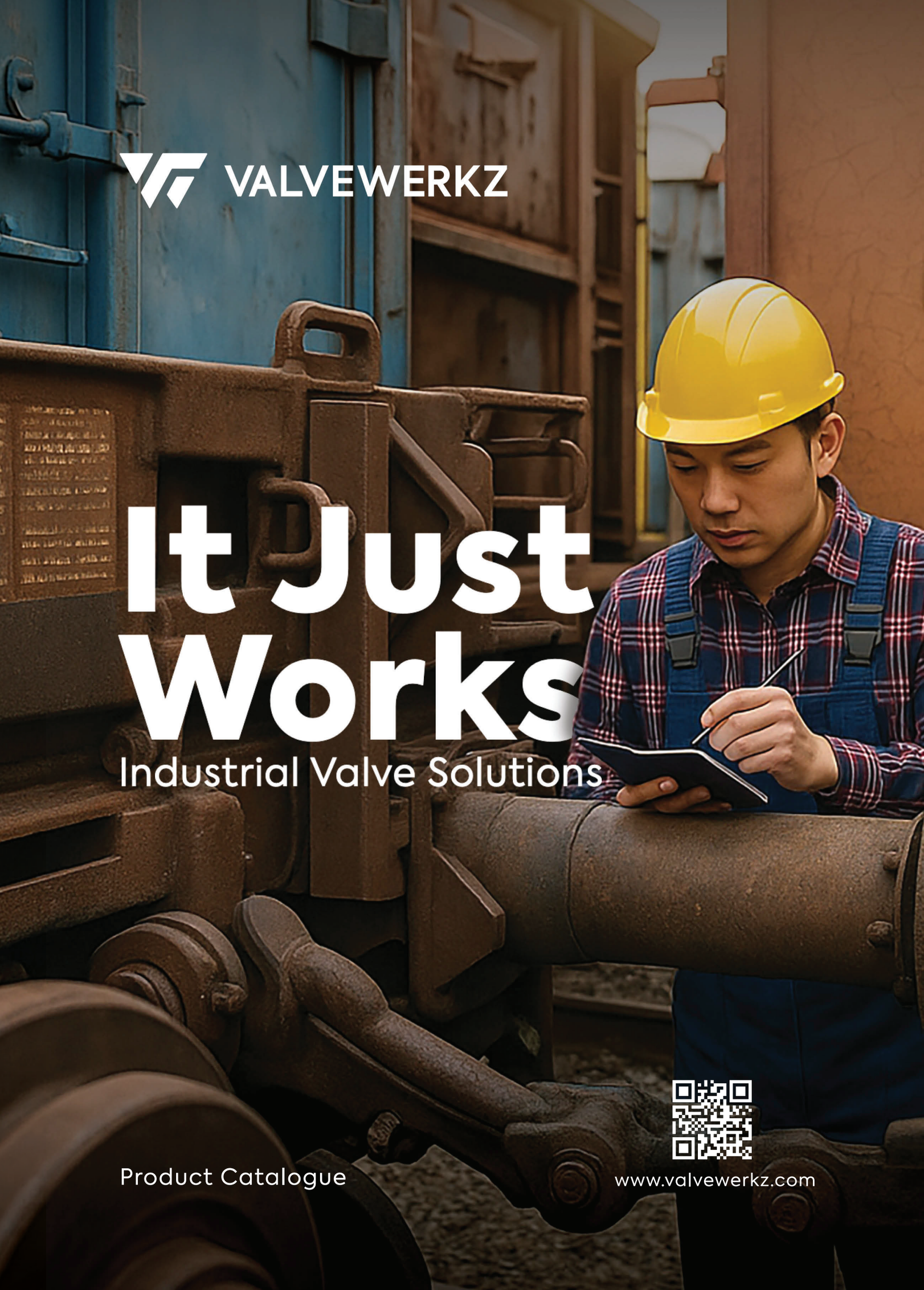

VALVEWERKZ
It Just Works
Industrial Valve Solutions
Product Catalogue
www.valvewerkz.com

CONTENT

Because Every System Deserves Valves That Perform

We specialise in high-performance industrial valves, including ball valves, globe valves and bellows-seal valves, engineered for demanding applications such as palm oil processing, chemicals, semiconductors, power generation, petrochemicals, manufacturing and water treatment.
With decades of experience rooted in local industries, ValveWerkz is a trusted partner for businesses that cannot afford downtime or compromised quality. What sets us apart is our dual commitment to performance and cost-efficiency.

We're product-first and results-focused, delivering one thing and doing it well: high-performing valves that bring real value to the industries that keep your operations moving. Driven by customer-centric thinking and innovative solutions, we tailor our offerings to meet the demands of performance, reliability and efficiency.

Strict Quality Control To Outperform

We operate with strict quality control aligned to international standards. Every ValveWerkz product is tested for leak-tight sealing, extended life cycles and corrosion resistance, because we understand what is at stake when systems fail.

At the same time, our regional presence and streamlined supply model ensure long-term value, often outperforming other alternatives in both durability and efficiency.

A South-East Asian Footprint

Headquartered in Singapore, with representation across Malaysia, China, Thailand, Indonesia, Vietnam and Phillippines we combine global quality benchmarks with local support.

Our team is responsive, practical and accessible, offering technical documentation, expert consultation and a ready stock of spares when it matters most. What truly defines us is how our valves perform in the field, from plants that run without unplanned shutdowns to municipal systems that achieve lower leakage rates through better sealing performance.

Built for Where It Matters Most

ValveWerkz products are trusted across industries where failure is not an option. Where a single valve can impact safety, output, or entire production lines.

Our valves are selected, tested, and supported with the realities of Southeast Asia's toughest operating environments in mind. From high-heat processing lines to corrosive flow media and 24/7 operations, we help teams keep their systems running smoothly, day in and day out.

Key Industries We Serve

Our products are chosen not just because they meet specification but because they keep performing in the field.

Palm Oil, Oleochemical and Fats Processing

24-hour processing, abrasive flow media, and constant heat make these environments especially tough on equipment. ValveWerkz valves are trusted in pressing, refining, blending and condensate recovery systems, where sealing strength, chemical resistance and spare part availability matter. Our ball valves and steam traps help reduce unplanned shutdowns, improve cleanability and ensure long-term value in high-volume production.

Semiconductor and Cleanroom Systems

Purity, precision, and reliability are critical in semiconductor and electronics manufacturing where even the smallest contamination can compromise production. ValveWerkz provides engineered valve solutions for ultra-clean media transfer, gas distribution, and process utilities. Designed to meet stringent cleanroom standards, our valves safeguard yield, ensure process stability, and minimise the risk of particle contamination across critical operations.

Petrochemical and Refining

Heavy-duty, high-temperature and corrosive environments are standard in petrochemical applications. Our valves are selected for their material integrity, pressure resistance and proven durability in refineries, terminals and processing lines where downtime is costly.

Manufacturing and General Industry

Whether it's a compressed air line, a chilled water system or a batching process, our valves are used to keep systems stable and repeatable. Maintenance teams choose ValveWerkz for its fast response, broad product compatibility and ability to support multi-plant operations with consistent stock and supply.

Chemical Processing and Blending

Operators in chemical environments can't afford leaks or emission risks. Our bellow-sealed globe and chemical-resistant seat materials offer confidence in transfer lines, blending skids and reactor feed systems. Designed for harsh media and safety-critical performance, our valves ensure reliability and containment.

Power Generation

From condensate lines to high-pressure steam systems, our valves are built to handle thermal cycling, extreme pressures, and demanding maintenance schedules. Power plants trust ValveWerkz for leak-tight sealing, long service life, and consistent performance under load.

Pharmaceutical and Sanitary Applications

Cleanliness. Precision. Compliance. Our valves meet the stringent hygiene and cleaning standards required in pharmaceutical manufacturing. With polished internals, low dead space and sanitary-compatible options, we help ensure contamination-free processes and long-term integrity in sterile environments.

Water Treatment and Utilities

From chemical dosing to valve chamber isolation, our valves are used across treatment plants and piping systems. We help utility engineers control flow accurately, reduce leakage rates and meet local certification requirements. Our range of seat materials supports varying pH and chlorination levels with dependable performance.

Model:

10 Series

Please refer to page 14 for more details.

Design	1-Piece Body Design Reduced Bore
Body Material	SS316
Ball Material	SS316
Seat Material	PTFE
Connection	Threaded End
Size	DN8 (¼") to DN50 (2")
Automation Option & Accessories	N/A
Flow Capacity	Cv = 6 to Cv = 165
Pressure Rating	800 WOG

Model:

20 Series

Please refer to page 17 for more details.

Design	2-Piece Body Design Full Bore
Body Material	SS316
Ball Material	SS316
Seat Material	PTFE
Connection	Threaded End
Size	DN8 (¼") to DN80 (3")
Automation Option & Accessories	N/A
Flow Capacity	Cv = 7 to Cv = 1250
Pressure Rating	1000 WOG

Model:

205S Series

Please refer to page 20 for more details.

Design	2-Piece Body Design Reduced Bore
Body Material	SS316
Ball Material	SS316
Seat Material	PTFE
Connection	Threaded End
Size	DN8 (¼") to DN50 (2")
Automation Option & Accessories	N/A
Flow Capacity	Cv = 6 to Cv = 165
Pressure Rating	2000 WOG

Ball Valves

Model:

50 Series

Please refer to page 23 for more details.

Design	3-Piece Body Design Full Bore
Body Material	Carbon Steel, SS316
Ball Material	SS316
Seat Material	PTFE 25% Carbon filed PTFE 50% SS filled PTFE
Connection	Threaded End Socket Weld End Butt Weld End
Size	DN8 (¼") to DN100 (4")
Automation Option & Accessories	N/A
Flow Capacity	Cv = 7 to Cv = 2000
Pressure Rating	1000 WOG

Model:

90 Series

Please refer to page 26 for more details.

Design	3-Piece Body Full Bore
Body Material	SS316
Ball Material	SS316
Seat Material	RPTFE 25% Carbon filed PTFE 50% SS filled PTFE
Connection	Threaded End Socket Weld End Butt Weld End
Size	DN8 (¼") to DN100 (4")
Automation Option & Accessories	Pneumatic Actuator (Single Acting / Double Acting) Electric Actuator
Flow Capacity	Cv = 7 to Cv = 2000
Pressure Rating	PN64 ¼" - 2" PN50 2 ½" - 4"

Model:

80 Series

Please refer to page 33 for more details.

Design	3-Piece Body Design Full Bore / Reduced Bore
Body Material	Carbon Steel, SS316
Ball Material	SS316
Seat Material	25% Carbon filed PTFE 50% SS filled PTFE PEEK
Connection	Threaded End (¼" - 4") Socket Weld End (¼" - 4") Butt Weld End (¼" - 10")
Size	DN8 (¼") to DN100 (4") *Refer to connection tab
Automation Option & Accessories	Pneumatic Actuator (Single Acting / Double Acting) Electric Actuator
Flow Capacity	Cv = 7 to Cv = 2000
Pressure Rating	PN100 ¼" - 1" PN64 1 ¼" - 2" PN50 2 ½" - 4" PN16 5" - 10"

Model:

81FS Series

Design	3-Piece Body Design - **Fire Safe** Full Bore / Reduced Bore
Body Material	Carbon Steel, SS304, SS316
Ball Material	SS316
Seat Material	CPTFE TFM4215 TFM4215 + 50%SS PEEK
Connection	Threaded End (¼" - 4") Socket Weld End (¼" - 4") Butt Weld End (¼" - 10")
Size	Full Bore DN8 (¼") to DN100 (4") Reduced Bore DN15(½") to DN100 (4")
Automation Option & Accessories	Pneumatic Actuator (Single Acting / Double Acting) Electric Actuator
Flow Capacity	Cv = 9.2 to Cv = 1020
Pressure Rating	**Full Bore** 2000psi ¼" - 1" 1500psi 1 ¼" - 2" 1000psi 2 ½" - 4" **Reduced Bore** 2000psi ½" - 1" 1500psi 1 ¼" - 2" 1000psi 2 ½" - 4"

Please refer to page 43 for more details.

Model:

203 Series

Design	2-Piece Body Design Full Bore
Body Material	Carbon Steel, SS304, SS316
Ball Material	SS316
Seat Material	RPTFE 25% Carbon filed PTFE 50% SS filled PTFE PEEK
Connection	ANSI (ANSI 150 / ANSI 300) DIN (PN16 / PN40) JIS (JIS-10K / JIS-20K)
Size	DN15 (½") to DN150 (6") *Refer to connection tab
Automation Option & Accessories	Pneumatic Actuator (Single Acting / Double Acting) Electric Actuator
Flow Capacity	Cv = 15 to Cv = 5150
Pressure Rating	ANSI (ANSI 150 / ANSI 300) DIN (PN16 / PN40) JIS (JIS-10K / JIS-20K)

Please refer to page 51 for more details.

Model:

ST60 Series

Design	Ball Float
Body Material	Carbon Steel, SS304
Internal parts	SS304
Connection	Threaded End Socket Weld End Flanged End
Size	DN15 (½") to DN150 (6")
Automation Option & Accessories	N/A
Flow Capacity	Max Discharge = 150 t/hr
Pressure Rating	PN25 - PN40 Max W.P = 16 - 32 Bar

Please refer to page 62 for more details.

Model:

ST61 Series

Design	Thermodynamic
Body Material	Carbon Steel, SS304
Internal parts	SS304
Connection	Threaded End Socket Weld End Flanged End
Size	DN15 (½") to DN25 (1")
Automation Option & Accessories	N/A
Flow Capacity	Max Discharge = 700 kg/hr
Pressure Rating	PN25 - PN63 Max W.P = 16 Bar

Please refer to page 75 for more details.

Model:

ST62 Series

Design	Bimetallic
Body Material	Carbon Steel, SS304
Internal parts	SS304
Connection	Threaded End Socket Weld End Flanged End
Size	DN15 (½") to DN25 (1")
Automation Option & Accessories	N/A
Flow Capacity	Max Discharge = 800 kg/hr
Pressure Rating	PN25 - PN40 Max W.P = 16 - 32 Bar

Please refer to page 80 for more details.

Model:

ST63 Series

Design	Thermostatic Capsule
Body Material	SS304
Internal parts	SS304
Connection	Threaded End Flanged End
Size	DN15 (½") to DN25 (1")
Automation Option & Accessories	N/A
Flow Capacity	Max Discharge = 300 kg/hr
Pressure Rating	PN25 Max W.P = 16 Bar

Please refer to page 86 for more details.

Bellow Seal Globe Valves

Model:

GL25 Series

Please refer to page 93 for more details.

Design	Straight Type	
Body Material	Cast Iron, GG25 Ductile Iron, GGG40 Carbon Steel 1.0619	Forged Steel / A105 St. St. 304 St.St 316 / 1.4571
Plug Material & Design	**Plug Material:** St. Steel 1.4021 + Hard Faced 13% Cr **Plug Design:** 1. Parabolic (For regulating) 2. Conical (For On Off) 3. Balancing (For 5" and above, high pressure)	
Seat / Bellow Material	321 Ti St.St 316 / 1.4571	St.St 304 Hastelloy C
Connection	BSPT - Tappered Socket Weld Butt Weld	NPT Flanged End
Size	DN15 (½") to DN150 (6")	
Automation Option & Accessories	N/A	
Flow Capacity	**For Standard Plug:** KVS = 4.8 - 1691 **For Throttling Plug:** KVS = 4.36 - 1410	
Pressure Rating	ANSI 150 ANSI 300 ANSI 600 ANSI 900	PN16 PN25 PN40

Model:

GL26 Series

Please refer to page 97 for more details.

Design	Y Type	
Body Material	Cast Iron, GG25 Ductile Iron, GGG40 Carbon Steel 1.0619	Forged Steel / A105 St. St. 304 St.St 316 / 1.4571
Plug Material & Design	**Plug Material:** St. Steel 1.4021 + Hard Faced 13% Cr **Plug Design:** 1. Parabolic (For regulating) 2. Conical (For On Off) 3. Balancing (For 5" and above, high pressure)	
Seat / Bellow Material	321 Ti St.St 316 / 1.4571	St.St 304 Hastelloy C
Connection	BSPT - Tappered Socket Weld Butt Weld	NPT Flanged End
Size	DN15 (½") to DN150 (6")	
Automation Option & Accessories	N/A	
Flow Capacity	**For Standard Plug:** KVS = 4.8 - 1691 **For Throttling Plug:** KVS = 4.36 - 1410	
Pressure Rating	ANSI 150 ANSI 300 ANSI 600 ANSI 900	PN16 PN25 PN40

Model:

BU25 Series

Body Type	Wafer, Lug
Body Materials	Cast Iron GJL-250, Ductile Iron GGG40, Carbon Steel 1.0619, Stainless Steel 1.4308, Stainless Steel 1.4408
Liner	EPDM, NBR(Buna N), PTFE, Viton, Natural Rubber, Silicone
Working Pressure	PN10, PN16, ANSI 150, JIS 10K, JIS 16K
Face to Face	API609, EN558-120 Series, ISO5752, DIN3202K1
Top Flange	ISO 5211
Flange Drilling	BS EN1092, JIS B2220, ASME Class 125 / Class 150
Disc and Stem Connection Type	Two Pieces Shaft Design (2" to 12") Spline Design (14" & Above)
Stem Top	Square Stem Top

Please refer to page 104 for more details.

Model:

BU26 Series

Body Type	Wafer, Lug
Body Materials	Ductile Iron GGG40 Carbon Steel 1.0619 Stainless Steel 1.4408
Liner	PFA / PTFE / RTFE / TFM
Working Pressure	PN10, PN16, ANSI 150, JIS 10K, JIS 16K
Face to Face	API609, EN558-120 Series, ISO5752, DIN3202K1
Top Flange	ISO 5211
Flange Drilling	BS EN1092, JIS B2220, ASME Class 125 / Class 150
Stem Top	Square Top Flange

Please refer to page 112 for more details.

VALVEWERKZ

BALL VALVES

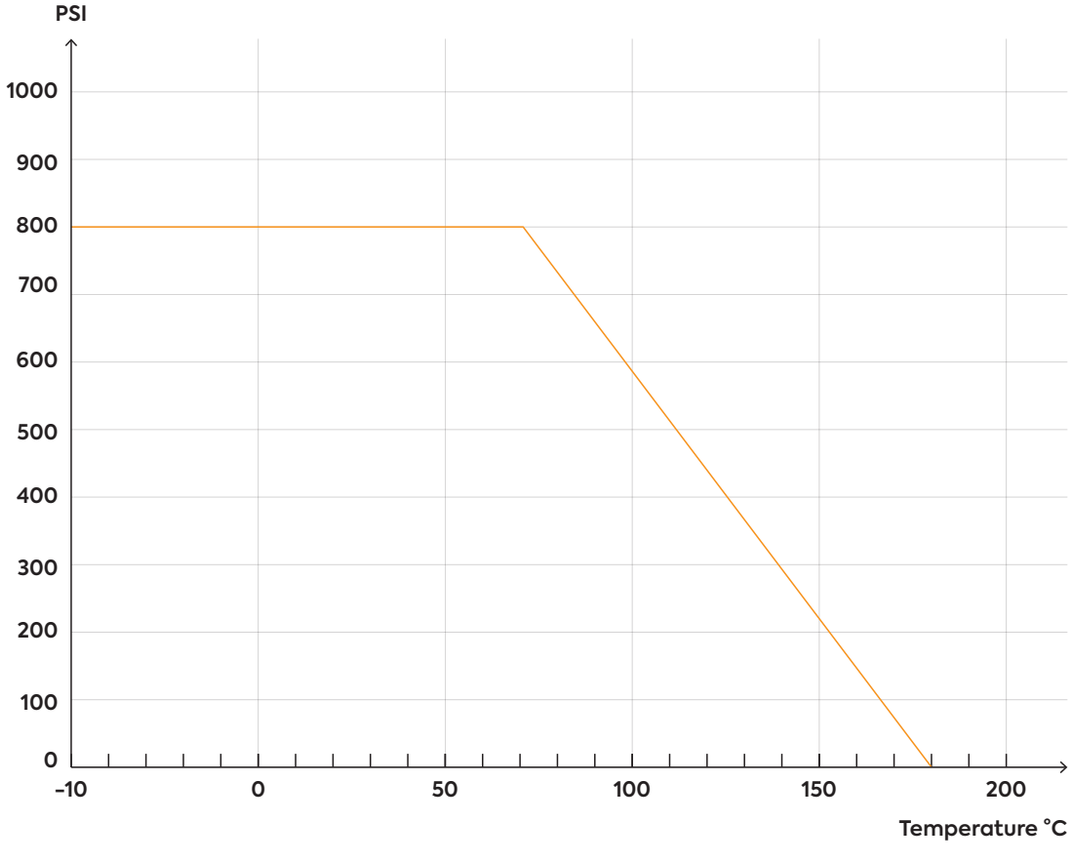
10 Series

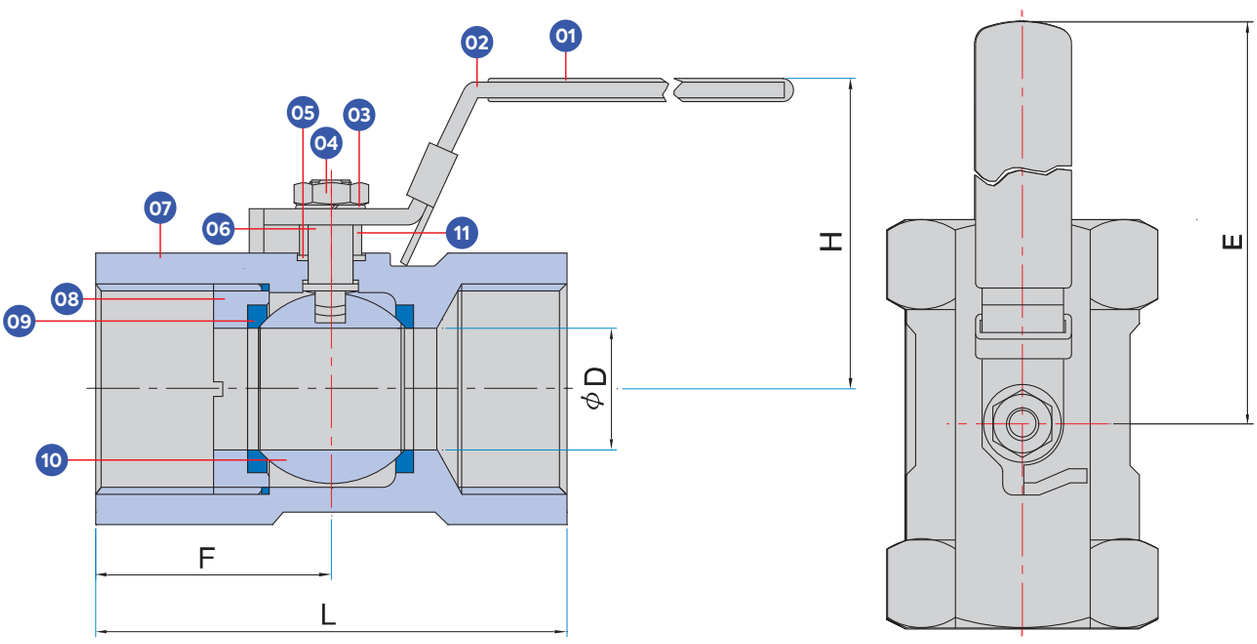
1-Piece Body Design

Reduced Bore
Sizes ¼" - 2"
800 WOG
Available in SS316 body only
Threaded End
Investment Casting
Compact Design
Blowout-Proof Stem
Standard Seat: PTFE (max.180°C)
Lockable Handle

ValveWerkz 10 series ball valves feature a high quality investment casting body and ends. They are available ¼" - 2" threaded.

Pressure/Temperature Ratings





	Part Name	Material
1.	Handle Sleeve	VINYL
2.	Handle	SUS304
3.	Washer	SUS304
4.	Stem Nut	SUS304

	Part Name	Material
5.	Stem Packing	PTFE
6.	Stem	SUS316
7.	Body	SUS316
8.	Insert	SUS316

	Part Name	Material
9.	Seat	PTFE
10.	Ball	SUS316
11.	Bushing	SUS304

Dimensions(mm)

Size(Inch)	ØD	E	F	H	L	CV	Weight(kg)
¼″	5	61	19	31	39	6	0.07
⅜″	7	72	21	36	44	7	0.12
½″	9.2	85	27.5	41	56.5	10	0.19
¾″	12.5	85	30	44	59	19	0.27
1″	16	101	36	48	71	42	0.43
1 ¼″	20	101	40	54	78	60	0.72
1 ½″	25	125	42.5	65	83	125	0.87
2″	32	125	51	72	100	165	1.36

REQUEST FOR QUOTE

STEP 1

Find the model series

STEP 2

Define the specification/ valve code

STEP 3

Fill up ordering sheet (back of the brochure) or Scan the QR code below

STEP 4

Submit your order via our website or contact your local partner

STEP 5

Prepare for confirmation and delivery

*For further assistance with placing your order, please contact your local partner.
A sales engineer will be assigned to assist you.

Valve Coding Sheet
10 Series

01	02	03	04	05	06
S2	T	A			L

Body Material

Code	Material
S2	SS316

Seat Material

Code	Material
T	PTFE

Rating

Code	Rating
A	800WOG

Size

Code	Material
A	¼″
B	⅜″
C	½″
D	¾″
E	1″
F	1 ½″
G	2″

Connection

Code	Material
B	BSP
N	NPT

Operation

Code	Type
L	Lever

Your Valve Ordering Code:

10	01	02	03	04	05	06
	S2	T	A			L

Example:

10 Series - S2TABBL.
SS316 Material. PTFE Seat. Pressure Rating of 800WOG, ⅜ inch size. Connection Type of BSPT - Tappered. Lever Operating type.

*For special material or customisation, please refer to our sales engineer.

SCAN FOR ONLINE ORDERING FORM

Tel: +65 6909 1221
Email: enquiry@valvewerkz.com
Website: www.valvewerkz.com

20 Series

2-Piece Body Design

Full Bore

Sizes ¼" - 3"

1000 WOG

Available in SS316 body only

Threaded End

Investment Casting

Compact Design

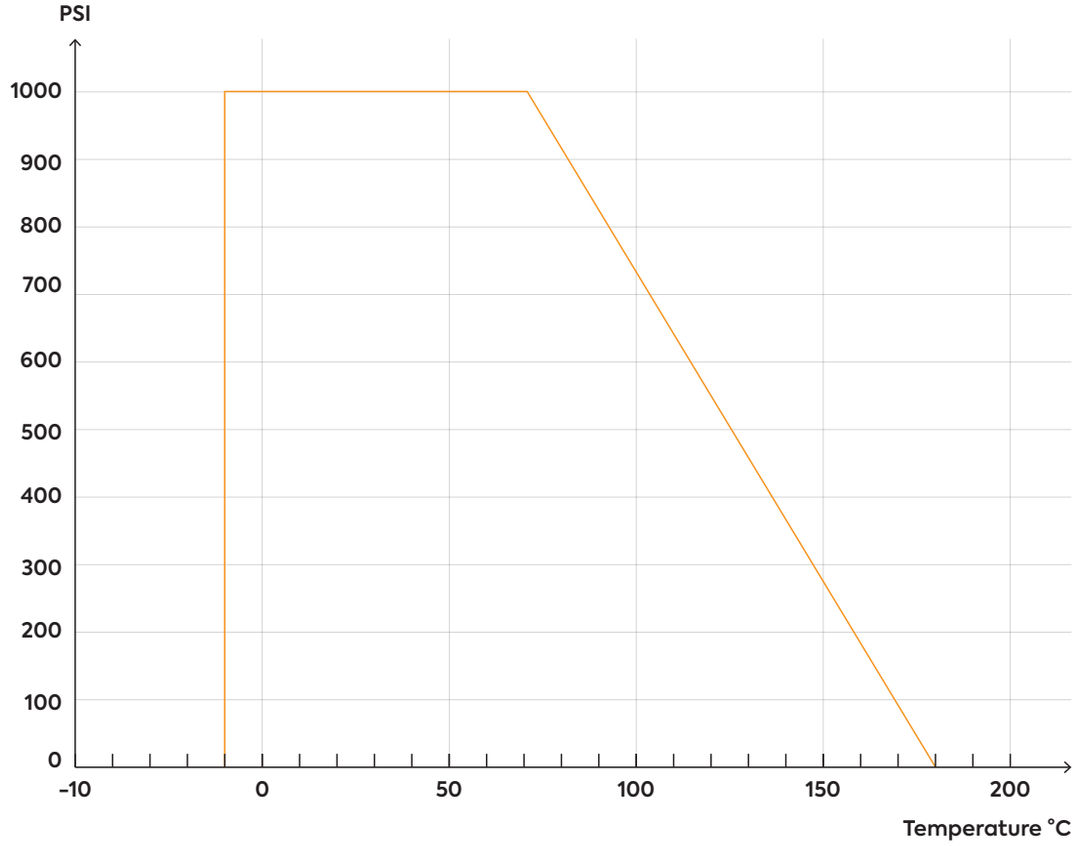
Blowout-Proof Stem

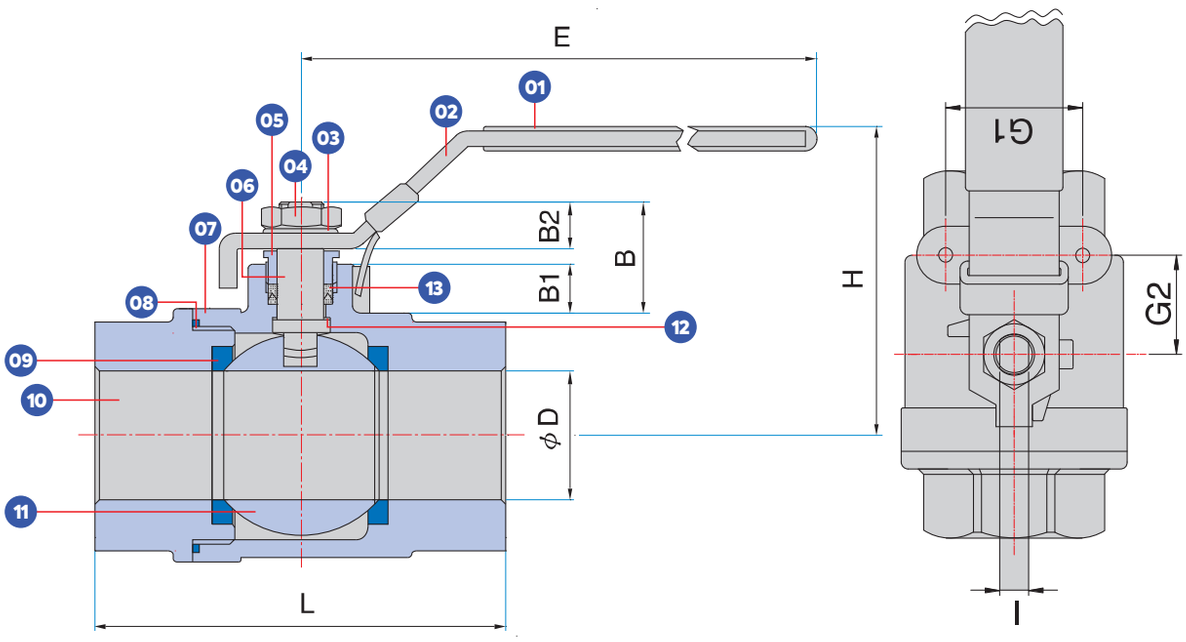
Standard Seat:
PTFE (max. 180°C)

Lockable Handle

ValveWerkz 20 series ball valves feature a high quality investment casting body and ends. They are available ¼" - 3" threaded.

Pressure / Temperature Ratings





	Part Name	Material
1.	Handle Sleeve	VINYL
2.	Handle	SUS304
3.	Washer	SUS304
4.	Stem Nut	SUS304
5.	Gland Nut	SUS304
6.	Stem	SUS304
7.	Body	SUS316

	Part Name	Material
8.	Body Seal	PTFE
9.	Seat	TFM1600
10.	End Cap	SUS316
11.	Ball	SUS316
12.	Stem Seal	PTFE
13.	Stem Packing	PTFE

Dimensions(mm)

Size(Inch)	B	B1	B2	ØD	E	H	I	L	G1	G2	CV	Weight(kg)
¼"	23.5	8.3	11	11.6	108	54	5	55.2	28	12.7	7	0.26
⅜"	23.5	8.3	11	12.5	108	54	5	55.2	28	12.7	8	0.26
½"	24.7	9.8	11	15	133	55	6.3	65.3	28	12.7	25	0.41
¾"	25.5	10.7	11	20	133	59	6.3	75.5	35	22.4	50	0.56
1"	30.4	11.6	14.8	25	153	70	8	88.7	35	22.4	80	0.90
1 ¼"	29.7	11.1	14.8	32	153	75	8	101.4	38.1	25.4	150	1.34
1 ½"	33	12	16	38	190	84	9.5	109.3	38.1	25.4	240	1.94
2"	30.7	9	16	50	190	92	9.5	124	38.1	25.4	460	3.00
2 ½"	48.5	15.7	23	65	247	128	12	159.3	55	35	820	6.70
3"	47.5	14	23	80	247	137	12	175.3	55	35	1250	9.06

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Valve Coding Sheet
20 Series

01	02	03	04	05	06
S2	T	A			L

Body Material

Code	Material
S2	SS316

Seat Material

Code	Material
T	PTFE

Rating

Code	Rating
A	1000WOG

Size

Code	Material
A	¼″
B	⅜″
C	½″
D	¾″
E	1″
F	1 ½″
G	2″
H	2 ½″
I	3″

Connection

Code	Material
B	BSP
N	NPT

Operation

Code	Type
L	Lever

Your Valve Ordering Code:

20	01	02	03	04	05	06
	S2	T	A			L

Example:

20 Series - S2TABBL.
SS316 Material. PTFE Seat. Pressure Rating of 1000WOG, ⅜ inch size. Connection Type of BSPT - Tappered. Lever Operating type.

*For special material or customisation, please refer to our sales engineer.

SCAN FOR ONLINE ORDERING FORM

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Website: www.valvewerkz.com

205S Series

2-Piece Body Design

Reduced Bore

Sizes ¼" - 2"

2000 WOG

Available in SS316 body only

Threaded End

Investment Casting

Compact Design

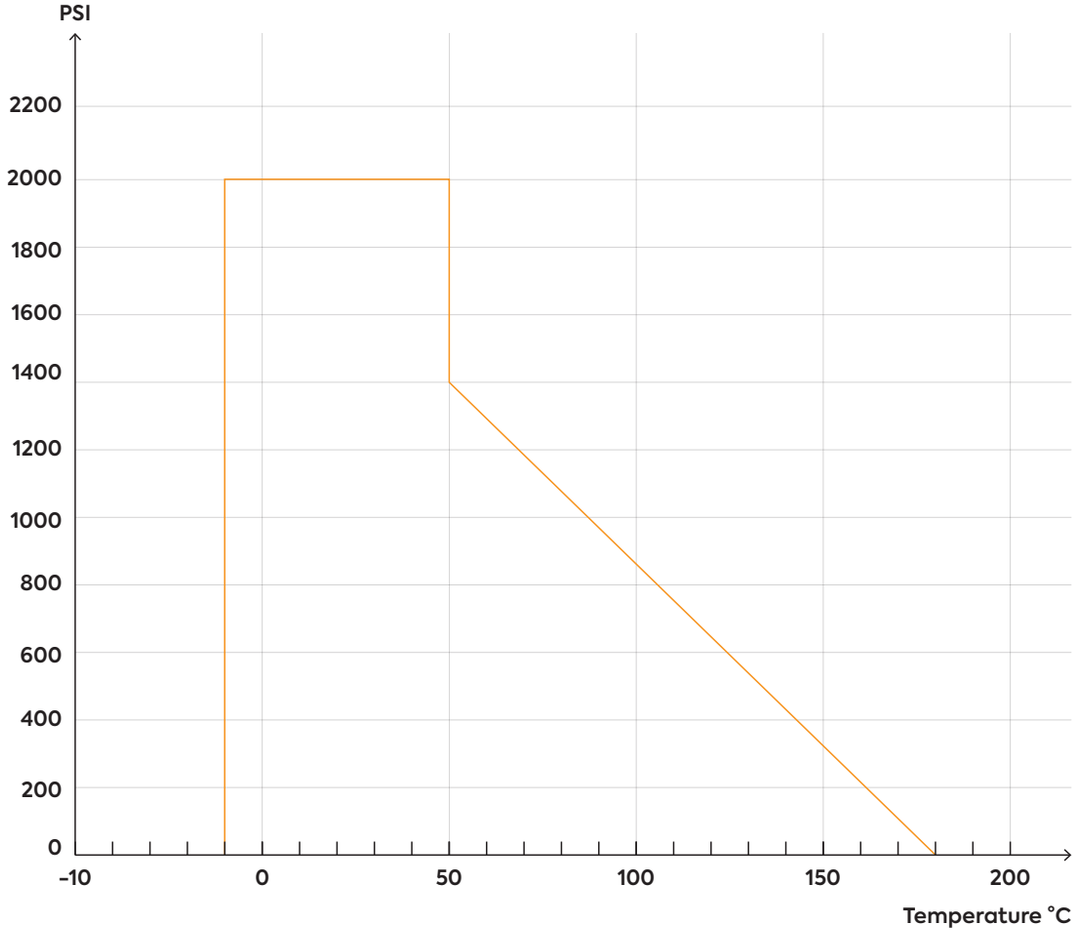
Blowout-Proof Stem

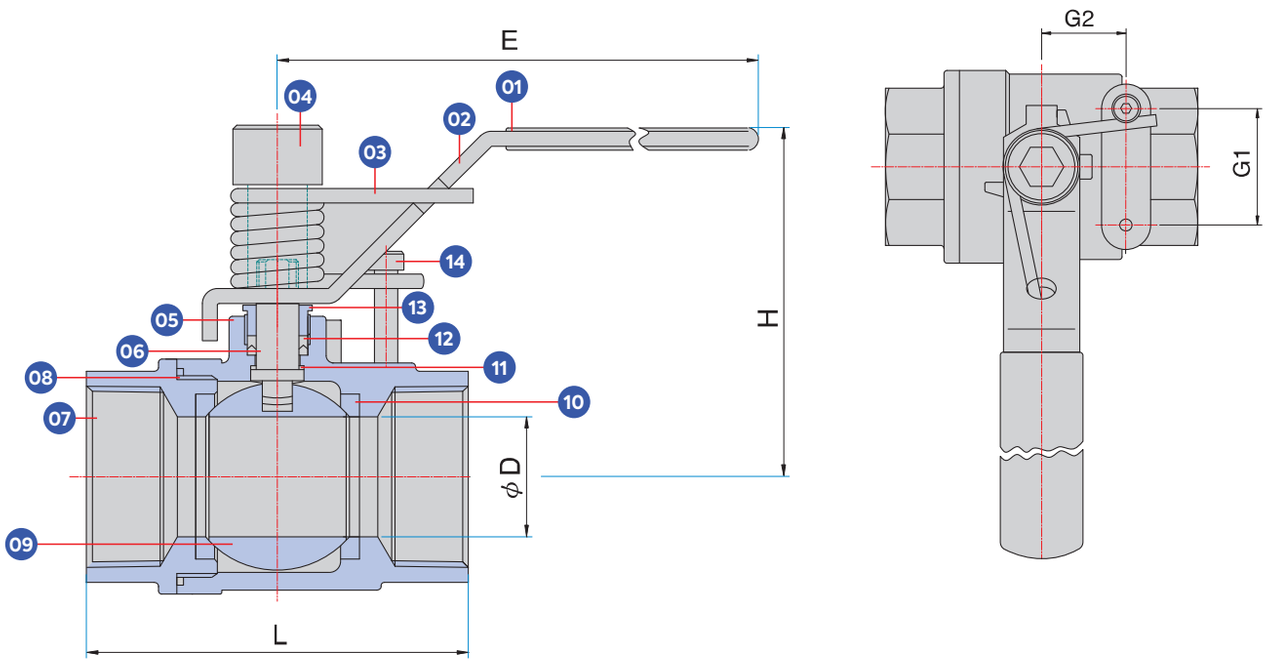
Standard Seat:
PTFE (max. 180°C)

Spring Return Handle

ValveWerkz 205S series ball valves feature a high quality investment casting body and ends. They are available ¼" - 2" with threaded.

Pressure/Temperature Ratings





	Part Name	Material
1.	Handle Sleeve	VINYL
2.	Handle	SUS304
3.	Spring	Steel
4.	Bolt	Steel
5.	Body	SUS316
6.	Stem	SUS316
7.	End Cap	SUS316

	Part Name	Material
8.	Body Seal	PTFE
9.	Ball	SUS316
10.	Seat	TFM1600
11.	Stem Seal	PTFE
12.	Stem Packing	PTFE
13.	Gland Nut	SUS304
14.	Stopper Bolt	Steel

Dimensions(mm)

Size(Inch)	ØD	E	H	L	G1	G2	CV	Weight(kg)
¼"	9.5	119	58	52	28	12.7	6	0.29
⅜"	9.5	119	58	52	28	12.7	7	0.29
½"	12.7	119	61	62	28	12.7	10	0.35
¾"	15	137	70	69	35	22.4	19	0.52
1"	20	137	73	84	35	22.4	42	0.76
1 ¼"	25	177	86	90	38.1	25.4	60	1.24
1 ½"	32	177	92	104	38.1	25.4	125	1.66
2"	38	216	104	117	38.1	25.4	165	2.34

REQUEST FOR QUOTE

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Valve Coding Sheet
205S Series

01	—	02	—	03	—	04	—	05	—	06
S2		T		A						L

Body Material

Code	Material
S2	SS316

Seat Material

Code	Material
T	PTFE

Rating

Code	Rating
A	2000WOG

Size

Code	Material
A	¼″
B	⅜″
C	½″
D	¾″
E	1″
F	1 ½″
G	2″

Connection

Code	Material
B	BSP
N	NPT

Operation

Code	Type
L	Lever

Your Valve Ordering Code:

205S	—	01	02	03	04	05	06
		S2	T	A			L

Example:

205S Series - S2TACBL reduced bore.
SS316 Material. PTFE Seat. Pressure Rating of 2000WOG, ½ inch size. Connection Type of BSPT – Tappered. Lever Operating type.

*For special material or customisation, please refer to our sales engineer.

SCAN FOR ONLINE ORDERING FORM

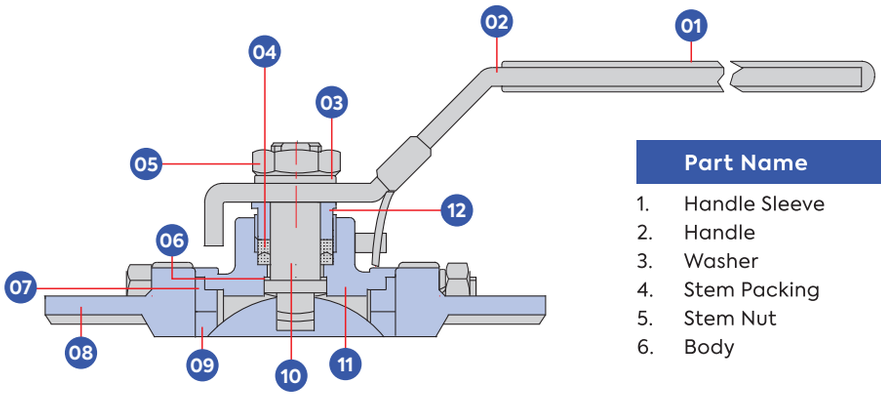
Tel: +65 6909 1221
Email: enquiry@valvewerkz.com
Website: www.valvewerkz.com

50 Series

3-Piece Body Design

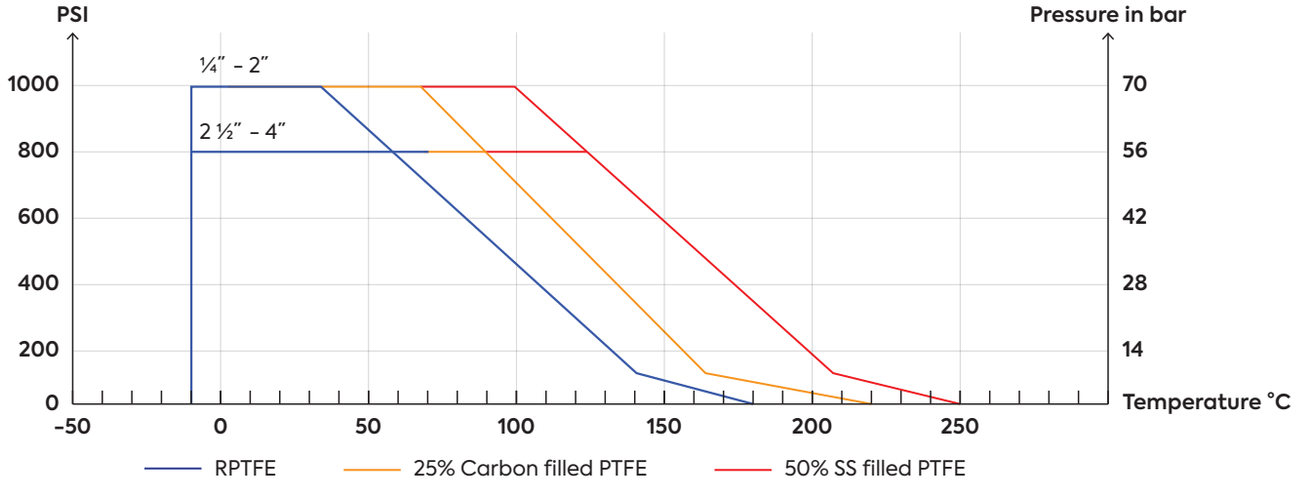
Full Bore
Sizes ¼" - 4"
1000 WOG
WCB / SS316 body
Threaded End, Socket Weld End, Butt Weld End
Superior Live Loaded Packing System
Blowout-Proof Stem
Dual Anti-Static Device
Standard Seat: RPTFE (max. 180°C)
Seat Options: 25% Carbon filed (max. 220°C) 50% SS filled (max. 240°C)
Lockable Handle

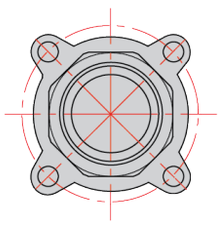
ValveWerkz 50 series ball valves feature a high quality investment casting body and ends. They are available ¼" - 4" with threaded, socket weld and butt weld ends. Superior leak protection is, accomplished by using a live-loaded packing system including Belleville washers and double "V" ring packing.



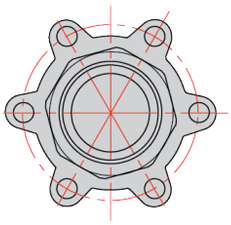
	Part Name		
1.	Handle Sleeve	7.	Joint Gasket
2.	Handle	8.	Body Seal
3.	Washer	9.	Seat
4.	Stem Packing	10.	Stem
5.	Stem Nut	11.	Body
6.	Body	12.	Gland Nut

Pressure / Temperature Ratings

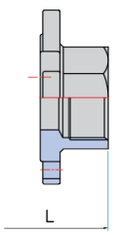




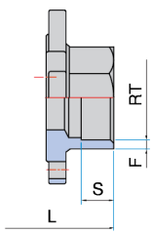
¼" - 2"



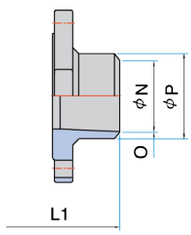
2 ½" - 4"



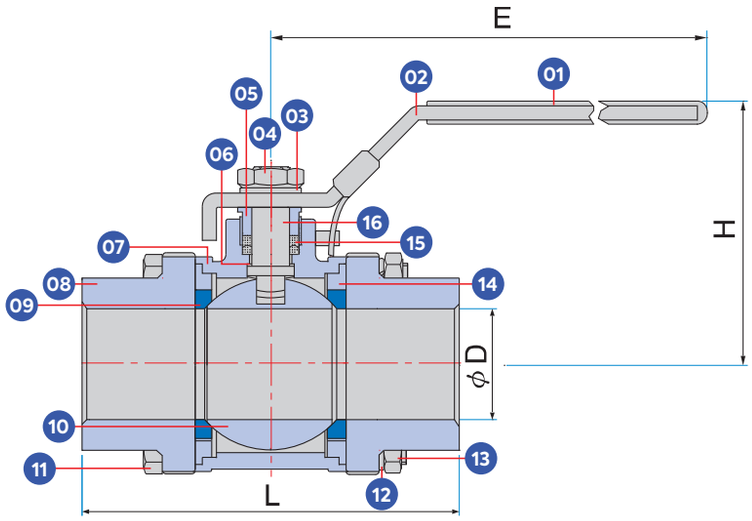
Threaded End

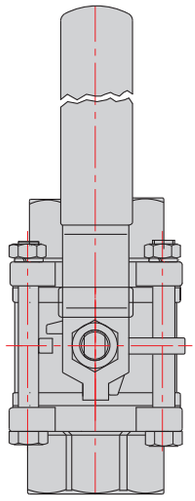


Socket Weld End



Butt Weld End





	Part Name	Material
1.	Handle Sleeve	VINYL
2.	Handle	SUS304
3.	Washer	SUS304
4.	Stem Nut	SUS304
5.	Gland Nut	SUS304
6.	Stem Seal*	PTFE

	Part Name	Material
7.	Body	SUS316 / WCB
8.	End Cap	SUS316 / WCB
9.	Seat*	RPTFE
10.	Ball	SUS316
11.	Bolt	SUS304
12.	Washer	SUS304

	Part Name	Material
13.	Bolt Nut	SUS304
14.	Joint Gasket*	PTFE
15.	Stem Packing*	PTFE
16.	Stem	SUS316

*Spare Parts available in Repair Kit. Please refer to page 56 for more details.

