



# Simply Unique Diaphragm Valves

## Unique DV-ST UltraPure

### Concept

The standard Unique DV-ST UltraPure is designed either for manual operation or for Pneumatic operation. The valve consist of a valve body, diaphragm, handle or actuator. Optional Sensing and control units are available. With a fully modular design the Unique DV-ST UltraPure can be built to meet virtually any demand within most industries.

The valves are primarily used in biotech and pharmaceutical industries however they are also widely used in aseptic and hygienic processes as well as in utility systems within dairy, beverage and food industries.

### Working principle

#### Manual operation

A simple turn of the handle will push the compressor downwards on the diaphragm, pressing the diaphragm against the weir of the valve body thereby closing the valve

#### Automatic operation

The actuator controls the axial movement of a piston, thereby opening or closing the valve depending on the actuator function.

### Valve Body Design

The valve bodies are available in a wide variety of valve types and configuration options (dimension standards, connections, surface finish and material).

- 2-way
- T
- Tank outlet
- Tandem
- Multi-port



### Physical data

#### Materials

Body types	Forged	Block
	1.4435 (316L)	1.4435 (316L)
2-way	✓	
T	✓	✓
Tank outlet	✓	✓
Tandem	✓	
Multi-port		✓

	Cast	Forged and block
Material	CF3M (316L)	1.4435 (316L)
Delta ferrite	< 2.0%	< 0.5%
Sulphur content	< 0.04%	0.005-0.017%
Internal surface finish	Ra < 20µ-In.	Ra < 20µ-In.
	Ra < 15µ-In. EP <sup>1)</sup>	Ra < 15µ-In. EP <sup>2)</sup>
External surface finish		Blasted

<sup>1)</sup>Electro Polished only ASME BPE and ISO 2037

<sup>2)</sup> Electro Polished

0.5µm = SF1, 0.4µm = SF4



Two-way

T-Forged

T-Block



Multi-port

Tandem

Tank outlet-forged

Tank outlet-block

**Sensing and control units:**

A wide range of sensing and control units are available for actuators consisting of:

- Sensing
- Controls unit
- Indication units
- Electrical ATEX units
- Stroke limiters

**Documentation**

All UltraPure valves are delivered with our comprehensive Q-Doc documentation package, which includes:

- 3.1/ MTR traceability certificate corresponding to EN 10204
- FDA - Declaration of conformity to FDA (CFR 21: 177.2600 or 177.1550)
- USP - Certificate of conformity to USP Class VI (Chapter 88, biological reactivity test)
- TSE/ADI - Declaration (Transmissible Spongiform Encephalopathy/Animal Derived Ingredients)
- Surface finish conformity declaration

The following documentation is available upon request:

- Surface finish certificate (Ra test results)
- ATEX certificate

## Handle and actuator:

The diaphragm valves can be operated by a handle or a pneumatic actuator. Alfa Laval offers 4 different types of manual handles and 3 different types of pneumatic actuators. The special design of the actuators enables quick conversion of the control function (NC to Air/Air to NO) and permits adjustment of the spring pressure to optimise the diaphragm life.

The handles and actuators are available in different materials: Stainless Steel (SS), Composite (C) and with various features and options.

## Actuators



Model	SS/SS	C/SS	C/C
Sizes	1/4" - 2"	1/4" - 3"	1/2" - 2"
Housing	Stainless steel	PPS / PP-GF <sup>1)</sup>	PPS / PP-GF <sup>1)</sup>
Intermediate part	Stainless steel	Stainless steel	PPS / PP-GF <sup>1)</sup>
Compressor, stem	Stainless steel	Stainless steel	Stainless steel
Max. product working pressure	145 psi	145 psi	145 psi
Max. air temperature	176°F	122°F	122°F
Max. air pressure	87 psi	87 psi	87 psi
ATEX, Ex II 2GDc	✓	✓	
Optical positioner	✓	✓	✓
Interchangeable control function		✓	✓ <sup>4)</sup>
Adjustable spring pressure	✓ <sup>2)</sup>	✓ <sup>2)</sup>	✓ <sup>2)</sup>
Autoclavable	✓ <sup>3)</sup>	✓ <sup>3)</sup>	✓ <sup>3)</sup>

<sup>1)</sup> PPS (Polyphenylene sulphide) for sizes up to 2" and PP (Polypropylene) with glass fibre or sizes from 2 1/2" and up

<sup>2)</sup> Option not available above 2".

<sup>3)</sup> 249.8°F for max. 60 min

<sup>4)</sup> NO + A/A actuator in C/C is not possible to mount on PTFE diaphragm.

## Handles



Model	SS/SS	SS/SS	C/SS	C/C
Size	1/4" - 2"	2 1/2" - 3"	1/4" - 3"	1/2" - 2"
Handwheel	Stainless steel	Stainless steel	POM <sup>2)</sup>	PP
Bonnet	Stainless steel	Stainless steel	Stainless steel	PP
Spindle + compressor <sup>1)</sup>	Stainless steel	Stainless steel	Stainless steel	Brass
Max. product pressure	145 PSI	145 PSI	145 PSI	145 PSI
Overclosure protection	✓	✓	✓	✓
Optical positioner	✓	✓	✓	✓
Lockable				✓
Autoclavable	✓ <sup>3)</sup>	✓ <sup>3)</sup>	✓ <sup>3)</sup>	✓ <sup>4)</sup>

<sup>1)</sup> For DN 65 and up, the compressor is nickel plated cast iron

<sup>2)</sup> POM (Polyoxymethylene)

<sup>3)</sup> 249.8°F for max. 60 min.

<sup>4)</sup> Max. working temperature 176°F

## Diaphragms



The diaphragms are available as soft elastomer (EPDM) as well as hard elastomers (PTFE/EPDM and TFM/EPDM).

The hard elastomers are supported by a soft elastomer (EPDM). The 2-piece design allows the two elastomers to work independently of each other, thereby reducing tension caused by different thermal properties.

Diaphragms are available with 3 different types of connections: thread, bayonet and button connection.

- Threaded connections are used on soft elastomers  $\geq 1"$
- Bayonet connections are used on all hard elastomer  $\geq 1/2"$
- Button connections are used on all small sizes.

### Material selection:

Each application has different working conditions and therefore different demands on the diaphragm. In order to select the most suitable diaphragm for your application, the following factors should be considered:

- Working pressure
- Application temperatures
- Process fluids (product, cleaning liquid, sterilisation, passivation, etc.)

Soft elastomer (EPDM) is suitable for most applications and for high working temperatures. Including continuous steam application.

Hard elastomers offer the highest possible degree of chemical resistance. Our TFM (PFTE grade) elastomer is a more flexible material and has some of the features of soft elastomer including for example low creep.

