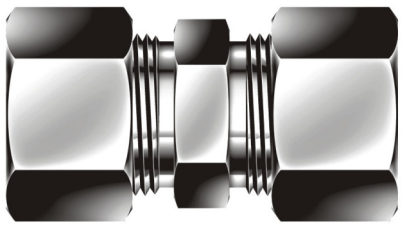
BRTA Positionable Run Tee 30

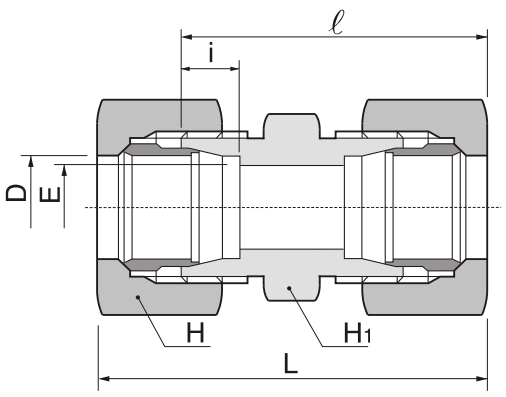
BAP-1 Air Purge Valve (Tube End) 31

BAP-2 Air Purge Valve (Thread End) 31

BU

Straight Union

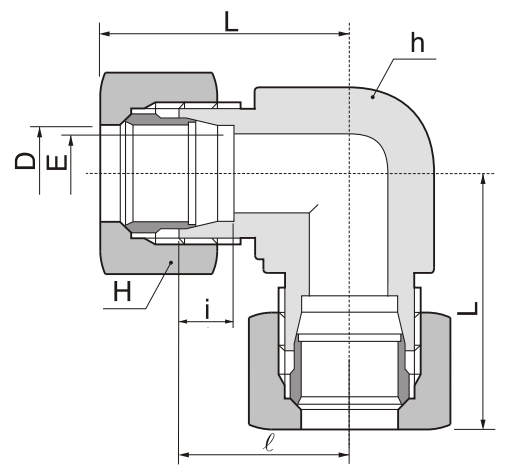




Designations	Tube O.D. D	E	Width across flat H1	Width across flat H	i	ℓ	Approx L
BU-06	6	4	14	14	7	30	51
BU-08	8	6	17	17	7	31	52
BU-10	10	8	17	19	7	31	54
BU-12	12	10	19	22	7	31	54
BU-15	15	12	24	27	7.5	39	61
BU-16	16	13	27	30	7.5	36	61
BU-18	18	14	27	32	8	36	61
BU-20	20	17	30	36	8	38	63
BU-22	22	18	32	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

BL

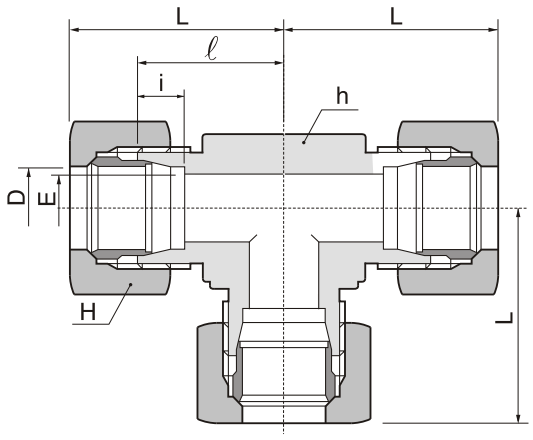
Union Elbow



Designations	Tube O.D. D	E	Width across flat h	Width across flat H	i	ℓ	Approx L
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
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
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
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

BT

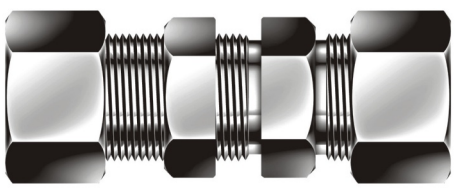
Union Tee

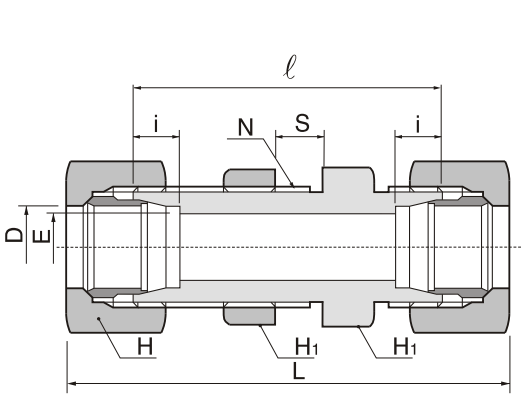


Designations	Tube O.D. D	E	Width across flat h	Width across flat H	i	ℓ	Approx L
BT-06	6	4	14	14	7	20	30.5
BT-08	8	6	17	17	7	23	33.5
BT-10	10	8	17	19	7	23	34.5
BT-12	12	10	19	22	7	24	35.5
BT-15	15	12	24	27	7.5	29	41.5
BT-16	16	13	27	30	7.5	32	44.5
BT-18	18	14	27	32	8	32	44.5
BT-20	20	17	30	36	8	33	45.5
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
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
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
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

BBU

Straight Bulkhead Union



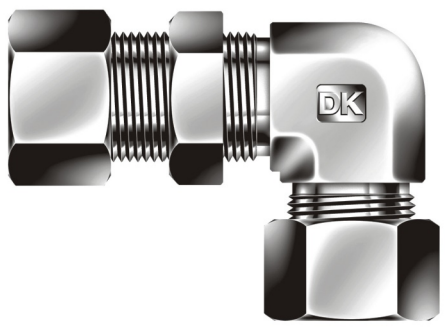


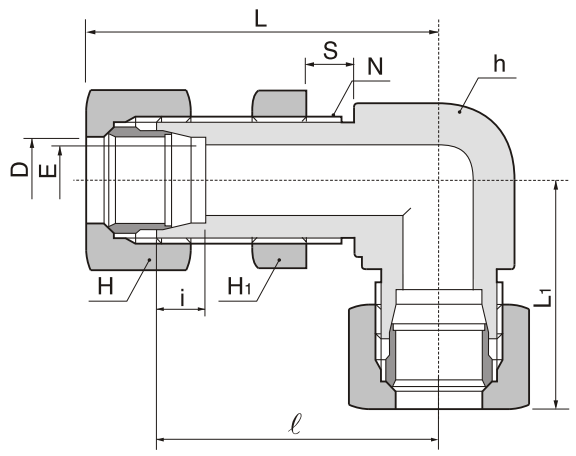
Designations	Tube O.D. D	E	Width across flat H1	Width across flat H	i	ℓ	Approx L	Panel Hole Drill Size N	Max.Panel Thickness S
BBU-06	6	4	17	14	7	51	72	12.5	13
BBU-08	8	6	19	17	7	51	72	14.5	13
BBU-10	10	8	22	19	7	52	75	16.5	13
BBU-12	12	10	24	22	7	52	75	18.5	13
BBU-15	15	12	27	27	7.5	59	84	22.5	15
BBU-16	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

All dimensions are in millimeters unless otherwise specified and only for reference subject to change.

BBL

Bulkhead Elbow

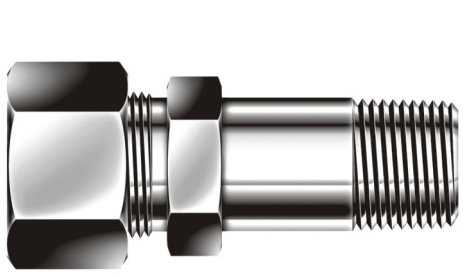


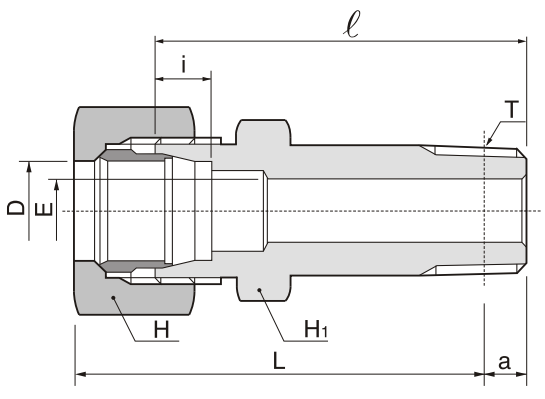


Designations	Tube O.D. D	E	Width across flat h	Width across flat H1	Width across flat H	i	ℓ	Approx L1	Approx L	Panel Hole Drill Size N	Max.Panel Thickness S
BBL-06	6	4	17	17	14	7	45	33.5	55.5	12.5	13
BBL-08	8	6	19	19	17	7	46	34.5	56.5	14.5	13
BBL-10	10	8	22	22	19	7	48	37.5	59.5	16.5	13
BBL-12	12	10	24	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

BLMC

Long Male Connector

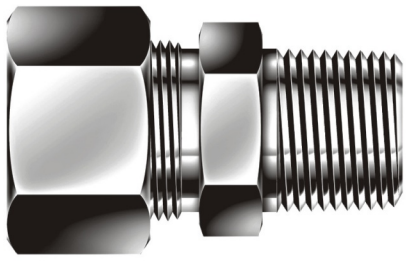


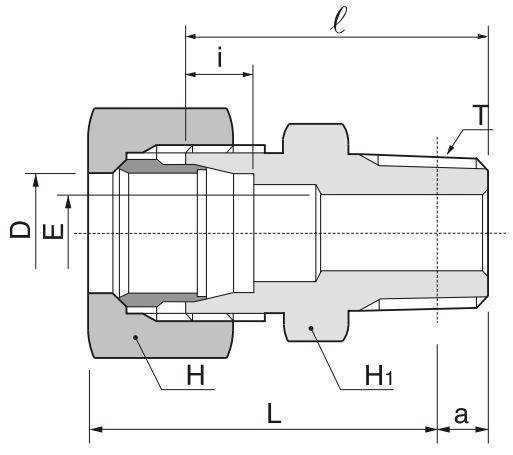


Designations	Tube O.D. D	(PT) T	E	Basic Gauge length a	Width across flat H1	Width across flat H	i	ℓ	Approx L
BLMC06-01R	6	1/8	4	3.97	14	14	7	63	69.5
BLMC08-02R	8	1/4	6	6.01	17	17	7	70	74.5
BLMC10-02R	10	1/4	7	6.01	17	19	7	71	76.5
BLMC10-03R	10	3/8	8	6.35	19	19	7	72	77
BLMC12-02R	12	1/4	7	6.01	19	22	7	71	76.5
BLMC12-03R	12	3/8	9	6.35	19	22	7	72	77
BLMC15-03R	15	3/8	9	6.35	24	27	7.5	81	87
BLMC15-04R	15	1/2	12	8.16	24	27	7.5	86	90.5
BLMC16-04R	16	1/2	12	8.16	27	30	7.5	86	90.5
BLMC18-04R	18	1/2	12	8.16	27	32	8	86	90.5
BLMC20-06R	20	3/4	16	9.53	30	36	8	92	95
BLMC22-06R	22	3/4	16	9.53	32	36	9	93	96
BLMC25-08R	25	1	20	10.39	36	41	10	99	102
BLMC28-08R	28	1	22	10.39	41	46	10	104	107.5
BLMC30-10R	30	1-1/4	25	12.70	46	46	10	109	111
BLMC32-10R	32	1-1/4	26	12.70	46	50	11	110	112
BLMC06A-02R	1/8	10.5	1/4	7	6.01	17	19	7	71	76.5
BLMC08A-03R	1/4	13.8	3/8	9	6.35	22	24	7.5	81	86.5
BLMC10A-03R	3/8	17.3	3/8	9	6.35	27	32	8	81	87
BLMC15A-06R	1/2	21.7	3/4	16	9.53	32	36	9	93	96
BLMC20A-08R	3/4	27.2	1	22	10.39	41	46	10	104	107.5

BMC-R

Male Connector





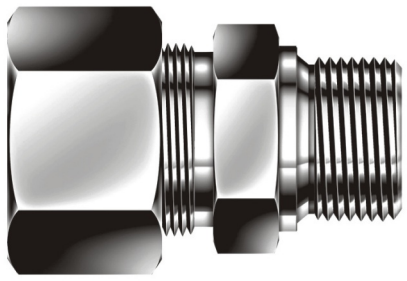
Designations	Tube O.D. D	(PT) T	E	Basic Gauge length a	Width across flat H1	Width across flat H	i	ℓ	Approx L
BMC06-01R	6	1/8	4	3.97	14	14	7	28	34.5
BMC06-02R	6	1/4	4	6.01	17	14	7	33	37.5
BMC06-03R	6	3/8	4	6.35	17	14	7	34	38.5
BMC08-01R	8	1/8	4	3.97	17	17	7	29	35.5
BMC08-02R	8	1/4	6	6.01	17	17	7	33	37.5
BMC10-02R	10	1/4	7	6.01	17	19	7	33	38.5
BMC10-03R	10	3/8	8	6.35	19	19	7	34	39
BMC10-04R	10	1/2	8	8.16	22	19	7	39	42.5
BMC12-02R	12	1/4	7	6.01	19	22	7	33	38.5
BMC12-03R	12	3/8	9	6.35	19	22	7	34	39
BMC12-04R	12	1/2	10	8.16	24	22	7	39	42.5
BMC15-03R	15	3/8	9	6.35	24	27	7.5	37	43
BMC15-04R	15	1/2	12	8.16	24	27	7.5	41	45.5
BMC16-03R	16	3/8	9	6.35	27	30	7.5	37	43
BMC16-04R	16	1/2	12	8.16	27	30	7.5	41	45.5
BMC18-04R	18	1/2	12	8.16	27	32	8	41	45.5
BMC20-04R	20	1/2	12	8.16	30	36	8	43	47.5
BMC20-06R	20	3/4	16	9.53	30	36	8	45	48
BMC22-04R	22	1/2	12	8.16	32	36	9	43	47.5
BMC22-06R	22	3/4	16	9.53	32	36	9	45	48
BMC25-08R	25	1	20	10.39	36	41	10	49	52
BMC28-08R	28	1	22	10.39	41	46	10	51	54.5
BMC30-08R	30	1	22	10.39	41	46	10	51	55
BMC30-10R	30	1-1/4	25	12.70	46	46	10	55	57
BMC32-10R	32	1-1/4	26	12.70	46	50	11	55	57
BMC35-10R	35	1-1/4	28	12.70	46	55	11	55	60
BMC38-12R	38	1-1/2	32	12.70	50	60	12	57	64
BMC40-12R	40	1-1/2	32	12.70	55	60	12	62	69
BMC42-12R	42	1-1/2	34	12.70	55	60	12	62	69
BMC06A-01R	1/8	10.5	4	3.97	17	19	7	29	36.5
BMC06A-02R	1/8	10.5	7	6.01	17	19	7	33	38.5
BMC08A-02R	1/4	13.8	7	6.01	22	24	7.5	36	42
BMC08A-03R	1/4	13.8	9	6.35	22	24	7.5	37	42.5
BMC10A-03R	3/8	17.3	9	6.35	27	32	8	37	43
BMC10A-04R	3/8	17.3	12	8.16	27	32	8	41	45.5
BMC15A-04R	1/2	21.7	12	8.16	32	36	9	43	47.5
BMC15A-06R	1/2	21.7	16	9.53	32	36	9	45	48
BMC20A-06R	3/4	27.2	16	9.53	41	46	10	48	52.5
BMC20A-08R	3/4	27.2	22	10.39	41	46	10	51	54.5
BMC25A-08R	1	34.0	22	10.39	46	55	11	52	59
BMC25A-10R	1	34.0	28	12.70	46	55	11	55	60
BMC32A-10R	1-1/4	42.7	31	12.70	60	65	12	64	72
BMC32A-12R	1-1/4	42.7	34	12.70	60	65	12	64	72
BMC40A-12R	1-1/2	48.6	36	12.70	65	75	12	67	76
BMC40A-16R	1-1/2	48.6	40	15.88	65	75	12	71	76.5

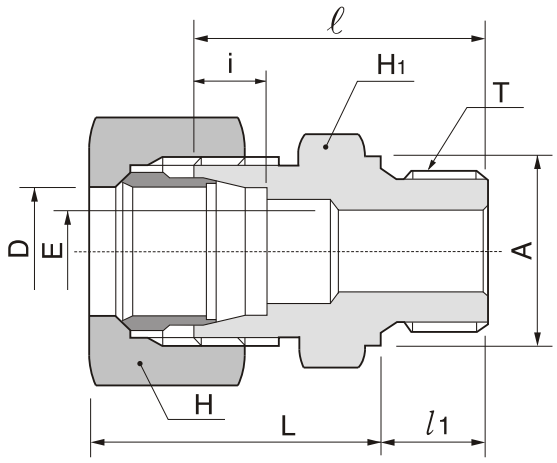
All dimensions are in millimeters unless otherwise specified and only for reference subject to change.