Dimensions(mm)

Size	ØD	E	F	H	S	L	L1	LE	ØN	ØN1	O	ØP	ØP1	RT	CV	Weight(kg)
¼"	11.6	103	3.6	54	11	59	61	223	11.6	11.6	1	18	15	14.2	7	0.34
⅜"	12.5	103	2	54	11	59	61	223	12.5	14	1	18	17	17.7	8	0.32
½"	15	133	2	55	12	69	69	225	17	15.6	1	22.7	21	21.9	15	0.56
¾"	20	133	2.6	59	14	78	78	225	22.5	20.7	1	27.7	26.8	27.2	10	0.72
1"	25	153	3.2	70	14	84	84	244	26	25.8	1	33.5	34.4	33.9	70	1.02
1 ¼"	32	153	4.05	75	15	104	104	253	34.4	33.3	1	42.2	43.4	42.7	110	1.5
1 ½"	38	191	3.7	84	17	119	119	258	41.5	40.5	1	48.8	49.8	48.8	250	2.38
2"	50	191	4.35	92	19	131	131	275	53	51.5	1	61	61	61.3	400	3.54
2 ½"	65	247	5.75	128	21	162	162	332	65.8	68	1	77	77	74	600	7.12
3"	80	247	5.25	137	25	182	182	351	81	81	1	91	91	90	1100	12.3
4"	100	295	5.7	173	30	230	230	360	102	101	1	115	115	115.6	2000	19.65

The information provided in this document is intended for informational purposes only and is subject to change without notice.

REQUEST FOR QUOTE

STEP 1	STEP 2	STEP 3	STEP 4	STEP 5
Find the model series	Define the specification/ valve code	Fill up ordering sheet (back of the brochure) or Scan the QR code below	Submit your order via our website or contact your local partner	Prepare for confirmation and delivery

*For further assistance with placing your order, please contact your local partner.
A sales engineer will be assigned to assist you.

Valve Coding Sheet
50 Series

01 — 02 — 03 (A) — 04 — 05 — 06 (L)

01 Body Material

Code	Material
C1	WCB
S2	SS316

02 Seat Material

Code	Material
T	RPTFE
M	25% Carbon Filled PTFE
G	50% SS Filled PTFE

03 Rating

Code	Rating
A	1000WOG

04 Size

Code	Material
A	¼"
B	⅜"
C	½"
D	¾"
E	1"
F	1 ¼"
G	1 ½"
H	2"
I	2 ½"
J	3"
K	4"

05 Connection

Code	Material
B	BSP
N	NPT
S	Socket Weld
W	Butt Weld
X	Others (To be specified)

06 Operation

Code	Type
L	Lever

Your Valve Ordering Code:

50	—	01	02	03	04	05	06
				A			L

Example:

50 Series - S2TABBL.
SS316 Material. RPTFE Seat. Pressure Rating of 1000WOG, ⅜ inch size. Connection Type of BSPT - Tappered. Lever Operating type.

*For special material or customisation, please refer to our sales engineer.

SCAN FOR ONLINE ORDERING FORM

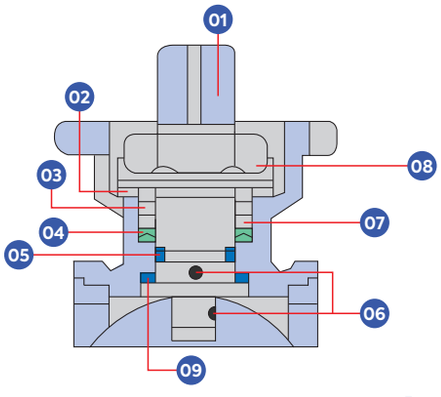
Tel: +65 6909 1221
Email: enquiry@valvewerkz.com
Website: www.valvewerkz.com

90 Series

3-Piece Body Design

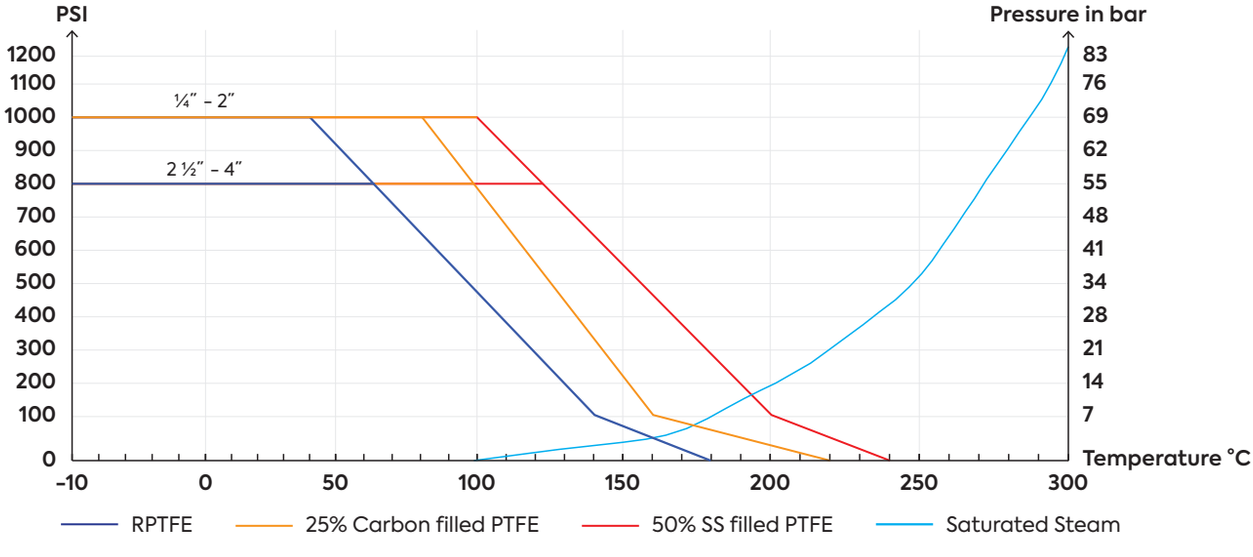
Full Bore
Sizes ¼" - 4"
PN64 ¼" - 2" PN50 2 ½" - 4"
SS316 body
Threaded End, Socket Weld End, Butt Weld End
Super Live Load Loaded Packing System
Blowout-Proof Stem
Dual Anti-Static Device
ISO 5211 Direct Mounting Pad
Standard Seat: RPTFE (max. 180°C)
Seat Options: 25% Carbon filed PTFE (max. 220°C) 50% SS filled PTFE (max. 240°C)
Lockable Handle

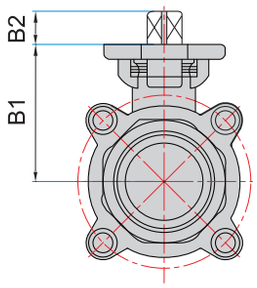
ValveWerkz 90 series ball valves feature a high quality investment cast body and ends. They are available ¼" - 4" with threaded, socket weld, and butt weld ends. Superior leak protection is accomplished by using a live-loaded packing system including Belleville washers and double "V" ring packing.



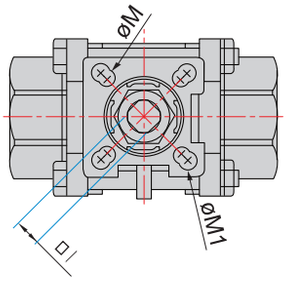
	Part Name
1.	Lock Saddle
2.	Belleville Washer
3.	Gland
4.	V-Ring
5.	Compress Ring & Lower/Stem Seal
6.	Anti-Static Devices
7.	Bushing
8.	Stem Nut
9.	O-Ring

Pressure / Temperature Ratings

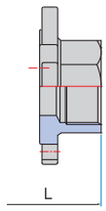




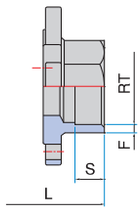
¼" - 2"



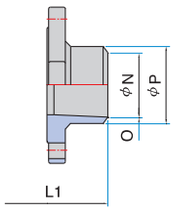
2 ½" - 4"



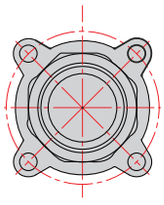
Threaded End



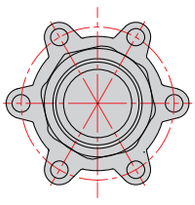
Socket Weld End



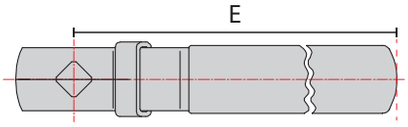
Butt Weld End

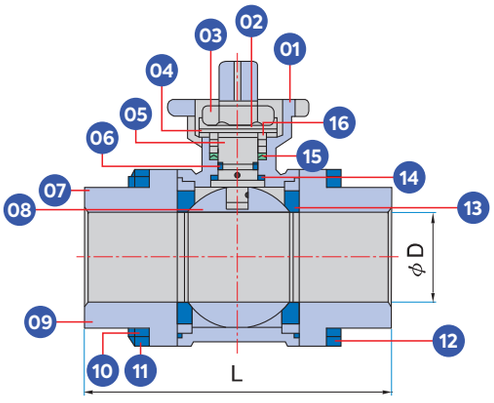


¼" - 2"



2 ½" - 4"



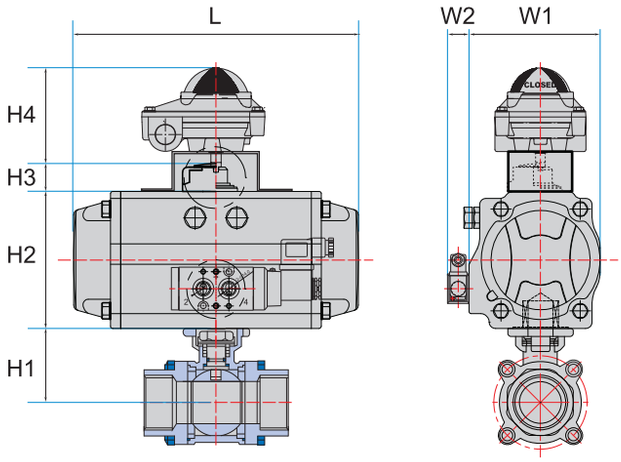


	Part Name	Qty	Material
1.	Body	1	SUS316 / WCB
2.	Belleville Washer	2	SUS301
3.	Stem Nut	1	SUS304
4.	Gland	1	SUS304
5.	Stem	1	SUS316
6.	Stem Seal*	1	RPTFE
7.	Joint Gasket*	2	RPTFE
8.	Ball	1	SUS316
9.	End Cap	1	SUS304
10.	Bolt Nut	2	SUS316 / WCB
11.	Washer	*	SUS304
12.	Bolt	*	SUS304
13.	Seat*	2	TFM1600
14.	O-Ring	1	PTFE
15.	V-Ring Packing*	1 Set	PTFE
16.	Bushing*	1	50% S.S. Powder filled PTFE

*Spare Parts available in Repair Kit.
Please refer to page 56 for more details.

Dimensions(mm)

Size(Inch)	B1	B2	ØD	E	F	ØM	ØM1	I	L	L1	O	ØP	RT	ISO 5211	CV	Weight(kg)
¼"	40.2	9	11.6	136	3.6	5.5	5.5	9	60	70	1	18	14.2	F03, F04	7	0.62
⅜"	40.2	9	12.5	136	2	5.5	5.5	9	60	70	1	18	17.7	F03,F04	8	0.64
½"	40.2	9	15	136	2	5.5	5.5	9	69	69	1	22.7	21.9	F03, F04	15	0.68
¾"	43.4	9	20	136	2.6	5.5	5.5	9	78	78	1	27.7	27.2	F03, F04	40	0.78
1"	52	11	25	152	3.2	6.5	6.5	11	84	84	1	33.5	33.9	F04, F05	70	1.18
1 ¼"	56.5	11	32	152	5.35	6.5	6.5	11	110	104	1	42.2	42.7	F04, F05	110	1.62
1 ½"	65.7	15.5	36	190	5.7	6.5	8.5	14	120	119	1	48.8	48.8	F05, F07	250	2.7
2"	73.95	15.5	50	190	6.1	8.5	8.5	14	140	131	1	61	61.3	F05, F07	400	3.9
2 ½"	93	16.5	65	287	7.15	9	11	17	185	190	1	78	74	F07, F10	600	8.89
3"	102	16.5	80	304	7.6	9	11	17	205	220	1	90.7	90	F07, F10	1100	12.4
4"	132	21.5	100	440	7.85	N/A	11	22	230	270	1	115.8	115.6	F10	2000	21.69



Pneumatic Actuator (Double Acting)

DN(mm)	Size(Inch)	Torques	Actuator	H1	H2	H3	H4	W1	W2	L	Weight(kg)
8	¼"	5	HP-50	40.20	73.00	20.00	90.00	72.00	29.50	144.00	2.24
10	⅜"	5	HP-50	40.20	73.00	20.00	90.00	72.00	29.50	144.00	2.26
15	½"	5	HP-50	40.20	73.00	20.00	90.00	72.00	29.50	144.00	2.30
20	¾"	7	HP-50	43.40	73.00	20.00	90.00	72.00	29.50	144.00	3.02
25	1"	12	HP-50	52.00	73.00	20.00	90.00	72.00	29.50	144.00	3.42
32	1 ¼"	17	HP-63	56.50	87.00	20.00	90.00	85.00	29.50	163.00	4.38
40	1 ½"	22	HP-63	65.70	87.00	20.00	90.00	85.00	29.50	163.00	5.46
50	2"	26	HP-66	73.95	87.00	20.00	90.00	85.00	29.50	202.00	7.38
65	2 ½"	40	HP-75	93.00	104.00	20.00	90.00	96.00	29.50	210.00	12.97
80	3"	50	HP-88	102.00	116.00	20.00	90.00	108.00	29.50	247.00	17.78
100	4"	90	HP-100	132.00	128.00	20.00	90.00	123.00	29.50	268.00	28.77

The selection of the actuators are based on the below conditions:

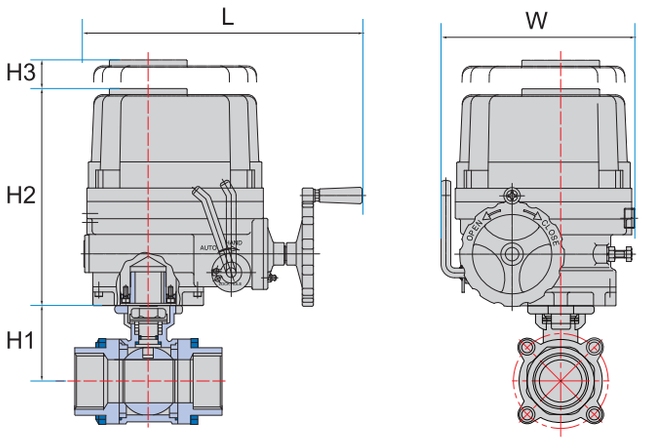
- Air Supply Pressure : 5.5 bar
- Operating Pressure : 10 bar
- Safety Factor : 30%

Pneumatic Actuator (Single Acting)

DN(mm)	Size(Inch)	Torques	Actuator	H1	H2	H3	H4	W1	W2	L	Weight(kg)
8	¼"	5	HP-50S (S11)	73.00	20.00	90.00	90.00	72.00	29.50	144.00	2.96
10	⅜"	5	HP-50S (S11)	73.00	20.00	90.00	90.00	72.00	29.50	144.00	2.98
15	½"	5	HP-50S (S11)	73.00	20.00	90.00	90.00	72.00	29.50	144.00	3.02
20	¾"	7	HP-63S (S11)	87.00	20.00	90.00	90.00	85.00	29.50	163.00	3.73
25	1"	12	HP-63S (S11)	87.00	20.00	90.00	90.00	85.00	29.50	202.00	4.89
32	1 ¼"	17	HP-75S (S11)	104.00	20.00	90.00	90.00	96.00	29.50	210.00	6.06
40	1 ½"	22	HP-88S (S11)	116.00	20.00	90.00	90.00	108.00	29.50	247.00	8.70
50	2"	26	HP-88S (S11)	116.00	20.00	90.00	90.00	108.00	29.50	247.00	9.90
65	2 ½"	40	HP-100S (S11)	128.00	30.00	90.00	90.00	123.00	29.50	268.00	16.83
80	3"	50	HP-115S (S11)	146.00	30.00	90.00	90.00	141.00	29.50	316.00	23.81
100	4"	90	HP-145S (S11)	179.00	30.00	90.00	90.00	172.00	29.50	414.00	39.09

The selection of the actuators are based on the below conditions:

- Air Supply Pressure : 5.5 bar
- Operating Pressure : 10 bar
- Safety Factor : 30%
- Air to Open, Spring to Close



Electric Actuator

DN(mm)	Size(Inch)	Torques	Actuator	H1	H2	H3	W	L	Weight(kg)
8	¼"	5	HQ-004	40.20	124.30	N/A	88.60	166.60	2.90
10	⅜"	5	HQ-004	40.20	124.30	N/A	88.60	166.60	2.92
15	½"	5	HQ-004	40.20	124.30	N/A	88.60	166.60	2.96
20	¾"	7	HQ-004	43.40	124.30	N/A	88.60	166.60	3.06
25	1"	12	HQ-004	52.00	124.30	N/A	88.60	166.60	3.46
32	1 ¼"	17	HQ-004	56.50	124.30	N/A	88.60	166.60	3.90
40	1 ½"	22	HQ-004	65.70	124.30	N/A	88.60	166.60	4.98
50	2"	26	HQ-006	73.95	137.00	N/A	105.00	126.00	7.98
65	2 ½"	40	HQ-008	93.00	235.00	120.00	170.00	258.00	17.37
80	3"	50	HQ-010	102.00	235.00	120.00	170.00	258.00	20.88
100	4"	90	HQ-015	132.00	268.00	160.00	229.00	338.00	39.37

The selection of the actuators are based on the below conditions:

- Air Supply Pressure : 5.5 bar
- Operating Pressure : 10 bar
- Safety Factor : 30%

REQUEST FOR QUOTE

STEP 1

Find the model series

STEP 2

Define the specification/ valve code

STEP 3

Fill up ordering sheet (back of the brochure) or Scan the QR code below

STEP 4

Submit your order via our website or contact your local partner

STEP 5

Prepare for confirmation and delivery

*For further assistance with placing your order, please contact your local partner.
A sales engineer will be assigned to assist you.

Valve Coding Sheet
90 Series

01 — 02 — 03 — 04 — 05

Body Material

Code	Material
S2	SS316

Seat Material

Code	Material
T	RPTFE
M	25% Carbon Filled PTFE
G	50% SS Filled PTFE

Pressure Rating/Size

Code	Pressure	Size
A	PN64	¼″
B	PN64	⅜″
C	PN64	½″
D	PN64	¾″
E	PN64	1″
F	PN64	1 ¼″
G	PN64	1 ½″
H	PN64	2″
I	PN50	3″
J	PN50	4″

Connection

Code	Material
B	BSP
N	NPT
S	Socket Weld
W	Butt Weld
X	Others (To be specified)

Operation

Code	Type
L	Lever
D	Double Acting Pneumatic Actuated
S	Single Acting Pneumatic Actuated
E	Electric Actuated

Your Valve Ordering Code:

90 — 01 (S2) | 02 | 03 | 04 | 05

Example:

90 Series - S2TABL reduced bore.
SS316 Material. RPTFE Seat. Pressure Rating of PN64, ⅜ inch size. Connection Type of BSPT – Tappered. Lever Operating type.

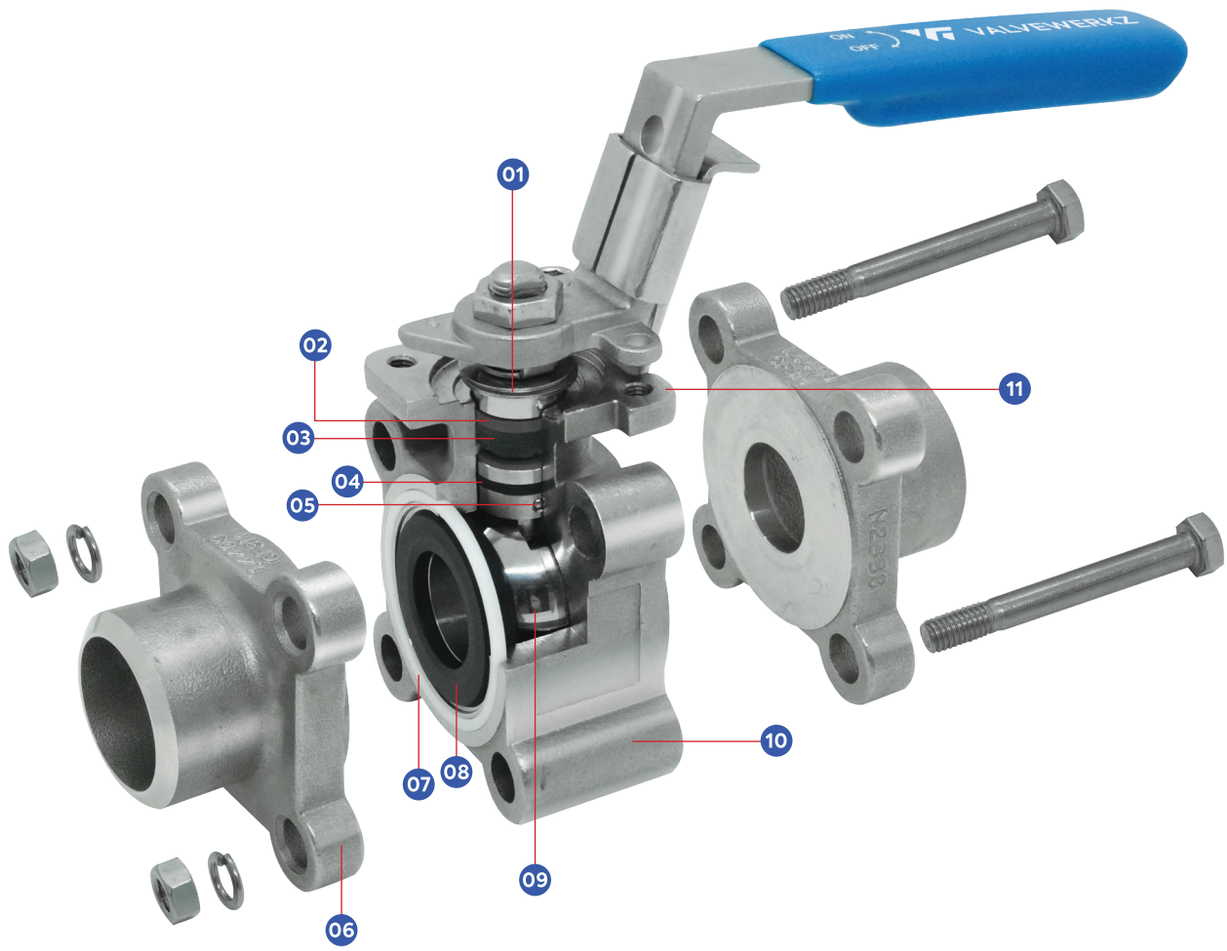
*For special material or customisation, please refer to our sales engineer.

SCAN FOR ONLINE ORDERING FORM

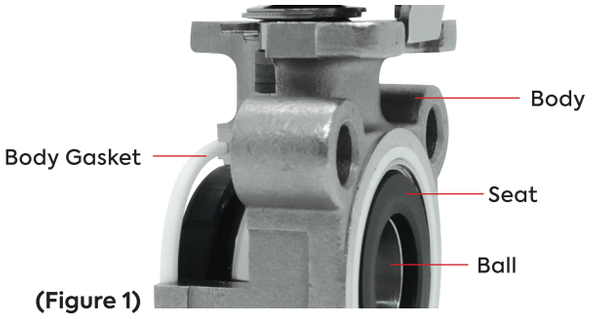
Tel: +65 6909 1221
Email: enquiry@valvewerkz.com
Website: www.valvewerkz.com

80 SERIES - HIGH PERFORMANCE

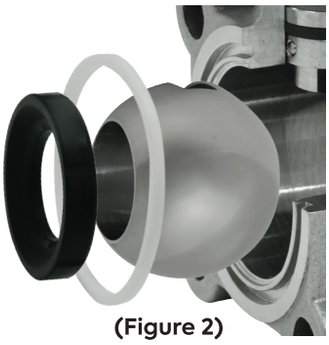
The ball valve consists of a body, end caps, and a ball. The ball is connected to the stem and rotates 90 degrees to enable on-off functionality. It is primarily used for pipeline on-off control and emergency shut-off applications. When equipped with a V-port ball, it can also be used for precise flow adjustment.



Part Name	Part Name
1. Belleville Washer	7. Body Gasket
2. Bushing	8. Seat
3. V-Ring Packing	9. Ball
4. Upper and Lower Stem Seal	10. Body
5. Dual Anti-Static Device	11. ISO 5211 Mounting Pad
6. End Cap	



(Figure 1)



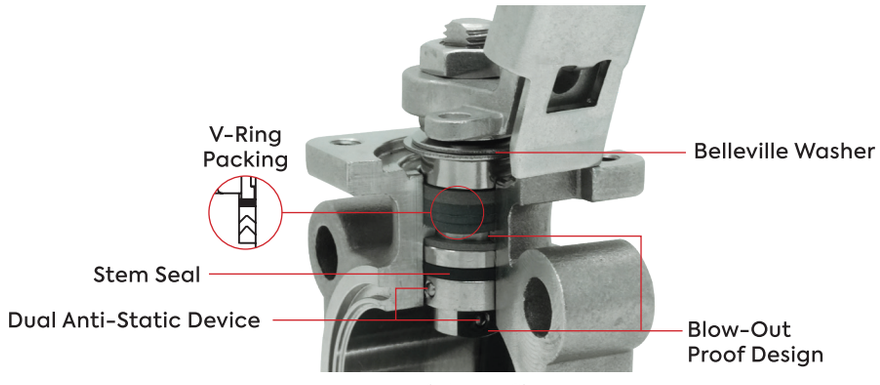
(Figure 2)

1. **Low Operating Torque**
   The seat provides elastic cushioning during ball rotation, ensuring smooth, uniform torque without jamming. (Figure 1)

2. **Reliable Sealing**
   Once the valve is closed, the seat maintains a tight seal through self-sealing under media pressure. (Figure 2)

3. **Extended Service Life**
   The elastic seat features a long pre-compression stroke, offering high wear compensation for longer durability.

4. **Cold Flow Control Design**
   The seat's trimming and wrapping structure supports non-contact areas of the ball and seat. This design prevents cold flow deformation and enables high-pressure performance. (Figure 1)



(Figure 3)

5. **Blow-Out Prevention**
   The stem includes an integral shoulder design to prevent blow-out and leakage. (Figure 3)

6. **Anti-Static Protection**
   The anti-static design reduces the risk of safety hazards caused by static electricity. (Figure 3)

7. **Effective Stem Sealing**
   An O-Ring on the valve stem offers excellent self-sealing capability, effectively sealing the valve cavity. (Figure 3)

8. **Dual Stem Sealing**
   Designed to meet TA-LUFT emission control standards for enhanced sealing reliability. (Figure 3)

9. **Self-Adjusting Packing**
   Two pre-loaded Belleville washers allow for automatic packing adjustment, minimising the need for re-tightening in low-leakage applications. (Figure 3)

10. **Precision Engineering**
    ValveWerkz's valve designs integrate advanced CNC machining, structural optimisation, and precise component sizing — all tailored to meet strict cobarny specifications. This ensures high usability and maximised service life.

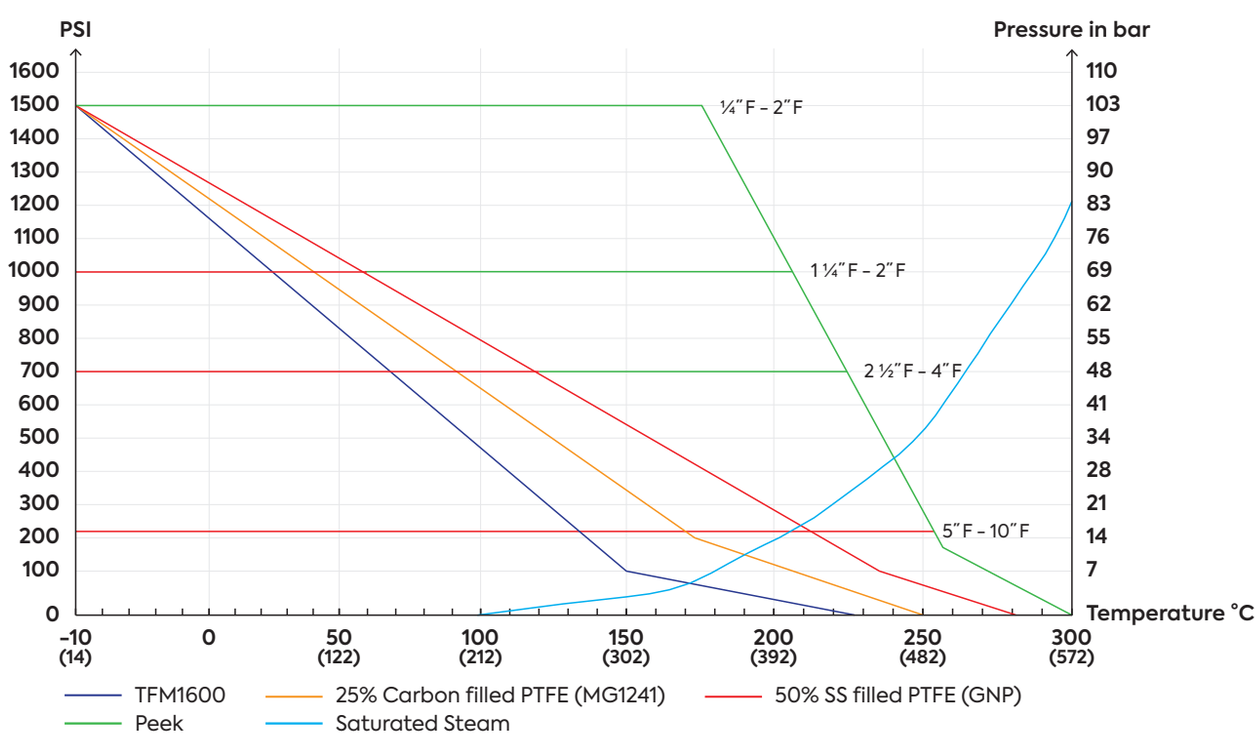
80 Series

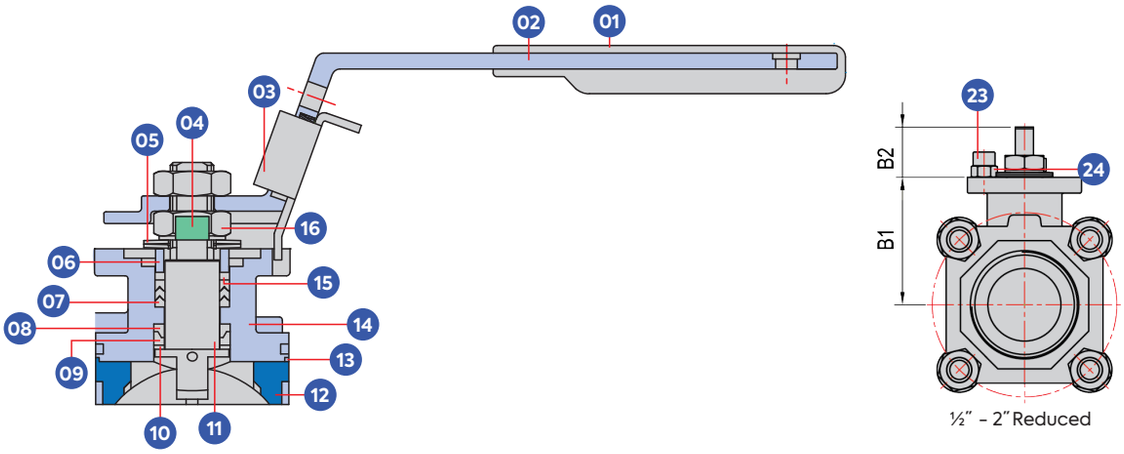
3-Piece Body Design

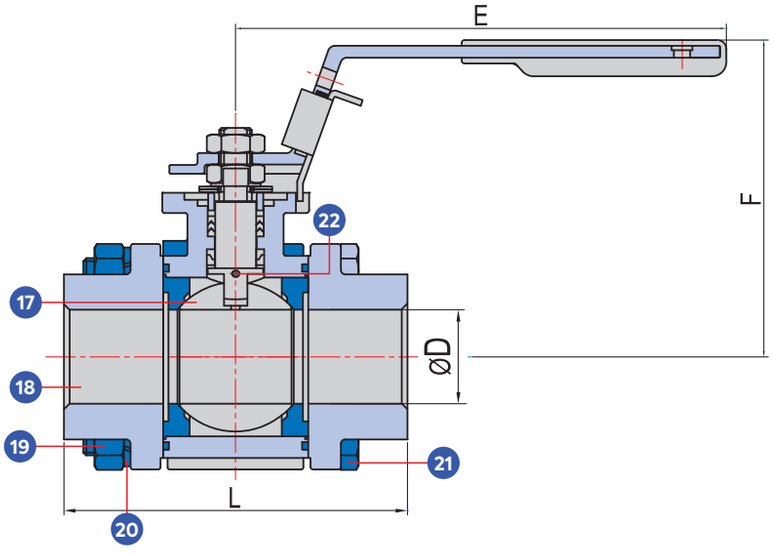
Reduced Bore / Full Bore
Sizes ½" - 10"
½" - 1 ¼" PN100
1 ½" - 2 ½" PN64
3" - 4" PN50
5" - 10" PN16
WCB / SS316 body
Threaded End (½" - 4")
Socket Weld End (½" - 4")
Butt Weld End (½" - 10")
Superior Live Loaded Packing System
ISO 5211 Mounting Pad (Bracket Required)
Blowout-Proof Stem
Dual Anti-Static Devices
Standard Seat: 25% Carbon Filled PTFE - max. 250°C
Seat Options: RPTFE - max. 230°C 50% SS Filled PTFE - max. 280°C PEEK - max. 300°C
Lockable Handle (½" - 4")
Gearbox (5" - 10")

ValveWerkz 80 series 3-piece ball valve are one of the finest quality 3-piece valves in the market. The high quality investment casting feature a fully machined bore. The superior live-loaded packing system is accomplished with Belleville washers, "V" ring packing and a unique primary pyramidal stem seal. This advanced sealing system provides protection against stem leaks experienced by ordinary ball valve.

Pressure / Temperature Ratings



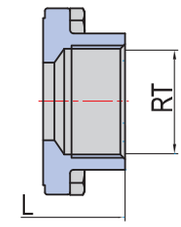




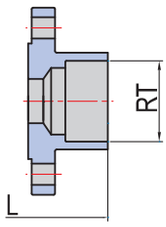
	Part Name	Material
1.	Handle Sleeve	VINYL
2.	Handle	SUS304
3.	Locking Device	SUS304
4.	Lock Saddle	SUS304
5.	Belleville Washer	SUS304
6.	Gland	SUS304
7.	V-Ring Packing*	MG1241
8.	Upper Stem Seal*	TFM4215
9.	Compress Ring*	SUS316
10.	Lower Stem Seal*	50% S.S. Powder Filled PTFE
11.	Stem	SUS316
12.	Seat*	RPTFE / 50% SS Filled PTFE / 25% Carbon Filled PTFE / PEEK

	Part Name	Material
13.	Packing*	PTFE
14.	Body	SUS316 / WCB
15.	Bushing	50% S.S. Powder Filled PTFE
16.	Stem Nut	SUS304
17.	Ball	SUS316
18.	End Cap	SUS316 / WCB
19.	Bolt Nut	SUS304
20.	Washer	SUS304
21.	Bolt	SUS304
22.	Anti-Static Device	Stainless Steel
23.	Stop Pin	SUS304
24.	Stop Pin Nut	SUS304

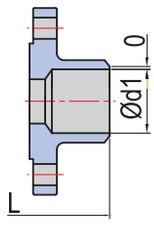
*Spare Parts available in Repair Kit. Please refer to page 56 for more details.



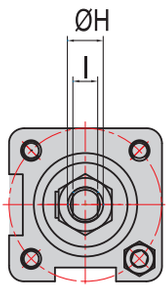
Threaded End

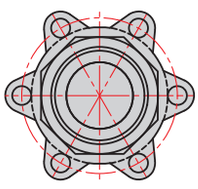


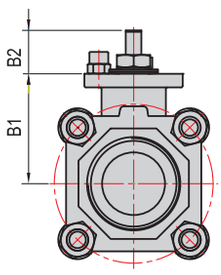
Socket Weld End



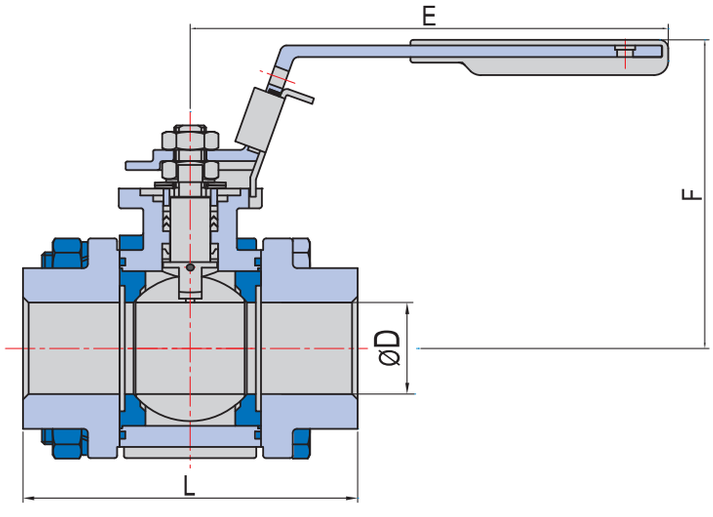
Butt Weld End




2 ½" - 4" Reduced



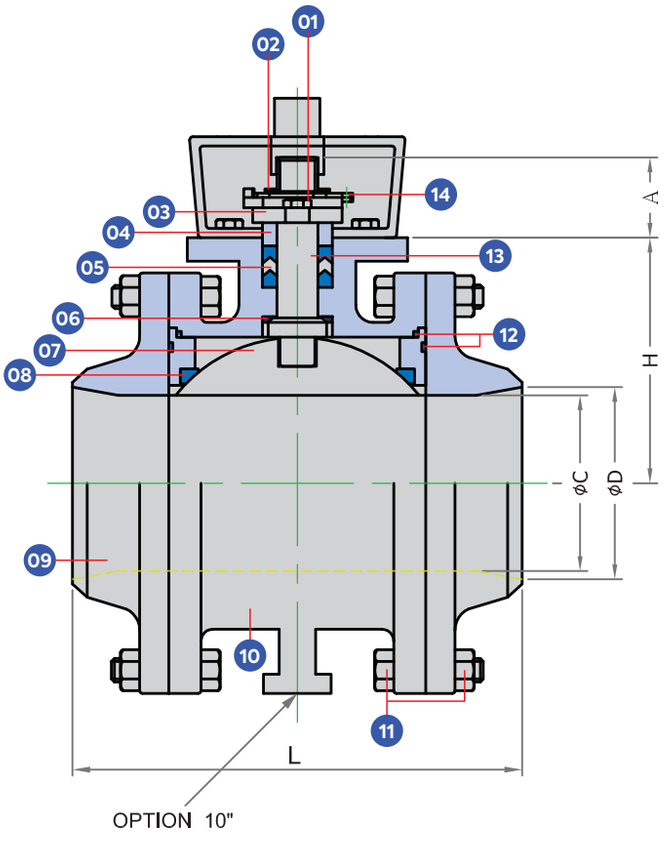
½" - 2" Full



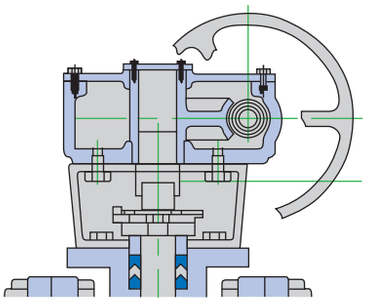
Dimensions(mm)

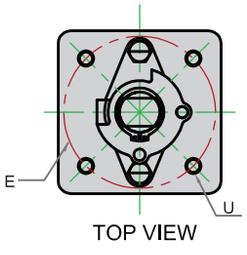
DN(mm)	Size	DN(mm)	Size	B1	B2	ØD	ØD1	E	F	ØH	I	L	O	RT	ISO5211	RB	FB	Weight(kg)
Full Bore		Reduced Bore																
8	¼"	-	-	27.7	12.7	12.7	9.5	120.0	66.0	8.0	5.0	66.8	0.5	14.1	F03	-	7.0	0.5
10	⅜"	15	½"	27.7	12.7	12.7	15.8	120.0	66.0	8.0	5.0	66.8	0.5	17.5	F03	10.0	8.0	0.6
15	½"	20	¾"	38.1	15.0	15.0	21.0	134.0	84.0	9.7	6.3	71.0	0.5	22.4	F04	19.0	25.0	0.9
20	¾"	25	1"	41.8	20.0	20.0	26.6	134.0	88.0	9.7	6.3	96.5	0.5	27.4	F04	42.0	50.0	1.4
25	1"	32	1 ¼"	51.6	21.4	25.4	35.1	167.0	98.0	11.2	8.0	109.0	0.5	34.2	F05	60.0	80.0	2.1
32	1 ¼"	40	1 ½"	55.9	21.7	32.0	41.2	167.0	101.0	11.2	8.0	117.0	0.5	43.0	F05	125.0	150.0	2.8
40	1 ½"	50	2"	66.2	25.6	28.0	53.0	204.0	117.0	16.0	9.5	128.3	1.0	49.0	F07	165.0	240.0	4.1
50	2"	65	2 ½"	75.4	25.2	50.8	68.4	204.0	125.0	16.0	9.5	141.5	1.0	61.1	F07	260.0	460.0	5.9
65	2 ½"	80	3"	89.4	42.7	65.0	77.8	250.0	165.0	22.3	17.0	174.0	1.6	77.1	F10	440.0	820.0	10.2
80	3"	100	4"	101.2	39.4	76.0	102.5	250.0	174.0	22.3	17.0	193.0	1.6	90.2	F10	780.0	1,250.0	15.8
100	4"	-	-	131.5	21.5	100.0	102.3	250.0	-	SQ22	17.0	240.0	1.6	115.5	F10	-	2,300.0	22.5

The information provided in this document is intended for informational purposes only and is subject to change without notice.



DN125 – DN250



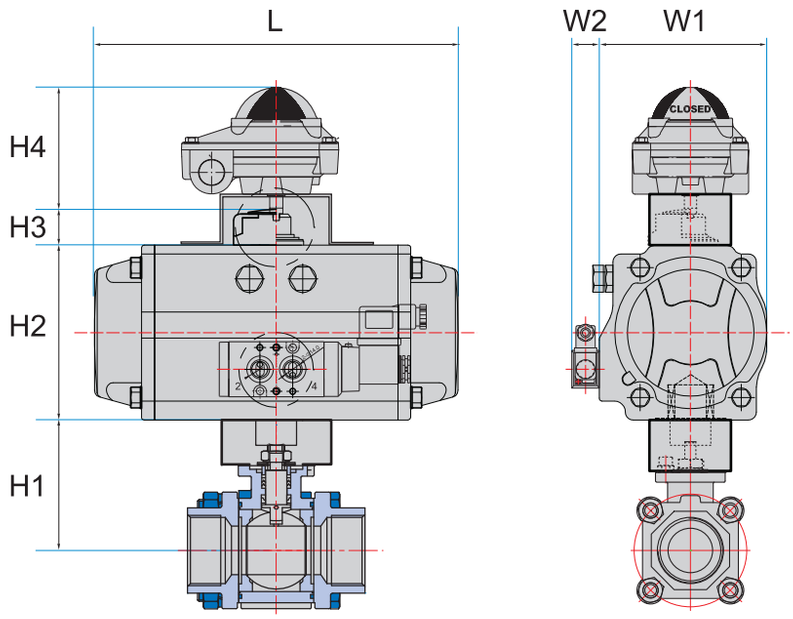


	Part Name	Material
1.	Snap Ring	SS304
2.	Gland Bolt	SS304
3.	Gland	A351 GR.CF8
4.	Gland Bush	SS304
5.	Packing	PTFE
6.	Stem Seal	25% Carbon Filled PTFE
7.	Ball	SS316 / SS304

	Part Name	Material
8.	Ball Seat	RPTFE / 50% SS Filled PTFE / 25% Carbon Filled PTFE / PEEK
9.	Body	SS316/ WCB
10.	Butt Weld End Cap	SS316/ WCB
11.	Bolt & Nut	B8/8 / B7/2h
12.	Gasket	PTFE
13.	S2 Stem	SS316
14.	Stop Plate	SS304

Dimensions(mm)

DN(mm)	Size	DN(mm)	Size	ØD		ØC		L		H	A	E	U	L		Weight(kg)	
FB		RB		FB	RB	FB	RB	FB	RB					FB	RB	FB	RB
–	–	125	5″	–	125.0	–	100.0	–	289.0	134.0	45.0	102.0	0.5	–	1,700	–	56.0
125	5″	150	6″	–	150.0	100.0	125.0	303.6	303.6	140.0	63.0	102.0	0.5	1,700	2,705	68.0	104.0
150	6″	200	8″	–	200.0	125.0	150.0	344.0	344.0	172.5	69.0	125.0	0.5	2,705	4,600	125.0	153.0
200	8″	250	10″	–	247.6	150.0	200.0	372.0	372.0	224.0	86.0	125.0	0.5	4,600	9,900	184.0	263.0
250	10″	–	–	–	–	200.0	–	520.0	–	267.0	86.0	125.0	0.5	9,900	–	316.0	–



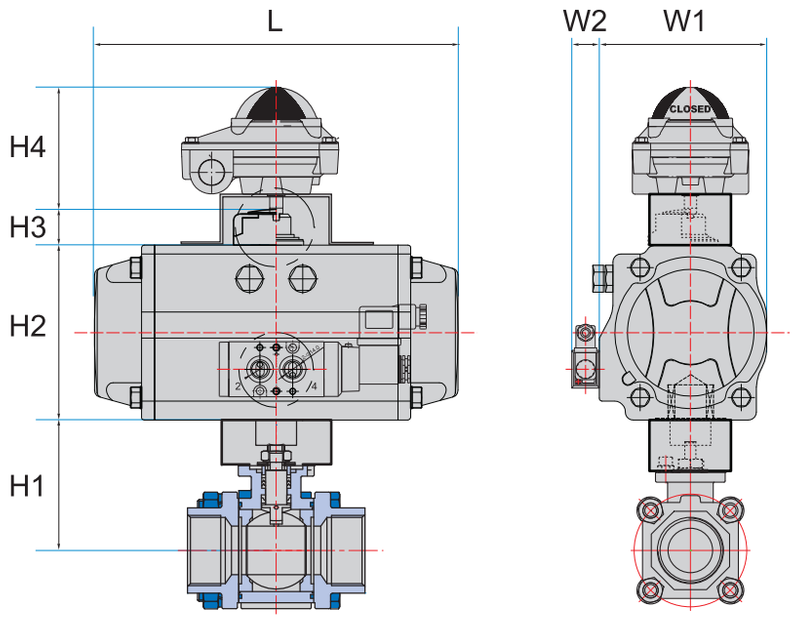
Pneumatic Actuator (Double Acting)

DN(mm)	Size	DN(mm)	Size	Torques	Actuator	H1	H2	H3	H4	W1	W2	L	Weight(kg)
FB		RB											
8	¼"	8	¼"	5.3	HP-50	66.7	73	20	90	72	29.5	144	3.01
10	⅜"	10	⅜"	5.3	HP-50	66.7	73	20	90	72	29.5	144	3.15
15	½"	15	½"	5.3	HP-50	77.1	73	20	90	72	29.5	144	3.38
20	¾"	20	¾"	7.8	HP-50	80.8	73	20	90	72	29.5	144	3.92
25	1"	25	1"	10.1	HP-50	91.6	73	20	90	72	29.5	144	4.56
32	1 ¼"	32	1 ¼"	13.1	HP-63	95.9	87	20	90	85	29.5	163	5.32
40	1 ½"	40	1 ½"	20.9	HP-66	106.2	87	20	90	85	29.5	202	7.19
50	2"	50	2"	29.7	HP-66	115.4	104	20	90	96	29.5	210	9.74
65	2 ½"	65	2 ½"	64.4	HP-88	157.4	116	20	90	108	29.5	247	14.61
80	3"	80	3"	84.5	HP-100	169.2	128	20	90	123	29.5	268	24.16
100	4"	100	4"	110.0	HP-115	199.5	146	20	90	141	29.5	316	30.86
125	5"	125	5"	375.0	HP-160	179.0	179	30	90	172	29.5	414	89.10
150	6"	150	6"	405.0	HP-160	203.0	196	30	90	190	29.5	467	146.10
200	8"	200	8"	510.0	HP-180	241.5	221	30	90	206	29.5	497	213.00
250	10"	250	10"	1,320.0	HP-211	290.0	256	30	90	236	29.5	504	369.00

The selection of the actuators are based on the below conditions:

- Air Supply Pressure : 5.5 bar
- Operating Pressure : 10 bar
- Safety Factor : 30%

*Compatible with various actuator types.