For further information, please see below or contact Alfa Laval for further guidance.

### Diaphragm properties:

Description	Temperature recommendations °F			Documentation			Available sizes	Available Diaphragm connections:		
	Min.	Max.	Max. Steam	FDA	USP	TSE		Button	Thread	Bayonet
EPDM	-40°F	266°F	302°F <sup>1)</sup>	✓	✓	✓	3" - 4"	1/4" - 3/4"	1" - 3"	
PTFE/EPDM	23°F	347°F	302°F <sup>2)</sup>	✓	✓	✓	1/2" - 3"			1/2" - 3"
TFM/EPDM	23°F	347°F	302°F <sup>2)</sup>	✓	✓	✓	3" - 4"	1/4" - 3/8"		1/2" - 3"

<sup>1)</sup> Continuous temperature

<sup>2)</sup> 40 min. steam sterilization

FDA - Declaration of conformity to FDA (CFR 21: 177.2600 or 177.1550)

USP - Certificate of conformity to USP Class VI (chapter 88, biological reactivity test)

TSE/ADI Declaration (Transmissible Spongiform Encephalopathy /Animal Derived Ingredients)

Pressure drop / capacity table

Kv value (Pipe standard ISO 420)

Lift in %	kv in l/min. $\Delta p = 1 \text{ bar}$							
	DN 8 (1/4")	DN 15 (1/2")	DN 20 (3/4")	DN 25 (1")	DN 40 (1 1/2")	DN 50 (2")	DN 65 (2 1/2")	DN 80 (3")
100	27	70	146	218	684	1156	1571	2533
90	27	68	140	210	667	1116	1480	2515
80	26	67	133	201	625	1076	1445	2462
70	25	64	124	194	610	994	1365	2312
60	23	59	101	165	545	893	1210	2170
50	20	47	87	142	457	750	1044	1925
40	18	35	55	115	345	606	835	1565
30	11	22	43	65	310	424	625	845
20	10	17	20	25	180	222	280	401
10	2	5	7	14	50	64	125	195

Kv value (Pipe standard BS O.D. Tubing)

Lift in %	kv in l/min. $\Delta p = 1 \text{ bar}$							
	DN 8 (1/4")	DN 15 (1/2")	DN 20 (3/4")	DN 25 (1")	DN 40 (1 1/2")	DN 50 (2")	DN 65 (2 1/2")	DN 80 (3")
100	3.4	35	99	180	426	914	1395	2066
90	3.3	35	99	173	425	914	1394	2066
80	3.3	34	97	155	410	913	1393	2058
70	3.3	33	95	145	401	910	1311	2030
60	3.3	33	94	140	388	882	1210	1950
50	3.2	31	90	105	349	776	1090	1753
40	3.1	28	76	95	335	665	872	1445
30	3.1	19	65	66	265	525	630	940
20	3.0	10	45	48	139	370	250	300
10	2.6	3	10	10	22	67	88	142

$C_v = 1.16 \times K_v$

Note!

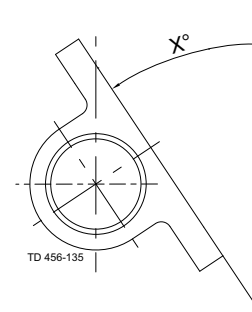
For the diagrams the following applies:

Medium: Water (20 °C)

Measurement: In accordance with VDI2173

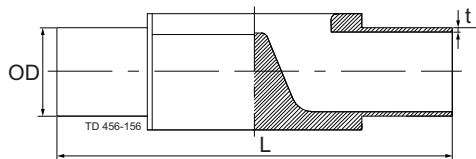
Drain angle x :

DN	Port size		ASME BPE
	DN	Inch	
8	8	1/4"	37°
10	10	3/8"	33°
15	15	1/2"	32°
20	20	3/4"	26°
25	25	1"	22°
40	40	1 1/2"	24°
50	50	2"	24°
65	65	2 1/2"	20°
80	80	3"	22°



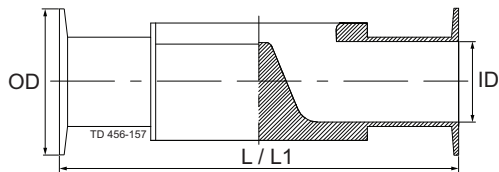
## 2-way bodies:

2-way bodies are the standard configuration for shut off and regulating functions.  
The 2-way bodies are available from forged or cast material.



### Weld ends: (in)

DN	Port size Inch	Length L	ASME BPE OD x t
8	1/4"	3.50	0.25 x 0.035
10	3/8"	3.50	0.38 x 0.035
15	1/2"	4.33	0.50 x 0.065
20	3/4"	4.68	0.75 x 0.065
25	1"	5.08	1.00 x 0.065
40	1 1/2"	6.34	1.50 x 0.065
50	2"	7.56	2.00 x 0.065
65	2 1/2"	8.58	2.50 x 0.065
80	3"	10.08	3.00 x 0.065



### Clamp ends:

DN	Port size Inch	Length L	Length L1 <sup>1)</sup>	Clamp ASME BPE for ASME BPE OD	ID
8	1/4"	3.50	2.5	0.98	0.18
10	3/8"	3.50	2.5	0.98	0.31
15	1/2"	4.25	3.5	0.98	0.37
20	3/4"	4.65	4.0	0.98	0.62
25	1"	5.00	4.5	1.98	0.87
40	1 1/2"	6.26	5.5	1.98	1.37
50	2"	7.52	6.25	2.52	1.87
65	2 1/2"	8.50	7.63	3.05	2.37
80	3"	10.00	8.75	3.58	2.87

<sup>1)</sup> ASME BPE Clamp, short version

Other sizes and connections available on request.

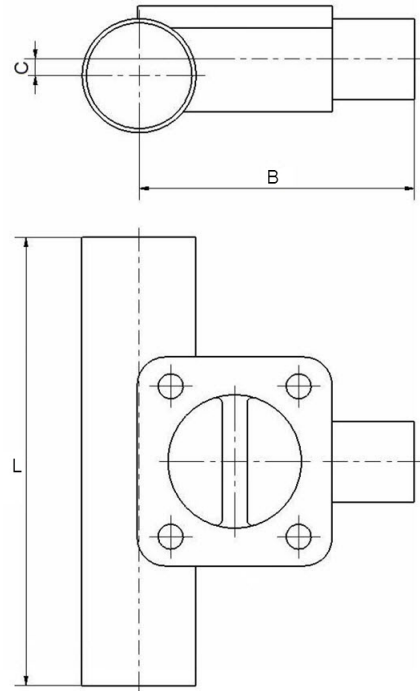
**T- bodies:**

T are constructed with weir as close as possible to the internal contour of the main tube thereby minimising potential dead leg. The T- bodies are available as machined from block or from forged material.