BMC-G

Male Connector

Male Stud Form B sealing by copper gasket
See page 6



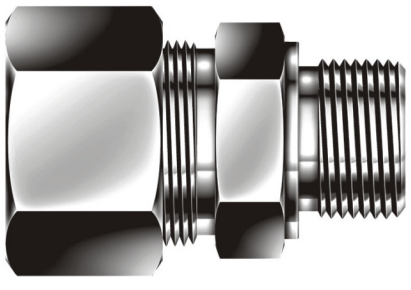


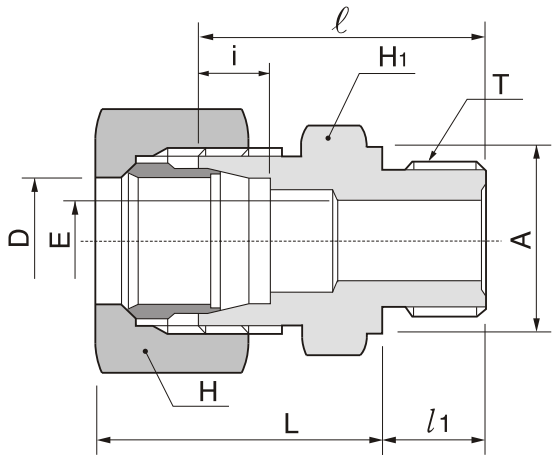
Designations	Tube O.D. D	(PF) T	E	Width across flat H1	Width across flat H	i	ℓ	A	l1	Approx L
BMC06-01G	6	1/8	4	14	14	7	28	14	8	30.5
BMC06-02G	6	1/4	4	19	14	7	33	18	12	31.5
BMC08-01G	8	1/8	4	17	17	7	28	14	8	30.5
BMC08-02G	8	1/4	6	19	17	7	33	18	12	31.5
BMC10-02G	10	1/4	6	19	19	7	33	18	12	32.5
BMC10-03G	10	3/8	8	22	19	7	34	21.5	12	33.5
BMC12-02G	12	1/4	6	19	22	7	33	18	12	32.5
BMC12-03G	12	3/8	8	22	22	7	34	21.5	12	33.5
BMC12-04G	12	1/2	10	27	22	7	39	25.5	14	36.5
BMC15-03G	15	3/8	8	24	27	7.5	37	21.5	12	37.5
BMC15-04G	15	1/2	12	27	27	7.5	41	25.5	14	39.5
BMC16-04G	16	1/2	12	27	30	7.5	41	25.5	14	39.5
BMC18-04G	18	1/2	12	27	32	8	41	25.5	14	39.5
BMC20-06G	20	3/4	16	32	36	8	46	31.5	16	42.5
BMC22-04G	22	1/2	12	32	36	9	43	25.5	14	41.5
BMC22-06G	22	3/4	16	32	36	9	46	31.5	16	42.5
BMC25-06G	25	3/4	16	36	41	10	46	31.5	16	43.5
BMC25-08G	25	1	20	41	41	10	50	38	18	45.5
BMC28-08G	28	1	22	41	46	10	52	38	18	48
BMC30-08G	30	1	22	41	46	10	52	38	18	48.5
BMC30-10G	30	1-1/4	25	50	46	10	57	48.5	20	51.5
BMC32-10G	32	1-1/4	26	50	50	11	57	48.5	20	51.5
BMC35-10G	35	1-1/4	28	50	55	11	57	48.5	20	54.5
BMC38-12G	38	1-1/2	32	55	60	12	58	53.5	21	56.5
BMC40-12G	40	1-1/2	32	55	60	12	62	53.5	21	60.5
BMC42-12G	42	1-1/2	34	55	60	12	62	53.5	21	60.5
BMC06A-01G	1/8	10.5	1/8	4	17	19	7	29	14	8	32.5
BMC06A-02G	1/8	10.5	1/4	6	19	19	7	33	18	12	32.5
BMC08A-02G	1/4	13.8	1/4	6	22	24	7.5	36	18	12	36
BMC08A-03G	1/4	13.8	3/8	8	22	24	7.5	36	21.5	12	36
BMC10A-03G	3/8	17.3	3/8	8	27	32	8	38	21.5	12	38.5
BMC10A-04G	3/8	17.3	1/2	12	27	32	8	41	25.5	14	39.5
BMC15A-04G	1/2	21.7	1/2	12	32	36	9	43	25.5	14	41.5
BMC15A-06G	1/2	21.7	3/4	16	32	36	9	46	31.5	16	42.5
BMC20A-06G	3/4	27.2	3/4	16	41	46	10	50	31.5	16	48
BMC20A-08G	3/4	27.2	1	22	41	46	10	52	38	18	48
BMC25A-08G	1	34.0	1	22	46	55	11	54	38	18	53.5
BMC25A-10G	1	34.0	1-1/4	28	50	55	11	57	48.5	20	54.5
BMC32A-10G	1-1/4	42.7	1-1/4	31	60	65	12	63	48.5	20	63.5
BMC32A-12G	1-1/4	42.7	1-1/2	34	60	65	12	64	53.5	21	63.5
BMC40A-12G	1-1/2	48.6	1-1/2	36	65	75	12	65	53.5	21	65.5
BMC40A-16G	1-1/2	48.6	2	40	70	75	12	73	66	25	69.5

BOM

Male Connector
(For O-Ring)

Male Stud Form A
sealing by O-Ring
or Bonded seal
See page 6



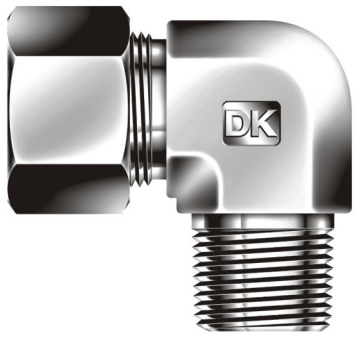


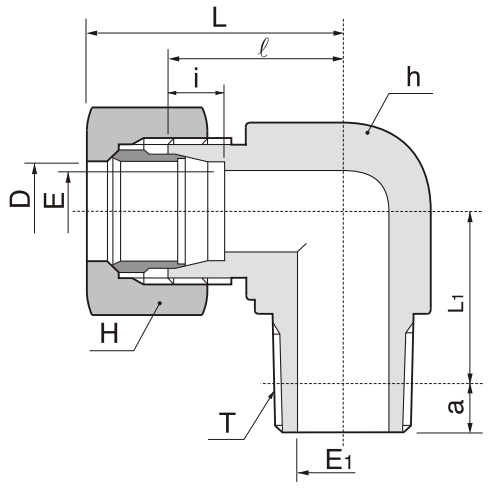
Designations	Tube O.D. D	(PF) T	E	Width across flat H1	Width across flat H	i	A	l_1	ℓ	Approx L
BOM06-01G	6	1/8	4	14	14	7	14	8	28	30.5
BOM06-02G	6	1/4	4	19	14	7	19	12	33	31.5
BOM08-01G	8	1/8	4	17	17	7	14	8	28	30.5
BOM08-02G	8	1/4	6	19	17	7	19	12	33	31.5
BOM10-02G	10	1/4	6	19	19	7	19	12	33	32.5
BOM10-03G	10	3/8	8	22	19	7	22	12	34	33.5
BOM12-02G	12	1/4	6	19	22	7	19	12	33	32.5
BOM12-03G	12	3/8	8	22	22	7	22	12	34	33.5
BOM12-04G	12	1/2	10	27	22	7	27	14	39	36.5
BOM15-03G	15	3/8	8	24	27	7.5	22	12	37	37.5
BOM15-04G	15	1/2	12	27	27	7.5	27	14	41	39.5
BOM16-04G	16	1/2	12	27	30	7.5	27	14	41	39.5
BOM18-04G	18	1/2	12	27	32	8	27	14	41	39.5
BOM20-06G	20	3/4	16	36	36	8	36	16	46	42.5
BOM22-06G	22	3/4	16	36	36	9	36	16	46	42.5
BOM25-06G	25	3/4	16	36	41	10	36	16	46	43.5
BOM25-08G	25	1	20	41	41	10	41	18	50	45.5
BOM28-08G	28	1	22	41	46	10	41	18	52	48
BOM30-08G	30	1	22	41	46	10	41	18	52	48.5
BOM30-10G	30	1-1/4	25	50	46	10	50	20	57	51.5
BOM32-10G	32	1-1/4	26	50	50	11	50	20	57	51.5
BOM35-10G	35	1-1/4	28	50	55	11	50	20	57	54.5
BOM38-12G	38	1-1/2	32	55	60	12	55	21	58	56.5
BOM40-12G	40	1-1/2	32	55	60	12	55	21	62	60.5
BOM42-12G	42	1-1/2	34	55	60	12	55	21	62	60.5
BOM06A-01G	1/8	10.5	1/8	4	17	19	7	14	8	29	32.5
BOM06A-02G	1/8	10.5	1/4	6	19	19	7	19	12	33	32.5
BOM08A-02G	1/4	13.8	1/4	6	22	24	7.5	19	12	36	36
BOM08A-03G	1/4	13.8	3/8	8	22	24	7.5	22	12	36	36
BOM10A-03G	3/8	17.3	3/8	8	27	32	8	22	12	38	38.5
BOM10A-04G	3/8	17.3	1/2	12	27	32	8	27	14	41	39.5
BOM15A-04G	1/2	21.7	1/2	12	32	36	9	27	14	43	41.5
BOM15A-06G	1/2	21.7	3/4	16	36	36	9	36	16	46	42.5
BOM20A-06G	3/4	27.2	3/4	16	41	46	10	36	16	50	48
BOM20A-08G	3/4	27.2	1	22	41	46	10	41	18	52	48
BOM25A-08G	1	34.0	1	22	46	55	11	41	18	54	53.5
BOM25A-10G	1	34.0	1-1/4	28	50	55	11	50	20	57	54.5
BOM32A-10G	1-1/4	42.7	1-1/4	31	60	65	12	50	20	63	63.5
BOM32A-12G	1-1/4	42.7	1-1/2	34	60	65	12	55	21	64	63.5
BOM40A-12G	1-1/2	48.6	1-1/2	36	65	75	12	55	21	65	65.5
BOM40A-16G	1-1/2	48.6	2	40	75	75	12	75	25	73	69.5

All dimensions are in millimeters unless otherwise specified and only for reference subject to change.

BLM

Male Elbow

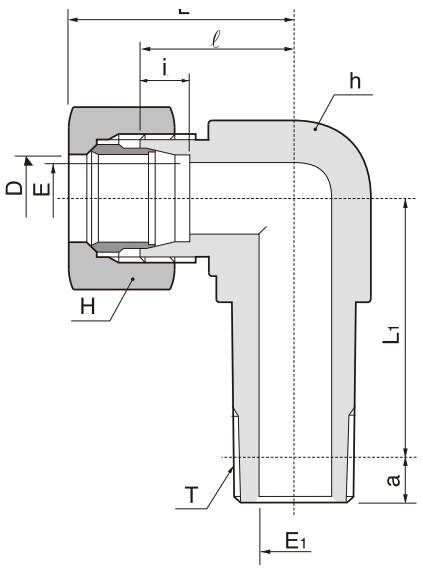




Designations	Tube O.D. D	(PT) T	E	E1	Basic Gauge length a	Width across flat h	Width across flat H	i	ℓ	Approx L	Approx L1
BLM06-01R	6	1/8	4	4	3.97	14	14	7	20	30.5	14
BLM06-02R	6	1/4	4	7	6.01	17	14	7	23	33.5	17
BLM08-01R	8	1/8	6	4	3.97	17	17	7	23	33.5	16
BLM08-02R	8	1/4	6	7	6.01	17	17	7	23	33.5	18
BLM10-02R	10	1/4	8	7	6.01	17	19	7	23	34.5	19
BLM10-03R	10	3/8	8	9	6.35	19	19	7	24	35.5	19.5
BLM10-04R	10	1/2	8	12	8.16	22	19	7	29	40.5	26
BLM12-02R	12	1/4	10	7	6.01	19	22	7	24	35.5	20
BLM12-03R	12	3/8	10	9	6.35	19	22	7	24	35.5	20.5
BLM12-04R	12	1/2	10	12	8.16	24	22	7	29	40.5	26
BLM15-03R	15	3/8	12	9	6.35	24	27	7.5	29	41.5	23.5
BLM15-04R	15	1/2	12	12	8.16	24	27	7.5	29	41.5	26
BLM16-03R	16	3/8	13	9	6.35	27	30	7.5	32	44.5	25.5
BLM16-04R	16	1/2	13	12	8.16	27	30	7.5	32	44.5	27
BLM18-03R	18	3/8	14	9	6.35	27	32	8	32	44.5	27.5
BLM18-04R	18	1/2	14	12	8.16	27	32	8	32	44.5	30
BLM20-04R	20	1/2	17	12	8.16	30	36	8	33	45.5	32
BLM20-06R	20	3/4	17	16	9.53	30	36	8	33	45.5	30.5
BLM22-04R	22	1/2	18	12	8.16	32	36	9	34	46.5	32
BLM22-06R	22	3/4	18	16	9.53	32	36	9	34	46.5	32.5
BLM25-06R	25	3/4	20	16	9.53	36	41	10	36	49.5	33.5
BLM25-08R	25	1	20	22	10.39	36	41	10	36	49.5	35.5
BLM28-06R	28	3/4	22	16	9.53	41	46	10	41	55	37.5
BLM28-08R	28	1	22	22	10.39	41	46	10	41	55	39.5
BLM30-08R	30	1	25	22	10.39	41	46	10	41	55.5	39.5
BLM30-10R	30	1-1/4	25	31	12.70	46	46	10	46	60.5	42.5
BLM32-10R	32	1-1/4	26	31	12.70	46	50	11	46	60.5	43.5
BLM35-10R	35	1-1/4	28	31	12.70	46	55	11	46	63.5	45.5
BLM38-12R	38	1-1/2	32	36	12.70	50	60	12	50	69.5	48.5
BLM40-12R	40	1-1/2	32	36	12.70	55	60	12	55	74.5	49.5
BLM42-12R	42	1-1/2	34	36	12.70	55	60	12	55	74.5	49.5
BLM06A-01R	1/8	10.5	1/8	8	4	3.97	17	19	7	23	34.5	17
BLM06A-02R	1/8	10.5	1/4	8	7	6.01	17	19	7	23	34.5	19
BLM08A-02R	1/4	13.8	1/4	11	7	6.01	22	24	7.5	28	40	22
BLM08A-03R	1/4	13.8	3/8	11	9	6.35	22	24	7.5	28	40	22.5
BLM10A-03R	3/8	17.3	3/8	14	9	6.35	27	32	8	32	44.5	27.5
BLM10A-04R	3/8	17.3	1/2	14	12	8.16	27	32	8	32	44.5	30
BLM15A-04R	1/2	21.7	1/2	18	12	8.16	32	36	9	34	46.5	32
BLM15A-06R	1/2	21.7	3/4	18	16	9.53	32	36	9	34	46.5	32.5
BLM20A-06R	3/4	27.2	3/4	22	16	9.53	41	46	10	41	55	37.5
BLM20A-08R	3/4	27.2	1	22	22	10.39	41	46	10	41	55	39.5
BLM25A-08R	1	34.0	1	28	22	10.39	46	55	11	46	63.5	44.5
BLM25A-10R	1	34.0	1-1/4	28	31	12.70	46	55	11	46	63.5	45.5
BLM32A-10R	1-1/4	42.7	1-1/4	34	31	12.70	60	65	12	57	77.5	51.5
BLM32A-12R	1-1/4	42.7	1-1/2	34	36	12.70	60	75	12	57	77.5	51.5
BLM40A-12R	1-1/2	48.6	1-1/2	40	36	12.70	65	75	12	62	83.5	57.5
BLM40A-16R	1-1/2	48.6	2	40	46	15.88	65	75	12	62	83.5	58

BLLM

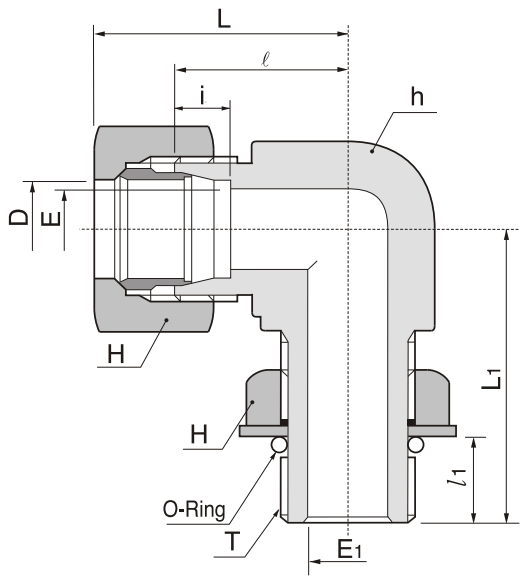
Long Male Elbow



Designations	Tube O.D. D	(PT) T	E	E1	Basic Gauge length a	Width across flat h	Width across flat H	i	ℓ	Approx L	Approx L1
BLLM06-01R	6	1/8	4	4	3.97	14	14	7	20	30.5	36
BLLM08-02R	8	1/4	6	7	6.01	17	17	7	23	33.5	43
BLLM10-02R	10	1/4	8	7	6.01	17	19	7	23	34.5	46
BLLM12-02R	12	1/4	10	7	6.01	19	22	7	24	35.5	52
BLLM12-03R	12	3/8	10	9	6.35	19	22	7	24	35.5	53
BLLM15-03R	15	3/8	12	9	6.35	24	27	7.5	29	41.5	61.5
BLLM15-04R	15	1/2	12	12	8.16	24	27	7.5	29	41.5	67
BLLM16-04R	16	1/2	13	12	8.16	27	30	7.5	32	44.5	70
BLLM18-04R	18	1/2	14	12	8.16	27	32	8	32	44.5	77
BLLM20-06R	20	3/4	17	16	9.53	30	36	8	33	45.5	82.5
BLLM22-06R	22	3/4	18	16	9.53	32	36	9	34	46.5	83.5
BLLM25-06R	25	3/4	20	16	9.53	36	41	10	36	49.5	90.5
BLLM25-08R	25	1	20	22	10.39	36	41	10	36	49.5	91.5
BLLM28-08R	28	1	22	22	10.39	41	46	10	41	55	104.5
BLLM30-10R	30	1-1/4	25	31	12.70	46	46	10	46	60.5	104.5
BLLM32-10R	32	1-1/4	26	31	12.70	46	50	11	46	60.5	104.5
BLLM35-10R	35	1-1/4	28	31	12.70	46	55	11	46	63.5	121.5