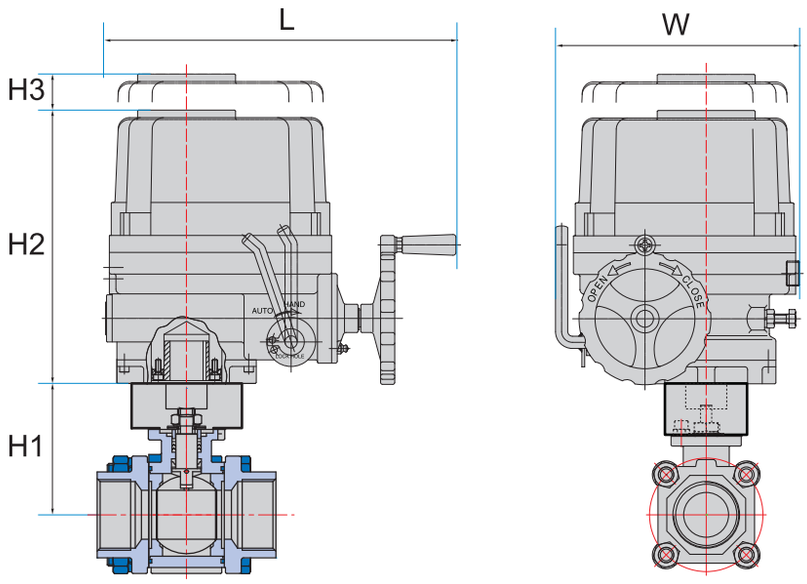


Pneumatic Actuator (Single Acting)

DN(mm)	Size	DN(mm)	Size	Torques	Actuator	H1	H2	H3	H4	W1	W2	L	Weight(kg)
FB		RB											
8	¼″	–	–	5.3	HP-63S (S11)	66.7	87	20	90	85	29.5	163	3.72
10	⅜″	15	½″	5.3	HP-63S (S11)	66.7	87	20	90	85	29.5	163	3.86
15	½″	20	¾″	5.3	HP-63S (S11)	77.1	87	20	90	85	29.5	163	4.09
20	¾″	25	1″	7.8	HP-66S (S11)	80.8	87	20	90	85	29.5	202	4.63
25	1″	32	1 ¼″	10.1	HP-75S (S11)	91.6	87	20	90	85	29.5	202	6.03
32	1 ¼″	40	1 ½″	13.1	HP-75S (S11)	95.9	104	20	90	96	29.5	210	6.79
40	1 ½″	50	2″	20.9	HP-88S (S11)	106.2	116	20	90	108	29.5	247	8.87
50	2″	65	2 ½″	29.7	HP-100S (S11)	115.4	128	20	90	123	29.5	268	12.26
65	2 ½″	80	3″	64.4	HP-125S (S11)	157.4	159	20	90	151	29.5	347	18.47
80	3″	100	4″	84.5	HP-145 (S11)	169.2	179	20	90	172	29.5	414	31.28
100	4″	125	5″	110.0	HP-145 (S11)	199.5	179	30	90	172	29.5	414	41.18
125	5″	150	6″	375.0	HP-200 (S11)	179.0	247	30	90	227	29.5	555	114.10
150	6″	200	8″	405.0	HP-211 (S11)	203.0	256	30	90	236	29.5	669	192.10
200	8″	250	10″	510.0	HP-212 (S11)	241.5	256	30	90	236	29.5	1,022	290.20
250	10″	–	–	1,320.0	–	290.0	–	–	–	–	–	–	–

The selection of the actuators are based on the below conditions:
- Air Supply Pressure : 5.5 bar
- Operating Pressure : 10 bar
- Safety Factor : 30%
- Air to Open, Spring to Close

*Compatible with various actuator types.



Electric Actuator

DN(mm)	Size	DN(mm)	Size	Torques	Actuator	H1	H2	H3	W	L	Weight(kg)
FB		RB									
8	¼″	–	–	5.3	HQ-004	66.7	124.3	–	88.6	166.6	3.05
10	⅜″	15	½″	5.3	HQ-004	66.7	124.3	–	88.6	166.6	3.19
15	½″	20	¾″	5.3	HQ-004	77.1	124.3	–	88.6	166.6	3.42
20	¾″	25	1″	7.8	HQ-004	80.8	124.3	–	88.6	166.6	3.96
25	1″	32	1 ¼″	10.1	HQ-004	91.6	124.3	–	88.6	166.6	4.60
32	1 ¼″	40	1 ½″	13.1	HQ-004	95.9	124.3	–	88.6	166.6	5.36
40	1 ½″	50	2″	20.9	HQ-006	106.2	137.0	–	88.6	126.0	6.71
50	2″	65	2 ½″	29.7	HQ-006	115.4	235.0	–	105.0	126.0	10.34
65	2 ½″	80	3″	64.4	HQ-015	157.4	235.0	–	105.0	338.0	14.61
80	3″	100	4″	84.5	HQ-020	169.2	268.0	160	229.0	338.0	34.76
100	4″	–	–	110.0	HQ-020	199.5	268.0	160	229.0	338.0	41.46

The selection of the actuators are based on the below conditions:

- Air Supply Pressure : 5.5 bar
- Operating Pressure : 10 bar
- Safety Factor : 30%

*Compatible with various actuator types.

REQUEST FOR QUOTE

STEP 1

Find the model series

STEP 2

Define the specification/ valve code

STEP 3

Fill up ordering sheet (back of the brochure) or Scan the QR code below

STEP 4

Submit your order via our website or contact your local partner

STEP 5

Prepare for confirmation and delivery

*For further assistance with placing your order, please contact your local partner.
A sales engineer will be assigned to assist you.

Valve Coding Sheet
80 Series

01 — 02 — 03 — 04 — 05 — 06

Design

Code	Material
F	Full Bore
R	Reduced Bore

Body Material

Code	Material
C1	WCB
S2	SS316

Seat Material

Code	Material
T	PTFE
M	25% Carbon Filled PTFE
G	50% SS Filled PTFE
P	Peek

Pressure Rating/Size

Code	Pressure	Size
A	PN100	½"
B	PN100	¾"
C	PN100	1"
D	PN100	1 ¼"
E	PN64	1 ½"
F	PN64	2"
G	PN64	2 ½"
H	PN50	3"
I	PN50	4"
J	PN16	5"
K	PN16	6"
L	PN16	8"
M	PN16	10"

Connection

Code	Material
B	BSP
N	NPT
S	Socket Weld
W	Butt Weld
X	Others (To be specified)

Operation

Code	Type
L	Lever
D	Double Acting
S	Pneumatic Actuated Single Acting
E	Pneumatic Actuated Electric Actuated

Your Valve Ordering Code:

80 — 01 02 03 04 05 06

Example:

80 Series - RS2TABL reduced bore.
Reduced Bore. SS316 Material. PTFE Seat. Pressure Rating of PN100, ½ inch size.
Connection Type of BSPT – Tappered. Lever Operating type.

*For special material or customisation, please refer to our sales engineer.

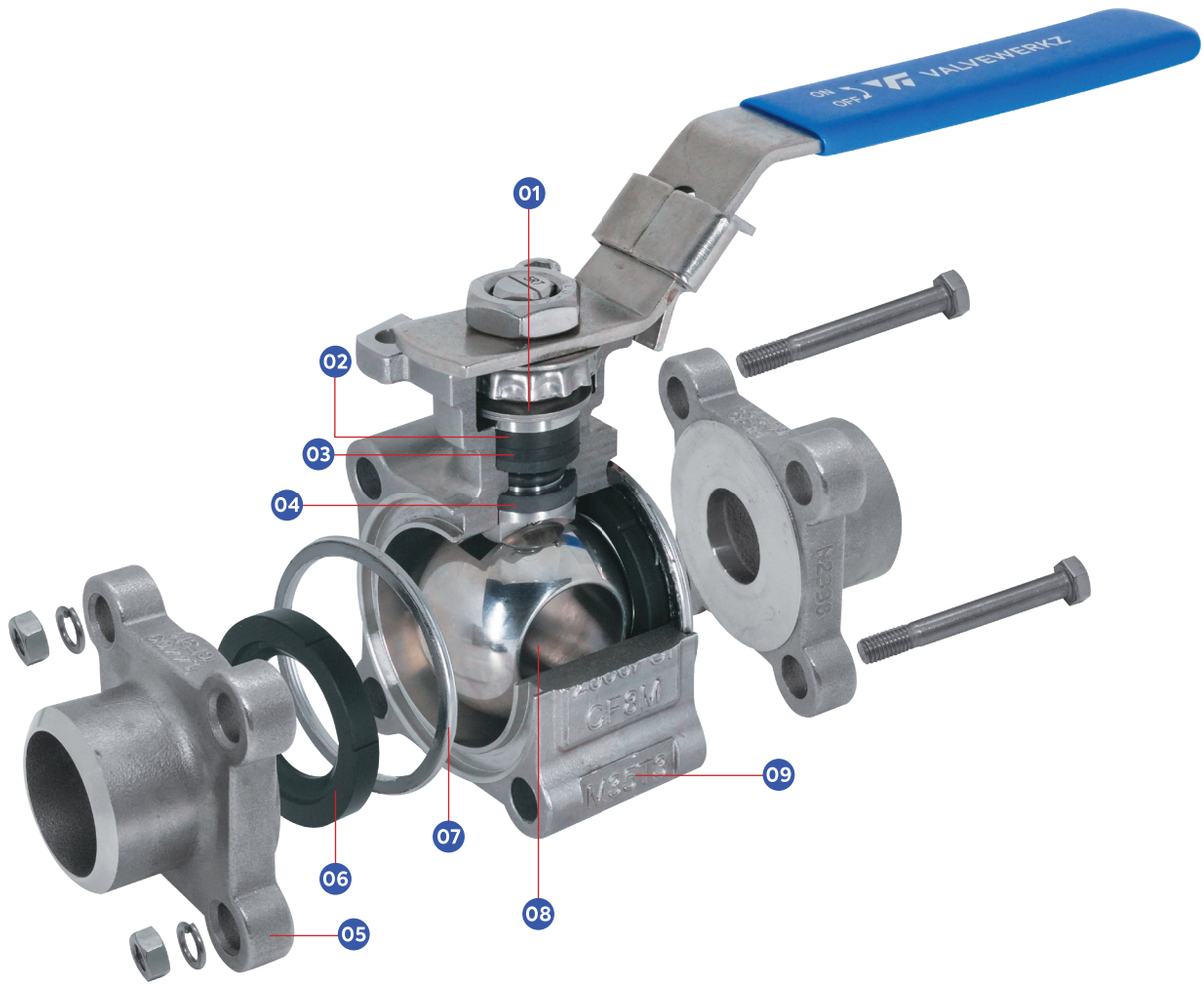
SCAN FOR ONLINE ORDERING FORM

Tel: +65 6909 1221
Email: enquiry@valvewerkz.com
Website: www.valvewerkz.com

81FS SERIES - HIGH PERFORMANCE

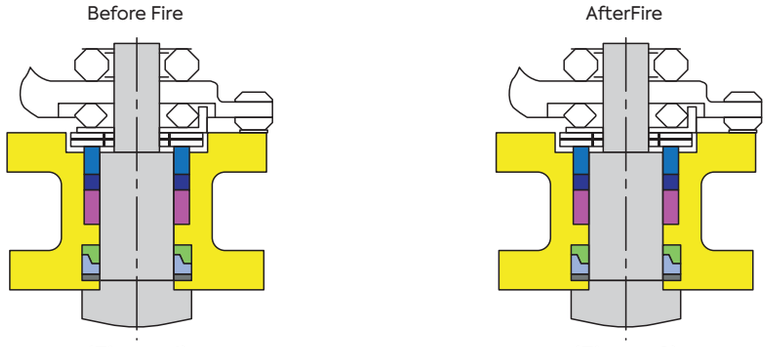
Fire Tested To API 607 4th Edition On ValveWerkz 81FS Soft-Seated 3pc Ball Valve

Plant fires are serious concern for soft-seated ball valve especially when the flammable fluids or dangerous gases are in service. The possible flammable fluid leakage during the fire consequently increases the fire magnitude and worsens the situation.



Part Name	Part Name
1. Belleville Washer	6. Seat
2. Bushing	7. Body Gasket
3. V-Ring Packing	8. Ball
4. Upper and Lower Stem Seal	9. Body
5. End Cap	

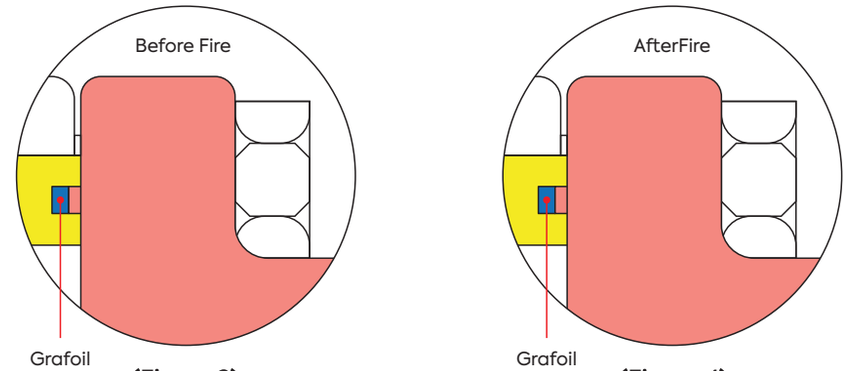
Grafoil Stem Seal



(Figure 1) **(Figure 2)**

ValveWerkz 81FS series ball valves are designed to be fire safe to minimize both external and internal fluid leakage after plant fires due to:

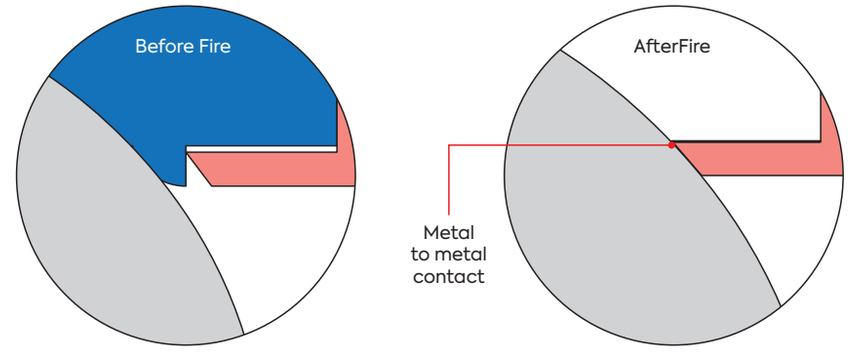
Contact between ball and end cap fire safe lip for through leakage prevention. During a fire, the soft seats are destroyed and the ball is free to move to downstream to form metal to metal contact between the ball and the end cap fire safe lip. This lip is integral part of the end connection which has very tight clearance with the ball. (See fig. #1 and #2)



(Figure 3) **(Figure 4)**

To maintain the integrity between end cap and body, our independent end cap bolts are screwed to body instead of using through bolts to attach the end caps and center section of the valve. It eliminates the end cap bolts from thermal expansion and contraction resulted from the fire and make fire resistance grafoil body gasket (encapsulated to body groove) to function as the way it should be and prevent the line fluid permeation and resultant leakage to external. (See fig. #3 and #4)

Stem packing, seal arrangement remain unaffected due to grafoil material for fire resistance. (See fig. #5 and #6)



(Figure 5) **(Figure 6)**

81FS Series

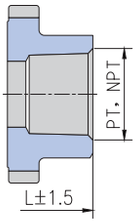
3-Piece Body Design

Full Bore / Reduced Bore	
Carbon Steel, SS304, SS316	
SS316	
CPTFE TFM4215 + 50% SS	TFM4215 PEEK
Threaded End (¼" - 4") Socket Weld End (¼" - 4") Butt Weld End (¼" - 10")	
Full Bore DN8 (¼") to DN100 (4") Reduced Bore DN15(½") to DN100 (4")	
Pneumatic Actuator (Single Acting / Double Acting) Electric Actuator	
Cv = 9.2 to Cv = 1020	
Full Bore 2000psi 1500psi 1000psi	 ¼" - 1" 1 ¼" - 2" 2 ½" - 4"
Reduced Bore 2000psi 1500psi 1000psi	 ½" - 1" 1 ¼" - 2" 2 ½" - 4"

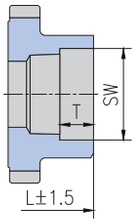
The 81FS series fire-safe ball valves have passed fire tests in accordance with API 607. These valves are ideal for transporting petroleum products, flammable, or hazardous materials, and are also widely applicable in general and corrosive environments. The materials of the 81FS series valves can meet the requirements of NACE MR0103 and, with special treatment, can be used in oxygen or high-vacuum environments. The valves comply with ANSI, API, BS, and MSS standards. The standard fire-safe valve features a carbon steel body and 316 stainless steel construction and other alloys. Available seat materials include CPTFE, TFM4215, TFM4215+50%SS, and PEEK, suitable for applications involving chemicals, petrochemicals, acids, alkalis, and steam.

Dimensions(mm)

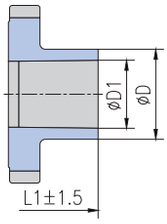
DN(mm)	Size	DN(mm)	Size	SW		T		BW		D1		L	L2	H	H1	H2	W	d	D
FB		RB		FB	RB	FB	RB	FB	RB	FB	RB								
8	¼"	-	-	14.6	-	9.5	-	14.0	-	11.5	-	75	24.5	73	42.5	8	134	12	54.0
10	⅜"	15	½"	19.0	22.2	9.5	9.5	17.2	21.7	12.6	15.0	75	24.5	73	42.5	8	134	12	54.0
15	½"	20	¾"	22.2	27.6	9.5	12.5	21.7	27.2	15.0	20.5	75	24.5	73	42.5	8	134	12	54.0
20	¾"	25	1"	27.6	34.3	12.5	12.5	27.2	34.0	20.5	25.7	85	31.5	78	46.5	8	134	12	62.5
25	1"	32	1 ¼"	34.3	43.1	12.5	12.5	34.0	42.7	25.7	34.4	105	41.5	96	58.5	12	165	15	71.0
32	1 ¼"	40	1 ½"	43.1	49.2	12.5	12.5	42.7	48.6	34.4	40.3	111	48.5	100	62.5	12	165	15	80.0
40	1 ½"	50	2"	49.2	61.7	12.5	16.0	48.6	60.5	40.3	51.3	127	56.3	125	78.0	15	215	22	94.0
50	2"	65	2 ½"	61.7	74.4	16.0	16.0	60.5	76.3	51.3	67.1	143	71.5	135	88.0	15	215	22	112.5
65	2 ½"	80	3"	74.4	90.3	16.0	16.0	76.3	88.9	67.1	80.0	185	86.5	148	109.0	19	300	25	139.0
80	3"	100	4"	90.3	115.7	16.0	19.0	88.9	116.0	80.0	103.1	205	100.0	155	117.5	19	370	25	162.0
100	4"	-	-	115.7	-	19.0	-	116.0	-	103.1	-	240	127.0	171	133.5	19	500	25	193.0



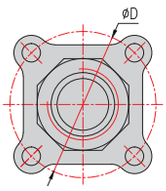
Threaded End



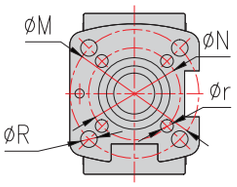
Socket Weld End



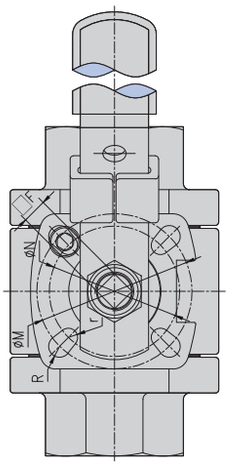
Butt Weld End

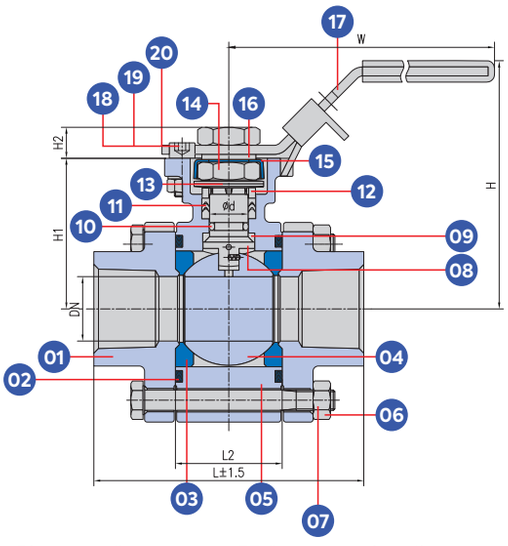


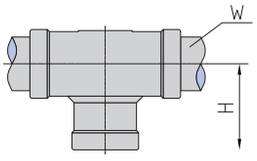
2 ½" - 4" Reduced



DN40F - DN100F
DN50R - DN100R



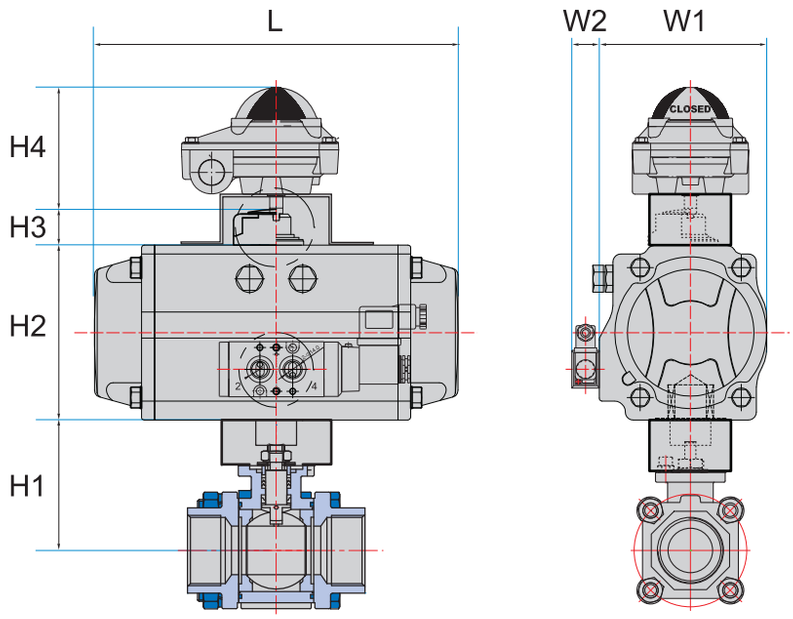




DN65F - DN100F
DN80R - DN100R

*Spare Parts available in Repair Kit. Please refer to page 57 for more details.

	Part Name	Material		
		Thread / SW | BW	Thread / SW | BW	Thread / SW | BW
1.	End Cap	A351 CF8 | A351 CF8	A351 CF8M | A351 CF3M	A216 WCB | A216 WCB
2.	Gasket	SS304 + Graphite	SS316 + Graphite	SS304 + Graphite
3.	Seat	CPTFE	TFM4215	TFM4215 + 50%SS PEEK
4.	Ball	SS304	SS316	SS304
5.	Body	A351 CF8	A351 CF8M	A216 WCB
6.	Bolt	A2–70	A2–70	A2–70
7.	Nut	A2–70	A2–70	A2–70
8.	Stem	SS304	SS316	SS304
9.	Stem Washer	RPTFE	RPTFE	RPTFE
10.	O-Rings	Viton	Viton	Viton
11.	Packing	Graphite	Graphite	Graphite
12.	Gland	SS304	SS304	SS304
13.	Belleville Washer	SS301	SS301	SS301
14.	Nut	A2–70	A2–70	A2–70
15.	Stop Lock Cap	SS304	SS304	SS304
16.	Washer	SS304	SS304	SS304
17.	Handle	SS304	SS304	SS304
18.	Stop Bolt	A2–70	A2–70	A2–70
19.	Washer	SS304	SS304	SS304
20.	Nut	A2–70	A2–70	A2–70



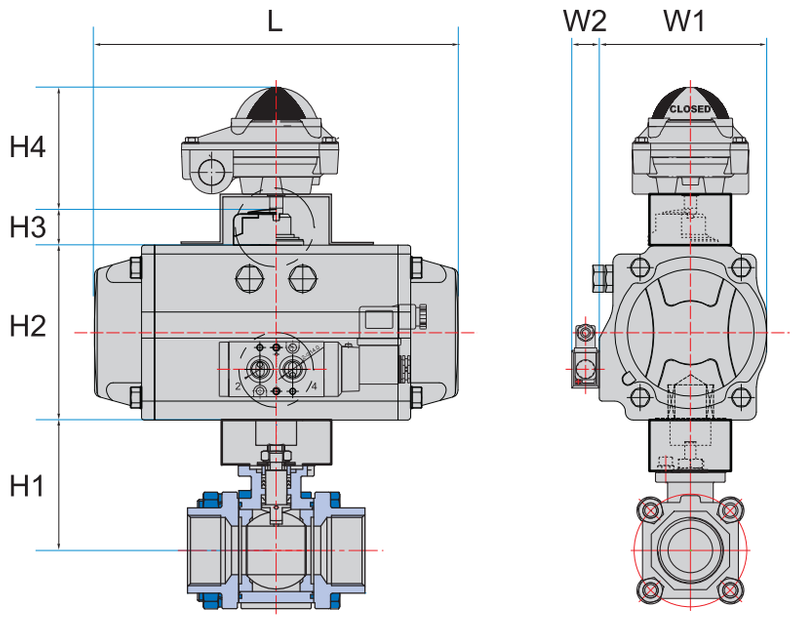
Pneumatic Actuator (Double Acting)

DN(mm)	Size	DN(mm)	Size	Torques	Actuator	H1	H2	H3	H4	W1	W2	L
FB		RB										
8	¼″	–	–	7.8	HP-050	42.5	73	20	90	72	29.5	144
10	⅜″	15	½″	7.8	HP-050	42.5	73	20	90	72	29.5	144
15	½″	20	¾″	13.0	HP-050	42.5	73	20	90	72	29.5	144
20	¾″	25	1″	16.9	HP-063	42.5	87	20	90	85	29.5	163
25	1″	32	1 ¼″	23.4	HP-066	58.5	87	20	90	85	29.5	202
32	1 ¼″	40	1 ½″	39.0	HP-066	62.5	87	20	90	85	29.5	202
40	1 ½″	50	2″	45.5	HP-075	78.0	104	20	90	96	29.5	210
50	2″	65	2 ½″	52.0	HP-088	88.0	116	20	90	108	29.5	247
65	2 ½″	80	3″	91.0	HP-100	109.0	128	20	90	123	29.5	268
80	3″	100	4″	123.5	HP-115	117.5	146	20	90	172	29.5	316
100	4″	–	–	182.0	HP-115	133.5	146	20	90	172	29.5	316

The selection of the actuators are based on the below conditions:
- Air Supply Pressure : 5.5 bar
- Operating Pressure : 10 bar
- Safety Factor : 30%
- Seat : RPTFE

*Compatible with various actuator types.

Note: For fire safe ball valves, explosion proof limit switch and solenoid valve may be required.



Pneumatic Actuator (Single Acting)

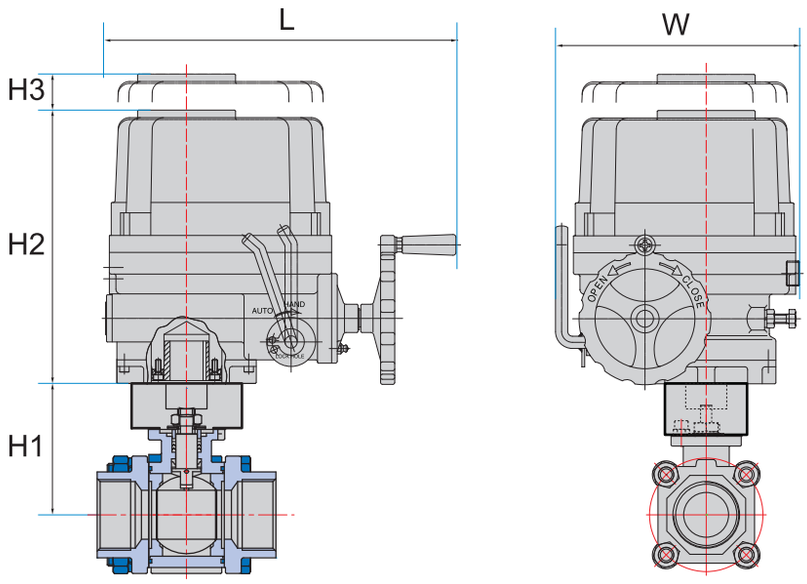
DN(mm)	Size	DN(mm)	Size	Torques	Actuator	H1	H2	H3	H4	W1	W2	L
FB		RB										
8	¼″	–	–	7.8	HP-63S	42.5	87	20	90	85	29.5	163
10	⅜″	15	½″	7.8	HP-63S	42.5	87	20	90	85	29.5	163
15	½″	20	¾″	13.0	HP-63S	42.5	87	20	90	85	29.5	163
20	¾″	25	1″	16.9	HP-75S	42.5	104	20	90	96	29.5	210
25	1″	32	1 ¼″	23.4	HP-100S	58.5	128	20	90	123	29.5	268
32	1 ¼″	40	1 ½″	39.0	HP-100S	62.5	128	20	90	123	29.5	268
40	1 ½″	50	2″	45.5	HP-100S	78.0	128	20	90	123	29.5	268
50	2″	65	2 ½″	52.0	HP-115S	88.0	146	20	90	141	29.5	316
65	2 ½″	80	3″	91.0	HP-125S	109.0	159	20	90	151	29.5	347
80	3″	100	4″	123.5	HP-145S	117.5	179	30	90	172	29.5	414
100	4″	–	–	182.0	HP-145S	133.5	179	30	90	172	29.5	414

The selection of the actuators are based on the below conditions:

- Air Supply Pressure : 5.5 bar
- Operating Pressure : 10 bar
- Safety Factor : 30%
- Seat : RPTFE
- Air to Open, Spring to Close

*Compatible with various actuator types.

Note: For fire safe ball valves, explosion proof limit switch and solenoid valve may be required.



Electric Actuator

DN(mm)	Size	DN(mm)	Size	Torques	Actuator	H1	H2	H3	W	L
FB		RB								
8	¼″	–	–	5.3	HQ-004	42.5	124	–	89	117
10	⅜″	15	½″	5.3	HQ-004	42.5	124	–	89	117
15	½″	20	¾″	5.3	HQ-004	42.5	124	–	89	117
20	¾″	25	1″	7.8	HQ-004	42.5	124	–	89	117
25	1″	32	1 ¼″	10.1	HQ-004	58.5	124	–	89	117
32	1 ¼″	40	1 ½″	13.1	HQ-006	62.5	139	–	105	126
40	1 ½″	50	2″	20.9	HQ-006	78.0	139	–	105	126
50	2″	65	2 ½″	29.7	HQ-006	88.0	139	–	105	126
65	2 ½″	80	3″	64.4	HQ-010	109.0	235	120	170	258
80	3″	100	4″	84.5	HQ-015	117.5	268	160	229	338
100	4″	–	–	110.0	HQ-020	133.5	268	160	229	338

The selection of the actuators are based on the below conditions:
- Air Supply Pressure : 5.5 bar
- Operating Pressure : 10 bar
- Safety Factor : 30%
- Seat : RPTFE

*Compatible with various actuator types.

Note: For fire safe ball valves, explosion proof limit switch and solenoid valve may be required.

REQUEST FOR QUOTE

STEP 1

Find the model series

STEP 2

Define the specification/ valve code

STEP 3

Fill up ordering sheet (back of the brochure) or Scan the QR code below

STEP 4

Submit your order via our website or contact your local partner

STEP 5

Prepare for confirmation and delivery

*For further assistance with placing your order, please contact your local partner.
A sales engineer will be assigned to assist you.

Valve Coding Sheet
81FS Series

01 — 02 — 03 — 04 — 05

Body Material

Code	Material
C1	WCB
S2	SS316

Seat Material

Code	Material
T	PTFE
M	25% Carbon Filled PTFE
G	50% SS Filled PTFE
P	Peek

Pressure Rating/Size

Code	Pressure	Size
A	PN100	½"
B	PN100	¾"
C	PN100	1"
D	PN100	1 ¼"
E	PN64	1 ½"
F	PN64	2"
G	PN64	2 ½"
H	PN50	3"
I	PN50	4"
J	PN16	5"
K	PN16	6"
L	PN16	8"
M	PN16	10"

Connection

Code	Material
B	BSP
N	NPT
S	Socket Weld
W	Butt Weld
X	Others (To be specified)

Operation

Code	Type
L	Lever
D	Double Acting
S	Pneumatic Actuated Single Acting
E	Pneumatic Actuated Electric Actuated

Your Valve Ordering Code:

81FS — 01 02 03 04 05

Example:

81FS Series - S2TABL reduced bore.
SS316 Material. PTFE Seat. Pressure Rating of PN100, ½ inch size. Connection Type of BSPT – Tappered. Lever Operating type.

*For special material or customisation, please refer to our sales engineer.

SCAN FOR ONLINE ORDERING FORM

Tel: +65 6909 1221
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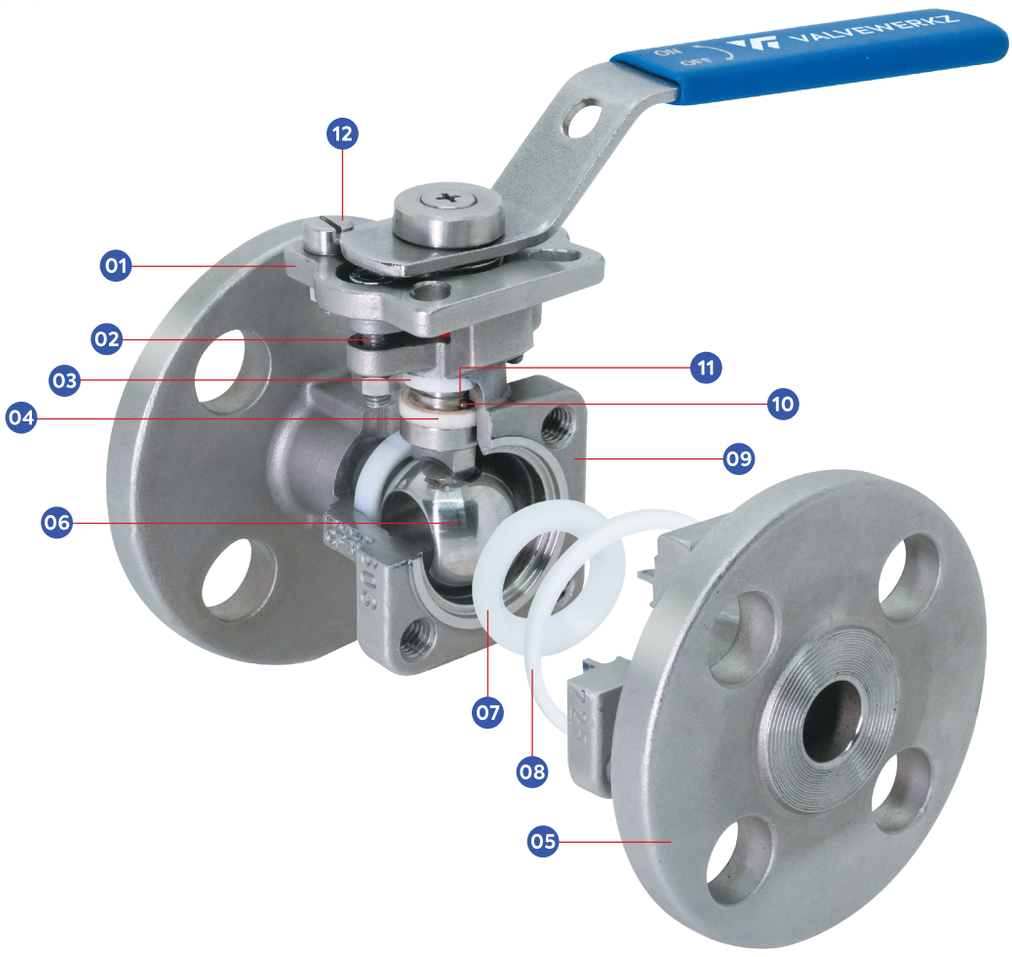
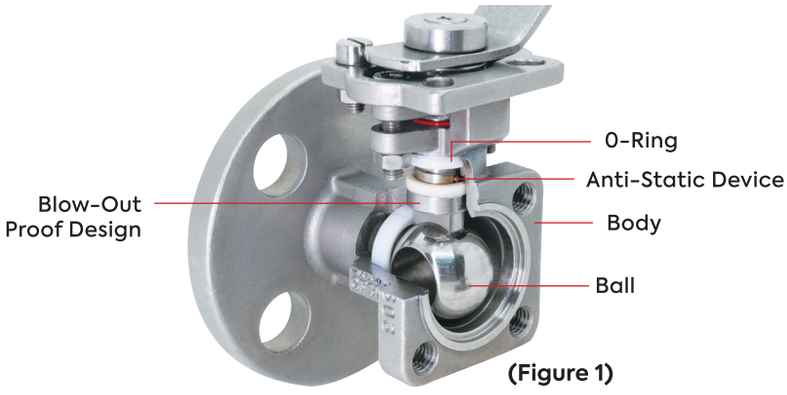
Website: www.valvewerkz.com

203 SERIES - FLANGE BALL VALVE

The pressing plate-type ball valve consists of a body, end cap, and a ball. The ball is connected to the stem and rotates 90 degrees to enable on-off functionality. It is primarily used for on-off control and emergency shut-off in pipelines. When equipped with a V-port ball, it can also regulate flow for precise adjustment.

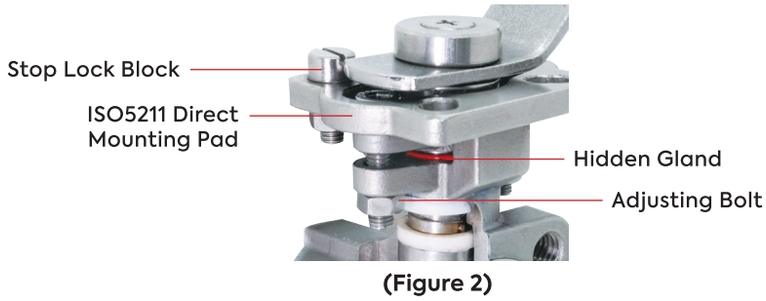


Part Name	Part Name	Part Name
1. ISO5211 Direct Mounting Pad	5. End Cap	9. Body
2. Adjusting Bolt	6. Ball	10. Anti-Static Device
3. V-Ring Packing	7. Seat(Pressure Relief Groove)	11. Belleville Washer
4. O-Ring	8. Body Gasket	12. Stop Lock Block



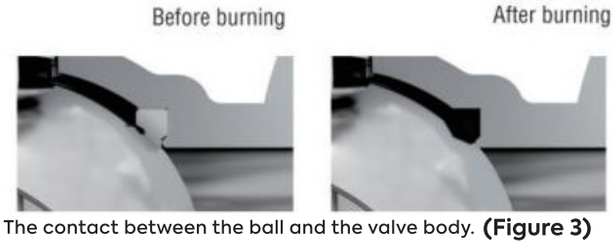
(Figure 1)

1. **Blow-Out Prevention**
   The stem features an integral shoulder design to prevent blow-out and leakage. (Figure 1)
2. **Anti-Static Safety**
   An anti-static design helps to eliminate safety risks caused by static electricity. (Figure 1)



(Figure 2)

3. **Effective Stem Sealing**
   The O-ring on the stem provides reliable self-sealing performance to contain the medium. (Figure 2)
4. **Misoperation Prevention**
   A dedicated limit device is included to prevent accidental or incorrect valve operation. (Figure 2)
5. **Fire-Safe Seal Design**
   The metal-to-metal sealing structure prevents external leakage and offers flame resistance for enhanced safety.



The contact between the ball and the valve body. **(Figure 3)**

Note:
The main valve body is sealed with non-leak PTFE gaskets.

For fire-safe applications, flexible graphite may be used as a secondary seal to enhance fire resistance.

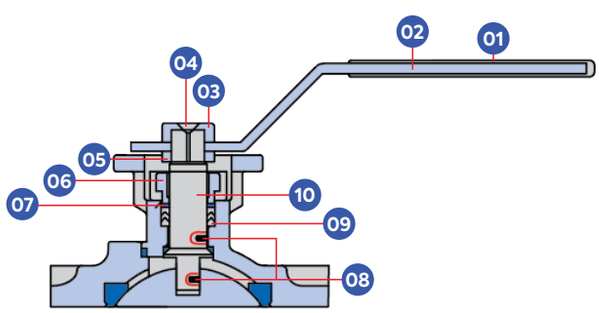
6. **Dual Stem Sealing**
   Designed to meet TA-LUFT emission control standards, providing enhanced sealing reliability. (Figure 3)
7. **Self-Adjusting Belleville Washers**
   Two pre-loaded Belleville washers reduce the need for re-tightening in low-leakage applications by maintaining consistent packing compression. (Figure 1)
8. **Adjustable Hidden Gland**
   Stem packing can be tightened to stop the leakage from stem without removing the actuator from the valve. (Figure 2)

203 Series

2-Piece Body Design

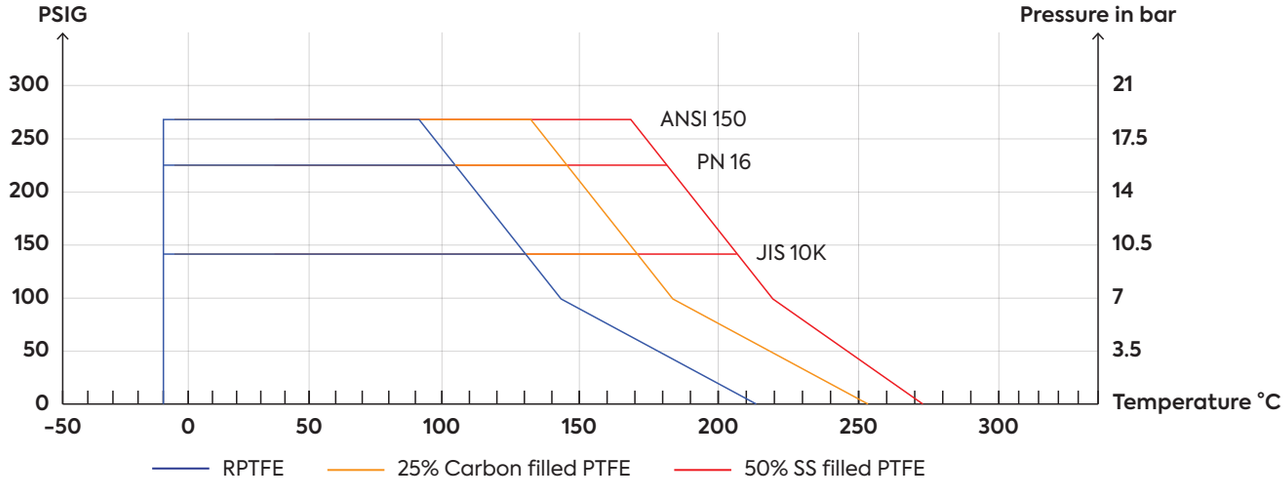
Full Bore
Sizes ¼" - 6"
WCB / SS304 / SS316
203AU ANSI (ANSI 150 / ANSI 300)
203AD DIN (PN16 / PN40)
203AJ JIS (JIS-10K / JIS-20K)
Superior Live Loaded Packing System
ISO 5211 Direct Mounting Pad
Blowout-Proof Stem
Dual Anti-Static Device (Ball-Stem-Body)
Standard Seat: 25% Carbon Filled PTFE (max. 250°C)
Seat Options: RPTFE (max. 210°C) 50% SS Filled PTFE (max. 270°C)
Patent Pending Product
Fire Safe Design

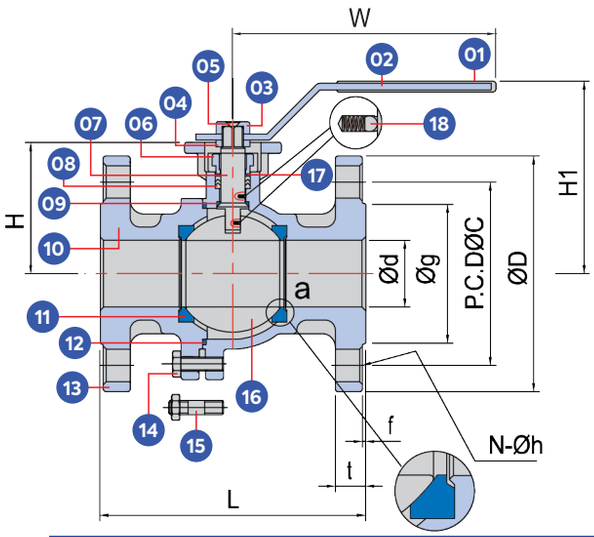
ValveWerkz 203 series flanged ball valves feature a split body design. The high-quality investment castings feature a fully machined bore. The superior llive-loaded packing system (includes) Belleville washers, "V" ring packing, and a unique primary pyramidal stem seal. This advanced sealing system provides protection against stem leaks experienced by ordinary ball valves.

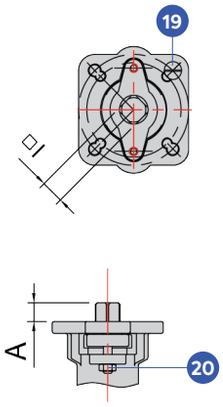


Part Name			
1.	Handle Sleeve	6.	Gland
2.	Handle	7.	Bushing
3.	Stem Washer	8.	Anti-Static Device
4.	Handle Bolt	9.	V-Ring Packing
5.	Handle Washer	10.	Stem

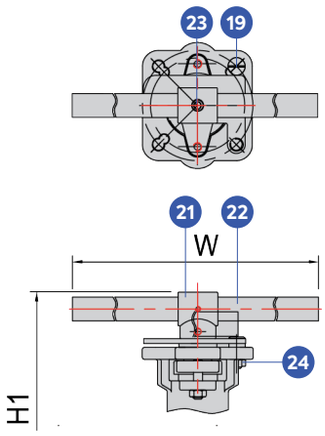
Pressure / Temperature Ratings







½" - 2"



2 ½" - 6"

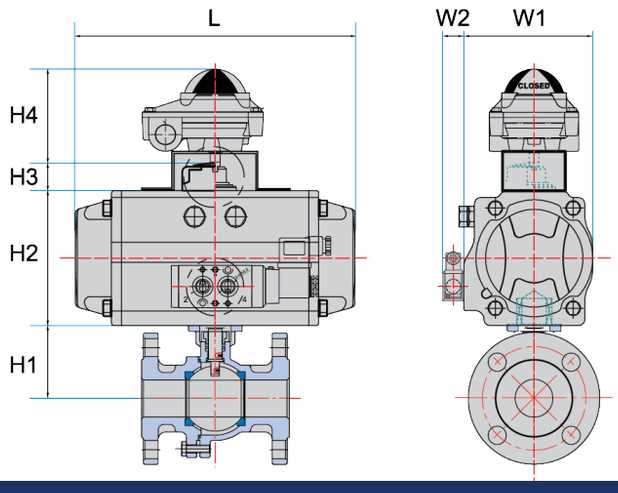
	Part Name	Material
1.	Handle Sleeve (½" - 2")	VINYL
2.	Handle (½" - 2")	SUS304
3.	Stem Washer (½" - 2")	SUS304
4.	Handle Washer (½" - 2")	SUS304
5.	Handle Bolt	SUS304
6.	Gland	SUS304
7.	Stem	SUS316
8.	V-Ring Packing	50% SS/50%
9.	Stem Seal	RPTFE
10.	Body	WCB / CF8 / CF8M
11.	Body Seat	PTFE
12.	Packing	PTFE

	Part Name	Material
13.	End Cap	WCB / SS304 / SS316
14.	Bolt (½" - 2")	SUS304
15.	Stud & Nut (2 ½" - 6")	SUS304
16.	Ball	SS304 / SS316
17.	Bushing	SUS304
18.	Anti-Static Device	Stainless Steel
19.	Stop Pin	SUS304
20.	Stud & Nut	SUS304
21.	Handle Adapter (2 ½" - 6")	SUS304
22.	Pipe Handle (2 ½" - 6")	SUS304
23.	Handle Bolt (½" - 2")	SUS304
24.	Stop Pin Nut	SUS304

*Spare Parts available in Repair Kit. Please refer to page 57 for more details.