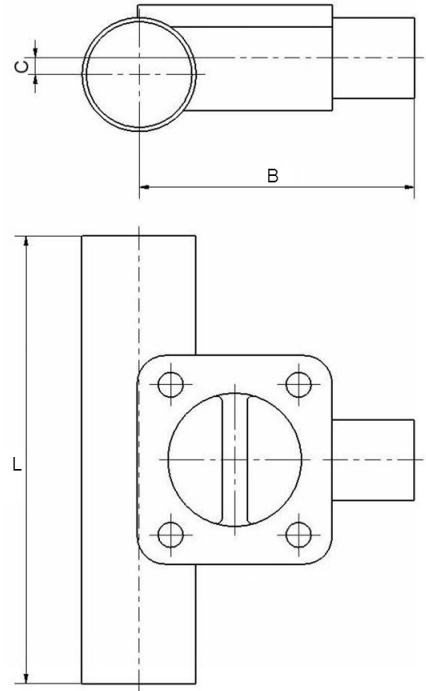
**Dimension table for T-forged bodies - ASME BPE**

Main tube Inch	Valve Inch	Main tube OD x t in	Valve OD x t in	L - Weld in	L - Clamp in	B - Weld in	B - Clamp in	C in
1/4"	1/4"	ø0.25x0.04	ø0.25x0.04	3.50	2.50	2.07	1.56	0.1
3/8"	1/4"	ø0.38x0.04	ø0.25x0.04	3.50	2.50	2.13	1.62	0.14
1/2"	1/4"	ø0.50x0.06	ø0.25x0.04	4.33	3.50	2.17	1.66	0.11
3/4"	1/4"	ø0.75x0.06	ø0.25x0.04	4.69	4.02	2.30	1.80	0.24
1"	1/4"	ø1.00x0.06	ø0.25x0.04	5.08	4.49	2.44	1.94	0.35
1 1/2"	1/4"	ø1.50x0.06	ø0.25x0.04	6.34	5.51	2.52	2.02	0.61
2"	1/4"	ø2.00x0.06	ø0.25x0.04	7.56	6.26	2.68	2.18	0.81
2 1/2"	1/4"	ø2.50x0.06	ø0.25x0.04	8.58	7.64	2.95	2.45	0.93
3"	1/4"	ø3.00x0.06	ø0.25x0.04	10.08	8.74	3.01	2.51	1.18
3/8"	3/8"	ø0.38x0.04	ø0.38x0.04	3.50	2.50	2.13	1.62	0.14
1/2"	3/8"	ø0.50x0.06	ø0.38x0.04	4.33	3.50	2.17	1.66	0.11
3/4"	3/8"	ø0.75x0.06	ø0.38x0.04	4.69	4.02	2.30	1.80	0.24
1"	3/8"	ø1.00x0.06	ø0.38x0.04	5.08	4.49	2.44	1.94	0.35
1 1/2"	3/8"	ø1.50x0.06	ø0.38x0.04	6.34	5.51	2.52	2.02	0.61
2"	3/8"	ø2.00x0.06	ø0.38x0.04	7.56	6.26	2.68	2.18	0.81
2 1/2"	3/8"	ø2.50x0.06	ø0.38x0.04	8.58	7.64	2.95	2.45	0.93
3"	3/8"	ø3.00x0.06	ø0.38x0.04	10.08	8.74	3.01	2.51	1.18
1/2"	1/2"	ø0.50x0.06	ø0.50x0.06	4.33	3.50	2.60	2.56	0.16
3/4"	1/2"	ø0.75x0.06	ø0.50x0.06	4.69	4.02	2.76	2.72	0.20
1"	1/2"	ø1.00x0.06	ø0.50x0.06	5.08	4.49	2.91	2.87	0.31
1 1/2"	1/2"	ø1.50x0.06	ø0.50x0.06	6.34	5.51	3.23	3.19	0.51
2"	1/2"	ø2.00x0.06	ø0.50x0.06	7.56	6.26	3.50	3.46	0.63
2 1/2"	1/2"	ø2.50x0.06	ø0.50x0.06	8.58	7.64	3.54	3.50	0.91
3"	1/2"	ø3.00x0.06	ø0.50x0.06	10.08	8.74	3.62	3.58	1.14
3/4"	3/4"	ø0.75x0.06	ø0.75x0.06	4.69	4.02	3.01	2.99	0.06
1"	3/4"	ø1.00x0.06	ø0.75x0.06	5.08	4.49	3.11	3.09	0.12
1 1/2"	3/4"	ø1.50x0.06	ø0.75x0.06	6.34	5.51	3.44	3.43	0.35
2"	3/4"	ø2.00x0.06	ø0.75x0.06	7.56	6.26	3.72	3.70	0.49
2 1/2"	3/4"	ø2.50x0.06	ø0.75x0.06	8.58	7.64	3.86	3.84	0.71
3"	3/4"	ø3.00x0.06	ø0.75x0.06	10.08	8.74	3.94	3.92	0.94
1"	1"	ø1.00x0.06	ø1.00x0.06	5.08	4.49	3.54	3.50	0.31
1 1/2"	1"	ø1.50x0.06	ø1.00x0.06	6.34	5.51	3.78	3.74	0.31
2"	1"	ø2.00x0.06	ø1.00x0.06	7.56	6.26	4.06	4.02	0.47
2 1/2"	1"	ø2.50x0.06	ø1.00x0.06	8.58	7.64	4.33	4.29	0.59
3"	1"	ø3.00x0.06	ø1.00x0.06	10.08	8.74	4.51	4.47	0.79
1 1/2"	1 1/2"	ø1.50x0.06	ø1.50x0.06	6.34	5.51	4.72	4.69	0.45
2"	1 1/2"	ø2.00x0.06	ø1.50x0.06	7.56	6.26	4.92	4.88	0.53
2 1/2"	1 1/2"	ø2.50x0.06	ø1.50x0.06	8.58	7.64	4.92	4.88	0.65
3"	1 1/2"	ø3.00x0.06	ø1.50x0.06	10.08	8.74	5.12	5.08	1.02
2"	2"	ø2.00x0.06	ø2.00x0.06	7.56	6.26	5.71	5.69	0.51
2 1/2"	2"	ø2.50x0.06	ø2.00x0.06	8.58	7.64	5.71	5.69	0.31
3"	2"	ø3.00x0.06	ø2.00x0.06	10.08	8.74	6.06	6.04	0.53
2 1/2"	2 1/2"	ø2.50x0.06	ø2.50x0.06	8.58	7.64	6.22	6.18	0.30
3"	2 1/2"	ø3.00x0.06	ø2.50x0.06	10.08	8.74	6.93	6.89	0.69
3"	3"	ø3.00x0.06	ø3.00x0.06	10.08	8.74	7.72	7.68	0.79