BOLM

O-Seal Male Elbow

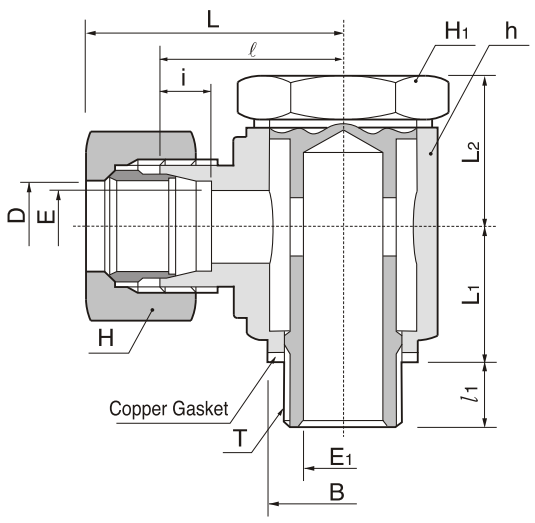


Designations	Tube O.D. D	(PF) T	E	E1	Width across flat h	Width across flat H1	Width across flat H	i	l1	ℓ	Approx L1	Approx L
BOLM06-01G	6	1/8	4	4	14	14	14	7	10	20	30	30.5
BOLM08-02G	8	1/4	6	6	17	19	17	7	12	23	34	33.5
BOLM10-02G	10	1/4	8	6	17	19	19	7	12	23	35	34.5
BOLM12-02G	12	1/4	10	6	19	19	22	7	12	24	36	35.5
BOLM12-03G	12	3/8	10	9	19	22	22	7	12	24	36	35.5
BOLM12-04G	12	1/2	10	12	24	27	22	7	16	24	46	35.5
BOLM15-03G	15	3/8	12	9	24	22	27	7.5	12	29	40	41.5
BOLM15-04G	15	1/2	12	12	24	27	27	7.5	16	29	46	41.5
BOLM16-04G	16	1/2	13	12	24	27	30	7.5	16	32	46	44.5
BOLM18-04G	18	1/2	14	12	30	27	32	8	16	32	52	44.5
BOLM20-06G	20	3/4	17	16	30	36	36	8	17	33	52	45.5
BOLM22-06G	22	3/4	18	16	32	36	36	9	17	34	52	46.5
BOLM25-06G	25	3/4	20	16	36	36	41	10	17	36	60	49.5
BOLM25-08G	25	1	20	22	36	41	41	10	21	36	62	49.5
BOLM28-08G	28	1	22	22	41	41	46	10	21	41	62	55
BOLM30-08G	30	1	25	22	41	41	46	10	21	41	66	55.5
BOLM30-10G	30	1-1/4	25	31	46	50	46	10	21	44	66	58.5
BOLM32-10G	32	1-1/4	26	31	46	50	50	11	21	46	66	60.5
BOLM35-10G	35	1-1/4	28	31	46	50	55	11	21	46	66	63.5
BOLM38-12G	38	1-1/2	32	36	50	55	60	12	21	50	73	69.5

All dimensions are in millimeters unless otherwise specified and only for reference subject to change.

BSLM

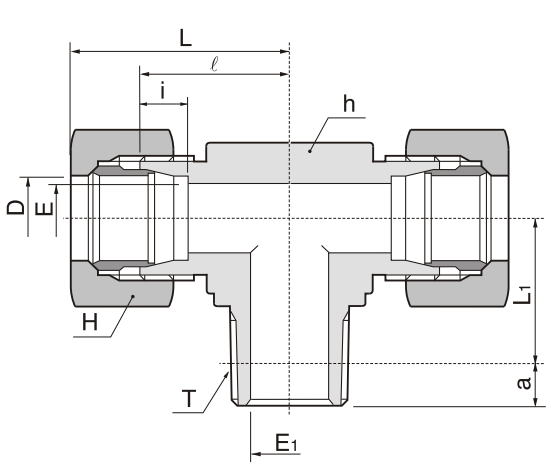
Banjo Elbow



Designations	Tube O.D. D	(PF) T	E1	E	Width across flat h	H1	H	i	ℓ1	ℓ	Approx L1	L2	L	B
BSLM06-01G	6	1/8	4	4	17	17	14	7	8	23	13	14	33.5	14
BSLM08-02G	8	1/4	7	6	22	22	17	7	12	25	16	17	35.5	18
BSLM10-02G	10	1/4	7	8	22	22	19	7	12	25	16	17	36.5	18
BSLM12-03G	12	3/8	9	10	27	27	22	7	12	29	19	22	40.5	21.5
BSLM15-04G	15	1/2	12	12	36	30	27	7.5	14	36	24	28	48.5	25.5
BSLM16-04G	16	1/2	12	13	36	30	30	7.5	14	36	24	28	48.5	25.5
BSLM18-04G	18	1/2	12	14	36	30	32	8	14	36	24	28	48.5	25.5
BSLM20-06G	20	3/4	16	17	41	41	36	8	16	38	28	32	50.5	31.5
BSLM22-06G	22	3/4	16	18	42	41	36	9	16	38	28	32	50.5	31.5
BSLM25-08G	25	1	22	20	50	50	41	10	18	42	37	38	55.5	38
BSLM28-08G	28	1	22	22	50	50	46	10	18	42	37	38	56	38
BSLM06A-02G	1/8	10.5	1/4	7	8	22	22	19	7	12	25	16	17	36.5	18
BSLM08A-03G	1/4	13.8	3/8	9	11	27	27	24	7.5	12	29	19	22	41	21.5
BSLM10A-04G	3/8	17.3	1/2	12	14	36	30	32	8	14	36	24	28	48.5	25.5
BSLM15A-06G	1/2	21.7	3/4	16	18	41	41	36	9	16	38	28	32	50.5	31.5
BSLM20A-08G	3/4	27.2	1	22	22	50	50	46	10	18	42	37	38	56	38

BBTM

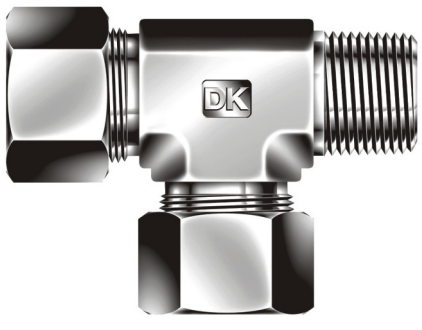
Male Branch Tee

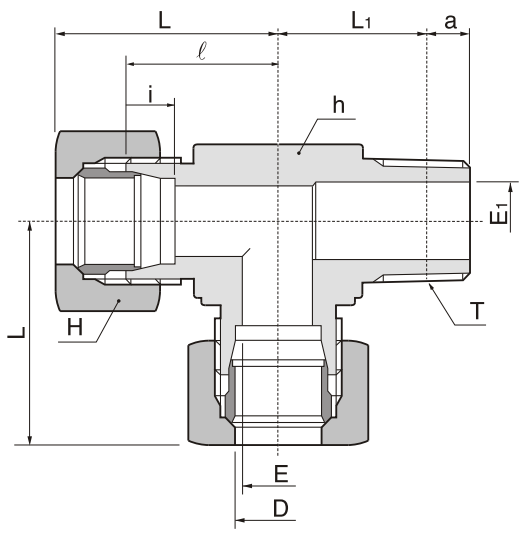


Designations	Tube O.D. D	(PT) T	E	E1	Basic Gauge length a	Width across flat h	H	i	ℓ	Approx L	L1
BBTM06-01R	6	1/8	4	4	3.97	14	14	7	20	30.5	14
BBTM06-02R	6	1/4	4	7	6.01	17	14	7	23	33.5	17
BBTM08-01R	8	1/8	6	4	3.97	17	17	7	23	33.5	16
BBTM08-02R	8	1/4	6	7	6.01	17	17	7	23	33.5	18
BBTM10-02R	10	1/4	8	7	6.01	17	19	7	23	34.5	19
BBTM10-03R	10	3/8	8	9	6.35	19	19	7	24	35.5	19.5
BBTM12-02R	12	1/4	10	7	6.01	19	22	7	24	35.5	18
BBTM12-03R	12	3/8	10	9	6.35	19	22	7	24	35.5	20.5
BBTM15-03R	15	3/8	12	9	6.35	24	27	7.5	29	41.5	23.5
BBTM15-04R	15	1/2	12	12	8.16	24	27	7.5	29	41.5	26
BBTM16-04R	16	1/2	13	12	8.16	27	30	7.5	32	44.5	27
BBTM18-04R	18	1/2	14	12	8.16	27	32	8	32	44.5	30
BBTM20-06R	20	3/4	17	16	9.53	30	36	8	33	45.5	30.5
BBTM22-06R	22	3/4	18	16	9.53	32	36	9	34	46.5	32.5
BBTM25-06R	25	3/4	20	16	9.53	36	41	10	36	49.5	33.5
BBTM25-08R	25	1	20	22	10.39	36	41	10	36	49.5	35.5
BBTM28-08R	28	1	22	22	10.39	41	46	10	41	55	39.5
BBTM30-08R	30	1	25	22	10.39	41	46	10	41	55.5	39.5
BBTM30-10R	30	1-1/4	25	31	12.70	46	46	10	46	60.5	42.5
BBTM32-10R	32	1-1/4	26	31	12.70	46	50	11	46	60.5	43.5
BBTM35-10R	35	1-1/4	28	31	12.70	46	55	11	46	63.5	45.5
BBTM38-12R	38	1-1/2	32	36	12.70	50	60	12	50	69.5	48.5
BBTM40-12R	40	1-1/2	32	36	12.70	55	60	12	55	74.5	49.5
BBTM06A-02R	1/8	10.5	1/4	8	7	6.01	17	19	7	23	34.5	19
BBTM08A-03R	1/4	13.8	3/8	11	9	6.35	22	24	7.5	28	40	22.5
BBTM10A-04R	3/8	17.3	1/2	14	12	8.16	27	32	8	32	44.5	30
BBTM15A-06R	1/2	21.7	3/4	18	16	9.53	32	36	9	34	46.5	32.5
BBTM20A-08R	3/4	27.2	1	22	22	10.39	41	46	10	41	55	39.5
BBTM25A-10R	1	34.0	1-1/4	28	31	12.70	46	55	11	46	63.5	45.5
BBTM32A-12R	1-1/4	42.7	1-1/2	34	36	12.70	60	65	12	57	77.5	51.5
BBTM40A-16R	1-1/2	48.6	2	40	46	15.88	65	75	12	62	83.5	58

BRTM

Male Run Tee

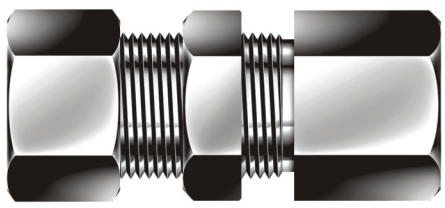


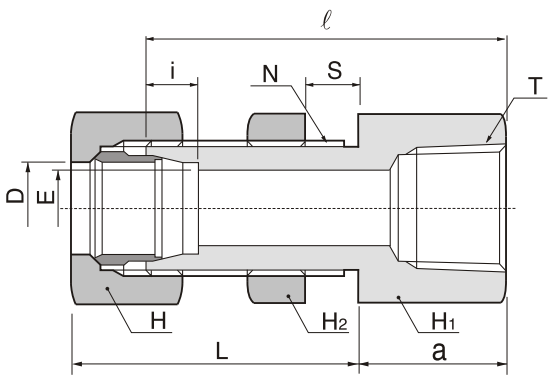


Designations	Tube O.D. D	(PT) T	E	E1	Basic Gauge length a	Width across flat h	H	i	ℓ	Approx L	L1
BRTM06-01R	6	1/8	4	4	3.97	14	14	7	20	30.5	14
BRTM06-02R	6	1/4	4	7	6.01	17	14	7	23	33.5	17
BRTM08-01R	8	1/8	6	4	3.97	17	17	7	23	33.5	16
BRTM08-02R	8	1/4	6	7	6.01	17	17	7	23	33.5	18
BRTM10-02R	10	1/4	8	7	6.01	17	19	7	23	34.5	19
BRTM10-03R	10	3/8	8	9	6.35	19	19	7	24	35.5	19.5
BRTM12-02R	12	1/4	10	7	6.01	19	22	7	24	35.5	18
BRTM12-03R	12	3/8	10	9	6.35	19	22	7	24	35.5	20.5
BRTM15-03R	15	3/8	12	9	6.35	24	27	7.5	29	41.5	23.5
BRTM15-04R	15	1/2	12	12	8.16	24	27	7.5	29	41.5	26
BRTM16-04R	16	1/2	13	12	8.16	27	30	7.5	32	44.5	27
BRTM18-04R	18	1/2	14	12	8.16	27	32	8	32	44.5	30
BRTM20-06R	20	3/4	17	16	9.53	30	36	8	33	45.5	30.5
BRTM22-06R	22	3/4	18	16	9.53	32	36	9	34	46.5	32.5
BRTM25-06R	25	3/4	20	16	9.53	36	41	10	36	49.5	33.5
BRTM25-08R	25	1	20	22	10.39	36	41	10	36	49.5	35.5
BRTM28-08R	28	1	22	22	10.39	41	46	10	41	55	39.5
BRTM30-08R	30	1	25	22	10.39	41	46	10	41	55.5	39.5
BRTM30-10R	30	1-1/4	25	31	12.70	46	46	10	46	60.5	42.5
BRTM32-10R	32	1-1/4	26	31	12.70	46	50	11	46	60.5	43.5
BRTM35-10R	35	1-1/4	28	31	12.70	46	55	11	46	63.5	45.5
BRTM38-12R	38	1-1/2	32	36	12.70	50	60	12	50	69.5	48.5
BRTM40-12R	40	1-1/2	32	36	12.70	55	60	12	55	74.5	49.5
BRTM06A-02R	1/8	10.5	1/4	8	7	6.01	17	19	7	23	34.5	19
BRTM08A-03R	1/4	13.8	3/8	11	9	6.35	22	24	7.5	28	40	22.5
BRTM10A-04R	3/8	17.3	1/2	14	12	8.16	27	32	8	32	44.5	30
BRTM15A-06R	1/2	21.7	3/4	18	16	9.53	32	36	9	34	46.5	32.5
BRTM20A-08R	3/4	27.2	1	22	22	10.39	41	46	10	41	55	39.5
BRTM25A-10R	1	34.0	1-1/4	28	31	12.70	46	55	11	46	63.5	45.5
BRTM32A-12R	1-1/4	42.7	1-1/2	34	36	12.70	60	65	12	57	77.5	51.5
BRTM40A-16R	1-1/2	48.6	2	40	46	15.88	65	75	12	62	83.5	58

BBFC

Bulkhead Female Connector



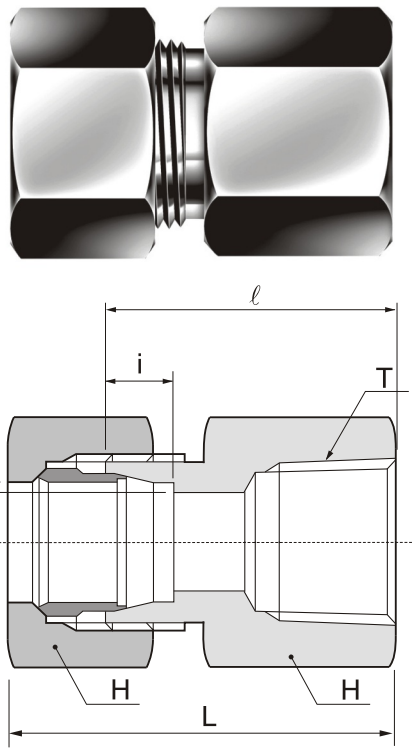


Designations	Tube O.D. D	(PT) T	E	Width across flat H1	H2	H	i	ℓ	a	Approx L	Panel Hole Drill Size N	Max.Panel Thickness S
BBFC06-01R	6	1/8	4	17	17	14	7	45	13	42.5	12.5	13
BBFC08-02R	8	1/4	6	19	19	17	7	50	18	42.5	14.5	13
BBFC10-02R	10	1/4	8	19	22	19	7	50	18	43.5	16.5	13
BBFC10-03R	10	3/8	8	24	22	19	7	52	20	43.5	16.5	13
BBFC12-02R	12	1/4	10	19	24	22	7	50	18	43.5	18.5	13
BBFC12-03R	12	3/8	10	24	24	22	7	52	20	43.5	18.5	13
BBFC15-03R	15	3/8	12	24	27	27	7.5	57	20	49.5	22.5	15
BBFC15-04R	15	1/2	12	30	27	27	7.5	62	25	49.5	22.5	15
BBFC16-04R	16	1/2	13	30	30	30	7.5	62	25	49.5	24.5	15
BBFC18-04R	18	1/2	14	30	32	32	8	64	25	51.5	26.5	15
BBFC20-06R	20	3/4	17	36	32	36	8	66	27	51.5	28.5	15
BBFC22-06R	22	3/4	18	36	36	36	9	66	27	51.5	30.5	15
BBFC25-08R	25	1	20	46	41	41	0 1	70	31	52.5	35.5	15
BBFC28-08R	28	1	22	46	46	46	0 1	72	31	55	38.5	15
BBFC30-08R	30	1	25	46	46	46	0 1	72	31	55.5	40.5	15
BBFC32-10R	32	1-1/4	26	55	46	50	1 1	78	35	57.5	42.5	15

All dimensions are in millimeters unless otherwise specified and only for reference subject to change.