Dimensions(mm)

Size(Inch)	A	W	H	H1	□I	L	Ød	Øg	ØC	ØD	t	f	Øh	N	ISO 5211	CV	Weight(kg)
½" 10K PN16 150LB	8	130	50.5	79.5	9	108 115 108	15	51 45 35	70 65 60.3	95 95 89	12.5 16 11.2	1 2 1.6	15 14 16	4	F03 F04	15	1.87
¾" 10K PN16 150LB	8	130	53.8	82.8	9	117 120 117	20	56 58 42	75 75 69.9	100 105 98.4	14.5 18 12.7	1 2 1.6	15 14 16	4	F03 F04	45	2.33
1" 10K PN16 150LB	9.5	168	64.5	96.5	11	127 125 127	25	67 68 50.8	90 85 79.4	125 115 108	14.3 18 11.5	1 2 1.6	19 14 16	4	F04 F05	85	3.68
½" 10K PN16 150LB	9.5	168	70	102	11	140 130 140	32	76 77 64	100 100 88.9	135 140 117	16 18 13	2 3 1.6	19 18 16	4	F04 F05	150	4.76
1 ½" 10K PN16 150LB	14	221	77	110	14	165 140 165	40	81 87 73	105 110 98.5	140 150 127	16.5 18 14.5	2 3 1.6	19 18 16	4	F05 F07	275	5.91
2" 10K PN16 150LB	14	221	85.3	118	14	178 150 178	50	96 102 92	120 125 120.7	155 165 152.4	16.5 18 15.9	2 3 1.6	19 18 19	4	F05 F07	460	7.82
2 ½" 10K PN16 150LB	17	495	111.5	172	17	190 170 190	65	116 122 104.8	140 145 139.7	175 185 177.8	18.7 18 17.6	2 3 1.6	19 18 19	4	F07 F10	700	13.97
3" 10K PN16 150LB	17	495	120.5	181	17	203 180 203	80	126 137 127	150 160 152.4	185 200 190.5	19 20 19.5	2 3 1.6	19 18 19	4	F07 F10	1100	17.03
4" 10K PN16 150LB	22	595	145	206	22	229 190 229	100	151 157 157.2	175 180 190.5	210 220 228.6	19 20 23.9	2 3 1.6	19 18 19	8 8 4	F10	2200	25.27
5" 10K PN16 150LB	27	600	178.5	250	27	365 325 356	125	182.7 187 185.7	210 210 125.9	250 250 254	20 22 23.9	2 3 1.6	23 18 22.4	8	F12 F14	3500	49.67
6" 10K PN16 150LB	27	800	196	267	27	394 350 394	150	215 212 215.9	240 240 214.3	280 285 279	22 22 25.4	2 3 1.6	23 22 22.4	8	F12 F14	5150	70.61



Pneumatic Actuator (Double Acting)

DN(mm)	Size(Inch)	Torques	Actuator	H1	H2	H3	H4	W1	W2	L	Weight(kg)
15	½"	3.3	HP-35	50.5	49	20	90	54	29.5	126	3.49
20	¾"	5.4	HP-50	58.3	73	20	90	72	29.5	144	3.95
25	1"	6.6	HP-50	58.3	73	20	90	72	29.5	144	5.92
32	1 ¼"	13.2	HP-63	77	85	20	90	85	29.5	159	7
40	1 ½"	16.4	HP-63	77	85	20	90	85	29.5	159	7
50	2"	19.6	HP-63	85.3	87	20	90	85	29.5	163	10.58
65	2 ½"	30	HP-75	104	104	20	90	114	29.5	190	17.45
80	3"	36	HP-75	104	104	20	90	114	29.5	190	22.41
100	4"	87	HP-115	145	146	20	90	141	29.5	316	32.35
125	5"	120	HP-145	177.6	178	20	90	172	29.5	414	59.75
150	6"	150	HP-145	196	179	20	90	172	29.5	414	80.69

The selection of the actuators are based on the below conditions:

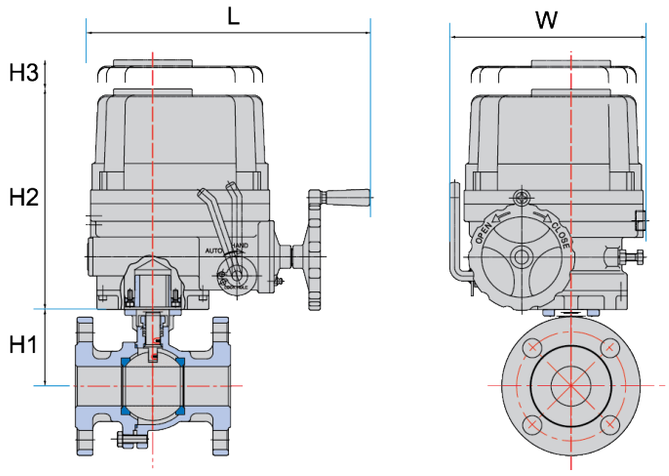
- Air Supply Pressure : 5.5 bar
- Operating Pressure : 10 bar
- Safety Factor : 30%

Pneumatic Actuator (Single Acting)

DN(mm)	Size(Inch)	Torques	Actuator	H1	H2	H3	H4	W1	W2	L	Weight(kg)
15	½"	3.3	HP-50S (S11)	50.5	73	20	90	72	29.5	144	4.82
20	¾"	5.4	HP-63S (S11)	58.3	87	20	90	85	29.5	163	5.28
25	1"	6.6	HP-63S (S11)	64.5	87	20	90	85	29.5	163	6.63
32	1 ¼"	13.2	HP-75S (S11)	70	104	20	90	96	29.5	180	9.2
40	1 ½"	16.4	HP-75S (S11)	77	104	20	90	96	29.5	180	10.35
50	2"	19.6	HP-88S (S11)	85.3	116	20	90	108	29.5	247	13.82
65	2 ½"	30	HP-100S (S11)	110	128	20	90	128	29.5	268	21.91
80	3"	36	HP-100S (S11)	120.5	128	20	90	123	29.5	268	27.45
100	4"	87	HP-145S (S11)	145	179	30	90	172	29.5	414	42.67
125	5"	144	HP-160S (S11)	177.5	196	30	90	190	29.5	467	70.28
150	6"	150	HP-160S (S11)	196	196	30	90	190	29.5	467	97.64

The selection of the actuators are based on the below conditions:

- Air Supply Pressure : 5.5 bar
- Operating Pressure : 10 bar
- Safety Factor : 30%
- Air to Open, Spring to Close



Electric Actuator

DN(mm)	Size(Inch)	Torques	Actuator	H1	H2	H3	W	L	Weight(kg)
15	½"	3.3	HQ-004	50.5	124.3	N/A	88.6	166.6	4.15
20	¾"	5.4	HQ-004	53.8	124.3	N/A	88.6	166.6	4.61
25	1"	6.6	HQ-004	64.5	124.3	N/A	88.6	166.5	5.92
32	1 ¼"	13.2	HQ-004	70	124.3	N/A	88.6	166.6	7.04
40	1 ½"	16.4	HQ-004	77	124.3	N/A	88.6	166.6	8.19
50	2"	19.6	HQ-004	85.3	124.3	N/A	88.6	166.6	10.5
65	2 ½"	32.1	HQ-006	111	137	N/A	105	168	16.68
80	3"	36	HQ-006	120.5	137	N/A	105	126	21.11
100	4"	87	HQ-015	145	268	160	160	338	42.95
125	5"	144	HQ-030	177.5	304	180	180	368	70.75
150	6"	150	HQ-030	196	304	180	180	368	93.69

The selection of the actuators are based on the below conditions:

- Air Supply Pressure : 5.5 bar
- Operating Pressure : 10 bar
- Safety Factor : 30%

REQUEST FOR QUOTE

STEP 1
Find the model series

STEP 2
Define the specification/ valve code

STEP 3
Fill up ordering sheet (back of the brochure) or Scan the QR code below

STEP 4
Submit your order via our website or contact your local partner

STEP 5
Prepare for confirmation and delivery

*For further assistance with placing your order, please contact your local partner.
A sales engineer will be assigned to assist you.

Valve Coding Sheet
203 Series

01	—	02	—	03	—	04	—	05	—	06
								F		

Body Material

Code	Material
C1	WCB
S1	SS304
S2	SS316

Seat Material

Code	Material
T	RPTFE
M	25% Carbon Filled PTFE
G	50% SS Filled PTFE

Rating

Code	Rating
A	ANSI 150
B	ANSI 300
C	PN16
D	PN40
E	JIS-10K
F	JIS-20K

Size

Code	Size
A	½"
B	¾"
C	1"
D	1 ¼"
E	1 ½"
F	2"
G	2 ½"
H	3"
I	4"
J	5"
K	6"
L	8"

Connection

Code	Material
F	Flanged End

Operation

Code	Type
L	Lever
D	Double Acting Pneumatic Actuated
S	Single Acting Pneumatic Actuated
E	Electric Actuated

Your Valve Ordering Code:

203	—	01	02	03	04	05	06
						F	

Example:

203 Series - S2TABFL full bore.
SS316 Material. RPTFE Seat. Pressure Rating of ANSI 150, ¾ inch size. Flanged End Connection.
Lever Operating type.

*For special material or customisation, please refer to our sales engineer.

SCAN FOR ONLINE ORDERING FORM

Tel: +65 6909 1221
Email: enquiry@valvewerkz.com
Website: www.valvewerkz.com

Repair Kits

Repair Kits Available

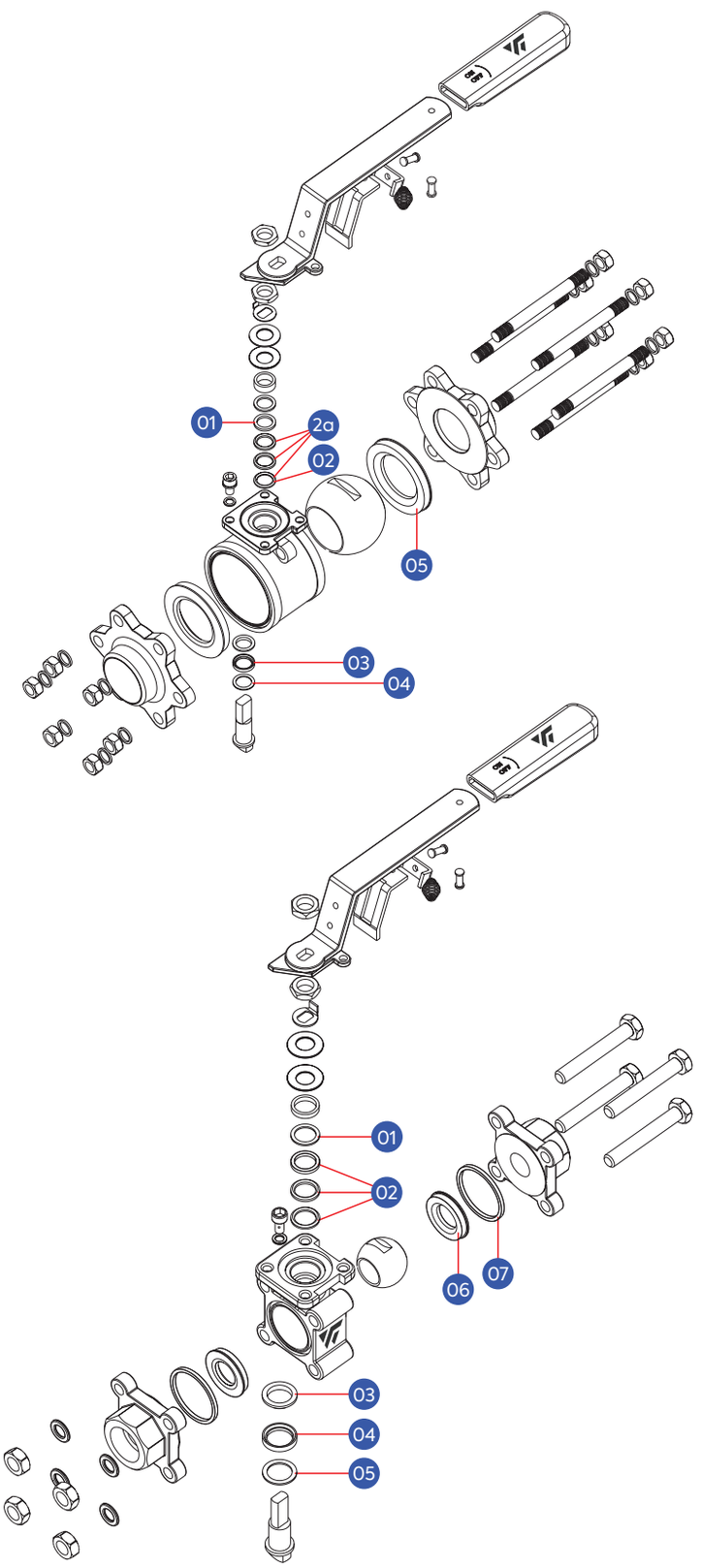
Extend the life of your valves with ready-to-order repair kits. Swap out critical parts like bushings, seals, and seats on-site without replacing the whole valve. It's faster, more economical, and keeps your operations moving.

50 & 90 Series

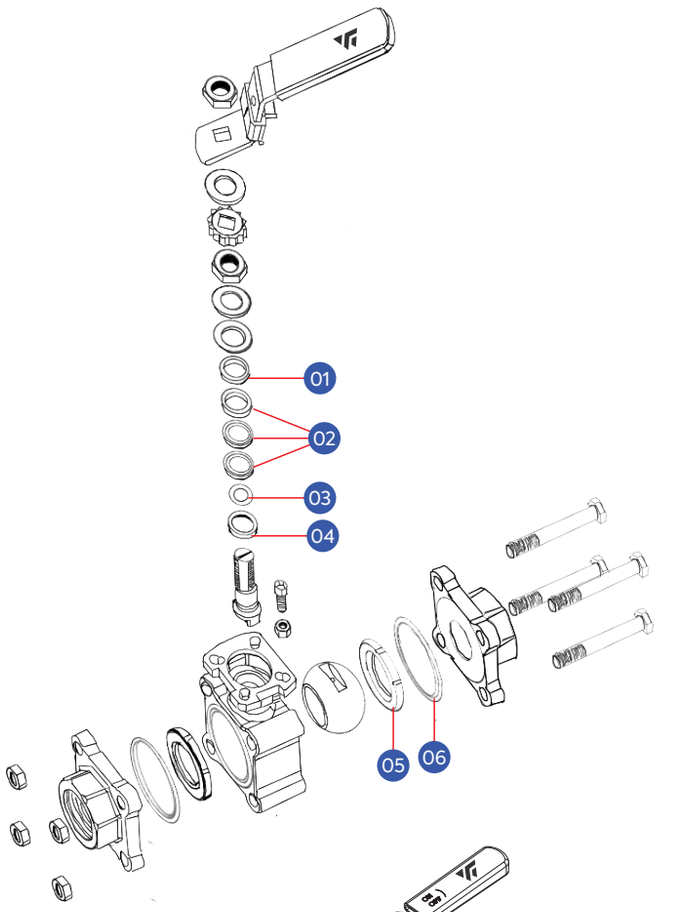
	Part Name	Qty
	50 Series	
1.	Bushing	–
2.	Packing	1
3.	Stem Seal	1
4.	O-Ring Packing	1
5.	Seat	2
	90 Series	
1.	Bushing	1
2a.	V-Ring Packing	1 Set (3 pcs)
3.	Stem Seal	1
4.	O-Ring Packing	1
5.	Seat	2

80 Series

	Part Name	Qty
1.	Bushing	1
2.	V-Ring Packing	1 Set (3 pcs)
3.	Upper Stem Seal	1
4.	Compress Ring	1
5.	Stem Seal	1
6.	Seat	2
7.	Body Gasket	2

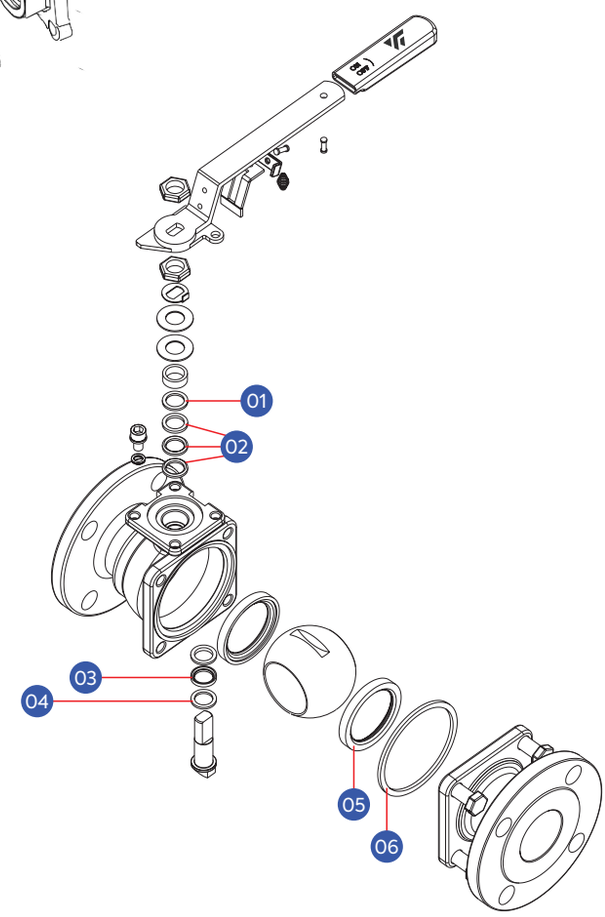


Repair Kits



81FS Series

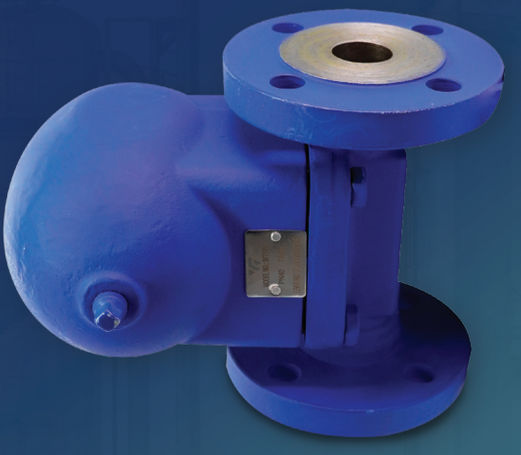
	Part Name	Qty
1.	Compress Ring	1
2.	V-Ring Packing	1 Set (3 pcs)
3.	O-Ring	1
4.	Stem Washer	1
5.	Seat	2
6.	Body Gasket	2



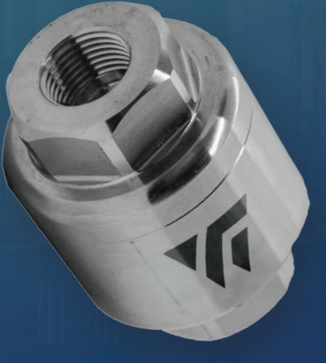
203 Series

	Part Name	Qty
1.	Bushing	1
2.	V-Ring Packing	1 Set (3 pcs)
3.	Compress Ring	1
4.	Stem Seal	1
5.	Seat	2
6.	Body Gasket	1

VALVEWERKZ



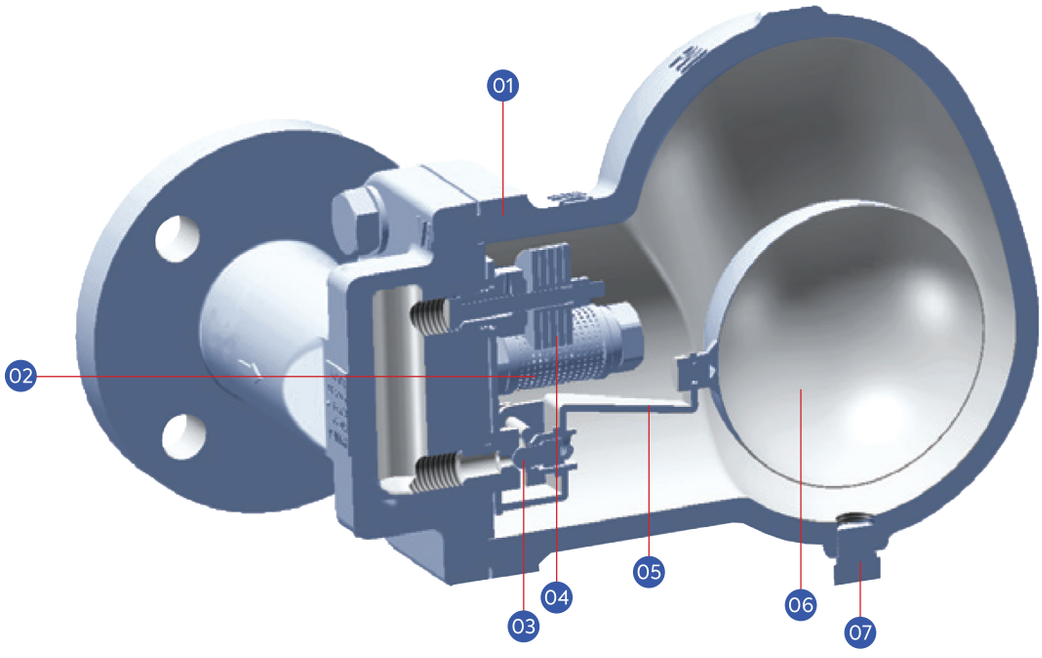
STEAM TRAPS



BALL FLOAT STEAM TRAP

Ball float steam traps are known for their high discharge capacity, long service life, excellent energy efficiency, resistance to water hammer, and sleek design. They are commonly used in process heat tracing, jacketed heating kettles, reboilers, and various other equipment.

ValveWerkz steam traps stand out for their unique and well-engineered internal structure, delivering high precision and reliable performance.



1. **High-Strength Corrosion Resistance**
   Constructed with WCB material, the design fully accounts for corrosion allowance, shell wall thickness, and pressure and temperature ratings.

2. **Integrated Filtering Device**
   Effectively blocks pipeline impurities from entering the valve, ensuring reliable trap operation.

3. **Precision Closing System**
   Micron-level valve seat and core deliver high sealing reliability, preventing steam leakage.

4. **Optimised Exhaust Valve**
   The air exhaust valve prevents blockage from non-condensable gases (e.g. air) during startup or normal operation.

5. **Engineered Float Assembly**
   Precisely calculated floating ball design enables consistent closure under water seal conditions without steam loss.

6. **Stainless Steel Float**
   The laser-welded stainless steel float offers exceptional durability and a long service life.

7. **Dedicated Sewage Outlet**
   Reserved outlet design allows for effective discharge of accumulated residue.

Ball Float Steam Trap

Structural Features

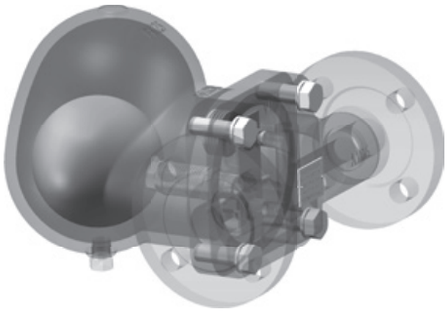
ValveWerkz incorporates a flexible closing system into its ball float steam trap, addressing common issues such as short service life and poor sealing. The design thoughtfully considers key factors including:

- Shell strength
- Pressure and temperature ratings
- Casting processability
- Fluid flow paths
- Water and steam mixing ibarct
- Auxiliary water seal closure
- Gasket performance in low-temperature environments

The ball float steam trap operates based on the density difference between steam and condensate. When the valve body fills with condensate and non-condensable gases, the air exhaust valve opens to release the gas. As condensate is drained, the float ball rises, lifting the valve core to open the trap. Once drainage is complete, the float lowers and closes the valve.

The primary advantages of the ball float steam trap include:

- High back pressure tolerance (capable of operating with pressure differences as low as 0.01 bar)
- Long service life
- Reliable performance
- Easy maintenance
- Zero steam leakage during normal operation



Material and Performance Specifications

The ball float steam trap is manufactured from ASTM A216 WCB cast steel, with parts of the valve cover made from ASTM A105. The internals are constructed from stainless steel and include a built-in filter.

Nominal pressure: PN25
Maximum allowable temperature: 425°C
Maximum working pressure: 16 Bar
Maximum working temperature: 400°C
Connection type: Threaded RC or flange (GB/T 9115.1-2000; HG/T20515-2009; HG/T20592-2009, etc.)

Selection and Installation

The ball float steam trap provides continuous drainage. It operates with a subcooling level of approximately 5°C and supports a back pressure ratio above 95% (back-end pipeline pressure to steam pressure). This makes it ideal for pipelines and Compact equipment where condensate removal and back pressure recovery are required.

When selecting a model, it's recommended to apply:

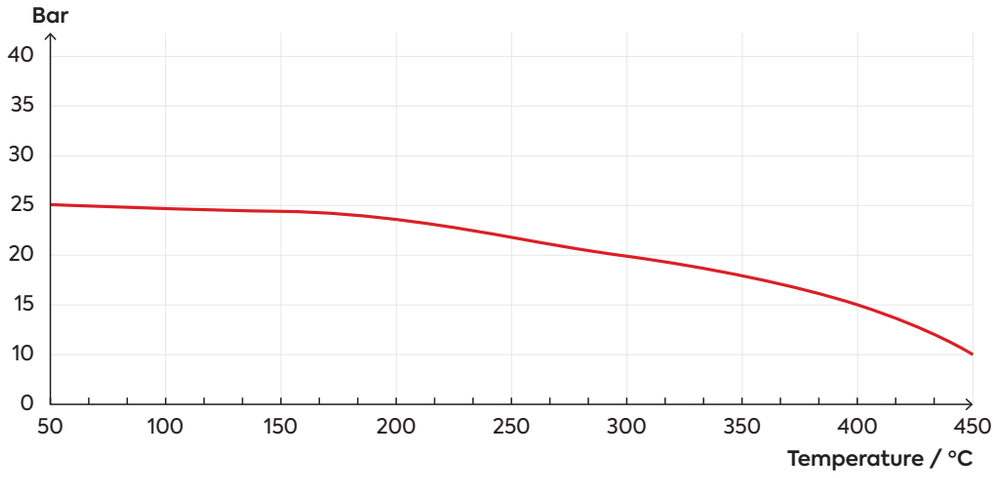
- A safety factor of 2 - 3 times for standard applications
- A safety factor of 5 - 8 times for air separation units and drying cylinders

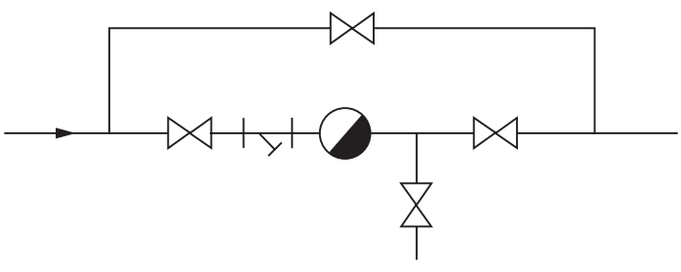
The volume of condensate and the pressure differential in the steam system are key indicators when choosing the correct trap type. For the same model, displacement increases as pressure difference rises, it is important to refer to the displacement curve for accurate selection.

Special Reminder

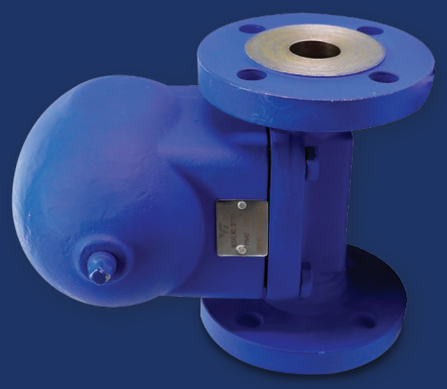
Do not confuse high displacement with a trap intended for large-diameter piping. Displacement does not equate to physical size.

Valve Body Pressure – Rating Temperature (25 Bar; WCB)





The bimetal steam trap can be installed at any point along the pipeline or within equipment. The diagram above illustrates the standard configuration for proper installation.



ST60 Series

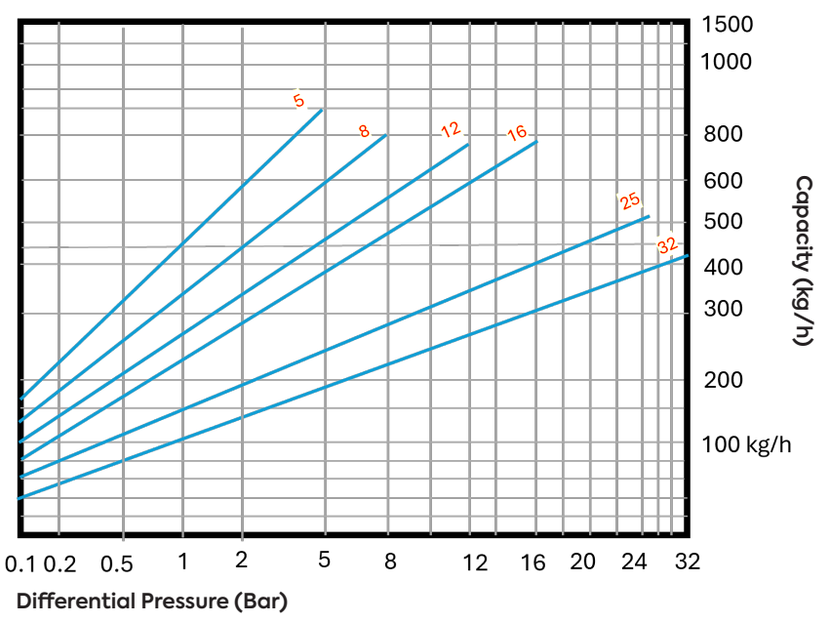
Ball Float Steam Trap

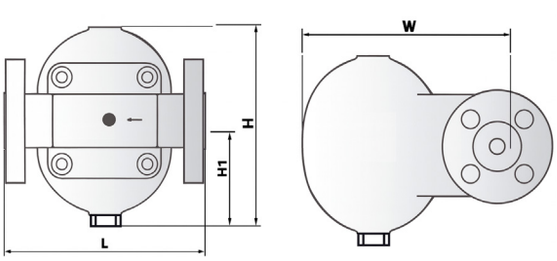
Carbon Steel SS304
SS304
Threaded End Socket Weld End Flanged End
DN15 (½") to DN80 (3")
Max Discharge = 150 T/hr
PN25 - PN100
Max W.P = 16 - 100 Bar

ST60.1 | Max Capacity = 900 kg/h

Technical Parameters	
Nominal pressure	PN40
Max. allowable pressure (Shell)	39.2 Bar / 200°C
Max. allowable temperature (Shell)	450°C / 16.6 Bar
Factory steam action test	>3 times / 16 Bar
Max. operating pressure	32 Bar
Max. operating temperature	350°C
Factory cold test pressure	60 Bar
Air test	20 Bar

Displacement Curve





Part Name	Material
Bonnet	A105 / F304 / F316
Body	WCB / CF8 / CF8M
Seat	420
Disc	440C
Other Internal Parts	304

Data Size Table

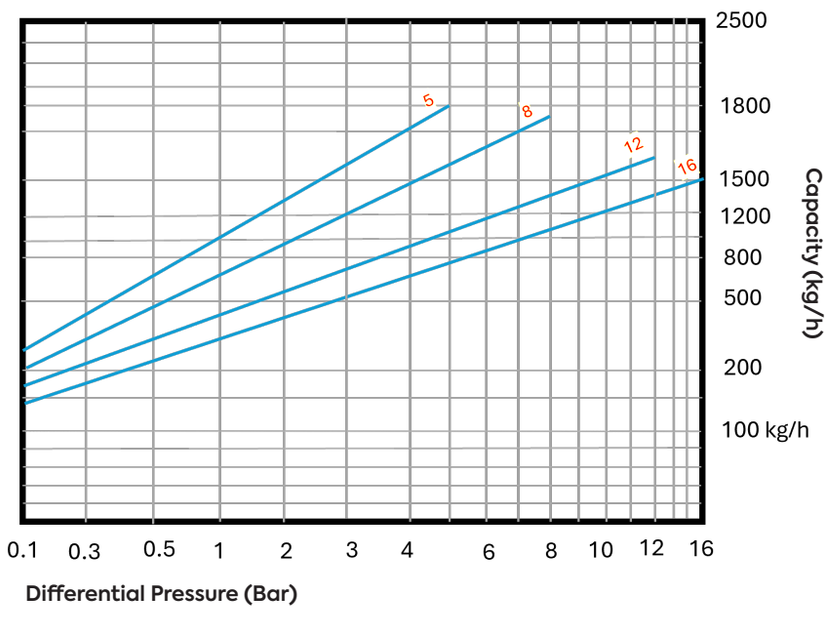
Connection	Size	L(mm)	H (mm)	H1 (mm)	W (mm)	Weight(kg)
Threaded	DN15 - 20 DN25	120 145	154 154	82 82	155 155	5.0 5.7
Butt Weld / Socket Weld	DN15 - 20 DN25	120 145	154 154	82 82	155 155	5.0 5.7
Flanged	DN15 - 20 DN25	150 160	154 154	82 82	155 155	7.0 8.1

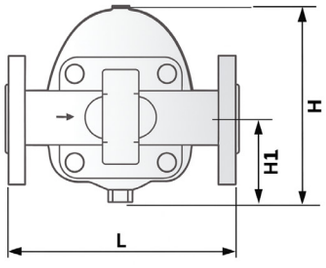
ST60.2 | Max Capacity = 1800 kg/h

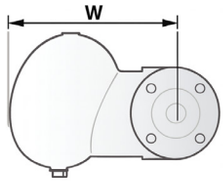
Technical Parameters	
Nominal pressure	PN25
Max. allowable pressure (Shell)	24.5 Bar / 200°C
Max. allowable temperature (Shell)	450°C / 10.3 Bar
Factory steam action test	>3 times / 16 Bar

Technical Parameters	
Max. operating pressure	16 Bar
Max. operating temperature	350°C
Factory cold test pressure	38 Bar
Air test	20 Bar

Displacement Curve







Part Name	Material
Bonnet	A105 / F304 / F316
Body	WCB / CF8 / CF8M
Seat	420
Disc	440C
Other Internal Parts	304

Data Size Table

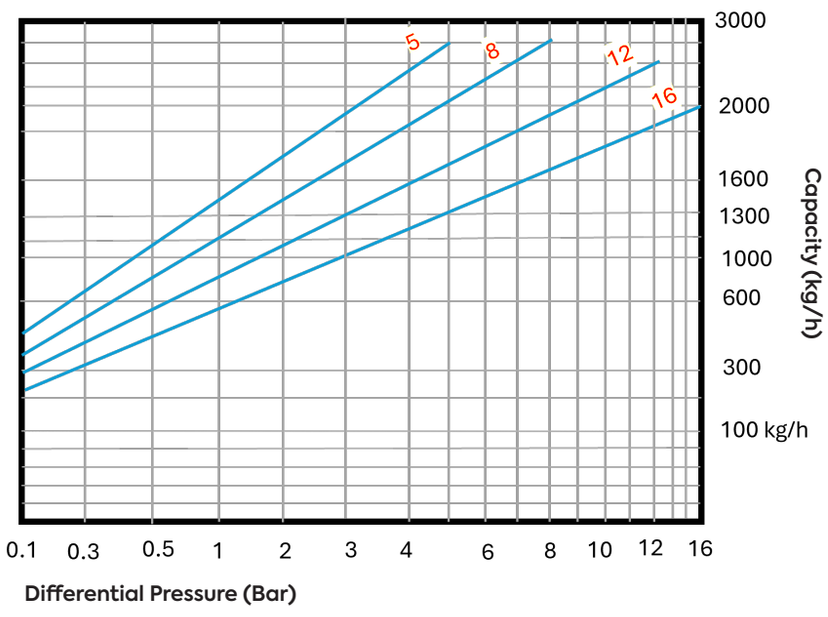
Connection	Size	L(mm)	H(mm)	H1(mm)	W(mm)	Weight(kg)
Threaded	DN15- 25	150	180	75	183	8.5
Butt Weld / Socket Weld	DN15 - 25	150	180	75	183	8.5
Flanged	DN15 - 25	210	180	75	183	11

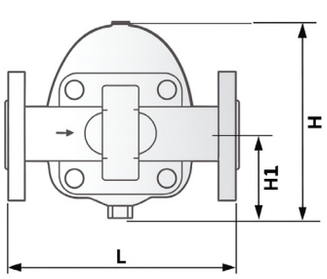
ST60.3 | Max Capacity = 2750 kg/h

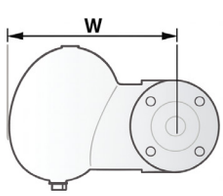
Technical Parameters	
Nominal pressure	PN25
Max. allowable pressure (Shell)	24.5 Bar / 200°C
Max. allowable temperature (Shell)	450°C / 10.3 Bar
Factory steam action test	>3 times / 16 Bar

Technical Parameters	
Max. operating pressure	16 Bar
Max. operating temperature	350°C
Factory cold test pressure	38 Bar
Air test	20 Bar

Displacement Curve







Part Name	Material
Bonnet	A105 / F304 / F316
Body	WCB / CF8 / CF8M
Seat	420
Disc	440C
Other Internal Parts	304

Data Size Table

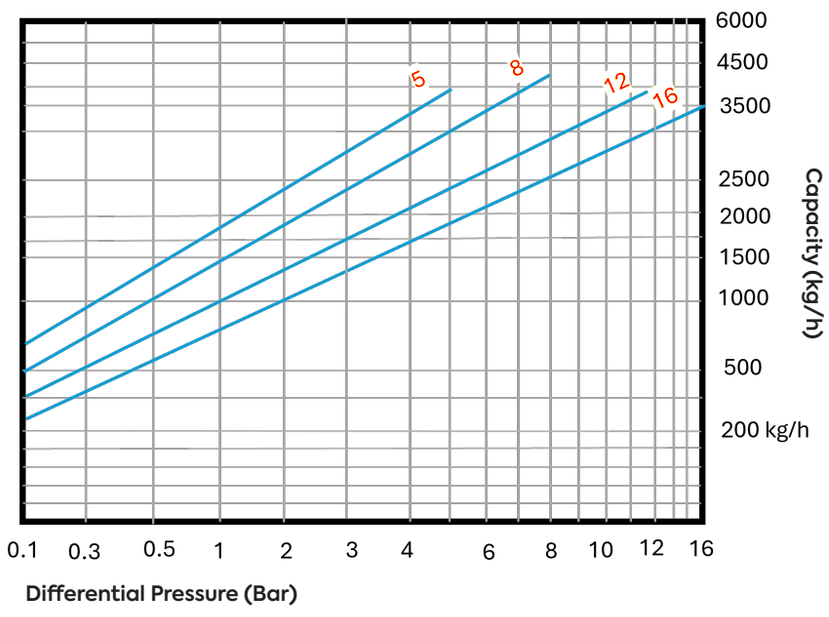
Connection	Size	L (mm)	H(mm)	H1(mm)	W(mm)	Weight(kg)
Threaded	DN25 - 32	170	210	90	235	12
Butt Weld / Socket Weld	DN25 - 32	170	210	90	235	12
Flanged	DN25 - 50	230	210	90	235	16.5

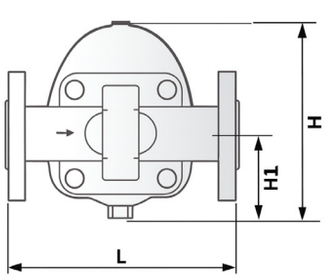
ST60.4 | Max Capacity = 4200 kg/h

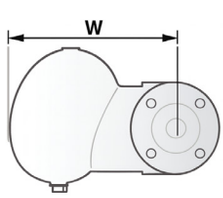
Technical Parameters	
Nominal pressure	PN25
Max. allowable pressure (Shell)	24.5 Bar / 200°C
Max. allowable temperature (Shell)	450°C / 10.3 Bar
Factory steam action test	>3 times / 16 Bar

Technical Parameters	
Max. operating pressure	16 Bar
Max. operating temperature	350°C
Factory cold test pressure	38 Bar
Air test	20 Bar

Displacement Curve







Part Name	Material
Bonnet	A105 / F304 / F316
Body	WCB / CF8 / CF8M
Seat	420
Disc	440C
Other Internal Parts	304

Data Size Table

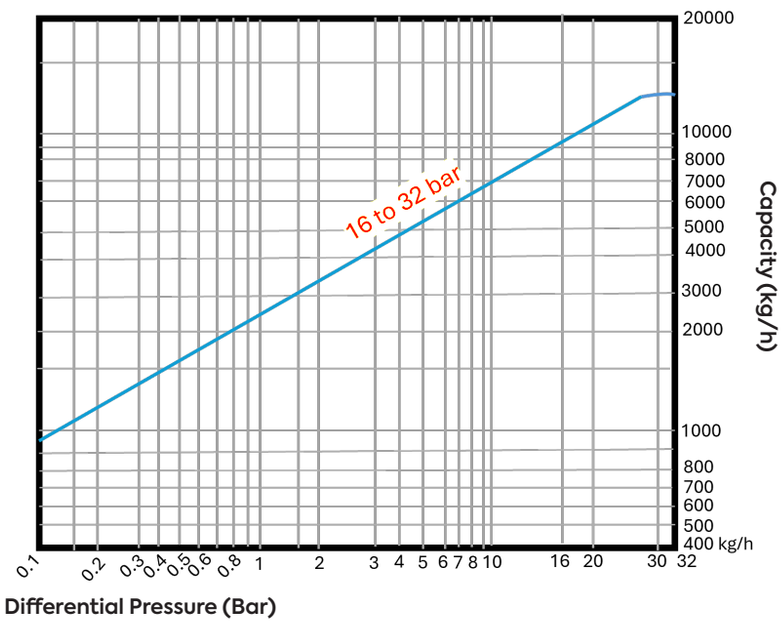
Connection	Size	L(mm)	H(mm)	H1(mm)	W(mm)	Weight(kg)
Threaded	DN25 - 32	210	260	115	285	20
Butt Weld / Socket Weld	DN25 - 32	210	260	115	285	20
Flanged	DN25 - 50	270	260	115	285	26

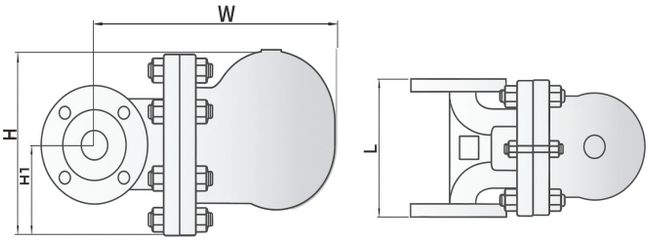
ST60.5 | Max Capacity = 12500 kg/h

Technical Parameters	
Nominal pressure	PN40
Max. allowable pressure (Shell)	39.2 Bar / 200°C
Max. allowable temperature (Shell)	450°C / 16.6 Bar
Factory steam action test	>3 times / 16 Bar

Technical Parameters	
Max. operating pressure	32 Bar
Max. operating temperature	350°C
Factory cold test pressure	60 Bar
Air test	20 Bar

Displacement Curve





Part Name	Material
Bonnet	WCB
Body	WCB
Seat	420
Disc	420
Other Internal Parts	304

Data Size Table

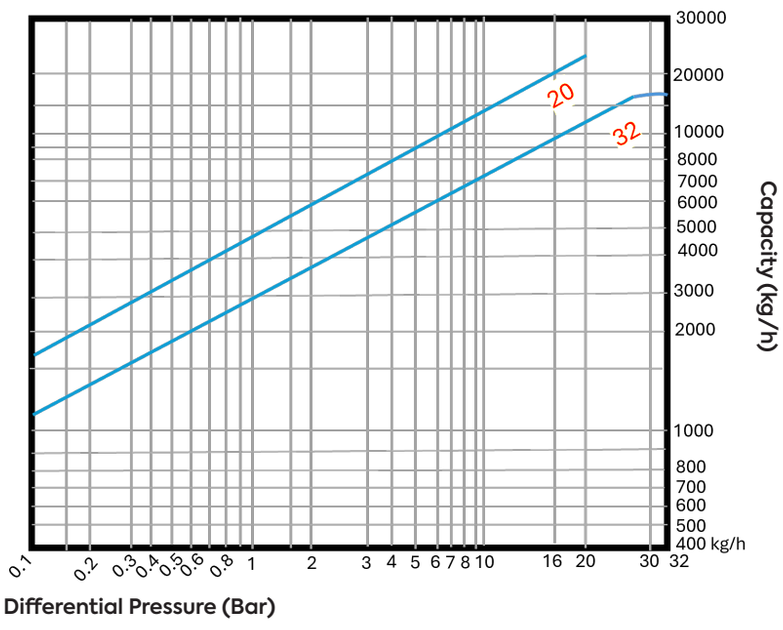
Connection	Size	L(mm)	H(mm)	H1(mm)	W(mm)	Weight(kg)
Flanged	DN32	230	265	122	340	27
	DN40	230	265	122	340	27.5

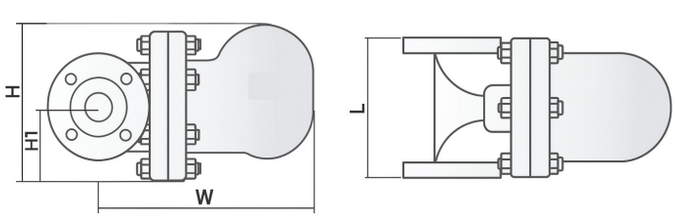
ST60.6 | Max Capacity = 23000 kg/h

Technical Parameters	
Nominal pressure	PN40
Max. allowable pressure (Shell)	39.2 Bar / 200°C
Max. allowable temperature (Shell)	450°C / 16.6 Bar
Factory steam action test	>3 times / 16 Bar

Technical Parameters	
Max. operating pressure	32 Bar
Max. operating temperature	350°C
Factory cold test pressure	60 Bar
Air test	20 Bar

Displacement Curve





Part Name	Material
Bonnet	WCB
Body	WCB
Seat	420
Disc	420
Other Internal Parts	304

Data Size Table

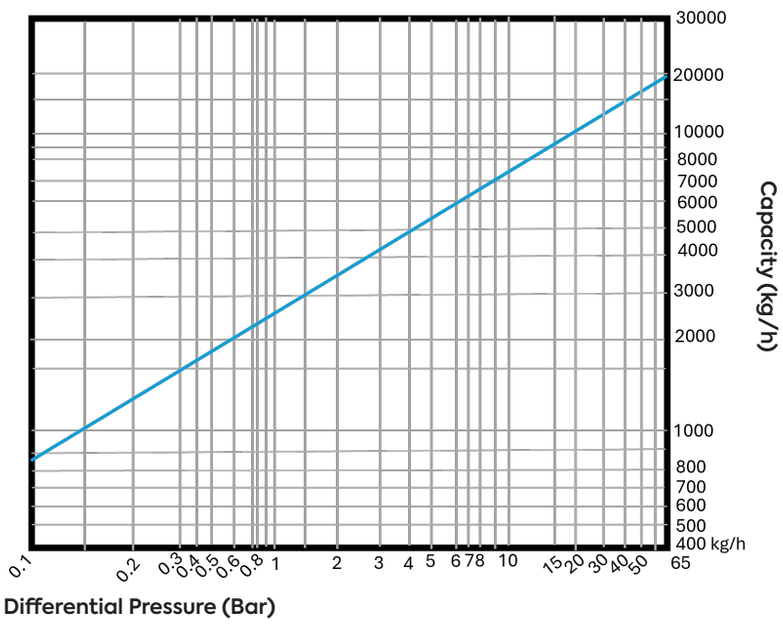
Connection	Size	L(mm)	H(mm)	H1(mm)	W(mm)	Weight(kg)
Flanged	DN32	230	266	125	360	31
	DN40	230	266	125	360	32
	DN50	230	266	125	360	33

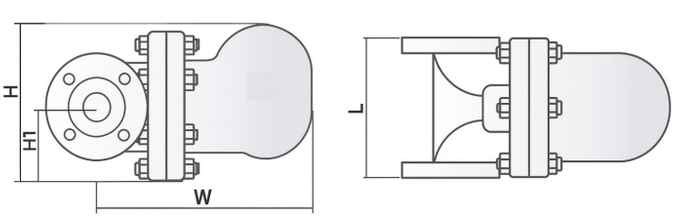
ST60.7 | Max Capacity = 20000 kg/h

Technical Parameters	
Nominal pressure	PN100
Max. allowable pressure (Shell)	98 Bar / 200°C
Max. allowable temperature (Shell)	450°C / 72.9 Bar
Factory steam action test	>3 times / 16 Bar

Technical Parameters	
Max. operating pressure	60 Bar
Max. operating temperature	425°C
Factory cold test pressure	150 Bar
Air test	20 Bar

Displacement Curve





Part Name	Material
Bonnet	WC6
Body	WC6
Seat	420
Disc	420
Other Internal Parts	304

Data Size Table

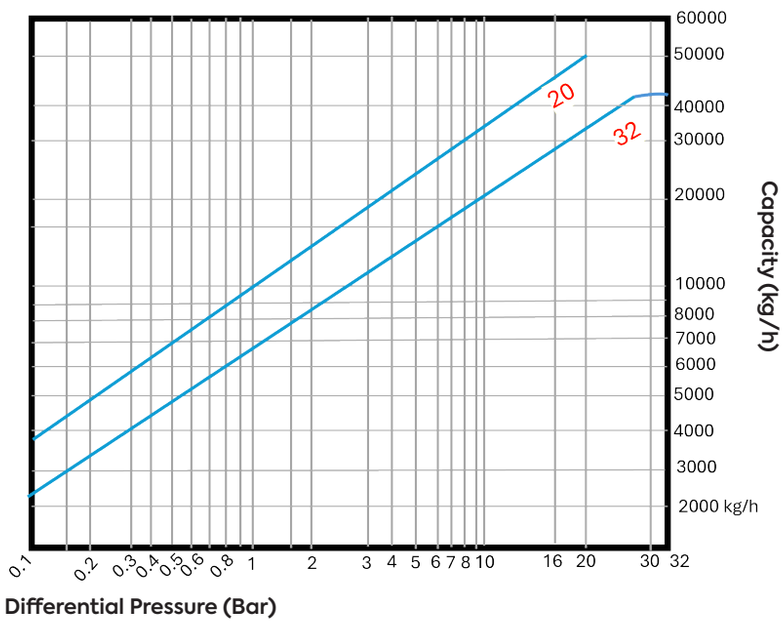
Connection	Size	L(mm)	H(mm)	H1(mm)	W(mm)	Weight(kg)
Flanged	DN50	330	267	114	378	41
	DN65	350	267	114	378	42
	DN80	350	267	114	378	45

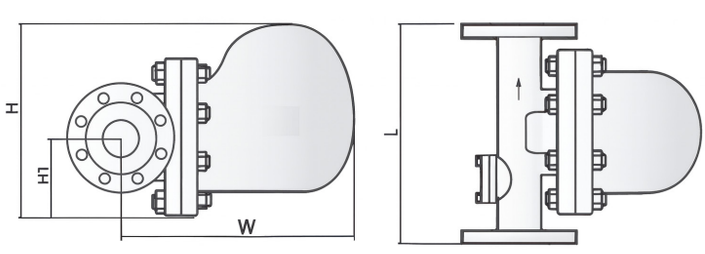
ST60.8 | Max Capacity = 50000 kg/h

Technical Parameters	
Nominal pressure	PN40
Max. allowable pressure (Shell)	39.2 Bar / 200°C
Max. allowable temperature (Shell)	450°C / 16.6 Bar
Factory steam action test	>3 times / 16 Bar

Technical Parameters	
Max. operating pressure	32 Bar
Max. operating temperature	350°C
Factory cold test pressure	60 Bar
Air test	20 Bar

Displacement Curve





Part Name	Material
Bonnet	WCB
Body	WCB
Seat	420
Disc	420
Other Internal Parts	304

Data Size Table

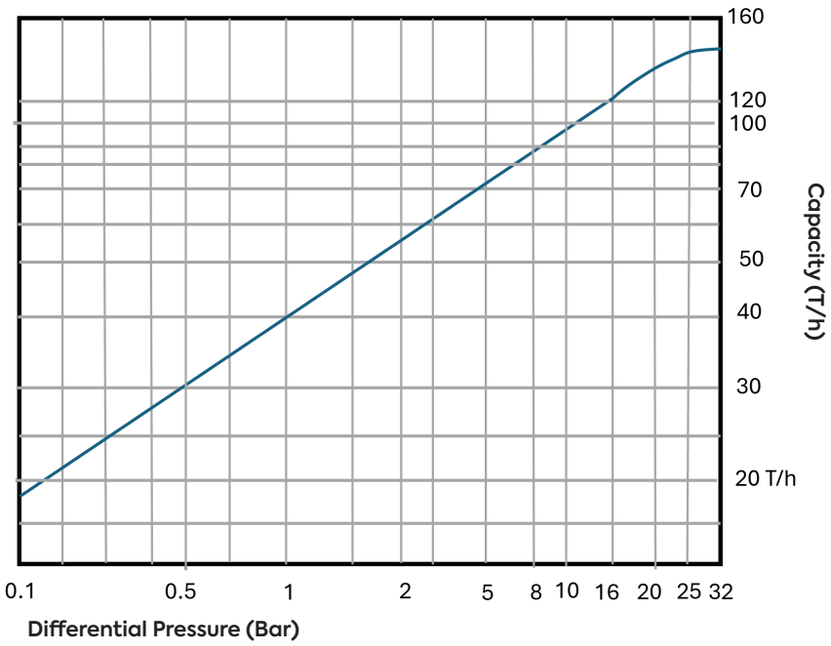
Connection	Size	L(mm)	H(mm)	H1(mm)	W(mm)	Weight(kg)
Flanged	DN50	380	345	135	385	53
	DN65	380	345	135	385	54
	DN80	380	345	135	385	56

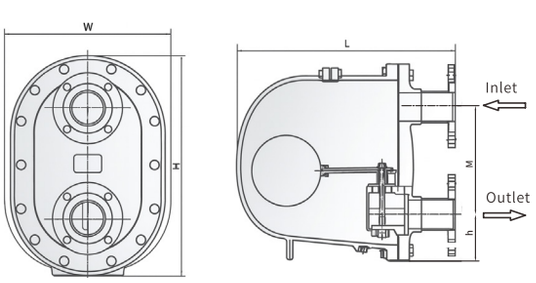
ST60.9 | Max Capacity = 140 T/h

Technical Parameters	
Nominal pressure	PN40
Max. allowable pressure (Shell)	39.2 Bar / 200°C
Max. allowable temperature (Shell)	450°C / 16.6 Bar
Factory steam action test	>3 times / 16 Bar

Technical Parameters	
Max. operating pressure	32 Bar
Max. operating temperature	350°C
Factory cold test pressure	60 Bar
Air test	20 Bar

Displacement Curve





Part Name	Material
Bonnet	WCB
Body	WCB
Seat	420
Disc	420
Other Internal Parts	304

Data Size Table

Connection	Size	L(mm)	H(mm)	W(mm)	h(mm)	M(mm)	Weight(kg)
Flanged	DN80	570	538	335	135	287	138
	DN100	590	538	335	135	287	145
	DN150	630	538	335	135	287	150

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Valve Coding Sheet
Ball Float Steam Trap

01	—	02	—	03	—	04	—	05	—	06
		A								

Body Material

Code	Material
C1	WCB
S1	SS304
S2	SS316

Internal Parts

Code	Material
A	SS304

Rating

Code	Rating
A	PN16
B	PN25
C	PN40
D	PN100

Size

Code	Size
A	½″
B	¾″
C	1″
D	1 ¼″
E	1 ½″
F	2″
G	2 ½″
H	3″
I	4″
J	6″

Connection

Code	Material
B	BSPT - Tappered
N	NPT
S	Socket Weld
F	Flanged End

Orifice

Code	Type
1	5 BAR
2	8 BAR
3	12 BAR
4	16 BAR
5	20 BAR
6	32 BAR

Your Valve Ordering Code:

ST60	—	01	02	03	04	05	06
			A				

Example:

ST60 Series - C1AAAB1.
WCB Body Material. SS304 Internal Parts. Pressure Rating of PN 16, ½ inch size. Connection Type of BSPT – Tappered. Orifice 5 BAR.