Dimension table for T-forged bodies - ISO 2037

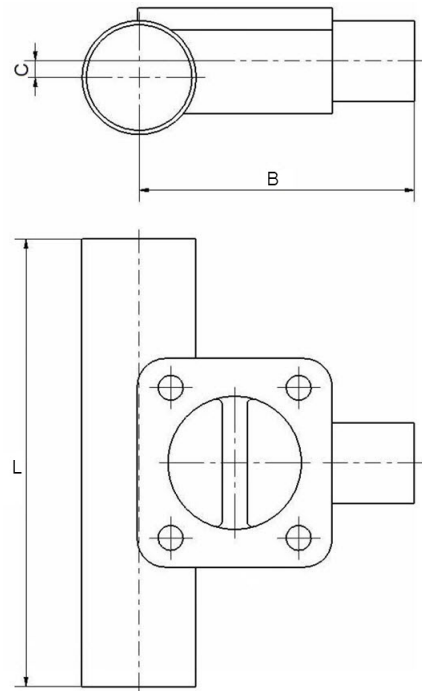
Main tube DN	Valve DN	Main tube OD x t in	Valve OD x t in	L - Weld in	L - Clamp in	B - Weld in	B - Clamp in	C in
0.59	0.59	ø0.68x0.04	ø0.68x0.04	4.33	4.25	2.74	2.7	0.24
0.79	0.59	ø0.84x0.04	ø0.68x0.04	4.69	4.65	2.81	2.78	0.24
0.98	0.59	ø0.98x0.05	ø0.68x0.04	5.08	5	2.91	2.87	0.31
1.57	0.59	ø1.5x0.05	ø0.68x0.04	6.34	6.26	3.23	3.19	0.51
1.97	0.59	ø1.5x1.2	ø0.68x0.04	7.56	7.52	3.5	3.46	0.63
2.32	0.59	ø1.6x1.6	ø0.68x0.04	8.58	8.5	3.54	3.5	0.91
3.15	0.59	ø1.6x1.6	ø0.68x0.04	10.08	10	3.62	3.58	1.14
0.79	0.79	ø0.84x0.04	ø0.84x0.04	4.69	4.65	3.07	3.05	0.1
0.98	0.79	ø0.98x0.05	ø0.84x0.04	5.08	5	3.11	3.09	0.12
1.57	0.79	ø1.5x0.05	ø0.84x0.04	6.34	6.26	3.44	3.43	0.35
1.97	0.79	ø2.0x0.05	ø0.84x0.04	7.56	7.52	3.72	3.7	0.49
2.32	0.79	ø2.5x0.06	ø0.84x0.04	8.58	8.5	3.86	3.84	0.71
3.15	0.79	ø1.6x1.6	ø0.84x0.04	10.08	10	3.94	3.92	0.94
0.98	0.98	ø0.98x0.05	ø0.98x0.05	5.08	5	3.54	3.5	0.31
1.57	0.98	ø1.5x0.05	ø0.98x0.05	6.34	6.26	3.78	3.74	0.31
1.97	0.98	ø2.0x0.05	ø0.98x0.05	7.56	7.52	4.06	4.02	0.47
2.32	0.98	ø2.5x0.06	ø0.98x0.05	8.58	8.5	4.33	4.29	0.59
3.15	0.98	ø3.0x0.06	ø0.98x0.05	10.08	10	4.51	4.47	0.79
1.57	1.57	ø1.5x0.05	ø1.5x0.05	6.34	6.26	4.72	4.69	0.45
1.97	1.57	ø2.0x0.05	ø1.5x0.05	7.56	7.52	4.92	4.88	0.53
2.32	1.57	ø2.5x0.06	ø1.5x0.05	8.58	8.5	4.92	4.88	0.65
3.15	1.57	ø3.0x0.06	ø1.5x0.05	10.08	10	5.12	5.08	1.02
1.97	1.97	ø2.0x0.05	ø2.0x0.05	7.56	7.52	5.71	5.69	0.51
2.32	1.97	ø2.5x0.06	ø2.0x0.05	8.58	8.5	5.71	5.69	0.31
3.15	1.97	ø1.6x1.6	ø2.0x0.05	10.08	10	6.06	6.04	0.53
2.32	2.32	ø2.5x0.06	ø2.5x0.06	8.58	8.5	6.22	6.18	0.3
3.15	2.32	ø3.0x0.06	ø2.5x0.06	10.08	10	6.93	6.89	0.69
3.15	3.15	ø3.0x0.06	ø3.0x0.06	10.08	10	7.72	7.68	0.79





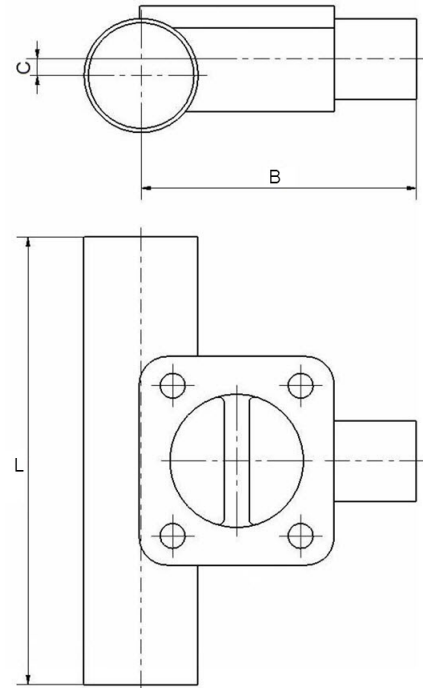
Dimension table for T-forged bodies - DIN 11850 (Series A)