BFC

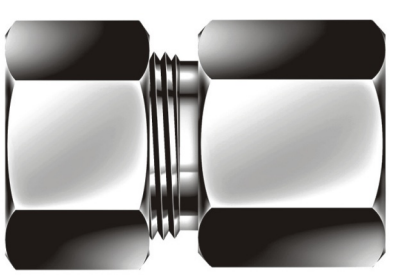
Female Connector

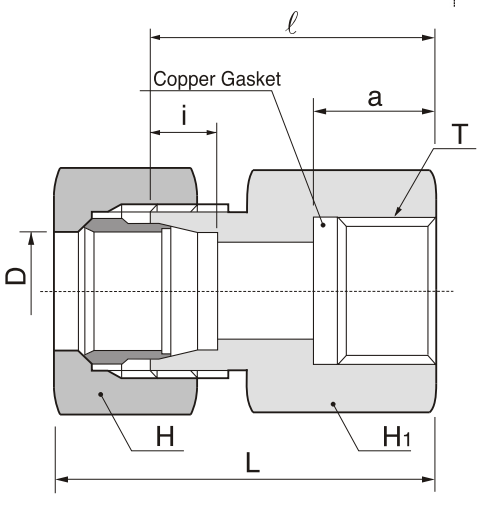


Designations	Tube O.D. D	(PT) T	E	Width across flat H1	Width across flat H	i	ℓ	Approx L
BFC06-01R	6	1/8	4	17	14	7	25	35.5
BFC08-02R	8	1/4	6	19	17	7	30	40.5
BFC10-02R	10	1/4	8	19	19	7	30	41.5
BFC10-03R	10	3/8	8	24	19	7	32	43.5
BFC12-02R	12	1/4	10	19	22	7	30	41.5
BFC12-03R	12	3/8	10	24	22	7	32	43.5
BFC15-03R	15	3/8	12	24	27	7.5	34	46.5
BFC15-04R	15	1/2	12	30	27	7.5	39	51.5
BFC16-04R	16	1/2	13	30	30	7.5	39	51.5
BFC18-04R	18	1/2	14	30	32	8	39	51.5
BFC20-06R	20	3/4	17	36	36	8	41	53.5
BFC22-06R	22	3/4	18	36	36	9	41	53.5
BFC25-06R	25	3/4	20	36	41	10	41	54.5
BFC25-08R	25	1	20	46	41	10	45	58.5
BFC28-08R	28	1	22	46	46	10	47	61
BFC30-08R	30	1	25	46	46	10	47	61.5
BFC30-10R	30	1-1/4	25	55	46	10	51	65.5
BFC32-10R	32	1-1/4	26	55	50	11	51	65.5
BFC35-10R	35	1-1/4	28	55	55	11	51	68.5
BFC38-12R	38	1-1/2	32	65	60	12	51	70.5
BFC40-12R	40	1-1/2	32	65	60	12	55	74.5
BFC42-12R	42	1-1/2	34	65	60	12	55	74.5
BFC06A-02R	1/8	10.5	1/4	8	19	19	7	30	41.5
BFC08A-03R	1/4	13.8	3/8	11	24	24	7.5	34	46
BFC10A-04R	3/8	17.3	1/2	14	30	32	8	39	51.5
BFC15A-06R	1/2	21.7	3/4	18	36	36	9	41	53.5
BFC20A-08R	3/4	27.2	1	22	46	46	10	47	61
BFC25A-10R	1	34.0	1-1/4	28	55	55	11	51	68.5
BFC32A-12R	1-1/4	42.7	1-1/2	34	65	65	12	55	78.5
BFC40A-16R	1-1/2	48.6	2	40	80	75	12	60	81.5

BGC

Gauge Connector

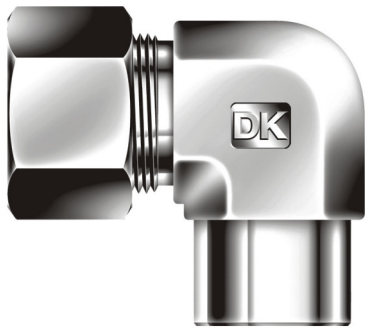


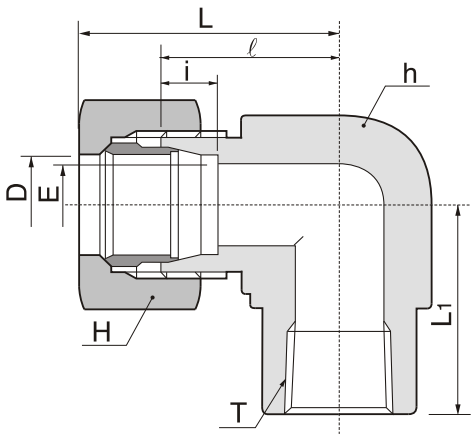


Designations	Tube O.D. D	(PF) T	a	Width across flat H1	Width across flat H	i	ℓ	Approx L	Gasket Part No
BGC06-02G	6	1/4	14	19	14	7	32	42.5	BGG-02
BGC06-03G	6	3/8	15	24	14	7	34	44.5	BGG-03
BGC06-04G	6	1/2	16	30	14	7	36	46.5	BGG-04
BGC08-02G	8	1/4	14	19	17	7	32	42.5	BGG-02
BGC08-03G	8	3/8	15	24	17	7	34	44.5	BGG-03
BGC08-04G	8	1/2	16	30	17	7	36	46.5	BGG-04
BGC10-02G	10	1/4	14	19	19	7	32	43.5	BGG-02
BGC10-03G	10	3/8	15	24	19	7	34	45.5	BGG-03
BGC10-04G	10	1/2	16	30	19	7	36	47.5	BGG-04
BGC12-02G	12	1/4	14	19	22	7	32	43.5	BGG-02
BGC12-03G	12	3/8	15	24	22	7	34	45.5	BGG-03
BGC12-04G	12	1/2	16	30	22	7	36	47.5	BGG-04

BLF

Female Elbow

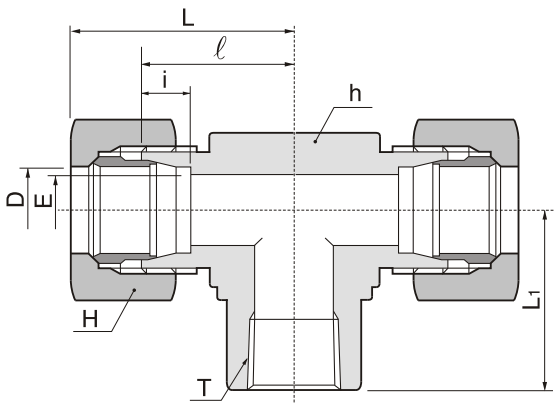




Designations	Tube O.D. D	(PT) T	E	Width across flat h	Width across flat H	i	ℓ	Approx L1	Approx L
BLF08-02R	8	1/4	6	19	17	7	24	24	34.5
BLF10-02R	10	1/4	8	19	19	7	24	24	35.5
BLF12-02R	12	1/4	10	19	22	7	24	24	35.5
BLF12-03R	12	3/8	10	24	22	7	29	29	40.5
BLF15-03R	15	3/8	12	24	27	7.5	29	29	41.5
BLF15-04R	15	1/2	12	30	27	7.5	33	33	45.5
BLF16-04R	16	1/2	13	30	30	7.5	33	33	45.5
BLF18-04R	18	1/2	14	30	32	8	33	33	45.5
BLF20-06R	20	3/4	17	36	36	8	36	36	48.5
BLF22-06R	22	3/4	18	36	36	9	36	36	48.5
BLF25-06R	25	3/4	20	36	41	10	36	36	49.5
BLF25-08R	25	1	20	46	41	10	36	46	59.5
BLF28-08R	28	1	22	46	46	10	46	46	60
BLF30-10R	30	1-1/4	25	55	46	10	46	55	69.5
BLF32-10R	32	1-1/4	26	55	50	11	55	55	69.5
BLF35-10R	35	1-1/4	28	55	55	11	55	55	72.5

BBTF

Female Branch Tee

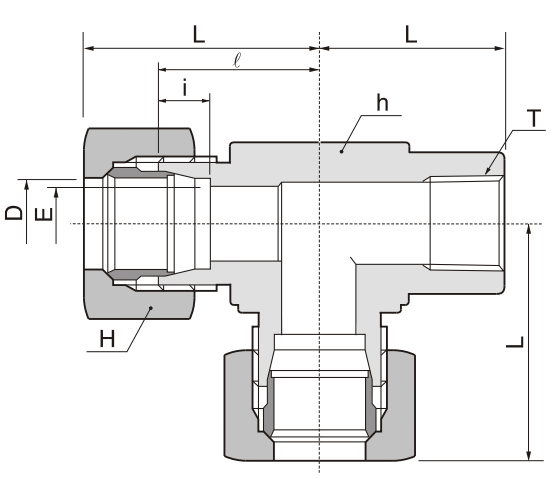


Designations	Tube O.D. D	(PT) T	E	Width across flat h	Width across flat H	i	ℓ	Approx L	Approx L1
BBTF06-01R	6	1/8	4	17	14	7	23	34.5	24
BBTF08-02R	8	1/4	6	19	17	7	24	34.5	24
BBTF10-02R	10	1/4	8	19	19	7	24	35.5	24
BBTF12-02R	12	1/4	10	19	22	7	24	35.5	24
BBTF12-03R	12	3/8	10	24	22	7	29	40.5	29
BBTF15-03R	15	3/8	12	24	27	7.5	29	41.5	29
BBTF15-04R	15	1/2	12	30	27	7.5	33	45.5	33
BBTF16-04R	16	1/2	13	30	30	7.5	33	45.5	33
BBTF18-04R	18	1/2	14	30	32	8	33	45.5	33
BBTF20-06R	20	3/4	17	36	36	8	36	48.5	36
BBTF22-06R	22	3/4	18	36	36	9	36	48.5	36
BBTF25-06R	25	3/4	20	36	41	10	36	49.5	36
BBTF25-08R	25	1	20	46	41	10	46	59.5	46
BBTF28-08R	28	1	22	46	46	10	46	60	46
BBTF30-08R	30	1	25	46	46	10	46	60.5	46
BBTF30-10R	30	1-1/4	25	55	46	10	55	69.5	55
BBTF32-10R	32	1-1/4	26	55	50	11	55	69.5	55
BBTF35-10R	35	1-1/4	28	55	55	11	55	72.5	55
BBTF06A-02R	1/8	10.5	1/4	8	19	19	7	24	35.5	24
BBTF08A-03R	1/4	13.8	3/8	11	24	24	7.5	29	41	29
BBTF10A-04R	3/8	17.3	1/2	14	30	32	8	33	45.5	33
BBTF15A-06R	1/2	21.7	3/4	18	36	36	9	36	48.5	36
BBTF20A-08R	3/4	27.2	1	22	46	46	10	46	60	46
BBTF25A-10R	1	34.0	1-1/4	28	55	55	11	55	72.5	55

All dimensions are in millimeters unless otherwise specified and only for reference subject to change.

BRTF

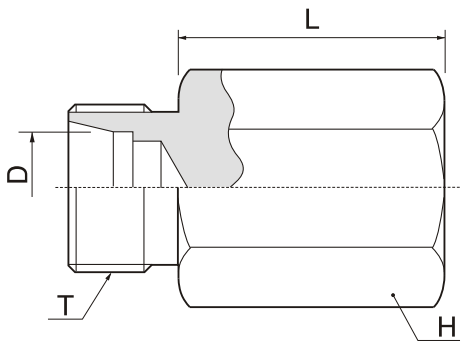
Female Run Tee

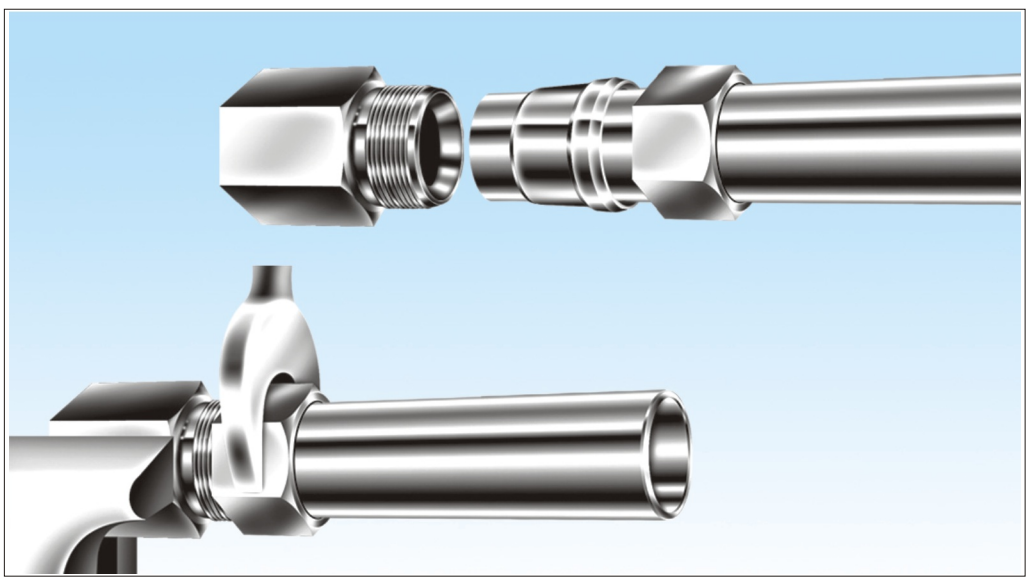


Designations	Tube O.D. D	(PT) T	E	Width across flat h	Width across flat H	i	ℓ	Approx L	Approx L1
BRTF08-02R	8	1/4	6	19	17	7	24	34.5	24
BRTF10-02R	10	1/4	8	19	19	7	24	35.5	24
BRTF12-02R	12	1/4	10	19	22	7	24	35.5	24
BRTF12-03R	12	3/8	10	24	22	7	29	40.5	29
BRTF15-03R	15	3/8	12	24	27	7.5	29	41.5	29
BRTF15-04R	15	1/2	12	30	27	7.5	33	45.5	33
BRTF16-04R	16	1/2	13	30	30	7.5	33	45.5	33
BRTF18-04R	18	1/2	14	30	32	8	33	45.5	33
BRTF20-06R	20	3/4	17	36	36	8	36	48.5	36
BRTF22-06R	22	3/4	18	36	36	9	36	48.5	36
BRTF25-06R	25	3/4	20	36	41	10	36	49.5	36
BRTF25-08R	25	1	20	46	41	10	46	59.5	46
BRTF28-08R	28	1	22	46	46	10	46	60	46
BRTF30-08R	30	1	25	46	46	10	46	60.5	46
BRTF30-10R	30	1-1/4	25	55	46	10	55	69.5	55
BRTF32-10R	32	1-1/4	26	55	50	11	55	69.5	55
BRTF35-10R	35	1-1/4	28	55	55	11	55	72.5	55
BRTF06A-02R	1/8	10.5	1/4	8	19	19	7	24	35.5	24
BRTF08A-03R	1/4	13.8	3/8	11	24	24	7.5	29	41	29
BRTF10A-04R	3/8	17.3	1/2	14	30	32	8	33	45.5	33
BRTF15A-06R	1/2	21.7	3/4	18	36	36	9	36	48.5	36
BRTF20A-08R	3/4	27.2	1	22	46	46	10	46	60	46
BRTF25A-10R	1	34.0	1-1/4	28	55	55	11	55	72.5	55

BJ

Presetting Jig





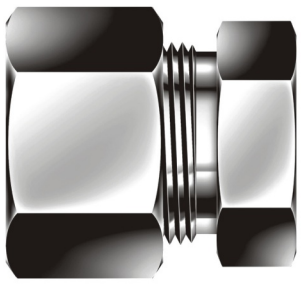
Designations	Tube O.D. D	L	H	T
BJ-06	6	40	17	M12 x 1.5
BJ-08	8	40	17	M14 x 1.5
BJ-10	10	40	17	M16 x 1.5
BJ-12	12	40	27	M18 x 1.5
BJ-15	15	40	27	M22 x 1.5
BJ-16	16	40	27	M24 x 1.5
BJ-18	18	40	27	M26 x 1.5
BJ-20	20	40	41	M28 x 1.5
BJ-22	22	40	41	M30 x 1.5
BJ-25	25	40	41	M35 x 1.5
BJ-28	28	40	41	M38 x 1.5
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

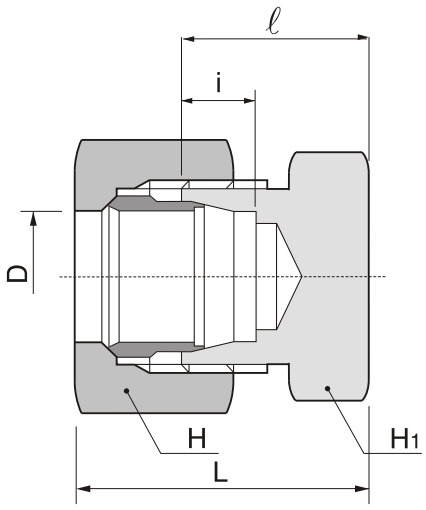
When assembling Bite type fitting in close corner or in cabinet it may be advantageous to use this jig.
It allows the presetting of sleeve on to the tube in a more open or safe area.
After using this jig, follow the reassembly instruction.

Tubing may occasionally stick in the jig after pull-up. In this case, remove 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.