*For special material or customisation, please refer to our sales engineer.

SCAN FOR ONLINE ORDERING FORM

Tel: +65 6909 1221
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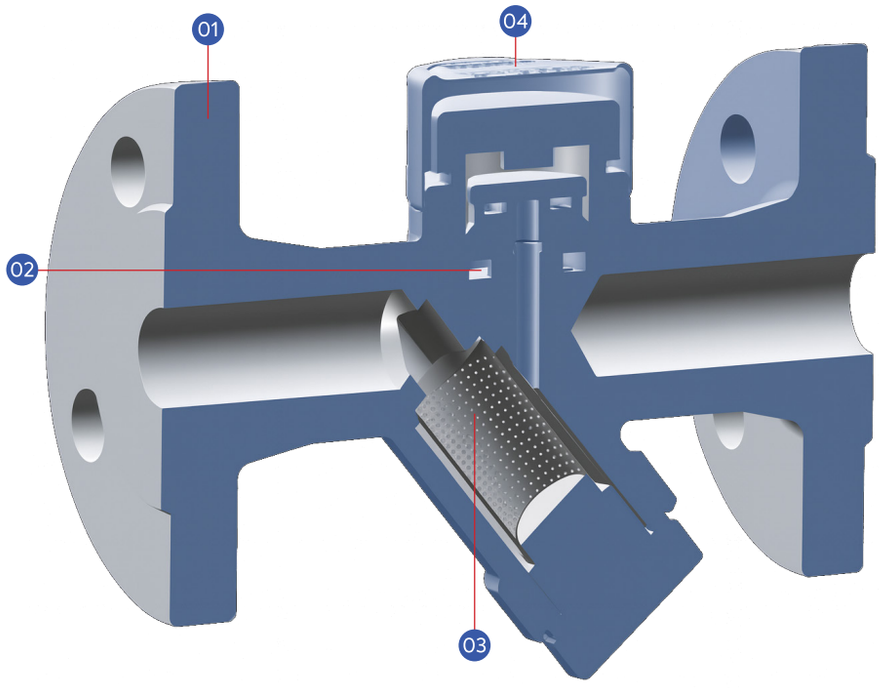
Website: www.valvewerkz.com

THERMODYNAMIC STEAM TRAP

Thermodynamic steam traps are commonly used in low, medium, and high-pressure steam delivery systems, process heat tracing, and small displacement equipment. They are valued for their Compact size, high discharge capacity, energy efficiency, long service life, and excellent resistance to low temperatures.

The technical strengths of ValveWerkz thermodynamic traps lie in their well-engineered construction and precision internal components.



1. **High-Strength Corrosion Resistance**
   Manufactured using A105 or 15CrMo materials, with careful consideration given to corrosion allowance, shell wall thickness, and temperature rating in the design process.

2. **Precision Valve Seat and Disc**
   The valve seat and disc are made from martensitic stainless steel. Specialised heat treatment enables effective condensate removal and minimises flash steam, tailored to various operating conditions.

3. **Integrated Filtering Device**
   Prevents pipeline impurities from entering the valve, ensuring consistent and reliable trap performance.

4. **Stainless Steel Insulation Cover**
   The stainless steel cover protects the internal chamber from outdoor environmental conditions, reducing the risk of malfunctions or mechanical instability due to external factors.

Thermodynamic Steam Trap

Structural Features

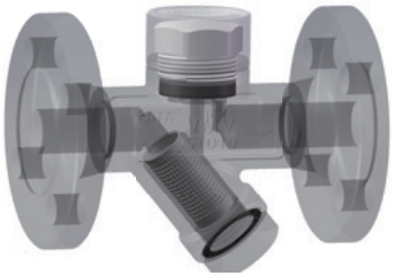
ValveWerkz thermodynamic steam trap use A105 material for low-pressure valve bodies, while 15CrMo is used for medium-pressure variants.

Based on Bernoulli's equation, and following extensive testing and calculation, each trap is optimised to support either low-temperature or saturated condensate discharge:

- The low-temperature type discharges condensate at lower temperatures (with greater subcooling). It operates with minimal noise but has limited air discharge capacity.
- The saturated type discharges condensate close to saturation temperature (with minimal subcooling). It offers better air discharge capability but operates with higher noise levels.

Thermodynamic steam traps function by responding to the flow rate difference between steam and condensate. When condensate passes through the valve seat, the low flow rate causes the valve plate to open and discharge the water. As steam enters, the high flow rate forces the valve seat to close.

The low-temperature type uses flash steam to assist in valve closure. ValveWerkz addresses the common drawbacks of conventional thermal traps, such as energy inefficiency, noise, and steam leakage, by offering a Compact, low-noise solution with long service life, reliable operation, and minimal maintenance requirements. The design ensures no original steam leakage, particularly in the low-temperature model.



Material and Performance Specifications

The body and bonnet of the thermodynamic steam trap are made from ASTM A105 (15CrMo), with internal components made of stainless steel and an integrated filter.

- Nominal pressure: PN25 / PN63
- Maximum allowable temperature: 425°C
- Maximum working pressure: 16 to 42 Bar
- Maximum working temperature: 400 to 425°C
- Connection options: Threaded RC or flange (GB/T9115.1-2000; HG/T20515-2009; HG/T20592-2009, etc.)

Selection and Installation

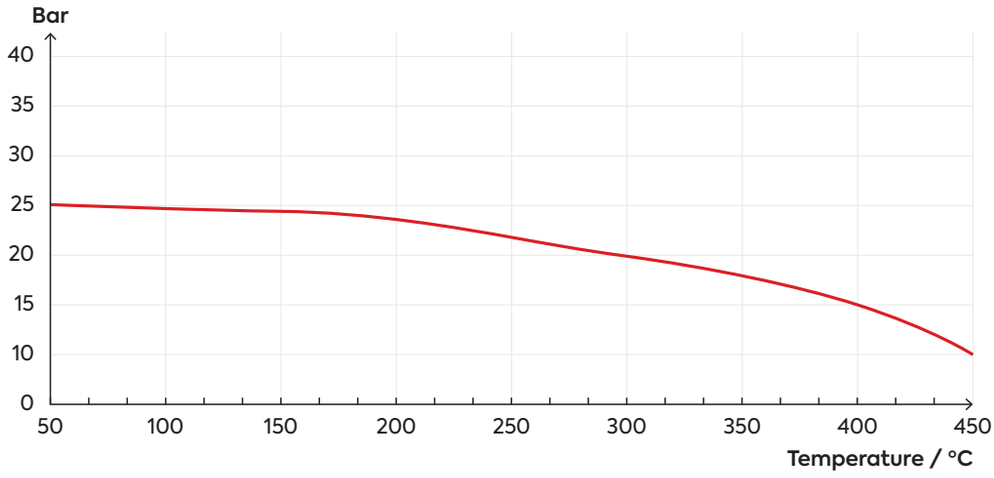
Thermodynamic steam traps are intermittent drainage. Normally, orifice of 16 bar have a subcooling degree of 5-10°C, and orifice of 42 bar has a subcooling degree of 20-50°C. If there is a requirement for subcooling, indicate when ordering. The back pressure rate of thermodynamic traps can reach ≥ 80% (back-end pipeline pressure/steam pressure), which is suitable for pipelines and small equipment to remove condensate. In general, the safety factor is 2-3 times.

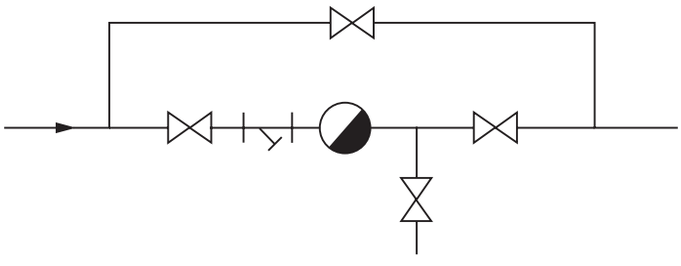
Warm reminder: The condensed water volume and pressure difference of steam equipment are important indicators for type selection.

Note

The volume of condensate and the pressure differential in your steam system are key factors when selecting the appropriate trap type.

Valve Body Pressure – Rating Temperature (25 Bar; WCB)





The displacement capacity of a steam trap increases with rising pressure difference. Please refer to the displacement curve for accurate sizing. Do not confuse this with a large-diameter trap, which may have a different displacement profile.

ST61 Series

Thermodynamic Steam Trap

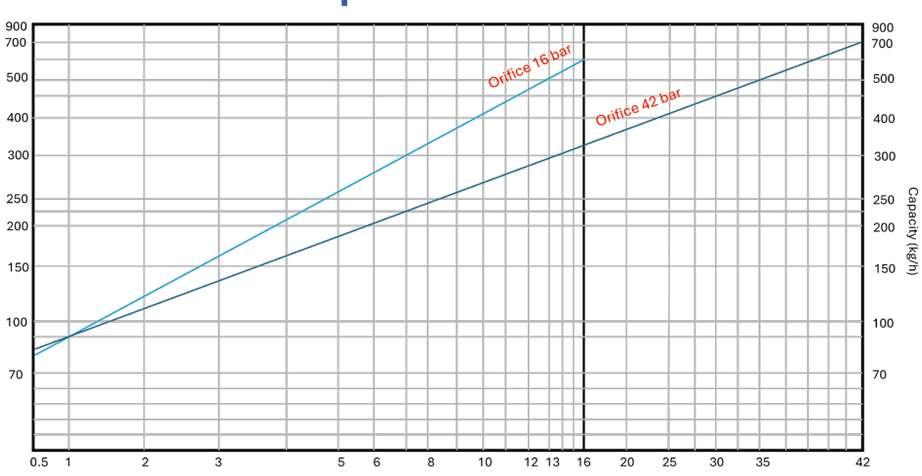
Carbon Steel SS304
SS304
Threaded End Socket Weld End Flanged End
DN15 (½") to DN25 (1")
Max Discharge = 800 kg/hr
PN25 - PN63
Max W.P = 16 Bar, 42 Bar

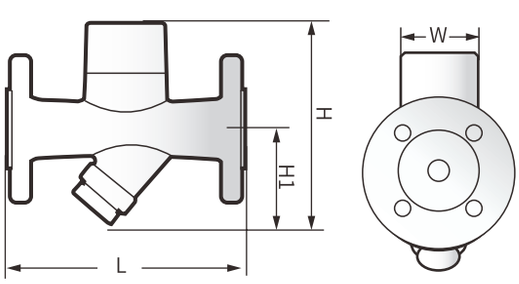
ST61

Nominal pressure	PN25	PN63
Max. allowable pressure (Shell)	24.5 Bar / 200°C	62.7 Bar / 200°C
Max. allowable temperature (Shell)	450°C / 10.3 Bar	450°C / 26.7 Bar
Factory steam action test	>3 times / 16 Bar	>3 times / 16 Bar

Nominal pressure	PN25	PN63
Max. operating pressure	16 Bar	42 Bar
Max. operating temperature	350°C	350°C
Factory cold test pressure	38 Bar	95 Bar
Air test	20 Bar	20 Bar

Displacement Curve





Part Name	Material
Bonnet	A105 / F304 / F316
Body	A105 / F304 / F316
Seat	440C
Disc	440C
Other Internal Parts	304

Data Size Table

Connection	Size	L(mm)	H(mm)	H1(mm)	W(mm)	Weight(kg)
Threaded	DN15 - 25	90	120	68	48	1/1.5
Butt Weld / Socket Weld	DN15 - 25	90	120	68	48	1/1.5
Flanged	DN15 - 25	150	120	68	48	2.5 - 3

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Valve Coding Sheet
Thermodynamic Steam Trap

01	—	02	—	03	—	04	—	05	—	06
		A								

Body Material

Code	Material
C1	WCB
S1	SS304
S2	SS316

Internal Parts

Code	Material
A	SS304

Rating

Code	Rating
A	PN25
B	PN63

Size

Code	Size
A	½″
B	¾″
C	1″

Connection

Code	Material
B	BSPT - Tappered
N	NPT
S	Socket Weld
F	Flanged End

Orifice

Code	Type
1	16 BAR
2	42 BAR

Your Valve Ordering Code:

ST61	—	01	02	03	04	05	06
			A				

Example:

ST61 - C1AAAB1.
WCB Body Material. SS304 Internal Parts. Pressure Rating of PN25, ½ inch size. Connection Type of BSPT – Tappered. Orifice 16 BAR.

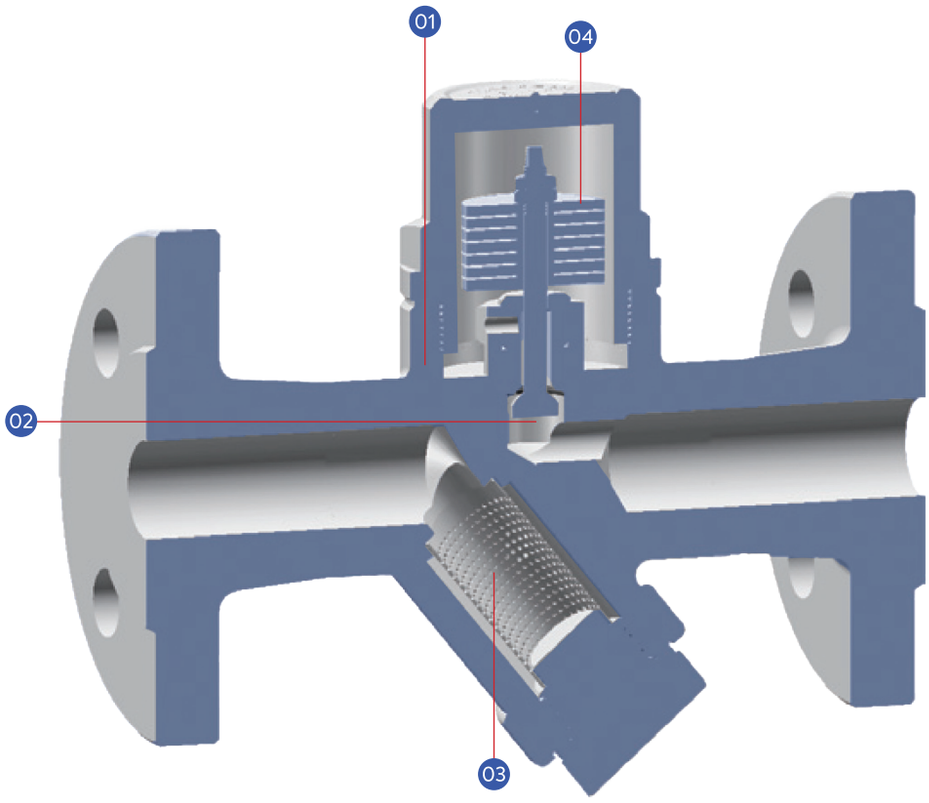
*For special material or customisation, please refer to our sales engineer.

SCAN FOR ONLINE ORDERING FORM

Tel: +65 6909 1221
Email: enquiry@valvewerkz.com
Website: www.valvewerkz.com

BIMETALLIC STEAM TRAP

Bimetallic steam traps offer high subcooling capability, long service life, excellent energy efficiency, strong resistance to water hammer, and a clean, Compact design. They are commonly used in heating systems and steam transportation pipelines.



1. **High-Strength Corrosion Resistance**
   Constructed with A105 material, the design takes into account corrosion allowance, shell wall thickness, pressure, and temperature ratings for long-term durability.

2. **Linear Sealing Closure System**
   The trap features a unique linear sealing mechanism with a micron-level precision valve seat and core, ensuring reliable closure and effective steam sealing.

3. **Built-in Filtering Device**
   Prevents pipeline impurities from entering the valve, supports consistent operation, and protects internal components from water hammer damage.

4. **Imported Bimetal**
   Uses high-quality bimetallic sheets imported from the U.S. to ensure accurate bending performance, adjustable temperature control, and precise thermal response.

Bimetallic Steam Trap

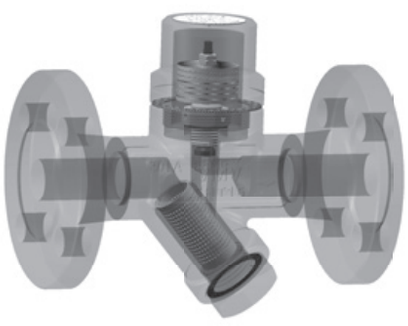
Structural Features

The body and bonnet of the ValveWerkz bimetallic steam trap are made from A105 material. The condensate discharge temperature is adjustable and is factory-set between 120°C and 130°C.

This steam trap uses a line-sealed shut-off system that eliminates original steam leakage and noise. It offers excellent air discharge capability, maximises the sensible heat of condensate water, and provides strong energy-saving performance.

The bimetallic steam trap operates based on the temperature difference between steam and condensate. When condensate remains in the pipeline due to high temperature, the energy to be released gradually lowers. As the temperature drops, the bimetal deforms, causing the valve seat to open and discharge the condensate.

Users can manually adjust the discharge temperature of the trap to suit seasonal conditions and operational requirements.



Material and Performance Specifications

The body and bonnet of the bimetallic steam trap are made from ASTM A105. The bimetal element is manufactured from imported materials, and all internal components are made of stainless steel with an integrated filtering device

- Nominal pressure: PN25 / PN40
- Maximum allowable temperature: 400°C
- Maximum working pressure: 16 to 23 Bar
- Maximum working temperature: 375 to 400°C
- Connection options: Threaded RC or flange (GJB7/1915.1–2000; HG/T20615–2009; HG/T20592–2009, etc.)

Selection and Installation

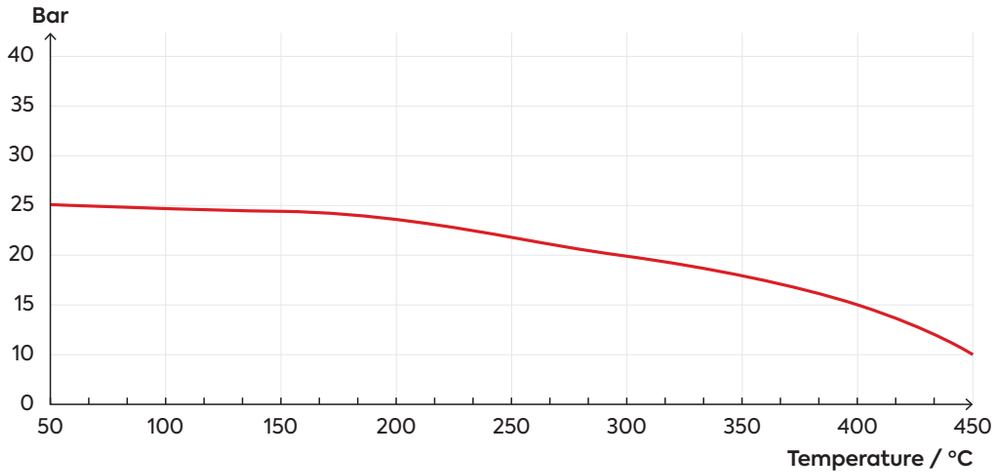
Thermodynamic steam traps operate with intermittent drainage. The orifice of 16 bar typically features a subcooling range of 5–10°C, while the orifice of 42 bar supports a wider range of 20–50°C. If subcooling is required for your application, please specify this during the ordering process.

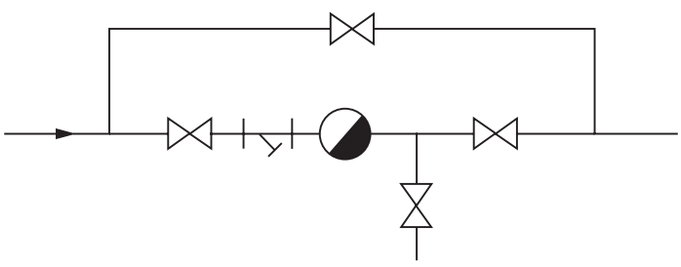
These traps can achieve a back pressure ratio of 80% or more (ratio of back-end pipeline pressure to steam pressure), making them well-suited for pipelines and Compact equipment where condensate removal is essential.
As a general guideline, a safety factor of 2 to 3 times is recommended when selecting trap models.

Note

The volume of condensate and the pressure differential in your steam system are key factors when selecting the appropriate trap type.

Valve Body Pressure – Rating Temperature (25 Bar; WCB)





The displacement capacity of a steam trap increases as the pressure difference rises. Please refer to the displacement curve for accurate selection. Do not confuse this with a large-diameter trap, which may not offer the same displacement characteristics.

ST62 Series

Bimetallic Steam Trap

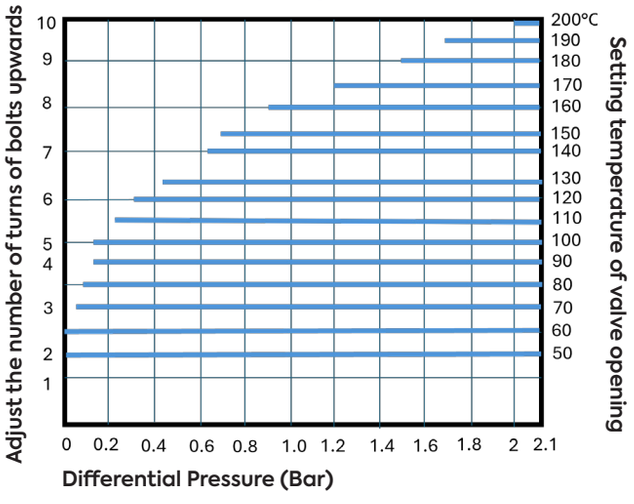
Carbon Steel SS304
SS304
Threaded End Socket Weld End Flanged End
DN15 (½″) to DN25 (1″)
Max Discharge = 800 kg/hr
PN25 - PN40
Max W.P = 21 - 32 Bar

ST62.1 | Max Capacity = 800 kg/h

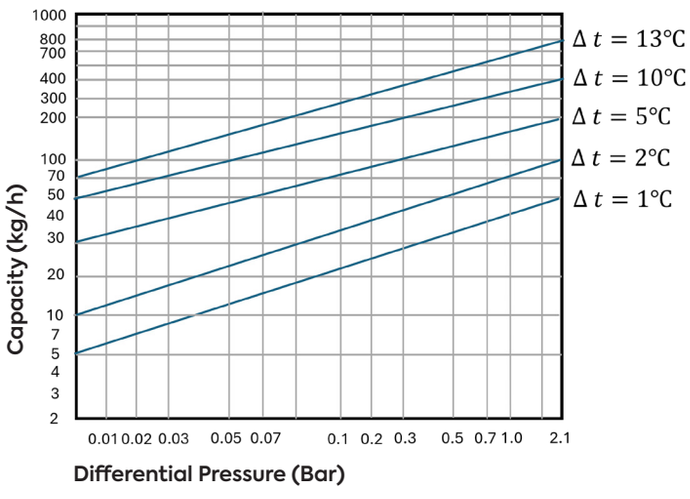
Technical Parameters	
Nominal pressure	PN25
Max. allowable pressure (Shell)	24.5 Bar / 200°C
Max. allowable temperature (Shell)	450°C / 10.3 Bar
Factory steam action test	>3 times / 16 Bar

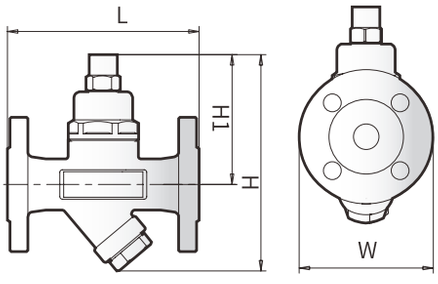
Technical Parameters	
Max. operating pressure	16 Bar
Max. operating temperature	350°C
Factory cold test pressure	38 Bar
Air test	20 Bar

Temperature Adjustment Table



Displacement Curve





Part Name	Material
Bonnet	A105 / F304 / F316
Body	A105 / F304 / F316
Seat	420
Disc	440C + 304
Other Internal Parts	304

Data Size Table

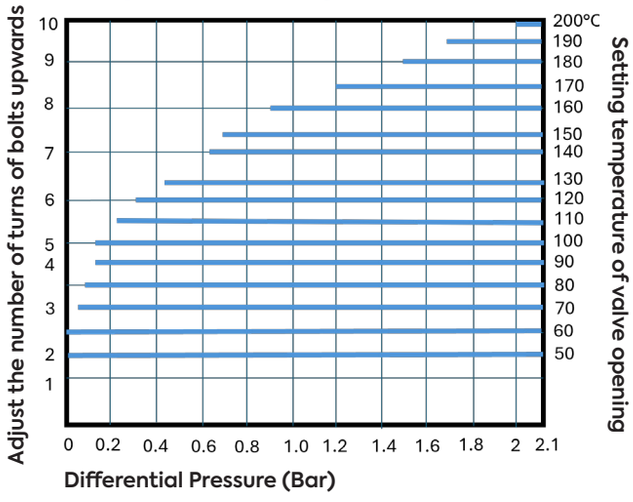
Connection	Size	L(mm)	H(mm)	H1(mm)	W(mm)	Weight(kg)
Threaded	DN15 - 25	90	168	100	55	1.8
Butt Weld / Socket Weld	DN15 - 25	90	168	100	55	1.8
Flanged	DN15 - 25	150	168	100	115	4

ST62.2 | Max Capacity = 750 kg/h

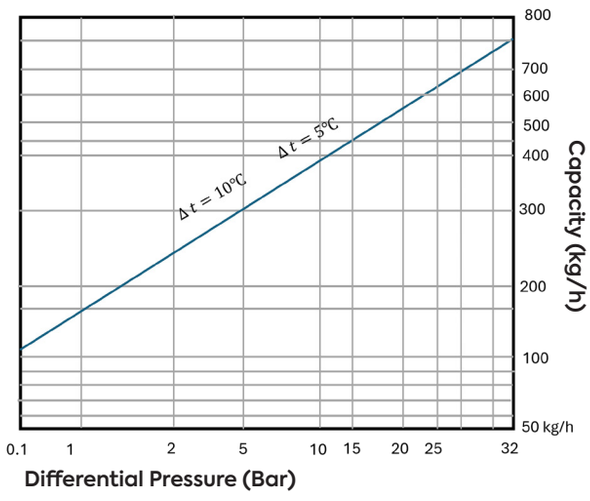
Technical Parameters	
Nominal pressure	PN40
Max. allowable pressure (Shell)	48 Bar / 300°C
Max. allowable temperature (Shell)	427°C / 32 Bar
Factory steam action test	>3 times / 16 Bar

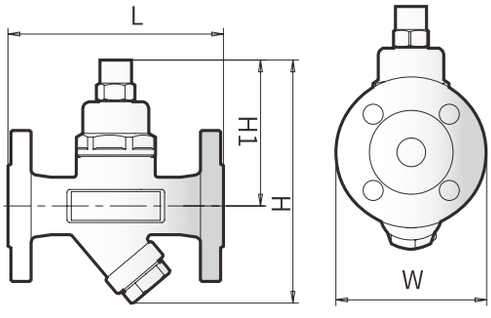
Technical Parameters	
Max. operating pressure	32 Bar
Max. operating temperature	350°C
Factory cold test pressure	95 Bar
Air test	20 Bar

Temperature Adjustment Table



Displacement Curve





Part Name	Material
Bonnet	A105 / F304 / F316
Body	A105 / F304 / F316
Seat	420
Disc	440C + 304
Other Internal Part	304

Data Size Table

Connection	Size	L(mm)	H(mm)	H1(mm)	W(mm)	Weight(kg)
Threaded	DN15 - 25	90	168	100	55	1.8
Butt Weld / Socket Weld	DN15 - 25	90	168	100	55	1.8
Flanged	DN15 - 25	150	168	100	115	4

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STEP 5

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A sales engineer will be assigned to assist you.

Valve Coding Sheet
Bimetallic Steam Trap

01	—	02	—	03	—	04	—	05	—	06
		A								

Body Material

Code	Material
C1	WCB
S1	SS304
S2	SS316

Internal Parts

Code	Material
A	SS304

Rating

Code	Rating
A	PN25
B	PN40

Size

Code	Size
A	½″
B	¾″
C	1″

Connection

Code	Material
B	BSPT - Tappered
N	NPT
F	Flanged End
S	Socket Weld

Δ T

Code	Type
1	1°C
2	2°C
3	5°C
5	10°C
6	13°C

Your Valve Ordering Code:

ST62	—	01	02	03	04	05	06
			A				

Example:

ST62 - C1AAAB1.
WCB Body Material. SS304 Internal Parts. Pressure Rating of PN25, ½ inch size.
Connection Type of BSPT - Tappered. Δ T 1°C.

*For special material or customisation, please refer to our sales engineer.

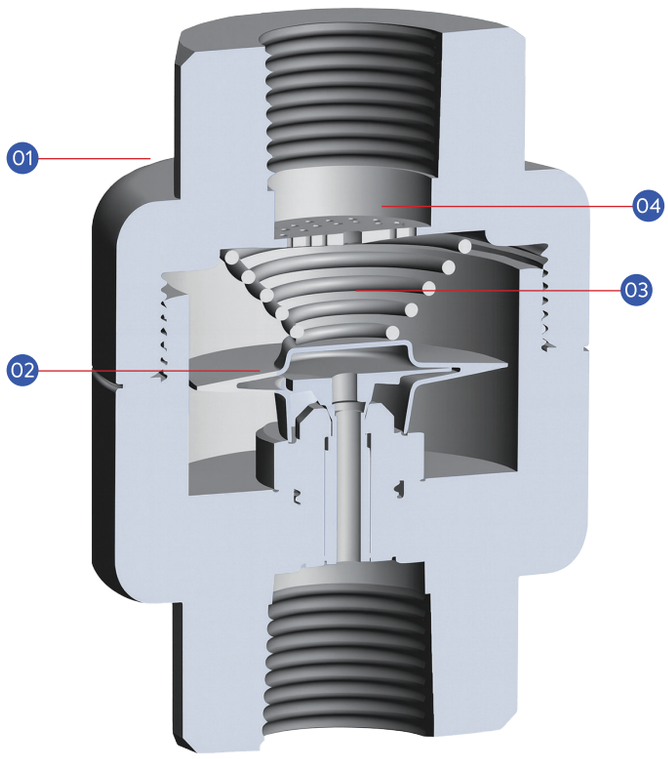
SCAN FOR ONLINE ORDERING FORM

Tel: +65 6909 1221
Email: enquiry@valvewerkz.com
Website: www.valvewerkz.com

THERMOSTATIC (CAPSULE) STEAM TRAP

Thermostatic (Capsule) steam traps are commonly used in heat tracing pipelines and equipment requiring small displacement and low-temperature operation. Their Compact design, large subcooling capability, strong energy-saving performance, and excellent resistance to low temperatures make them ideal for such applications.

The technical advantages of ValveWerkz traps lie in their precise internal components and well-engineered construction.



1. **High Strength Corrosion Resistance**
   Constructed from SS304 stainless steel, offering excellent corrosion resistance along with a polished, hygienic appearance.

2. **Large Subcooling Capsule Module**
   Designed with a subcooling range of 15°C, the capsule trap effectively removes condensate below the saturation temperature, ensuring high energy efficiency.

3. **Suitable for Clean Applications**
   All internal components are made from 304 stainless steel, making this trap suitable for use in food, pharmaceutical, and other sanitary industries.

4. **Integrated Filtration Design**
   Built-in filtration prevents pipeline impurities from entering the valve, ensuring consistent and reliable operation.

Thermostatic (Capsule) Steam Trap

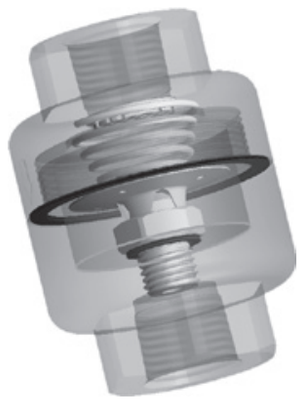
Structural Features

ValveWerkz capsule steam trap uses a valve body and cover made from 304 stainless steel, making it suitable for clean environments such as medical, sanitation, food, and pharmaceutical industries. The trap operates with a condensate discharge temperature range of 15–20°C.

It features a face-sealed closure system that is noiseless, provides excellent air exhaust capability, and maximises the sensible heat of condensate for improved energy efficiency.

The capsule steam trap works based on the temperature difference between steam and condensate. When high pipeline temperatures prevent immediate condensate discharge, the diaphragm inside the trap responds by opening the valve seat as the heat energy decreases, allowing the condensate to be expelled.

Additionally, the capsule steam trap can function as an air exhaust valve.



Material and Performance Specifications

The body of the capsule steam trap is made from 304 stainless steel. The internal components, including the capsule, are also constructed from stainless steel. The inlet is equipped with a built-in filter to ensure clean operation.

- Nominal pressure: PN25
- Maximum allowable temperature: 400°C
- Maximum working pressure: 16 Bar
- Maximum working temperature: 400°C
- Connection options: Threaded RC or flange (GB/T9115.1–2000; HG/T20615–2009; HG/T20592–2009, etc.)

Selection and Installation

The bellows-type capsule steam trap provides continuous drainage. Standard models are factory-set to discharge at a subcooling range of 15–20°C. If a specific subcooling requirement is needed, please indicate this when placing your order.

The back pressure ratio of the bellows trap can reach up to 50% (back-end pipeline pressure to steam pressure). While not suitable for closed recovery systems, it is ideal for pipelines and heating systems used for condensate removal.

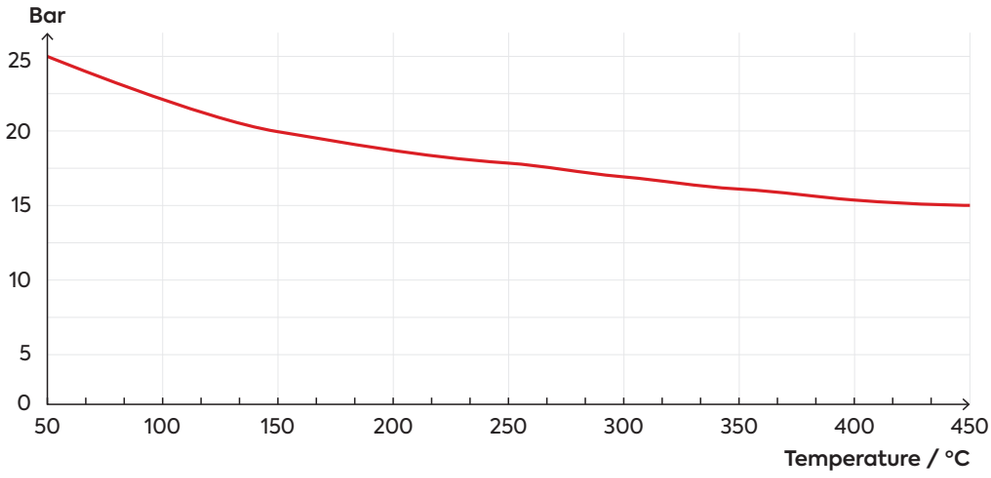
As a general rule, a safety factor of 2 to 3 times is recommended during model selection.

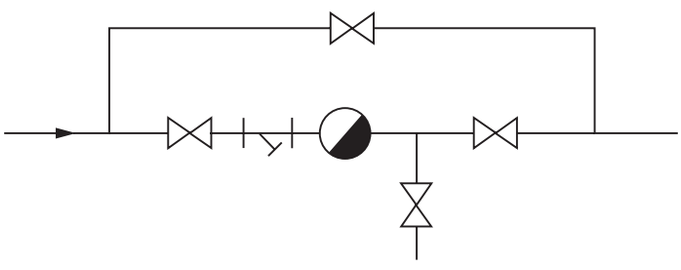
Important

The condensate volume and pressure differential of your steam system are key factors when selecting the appropriate trap. Displacement increases as pressure difference rises. Always refer to the displacement curve for accurate sizing.

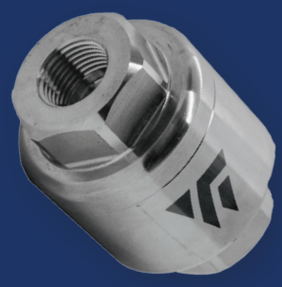
Do not confuse high displacement capability with a large-diameter trap.

Valve Body Pressure – Rating Temperature (25 Bar; SS 304)





The capsule steam trap can be installed at any position within the pipeline or equipment as required. The diagram above illustrates the standard configuration for correct installation.



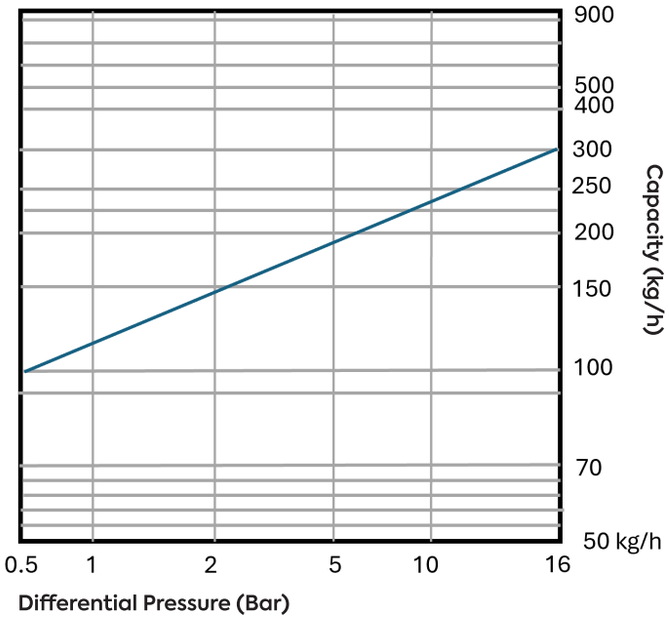
ST63 Series

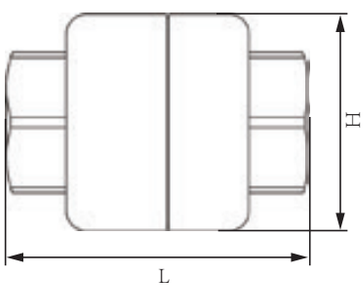
Thermostatic (Capsule) Steam Trap

- SS304
- SS316
- Threaded End
  Flanged End
- DN15 (½") to DN25 (1")
- Max Discharge = 300 kg/hr
- PN25
- Max W.P = 16 Bar

Technical Parameters	
Nominal pressure	PN25
Max. allowable pressure (Shell)	16 Bar / 250°C
Max. allowable temperature (Shell)	350°C / 14.6 Bar
Factory steam action test	>3 times / 16 Bar
Max. operating pressure	16 Bar
Max. operating temperature	204°C
Factory cold test pressure	38 Bar
Air test	6 Bar

Displacement Curve





Part Name	Material
Bonnet	SS304 / SS316
Body	SS304 / SS316
Seat	420
Valve Core	304
Other Internal Parts	304

Data Size Table

Connection	Size	L(mm)	H(mm)	Weight(kg)
Threaded	DN15 - 20	75	55	1
Butt Weld / Socket Weld	DN25	80	55	1.2
Flanged	DN15 - 25	120	125	3.8

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Valve Coding Sheet
Thermostatic (Capsule) Steam Trap

01	—	02	—	03	—	04	—	05	—	06
		A								1

Body Material

Code	Material
S1	SS304
S2	SS316

Internal Parts

Code	Material
A	SS316

Rating

Code	Rating
A	PN25

Size

Code	Size
A	½"
B	¾"
C	1"

Connection

Code	Material
B	BSPT - Tappered
N	NPT
F	Flanged End

Orifice

Code	Type
1	16 BAR

Your Valve Ordering Code:

ST63	—	01	02	03	04	05	06
			A	A			1

Example:

ST63 - S1AABB1.
SS304 Body Material. SS316 Internal Parts. Pressure Rating of PN25, ½ inch size.
Connection Type of BSPT - Tappered. Orifice 16 BAR.

*For special material or customisation, please refer to our sales engineer.

SCAN FOR ONLINE ORDERING FORM

Tel: +65 6909 1221
Email: enquiry@valvewerkz.com
Website: www.valvewerkz.com

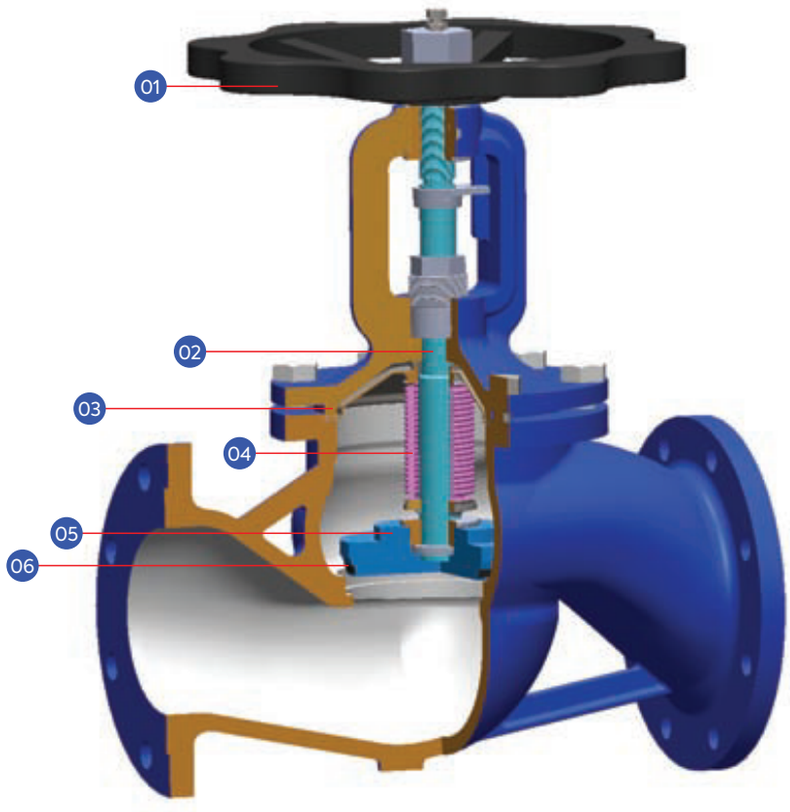
VALVEWERKZ

BELLOW SEAL GLOBE VALVES

BELLOW SEAL GLOBE VALVE

Straight-type bellows seal valves offer reliable zero-leakage sealing, ideal for high-temperature or hazardous media. The Compact, inline design is perfect for vertical or space-limited installations.

Equipped with a welded metal bellows and dual sealing structure, these valves ensure long service life, safety, and precision under demanding conditions.



1. **Oversized Handwheel**
   Oversized handwheel for easy handling and position indicator allows user to know (OPEN / CLOSE) status of the valve.

2. **Backseat On Stem**
   Metal back seat has been provided to arrest leakage to the atmosphere in case of bellow failure.

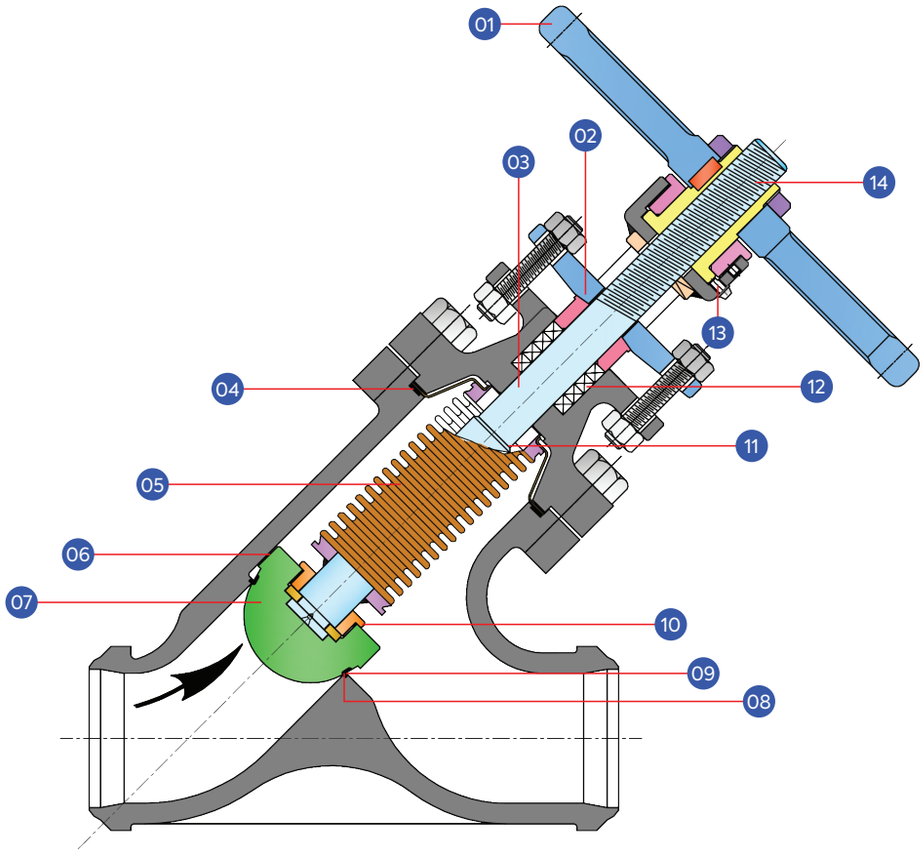
3. **Tongue and Groove Body And Bonnet**
   Tongue and Groove Body and Bonnet designed to avoid any leak between joints.

4. **High Quality Multiply Bellow**
   Completely welded multiple layer stainless steel bellows are secured against torque and designed to last as per MSS SP-117 cycle life.

5. **Standard 360° Free Rotation and Conical Plug**
   Standard 360° free rotation and conical plug provides a tighter closure while maintaining seat clean from shards. Both seat and plug are made out of hardened chromium steel 1.4021 or with stellite.

6. **Plug and Seat Hard Faced**
   TA-LUFT certified full size safety gland packing made of pure graphite together with our bellows, guaranteeing 100% zero leak to the atmosphere. Can also be supplied in PTFE on request for other chemical applications.

Y TYPE DESIGN



1. **Non Rising Hand Wheel**
   - Ideal in restricted spaces

2. **Ease of operation for Secondary Packing**
   - Ease for replacing packing
   - Improves proper sealing

3. **Non Rotating Stem**
   - High reliability
   - Twist of bellow is avoided
   - Longer packing life

4. **Body-bonnet Joints**
   - Tongue and groove arrangement
   - No gasket slip possible, long service life

5. **Multiply Bellows**
   - High service life

6. **Guided Plug**
   - Body bore guided plug design

7. **Throttling type plug design**

8. **Hardfacing or Stelliting**
   - Increased service life

9. **Integral Body Seat**
   - Avoid leak through seating

10. **Plug and Stem connected by stem nut**
    - Provides 360° rotation of plug

11. **Back Seat Arrangement on Stem**
    - Additional tertiary safety
    - Anti-blow out under line pressure

12. **Downstream Safety Gland Packing with Graphite**
    - Additional reliability against bellow failure

13. **Provision for Lubrication on Yoke Sleeve**
    - Ensures smooth operation

14. **ACME Stem Thread**
    - Longer service life

WHY OUR VALVES ARE BETTER

Straight type bellow sealed globe valves for demanding applications can be supplied in carbon steel 1.0619 / WCB and stainless steel 1.4408 / CF8M, both with flanged or buttweld ends.

Application (Carbon Steel)
The body and bonnet of the ValveWerkz bellow seal globe valve are made from A105 material. The condensate discharge temperature is adjustable and is factory-set between 120°C and 130°C.

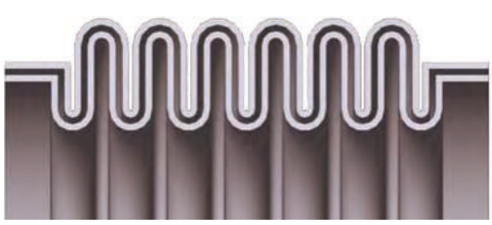
Medium (Carbon Steel)
Medium and high pressure steam, superheated steam, gases, thermal oil, overheated water and gases, etc.

Application (Stainless Steel)
Recycling plants, chemical industry, process water installations, process with aggressive media.