Main tube DN	Valve DN	Main tube OD x t in	Valve OD x t in	L - Weld in	L - Clamp in	B - Weld in	B - Clamp in	C in
0.31	0.31	ø0.39x0.04	ø0.39x0.04	3.5	3.5	2.11	2.11	0.08
0.39	0.31	ø0.51x0.06	ø0.39x0.04	3.5	3.5	2.15	2.15	0.12
0.59	0.31	ø0.75x0.06	ø0.39x0.04	4.33	4.25	2.28	2.28	0.24
0.79	0.31	ø0.91x0.06	ø0.39x0.04	4.69	4.65	2.44	2.44	0.31
0.98	0.31	ø1.14x0.06	ø0.39x0.04	5.08	5	2.52	2.52	0.43
1.26	0.31	ø1.38x0.06	ø0.39x0.04	5.08	5	2.68	2.68	0.47
1.57	0.31	ø1.61x0.06	ø0.39x0.04	6.34	6.26	2.8	2.8	0.55
1.97	0.31	ø2.09x0.06	ø0.39x0.04	7.56	7.52	3.01	3.01	0.67
2.56	0.31	ø2.76x0.08	ø0.39x0.04	8.58	8.5	3.07	3.07	1.06
3.15	0.31	ø3.35x0.08	ø0.39x0.04	10.08	10	3.19	3.19	1.38
0.39	0.39	ø0.51x0.06	ø0.51x0.06	3.5	3.5	2.15	2.15	1.38
0.59	0.39	ø0.75x0.06	ø0.51x0.06	4.33	4.25	2.28	2.28	0.24
0.79	0.39	ø0.91x0.06	ø0.51x0.06	4.69	4.65	2.44	2.44	0.31
0.98	0.39	ø1.14x0.06	ø0.51x0.06	5.08	5	2.52	2.52	0.43
1.26	0.39	ø1.38x0.06	ø0.51x0.06	5.08	5	2.64	2.64	0.55
1.57	0.39	ø1.61x0.06	ø0.51x0.06	6.34	6.26	2.8	2.8	0.55
1.97	0.39	ø2.09x0.06	ø0.51x0.06	7.56	7.52	3.01	3.01	0.67
2.56	0.39	ø2.76x0.08	ø0.51x0.06	8.58	8.5	3.07	3.07	1.06
3.15	0.39	ø3.35x0.08	ø0.51x0.06	10.08	10	3.19	3.19	1.38
0.59	0.59	ø0.75x0.06	ø0.75x0.06	4.33	4.25	2.72	2.68	0.2
0.79	0.59	ø0.91x0.06	ø0.75x0.06	4.69	4.65	2.83	2.8	0.28
0.98	0.59	ø1.14x0.06	ø0.75x0.06	5.08	5	2.99	2.95	0.39
1.26	0.59	ø1.38x0.06	ø0.75x0.06	5.08	5	3.11	3.07	0.47
1.57	0.59	ø1.61x0.06	ø0.75x0.06	6.34	6.26	3.23	3.19	0.59
1.97	0.59	ø2.09x0.06	ø0.75x0.06	7.56	7.52	3.46	3.43	0.71
2.56	0.59	ø2.76x0.08	ø0.75x0.06	8.58	8.5	3.66	3.62	1.02
3.15	0.59	ø3.35x0.08	ø0.75x0.06	10.08	10	3.8	3.76	1.32
0.79	0.79	ø0.91x0.06	ø0.91x0.06	4.69	4.65	3.13	3.11	0.14
0.98	0.79	ø1.14x0.06	ø0.91x0.06	5.08	5	3.23	3.21	0.2
1.26	0.79	ø1.38x0.06	ø0.91x0.06	5.08	5	3.35	3.33	0.31
1.57	0.79	ø1.61x0.06	ø0.91x0.06	6.34	6.26	3.5	3.48	0.41
1.97	0.79	ø2.09x0.06	ø0.91x0.06	7.56	7.52	3.76	3.74	0.53
2.56	0.79	ø2.76x0.08	ø0.91x0.06	8.58	8.5	3.98	3.96	0.83
3.15	0.79	ø3.35x0.08	ø0.91x0.06	10.08	10	4.11	4.09	1.12
0.98	0.98	ø1.14x0.06	ø1.14x0.06	5.08	5	3.62	3.58	0.28
1.26	0.98	ø1.38x0.06	ø1.14x0.06	5.08	5	3.74	3.7	0.31
1.57	0.98	ø1.61x0.06	ø1.14x0.06	6.34	6.26	3.9	3.86	0.35
1.97	0.98	ø2.09x0.06	ø1.14x0.06	7.56	7.52	4.13	4.09	0.51
2.56	0.98	ø2.76x0.08	ø1.14x0.06	8.58	8.5	4.45	4.41	0.71
3.15	0.98	ø3.35x0.08	ø1.14x0.06	10.08	10	4.67	4.63	0.96
1.26	1.26	ø1.38x0.06	ø1.38x0.06	5.08	5	3.74	3.7	0.31
1.57	1.26	ø1.61x0.06	ø1.38x0.06	6.34	6.26	3.9	3.86	0.35
1.97	1.26	ø2.09x0.06	ø1.38x0.06	7.56	7.52	4.13	4.09	0.51
2.56	1.26	ø2.76x0.08	ø1.38x0.06	8.58	8.5	4.45	4.41	0.71
3.15	1.26	ø3.35x0.08	ø1.38x0.06	10.08	10	4.67	4.63	0.96
1.57	1.57	ø1.61x0.06	ø1.61x0.06	6.34	6.26	4.72	4.69	0.45
1.97	1.57	ø2.09x0.06	ø1.61x0.06	7.56	7.52	4.92	4.88	0.63
2.56	1.57	ø2.76x0.08	ø1.61x0.06	8.58	8.5	5.1	5.06	0.79
3.15	1.57	ø3.35x0.08	ø1.61x0.06	10.08	10	4.55	4.51	1.22
1.97	1.97	ø2.09x0.06	ø2.09x0.06	7.56	7.52	5.71	5.69	0.51
2.56	1.97	ø2.76x0.08	ø2.09x0.06	8.58	8.5	5.87	5.85	0.63
3.15	1.97	ø3.35x0.08	ø2.09x0.06	10.08	10	6.26	6.24	0.71
2.56	2.56	ø2.76x0.08	ø2.76x0.08	8.58	8.5	6.42	6.38	0.43
3.15	2.56	ø3.35x0.08	ø2.76x0.08	10.08	10	7.17	7.13	0.87
3.15	3.15	ø3.35x0.08	ø3.35x0.08	10.08	10	7.95	7.91	0.94



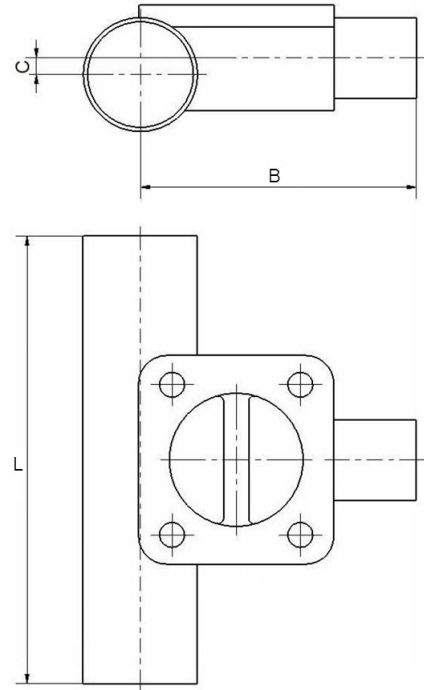
Dimension table for T-forged bodies - ISO 1127 (Series B)