BC

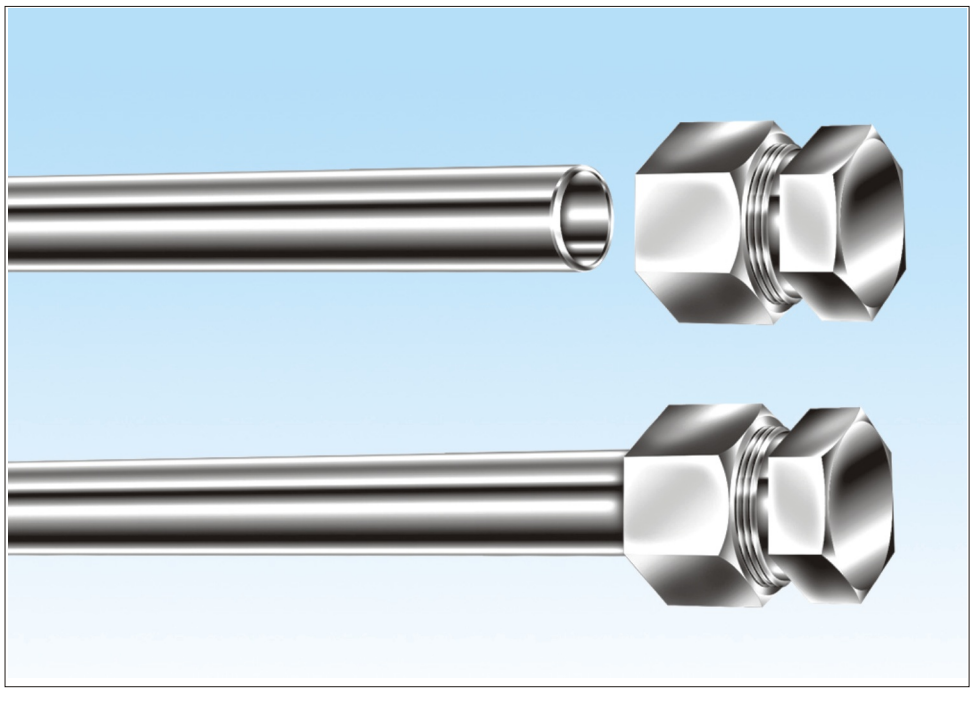
Cap





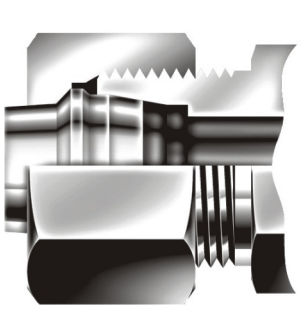
Designations	Tube O.D. D	Width across flat H1	Width across flat H	i	ℓ	Approx L
BC-06	6	14	14	7	18	28.5
BC-08	8	17	17	7	19	29.5
BC-10	10	17	19	7	20	31.5
BC-12	12	19	22	7	20	31.5
BC-15	15	24	27	7.5	22	34.5
BC-16	16	27	30	7.5	24	36.5
BC-18	18	27	32	8	24	36.5
BC-20	20	30	36	8	24	36.5
BC-22	22	32	36	9	25	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

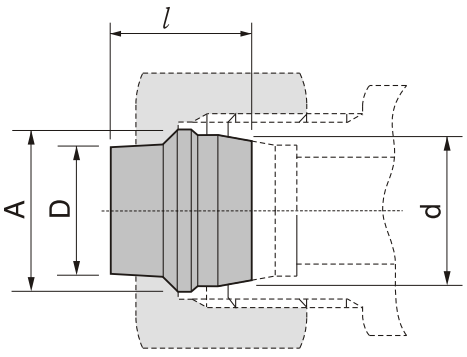
Cap for capping tube end



BP

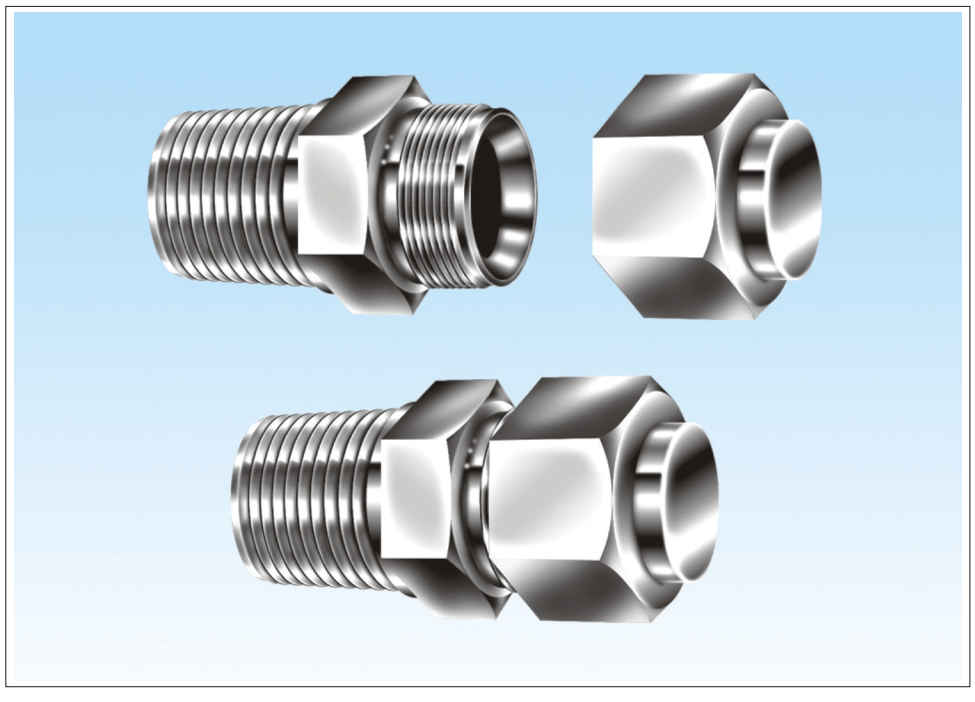
Plug





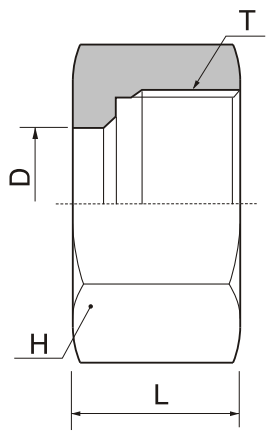
Designations	Tube O.D. D	E	A	l
BP-06	6	8	9	13.5
BP-08	8	10	11	13.5
BP-10	10	12	13	14.5
BP-12	12	14	15	14.5
BP-15	15	17	18	16
BP-16	16	18	19	16
BP-18	18	20	21	17.5
BP-20	20	22	23	17.5
BP-22	22	24	25	17.5
BP-25	25	27.4	28.5	19
BP-28	28	30.4	31.5	19
BP-30	30	32.4	33.5	20
BP-32	32	34.4	35.5	20

Plug for plugging unused Bite type fitting port



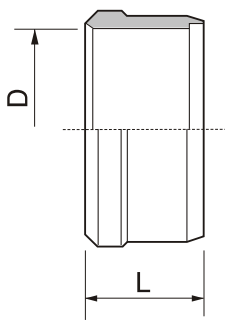
All dimensions are in millimeters unless otherwise specified and only for reference subject to change.

BN
Nut



Designations	Tube O.D. D	T	Width across flat H	L
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

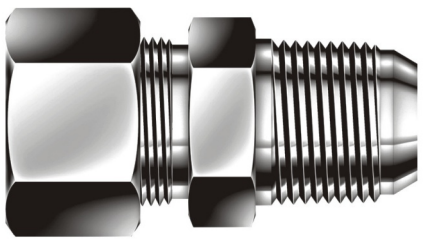
BS
Sleeve

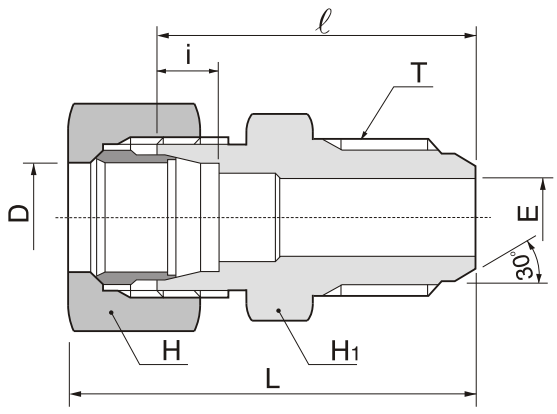


Designations	Tube O.D. D	L
BS-06	6	9
BS-08	8	9
BS-10	10	10
BS-12	12	10
BS-15	15	10
BS-16	16	10
BS-18	18	10
BS-20	20	10
BS-22	22	10
BS-25	25	11
BS-28	28	11
BS-30	30	11
BS-32	32	11
BS-35	35	14
BS-38	38	14
BS-40	40	14
BS-42	42	14
BS-06A	1/8	10.5	10
BS-08A	1/4	13.8	10
BS-10A	3/8	17.3	10
BS-15A	1/2	21.7	10
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

BHUM

Hose Male Union

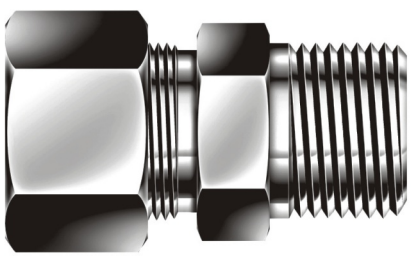


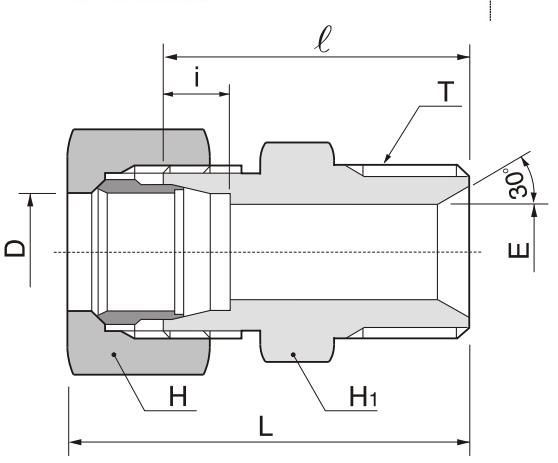


Designations	Tube O.D. D	(PF) T	E	Width across flat H1	Width across flat H	i	ℓ	Approx L
BHUM06-01G	6	1/8	4	14	14	7	34	44.5
BHUM08-02G	8	1/4	6	17	17	7	35	45.5
BHUM08-03G	8	3/8	6	19	17	7	37	47.5
BHUM10-02G	10	1/4	6	17	19	7	35	46.5
BHUM10-03G	10	3/8	8	19	19	7	37	48.5
BHUM10-04G	10	1/2	8	22	19	7	40	51.5
BHUM12-02G	12	1/4	6	19	22	7	35	46.5
BHUM12-03G	12	3/8	9	19	22	7	37	48.5
BHUM12-04G	12	1/2	10	22	22	7	40	51.5
BHUM15-03G	15	3/8	9	24	27	7.5	40	52.5
BHUM15-04G	15	1/2	12	24	27	7.5	42	54.5
BHUM16-03G	16	3/8	9	27	30	7.5	40	52.5
BHUM16-04G	16	1/2	12	27	30	7.5	42	54.5
BHUM18-04G	18	1/2	12	27	32	8	42	54.5
BHUM20-06G	20	3/4	16	30	36	8	46	58.5
BHUM22-04G	22	1/2	12	32	36	9	44	56.5
BHUM22-06G	22	3/4	16	32	36	9	46	58.5
BHUM25-06G	25	3/4	16	36	41	10	47	60.5
BHUM25-08G	25	1	20	36	41	10	49	62.5
BHUM28-06G	28	3/4	16	41	46	10	49	63
BHUM28-08G	28	1	22	41	46	10	51	65
BHUM30-06G	30	3/4	16	41	46	10	49	63.5
BHUM30-08G	30	1	22	41	46	10	51	65.5
BHUM32-08G	32	1	22	46	50	11	52	66.5
BHUM32-10G	32	1-1/4	28	46	50	11	56	70.5

BHUF

Hose Female Union



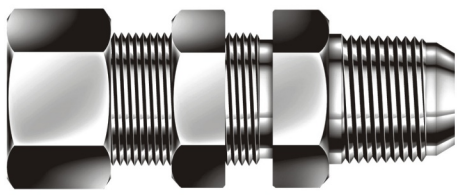


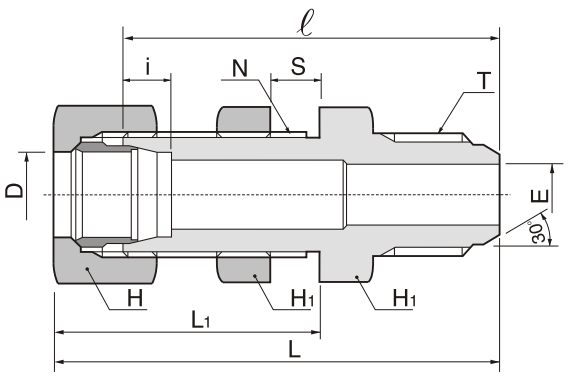
Designations	Tube O.D. D	(PF) T	E	Width across flat H1	Width across flat H	i	ℓ	Approx L
BHUF06-01G	6	1/8	4	14	14	7	32	43.5
BHUF08-02G	8	1/4	6	17	17	7	33	43.5
BHUF08-03G	8	3/8	6	19	17	7	34	44.5
BHUF10-02G	10	1/4	6	17	19	7	33	44.5
BHUF10-03G	10	3/8	8	19	19	7	34	45.5
BHUF10-04G	10	1/2	8	22	19	7	38	49.5
BHUF12-02G	12	1/4	6	19	22	7	33	44.5
BHUF12-03G	12	3/8	9	19	22	7	34	45.5
BHUF12-04G	12	1/2	10	22	22	7	38	49.5
BHUF15-03G	15	3/8	9	24	27	7.5	37	49.5
BHUF15-04G	15	1/2	12	24	27	7.5	40	52.5
BHUF16-03G	16	3/8	9	27	30	7.5	37	49.5
BHUF16-04G	16	1/2	12	27	30	7.5	40	52.5
BHUF18-04G	18	1/2	12	27	32	8	40	52.5
BHUF20-06G	20	3/4	16	30	36	8	43	55.5
BHUF22-04G	22	1/2	12	32	36	9	42	54.5
BHUF22-06G	22	3/4	16	32	36	9	43	55.5
BHUF25-06G	25	3/4	16	36	41	10	44	57.5
BHUF25-08G	25	1	20	36	41	10	46	59.5
BHUF28-06G	28	3/4	16	41	46	10	46	60
BHUF28-08G	28	1	22	41	46	10	48	62
BHUF30-06G	30	3/4	16	41	46	10	46	60.5
BHUF30-08G	30	1	22	41	46	10	48	62.5
BHUF32-08G	32	1	22	46	50	11	49	63.5
BHUF32-10G	32	1-1/4	28	46	50	11	55	69.5
BHUF38-12G	38	1-1/2	32	50	60	12	57	76.5
BHUF40-12G	40	1-1/2	32	55	60	12	62	81.5

All dimensions are in millimeters unless otherwise specified and only for reference subject to change.

BHBM

Hose Bulkhead Male Union

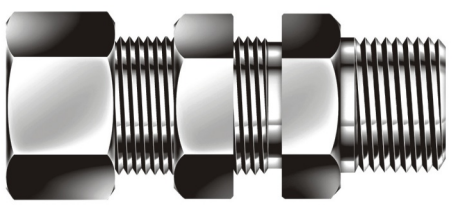


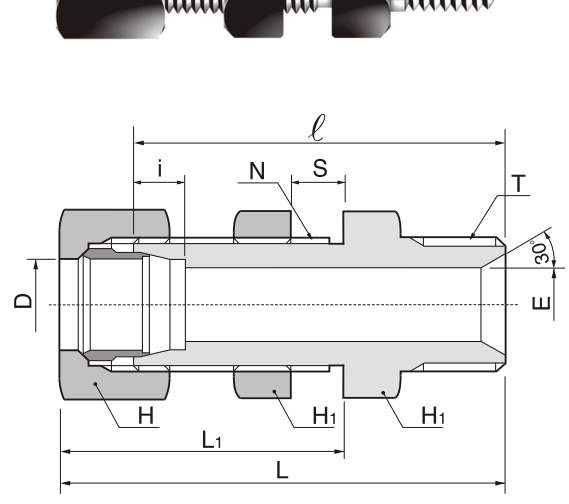


Designations	Tube O.D. D	(PF) T	E	Width across flat H1	Width across flat H	i	ℓ	Approx L1	Approx L	Panel Hole Drill Size N	Max.Panel Thickness S
BHBM06-01G	6	1/8	4	17	14	7	54	42.5	63.5	12.5	13
BHBM08-02G	8	1/4	6	19	17	7	55	42.5	65.5	14.5	13
BHBM08-03G	8	3/8	6	19	17	7	57	42.5	67.5	14.5	13
BHBM10-02G	10	1/4	6	22	19	7	56	43.5	67.5	16.5	13
BHBM10-03G	10	3/8	8	22	19	7	58	43.5	69.5	16.5	13
BHBM10-04G	10	1/2	8	22	19	7	60	43.5	71.5	16.5	13
BHBM12-02G	12	1/4	6	24	22	7	56	43.5	67.5	18.5	13
BHBM12-03G	12	3/8	9	24	22	7	58	43.5	69.5	18.5	13
BHBM12-04G	12	1/2	10	24	22	7	60	43.5	71.5	18.5	13
BHBM15-03G	15	3/8	9	27	27	7.5	63	49.5	75.5	22.5	15
BHBM15-04G	15	1/2	12	27	27	7.5	65	49.5	77.5	22.5	15
BHBM16-03G	16	3/8	9	30	30	7.5	65	49.5	77.5	24.5	15
BHBM16-04G	16	1/2	12	30	30	7.5	67	49.5	79.5	24.5	15
BHBM18-04G	18	1/2	12	32	32	8	69	51.5	81.5	26.5	15
BHBM20-06G	20	3/4	16	32	36	8	71	51.5	83.5	28.5	15
BHBM22-04G	22	1/2	12	36	36	9	70	51.5	82.5	30.5	15
BHBM22-06G	22	3/4	16	36	36	9	72	51.5	84.5	30.5	15
BHBM25-06G	25	3/4	16	41	41	10	72	52.5	87.5	35.5	15
BHBM25-08G	25	1	20	41	41	10	74	52.5	89.5	35.5	15
BHBM28-06G	28	3/4	16	46	46	10	75	55	89	38.5	15
BHBM28-08G	28	1	22	46	46	10	77	55	91	38.5	15
BHBM30-06G	30	3/4	16	46	46	10	75	55.5	89.5	40.5	15
BHBM30-08G	30	1	22	46	46	10	77	55.5	91.5	40.5	15
BHBM32-08G	32	1	22	50	50	11	81	57.5	95.5	42.5	15
BHBM32-10G	32	1-1/4	28	50	50	11	85	57.5	99.5	42.5	15