Medium (Stainless Steel)
Process water, aggressive media, corrosive and toxic fluids, ethylene dioxide, H_2SO_4, etc.

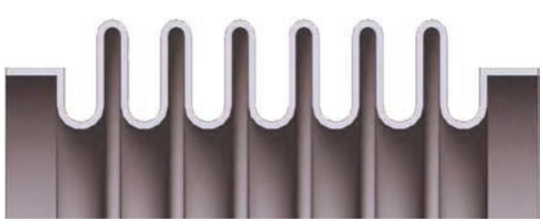
Features	ValveWerkz	Others
Stem with back seat	Yes	No
360° free rotation disc	Yes	On Request
Stroke limiter	Yes	On Request
Wide thread stem that prevents the valve from blocking	Yes	No
Tongued body and bonnet	Yes	No

Multi Layer Bellow (ValveWerkz)



- Multiply bellows depending on the pressure of the valve.
- Bellows designed to better MSS SP-117.
- Bellows are welded to the stem and not to the disc, preventing the transmission of vibrations to the bellows, and therefore extending the life of the bellows.

Others



- Just one bellow layer, which means a lower resistance to breakage.
- Bellows designed to support less than 10,000 operation cycles.
- Bellows are welded to the disc, which transmits the vibrations to the bellows, decreasing their lives.

BELLOWS AS A LEAKAGE BARRIER

Our stainless steel 316Ti German manufactured bellows is welded to the stem, becoming a definitive metallic barrier between the process medium and the atmosphere, and hence guarantying zero leakage performance. Still, for higher security, safety TA-LUFT approved packing is applied in design. Furthermore, our multiple layer bellows are designed to last at least 30,000 cycles according to MSS SP-117 manufacturing standard.

Multi Layer Bellows

- Double, triple and quadruple layer bellows depending on the size of the valve.
- Bellows designed to support 30,000 operation cycles.
- Bellows are welded to the stem and not to the disc, preventing the transmission of vibrations to the bellows, and therefore extending the life of the bellows.

Kvs Value Standard Plug

DN	15	20	25	32	40	50	65	80	100	125	150	200	250	300
KVS	4.8	7.3	11.7	17.8	27.3	43	75.1	111	176	264	369	701	1056	1691

Throttling Plug Kvs Value

DN	15	20	25	32	40	50	65	80	100	125	150	200	250	300
KVS	4.36	6.76	9.21	16.3	25.1	36.8	61.7	91.6	137	184	287	471	898	1410

Optional Plug Types

STANDARD

Conical plug

Throttling plug

Plug with soft sealing

Throttling plug with soft sealing

Permissible differential pressure acc. EN13709

PN	DN													
	15	20	25	32	40	50	65	80	100	125	150	200	250	300
PN16							16					14	9	6
PN25							25				21	14	9	6
PN40							40			33	21	14	9	6

Applications

- Hot oil system, steam system, hot and cold water system etc.

GL25 Series

Straight Type

Body Material

Cast Iron, GG25	Forged Steel / A105
Ductile Iron, GGG40	St. St. 304
Carbon Steel 1.0619	St.St 316 / 1.4571

Plug material & Design

St. Steel 1.4021 + Hard Faced 13% Cr
Parabolic (For regulating)
Conical (For On Off)
Balancing (For 5" and above, high pressure)

Bellow Material

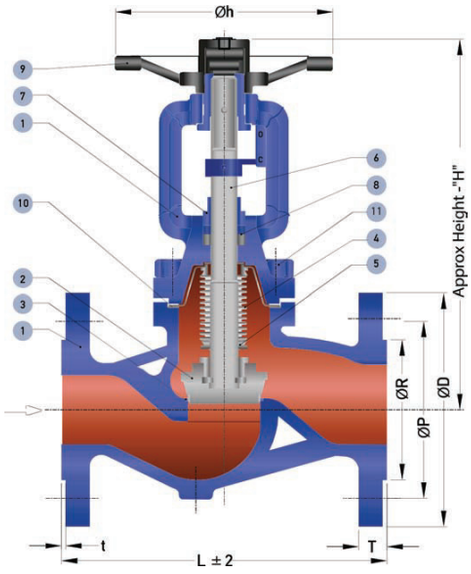
321 Ti	St.St 304
St.St 316 / 1.4571	Hastelloy C

BSPT - Tappered	NPT
Socket Weld	Flanged End
Butt Weld	

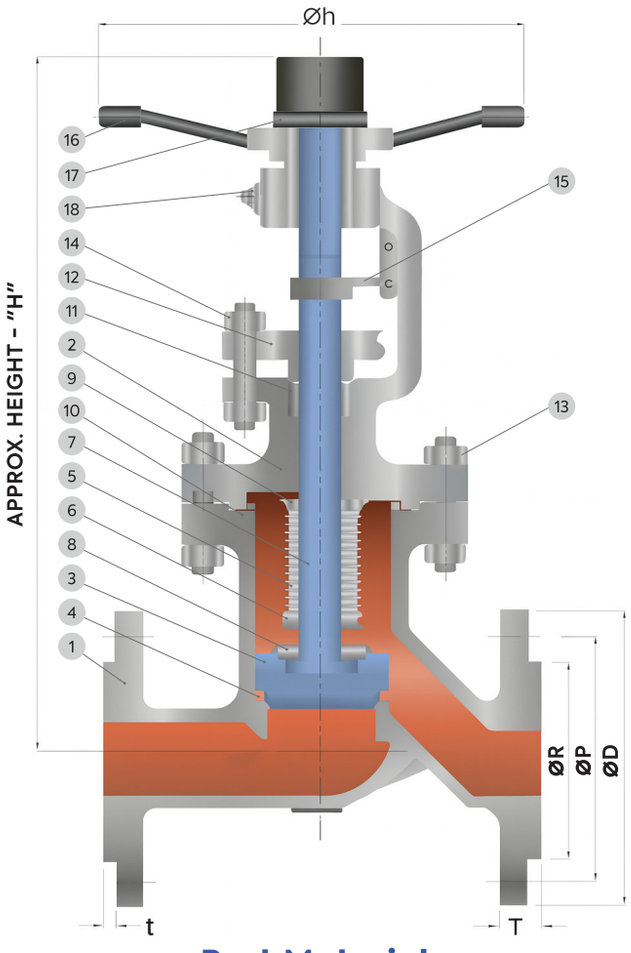
DN15 (½") to DN150 (6")

For Standard Plug: KVS = 4.8 - 1691
For Throttling Plug: KVS = 4.36 - 1410

ANSI 150	ANSI 600	PN16	PN40
ANSI 300	ANSI 900	PN25	



	Part Name	PN16	PN25
1.	Body & Bonnet	EN-JL 1040 Cast Iron	EN-GJS-400-18-LT Ductile Iron
2.	Plug	St. Steel 1.4021 + Hard Faced 13% Cr	
3.	Seat	ASTM - A105 + Hard Faced 13% Cr	
4.	Bellow	St. Steel 1.4541 / AISI-321	
5.	Bellow Collar	St. Steel 1.4541	
6.	Stem	St. Steel 1.4006	
7.	Gland	St. Steel 1.4021	
8.	Packing	Pure Graphite	
9.	Hand Wheel	EN-GJS-400-18-LT Nodular	
10.	Bonnet Gasket	Graphite + Stainless Steel	
11.	Bolt & Nuts	Carbon Steel Gr. 10.9	



Part Materials

	Nominal Pressure	PN40	
1.	Body	1.0619/ ASTM - A 216 Gr. WCB	1.4408/ ASTM - A351 Gr. CF8M (1.4408)
2.	Bonnet	1.0619/ ASTM - A 216 Gr. WCB	1.4408/ ASTM - A351 Gr. CF8M (1.4408)
3.	Plug	ASTM - A217 Gr. CA15 + 13% Cr. Overlay	1.4408/ ASTM - A351 Gr. CF8M (1.4408) + Stellite Gr. 6
4.	Integral Seat	1.0619/ ASTM - A216 Gr. WCB + 13% Cr. Overlay	1.4408/ ASTM - A351 Gr. CF8M (1.4408) + Stellite Gr. 6
5.	Bellow	1.4541 / AISI-321	1.4571/ AISI - 316Ti
6.	Bellow Collar	1.4401 / ASTM - A 276 TYPE 316	1.4401 / ASTM - A 276 TYPE 316
7.	Stem	1.4006 / ASTM - A 276 TYPE 410	1.4401 / ASTM - A 276 TYPE 316
8.	Collar Ring	1.4006 / ASTM - A 276 TYPE 410	1.4401 / ASTM - A 276 TYPE 316
9.	Top Collar	1.4401 / ASTM - A 276 TYPE 316	1.4401 / ASTM - A 276 TYPE 316
10.	Gasket	SPW- SS304 + Graphite	
11.	Packing	Graphite	
12.	Gland bush/Flange	1.0619/ ASTM - A216 Gr. WCB	1.4408/ ASTM - A351 Gr. CF8M
13.	Fastener	ASTM - A 193 Gr. B7/ A 194 Gr. 2H	ASTM - A 193 Gr. B8M/ A 194 Gr. 8M
14.	Gland Stud & Nut	ASTM - A 193 Gr. B7/ A 194 Gr. 2H	ASTM - A 193 Gr. B8M/ A 194 Gr. 8M
15.	Guide Plate/Indicator	Carbon Steel	1.4408/ ASTM - A351 Gr. CF8M
16.	Hand Wheel	Mild Steel/ Nodular Cast Iron	
17.	Hand Wheel Nut/Cap	Carbon Steel	1.4401 / AISI -316
18.	Grease Nipple	Carbon Steel	1.4401 / AISI -316

Working Conditions

Temperature (°C)	Pressure (Bar)				
	Cast Iron EN-JL 1040	Ductile Iron EN-GJS-400-18-LT	Carbon steel WCB (1.0619)	Stainless Steel CF8M (1.4408)	
	PN16		PN25	PN40	
-60/-10					40.0
-10/120 | -10/100*	16.0	16.0	25.0	40.0	40.0*
150	14.4	15.5	24.3	35.2	36.3
200	12.8	14.7	23.0	33.3	33.7
250	11.2	13.9	21.8	30.4	31.8
300	9.6	12.8	20.0	27.6	29.7
350		11.2	17.5	25.7	28.5
400				23.8	27.4

Dimensions(mm)

DN	PN	ØD (Outer Flange Diameter)	ØP (Bolt Circle)	ØR	T	t	No. of Hole /Ø	L (Face to face)	Øh	Stroke	H (Closed)	Weight (kg)
15	16	95	65	46	16	2	4/Ø14	130	172	4.0	215	4.8
	25	95	65	46	16	2	4/Ø14	130	172	4.0	215	5.0
	40	95	65	45	16	2	4/Ø14	130	172	4.0	260	8.5
20	16	105	75	56	16	2	4/Ø14	150	172	5.0	220	5.2
	25	105	75	56	18	2	4/Ø14	150	172	5.0	220	5.5
	40	105	75	58	18	2	4/Ø14	150	172	5.0	275	9.5
25	16	115	85	65	17	3	4/Ø14	160	172	6.5	230	6.0
	25	115	85	65	19	3	4/Ø14	160	172	6.5	230	6.4
	40	115	85	68	18	2	4/Ø14	160	172	7.0	290	11.5
32	16	140	100	76	18	3	4/Ø19	180	172	8.0	235	7.8
	25	140	100	76	19	3	4/Ø19	180	172	8.0	235	8.3
	40	140	100	78	18	2	4/Ø18	180	200	8.0	297	17.0
40	16	150	110	84	19	3	4/Ø19	200	200	10.0	255	11.2
	25	150	110	84	19	3	4/Ø19	200	200	10.0	265	11.5
	40	150	110	88	18	3	4/Ø18	200	200	10.0	331	19.0
50	16	165	125	99	20	3	4/Ø19	230	200	13.0	265	13.6
	25	165	125	99	20	3	4/Ø19	230	200	13.0	275	14.2
	40	165	125	102	20	3	4/Ø18	230	200	13.0	350	21.5
65	16	185	145	118	20	3	4/Ø19	290	250	16.5	325	22.9
	25	185	145	118	22	3	8/Ø18	290	250	16.5	325	24.8
	40	185	145	122	22	3	8/Ø18	290	250	16.0	435	33.5
80	16	165	160	132	22	3	8/Ø19	310	250	20.0	335	27.4
	25	165	160	132	24	3	8/Ø19	310	250	20.0	355	27.9
	40	165	160	138	24	3	8/Ø18	310	300	19.0	455	45.0
100	16	220	180	156	24	3	8/Ø19	350	300	25.0	385	40.3
	25	235	190	156	24	3	8/Ø28	350	300	25.0	410	42.2
	40	235	190	162	24	3	8/Ø22	350	300	25.0	540	61.5
125	16	250	210	184	26	3	8/Ø19	400	350	32.0	425	67.2
	25	270	220	184	26	3	8/Ø28	400	350	32.0	450	67.0
	40	270	220	188	26	3	8/Ø26	400	350	32.0	640	102.0
150	16	285	240	211	26	3	8/Ø23	480	400	51.0	485	89.2
	25	300	250	211	28	3	8/Ø28	480	400	38.0	525	91.0
	40	300	250	218	28	3	8/Ø26	480	400	38.0	695	122.0
200	16	340	295	266	30	3	12/Ø23	600	450	64.0	615	143.5
	25	360	310	274	34	3	12/Ø28	600	450	51.0	640	147.0
	40	375	320	285	34	3	12/Ø30	600	450	50.0	825	22.0
250	16	400	355	319	32	3	12/Ø28	730	500	62.5	780	241.0
	25	425	370	330	38	3	12/Ø31	730	500	62.5	820	246.0
	40	450	385	345	38	3	12/Ø33	730	600	70.0	1,010	362.0
300	40	515	450	410	42	4	12/Ø33	850	600	80.0	1,210	533.0

REQUEST FOR QUOTE

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STEP 5

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A sales engineer will be assigned to assist you.

Valve Coding Sheet
GL25 Series (S-Type)

01 — 02 — 03 — 04 — 05 — 06

Body Material

Code	Material
G1	Cast Iron
G2	Ductile Iron
C1	WCB
C2	Forged Steel /A105
S1	St.St 304
S2	St.St 316 /1.4571

Internal Parts

Code	Material
1	321 Ti
2	St.St 304
3	St.St 316 /1.4571
4	Hashtelloy C

Rating

Code	Rating
A	ANSI 150
B	ANSI 300
C	ANSI 600
D	ANSI 900
E	PN16
F	PN25
G	PN40

Size

Code	Size
A	½″
B	¾″
C	1″
D	1 ¼″
E	1 ½″
F	2″
G	2 ½″
H	3″
I	4″
J	5″
K	6″
L	8″
M	10″
N	12″

Connection

Code	Material
B	BSPT - Tappered
N	NPT
S	Socket Weld
F	Flanged End
W	Butt Weld

Design

Code	Type
C	Conical
R	Regulating Plug

Your Valve Ordering Code:

GL25 — 01 02 03 04 05 06

Example:

GL25 Series (S-Type) - C21GDFR.
Forged Steel / A105. 321 Ti Internal Parts. Pressure Rating of PN40, ½ inch size.
Connection Type of Flanged End. Design Regulating Plug.

*For special material or customisation, please refer to our sales engineer.

SCAN FOR ONLINE ORDERING FORM

Tel: +65 6909 1221
Email: enquiry@valvewerkz.com
Website: www.valvewerkz.com

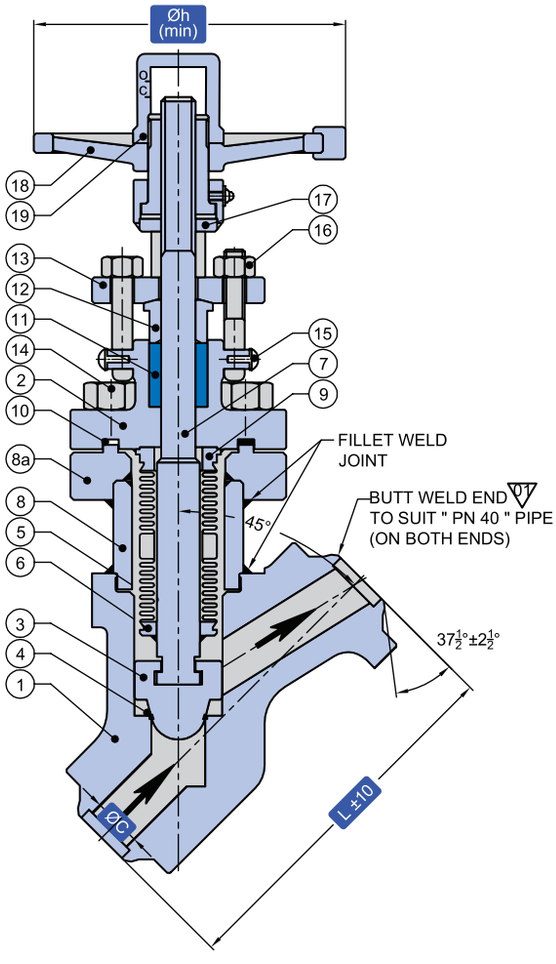
Applications

Steam, hot and cold water, oil products, acetic acid, fatty acids, cryogenic liquids, ammonia, natural gas, etc.

GL26 Series

Y Type

Body Material	
Cast Iron GG25	Forged Steel / A105
Ductile Iron GGG40	St. St. 304
Carbon Steel 1.0619	St.St 316 / 1.4571
Plug Material & Design	
St. Steel 1.4021 + Hard Faced 13% Cr	
Parabolic (For regulating)	
Conical (For On Off)	
Balancing (For 5" and above, high pressure)	
Bellow material	
321 Ti	St.St 304
St.St 316 / 1.4571	Hastelloy C
BSPT - Tappered	NPT
Socket Weld	Flanged End
Butt Weld	
DN15 (½") to DN150 (6")	
For Standard Plug:	
KVS = 4.8 - 1691	
For Throttling Plug:	
KVS = 4.36 - 1410	
ANSI 150	PN16
ANSI 300	PN25
ANSI 600	PN40
ANSI 900	



Part Materials

Nominal Pressure		PN40		300#
1.	Body	ASTM – A 105	ASTM – A 182 Gr.F316L	SS317LMN
2.	Bonnet	ASTM – A 105	ASTM – A 182 Gr.F316L	1.4439
3.	Parabolic Plug	ASTM – A 276 TYPE 410 / A 217 Gr.CA15 + Hard Faced	ASTM – A 276 TYPE 316L + Stellite Gr.21	AISI – 317L + Stellite Gr.21
4.	Integral Seat	ASTM – A 105 + Hard Faced	ASTM – A 182 Gr.F316L + Stellite Gr.21	1.4439 + Stellite Gr.21
5.	Bellow	AISI – 316Ti / AISI – 321		Hastelloy – C276
6.	Bellow Collar	ASTM – A 276 TYPE 316 / 316L		Hastelloy – C276
7.	Stem	ASTM – A 276 TYPE 410	ASTM – A 276 TYPE 316L	AISI – 317L
8.	Cylinder / Stem Nut (For Ss317l)	ASTM – A 106 Gr.B	ASTM – A 312 TYPE 316L	AISI – 317L
8a.	Cylinder Flange	ASTM – A 105	AISI – 316L	
9.	Top Collar	ASTM – A 276 TYPE 316 / 316L		Hastelloy – C276
10.	Gasket	SPW– SS304 + Graphite		
11.	Packing	Graphite		
12.	Gland Bush	ASTM – A 276 TYPE 410 / A 217 Gr.CA15	ASTM – A 276 TYPE 316L / A 351 Gr.CF3M	AISI – 317L
13.	Gland Flange	ASTM – A 105 / Carbon Steel	ASTM – A 240 TYPE 304 / A 351 Gr.CF8	
14.	Hex Bolt / Fasterner	ASTM – A 193 Gr.B7		ASTM – A 193 Gr.B8
15.	Rivet / Washer / Gland Stud / Nut	Carbon Steel	AISI – 304	ASTM – A 240 TYPE 304 / A 351 Gr.CF8
16.	Eye Bolt / Nut	ASTM – A 193 Gr.B7 / A 194 Gr.2H	ASTM – A 193 Gr.B8 / A 194 Gr.8	
17.	Guide Plate	ASTM – A 216 Gr.WCB / Carbon Steel	ASTM – A 276 TYPE 304 / A 351 Gr.CF8	ASTM – A 276 TYPE 304 / A 351 Gr.CF8
18.	Hand Wheel	SG IRON / ASTM – A 216 Gr.WCB	SG IRON / ASTM – A 216 Gr.WCB / IS 2062 Gr. E 250 A	SG IRON / ASTM – A 216 Gr.WCB
19.	Hand Wheel Nut / Key	Carbon Steel	AISI – 304	

Working Conditions

Temperature (°C)	Pressure (Bar)		
	ASTM – A 105	ASTM – A 182 Gr.F316L	SS317LMN
	PN40		ANSI300
-29 to 38	51.1	41.4	41.4
50	50.1	40.4	40.4
100	46.6	34.8	34.8
150	45.1	31.4	31.4
200	43.8	29.2	29.2
250	41.9	27.5	27.5
300	39.8	26.1	26.1
325	38.7	25.5	25.5
350	37.6	25.1	25.1
375	36.4	24.8	24.8
400	34.7	24.3	24.3
425	28.8	23.9	23.9

Dimensions(mm)

DN	PN/ANSI	Body Material	L	H	Øh	Bore Dimension ØC (min)
15	40 300#	ASTM - A 105 ASTM - A 182 Gr.F316L SS317LMN	150 130 152	235 250 240	100 100 150	9 12
20	40 300#	ASTM - A 105 ASTM - A 182 Gr.F316L SS317LMN	150 150 178	240 266 155	100 100 150	12 17
25	40 300#	ASTM - A 105 ASTM - A 182 Gr.F316L SS317LMN	150 160 203	245 265 265	100 150 150	17
40	40 300#	ASTM - A 105 ASTM - A 182 Gr.F316L SS317LMN	229 200 229	305 305 305	200 200 200	
50	40 300#	ASTM - A 105 ASTM - A 182 Gr.F316L SS317LMN	267 230 267	335 335 335	200 200 200	
65	40 300#	ASTM - A 105 ASTM - A 182 Gr.F316L SS317LMN	292 290 292	450 450 450	250 250 250	
80	40 300#	ASTM - A 105 ASTM - A 182 Gr.F316L SS317LMN	318 310 318	505 505 505	300 300 300	
100	40 300#	ASTM - A 105 ASTM - A 182 Gr.F316L SS317LMN	356 350 356	605 605 605	300 300 300	
125	40 300#	ASTM - A 105 ASTM - A 182 Gr.F316L SS317LMN	400 400 400	660 670 670	350 350 350	
150	40 300#	ASTM - A 105 ASTM - A 182 Gr.F316L SS317LMN	444 480 444	760 750 760	350 350 350	
200	40 300#	ASTM - A 105 ASTM - A 182 Gr.F316L SS317LMN	559 600 559	900 900 900	450 400 450	

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Valve Coding Sheet
GL26 Series (Y-Type)

01 — 02 — 03 — 04 — 05 — 06

Body Material

Code	Material
G1	Cast Iron
G2	Ductile Iron
C1	Cast Carbon Steel
C2	Forged Steel /A105
S1	St.St 304
S2	St.St 316 /1.4571

Internal Parts

Code	Material
1	321 Ti
2	St.St 304
3	St.St 316 /1.4571
4	Hashtelloy C

Rating

Code	Rating
A	ANSI 150
B	ANSI 300
C	ANSI 600
D	ANSI 900
E	PN16
F	PN25
G	PN40

Size

Code	Size
A	½″
B	¾″
C	1″
D	1 ¼″
E	1 ½″
F	2″
G	2 ½″
H	3″
I	4″
J	5″
K	6″

Connection

Code	Material
B	BSPT - Tappered
N	NPT
S	Socket Weld
F	Flanged End
W	Butt Weld

Design

Code	Type
C	Conical
R	Regulating Plug

Your Valve Ordering Code:

GL26 — 01 02 03 04 05 06

Example:

GL26 Series (Y-Type) - C21GDFR.
Forged Steel / A105. 321 Ti Internal Parts. Pressure Rating of PN40, 1 ¼ inch size. Connection Type of Flanged End. Design Regulating Plug.

*For special material or customisation, please refer to our sales engineer.

SCAN FOR ONLINE ORDERING FORM

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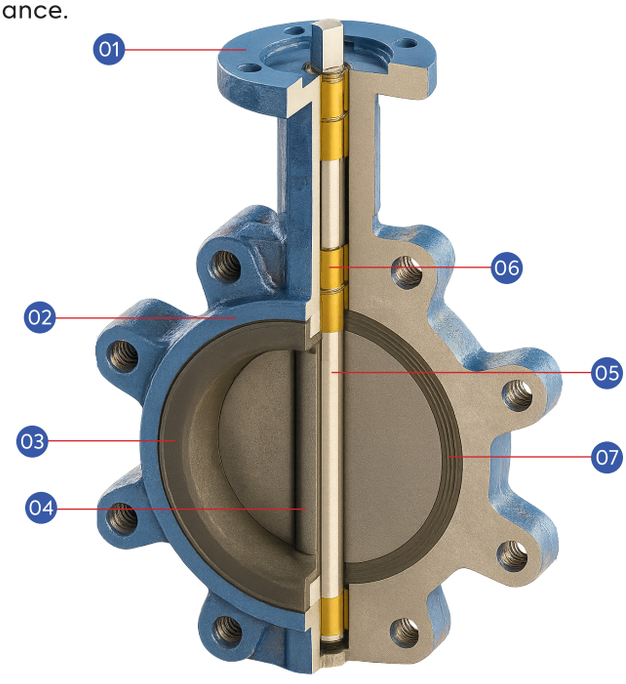
Website: www.valvewerkz.com

VALVEWERKZ

BUTTERFLY VALVES

RUBBER-LINED BUTTERFLY VALVE

ValveWerkz butterfly valves are developed with over 20 years of scientific research and real-world application experience. They offer enhanced torque control, smooth operation, and simplified installation and maintenance.



1. **Top Flange**
   ISO 5211 top flange with square or round stem to suit various types of actuators.

2. **Body**
   Available in full lug and wafer styles for compatibility with all flange types. Fully lugged bodies are also suitable for end-of-line service.

3. **Liner**
   The cartridge-style seat uses a phenolic stabilising ring to minimise tearing and fatigue while maintaining low seating torque. It resists extrusion and allows quick replacement without special tools.

4. **Disc**
   The disc edge is precision-machined and polished to ensure a tight shutoff with minimal operating torque.

5. **Shaft**
   Secured with a stem retainer plate, the shaft is designed without a pin between disc and shaft, preventing blowout.

6. **Bushing**
   The five-bushing PTFE design maximises radial support and shaft rigidity. It prevents shaft deflection and insulates the shaft from the valve body, enhancing control and extending service life.

7. **Bi-Directional Sealing**
   The valve provides full-rated bi-directional sealing with equal flow performance in both directions.

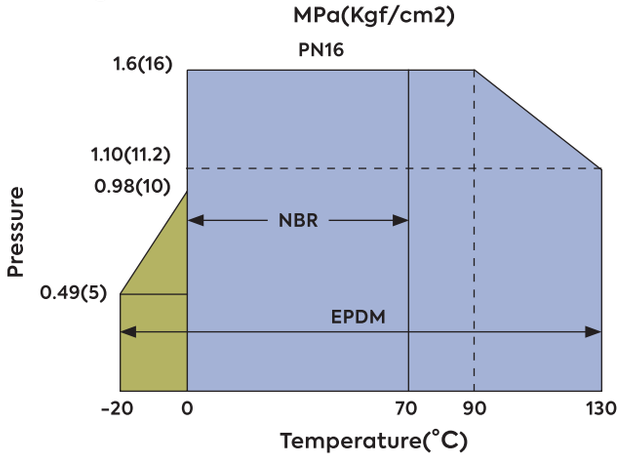
Rubber-Lined Butterfly Valve

Design Features and Advantages

- Concentric design
- Cartridge seat and groove lock boot seat
- Replaceable seat
- Standardised top flange for actuator adaptation
- Direct actuator mounting without additional brackets
- Economical and high-performance
- Blowout-proof stem design
- Low maintenance and long service life
- High Cv and lower head loss for improved energy efficiency
- Streamlined disc design maximises flow and control range
- Extended seat life with low operating torque, achieved through upper and lower stem bearings

Various Applications Under Different Operating Conditions

- Potable water, water treatment plants
- Wastewater treatment and environmental systems
- Agriculture
- Energy, power, and utilities
- HVAC systems
- Fire protection systems
- Chemical and petrochemical plants
- Ferrous metallurgy
- Pulp and paper processing
- Food and beverage production
- General industrial applications



P-T Rating

Notes 1: Some fluid types may have restrictions for service at 130°C. Contact ValveWerkz for details.

Notes 2: P-T rating for sub-zero applications is available upon request. Contact ValveWerkz for technical advice if service conditions exceed the P-T rating range listed above.

Cv-VALUES

		Opening angle α°								
DN(mm)	Size(Inch)	10°	20°	30°	40°	50°	60°	70°	80°	90°
50	2″	0.06	3	7	15	27	44	70	105	115
65	2 ½″	0.1	6	12	25	45	75	119	178	196
80	3″	0.2	9	18	39	70	116	183	275	302
100	4″	0.3	17	36	78	139	230	364	546	600
125	5″	0.5	29	61	133	237	392	620	930	1022
150	6″	0.8	45	95	205	366	605	958	1437	1579
200	8″	2	89	188	408	727	1202	1903	2854	3136
250	10″	3	151	320	694	1237	2047	3240	4859	5340
300	12″	4	234	495	1072	1911	3162	5005	7507	8250
350	14″	6	338	715	1549	2761	4568	7230	10844	11917
400	16″	8	464	983	2130	3797	6282	9942	14913	16388
450	18″	11	615	1302	2822	5028	8320	13168	19752	21705
500	20″	14	791	1647	3628	6465	10698	16931	25396	27908
600	24″	22	1222	2587	5605	9989	16528	26157	39236	43116
750	30″	37	2080	4406	9546	17010	28147	44545	66818	73426

BU25 Series

Uni Body Design

Wafer, Lug

Body Material Option:
Cast Iron GG25, Ductile Iron GGG40, Carbon Steel 1.0619, Stainless Steel 1.4308, Stainless Steel 1.4408

Liner Material Option:
EPDM, NBR(Buna N), PTFE, Viton, Natural Rubber, Silicone

Pressure rating of PN10, PN16, ANSI 150, JIS 10K, JIS 16K

Face-to-face Standard API609, EN558-120 Series, ISO5752, DIN3202K1

ISO 5211 Top Flange

Flange Drilling BS EN1092, JIS B2220, ASME Class 125 / Class 150

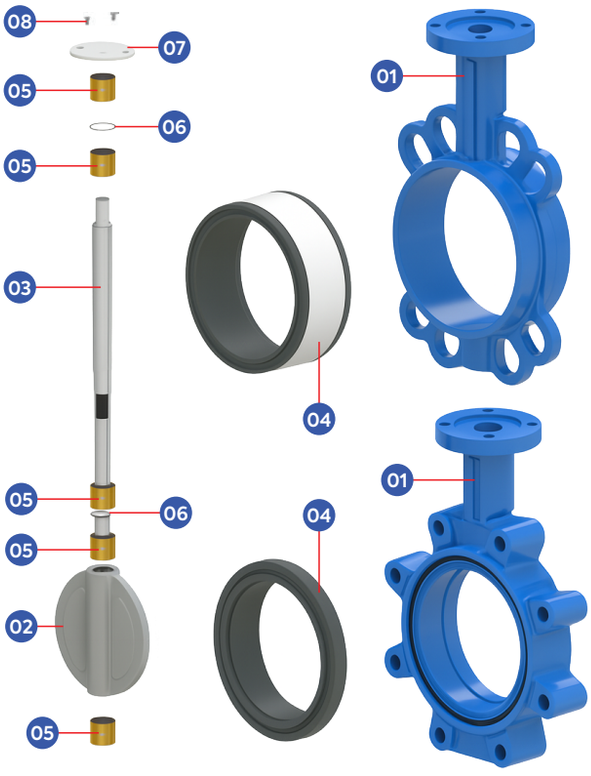
Two Piece Shaft Design (2" to 12")
Spline Design (14" & Above)

Square Stem Top

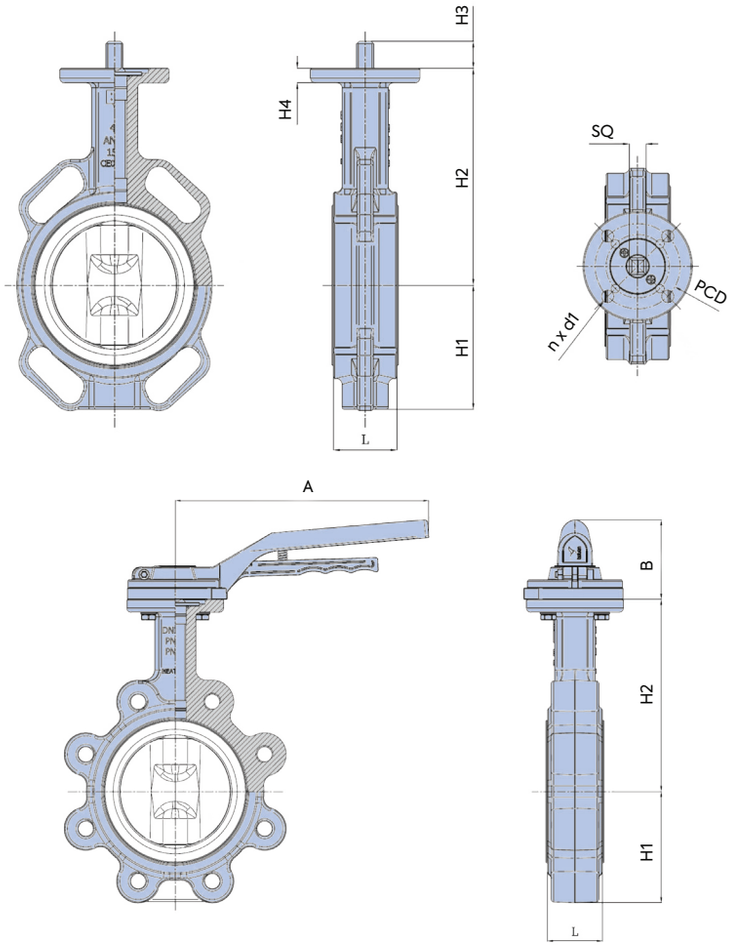
Operating Temperature
-20°C to 130°C

Performance Characteristics

- The butterfly valve features a universal flange, one-piece wafer-type body for reduced weight and maximum strength.
- The resilient cartridge seat, with a phenolic (or aluminium) hard back, prevents movement and deformation.
- Seat can also be moulded to the body, suitable for dead-end and vacuum service applications.
- Two stem connection types are available: pinless spline and traditional pin-type.
- High Cv and low head loss deliver longer service life with reduced operating torque.
- Operable via hand lever, worm gear, electric actuator or pneumatic actuator.
- The seat is replaceable, with a low-maintenance design for cost efficiency and extended durability.

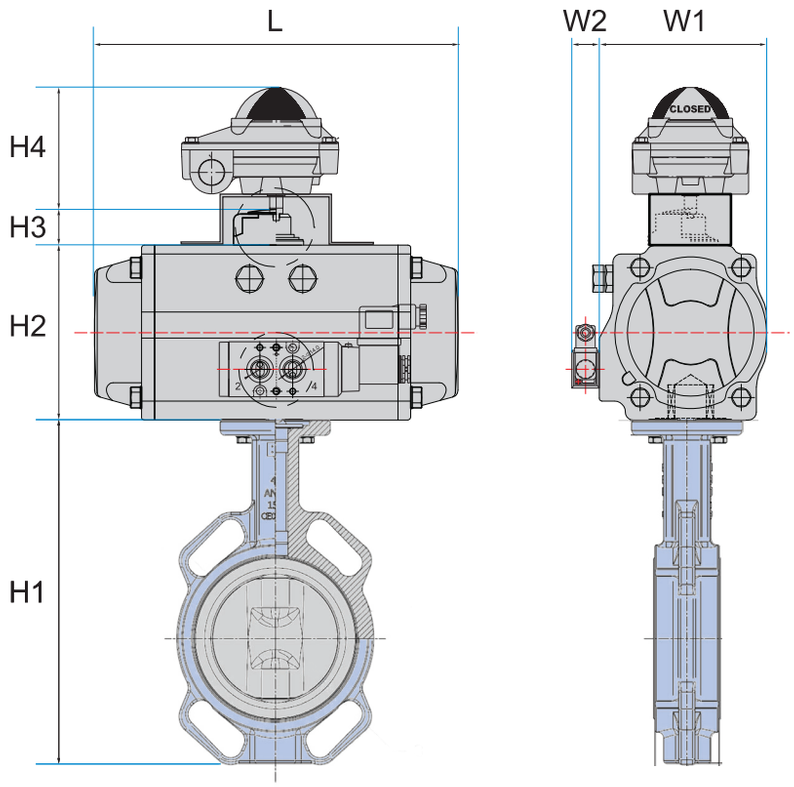


	Part Name	Material
1.	Body	Cast Iron GG25, Ductile Iron GGG40, Carbon Steel 1.0619, Stainless Steel 1.4308, Stainless Steel 1.4408
2.	Disc	Ductile Iron, Stainless Steel 1.4308, Aluminum Bronze, Duplex SS
3.	Shaft	Stainless Steel 1.4308, Duplex SS, Monel
4.	Liner	EPDM, NBR(Buna N), PTFE, Viton, Natural Rubber, Silicone
5.	Bushing	PTFE
6.	O-Ring	Rubber
7.	Retaining Plate	Stainless Steel 1.4308 / Other Alloys
8.	Retaining Plate Screw	Stainless Steel 1.4308



Dimensions(mm)

DN	Inch	L	H1		H2		H3		SQ		ISO		PCD		n x d1		Lever		
			Wafer	Lug	Wafer	Lug	Wafer	Lug	Wafer	Lug	Wafer	Lug	Wafer	Lug	Wafer	Lug	A	B	F
2 Piece Shaft Design																			
50	2″	43	71.4	143.0	142.7	57	22.0	29	11	9	F05/F07	F05	70	50	4 x d10	4 x d8	190	65	F05
65	2 ½″	46	77.8	155.0	155.4	68	22.0	29	11	9	F05/F07	F05	70	50	4 x d10	4 x d8	190	65	F05
80	3″	46	89.0	160.0	161.8	82	22.0	29	11	9	F05/F07	F05	70	50	4 x d10	4 x d8	190	65	F05
100	4″	52	102.0	181.0	178.0	100	22.0	29	14	11	F07	F07	70	70	4 x d10	4 x d10	256	76	F07
125	5″	56	123.0	194.0	190.5	112.0	22.0	29	14	14	F07	F07	70	70	4 x d10	4 x d10	256	76	F07
150	6″	56	138.0	202.0	205.2	126.0	22.0	29	14	14	F07	F07	70	70	4 x d10	4 x d10	256	76	F07
200	8″	60	168.0	240.0	237.0	162.0	34.5	35	17	17	F10	F10	102	102	4 x d12	4 x d12	355	106	F10
250	10″	68	207.0	272.0	268.3	193.0	34.5	35	22	22	F10	F10	102	102	4 x d12	4 x d12	355	106	F10
300	12″	78	243.5	318.0	308.5	236.5	34.5	35	27	22	F12	F10	125	102	4 x d14	4 x d12	355	106	F10
Spline Shaft Design																			
350	14″	78	328.0	368.0	264.0	267.0	45.0	45.0			F10	F10							
400	16″	102	360.0	400.0	293.0	298.0	51.2	51.2			F14	F14							
450	18″	114	400.0	422.0	324.0	318.0	51.2	51.2			F14	F14							
500	20″	127	460.0	480.0	350.0	355.0	64.2	64.2			F14	F14							
600	24″	154	540.0	562.0	440.0	444.0	70.2	70.2			F16	F16							
700	28″	165	624.0	624.0	505.0	505.0	66.0	66.0			F25	F25							



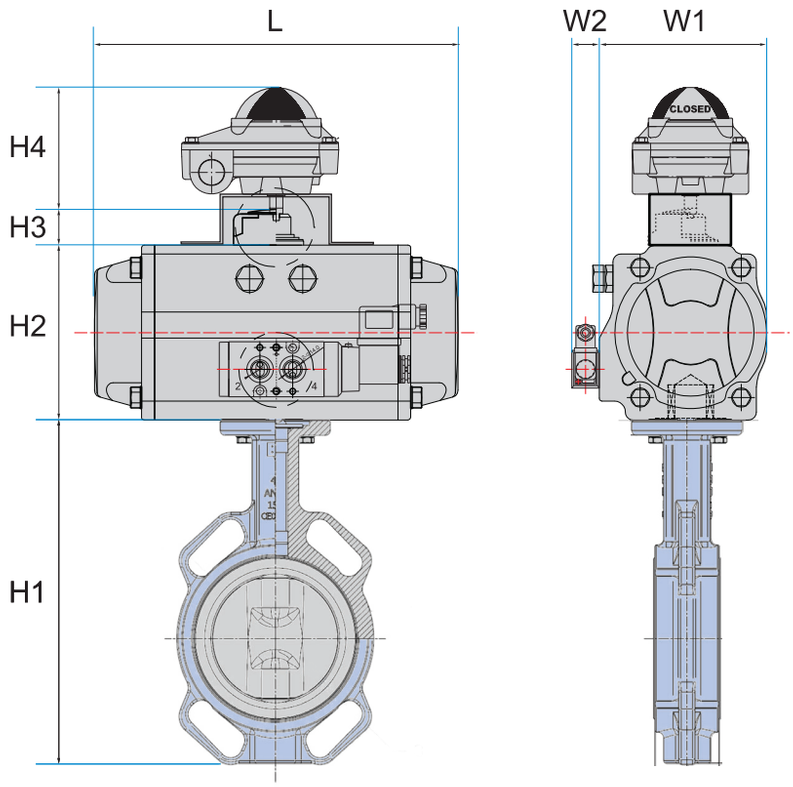
Pneumatic Actuator (Double Acting)

DN(mm)	Size(Inch)	Torques	Actuator	H1	H2	H3	H4	W1	W2	L
50	2″	16.3	HP-50	214.1	73	20	90	72	29.5	144
65	2 ½″	21.5	HP-63	233.2	87	20	90	85	29.5	163
80	3″	31.2	HP-63	250.8	87	20	90	85	29.5	163
100	4″	53.3	HP-75	280.0	104	20	90	96	29.5	210
125	5″	72.8	HP-88	313.5	116	20	90	108	29.5	247
150	6″	123.5	HP-100	343.2	128	20	90	123	29.5	268
200	8″	240.5	HP-125	405.0	150	20	90	151	29.5	347
250	10″	377.0	HP-145	475.3	179	20	90	172	29.5	414
300	12″	442.0	HP-145	552.0	179	20	90	172	29.5	414

The selection of the actuators are based on the below conditions:

- Air Supply Pressure : 5.5 bar
- Operating Pressure : 10 bar
- Safety Factor : 30%
- Liner : NBR

*Compatible with various actuator types.



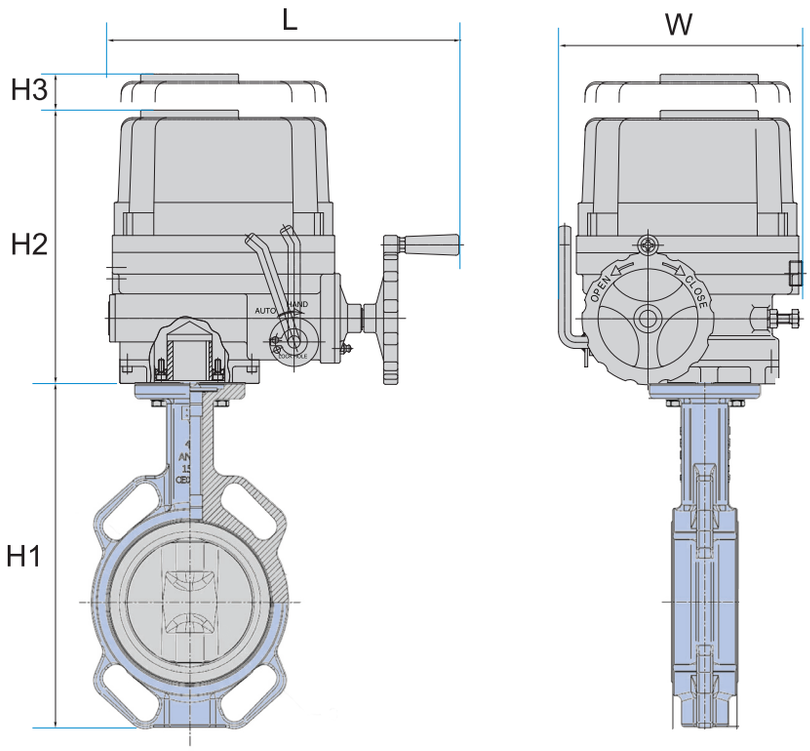
Pneumatic Actuator (Single Acting)

DN(mm)	Size(Inch)	Torques	Actuator	H1	H2	H3	H4	W1	W2	L
50	2″	16.3	HP-66S	214.1	87	20	90	85	29.5	202
65	2 ½″	21.5	HP-75S	233.2	104	20	90	96	29.5	210
80	3″	31.2	HP-88S	250.8	116	20	90	108	29.5	247
100	4″	53.3	HP-100S	280.0	128	20	90	123	29.5	268
125	5″	72.8	HP-115S	313.5	146	20	90	141	29.5	316
150	6″	123.5	HP-125S	343.2	159	20	90	151	29.5	347
200	8″	240.5	HP-160S	405.0	196	30	90	190	29.5	467
250	10″	377.0	HP-200S	475.3	247	30	90	227	29.5	555
300	12″	442.0	HP-210S	552.0	256	30	90	236	29.5	628

The selection of the actuators are based on the below conditions:

- Air Supply Pressure : 5.5 bar
- Liner : NBR
- Operating Pressure : 10 bar
- Air to Open, Spring to Close
- Safety Factor : 30%

*Compatible with various actuator types.



Electrical Actuator Operated

DN(mm)	Size(Inch)	Torques	Actuator	H1	H2	H3	W	L
50	2″	16.3	HQ-004	214.1	124	–	89	124
65	2 ½″	21.5	HQ-004	233.2	124	–	89	124
80	3″	31.2	HQ-006	250.8	132	–	126	104
100	4″	53.3	HQ-006	280.0	132	–	126	104
125	5″	72.8	HQ-008	313.5	265	–	166	166
150	6″	123.5	HQ-015	343.2	268	–	229	338
200	8″	240.5	HQ-030	405.0	304	–	259	368
250	10″	377.0	HQ-050	475.3	304	–	259	368
300	12″	442.0	HQ-050	552.0	304	–	259	368

The selection of the actuators are based on the below conditions:
- Air Supply Pressure : 5.5 bar
- Operating Pressure : 10 bar
- Safety Factor : 30%
- Liner : NBR

*Compatible with various actuator types.

REQUEST FOR QUOTE

STEP 1
Find the model series

STEP 2
Define the specification/ valve code

STEP 3
Fill up ordering sheet (back of the brochure) or Scan the QR code below

STEP 4
Submit your order via our website or contact your local partner

STEP 5
Prepare for confirmation and delivery

*For further assistance with placing your order, please contact your local partner.
A sales engineer will be assigned to assist you.

Valve Coding Sheet
BU25

01	—	02	—	03	—	04	—	05	—	06

Body Material

Code	Material
G1	Cast Iron
G2	Ductile Iron
C1	WCB
S1	SS304
S2	SS316

Liner Material

Code	Material
E	EPDM
N	NBR
P	PTFE
V	Viton
S	Silicone
R	Natural Rubber (Nr)

Rating

Code	Rating
A	PN10
B	PN16
C	ANSI150
D	JIS 10K
E	JIS 16K

Size

Code	Size
A	½″
B	2″
C	2 ½″
D	3″
E	4″
F	5″
G	6″
H	8″
I	10″
J	12″
K	14″
L	16″
M	18″
N	20″
O	24″
P	28″

Connection

Code	Material
W	Wafer
L	Lug

Operation

Code	Type
L	Lever
G	Gearbox
D	Double Acting Pneumatic Actuated
S	Single Acting Pneumatic Actuated
E	Electric Actuated

Your Valve Ordering Code:

BU25	—	01	02	03	04	05	06

Example:

BU25 - S2NADWL.
SS316 Material. NBR Liner. Pressure Rating of PN10, 3 inch size. Wafer Connection Type. Lever Operating Type.

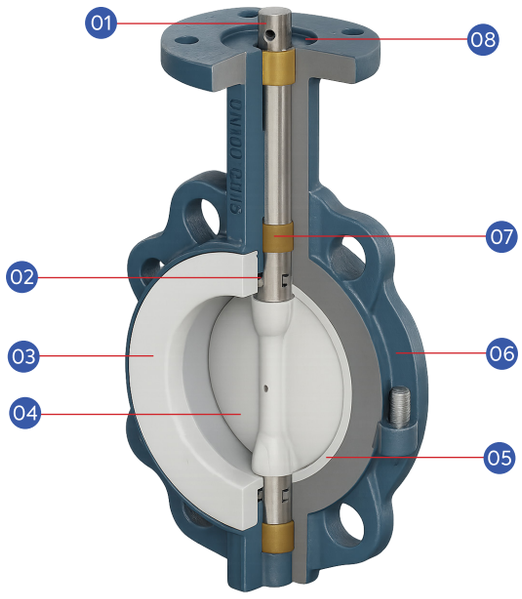
*For special material or customisation, please refer to our sales engineer.

SCAN FOR ONLINE ORDERING FORM

Tel: +65 6909 1221
Email: enquiry@valvewerkz.com
Website: www.valvewerkz.com

PFA-LINED BUTTERFLY VALVE

ValveWerkz BU26 series PFA-lined butterfly valve is engineered for precise control and dependable isolation of aggressive media. This fully PFA-lined valve is ideal for corrosive and abrasive environments where tight shutoff, consistent operating torque, and minimal maintenance are critical. The BU26 series is rated for pressures up to 150 psi and is equally suitable for ultrapure process systems.



1. **Shaft**
   Square-type stem head design enables easy adaptation to automated actuation.