Main tube DN	Valve DN	Main tube OD x t in	Valve OD x t in	L - Weld in	L - Clamp in	B - Weld in	B - Clamp in	C in
0.31	0.31	ø0.53x0.063	ø0.53x0.063	3.5	3.5	2.2	2.2	0.24
0.39	0.31	ø0.68x0.063	ø0.53x0.063	4.33	4.25	2.26	2.26	0.24
0.59	0.31	ø0.84x0.063	ø0.53x0.063	4.33	4.25	2.32	2.32	0.28
0.79	0.31	ø1.06x0.063	ø0.53x0.063	4.69	4.65	2.5	2.5	0.39
0.98	0.31	ø1.33x0.079	ø0.53x0.063	5.08	5	2.62	2.62	0.45
1.26	0.31	ø1.67x0.079	ø0.53x0.063	6.34	6.26	2.74	2.74	0.59
1.57	0.31	ø1.9x0.079	ø0.53x0.063	6.34	6.26	2.8	2.8	0.67
1.97	0.31	ø2.37x0.079	ø0.53x0.063	7.56	7.52	3.03	3.03	0.81
2.56	0.31	ø3x0.079	ø0.53x0.063	8.58	8.5	3.31	3.31	1.02
3.15	0.31	ø3.5x0.091	ø0.53x0.063	10.08	10	3.25	3.25	1.38
0.39	0.39	ø0.68x0.063	ø0.68x0.063	4.33	4.25	2.72	2.68	0.16
0.59	0.39	ø0.84x0.063	ø0.68x0.063	4.33	4.25	2.8	2.76	0.24
0.79	0.39	ø1.06x0.063	ø0.68x0.063	4.69	4.65	2.91	2.87	0.35
0.98	0.39	ø1.33x0.079	ø0.68x0.063	5.08	5	3.07	3.03	0.47
1.26	0.39	ø1.67x0.079	ø0.68x0.063	6.34	6.26	3.27	3.23	0.59
1.57	0.39	ø1.9x0.079	ø0.68x0.063	6.34	6.26	3.39	3.35	0.67
1.97	0.39	ø2.37x0.079	ø0.68x0.063	7.56	7.52	3.62	3.58	0.79
2.56	0.39	ø3x0.079	ø0.68x0.063	8.58	8.5	3.9	3.86	0.94
3.15	0.39	ø3.5x0.091	ø0.68x0.063	10.08	10	4.21	4.17	1.02
0.59	0.59	ø0.84x0.063	ø0.84x0.063	4.33	4.25	2.8	2.76	0.24
0.79	0.59	ø1.06x0.063	ø0.84x0.063	4.69	4.65	2.91	2.87	0.35
0.98	0.59	ø1.33x0.079	ø0.84x0.063	5.08	5	3.07	3.03	0.47
1.26	0.59	ø1.67x0.079	ø0.84x0.063	6.34	6.26	3.27	3.23	0.59
1.57	0.59	ø1.9x0.079	ø0.84x0.063	6.34	6.26	3.39	3.35	0.67
1.97	0.59	ø2.37x0.079	ø0.84x0.063	7.56	7.52	3.62	3.58	0.79
2.56	0.59	ø3x0.079	ø0.84x0.063	8.58	8.5	3.9	3.86	0.94
3.15	0.59	ø3.5x0.091	ø0.84x0.063	10.08	10	4.21	4.17	1.02
0.79	0.79	ø1.06x0.063	ø1.06x0.063	4.69	4.65	3.39	3.37	0.16
0.98	0.79	ø1.33x0.079	ø1.06x0.063	5.08	5	3.54	3.52	0.28
1.26	0.79	ø1.67x0.079	ø1.06x0.063	6.34	6.26	3.74	3.72	0.39
1.57	0.79	ø1.9x0.079	ø1.06x0.063	6.34	6.26	3.9	3.88	0.45
1.97	0.79	ø2.37x0.079	ø1.06x0.063	7.56	7.52	4.06	4.04	0.63
2.56	0.79	ø3x0.079	ø1.06x0.063	8.58	8.5	4.29	4.27	0.87
3.15	0.79	ø3.5x0.091	ø1.06x0.063	10.08	10	4.69	4.67	1.14
0.98	0.98	ø1.33x0.079	ø1.33x0.079	5.08	5	3.66	3.62	0.24
1.26	0.98	ø1.67x0.079	ø1.33x0.079	6.34	6.26	3.78	3.74	0.39
1.57	0.98	ø1.9x0.079	ø1.33x0.079	6.34	6.26	3.94	3.9	0.47
1.97	0.98	ø2.37x0.079	ø1.33x0.079	7.56	7.52	4.21	4.17	0.59
2.56	0.98	ø3x0.079	ø1.33x0.079	8.58	8.5	4.49	4.45	0.93
3.15	0.98	ø3.5x0.091	ø1.33x0.079	10.08	10	4.72	4.69	1.02
1.26	1.26	ø1.67x0.079	ø1.67x0.079	6.34	6.26	4.53	n/a	0.2
1.57	1.26	ø1.9x0.079	ø1.67x0.083	6.34	6.26	4.72	4.69	0.45
1.97	1.26	ø2.37x0.079	ø1.67x0.087	7.56	7.52	4.92	4.88	0.65
2.56	1.26	ø3x0.079	ø1.67x0.091	8.58	8.5	5.31	5.28	0.69
3.15	1.26	ø3.5x0.091	ø1.67x0.094	10.08	10	5.63	5.59	0.83
1.57	1.57	ø1.9x0.079	ø1.9x0.079	6.34	6.26	4.72	4.69	0.45
1.97	1.57	ø2.37x0.079	ø1.9x0.079	7.56	7.52	4.92	4.88	0.65
2.56	1.57	ø3x0.079	ø1.9x0.079	8.58	8.5	5.31	5.28	0.69
3.15	1.57	ø3.5x0.091	ø1.9x0.079	10.08	10	5.63	5.59	0.83
1.97	1.97	ø2.37x0.079	ø2.37x0.079	7.56	7.52	5.79	5.77	0.31
2.56	1.97	ø3x0.079	ø2.37x0.079	8.58	8.5	6.14	6.12	0.47
3.15	1.97	ø3.5x0.091	ø2.37x0.079	10.08	10	6.46	6.44	0.51
2.56	2.56	ø3x0.079	ø3x0.079	8.58	8.5	6.69	6.65	0.55
3.15	2.56	ø3.5x0.091	ø3x0.079	10.08	10	7.01	6.97	0.79
3.15	3.15	ø3.5x0.091	ø3.5x0.091	10.08	10	8.11	8.07	1.02