BHBF

Hose Bulkhead Female Union

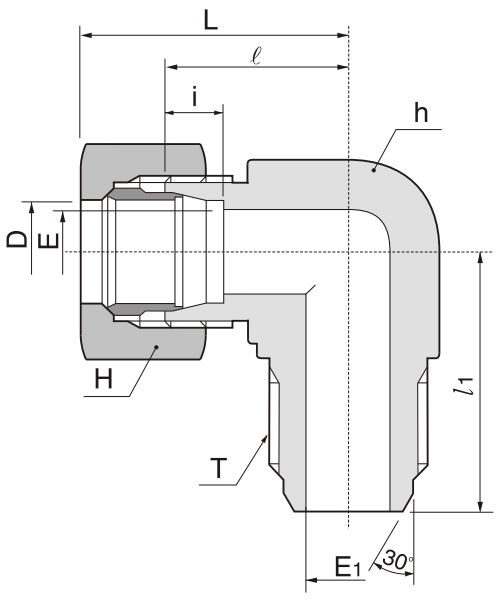




Designations	Tube O.D. D	(PF) T	E	Width across flat H1	Width across flat H	i	ℓ	Approx L1	Approx L	Panel Hole Drill Size N	Max.Panel Thickness S
BHBF06-01G	6	1/8	4	17	14	7	52	42.5	62.5	12.5	13
BHBF08-02G	8	1/4	6	19	17	7	53	42.5	63.5	14.5	13
BHBF08-03G	8	3/8	6	19	17	7	54	42.5	64.5	14.5	13
BHBF10-02G	10	1/4	6	22	19	7	54	43.5	65.5	16.5	13
BHBF10-03G	10	3/8	8	22	19	7	55	43.5	66.5	16.5	13
BHBF10-04G	10	1/2	8	22	19	7	58	43.5	69.5	16.5	13
BHBF12-02G	12	1/4	6	24	22	7	54	43.5	65.5	18.5	13
BHBF12-03G	12	3/8	9	24	22	7	55	43.5	66.5	18.5	13
BHBF12-04G	12	1/2	10	24	22	7	58	43.5	69.5	18.5	13
BHBF15-03G	15	3/8	9	27	27	7.5	60	49.5	72.5	22.5	15
BHBF15-04G	15	1/2	12	27	27	7.5	63	49.5	75.5	22.5	15
BHBF16-03G	16	3/8	9	30	30	7.5	62	49.5	74.5	24.5	15
BHBF16-04G	16	1/2	12	30	30	7.5	65	49.5	77.5	24.5	15
BHBF18-04G	18	1/2	12	32	32	8	67	51.5	79.5	26.5	15
BHBF20-06G	20	3/4	16	32	36	8	68	51.5	80.5	28.5	15
BHBF22-04G	22	1/2	12	36	36	9	68	51.5	80.5	30.5	15
BHBF22-06G	22	3/4	16	36	36	9	69	51.5	81.5	30.5	15
BHBF25-06G	25	3/4	16	41	41	10	69	52.5	82.5	35.5	15
BHBF25-08G	25	1	20	41	41	10	71	52.5	84.5	35.5	15
BHBF28-08G	28	1	22	46	46	10	74	55	88	38.5	15
BHBF30-06G	30	3/4	16	46	46	10	72	55.5	86.5	40.5	15
BHBF30-08G	30	1	22	46	46	10	74	55.5	88.5	40.5	15
BHBF32-08G	32	1	22	50	50	11	78	57.5	92.5	42.5	15
BHBF32-10G	32	1-1/4	28	50	50	11	84	57.5	98.5	42.5	15
BHBF38-12G	38	1-1/2	31	55	60	12	87	64.5	106.5	48.5	15
BHBF40-12G	40	1-1/2	32	60	60	12	94	69.5	113.5	52.5	15

BHLM

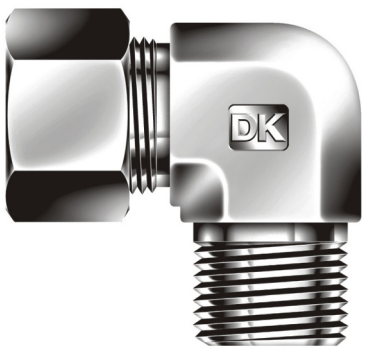
Hose Male Elbow

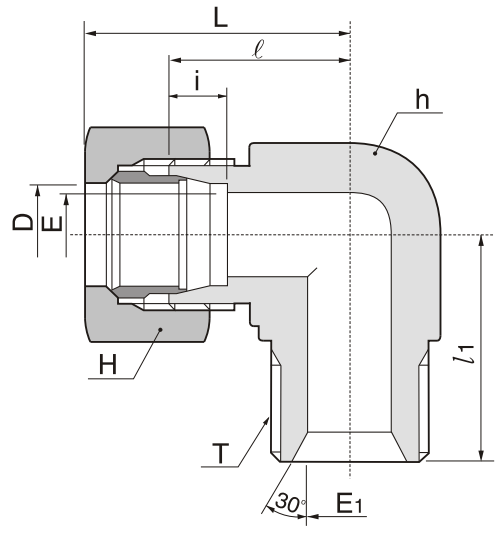


Designations	Tube O.D. D	(PF) T	E	E1	Width across flat h	Width across flat H	i	ℓ	l1	Approx L
BHLM06-01G	6	1/8	4	4	14	14	7	20	25	33.5
BHLM08-02G	8	1/4	6	6	17	17	7	23	25	33.5
BHLM08-03G	8	3/8	6	9	19	17	7	24	28	34.5
BHLM10-02G	10	1/4	8	6	19	19	7	24	28	35.5
BHLM10-03G	10	3/8	8	9	19	19	7	24	28	35.5
BHLM10-04G	10	1/2	8	12	24	19	7	29	34	40.5
BHLM12-02G	12	1/4	10	6	19	22	7	24	28	35.5
BHLM12-03G	12	3/8	10	9	19	22	7	24	28	35.5
BHLM12-04G	12	1/2	10	12	24	22	7	29	34	40.5
BHLM15-03G	15	3/8	12	9	24	27	7.5	29	33	41.5
BHLM15-04G	15	1/2	12	12	24	27	7.5	29	34	41.5
BHLM16-03G	16	3/8	13	9	27	30	7.5	32	36	44.5
BHLM16-04G	16	1/2	13	12	27	30	7.5	32	38	44.5
BHLM18-04G	18	1/2	14	12	27	32	8	32	38	44.5
BHLM20-06G	20	3/4	17	16	30	36	8	33	41	45.5
BHLM22-04G	22	1/2	18	12	32	36	9	34	40	46.5
BHLM22-06G	22	3/4	18	16	32	36	9	34	42	46.5
BHLM25-06G	25	3/4	20	16	36	41	10	36	44	49.5
BHLM25-08G	25	1	20	20	36	41	10	36	46	49.5
BHLM28-06G	28	3/4	22	16	41	46	10	41	47	55
BHLM28-08G	28	1	22	22	41	46	10	41	49	55
BHLM30-06G	30	3/4	25	16	41	46	10	41	47	55.5
BHLM30-08G	30	1	25	22	41	46	10	41	49	55.5
BHLM32-08G	32	1	26	22	46	50	11	46	54	60.5
BHLM32-10G	32	1-1/4	26	28	46	50	11	46	56	60.5

BHLF

Hose Female Elbow



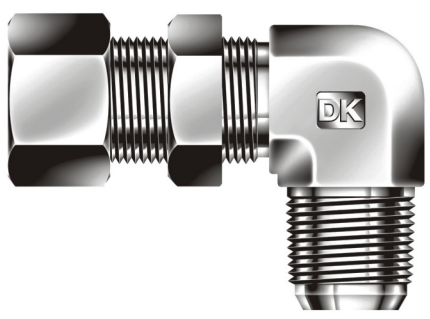


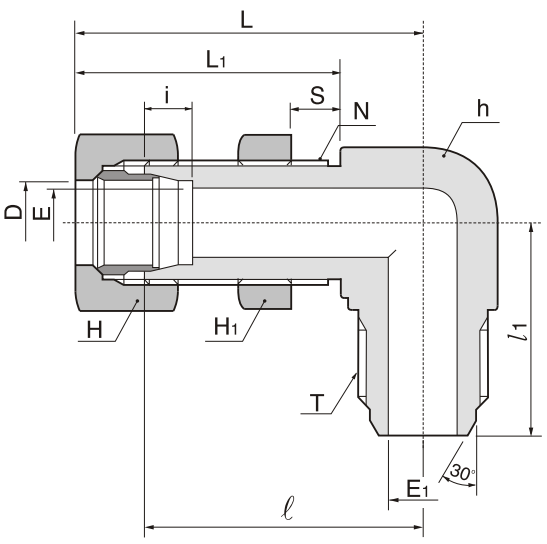
Designations	Tube O.D. D	(PF) T	E	E1	Width across flat h	Width across flat H	i	ℓ	l1	Approx L
BHLF08-02G	8	1/4	6	6	17	17	7	23	25	33.5
BHLF08-03G	8	3/8	6	9	19	17	7	24	27	34.5
BHLF10-02G	10	1/4	8	6	19	19	7	24	26	35.5
BHLF10-03G	10	3/8	8	9	19	19	7	24	27	35.5
BHLF10-04G	10	1/2	8	12	24	19	7	29	23	40.5
BHLF12-02G	12	1/4	10	6	19	22	7	24	26	35.5
BHLF12-03G	12	3/8	10	9	19	22	7	24	27	35.5
BHLF12-04G	12	1/2	10	12	24	22	7	29	33	40.5
BHLF15-03G	15	3/8	12	9	24	27	7.5	29	30	41.5
BHLF15-04G	15	1/2	12	12	24	27	7.5	29	33	41.5
BHLF16-03G	16	3/8	13	9	27	30	7.5	32	33	44.5
BHLF16-04G	16	1/2	13	12	27	30	7.5	32	36	44.5
BHLF18-04G	18	1/2	14	12	27	32	8	32	36	44.5
BHLF20-06G	20	3/4	17	16	30	36	8	33	38	45.5
BHLF22-04G	22	1/2	18	12	32	36	9	34	38	46.5
BHLF22-06G	22	3/4	18	16	32	36	9	34	39	46.5
BHLF25-06G	25	3/4	20	16	36	41	10	36	41	49.5
BHLF25-08G	25	1	20	20	36	41	10	36	43	49.5
BHLF28-06G	28	3/4	22	16	41	46	10	41	44	55
BHLF28-08G	28	1	22	22	41	46	10	41	46	55
BHLF30-06G	30	3/4	25	16	41	46	10	41	44	55.5
BHLF30-08G	30	1	25	22	41	46	10	41	46	55.5
BHLF32-08G	32	1	26	22	46	50	11	46	51	60.5
BHLF32-10G	32	1-1/4	26	28	46	50	11	46	57	60.5
BHLF38-12G	38	1-1/2	32	34	50	60	12	50	61	69.5
BHLF40-12G	40	1-1/2	32	34	55	60	12	55	62	74.5

All dimensions are in millimeters unless otherwise specified and only for reference subject to change.

BHBLM

Hose Bulkhead Male Elbow

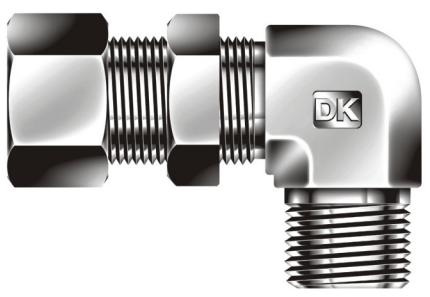


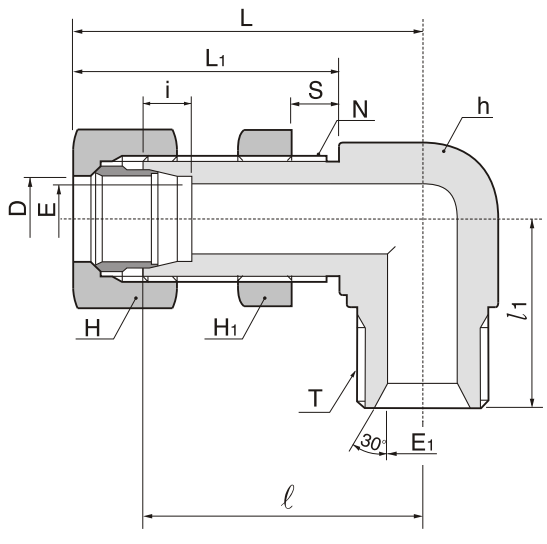


Designations	Tube O.D. D	(PF) T	E	E1	Width across flat h	H1	H	i	ℓ	l1	Approx L1	L	Panel Hole Drill Size N	Max.Panel Thickness S
BHBLM06-01G	6	1/8	4	4	17	17	14	7	45	28	42.5	56.5	14.5	13
BHBLM08-02G	8	1/4	6	6	19	19	17	7	46	28	42.5	56.5	14.5	13
BHBLM08-03G	8	3/8	6	9	19	19	17	7	46	30	42.5	56.5	14.5	13
BHBLM10-02G	10	1/4	8	6	22	22	19	7	48	28	43.5	59.5	16.5	13
BHBLM10-03G	10	3/8	8	9	22	22	19	7	48	30	43.5	59.5	16.5	13
BHBLM10-04G	10	1/2	8	12	24	22	19	7	49	35	43.5	60.5	16.5	13
BHBLM12-02G	12	1/4	10	6	24	24	22	7	49	31	43.5	60.5	18.5	13
BHBLM12-03G	12	3/8	10	9	24	24	22	7	49	33	43.5	60.5	18.5	13
BHBLM12-04G	12	1/2	10	12	24	24	22	7	49	35	43.5	60.5	18.5	13
BHBLM15-03G	15	3/8	12	9	27	27	27	7.5	57	36	49.5	69.5	22.5	15
BHBLM15-04G	15	1/2	12	12	27	27	27	7.5	57	37	49.5	69.5	22.5	15
BHBLM16-03G	16	3/8	13	9	30	30	30	7.5	59	37	49.5	71.5	24.5	15
BHBLM16-04G	16	1/2	13	12	30	30	30	7.5	59	38	49.5	71.5	24.5	15
BHBLM18-04G	18	1/2	14	12	32	32	32	8	63	39	51.5	75.5	26.5	15
BHBLM20-06G	20	3/4	16	16	32	32	36	8	65	40	51.5	77.5	28.5	15
BHBLM22-04G	22	1/2	18	12	36	36	36	9	65	40	51.5	77.5	30.5	15
BHBLM22-06G	22	3/4	18	16	36	36	38	9	65	40	51.5	77.5	30.5	15
BHBLM25-06G	25	3/4	20	16	41	41	41	10	68	43	52.5	81.5	35.5	15
BHBLM25-08G	25	1	20	20	41	41	41	10	68	43	52.5	81.5	35.5	15
BHBLM28-06G	28	3/4	22	16	46	46	46	10	74	48	55	88	38.5	15
BHBLM28-08G	28	1	22	22	46	46	46	10	74	48	55	88	38.5	15
BHBLM30-06G	30	3/4	25	16	46	46	46	10	74	48	55.5	88.5	40.5	15
BHBLM30-08G	30	1	25	22	46	46	46	10	74	48	55.5	88.5	40.5	15

BHBLF

Hose Bulkhead Female Elbow



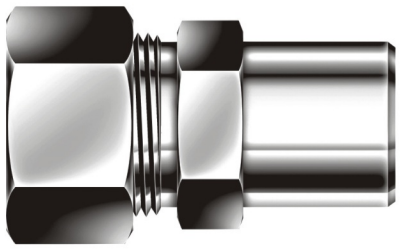


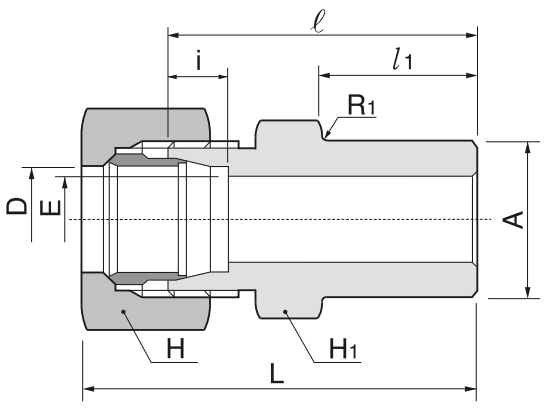
Designations	Tube O.D. D	(PF) T	E	E1	Width across flat h	H1	H	i	ℓ	l1	Approx L1	L	Panel Hole Drill Size N	Max.Panel Thickness S
BHBLF06-01G	6	1/8	4	4	17	17	14	7	45	28	42.5	56.5	14.5	13
BHBLF08-02G	8	1/4	6	6	19	19	17	7	46	28	42.5	56.5	14.5	13
BHBLF08-03G	8	3/8	6	9	19	19	17	7	46	30	42.5	56.5	14.5	13
BHBLF10-02G	10	1/4	8	6	22	22	19	7	48	28	43.5	59.5	16.5	13
BHBLF10-03G	10	3/8	8	9	22	22	19	7	48	30	43.5	59.5	16.5	13
BHBLF10-04G	10	1/2	8	12	24	22	19	7	49	35	43.5	60.5	16.5	13
BHBLF12-02G	12	1/4	10	6	24	24	22	7	49	31	43.5	60.5	18.5	13
BHBLF12-03G	12	3/8	10	9	24	24	22	7	49	33	43.5	60.5	18.5	13
BHBLF12-04G	12	1/2	10	12	24	24	22	7	49	35	43.5	60.5	18.5	13
BHBLF15-03G	15	3/8	12	9	27	27	27	7.5	57	36	49.5	69.5	22.5	15
BHBLF15-04G	15	1/2	12	12	27	27	27	7.5	57	37	49.5	69.5	22.5	15
BHBLF16-03G	16	3/8	13	9	30	30	30	7.5	59	37	49.5	71.5	24.5	15
BHBLF16-04G	16	1/2	13	12	30	30	30	7.5	59	38	49.5	71.5	24.5	15
BHBLF18-04G	18	1/2	14	12	32	32	32	8	63	39	51.5	75.5	26.5	15
BHBLF20-06G	20	3/4	16	16	32	32	36	8	65	40	51.5	77.5	28.5	15
BHBLF22-04G	22	1/2	18	12	36	36	36	9	65	40	51.5	77.5	30.5	15
BHBLF22-06G	22	3/4	18	16	36	36	38	9	65	40	51.5	77.5	30.5	15
BHBLF25-06G	25	3/4	20	16	41	41	41	10	68	43	52.5	81.5	35.5	15
BHBLF25-08G	25	1	20	20	41	41	41	10	68	43	52.5	81.5	35.5	15
BHBLF28-06G	28	3/4	22	16	46	46	46	10	74	48	55	88	38.5	15
BHBLF28-08G	28	1	22	22	46	46	46	10	74	48	55	88	38.5	15
BHBLF30-06G	30	3/4	25	16	46	46	46	10	74	48	55.5	88.5	40.5	15
BHBLF30-08G	30	1	25	22	46	46	46	10	74	48	55.5	88.5	40.5	15

All dimensions are in millimeters unless otherwise specified and only for reference subject to change.