2. **Belleville Washer**
   The specially designed elastomer washer applies live loading to maintain constant pressure on the body lining. Fluoroelastomer materials reduce deformation caused by continuous temperature variation.

3. **Seat**
   Moulded liner is machined to deliver low torque and minimise wear on contact surfaces.

4. **One-Piece Disc**
   The disc features a spherically machined and hand-polished edge to reduce torque and enhance sealing performance.

5. **Elastomer Back-up**
   Matching the width of the disc edge, this back-up element locks into the body groove. It increases resilience to the body liner and provides a bubble-tight seal.

6. **Body**
   Two-piece split body with epoxy coating resists the effects of atmospheric corrosion.

7. **Stem Bearings**
   Bronze, PTFE, or stainless steel bearings maintain shaft alignment. Self-lubricated design reduces shaft loading.

8. **ISO 5211 Mounting Flange**
   Universal mounting dimensions support a wide range of actuators. Direct mounting of several actuation types is possible without adapters.

Lining Material

ValveWerkz uses high-quality virgin resin sourced from reputable global brands for the production of its PFA, PTFE and FEP fluoropolymers. For lined valves, key performance factors such as liner thickness, resin grade, and fabrication quality play a vital role in determining valve reliability and overall service life.

Seat Liner

Materials used: PFA, PTFE and FEP
Moulded and machined with a minimum nominal thickness of 3 mm.
Optional TFM liner available for highly demanding applications.

Disc Lining

Fully lined with PFA or PTFE.
Encapsulated with a minimum 3 mm thick PFA or PTFE layer.

Lining Thickness

In compliance with ASTM F1545, the minimum required lining thickness is 3 mm. In real-world applications, increased thickness enhances protection in vacuum conditions, improves abrasion resistance, and reduces gas permeability. This contributes to better operational safety and a longer service life.

Electrostatic Spark Test

Each lined valve is tested using a non-destructive high-voltage spark method before shipment, following standard QA procedures. The test uses a minimum of 10,000 volts to detect cracks, pinholes, or liner defects, ensuring structural integrity and a leak-tight seal.

BU26 Series

Split Body Design

Wafer, Lug

Body Material Option:
Ductile Iron GGG40
Carbon Steel 1.0619
Stainless Steel 1.4408

Liner Material Option:
PFA / PTFE / RTFE / TFM

Pressure rating of PN10, PN16, ANSI 150, JIS 10K, JIS 16K

Face-to-face Standard API609, EN558-120 Series, ISO5752, DIN3202K1

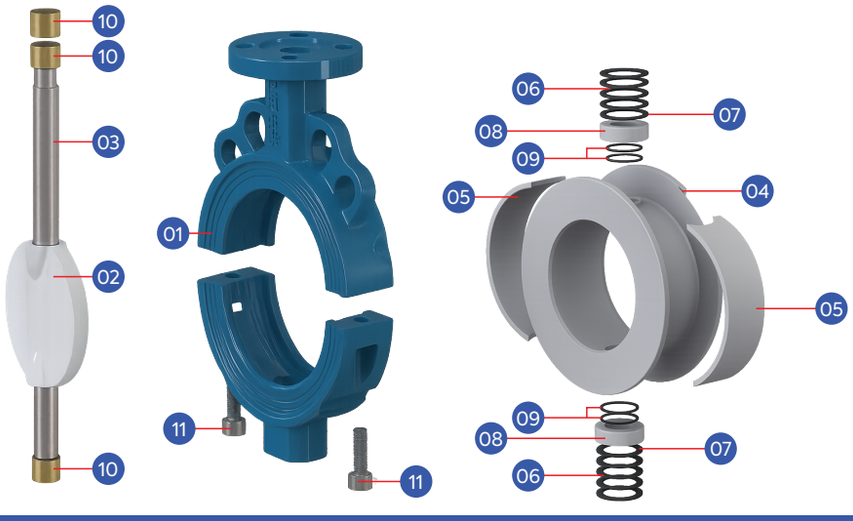
ISO 5211 Top Flange

Flange Drilling BS EN1092, JIS B2220, ASME Class 125 / Class 150

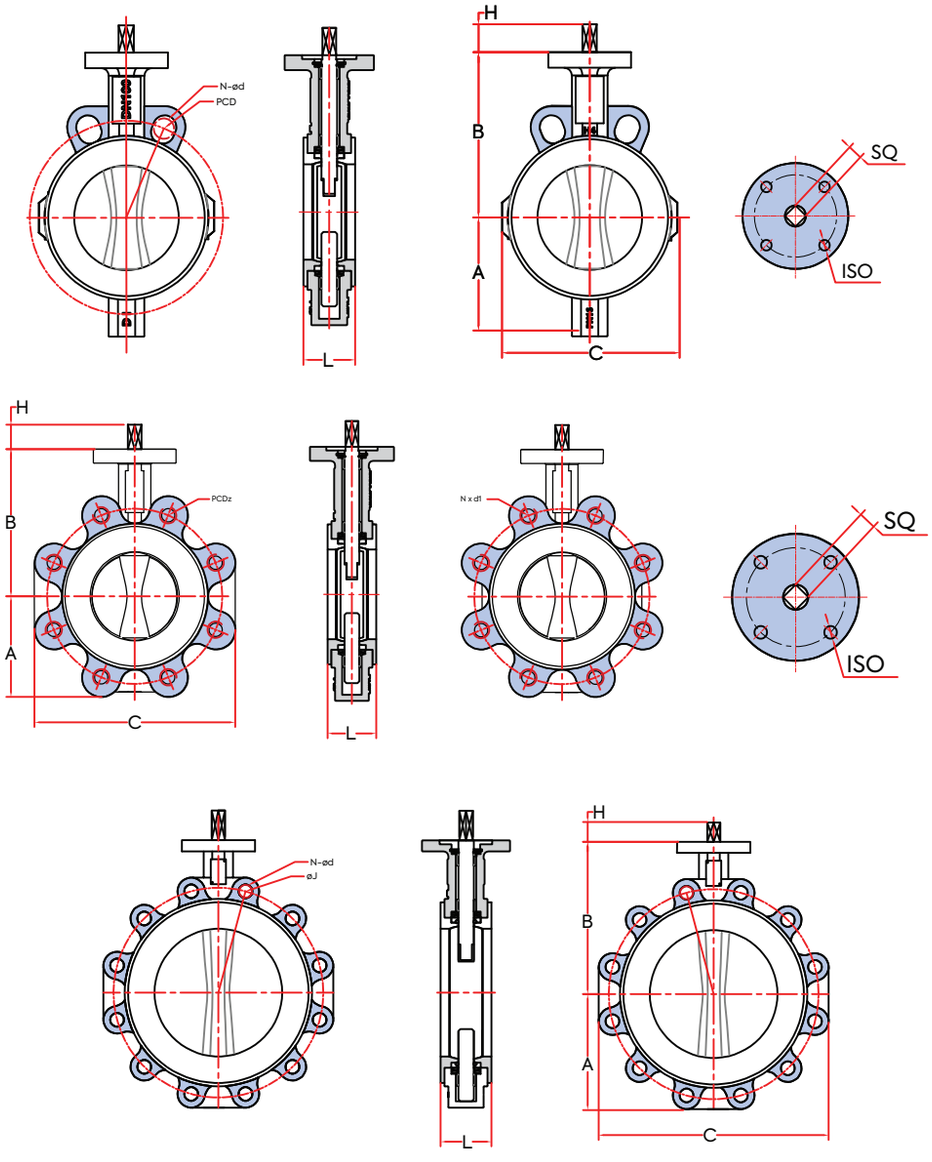
Square Top Flange

Operating Temperature
-40°C to 180°C

ValveWerkz BU26 Series PFA-lined butterfly valve is engineered for precise control and reliable isolation of aggressive media. This PFA-lined design is ideal for corrosive and abrasive environments that require tight shutoff, stable torque, and low-maintenance performance. The BU26 series is rated for pressures up to 150 psi and is suitable for use in ultrapure process systems.

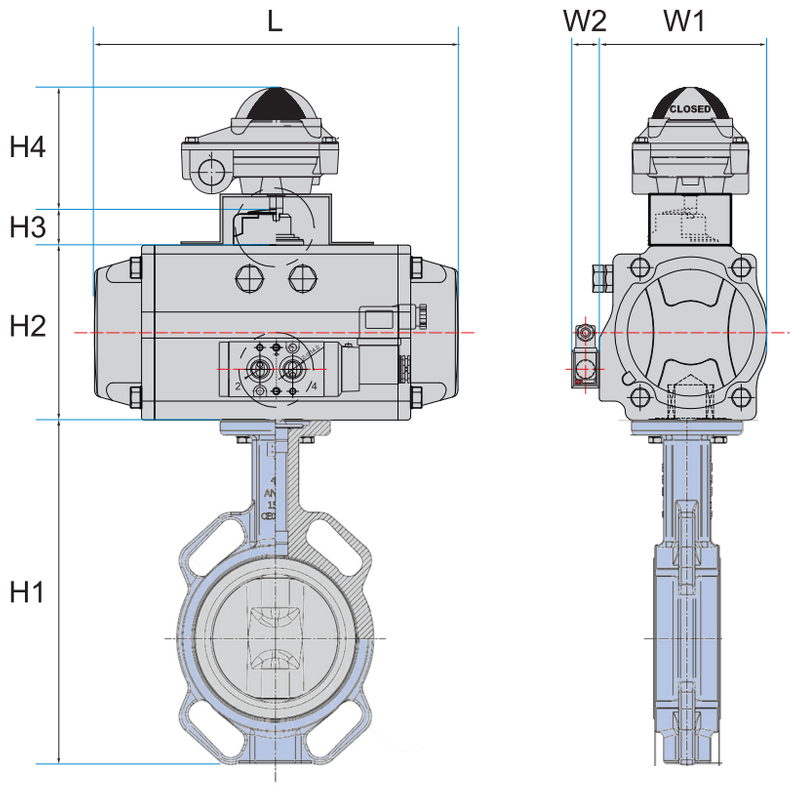


	Part Name	Material		
1.	Body	Ductile Iron GGG40	Carbon Steel 1.0619	Stainless Steel 1.4408
2.	Disc	PFA / PTFE / FEP Lined	Stainless Steel 1.4308	Aluminum Bronze
3.	Stem	Stainless Steel 1.4308		
4.	Liner	PFA / PTFE / RTFE / TFM		
5.	Back-up	VMQ Silicon Rubber / FKM / EPDM		
6.	Belleville Washers	VMQ Silicon Rubber		
7.	Washers	PTFE		
8.	Pusher	Stainless Steel 1.4308		
9.	O-Ring	FKM / VMQ / FKM with PTFE		
10.	Bearing	316 with PTFE		
11.	Screw	Stainless Steel 1.4308		



Dimensions(mm)

DN	Inch	L	A		B		C		H	SQ	ISO	PCD	n X Ød	Lever		
			Wafer	Lug	Wafer	Lug	Wafer	Lug						A	B	F
50	2″	47	75.0	66.0	136.0	136	116	149	32	9	F05	65	4-7	190	65	F05
65	2 ½″	50	85.0	70.0	138.0	138	130	159	32	9	F05	65	4-7	190	65	F05
80	3″	50	90.0	92.0	140.0	140	142	182	32	9	F05	65	4-7	190	65	F05
100	4″	55	115.0	108.0	158.0	158	178	217	32	11	F07	90	4-10	256	76	F07
125	5″	59	135.0	120.0	170.0	170.0	217.0	240.0	32	14	F07	90	4-10	256	76	F07
150	6″	59	147.0	134.0	190.0	190.0	233.0	267.0	32	14	F07	90	4-10	256	76	F07
200	8″	63	172.0	160.0	231.0	232.0	288.0	320.0	32	17	F10	125	4-12	355	106	F10
250	10″	73	210.0	200.0	260.0	270.0	344.0	400.0	32	22	F10	125	4-12	355	106	F10
300	12″	81	245.0	233.0	291.0	300.0	306.0	465.0	45	22	F10	125	4-12	355	106	F10
350	14″	81	260.0	258.0	320.0	333.0	456.0	512.0	45	22	F12	150	4-14			
400	16″	102	298.0	292.0	408.0	403.0	585.0	585.0	52.0	27	F14	175	4-18			



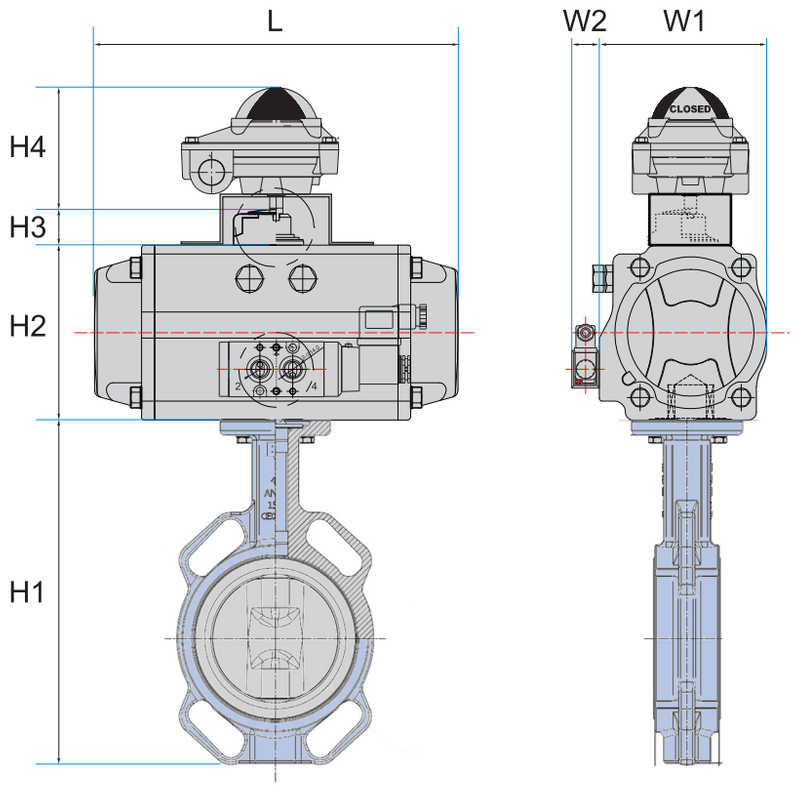
Pneumatic Actuator (Double Acting)

DN(mm)	Size(Inch)	Torques	Actuator	H1		H2	H3	H4	W1	W2	L
				Wafer	Lug						
50	2″	39.0	HP-066	211.0	202.0	87	20	90	85	29.5	202
65	2 ½″	45.5	HP-066	223.0	208.0	87	20	90	85	29.5	202
80	3″	71.5	HP-088	230.0	232.0	116	20	90	108	29.5	247
100	4″	84.5	HP-088	273.0	266.0	116	20	90	108	29.5	247
125	5″	149.5	HP-100	305.0	290.0	128	20	90	123	29.5	268
150	6″	195.0	HP-115	337.0	324.0	146	20	90	141	29.5	316
200	8″	325.0	HP-145	403.0	392.0	179	20	90	172	29.5	414
250	10″	468.0	HP-145	470.0	470.0	179	20	90	172	29.5	414
300	12″	585.0	HP-160	536.0	533.0	196	30	90	190	29.5	467

The selection of the actuators are based on the below conditions:

- Air Supply Pressure : 5.5 bar
- Operating Pressure : 10 bar
- Safety Factor : 30%
- Liner : PTFE

*Compatible with various actuator types.



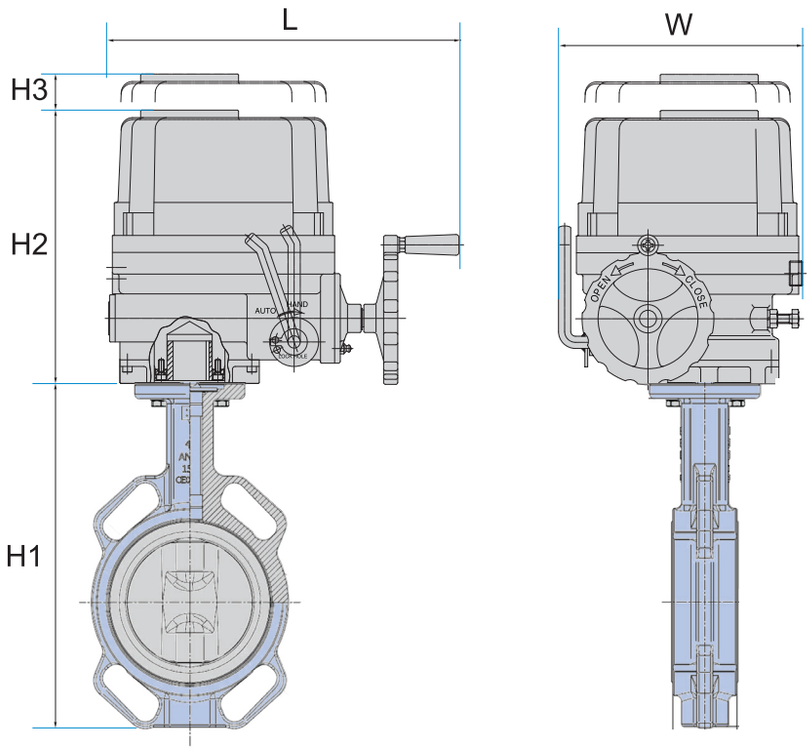
Pneumatic Actuator (Single Acting)

DN(mm)	Size(Inch)	Torques	Actuator	H1		H2	H3	H4	W1	W2	L
				Wafer	Lug						
50	2″	39.0	HP-88S	211.0	202.0	116	20	90	108	29.5	247
65	2 ½″	45.5	HP-100S	223.0	208.0	128	20	90	123	29.5	268
80	3″	71.5	HP-115S	230.0	232.0	146	20	90	141	29.5	316
100	4″	84.5	HP-115S	273.0	266.0	146	20	90	141	29.5	316
125	5″	149.5	HP-145S	305.0	290.0	179	20	90	172	29.5	414
150	6″	195.0	HP-145S	337.0	324.0	179	20	90	172	29.5	414
200	8″	325.0	HP-200S	403.0	392.0	247	30	90	227	29.5	555
250	10″	468.0	HP-200S	470.0	470.0	247	30	90	227	29.5	555
300	12″	585.0	HP-211S	536.0	533.0	256	30	90	236	29.5	669

The selection of the actuators are based on the below conditions:

- Air Supply Pressure : 5.5 bar
- Liner : PTFE
- Operating Pressure : 10 bar
- Air to Open, Spring to Close
- Safety Factor : 30%

*Compatible with various actuator types.



Electrical Actuator Operated

DN(mm)	Size(Inch)	Torques	Actuator	H1		H2	H3	W	L
				Wafer	Lug				
50	2″	39.0	HQ-006	211.0	202.0	132	-	126	104
65	2 ½″	45.5	HQ-006	223.0	208.0	132	-	126	104
80	3″	71.5	HQ-008	230.0	232.0	235	-	166	265
100	4″	84.5	HQ-010	273.0	266.0	235	-	166	265
125	5″	149.5	HQ-015	305.0	290.0	268	-	229	338
150	6″	195.0	HQ-030	337.0	324.0	304	-	259	368
200	8″	325.0	HQ-050	403.0	392.0	304	-	259	368
250	10″	468.0	HQ-050	470.0	470.0	304	-	259	368
300	12″	585.0	HQ-060	536.0	533.0	304	-	259	378

The selection of the actuators are based on the below conditions:

- Air Supply Pressure : 5.5 bar
- Operating Pressure : 10 bar
- Safety Factor : 30%
- Liner : PTFE

*Compatible with various actuator types.

REQUEST FOR QUOTE

STEP 1
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STEP 4
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STEP 5
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*For further assistance with placing your order, please contact your local partner.
A sales engineer will be assigned to assist you.

Valve Coding Sheet
BU26

01 — 02 — 03 — 04 — 05 — 06

Body Material

Code	Material
G2	Ductile Iron
C1	WCB
S2	SS316

Liner Material

Code	Material
P	PTFE
F	RTFE
A	PFA
T	TFM

Rating

Code	Rating
A	PN10
B	PN16
C	ANSI150
D	JIS 10K
E	JIS 16K

Size

Code	Size
A	½″
B	2″
C	2 ½″
D	3″
E	4″
F	5″
G	6″
H	8″
I	10″
J	12″
K	14″
L	16″

Connection

Code	Material
W	Wafer
L	Lug

Operation

Code	Type
L	Lever
G	Gearbox
D	Double Acting Pneumatic Actuated
S	Single Acting Pneumatic Actuated
E	Electric Actuated

Your Valve Ordering Code:

BU26 — 01 02 03 04 05 06

Example:

BU26 - S2PADWL.
SS316 Material. PTFE Liner. Pressure Rating of PN10, 3 inch size. Wafer Connection Type. Lever Operating Type.

*For special material or customisation, please refer to our sales engineer.

SCAN FOR ONLINE ORDERING FORM

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Website: www.valvewerkz.com

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Email: sales@exionasia.com

Exion Asia (Huizhou) Co. Ltd
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Dayawan Inudstrial Park HuiZhou City,
GuangDong Province 516081, China

Tel: (86) 752 3058601
Email: sales@exionasia.com.cn

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Seksyen 16, 40000 Shah Alam, Selangor,
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Email: enquiry@encord.com.my

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Perniagaan Setia, 81100 Johor, Malaysia

Tel: (60) 7555 9517
Email: enquiry@encord.com.my

Exion Vietnam Co. Ltd (HCM)
Floor 9, Cantavil An Phu Complex, No. 01
Song Hanh St., Hanoi Highway, An Phu
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Tel: (84) 28 222 05 279
Email: sales@exionasiavn.com

Exion Vietnam Co. Ltd (Hanoi)
14th Floor, Zen Tower, 12 Khuat Duy Tien
Street, Thanh Xuang Trung Ward, Thanh
Xuan District, Hanoi, Vietnam

Tel: (84) 28 222 05 279
Email: sales@exionasiavn.com

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The Smith 9th Floor Unit 0905, Jl. Sutera
Timur, Kunciran, Kec. Pinang, Banten
15144, Indonesia

Tel: (62) 8521 5279876
Email: sales@exionindo.com

OSA Valve Thailand Co. Ltd
26 Thetsaban Bamrung Road,
Maptaphut, Muang, Rayong,
21150, Thailand

Tel: (66) 38 017 453
Email: service@osathailand.com

OSA Industries Philippines, Inc
Unit 4 113 North Main Ave.,
cor Commerce Rd., Laguna Technopark,
Biñan, Laguna 4024 Philippines

Tel: (63) 49541 3101
Email: sales@osaphils.com

ORDER FORM

Date:

CUSTOMER INFORMATION

Name: _____
Phone: _____
Email: _____

Company Name: _____
Country: _____
Shipping Destination: _____
Delivery Date: _____

PROCESS DATA

Medium: _____ **Opt. Pressure:** _____ **Opt. Temperature:** _____

ORDER DETAILS

NO.	Valve Type	Model	Valve Coding	Qty	Special Request
eg	Ball Valve	80R	C1TBNL	1	
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

OFFICIAL USE

_____

_____

_____

_____

SCAN THE QR CODE TO SUBMIT YOUR ENQUIRY ONLINE AND REQUEST A QUOTATION.

If filling out by hand, please scan or photograph the completed form and email it to enquiry@valvewerkz.com.

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Email: enquiry@valvewerkz.com
Website: www.valvewerkz.com

VALVEWERKZ

ENGINEERING DATA

CONTENT

Corrosion Data

Selection Of Material For Corrosive Service

The following table is intended as a guide to the user in selection of materials for fluid compatibility. The information in the table is based on fluids at room temperature unless otherwise specified. The compatibility ratings are intended on as general guides. Factors such as solution concentration, temperature, degree of agitation, and presence of impurities influence the compatibility ratings. No one material can be expected to be compatible with the wide variety of fluids found in the world today. Users must test under their own operating conditions to determine the suitability of any material in a particular application. Do not assume the chemical compatibility of any elastomer or plastic in your application, including fluids such as water.

Valve internal components, in contact with the fluid should carry an "A" rating. Body materials in direct contact with the fluid can,in many cases, carry a "B" rating because the rate of corrosion is not fast enough to become a serious problem.

Corrosion Data

A=Satisfactory B=Fair C=Poor D=Unsatisfactory X=No Information

A "B" or "C" rating for a plastic or elastomer often indicates that the fluid will swell the material at room temperature without chemically degrading it. When such swelling occurs, valve performance can be jeopardized.

17-4 PH is a registered trademark of Armco Steel.
Monel is a registered trademark of international Nickel.
Teflon is a registered trademark of DuPont.
Delrin is a registered trademark of DuPont.
Kel-F is a registered trademark of the 3M corporation.
Grafoil is a registered trademark of Union Carbide.
Hastelloy is a registered trademark of the Cabot Corboration

Explanation Of Ratings

	Brass	Carbon Steel	316 Stainless Steel	17-4PH	Alloy 20	Monel	Hastelloy C	V iton	Heatcom	Delrin	Kel-F (PCTFE)	Grafoil	Teflon & F illed Teflon	Peek	UHMWPE
Acetaldehyde	C	C	A	X	A	A	A	D	C	A	X	A	A	A	D
Acetamine	B	B	B	X	X	X	A	X	X	X	X	A	A	A	X
Acetate Solvents	B	A	A	X	X	A	A	D	A	D	X	A	A	A	X
Acetic Acid, Aerated	D	D	A	X	X	A	A	C	X	D	A	A	A	A	X
Acetic Acid, Air Free	B	D	A	A	A	A	A	D	X	D	A	A	A	A	X
Acetic Acid, Crude	C	C	A	A	A	B	A	D	X	D	A	A	A	A	X
Acetic Acid, Glacial	X	X	D	A	X	X	A	D	A	D	A	A	A	A	X
Acetic Acid, Pure	C	D	A	A	A	D	A	D	A	B	A	A	A	A	C
Acetic Acid, 10%	C	C	A	A	A	B	A	D	A	X	A	A	A	A	A
Acetic Acid, 80%	C	C	A	A	A	B	A	D	A	D	A	A	A	A	C
Acetic Acid Vapors	D	X	D	D	B	C	A	X	A	X	X	A	A	A	X
Acetic Anhydride	D	D	B	B	B	B	A	D	A	C	A	A	A	A	C
Acetone	A	A	A	A	A	A	A	D	A	A	A	A	A	A	A
Other Ketones	A	A	A	A	A	A	A	D	X	A	X	A	A	A	X
Acetyl Chloride	A	X	C	X	X	B	A	A	A	D	X	A	A	A	X
Acetylene	B	A	A	A	A	A	A	A	A	A	X	A	A	A	X
Acid Fumes	D	D	B	X	B	X	X	X	X	D	A	C	A	A	X
Acrylonite	A	A	A	X	B	A	A	C	X	D	X	A	A	A	X
Air	A	A	X	A	A	A	A	A	X	A	A	B	A	A	A
Alcohol, Amyl	B	B	A	X	B	B	B	B	X	A	X	A	A	A	X

Ratings:	A - Satisfactory	B - Fair	C - Poor	D-Unsatisfactory	X -No information

Corrosion Data

	Brass	Carbon Steel	316 Stainless Steel	17-4PH	Alloy 20	Monel	Hastelloy C	V iton	Heatcom	Delrin	Kel-F (PCTFE)	Grafoil	Teflon & F illed Teflon	Peek	UHMWPE
Butylene	A	A	A	X	A	A	X	A	X	A	X	A	A	A	X
Butyric Acid	C	C	B	X	B	B	A	B	C	A	X	A	A	A	D
Calcium Bisulfite	C	D	B	X	B	D	B	B	A	D	X	A	A	A	X
Calcium Carbonate	C	D	B	X	B	B	B	A	A	A	X	A	A	A	A
Calcium Chlorate	D	X	B	X	B	B	X	B	A	D	X	B	A	A	A
Calcium Chloride	B	C	B	B	B	B	A	A	A	A	A	A	A	A	A
Calcium Hydroxide	C	C	B	X	B	A	A	A	A	A	X	A	A	A	A
Calcium Nitrate	X	X	B	X	B	X	X	A	A	C	X	B	A	A	A
Calcium Phosphate	C	X	B	X	B	X	X	A	A	B	X	A	A	A	A
Calcium Sillicate	C	X	B	X	B	X	X	A	X	A	X	A	A	A	X
Calcium Sulfate	C	C	B	B	B	B	B	A	A	A	X	A	A	A	A
Caliche Liquor	X	B	A	X	A	X	X	A	X	A	X	A	A	A	X
Camphor	C	X	B	X	C	C	X	B	A	A	X	A	A	A	D
Cane Sugar Liquors	B	X	A	X	A	B	X	A	X	A	X	A	A	A	X
Carbonated Beverages	B	D	B	B	B	C	X	B	X	A	X	A	A	A	X
Carbonated Water	B	B	A	B	A	B	X	A	X	A	X	A	A	A	A
Carbon Bisulfide	C	B	B	X	B	B	X	A	X	A	X	A	A	A	D
Carbon Dioxide, Dry	A	A	A	A	A	A	X	A	A	A	X	A	A	A	A
Carbon Acid Phenol	D	D	B	B	A	B	X	A	A	A	X	A	A	A	X
Carbon Monoxide	A	X	A	A	A	A	A	A	A	A	X	X	A	A	A
Carbon Tetrachloride, Dry	C	B	A	A	A	A	X	A	X	A	X	A	A	A	X
Carbon Tetrachloride, Wet	D	D	B	X	B	B	A	B	C	A	X	A	A	A	D
Casein	C	X	B	X	B	D	B	B	A	D	X	A	A	A	X
Castor Oil	A	B	A	X	A	B	B	A	A	A	X	A	A	A	A
Caustic Potash	X	X	A	X	A	B	X	B	A	D	X	B	A	A	A
Caustic Soda	X	B	A	X	A	A	X	B	A	D	X	A	A	A	X
Cellulose Acetate	B	X	B	X	X	B	B	D	A	C	X	A	A	A	X
China Wood Oil (Tung)	C	C	A	X	A	A	A	A	A	X	A	X	A	A	A	X
Chlorinated Solvents	C	C	A	X	A	B	X	A	X	A	X	A	A	A	X
Chlorinated Water	X	X	C	D	A	D	D	A	X	D	X	A	A	D	C
Butylene	C	B	B	C	A	A	A	B	A	D	A	A	A	A	D
Butyric Acid	B	B	A	X	A	B	B	A	A	B	D	A	A	A	D
Calcium Bisulfite	B	B	A	B	A	A	B	A	A	A	D	A	A	A	X
Calcium Carbonate	B	X	B	X	A	B	X	B	X	X	X	A	A	A	X
Calcium Chlorate	C	B	B	X	B	B	A	D	A	D	A	X	A	D	D
Chrome Alum	C	B	A	X	A	B	X	A	A	B	X	A	A	A	A
Chromic Acid < 50%	D	D	C	C	B	C	B	C	A	D	A	A	A	A	A
Chromic Acid > 50%	D	D	C	D	B	D	B	C	A	D	A	A	A	D	X
Chromium Sulfate	C	X	B	X	C	B	X	B	X	C	X	A	A	A	X
Cider	X	X	A	X	B	A	X	X	X	A	X	A	A	A	A

	Brass	Carbon Steel	316 Stainless Steel	17-4PH	Alloy 20	Monel	Hastelloy C	V iton	Heatcom	Delrin	Kel-F (PCTFE)	Grafoil	Teflon & F illed Teflon	Peek	UHMWPE
Citric Acid	C	D	B	C	A	B	A	A	X	A	X	A	A	A	A
Citrus Juices	B	D	B	X	A	A	X	A	X	A	X	A	A	A	X
Coca-Cola Syrup	X	X	A	X	A	X	X	B	X	A	X	A	A	A	A
Coconut Oil	B	C	B	X	A	B	X	A	X	A	X	A	A	A	A
Coffee	A	X	A	X	A	B	X	A	X	A	X	A	B	A	A
Coffee Extracts, Hot	B	C	A	X	A	A	X	X	X	A	X	A	A	A	X
Coke Oven Gas	C	B	A	X	A	B	X	A	X	D	X	A	A	A	X
Cooking Oil	B	B	A	X	A	A	X	A	X	A	X	A	A	A	X
Copper Acetate	D	D	A	X	A	C	B	D	A	D	X	A	A	A	X
Copper Carbonate	X	X	A	X	A	X	X	X	A	A	X	A	A	A	X
Copper Cyanide	D	X	A	X	A	C	X	A	A	A	X	A	A	A	A
Copper Nitrate	D	D	B	X	B	D	X	A	A	A	X	B	A	A	A
Copper Sulfate	D	D	B	B	B	C	A	A	A	A	X	A	A	A	A
Corn Oil	B	C	B	X	B	B	X	A	X	A	X	A	A	A	A
Cottonseed Oil	B	C	B	X	B	B	X	A	X	A	X	A	A	A	A
Cresol	X	X	B	X	B	X	X	B	A	D	A	A	A	A	D
Creosote Oil	B	B	B	B	A	B	B	A	A	D	X	A	A	A	D
Cresylic Acid	C	C	B	X	B	B	X	A	A	D	X	A	A	A	A
Crude Oil, Sour	C	B	A	X	A	B	X	A	X	A	X	A	A	A	X
Crude Oil, Sweet	B	B	A	X	A	A	X	A	X	A	X	A	A	A	X
Coupric Nitrate	X	X	A	X	A	D	X	X	X	D	X	B	A	A	X
Cutting Oils, Water Emulsions	A	B	A	X	A	X	A	A	X	A	X	A	A	A	X
Cyanide	D	X	B	X	B	D	B	B	A	D	X	X	A	A	X
Cyclohexane	A	A	A	X	A	B	A	A	A	A	X	A	A	A	C
Cyciohexanone	B	X	A	X	A	B	D	D	A	A	A	A	A	A	D
Detergents, Synthetic	B	X	B	X	A	B	X	A	X	A	X	A	A	A	A
Dextrin	B	X	B	X	B	B	X	B	X	A	X	A	A	A	A
Dichloroethane	X	X	C	X	B	B	X	X	A	D	A	A	A	A	X
Dichloroethyl Ether	B	X	B	X	B	X	X	D	X	D	X	X	A	A	X
Diesel Oil Fuels	A	A	A	X	A	A	X	A	A	A	X	A	A	A	X
Diethylamine	B	A	A	X	A	B	X	D	X	A	C	A	A	A	X
Diethyl Benzene	X	X	B	X	B	X	X	X	A	C	X	A	A	A	X
Diethylene Glycol	B	X	A	X	A	B	X	A	A	A	X	A	A	A	A
Diethyl Sulfate	B	X	B	X	B	B	X	B	X	A	X	A	A	A	X
Dimethyl Formamide	B	X	A	X	A	B	X	D	A	A	A	A	A	A	X
Dimethyl Phthalate	X	X	D	X	X	X	X	B	A	C	X	A	A	A	X
Dioxane	B	X	B	X	B	B	X	D	A	C	A	A	A	A	X
Dipentane (Pinene)	A	X	A	X	A	X	X	B	A	A	X	A	A	A	X
Disoidum Phosphate	X	X	B	X	B	C	X	B	X	A	X	A	A	A	A
Dowtherm	A	B	A	X	A	A	X	A	A	A	X	A	A	A	X

Ratings:	A - Satisfactory	B - Fair	C - Poor	D-Unsatisfactory	X -No information

Corrosion Data

	Brass	Carbon Steel	316 Stainless Steel	17-4PH	Alloy 20	Monel	Hastelloy C	V iton	Heatcom	Delrin	Kel-F (PCTFE)	Grafoil	Teflon & F filled Teflon	Peek	UHMWPE
Drilling Mud	B	B	A	X	A	B	X	A	X	A	X	A	A	A	X
Dry Cleaning Fluids	C	B	A	X	A	B	X	A	X	A	X	A	A	A	X
Drying Oil	C	C	B	X	B	B	X	X	X	A	X	A	A	A	X
Enamel	A	X	A	X	X	X	X	X	X	A	X	A	A	A	X
Epsom Salts (Mgso4)	B	C	B	X	B	B	X	A	X	A	X	A	A	A	X
Ethane	B	C	B	X	B	B	X	A	X	A	X	A	A	A	X
Ethers	B	A	A	B	A	B	X	C	X	C	X	A	A	A	D
Ethyl Acetate	C	B	B	A	B	B	B	D	A	C	C	A	A	A	C
Ethyl Acrylate	B	C	A	X	A	B	A	D	A	B	X	A	A	A	X
Ethyl Benzene	X	X	B	X	A	X	A	A	A	A	X	A	A	A	X
Ethyl Bromide	A	X	B	X	C	B	X	A	A	A	X	A	A	A	X
Ethyl Chloride, Dry	B	B	A	A	A	B	B	B	A	A	X	A	B	A	D
Ethyl Chloride, Wet	C	D	B	X	B	B	B	B	A	A	X	A	A	A	D
Ethylene Chloride	X	X	A	X	A	B	B	B	A	A	A	A	A	A	X
Ethylene Dichloride	X	X	B	X	A	B	X	A	A	C	X	A	A	A	D
Ethylene Glycol	B	B	B	A	A	B	A	A	A	A	A	A	A	A	A
Ethylene Oxide	C	B	B	X	B	B	A	D	A	A	D	A	A	A	C
Ethyl Ether	B	X	A	X	A	A	B	D	X	A	C	A	A	A	X
Ethyl Silicate	B	X	B	X	B	B	X	A	X	A	X	A	A	A	X
Ethyl Sulfate	X	X	B	X	B	X	X	A	X	A	X	A	A	C	X
Fatty Acids	C	D	A	X	A	B	A	A	A	A	X	A	A	A	A
Ferric Hydroxide	X	X	A	X	A	A	X	X	A	A	X	A	A	A	X
Ferric Nitrate	D	D	C	B	A	D	B	A	A	A	X	B	A	A	A
Feric Sulfate	D	D	B	B	A	D	X	A	A	A	X	A	A	A	A
Ferrous Ammonium Citrate	X	X	B	X	B	X	X	X	A	A	X	A	A	A	A
Ferrous Chloride	B	D	D	X	D	D	D	A	A	A	A	A	A	A	A
Ferrous Sulfate	B	D	B	X	B	B	B	A	A	A	A	A	A	A	A
Ferrous Sulfate, Saturated	C	C	A	X	A	B	B	B	X	A	A	A	A	A	X
Fertilizer Solutions	C	B	B	X	B	B	X	X	X	X	X	A	A	A	X
Fish Oil	B	B	A	X	A	A	X	A	X	A	X	A	A	A	X
Flourine Gas, Dry	X	X	B	X	A	A	A	X	X	X	A	X	A	A	X
Flue Gases	B	X	A	X	A	B	X	C	X	C	X	A	A	A	X
Fluoboric Acid	X	X	B	X	A	X	X	X	A	D	X	X	A	D	A
Fluorosilicic Acid	B	D	B	X	B	A	B	C	A	C	X	X	A	D	A
Formaldehyde, Cold	A	A	A	A	A	A	B	D	A	A	X	A	A	A	A
Formaldehyde, Hot	B	D	C	X	B	B	B	X	A	A	B	A	A	A	A
Formic Acid, Cold	B	D	B	D	B	B	A	B	B	D	A	A	A	A	A
Formic Acid, Hot	B	D	B	D	B	B	B	A	B	D	B	A	A	A	A
Freon Gas, Dry	B	B	A	A	A	A	B	C	X	A	X	A	A	A	X
Fredn 11, Mf, 112, Bf	B	X	A	X	A	B	B	D	D	A	C	A	A	A	X

	Brass	Carbon Steel	316 Stainless Steel	17-4PH	Alloy 20	Monel	Hastelloy C	V iton	Heatcom	Delrin	Kel-F (PCTFE)	Grafoil	Teflon & F filled Teflon	Peek	UHMWPE
Freon 12, 13, 32, 114, 115	A	X	A	X	A	B	B	D	D	A	C	A	A	A	X
Fredon 21, 31	B	X	A	X	A	B	B	D	A	A	C	A	A	A	X
Freon 22	A	X	A	X	A	X	B	D	C	A	C	A	A	A	X
Freon 113, Tf	B	X	A	X	A	B	B	C	D	A	C	A	A	A	X
Freon, Wet	D	X	C	B	B	B	B	D	X	A	X	A	A	A	X
Fruit Juices	B	D	A	X	A	B	X	A	X	A	X	X	A	A	A
Fuel Oil	B	B	A	X	A	B	X	A	X	A	X	A	A	A	D
Fumaric Acid	X	X	X	X	A	X	X	A	A	A	X	X	A	A	X
Furfural	A	A	A	B	A	B	B	D	X	A	X	A	A	A	D
Gallic Acid 5%	C	D	B	X	B	B	B	A	A	A	A	X	B	A	A
Gas, Manufactured	B	B	B	X	B	A	X	A	X	A	A	A	A	A	X
Gas, Natural	B	B	A	X	B	A	X	A	X	A	X	A	A	A	X
Gas, Odorizers	A	B	B	X	A	B	X	A	X	A	X	A	A	A	X
Gasoline, Aviation	A	A	A	X	A	A	A	A	A	A	X	A	A	A	D
Gasoline, Leaded	A	A	A	X	A	B	A	A	A	A	X	A	A	A	D
Gasoline, Motor	A	A	A	A	A	A	A	A	A	A	X	A	A	A	D
Gasoline, Refined	B	B	A	X	A	B	A	A	A	A	X	A	A	A	D
Gasoline, Sour	B	B	A	X	A	C	A	A	X	A	X	A	A	A	D
Gasoline Unleaded	A	A	A	X	A	A	A	A	A	A	X	A	A	A	D
Gelatin	A	D	A	X	A	B	X	A	X	A	X	A	A	A	A
Glucose	A	B	A	X	A	A	A	A	A	A	X	A	A	A	A
Glue	B	A	B	X	A	B	A	A	A	A	X	A	A	A	A
Glycerin (Glycerol)	B	C	A	A	A	A	A	A	A	A	X	A	A	A	A
Glycol Amine	D	X	B	A	X	X	D	D	X	C	X	A	X	A	X
Glycol	B	C	B	X	A	B	X	A	X	C	X	A	B	A	A
Graphite	B	X	B	X	A	B	X	B	X	A	X	A	A	A	X
Grease	C	A	A	X	A	B	X	A	A	A	X	A	A	A	X
Helium Gas	B	X	A	X	A	B	A	A	X	A	X	A	A	A	A
Heptane	A	B	A	X	A	B	A	A	A	A	X	A	A	A	C
Hexane	B	B	A	X	A	B	A	A	X	A	C	A	A	A	D
Hexanol, T Ertiary	A	A	A	X	A	A	A	B	A	A	X	A	A	A	A
Hydraulic Oil, Petroleum Base	B	A	A	X	A	A	X	A	X	A	X	A	A	A	X
Hydrazine	D	X	B	X	B	D	X	D	A	D	X	X	A	A	X
Hydrocyanic Acid	D	D	A	X	A	C	B	A	A	D	X	X	A	A	A
Hydrofluosilicic Acid	A	D	C	X	B	B	X	A	A	A	X	A	A	D	X
Hydrogen Gas, Cold	B	B	A	X	A	A	X	A	X	A	X	A	A	A	A
Hydrogen Gas, Hot	X	B	B	X	A	X	A	A	X	A	X	A	A	A	A
Hydrogen Perixide >25%	D	D	B	X	B	D	D	B	A	D	A	D	A	A	C
Hydrogen Perixide <25%	C	C	B	X	B	D	D	A	A	D	A	C	A	A	A
Hydrogen Sulfide, Dry	C	B	A	B	B	B	B	A	A	C	A	A	B	A	A

Ratings:	A - Satisfactory	B - Fair	C - Poor	D-Unsatisfactory	X -No information

Corrosion Data

	Brass	Carbon Steel	316 Stainless Steel	17-4PH	Alloy 20	Monel	Hastelloy C	V iton	Heatcom	Delrin	Kel-F (PCTFE)	Grafoil	Teflon & F illed Teflon	Peek	UHMWPE
Hydogen Sulfide, Wet	D	C	B	X	B	C	D	A	A	C	A	A	A	A	A
Hypo (Sodium Thiosulfate)	C	D	B	X	B	B	X	A	X	A	X	A	A	A	X
Illuminating Gas	A	A	A	X	A	A	X	A	X	A	X	A	A	A	X
Ink-Newsprint	C	D	A	X	A	B	X	A	A	A	X	A	A	A	A
Iodoform	C	B	A	X	A	C	X	A	C	A	X	X	A	A	X
Iso-Butane	X	X	B	X	B	X	X	X	A	A	X	A	A	A	X
Iso-Octane	A	A	A	X	A	A	X	A	A	A	X	A	A	A	X
Isopropyl Acetate	X	X	B	X	A	X	X	D	A	A	X	A	A	A	X
Isopropyl Ether	A	A	A	X	A	B	A	D	A	A	A	A	A	A	X
J P-4 Fuel	A	A	A	X	A	A	A	A	A	A	X	A	A	A	X
J P-5 Fuel	A	A	A	X	A	A	A	A	A	A	X	A	A	A	X
J P-6 Fuel	A	A	A	X	A	A	A	A	X	A	X	A	A	A	X
Kerosene	A	B	A	X	A	A	A	A	A	A	X	A	A	A	C
Ketchup	D	D	A	X	A	B	X	A	X	A	X	A	A	A	X
Ketones	A	A	A	X	A	A	X	D	X	A	X	A	A	A	X
Laquer (And Solvent)	A	C	A	X	A	A	X	D	A	A	X	A	A	A	X
Lactic Acid Concentrated Cold	D	D	A	D	A	D	A	A	A	D	X	A	A	A	A
Lactic Acid Concentrated Hot	D	D	B	D	A	D	B	B	A	D	X	A	A	A	A
Lactic Acid Dilute Cold	D	D	A	B	A	C	A	A	A	D	X	A	A	A	A
Lactic Acid Dilute Hot	D	D	A	D	A	D	B	D	A	D	X	A	A	A	A
Lactose	B	X	B	X	B	B	X	B	X	A	X	A	A	A	X
Lard	B	X	A	X	A	X	X	A	X	A	X	A	A	A	A
Lard Oil	B	C	B	X	A	B	X	A	X	A	X	A	A	A	A
Lead Acetate	C	D	B	X	B	B	X	D	A	A	X	A	A	A	A
Lead Sulfate	C	X	B	X	B	B	X	B	X	A	X	A	A	A	X
Lecithin	C	X	B	X	B	B	X	B	X	A	X	X	A	A	X
Linoleic Acid	B	B	A	X	A	B	X	B	X	A	X	A	A	A	X
Linseed Oil	B	A	A	X	A	B	X	A	X	A	X	A	A	A	A
Lithium Chloride	B	X	B	X	A	B	X	B	A	A	X	A	A	A	X
Lpg	A	B	B	X	B	B	X	A	X	A	X	A	A	D	X
Lubricating Oil Petroleum Base	B	A	A	X	A	B	X	A	X	A	X	A	A	A	C
Ludox	D	X	B	X	B	B	X	B	X	B	X	X	A	A	X
Magnesium Bisulfate	B	B	A	X	A	B	X	B	X	A	X	A	A	A	X
Magnesium Bisulfide	D	X	B	X	B	B	X	B	X	A	X	A	A	A	X
Magnesium Carbonate	B	X	A	X	A	B	X	B	X	A	X	A	A	A	A
Magnesium Chloride	B	C	B	C	B	B	A	A	X	A	X	A	A	A	A
Magnesium Hydroxide	B	B	A	A	A	B	B	A	A	A	X	A	A	A	A
Magnesium Hydroxide Hot	D	B	A	A	A	A	B	A	A	A	X	A	A	A	A
Magnesium Nitrate	X	X	A	X	A	B	X	B	X	A	X	B	A	A	A
Magnesium Sulfate	B	B	A	A	A	B	A	A	X	A	X	A	A	A	A

	Brass	Carbon Steel	316 Stainless Steel	17-4PH	Alloy 20	Monel	Hastelloy C	V iton	Heatcom	Delrin	Kel-F (PCTFE)	Grafoil	Teflon & F illed Teflon	Peek	UHMWPE
Maleic Acid	B	B	B	X	B	B	A	A	A	A	X	A	A	A	A
Maleic Anhydride	B	X	B	X	B	B	B	A	A	C	X	A	A	A	X
Malic Acid	B	D	B	X	B	B	X	A	A	A	X	A	A	A	X
Malt Beverages	X	X	A	X	B	A	X	A	X	A	X	A	A	A	X
Manganese Carbonate	X	X	B	X	A	X	X	X	A	A	X	A	A	A	X
Manganese Sulfate	B	X	A	X	A	B	X	B	A	A	X	A	A	A	X
Mayonnaise	D	D	A	X	A	B	X	A	X	A	X	A	A	A	X
Meat Juices	D	X	A	X	A	X	X	X	X	A	X	A	A	A	A
Melamine Resins	X	X	C	X	C	X	X	X	X	A	X	A	A	A	X
Mercuric Chloride	D	D	B	X	B	D	B	A	A	A	A	A	A	A	A
Mercuric Cyanide	D	D	A	X	A	C	B	A	A	A	X	A	A	A	A
Mercurous Nitrate	D	X	A	X	A	D	X	B	A	A	X	B	A	A	A
Mercury	D	A	A	X	A	B	B	A	A	A	X	A	A	A	A
Methane	A	B	A	X	A	B	A	A	X	A	X	A	A	A	X
Methanol	B	X	A	X	A	B	X	D	A	C	A	A	A	A	X
Methyl Acetate	A	B	A	X	A	B	A	D	A	B	A	A	A	A	X
Methyl Acetone	A	A	A	X	A	A	X	D	X	B	X	A	A	A	X
Methylamine	D	B	A	X	A	C	B	D	A	A	X	A	A	A	X
Methyl Bromide 100%	C	X	B	X	A	B	X	A	A	A	X	A	A	A	D
Methyl Cellosolve	A	B	A	X	A	B	B	D	X	A	X	A	A	A	X
Methyl Cellulose	X	X	A	X	A	X	B	D	X	A	X	A	A	A	X
Methyl Chloride	B	B	A	X	A	B	X	A	A	A	C	A	A	A	D
Methyl Ethyl Ketone	A	A	A	X	A	A	B	D	A	A	A	A	A	A	D
Methylene Chloride	A	B	A	X	A	B	B	B	A	A	X	A	A	A	D
Methyl Formate	A	C	B	X	A	B	B	D	X	A	A	A	A	A	X
Methyl Isobutyle Ketone	B	X	A	X	A	X	X	D	X	A	X	A	A	A	X
Milk & Milk Products	B	D	A	X	A	B	X	A	X	A	X	A	A	A	B
Mineral Oils	X	B	A	X	A	A	X	A	X	A	A	A	A	A	D
Mineral Spirits	B	B	B	X	B	B	X	A	X	A	X	A	A	A	D
Mixed Acids (Cold)	A	C	B	X	B	C	X	B	X	D	X	X	A	A	X
Molasses, Crude	A	A	A	X	A	A	X	A	X	A	X	A	A	A	B
Molasses, Edible	A	C	A	X	A	A	X	A	X	A	X	A	A	A	B
Molybdic Acid	X	X	A	X	A	X	X	X	X	A	X	A	A	A	X
Monochloro Benzene Dry	X	X	B	X	B	B	X	A	X	C	X	A	A	A	X
Morpholine	B	X	A	X	A	B	X	D	X	A	X	A	A	A	X
Mustard	A	B	A	X	A	A	X	A	X	A	X	A	A	A	X
Naptha	B	B	B	X	B	B	A	A	A	A	X	A	A	A	D
Napthalene	B	B	B	X	B	B	B	A	A	A	X	A	A	A	D
Natural Gas, Sour	B	B	A	X	A	D	A	A	A	A	X	A	A	A	A
Nickel Ammonium Sulfate	D	D	A	X	A	C	X	D	A	C	A	A	A	A	X