Dimension table for T-forged bodies - BS 4825

Main tube DN	Valve DN	Main tube OD x t in	Valve OD x t in	L - Weld in	L - Clamp in	B - Weld in	B - Clamp in	C in
0.59	0.59	ø0.5x0.05	ø0.5x0.05	4.33	4.25	2.6	2.56	0.16
0.79	0.59	ø0.75x0.06	ø0.5x0.05	4.69	4.65	2.76	2.72	0.2
0.98	0.59	ø1x0.06	ø0.5x0.06	5.08	5	2.91	2.87	0.31
1.57	0.59	ø1.5x0.06	ø0.5x0.05	6.34	6.26	3.23	3.19	0.51
1.97	0.59	ø2x0.06	ø0.5x0.05	7.56	7.52	3.5	3.46	0.63
2.56	0.59	ø2.5x0.06	ø0.5x0.05	8.58	8.5	3.54	3.5	0.91
3.15	0.59	ø3x0.06	ø0.5x0.05	10.08	10	3.62	3.58	1.14
0.79	0.79	ø0.75x0.06	ø0.75x0.06	4.69	4.65	3.01	2.99	0.06
0.98	0.79	ø1x0.06	ø0.75x0.06	5.08	5	3.11	3.09	0.12
1.57	0.79	ø1.5x0.06	ø0.75x0.06	6.34	6.26	3.44	3.43	0.35
1.97	0.79	ø2x0.06	ø0.75x0.06	7.56	7.52	3.72	3.7	0.49
2.56	0.79	ø2.5x0.06	ø0.75x0.06	8.58	8.5	3.86	3.84	0.71
3.15	0.79	ø3x0.06	ø0.75x0.06	10.08	10	3.94	3.92	0.94
0.98	0.98	ø1x0.06	ø1x0.06	5.08	5	3.54	3.5	0.31
1.57	0.98	ø1.5x0.06	ø1x0.06	6.34	6.26	3.78	3.74	0.31
1.97	0.98	ø2x0.06	ø1x0.06	7.56	7.52	4.06	4.02	0.47
2.56	0.98	ø2.5x0.06	ø1x0.06	8.58	8.5	4.33	4.29	0.59
3.15	0.98	ø3x0.06	ø1x0.06	10.08	10	4.51	4.47	0.79
1.57	1.57	ø1.5x0.06	ø1.5x0.06	6.34	6.26	4.72	4.69	0.45
1.97	1.57	ø2x0.06	ø1.5x0.06	7.56	7.52	4.92	4.88	0.53
2.56	1.57	ø2.5x0.06	ø1.5x0.06	8.58	8.5	4.92	4.88	0.65
3.15	1.57	ø3x0.06	ø1.5x0.06	10.08	10	5.12	5.08	1.02
1.97	1.97	ø2x0.06	ø2x0.06	7.56	7.52	5.71	5.69	0.51
2.56	1.97	ø2.5x0.06	ø2x0.06	8.58	8.5	5.71	5.69	0.31
3.15	1.97	ø3x0.06	ø2x0.06	10.08	10	6.06	6.04	0.53
2.56	2.56	ø2.5x0.06	ø2.5x0.06	8.58	8.5	6.22	6.18	0.3
3.15	2.56	ø3x0.06	ø2.5x0.06	10.08	10	6.93	6.89	0.69
3.15	3.15	ø3x0.06	ø3x0.06	10.08	10	7.72	7.68	0.79



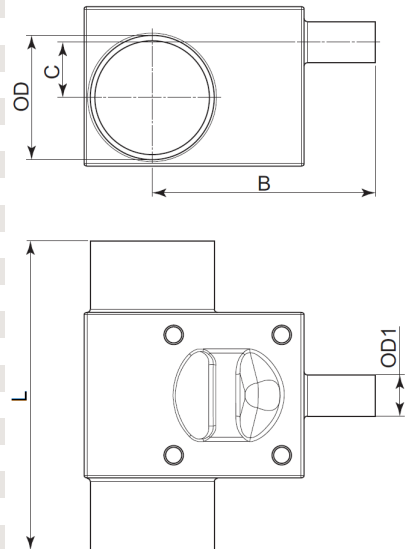
**T- bodies:**

T are constructed with weir as close as possible to the internal contour of the main tube thereby minimising potential dead leg. The T- bodies are available as machined from block or from forged material.