BCW

Welding Connector

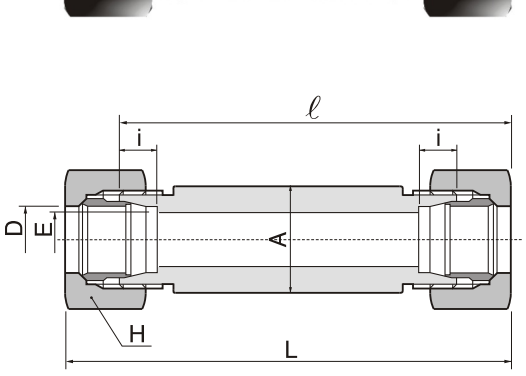




Designations	Tube O.D. D	A	E	Width across flat H1	Width across flat H	ℓ	i	l1	Approx L
BCW-06	6	12	4	14	14	29	7	11	39.5
BCW-08	8	14	6	17	17	34	7	15	44.5
BCW-10	10	16	8	17	19	34	7	15	45.5
BCW-12	12	18	10	19	22	34	7	15	45.5
BCW-15	15	21	12	24	27	40	7.5	18	52.5
BCW-16	16	22	13	27	30	44	7.5	22	56.5
BCW-18	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

BBUW

Welding Bulkhead Union

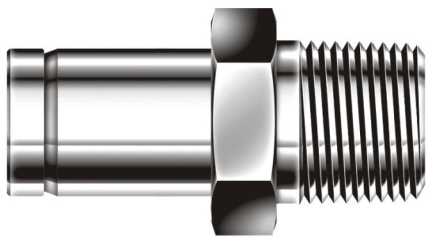


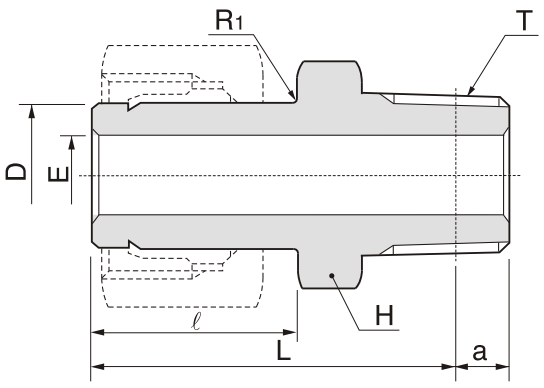
Designations	Tube O.D. D	A	E	Width across flat H	ℓ	i	Approx L
BBUW-06	6	16	4	14	74	7	95
BBUW-08	8	16	6	17	74	7	95
BBUW-10	10	19	8	19	74	7	97
BBUW-12	12	20	10	22	74	7	97
BBUW-15	15	25	12	27	78	7.5	103
BBUW-16	16	28	13	30	78	7.5	103
BBUW-18	18	28	14	32	78	8	103
BBUW-20	20	32	17	36	78	8	103
BBUW-22	22	32	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

All dimensions are in millimeters unless otherwise specified and only for reference subject to change.

BA-R

Adapter



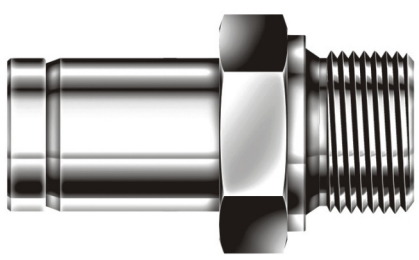


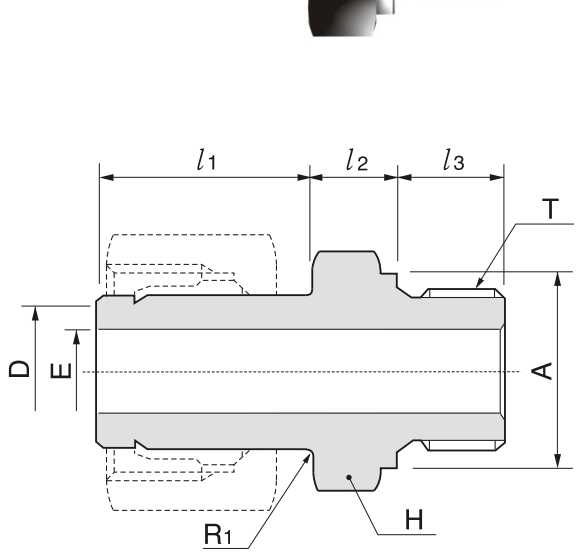
Designations	Tube O.D. D	(PT) T	E	Basic Gauge length a	Width across f lat H	ℓ	Approx L
BA06-01R	6	1/8	3	3.97	12	20	32
BA08-02R	8	1/4	5	6.01	14	20	35
BA10-02R	10	1/4	6	6.01	14	21	36
BA10-03R	10	3/8	6	6.35	19	21	36.5
BA12-02R	12	1/4	7	6.01	14	22	37
BA12-03R	12	3/8	8	6.35	19	22	37.5
BA15-03R	15	3/8	8	6.35	19	24	40.5
BA15-04R	15	1/2	10	8.16	22	24	43
BA16-04R	16	1/2	11	8.16	22	24	43
BA18-04R	18	1/2	12	8.16	22	24	43
BA20-06R	20	3/4	14	9.53	27	25	46.5
BA22-06R	22	3/4	14	9.53	27	26	47.5
BA25-06R	25	3/4	16	9.53	27	28	49.5
BA25-08R	25	1	17	10.39	36	28	52.5
BA28-08R	28	1	18	10.39	36	28	52.5
BA30-08R	30	1	20	10.39	36	29	53.5
BA30-10R	30	1-1/4	20	12.70	46	29	55
BA32-10R	32	1-1/4	22	12.70	46	30	56
BA38-12R	38	1-1/2	26	12.70	50	36	64.5
BA40-12R	40	1-1/2	28	12.70	50	36	64
BA06A-02R	1/8	10.5	1/4	6	6.01	14	21	36
BA08A-03R	1/4	13.8	3/8	9	6.35	19	22	38.5
BA10A-04R	3/8	17.3	1/2	11	8.16	22	24	43
BA15A-06R	1/2	21.7	3/4	14	9.53	27	26	47.5
BA20A-08R	3/4	27.2	1	18	10.39	36	28	52.5
BA25A-10R	1	34.0	1-1/4	23	12.70	46	33	59
BA32A-12R	1-1/4	42.7	1-1/2	29	12.70	50	36	67
BA40A-16R	1-1/2	48.6	2	33	15.88	65	37	72

BA-G

Adapter

(For Copper Gasket)





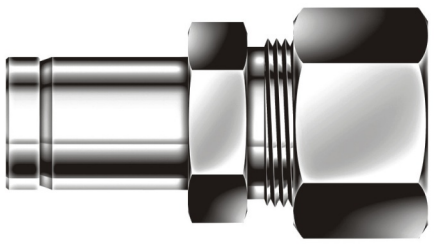
Designations	Tube O.D. D	(PF) T	E	Width across flat H	A	Approx l1	l2	l3
BA06-01G	6	1/8	3	14	14	20	8	8
BA08-02G	8	1/4	5	19	18	20	9	12
BA10-02G	10	1/4	6	19	18	21	9	12
BA10-03G	10	3/8	6	22	21.5	21	10	12
BA12-02G	12	1/4	7	19	18	22	9	12
BA12-03G	12	3/8	8	22	21.5	22	10	12
BA15-03G	15	3/8	8	22	21.5	24	10	12
BA15-04G	15	1/2	10	27	25.5	24	13	14
BA16-04G	16	1/2	11	27	25.5	24	13	14
BA18-04G	18	1/2	12	27	25.5	24	13	14
BA20-06G	20	3/4	14	32	31.5	25	16	16
BA22-06G	22	3/4	14	32	31.5	26	16	16
BA25-06G	25	3/4	16	32	31.5	28	16	16
BA25-08G	25	1	17	41	38	28	18	18
BA28-08G	28	1	18	41	38	28	18	18
BA30-08G	30	1	20	41	38	29	21	18
BA30-10G	30	1-1/4	20	50	48.5	29	21	20
BA32-10G	32	1-1/4	22	50	48.5	30	21	20
BA38-12G	38	1-1/2	26	55	53.5	36	21	21
BA40-12G	40	1-1/2	28	55	53.5	36	21	21
BA06A-02G	1/8	10.5	1/4	6	19	18	21	9	12
BA08A-03G	1/4	13.8	3/8	9	22	21.5	22	10	12
BA10A-04G	3/8	17.3	1/2	11	27	25.5	24	13	14
BA15A-06G	1/2	21.7	3/4	14	32	31.5	26	16	16
BA20A-08G	3/4	27.2	1	18	41	38	28	18	18
BA25A-10G	1	34.0	1-1/4	23	50	48.5	33	21	20
BA32A-12G	1-1/4	42.7	1-1/2	29	55	53.5	36	23	21
BA40A-16G	1-1/2	48.6	2	33	70	66	37	28	24

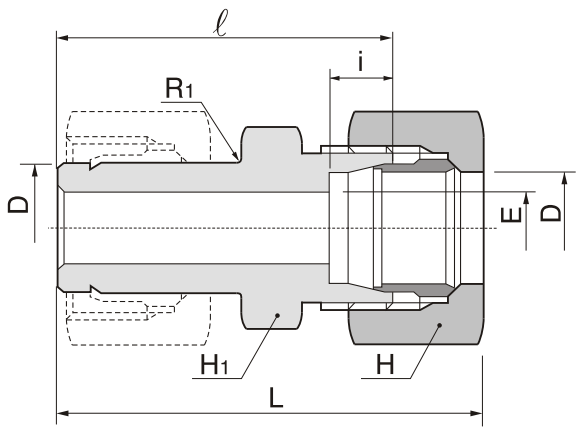
Male Stud Form B sealing by copper gasket

See page 6

BR

Reducer

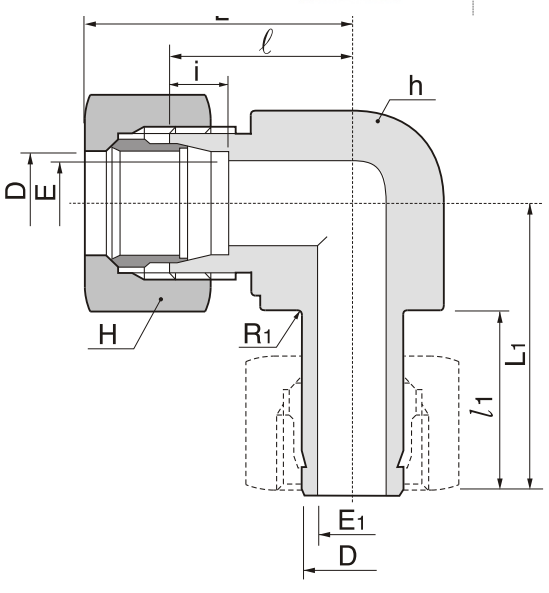




Designations	Tube O.D. D1	Tube O.D. D	E	Width across flat H1	Width across flat H	i	ℓ	Approx L
BR08-06	8	6	4	14	14	7	39	49.5
BR10-06	10	6	4	14	14	7	40	50.5
BR10-08	10	8	6	17	17	7	40	50.5
BR12-06	12	6	4	14	14	7	41	51.5
BR12-08	12	8	6	17	17	7	41	51.5
BR12-10	12	10	8	17	19	7	41	52.5
BR15-08	15	8	6	17	17	7	43	53.5
BR15-10	15	10	8	17	19	7	43	54.5
BR16-06	16	6	4	17	14	7	43	53.5
BR16-10	16	10	8	17	19	7	43	54.5
BR16-12	16	12	10	19	22	7	43	54.5
BR18-10	18	10	8	19	19	7	44	55.5
BR18-15	18	15	12	24	27	7.5	45	57.5
BR20-06	20	6	4	22	14	7	45	55.5
BR20-12	20	12	10	22	22	7	45	56.5
BR20-16	20	16	13	27	30	7.5	47	59.5
BR22-15	22	15	12	24	27	7.5	48	60.5
BR22-18	22	18	14	27	32	8	48	60.5
BR25-16	25	16	13	27	30	7.5	50	62.5
BR25-20	25	20	17	30	36	8	52	64.5
BR28-18	28	18	14	30	32	8	52	64.5
BR28-22	28	22	18	32	36	9	52	64.5
BR30-20	30	20	17	32	36	8	53	65.5
BR30-25	30	25	20	36	41	10	54	67.5
BR32-25	32	25	20	36	41	10	55	68.5
BR35-22	35	22	18	36	36	9	58	70.5
BR35-28	35	28	22	41	46	10	60	74
BR38-25	38	25	20	41	41	10	61	74.5
BR38-30	38	30	25	41	46	10	63	77.5
BR08A-6A	1/4	13.8	1/8	10.5	8	17	19	7	41	52.5
BR10A-6A	3/8	17.3	1/8	10.5	8	19	19	7	44	55.5
BR10A-8A	3/8	17.3	1/4	13.8	11	22	24	7.5	46	58
BR15A-8A	1/2	21.7	1/4	13.8	11	24	24	7.5	48	60
BR15A-10A	1/2	21.7	3/8	17.3	14	27	32	8	48	60.5
BR20A-10A	3/4	27.2	3/8	17.3	14	30	32	8	52	64.5
BR20A-15A	3/4	27.2	1/2	21.7	18	32	36	9	52	64.5
BR25A-15A	1	34	1/2	21.7	18	36	36	9	58	70.5
BR25A-20A	1	34	3/4	27.2	22	41	46	10	60	74

BLA

Positionable Elbow

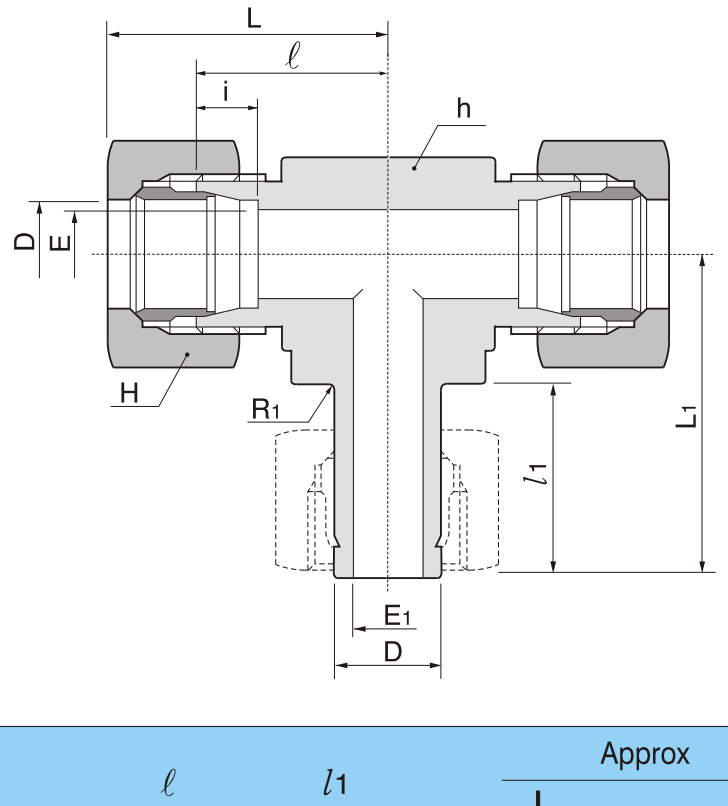


Designations	Tube O.D. D	E	E1	Width across flat h	Width across flat H	i	ℓ	l1	Approx L	Approx L1
BLA-10	10	8	6	17	19	7	23	21	34.5	35
BLA-12	12	10	8	19	22	7	24	22	35.5	37
BLA-15	15	12	10	24	27	7.5	29	24	44.5	40
BLA-16	16	13	11	27	30	7.5	32	24	44.5	43
BLA-18	18	14	12	27	32	8	32	24	44.5	43
BLA-20	20	17	14	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	49
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

All dimensions are in millimeters unless otherwise specified and only for reference subject to change.