**Dimension table for T-block bodies - ASME**

Main tube DN	Valve DN	Main tube OD x t in	Valve OD1 x t in	B - Weld in	B - Clamp in	C in	L - Weld in	L - Clamp in
8	8	ø0.25x0.035	ø0.25x0.035	1.45	1.95	0.07	2.24	3.24
10	8	ø0.38x0.035	ø0.25x0.035	1.52	2.02	0.19	2.24	3.24
15	8	ø0.50x0.065	ø0.25x0.035	1.56	2.06	0.23	3.19	4.19
20	8	ø0.75x0.065	ø0.25x0.035	1.74	2.24	0.33	3.19	4.19
25	8	ø1.00x0.065	ø0.25x0.035	1.91	2.41	0.39	3.19	4.19
40	8	ø1.50x0.065	ø0.25x0.035	2.18	2.68	0.51	3.19	4.19
50	8	ø2.00x0.065	ø0.25x0.035	2.35	2.85	0.76	3.19	4.19
65	8	ø2.50x0.065	ø0.25x0.035	2.61	3.11	1.02	3.19	4.19
80	8	ø3.00x0.065	ø0.25x0.035	2.87	3.37	1.26	3.19	4.19
10	10	ø0.38x0.035	ø0.38x0.035	1.52	2.02	0.19	2.24	3.24
15	10	ø0.50x0.065	ø0.38x0.035	1.56	2.06	0.23	3.19	4.19
20	10	ø0.75x0.065	ø0.38x0.035	1.74	2.24	0.33	3.19	4.19
25	10	ø1.00x0.065	ø0.38x0.035	1.91	2.41	0.39	3.19	4.19
40	10	ø1.50x0.065	ø0.38x0.035	2.18	2.68	0.51	3.19	4.19
50	10	ø2.00x0.065	ø0.38x0.035	2.35	2.85	0.76	3.19	4.19
65	10	ø2.50x0.065	ø0.38x0.035	2.61	3.11	1.02	3.19	4.19
80	10	ø3.00x0.065	ø0.38x0.035	2.87	3.37	1.26	3.19	4.19
15	15	ø0.50x0.065	ø0.50x0.065	2.27	2.77	0.14	3.74	4.74
20	15	ø0.75x0.065	ø0.50x0.065	2.31	2.81	0.31	3.74	4.74
25	15	ø1.00x0.065	ø0.50x0.065	2.44	2.94	0.44	3.74	4.74
40	15	ø1.50x0.065	ø0.50x0.065	2.70	3.20	0.67	3.74	4.74
50	15	ø2.00x0.065	ø0.50x0.065	2.96	3.46	0.81	3.74	4.74
65	15	ø2.50x0.065	ø0.50x0.065	3.22	3.72	0.98	3.74	4.74
80	15	ø3.00x0.065	ø0.50x0.065	3.48	3.98	1.15	3.74	4.74
20	20	ø0.75x0.065	ø0.75x0.065	2.56	3.06	0.04	4.29	5.29
25	20	ø1.00x0.065	ø0.75x0.065	2.69	3.19	0.25	4.29	5.29
40	20	ø1.50x0.065	ø0.75x0.065	2.96	3.46	0.51	4.29	5.29
50	20	ø2.00x0.065	ø0.75x0.065	3.28	3.78	0.72	4.29	5.29
65	20	ø2.50x0.065	ø0.75x0.065	3.54	4.04	0.87	4.29	5.29
80	20	ø3.00x0.065	ø0.75x0.065	3.80	4.30	1.02	4.29	5.29
25	25	ø1.00x0.065	ø1.00x0.065	2.87	3.37	0.17	4.61	5.61
40	25	ø1.50x0.065	ø1.00x0.065	3.13	3.63	0.49	4.61	5.61
50	25	ø2.00x0.065	ø1.00x0.065	3.29	3.79	0.71	4.61	5.61
65	25	ø2.50x0.065	ø1.00x0.065	3.70	4.20	0.88	4.61	5.61
80	25	ø3.00x0.065	ø1.00x0.065	3.91	4.41	1.02	4.61	5.61
40	40	ø1.50x0.065	ø1.50x0.065	3.50	4.00	0.09	5.63	6.63
50	40	ø2.00x0.065	ø1.50x0.065	3.77	4.27	0.44	5.63	6.63
65	40	ø2.50x0.065	ø1.50x0.065	4.03	4.53	0.69	5.63	6.63
80	40	ø3.00x0.065	ø1.50x0.065	4.30	4.80	0.89	5.63	6.63
50	50	ø2.00x0.065	ø2.00x0.065	4.39	4.89	0.18	6.69	7.69
65	50	ø2.50x0.065	ø2.00x0.065	4.40	4.90	0.50	6.69	7.69
80	50	ø3.00x0.065	ø2.00x0.065	4.66	5.16	0.74	6.69	7.69
65	65	ø2.50x0.065	ø2.50x0.065	5.03	5.53	0.20	7.48	8.48
80	65	ø3.00x0.065	ø2.50x0.065	5.30	5.80	0.51	7.48	8.48
80	80	ø3.00x0.065	ø3.00x0.065	5.99	6.49	0.39	9.17	10.17



**Tank outlet body:**

Tank outlet bodies with minimised dead leg and complete drainability.

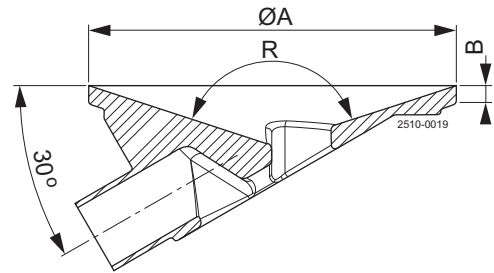
The tank outlet valve bodies are available as machined from block or from forged material.



**Dimension table for Tank outlet-block bodies - all standards**

DN	ØA (in)	B (in)	R
DN15 (1/2")	3.54	0.21	144°
DN20 (3/4")	3.94	0.21	144°
DN25 (1")	4.72	0.21	144°
DN40 (1½")	5.91	0.21	144°
DN50 (2")	7.09	0.21	144°
DN65 (2½")	7.87	0.21	144°
DN80 (3")	9.84	0.21	144°

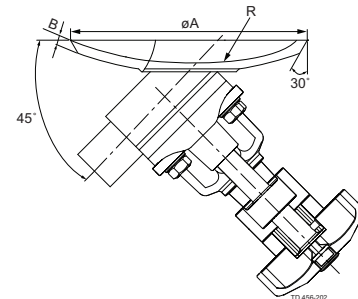
For OD dimensions see two-way valves.



**Dimension table for Tank outlet-forged bodies - all standards**

DN	ØA (in)	B (in)	R (in)
15 (½")	3.54	0.24	19.68
20 (¾")	3.94	0.24	23.62
25 (1")	4.72	0.24	29.53
40 (1½")	5.91	0.24	35.43
50 (2")	7.09	0.24	39.37
65 (2½")	7.87	0.31	43.31
80 (3")	8.86	0.31	47.24

For OD dimensions see two-way bodies.  
Other dimensions on request



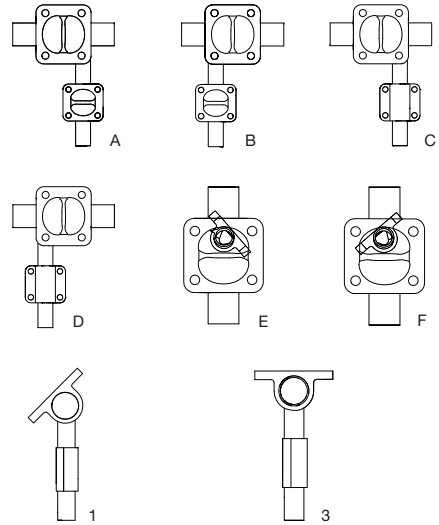
**Tandem body:**

Tandem bodies are available in a wide variety of angles and positions for sampling or steam purposes. The Tandem bodies are available from forged material.



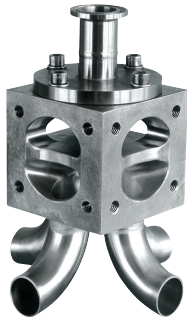
**Tandem body configuration**

To configure the tandem body the position and the angle of the two bodies are selected by combining one of the letters with one of the numbers in the following overview.



**Multi-port body:**

Multi-port bodies are a space and time saving alternative to valve clusters minimising dead volumes. Alfa Laval offers customised solutions for both simple and complex processes.



For more details, please contact Alfa Laval.



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