BBTA

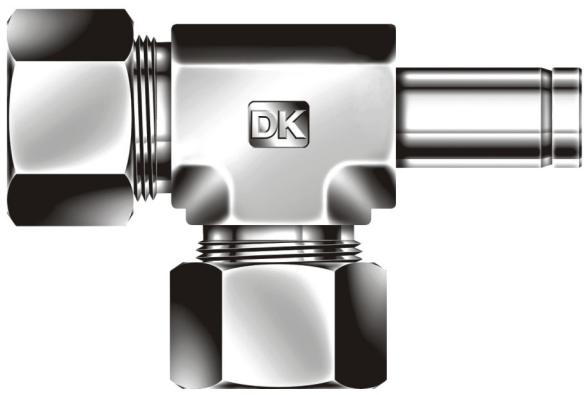
Positionable Branch Tee

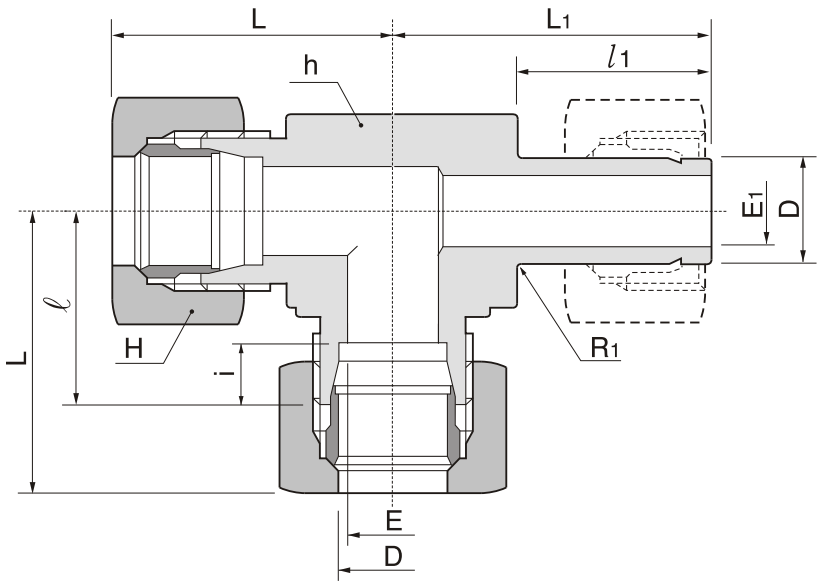


Designations	Tube O.D. D	E	E1	Width across flat h	Width across flat H	i	ℓ	l1	Approx L	Approx L1
BBTA-10	10	8	6	17	19	7	23	21	34.5	35
BBTA-12	12	10	8	19	22	7	24	22	35.5	37
BBTA-15	15	12	10	24	27	7.5	32	24	44.5	43
BBTA-16	16	13	11	27	30	7.5	32	24	44.5	43
BBTA-18	18	14	12	27	32	8	32	24	44.5	43
BBTA-20	20	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

BRTA

Positionable Run Tee

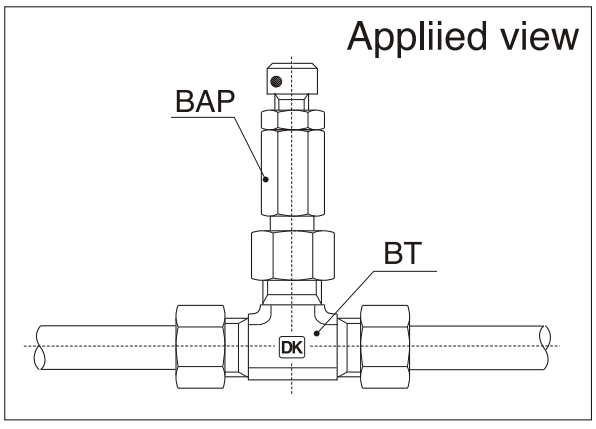


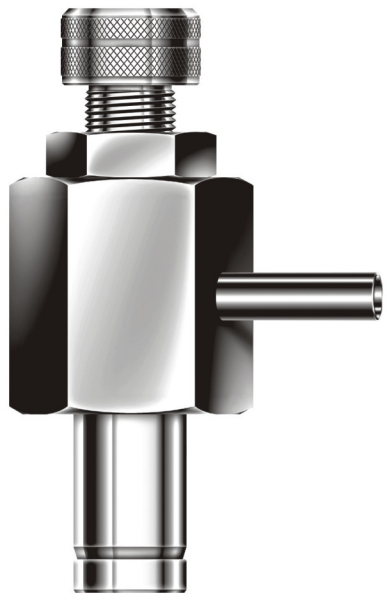


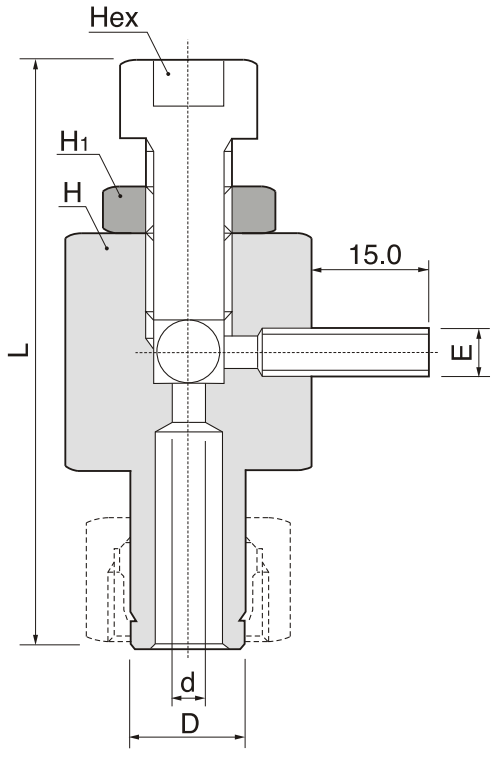
Designations	Tube O.D. D	E	E1	Width across flat h	Width across flat H	i	ℓ	l1	Approx L	Approx L1
BRTA-10	10	8	6	17	19	7	23	21	34.5	35
BRTA-12	12	10	8	19	22	7	24	22	35.5	37
BRTA-15	15	12	10	24	27	7.5	32	24	44.5	43
BRTA-16	16	13	11	27	30	7.5	32	24	44.5	43
BRTA-18	18	14	12	27	32	8	32	24	44.5	43
BRTA-20	20	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

BAP-1

Air Purge Valve (Tube End)



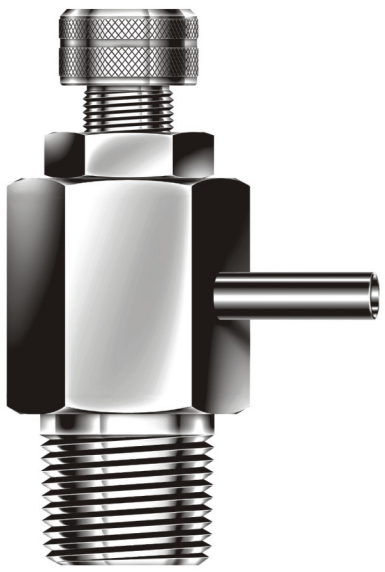


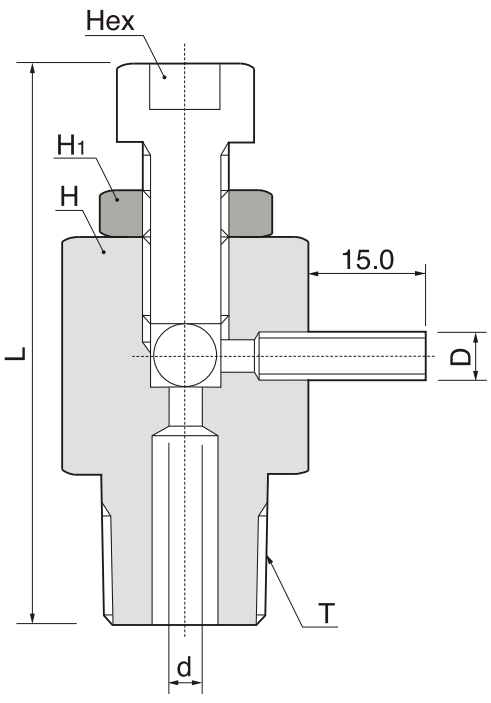


Designations		D	E	d	Width across flat H1	Width across flat H	L	Ball
BAP-06		6	4	3	13	14	56	7/32
BAP-08		8	4	3	13	14	56	7/32
BAP-10		10	4	3	13	14	57	7/32
BAP-12		12	4	3	13	14	58	7/32
BAP-15		15	6	4	19	27	74	5/16
BAP-16		16	6	4	19	27	74	5/16
BAP-18		18	6	4	19	27	74	5/16
BAP-20		20	6	4	19	27	75	5/16
BAP-22		22	6	4	19	27	76	5/16
BAP-25		25	6	4	19	27	78	5/16
BAP-28		28	6	4	19	30	78	5/16
BAP-06A	1/8	10.5	4	3	13	14	57	7/32
BAP-08A	1/4	13.8	6	4	19	27	72	5/16
BAP-10A	3/8	17.3	6	4	19	27	74	5/16
BAP-15A	1/2	21.7	6	4	19	27	76	5/16
BAP-20A	3/4	27.2	6	4	19	30	79	5/16

BAP-2

Air Purge Valve (Thread End)





Designations	(PT) T	E	d	Width across flat H1	Width across flat H	L	Ball
BAP-10R	1/8	4	3	13	14	51	7/32
BAP-02R	1/4	4	3	13	14	53	7/32
BAP-03R	3/8	6	4	13	19	54	7/32
BAP-04R	1/2	6	4	19	27	69	5/16

All dimensions are in millimeters unless otherwise specified and only for reference subject to change.

Bite Type Fitting Meterial Chemical & Mechanical Properties in different Code

Fitting Material	Chemical Compositions					Mechanical Properties			
	C %	Si %	Mn %	P %	S %	Tensile Strength Kgf/mm2	Yield Point Kgf/mm2	Elongation %	Hardness HB
JIS G4051 S45C	0.42~0.48	0.15~0.45	0.60~0.90	0.030 MAX.	0.035 MAX.	58 (MIN.)	35 (MIN.)	20 (MIN.)	167~229 Normalizing
AISI G1045 & SAE1045	0.43~0.50	0.10~0.20	0.60~0.90	0.040 MAX.	0.050 MAX.	56	49	15	163
DIN 1652 C45	0.42~0.50	0.15~0.35	0.50~0.80	0.045 MAX.	0.045 MAX.	60 (MIN.)	34 (MIN.)	18 (MIN.)	206(MIN.) Normalizing

Applicable Tubing

The listed below is recommemded.

Unit : mm

Tube	Thickness Tolerance	0.5 ± 0.1	1.0 ± 0.15	1.5 ± 0.2	2.0 ± 0.2	2.5 ± 0.25	3.0 ± 0.3	3.3 ± 0.33	3.5 ± 0.35	4.0 ± 0.4	4.5 ± 0.45	5.0 ± 0.5	5.5 ± 0.55	6.0 ± 0.6	7.0 ± 0.7	8.0	9.0
O.D.	O.D. Tolerance																
4	±0.1	○	○														
6			○	○													
8			○	○													
10			○	○	○												
12			○	○		○											
15				○		○											
16				○	○		○										
18						○		○									
20					○	○			○								
22					○			○		○							
25							○				○						
28	±0.15					○			○			○					
30						○				○			○				
35								○			○			○			
38						○				○	○				○		
42	±0.2					○				○			○			○	
50								○			○			○			○

Note : 1. The Dark area in the table indicates tube thickness to corresponding tube outer diameters as per JOHS-102-1964-Hydraulic Line Service.
2. Tube Thickness indicated by O mark is recommended.

Carbon Steel Tubing Standards

Japanese Standards		JOHS hydraulic line service		JIS B2351 bite type fitting		JIS G3455 carbon steel pipes for high pressure service	
Code Number		OST.1	OST.2	STPS.1	STPS.2	STS.410	STS.370
Chemical composition (%)	C	<0.20	0.08~0.18	<0.20	0.08~0.18	<0.30	<0.25
	Si	<0.035	0.10~0.35	<0.35	0.10~0.35	0.10~0.35	0.10~0.35
	Mn	0.25~0.60	0.30~0.60	0.25~0.60	0.30~0.60	0.30~1.40	0.30~1.10
	P	<0.040	<0.035	<0.040	<0.035	<0.035	<0.035
	S	<0.040	<0.035	<0.040	<0.035	<0.035	<0.035
	Cu		<0.20		<0.20		
Mechanical property	Tensile strength (kg/mm^2)	<45	<45	<45	<45	>410 (N/mm^2)	>370 (N/mm^2)
	Yield point (kg/mm^2)	>18	>20	>18	>18	>245 (N/mm^2)	>215 (N/mm^2)
	Elongation (%)	>35	>35	>30	>30	>25	>30
	Hardness						
	Bending test	4D x 180°	4D x 180°	4D x 180°	4D x 180°	6D x 90°	6D x 90°
	Flattening test					>20	>20
	Flaring test	1.2 x D	1.2 x D			$H=\frac{(1+e)t}{e+t/D}$	$H=\frac{(1+e)t}{e+t/D}$
Dimensional tolerance	Outside diameter (mm)	±0.10 ⩽22 28~35 ±0.15 42~50 ±0.20	±0.10 ⩽22 28~35 ±0.15 42~50 ±0.20	±0.10 ⩽25 30~38 ±0.15	±0.10 ⩽25 30~38 ±0.15	±0.8%, but minimum value is 0.3mm	±0.8%, but minimum value is 0.3mm
	Wall thickness (mm)	0.5 ±20% 1.0~1.5 ±15% 10%⩾ 2.0	0.5 ±20% 1.0~1.5 ±15% 10%⩾ 2.0	1.0 ±0.15 1.5 ±0.20% 10%⩾ 2.0	1.0 ±0.15 1.5 ±0.20% 10%⩾ 2.0	For smaller than 2mm ±0.20mm For over 2mm ±10%	For smaller than 2mm ±0.20mm For over 2mm ±10%
	Length (mm)	⩽6000 $^{+10}_{-0}$ ⩾6000 $^{+15}_{-0}$	⩽6000 $^{+10}_{-0}$ ⩾6000 $^{+15}_{-0}$	⩽6000 $^{+10}_{-0}$ ⩾6000 $^{+15}_{-0}$	⩽6000 $^{+10}_{-0}$ ⩾6000 $^{+15}_{-0}$	greater than specified length	greater than specified length
Inspection and test	Eddy current flaw detection	○	○	○	○	○	○
	Water pressure test (kg/cm^2)	50	50	50	50	p=200s t/D	p=200s t/D

Note :
In place of the water pressure test, the eddy current test shall be conducted.

Carbon Steel Tubing Standards

Westem Standards Code Number		SAE J524b	AMS 5050F(E)	JIC APPENDIX-D	ANSI (NFPA) SMLS	DIN 2391
Chemical composition (%)	C Si Mn P S Cu	<0.18 0.30~0.60 <0.040 <0.050	<0.15 0.30~0.60 <0.040 <0.050	0.08~0.18 0.30~0.60 <0.050 <0.055	<0.18 0.30~0.60 <0.040 <0.050	0.10
Mechanical property	Tensile strength (kg/mm^2)	>31.6		<38.7	<38.7	35~45
	Yield point (kg/mm^2)	>17.6			>17.6	>20.0
	Elongation (%)	>35	OD⩽12.7>32 OD⩾12.7>35	>35	>35	>25.0
	Hardness	<65		<65	<65	
	Flattening test	H=3 x t		H=3 x t	H=3 x t	
	Flaring test	1.25 x D	t <7% x D 35% t >7% x D 45%	1.30 x D	1.30 x D	
	Development test				○	
	Lengthwise pressure test					
Dimensional tolerance	Outside diameter (mm)	⩽25.4 ±0.102 OVER 25.4~ 38.1 ±0.152 OVER 38.1~ 50.8 ±0.203	AMS2253	6.35~12.7 ±0.076 OVER 12.7~ 38.1 ±0.127 OVER 38.1~ 88.9 ±0.254	⩽12.7 ±0.076 OVER 12.7~ 38.1 ±0.127 OVER 38.1~ 88.9 ±0.254	<10.00 ±0.10 11.00~30.0 ±0.08 32~40 ±0.15
	Inside diameter	±15%	AMS2253	6.35~12.7 OVER 12.7~ 38.1 ±0.127 OVER 38.1~ 88.9 ±0.254	⩽12.7 OVER 12.7~ 38.1 ±0.127 OVER 38.1~ 88.9 ±0.254	
Inspection and test	Eddy current flow detection Water pressure test (kg/cm^2)	○			○	○

SAE: Society of Automotive Engineers.
JIC : The Joint Industrial Congress (JIC Hydraulic STD.)
DIN : German Industry Standards.

AMS : Aerospace Materisl Specification.
ANSI : American National Standards.
JOHS: The Oil Hydraulic Association Standards

Safe Component Selection

The Selection of component for any applications or system design must be considered to ensure safe performance. Component function, material compatibility, component ratings, proper installation, operation and maintenance remain the sole responsibility of the system designer and the user. DK Tech accepts no liability for any improper selection, installation, operation or maintenance.