Ratings:	A - Satisfactory	B - Fair	C - Poor	D-Unsatisfactory	X -No information

Corrosion Data

	Brass	Carbon Steel	316 Stainless Steel	17-4PH	Alloy 20	Monel	Hastelloy C	V iton	Heatcom	Delrin	Kel-F (PCTFE)	Grafoil	Teflon & F filled Teflon	Peek	UHMWPE
Potassium Sulfate	B	B	A	A	A	B	X	A	A	A	X	A	A	A	A
Potassium Sulfide	B	B	A	X	A	C	A	B	A	A	X	A	A	A	A
Potassium Sulfite	B	B	A	X	A	C	B	A	A	A	X	A	A	A	A
Producer Gas	B	B	B	A	B	A	X	A	X	A	X	A	A	A	X
Propane Gas	A	B	B	A	A	B	A	A	A	A	X	A	A	A	A
Propyl Bromide	B	X	B	X	A	B	X	B	X	A	X	A	A	A	X
Propylene Glycol	B	B	B	X	B	B	X	A	A	C	X	A	A	A	A
Pyridine	X	X	B	X	A	X	X	D	A	D	A	A	A	A	X
Pyrolgallic Acid	B	B	B	B	A	B	X	A	A	A	A	X	A	A	X
Quench Oil	B	B	A	X	A	X	X	A	X	A	X	A	A	A	X
Quinine, Sulfate, Dry	X	X	A	B	A	B	X	X	A	A	X	A	A	A	X
Resins & Rosins	A	C	A	B	A	A	X	A	X	A	X	A	A	A	X
Resorcinol	X	X	B	X	B	X	X	X	X	X	X	A	A	A	A
Road Tar	A	A	A	X	A	A	X	A	X	A	X	A	A	A	X
Roof Pitch	A	A	A	X	A	A	X	A	X	A	X	A	A	A	X
Rosin Emulsion	B	C	A	X	A	A	X	B	X	A	X	A	A	A	X
R P-1 Fuel	A	A	A	X	A	A	X	A	X	A	X	A	A	A	X
Rubber Latex Emulsions	A	B	A	X	A	X	X	A	X	A	X	A	A	A	X
Rubber Solvents	A	A	A	X	A	A	X	D	X	C	X	A	A	A	X
Salad Oil	B	C	B	X	A	B	X	A	X	A	X	A	A	A	X
Salicylic Acid	C	D	A	X	B	B	X	A	A	A	X	A	A	A	A
Salt (Nacl)	B	C	B	X	A	A	X	A	X	A	X	A	A	A	X
Salt Brine	B	X	B	X	B	B	X	B	X	A	X	A	A	A	A
Sauerkraut Arine	X	X	B	X	B	X	X	X	X	C	X	A	A	A	X
Sea Water	C	D	B	X	B	A	X	A	A	A	X	A	A	A	A
Sewage	C	C	B	A	B	B	X	A	A	B	X	A	A	A	A
Shellac	A	A	A	X	A	A	X	X	A	A	X	A	A	A	X
Silicone Fluids	B	X	B	X	B	X	X	B	A	A	A	A	A	A	C
Silver Bromide	X	X	A	C	A	B	X	X	A	D	X	A	A	A	X
Silver Cyanide	D	X	A	X	A	B	X	B	A	D	X	A	A	A	X
Silver Nitrate 10%	D	D	A	X	A	D	X	A	A	A	X	B	A	A	A
Silver Plating Sol.	X	X	A	X	A	X	X	X	X	D	X	X	A	A	X
Soap Solutions (Stearates)	A	A	A	X	A	A	X	A	A	A	X	A	A	A	X
Sodium Acetate	B	C	B	X	B	B	B	D	A	A	X	A	A	A	A
Sodium Aluminate	B	C	A	X	B	B	B	A	A	A	X	A	A	A	X
Sodium Benzoate	X	X	B	X	B	B	X	X	A	B	X	A	A	A	A
Sodium Bicarbonate	B	C	B	X	A	B	X	A	A	B	X	A	A	A	A
Sodium Bichromate	X	X	B	X	B	X	X	X	A	A	X	X	A	A	X
Sodium Bisulfate 10%	B	D	A	X	A	B	X	A	A	D	A	A	A	A	A
Sodium Bisulfite 10%	B	D	A	X	B	B	B	A	A	D	A	A	A	A	A

	Brass	Carbon Steel	316 Stainless Steel	17-4PH	Alloy 20	Monel	Hastelloy C	V iton	Heatcom	Delrin	Kel-F (PCTFE)	Grafoil	Teflon & F filled Teflon	Peek	UHMWPE
Sodium Borate	B	C	B	X	B	B	X	A	A	A	A	A	A	A	A
Sodium Bromide 10%	B	C	B	X	B	B	X	A	A	A	X	A	A	A	A
Sodium Carbonate (Soda Ash)	B	B	A	X	A	B	B	A	A	A	A	A	A	A	A
Sodium Chlorate	B	C	B	X	B	C	B	A	A	A	X	B	A	A	A
Sodium Chloride	B	C	B	X	A	A	B	A	A	A	A	A	A	A	A
Sodium Chromate	C	B	A	X	B	B	X	A	A	A	X	X	A	A	X
Sodium Citrate	X	X	B	X	B	X	X	X	A	A	X	A	A	A	X
Sodium Cyanide	D	B	A	B	A	B	X	A	A	A	X	A	A	A	X
Sodium Ferricyanide	X	X	A	X	A	B	X	X	A	A	X	A	A	A	A
Sodium Fluoride	C	D	B	B	A	B	X	A	A	A	X	A	A	A	A
Sodium Hydroxide 20% Cold	A	A	A	A	B	A	X	B	A	D	A	A	A	A	A
Sodium Hydroxide 20% Hot	A	B	A	C	A	A	X	C	A	D	A	A	A	A	A
Sodium Hydroxide 50% Cold	A	A	A	B	A	A	X	C	A	D	A	A	A	A	A
Sodium Hydroxide 50% Hot	A	B	A	C	A	B	X	C	A	D	A	A	A	A	A
Sodium Hydroxide 70% Cold	A	A	A	B	B	A	X	C	X	D	A	A	A	A	A
Sodium Hydroxide 70% Hot	B	B	A	C	B	B	X	C	X	D	A	A	A	A	A
Sodium Hypochlorite (Bleach)	D	D	D	D	C	D	A	A	A	D	X	A	A	A	A
Sodium Hyposulfite	X	X	B	X	B	B	X	X	A	A	X	A	A	A	X
Sodium Lactate	X	X	A	X	A	B	X	X	A	A	X	A	A	A	X
Sodium Metaphosphate	C	B	B	B	B	X	A	A	A	B	X	A	A	A	X
Sodium Metasilicate Cold	B	C	A	X	A	A	X	B	A	A	X	A	A	A	X
Sodium Metasilicate Hot	B	D	A	X	A	A	A	X	X	A	X	A	A	A	X
Sodium Nitrate	B	B	A	B	A	B	B	A	A	A	X	A	A	A	X
Sodium Nitrite	X	X	B	X	B	C	B	B	A	B	X	B	A	A	A
Sodium Perborate	B	B	B	B	B	B	B	A	A	A	X	A	B	A	X
Sodium Peroxide	D	C	B	B	B	B	B	A	A	A	X	A	A	A	X
Sodium Phosphate	C	C	B	B	B	B	B	A	A	B	A	A	A	A	A
Sodium Phosphate Di-Basic	C	C	B	X	B	B	B	A	A	A	X	A	A	A	X
Sodium Phosphate Tri-Basic	C	C	B	X	B	B	B	A	A	A	X	A	A	A	X
Sodium Polyphosphate	X	X	B	X	B	B	B	X	A	X	X	A	A	A	X
Sodium Salicylate	X	X	A	X	A	X	X	X	A	A	X	A	A	A	X
Sodium Silicate	B	B	B	X	B	B	X	A	A	A	X	A	A	A	A
Sodium Silicate, Hot	C	C	B	X	B	B	X	X	X	A	X	A	A	A	A
Sodium Sulfate	B	B	A	B	A	A	X	A	A	A	X	A	A	A	A
Sodium Sulfide	D	B	B	A	B	B	X	A	A	A	X	A	A	A	A
Sodium Sulfite	C	X	A	A	A	B	B	A	A	A	X	A	A	A	A
Sodium Tetraborate	X	X	A	X	A	X	X	X	A	A	X	A	A	A	X
Sodium Thiosulfate	C	B	B	A	B	B	X	A	A	A	X	A	A	A	X
Soybean Oil	B	C	A	X	A	A	X	A	X	B	X	A	A	A	A
Starch	B	C	B	X	A	A	X	A	A	A	X	A	A	A	A

Ratings:	A - Satisfactory	B - Fair	C - Poor	D-Unsatisfactory	X -No information

Corrosion Data

	Brass	Carbon Steel	316 Stainless Steel	17-4PH	Alloy 20	Monel	Hastelloy C	V iton	Heatcom	Delrin	Kel-F (PCTFE)	Grafoil	Teflon & F filled Teflon	Peek	UHMWPE
Steam (212F)	A	A	A	A	A	B	X	D	A	D	X	A	A	A	A
Stearic Acid	C	C	B	X	B	B	A	A	A	A	X	A	A	A	A
Styrene	A	A	A	X	A	B	A	B	A	A	X	X	X	A	X
Sugar Liquids	A	B	A	X	A	A	X	A	X	A	X	A	A	A	A
Sugar, Syrups & Jam	B	X	A	A	A	X	X	X	X	A	X	A	A	A	A
Sulfate, Black Liquor	C	C	B	A	B	B	X	C	A	C	X	A	A	A	X
Sulfate, GreenLiquor	C	C	B	A	B	B	X	C	A	A	X	A	A	A	X
Sulfate, White Liquor	C	C	B	B	D	C	X	C	A	D	X	A	A	A	X
Sulfur	D	C	B	X	A	B	X	A	A	A	X	A	A	A	A
Sulfur Chlorides	B	D	D	X	A	B	X	A	A	A	X	A	A	A	X
Sulfur Dioxide, Dry	B	B	A	A	B	B	A	D	A	A	X	A	A	A	A
Sulfur Dioxide, Wet	D	X	A	C	B	A	B	D	A	D	X	A	A	A	A
Sulfur Hexafluoride	B	X	A	X	A	X	X	X	C	A	X	A	A	A	X
Sulfur, Molten	D	C	B	X	A	D	B	A	X	D	X	A	A	D	X
Sulfur Trioxide	B	B	B	B	B	X	B	B	A	D	X	D	A	A	X
Sulfur Trioxide, Dry	B	B	B	B	B	B	B	A	A	A	X	D	A	A	X
Sulfruic Acid 0 to 77%	C	D	C	X	B	B	X	A	A	D	A	A	A	A	B
Sulfuric Acid 100%	C	C	A	B	A	D	X	B	A	D	A	D	A	D	D
Sulfruous Acid	D	D	B	X	B	D	B	A	A	C	X	A	A	A	A
Tall Oil	B	B	B	X	B	B	A	A	X	A	X	A	A	A	X
Tanic Acid (Tannin)	B	C	B	B	B	B	B	A	A	A	X	A	A	A	A
Tanning Liquors	X	X	B	X	B	X	X	X	X	D	X	X	A	A	X
Tar & Tar Oils	A	A	A	A	A	A	X	A	A	A	X	A	A	A	X
Tartaric Acid	B	D	A	A	A	B	B	A	A	A	X	A	A	A	A
Tetraethyl Lead	B	C	B	X	B	A	X	A	X	A	X	A	A	A	X
Toluol (Toluene)	A	A	A	X	A	A	A	A	A	C	A	A	A	A	D
Tomato Juice	C	C	A	X	A	B	X	A	X	A	X	A	A	A	X
Transformer Oil	B	A	A	X	A	A	X	A	X	A	X	A	A	A	C
Tributyl Phosphate	A	A	A	X	A	A	X	D	A	A	X	A	A	A	X
Trichlorethylene	B	B	B	A	B	B	A	A	B	A	C	A	A	A	D

	Brass	Carbon Steel	316 Stainless Steel	17-4PH	Alloy 20	Monel	Hastelloy C	V iton	Heatcom	Delrin	Kel-F (PCTFE)	Grafoil	Teflon & F filled Teflon	Peek	UHMWPE
Trichloroactetic Acid	B	X	D	X	B	B	A	C	C	D	A	X	A	A	C
Triethanoiamine	X	X	B	X	B	B	A	X	A	A	X	A	A	A	C
Triethylamine	B	X	B	X	B	X	A	X	A	C	X	X	A	A	X
Trisodium Phosphate	X	X	B	X	B	X	A	B	X	A	X	A	A	A	A
Tung Oil	B	B	A	X	A	C	A	A	X	A	X	A	A	A	X
Turpentine	B	B	B	A	B	B	A	A	A	A	X	A	A	A	D
Urea	B	C	B	X	B	B	A	D	A	A	X	A	A	A	A
Uric Acid	X	X	A	X	A	X	A	X	A	B	X	A	A	A	X
Varnish	A	C	A	X	A	A	A	A	A	A	X	A	A	A	X
Vegetable Oils	C	C	A	X	A	B	A	A	X	A	X	A	A	A	X
Vinegar	B	D	A	X	A	B	A	C	X	B	X	A	A	A	A
Vinyl Acetate	B	X	B	X	B	B	A	X	A	D	X	A	A	A	X
Water, Distilled	A	D	A	A	A	A	A	B	A	A	X	A	A	A	A
Water, Fresh	A	C	A	A	A	A	A	B	A	A	X	A	A	A	A
Water, Acid Mine	D	D	B	B	X	D	C	D	A	A	X	A	A	A	A
Waxes	A	A	A	X	A	A	A	X	A	X	A	A	A	A	X
Whiskey & Wines	B	D	A	X	A	A	A	X	A	X	X	A	A	A	A
Xylene (Xylol), Dry	A	B	A	X	A	A	A	A	A	A	X	A	A	A	D
Zinc Bromide	B	X	B	X	B	B	B	X	A	X	X	A	A	A	X
Zinc Hydrosulfite	C	A	A	X	A	B	A	A	A	X	X	X	A	A	X
Zinc Sulfate	B	D	B	X	A	B	A	A	A	A	X	A	A	A	A

Ratings:	A - Satisfactory	B - Fair	C - Poor	D-Unsatisfactory	X -No information

Steam Table for Saturated Steam

Absolute pressure bar	Temperature saturated steam °C	Specific enthalpy						Specific volume steam m³/kg
		Water		Evaporation		Steam		
		KJ/kg	kcal/kg	KJ/kg	kcal/kg	KJ/kg	kcal/kg	
0.01	7.0	29.34	7.0	2485	594	2514	601	129.2
0.05	32.9	137.8	32.9	2424	579	2562	612	28.19
0.1	45.8	191.8	45.8	2393	572	2585	618	14.67
0.2	60.1	251.5	60.1	2358	563	2610	623	7.650
0.3	69.1	289.3	69.1	2336	558	2625	627	5.229
0.4	75.9	317.7	75.9	2319	554	2637	630	3.993
0.5	81.4	340.8	81.4	2305	551	2646	632	3.240
0.6	86.0	359.9	86.0	2294	548	2654	634	2.732
0.7	90.0	376.8	90.0	2283	545	2660	635	2.365
0.8	93.5	391.7	93.6	2274	543	2666	637	2.087
0.9	96.7	405.2	96.8	2266	541	2671	638	1.869
1.0	99.6	417	99.6	2258	539	2674	639	1.694
1.1	102.3	429	102.5	2251	538	2680	640	1.549
1.2	104.8	439	104.9	2244	536	2683	641	1.428
1.3	107.1	449	107.2	2238	535	2687	642	1.325
1.4	109.3	458	109.4	2232	533	2690	642	1.236
1.5	111.4	467	111.5	2226	532	2693	643	1.159
1.6	113.3	475	113.5	2221	530	2696	644	1.091
1.7	115.2	483	115.4	2216	529	2699	644	1.031
1.8	116.9	491	117.3	2211	528	2702	645	0.977
1.9	118.6	498	118.9	2206	527	2704	646	0.929
2.0	120.2	505	120.6	2201	526	2706	647	0.885
2.1	122.0	512	122.4	2197	525	2709	647	0.841
2.2	123.5	519	123.9	2193	524	2712	648	0.806
2.3	124.9	525	125.3	2189	523	2713	648	0.773
2.4	126.3	531	126.7	2185	522	2715	649	0.743
2.5	127.4	535	127.8	2181	521	1716	649	0.718
2.6	128.9	542	129.4	2177	520	2719	650	0.689
2.7	130.1	547	130.7	2174	529	2721	650	0.665
2.8	131.4	552	131.9	2170	518	2722	650	0.643
2.9	132.5	557	133.1	2167	517	2724	651	0.622
3.0	133.5	561	134.0	2163	517	2724	651	0.606
3.5	138.9	584	139.5	2147	513	2731	652	0.524
4.0	143.6	605	144.5	2133	509	2738	654	0.462
4.5	147.9	623	148.8	2120	506	2743	655	0.414

Steam Table for Saturated Steam

Absolute pressure bar	Temperature saturated steam °C	Specific enthalpy						Specific volume steam m³/kg
		Water		Evaporation		Steam		
		KJ/kg	kcal/kg	KJ/kg	kcal/kg	KJ/kg	kcal/kg	
5.0	151.8	640	152.9	2107	503	2747	656	0.375
5.5	155.5	656	156.7	2095	501	2752	659	0.343
6.0	158.8	670	160.0	2085	498	2755	658	0.316
7.0	165.0	697	166.0	2065	493	2762	659	0.273
7.5	167.8	710	169.5	2057	491	2787	661	0.255
8.0	170.4	721	172.0	2046	487	2767	659	0.240
8.5	173.0	733	175.0	2039	487	2772	662	0.227
9.0	175.4	743	177.0	2029	485	2772	662	0.215
9.5	177.8	753	180.0	2023	463	2776	663	0.204
10.0	179.9	763	182.0	2013	481	2776	663	0.194
10.5	182.1	773	184.4	2006	480	2780	664	0.185
11.0	184.1	781	186.0	1999	477	2780	664	0.177
11.5	186.1	790	188.8	1993	476	2783	665	0.171
12.0	188.0	798	191.0	1994	474	2782	665	0.162
12.5	188.8	807	192.8	1979	473	2786	666	0.157
13.0	191.6	815	195.0	1971	471	2786	666	0.151
13.5	193.4	823	196.6	1965	470	2789	666	0.148
14.0	195.0	830	198.0	1958	468	2788	666	0.141
14.5	196.6	838	200.2	1953	467	2791	667	0.136
15.0	198.3	845	202.0	1945	465	2790	667	0.132
15.5	200.0	852	203.6	1941	464	2793	667	0.128
16.0	201.4	859	205.0	1933	462	2792	667	0.124
16.5	202.9	865	206.8	1929	461	2795	660	0.119
17	204.3	872	208	1921	459	2793	667	0.117
18	207.1	885	211	1910	456	2795	667	0.110
19	209.8	897	214	1899	454	2796	668	0.105
20	212.4	909	217	1888	451	2797	668	0.100
21	214.9	920	220	1878	449	2798	669	0.095
25	223.9	962	230	1839	439	2801	669	0.080
26	225.0	972	232	1829	437	2801	669	0.072
30	233.8	1008	241	1794	428	2802	669	0.067
31	235.7	1017	243	1785	426	2802	669	0.065
40	250.3	1087	260	1713	409	2800	669	0.050
41	251.8	1096	262	1705	407	2800	669	0.049

Steam table for specific volume of superheated steam from 1 to 50 bar absolute. (100 – 320 °C)

Absolute pressure 1	Saturated steam temperature °C	Specific volume of saturated steam in m³/kg	Specific volume of superheated steam in m³/kg at temperature °C																						
			100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320
1	99.1	1.726	1.731	1.780	1.829	1.878	1.926	1.975	2.023	2.071	2.120	2.168	2.216	2.265	2.312	2.360	2.408	2.456	2.503	2.551	2.598	2.645	2.693	2.740	2.788
2	119.6	0.902			0.903	0.928	0.953	0.978	1.003	1.028	1.053	1.077	1.102	1.127	1.151	1.175	1.199	1.223	1.247	1.271	1.295	1.319	1.343	1.367	1.391
3	132.9	0.616					0.629	0.646	0.663	0.680	0.697	0.713	0.730	0.747	0.763	0.780	0.795	0.812	0.828	0.845	0.861	0.877	0.893	0.909	0.925
4	142.9	0.470						0.480	0.493	0.506	0.519	0.532	0.544	0.557	0.570	0.582	0.595	0.607	0.619	0.631	0.643	0.656	0.668	0.680	0.692
5	151.1	0.381							0.391	0.401	0.412	0.423	0.433	0.443	0.454	0.464	0.474	0.484	0.494	0.503	0.513	0.523	0.533	0.542	0.552
6	158.1	0.321							0.323	0.332	0.341	0.350	0.359	0.367	0.376	0.385	0.393	0.402	0.410	0.418	0.426	0.435	0.443	0.451	0.459
7	164.2	0.277								0.282	0.290	0.298	0.305	0.313	0.321	0.328	0.336	0.343	0.350	0.357	0.364	0.371	0.378	0.385	0.392
8	169.6	0.244								0.245	0.252	0.259	0.266	0.272	0.279	0.286	0.292	0.299	0.305	0.311	0.318	0.324	0.330	0.336	0.343
9	174.5	0.218									0.222	0.228	0.235	0.241	0.247	0.253	0.259	0.265	0.270	0.276	0.281	0.287	0.293	0.298	0.304
10	179.0	0.198									0.198	0.204	0.210	0.215	0.221	0.226	0.232	0.237	0.242	0.247	0.253	0.258	0.263	0.268	0.273
11	183.2	0.180										0.184	0.189	0.195	0.200	0.205	0.210	0.215	0.219	0.224	0.229	0.234	0.238	0.243	0.247
12	187.1	0.166										0.167	0.173	0.177	0.182	0.187	0.192	0.196	0.200	0.205	0.209	0.213	0.218	0.222	0.228
13	190.7	0.154											0.158	0.163	0.167	0.172	0.176	0.180	0.184	0.188	0.192	0.196	0.200	0.204	0.208
14	194.1	0.143											0.146	0.150	0.155	0.159	0.163	0.167	0.171	0.174	0.178	0.182	0.186	0.189	0.293
15	197.4	0.134											0.135	0.139	0.143	0.147	0.151	0.155	0.159	0.162	0.166	0.169	0.173	0.176	0.180
16	200.4	0.126												0.130	0.134	0.137	0.141	0.145	0.148	0.151	0.155	0.158	0.161	0.165	0.168
17	203.4	0.118												0.121	0.125	0.129	0.132	0.135	0.139	0.142	0.145	0.148	0.151	0.155	0.158
18	206.1	0.112												0.114	0.117	0.121	0.124	0.127	0.131	0.134	0.137	0.140	0.143	0.146	0.148
19	208.8	0.106												0.107	0.110	0.114	0.117	0.120	0.123	0.126	0.129	0.132	0.135	0.138	0.140
20	211.4	0.101													0.104	0.107	0.111	0.114	0.117	0.119	0.122	0.125	0.128	0.130	0.133
21	213.9	0.096													0.098	0.102	0.105	0.108	0.110	0.113	0.116	0.119	0.121	0.124	0.126
22	216.2	0.092													0.093	0.096	0.099	0.102	0.105	0.108	0.110	0.113	0.115	0.118	0.120
23	218.5	0.088													0.088	0.092	0.095	0.097	0.100	0.103	0.105	0.108	0.110	0.112	0.115
24	220.7	0.084														0.087	0.090	0.093	0.095	0.098	0.100	0.103	0.105	0.107	0.110
25	222.9	0.081														0.083	0.086	0.089	0.091	0.093	0.096	0.098	0.101	0.103	0.105
26	225.0	0.078														0.079	0.082	0.085	0.087	0.090	0.092	0.094	0.096	0.098	0.101
27	227.0	0.075														0.076	0.079	0.081	0.084	0.086	0.088	0.090	0.092	0.095	0.097
28	229.0	0.072														0.073	0.075	0.078	0.080	0.082	0.085	0.087	0.089	0.091	0.093
29	230.9	0.070															0.072	0.075	0.077	0.079	0.081	0.083	0.085	0.087	0.089
30	232.8	0.067															0.069	0.072	0.074	0.076	0.078	0.080	0.082	0.084	0.086
31	234.6	0.065															0.067	0.069	0.071	0.073	0.075	0.077	0.079	0.081	0.083
32	236.4	0.063															0.064	0.067	0.069	0.071	0.073	0.075	0.077	0.079	0.080
33	238.2	0.061															0.062	0.064	0.066	0.068	0.070	0.072	0.074	0.076	0.078
34	239.8	0.059															0.059	0.062	0.064	0.066	0.068	0.070	0.072	0.073	0.075
35	241.4	0.058																0.060	0.062	0.064	0.066	0.068	0.069	0.071	0.073
36	243.1	0.056																0.058	0.060	0.062	0.064	0.065	0.067	0.069	0.071
37	244.6	0.054																0.056	0.058	0.060	0.062	0.063	0.065	0.067	0.068
38	246.2	0.053																0.054	0.056	0.058	0.060	0.061	0.063	0.065	0.066
39	247.7	0.051																0.052	0.054	0.056	0.058	0.060	0.061	0.063	0.064
40	249.2	0.050																0.050	0.052	0.054	0.056	0.058	0.060	0.061	0.063
41	250.7	0.049																	0.051	0.053	0.055	0.056	0.058	0.059	0.061
42	252.1	0.048																	0.049	0.051	0.053	0.055	0.056	0.058	0.059
43	253.5	0.046																	0.048	0.050	0.051	0.053	0.055	0.056	0.058
44	254.9	0.045																	0.046	0.048	0.050	0.052	0.053	0.055	0.056
45	256.3	0.044																	0.045	0.047	0.049	0.050	0.052	0.053	0.055
46	257.6	0.043																	0.044	0.046	0.047	0.049	0.051	0.052	0.053
47	258.9	0.042																	0.042	0.044	0.046	0.048	0.049	0.051	0.052
48	260.2	0.041																		0.043	0.045	0.047	0.048	0.049	0.051
49	261.5	0.040																		0.042	0.044	0.045	0.047	0.048	0.050
50	262.7	0.040																		0.041	0.043	0.044	0.046	0.047	0.048

Linear conversion table inches – millimetres

(1 inch = 25.4 millimeter)

inches	0	1/16	1/8	3/16	1/4	5/16	3/8	7/16	1/2	9/16	5/8	11/16	3/4	13/16	7/8	15/16
0	0.0	1.6	3.2	4.8	6.4	7.9	9.5	11.1	12.7	14.3	15.9	17.5	19.1	20.6	22.2	23.8
1	25.4	27.0	28.6	30.2	31.8	33.3	34.9	36.5	38.1	39.7	41.3	42.9	44.5	46.0	47.6	49.2
2	50.8	52.4	54.0	55.6	57.2	58.7	60.3	61.9	63.5	65.1	66.7	68.3	69.9	71.4	73.0	74.6
3	76.2	77.8	79.4	81.0	82.6	84.1	85.7	87.3	88.9	90.5	92.1	93.7	95.3	96.8	98.4	100.0
4	101.6	103.2	104.8	106.4	108.0	109.5	111.1	112.7	114.3	115.9	117.5	119.1	120.7	122.2	123.8	125.4
5	127.0	128.6	130.2	131.8	133.4	134.9	136.5	138.1	139.7	141.3	142.9	144.5	146.1	147.6	149.2	150.8
6	152.4	154.0	155.6	157.2	158.8	160.3	161.9	163.5	165.1	166.7	168.3	169.9	171.5	173.0	174.6	176.2
7	177.8	179.4	181.0	182.6	184.2	185.7	187.3	188.9	190.5	192.1	193.7	195.3	196.9	198.4	200.0	201.6
8	203.2	204.8	206.4	208.0	209.6	211.1	212.7	214.3	215.9	217.5	219.1	220.7	222.3	223.8	225.4	227.0
9	228.6	230.2	231.8	233.4	235.0	236.5	238.1	239.7	241.3	242.9	244.5	246.1	247.7	249.2	250.8	252.4
10	254.0	255.6	257.2	258.8	260.4	261.9	263.5	265.1	266.7	268.3	269.9	271.5	273.1	274.6	276.2	277.8
11	279.4	281.0	282.6	284.2	285.8	287.3	288.9	290.5	292.1	293.7	295.3	296.9	298.5	300.0	301.6	303.2
12	304.8	306.4	308.0	309.6	311.2	312.7	314.3	315.9	317.5	319.1	320.7	322.3	323.9	325.4	327.0	328.6
13	330.2	331.8	333.4	335.0	336.6	338.1	339.7	341.3	342.9	344.5	346.1	347.7	349.3	350.8	352.4	354.0
14	355.6	357.2	358.8	360.4	362.0	363.5	365.1	366.7	368.3	369.9	371.5	373.1	374.7	376.2	377.8	379.4
15	381.0	382.6	384.2	385.8	387.4	388.9	390.5	392.1	393.7	395.3	396.9	398.5	400.1	401.6	403.2	404.8
16	406.4	408.0	409.6	411.2	412.8	414.3	415.9	417.5	419.1	420.7	422.3	423.9	425.5	427.0	428.6	430.2
17	431.8	433.4	435.0	436.6	438.2	439.7	441.3	442.9	444.5	446.1	447.7	449.3	450.9	452.4	454.0	455.6
18	457.2	458.8	460.4	462.0	463.6	465.1	466.7	468.3	469.9	471.5	473.1	474.7	476.3	477.8	479.4	481.0
19	482.6	484.2	485.8	487.4	489.0	490.5	492.1	495.7	495.3	496.9	498.5	500.1	501.7	503.2	504.8	506.4
20	508.0	509.6	511.2	512.8	514.4	515.9	517.5	519.1	520.7	522.3	523.9	525.5	527.1	528.6	530.2	531.8
21	533.4	535.0	536.6	538.2	539.8	541.3	542.9	544.5	546.1	547.7	549.3	550.9	552.5	554.0	555.6	557.2
22	558.8	560.4	562.0	563.6	565.2	566.7	568.3	569.9	571.5	573.1	574.7	576.3	577.9	579.4	581.0	582.6
23	584.2	585.8	587.4	589.0	590.6	592.1	593.7	595.3	596.9	598.5	600.1	601.7	603.3	604.8	606.4	608.0
24	609.6	611.2	612.8	614.4	616.0	617.5	619.1	620.7	622.3	623.9	625.5	627.1	628.7	630.2	631.8	633.4
25	635.0	636.6	638.2	639.8	641.4	642.9	644.5	646.1	647.7	649.3	650.9	652.5	654.1	655.6	657.2	658.8
26	660.4	662.0	663.6	665.2	666.8	668.3	669.9	671.5	673.1	674.7	676.3	677.9	679.5	681.0	682.6	684.2
27	685.8	687.4	689.0	690.6	692.2	693.7	695.3	696.9	698.5	700.1	701.7	703.3	704.9	706.4	708.0	709.6
28	711.2	712.8	714.4	716.0	717.6	719.1	720.7	722.3	723.9	725.5	727.1	728.7	730.3	731.8	733.4	735.0
29	736.6	738.2	739.8	741.4	743.0	744.5	746.1	747.7	749.3	750.9	752.5	754.1	755.7	757.2	758.8	760.4
30	762.0	763.6	765.2	766.8	768.4	769.9	771.5	773.1	774.7	776.3	777.9	779.5	781.1	782.6	784.2	785.8
31	787.4	789.0	790.6	792.2	793.8	795.3	796.9	798.5	800.1	801.7	803.3	804.9	806.5	808.0	809.6	811.2
32	812.8	814.4	816.0	817.6	819.2	820.7	822.3	823.9	825.5	827.1	828.7	830.3	831.9	833.4	835.0	836.6
33	838.2	839.8	841.4	843.0	844.6	846.1	847.7	849.3	850.9	852.5	854.1	855.7	857.3	858.8	860.4	862.0
34	863.6	865.2	866.8	868.4	870.0	871.5	873.1	874.7	876.3	877.9	879.5	881.1	882.7	884.2	885.8	887.4
35	889.0	890.6	892.2	893.8	895.4	896.9	898.5	900.1	901.7	903.3	904.9	906.5	908.1	909.6	911.2	912.8
36	914.4	916.0	917.6	919.2	920.8	922.3	923.9	925.5	927.1	928.7	930.3	931.9	933.5	935.0	936.6	938.2
37	939.8	941.4	943.0	944.6	946.2	947.7	949.3	950.9	952.5	954.1	955.7	957.3	958.9	960.4	962.0	963.6
38	965.2	966.8	968.4	970.0	971.6	973.1	974.7	976.3	977.9	979.5	981.1	982.7	984.3	985.8	987.4	989.0
39	990.6	992.2	993.8	995.4	997.0	998.5	1000.1	1001.7	1003.3	1004.9	1006.5	1008.1	1009.7	1011.2	1012.8	1014.4
40	1016.0	1017.6	1019.2	1020.8	1022.4	1023.9	1025.5	1027.1	1028.7	1030.3	1031.9	1033.5	1035.1	1036.6	1038.2	1039.8
41	1041.4	1043.0	1044.6	1046.2	1047.8	1049.3	1050.9	1052.5	1054.1	1055.7	1057.3	1058.9	1060.5	1062.0	1063.6	1065.2
42	1066.8	1068.4	1070.0	1071.6	1073.2	1074.7	1076.3	1077.9	1079.5	1081.1	1082.7	1084.3	1085.9	1087.4	1089.0	1090.6
43	1092.2	1093.8	1095.4	1097.0	1098.6	1100.1	1101.7	1103.3	1104.9	1106.5	1108.1	1109.7	1111.3	1112.8	1114.4	1116.0
44	1117.6	1119.2	1120.8	1122.4	1124.0	1125.5	1127.1	1128.7	1130.3	1131.9	1133.5	1135.1	1136.7	1138.2	1139.8	1141.4
45	1143.0	1144.6	1146.2	1147.8	1149.4	1150.9	1152.5	1154.1	1155.7	1157.3	1158.9	1160.5	1162.1	1163.6	1165.2	1166.8
46	1168.4	1170.0	1171.6	1173.2	1174.8	1176.3	1177.9	1179.5	1181.1	1182.7	1184.3	1185.9	1187.5	1189.0	1190.6	1192.2
47	1193.8	1195.4	1197.0	1198.6	1200.2	1201.7	1203.3	1204.9	1206.5	1208.1	1209.7	1211.3	1212.9	1214.4	1216.0	1217.6
48	1219.2	1220.8	1222.4	1224.0	1225.6	1227.1	1228.7	1230.3	1231.9	1233.5	1235.1	1236.7	1238.3	1239.8	1241.4	1243.0
49	1244.6	1246.2	1247.8	1249.4	1251.0	1252.5	1254.1	1255.7	1257.3	1258.9	1260.5	1262.1	1263.7	1265.2	1266.8	1268.4
50	1270.0	1271.6	1273.2	1274.8	1276.4	1277.9	1279.5	1281.1	1282.7	1284.3	1285.9	1287.5	1289.1	1290.6	1292.2	1293.8

Ws.no.	C %	Si %	Mn %	P ≤%	S ≤%	Cr %	Mo %	Ni %	NB %	Ti %	Ws.no.	DIN Germany	BS* Great Britain	ASTM / AISI* USA	GOST* Russia
0.6020	3.20–3.40	1.60–1.80	0.60–0.80	0.40	0.12						0.6020	GG-20	Grade 220	A48-30B	Sc20
0.6025	3.00–3.50	1.60–2.00	0.30–0.50	0.30	0.12						0.6025	GG-25	Grade 260	A48-40B	Sc25
0.6030	2.60–3.00	1.20–1.80	0.80–1.20	0.20	0.12						0.6030	GG-30	Grade 300	A49-45B	Sc30
0.7040											0.7040	GGG-40	Grade 420/12	A536 Gr. 60-40-18	Vc42-12
0.7043											0.7043	GGG-40.3	Grade 370/17		Vc42-12
1.0037	≤0.17		≤1.40	0.045	0.045						1.0037	St.37-2	Fe 360 B		
1.0065	≤0.20	traces	0.20–0.50	0.070	0.050						1.0065	St.35.7-1	A40 A 20	A675 Grade 1020	
1.0305	≤0.17	0.10–0.35	0.40–0.80	0.040	0.040						1.0305	St.35.8		A106 (A)	
1.0308	≤0.17	≤0.35	≤0.40	0.050	0.050						1.0308	St.35			
1.0402	0.17–0.24	≤0.40	0.40–0.70	0.045	0.045	≤0.40					1.0402	C22	070 M 20	A576 Grade 1020	20
1.0425	≤0.20	≤0.40	0.50–1.40	0.030	0.025	≤0.30					1.0425	HII	1501 Gr. 161-400		16K, 20K
1.0460	0.18–0.23	≤0.40	0.40–0.90	0.035	0.030	≤0.30					1.0460	C 22.8		A 105	
1.0501	0.32–0.39	≤0.40	0.50–0.80	0.045	0.045	≤0.40					1.0501	C35	060 A 35	A576-1035	35
1.0503	0.42–0.50	≤0.40	0.50–0.80	0.045	0.045	≤0.40					1.0530	C45	060 M 46	A576-1045	45
1.0570	≤0.20	≤0.55	≤1.60	0.035	0.035						1.0570	St.52.3	Fe 510 D1 FE		17GS, 17G1S
1.0619	0.18–0.23	≤0.60	0.50–1.20	0.030	0.020						1.0619	GS-C 25	1504-161 Gr. B	A216 Grade WCC	
1.0619.01	0.18–0.23	≤0.60	0.50–1.20	0.030	0.020						1.0619.01	GS-C 25N	1504-161 Gr. B	A216 Grade WCC	
1.0711	≤0.13	≤0.05	0.60–1.20	0.100	0.18–0.25						1.0711	9S20		AISI 1212	
1.0718	≤0.14	≤0.05	0.90–1.30	0.100	0.27–0.33						1.0718	9SMnPb 28K		12L 13	
1.1151	0.17–0.24	≤0.40	0.30–0.70	0.035	0.035	≤0.40					1.1151	Ck 22	055 M 15	1020; 1023	20
1.1156	0.20–0.28	0.30–0.50	0.50–0.80	0.030	0.030	≤0.30					1.1156	Gs-Ck24		A352 Grade LCB	
1.1181	0.32–0.39	≤0.40	0.50–0.80	0.035	0.035	≤0.40					1.1181	Ck 35	080 A 35	1035, 1038	35
1.1203	0.52–0.60	≤0.40	0.60–0.90	0.035	0.035	≤0.40					1.1203	Ck 55	2C 55/XC 55 H 1	1055	55
1.3964	≤0.03	≤1.00	4.00–6.00	0.025	0.010	20.0–21.5	3.00–3.50	15.0–17.0			1.3964	X4CrNiMnMoN19 16 5			
1.4000	≤0.08	≤1.00	≤1.00	0.045	0.030	12.0–14.0					1.4000	X6Cr13	403 S 17	AISI 403, 410S, 42	O8Ch13
1.4001	≤0.08	≤1.00	≤1.00	0.045	0.030	13.0–15.0					1.4001	X7Cr14	403 S 17	AISI 403, 410S, 42	O8Ch13
1.4006	0.08–0.12	≤1.00	≤1.00	0.040	0.030	12.0–14.0		≤1.00			1.4006	X10Cr13	410 S 21	AISI 410	12Ch13
1.4016	≤0.10	≤1.00	≤1.00	0.040	0.030	16.0–18.0		≤0.50			1.4016	X6Cr17	430 S 15	AISI 430	12Ch17
1.4021	0.17–0.25	≤1.00	≤1.00	0.045	0.030	12.0–14.0					1.4021	X20Cr13	420 S 37	AISI 420	20Ch13
1.4024	0.12–0.17	≤1.00	≤1.00	0.045	0.030	12.0–14.0					1.4024	X15Cr13	420 S 29		
1.4034	0.42–0.50	≤1.00	≤1.00	0.045	0.030	12.5–14.5					1.4034	X46Cr13	420 S 45		40Ch13
1.4057	0.14–0.23	≤1.00	≤1.00	0.045	0.030	15.5–17.5		1.50–2.50			1.4057	X20CrNi17 2	431 S 29	AISI 431	20Ch17N2
1.4104	0.10–0.17	≤1.00	≤1.50	0.060	0.15–0.35	15.5–17.5	0.20–0.60				1.4104	X12CrMoS17		AISI 430F	
1.4110	0.48–0.60	≤1.00	≤1.00	0.040	0.015	13.0–15.0	0.50–0.80				1.4110	X55CrMo14			
1.4119	0.12–0.17	≤1.00	≤1.00	0.030	0.030	12.0–14.0	1.00–1.30				1.4119	X15CrMo13			
1.4122	0.33–0.45	≤1.00	≤1.00	0.040	0.015	15.5–17.5	0.80–1.30	≤1.00			1.4122	X35CrMo17			
1.4136	0.50–0.90	≤2.00	≤1.00	0.045	0.030	27.0–30.0	2.00–2.50				1.4136	G-X70CrMo29 2			
1.4300	≤0.12	≤1.00	≤2.00	0.045	0.030	17.0–19.0		8.00–10.0			1.4300	X12CrNi18 8	302 S 25	AISI 302	12Ch18N9
1.4301	≤0.07	≤1.00	≤2.00	0.045	0.030	17.0–19.0		8.50–10.5			1.4301	X5CrNi18 10	304 S 17	AISI 304	08Ch18N10
1.4305	≤0.12	≤1.00	≤2.00	0.060	0.15–0.35	17.0–19.0		8.00–10.0			1.4305	X10CrNiS18 9	303 S 22/31	AISI 303	
1.4306	≤0.03	≤1.50	≤1.50	0.035	0.020	17.0–20.0		8.00–12.0			1.4306	G-X2CrNi18 9	304/305 S 11	ASTM A 351 CF-3	03Ch18N11
1.4308	≤0.07	≤1.50	≤1.50	0.040	0.030	18.0–20.0	≤0.50	8.00–11.0			1.4308	G-X6CrNi18 9	304 C 15	ASTM A 351 CF-8	07Ch18N9L
1.4310	≤0.12	≤1.50	≤2.00	0.045	0.015	16.0–18.0	≤0.80	6.00–9.00			1.4310	X12CrNi17 7	304 S 21/22	AISI 301	
1.4312	≤0.12	≤2.00	≤1.50	0.045	0.030	17.0–19.5		8.00–10.0			1.4312	G-X10CrNi18 8	302 C 25		10Ch18N9L
1.4401	≤0.07	≤1.00	≤2.00	0.045	0.030	16.5–18.5	2.00–2.50	10.5–13.5			1.4401	X5CrNiMo17 12 2	316 S 13/17/19	AISI 316	
1.4404	≤0.03	≤1.50	≤1.50	0.035	0.020	17.0–20.0	2.00–3.00	9.00–13.0			1.4404	G-X2CrNiMo18 10	316 S 1 1/13/14	ASTM A 351 CF-3M	
1.4408	≤0.07	≤1.50	≤1.50	0.040	0.030	18.0–20.0	2.00–2.50	9.00–12.0			1.4408	G-X6CrNiMo18 10	316 C 16	ASTM A 351 CF-8M	07Ch18N10G2S2M2L
1.4410	≤0.12	≤2.00	≤1.50	0.045	0.030	17.0–19.5	2.00–2.50	9.00–11.0			1.4410	G-X10CrNiMo18 9			
1.4435	≤0.03	≤1.00	≤2.00	0.045	0.030	16.5–18.5	2.50–3.00	12.5–15.0			1.4435	X2CrNiMo18 14 3	316 S 11/13/14	AISI 316L	03Ch17N14M3

list of material numbers according to the German Standards (DIN) as mentioned in this catalogue with the chemical composition thereof and the most closely corresponding numbers of British (BS) American (ASTM) and Russian (GOST) Standards

*equivalent materials to DIN to be used for guidance only

Ws.no.	C %	Si %	Mn %	P ≤%	S ≤%	Cr %	Mo %	Ni %	NB %	Ti %	Ws.no.	DIN Germany	BS* Great Britain	ASTM / AISI* USA	GOST* Russia
1.4436	≤0.07	≤1.00	≤2.00	0.045	0.025	16.5–18.5	2.50–3.00	11.0–14.0			1.4436	X5CrNiMo17 13 3	316 S 19/31	AISI 316	
1.4502	≤0.09	≤1.40	≤1.40	0.030	0.020	16.7–18.3				0.35-0.65	1.4502	X8CrTi18			
1.4523	≤0.30	≤1.00	≤0.50	0.040	0.15-0.35	17.5–19.0	2.00–2.50	0.30-0.85			1.4523	X8CrMoTi17			
1.4541	≤0.80	≤1.00	≤2.00	0.045	0.030	17.0–19.0	9.00–12.0			>(5xC)≤0.80	1.4541	X6CrNiTi18 10	321 S 31/51	AISI 321	06Ch18N10T
1.4571	≤0.80	≤1.00	≤2.00	0.045	0.030	16.5–18.5	2.00–2.50	10.5-13.5		>5xC≤0.80	1.4571	X6CrNiMoTi17 12 2	320 S 18/31	AISI 316Ti	10Ch17N13M2T
1.4571	≤0.80	≤1.00	≤2.00	0.045	0.030	16.5–18.5	2.00–2.50	10.5-13.5		>5xC≤0.80	1.4571	X10CrNiMoTi18 10	320 S 18/31	AISI 316Ti	10Ch17N13M2T
1.4573	≤0.10	≤1.00	≤2.00	0.045	0.030	16.5–18.5	2.00–2.50	12.0-14.5		>5xC	1.4573	X10CrNiMoTi18 12	320 S 33	AISI 316Ti	10Ch17N13M3T
1.4576	≤0.06	≤1.40	≤1.90	0.025	0.015	18.2–19.8	2.50–3.00	10.2-12.8	>(12xC)≤1.15		1.4576	X5CrNiMoNb19 12			
1.4580	≤0.08	≤1.00	≤2.00	0.045	0.030	16.5–18.5	2.00–2.50	11.0-14.0	>8xC		1.4580	G-X10CrNiMoNb18 10	318 S 17	AISI 316Cb	08Ch16N13M2B
1.4581	≤0.07	≤1.50	≤1.50	0.040	0.030	18.0–20.0	2.00–2.50	9.00-12.0	>8xC≤1.00		1.4581	G-X5CrNiMoNb18 10	318 C 17		
1.6902	≤0.07	≤2.00	≤1.50	0.035	0.015	18.0–20.0	≤0.50	9.00-11.0			1.6902	G-X6CrNi18 10			
1.7102	0.51-0.59	1.20-1.60	0.60-0.80	0.030	0.030	0.50–0.80					1.7102	54SiCr6			
1.7335	0.08-0.18	≤0.35	0.40-1.00	0.030	0.025	0.70–1.15	0.40-0.60				1.7335	13CrMo4-4	1501-620/621	A182 Grade F11/12	12ChM; 15ChM
1.7357	0.15-0.20	≤0.60	0.50-1.00	0.020	0.020	1.00–1.50	0.45-0.65				1.7357	GS-17CrMo5-5		A217 Grade WC6	
1.7380	0.08-0.15	0.30-0.50	0.40-0.70	0.040	0.040	2.00–2.50	0.90-1.10				1.7380	10CrMo9 10	1501-622/515	A182 Grade F22	12Ch8
1.8159	0.47-0.55	≤0.40	0.70-1.10	0.035	0.035	0.90-1.20					1.8159	50CrV4	735, H 51	6150	50ChFA

*equivalent materials to DIN to be used for guidance only

Ws.no.	Mn %	P %	Si %	Ni ≤%	Cu ≤%	Sn %	Zn %	Pb %	Ai %	Fe %	Ws.no.	DIN Germany	BS* Great Britain	ASTM / AISI* USA	GOST* Russia
Not Available					65.00	0.80	30.70	2.00	1.50		Not Available	SoMs 2065			
2.0265	≤0.05				69.0-71.0	≤0.05	rem	≤0.05	≤0.02	≤0.05	2.0265	CuZn30			
2.0332	≤0.10			≤0.30	62.0-64.0	≤0.10	rem	0.10-0.70	≤0.05	≤0.20	2.0332	CuZn37Pb0.5			
2.0340.05	≤0.10	≤0.05			59.0-63.0	≤0.70	rem	0.50-2.50	0.20-0.80	≤0.50	2.0340.05	G-CuZn37Pb			
2.0380	≤0.10			≤0.30	58.5-59.8	≤0.20	rem	1.50-2.50	≤0.10	≤0.40	2.0380	CuZn39Pb2	2874 CZ121	B124 C37700	
2.0401	≤0.20			≤0.40	57.5-59.0	≤0.30	rem	2.50-3.30	≤0.10	≤0.40	2.0401	CuZn39Pb3	2874 CZ121	B124 C37700	
2.0402	≤0.20			≤0.40	57.5-59.0	≤0.30	rem	1.50-2.50	≤0.10	≤0.40	2.0402	CuZn40Pb2	2872 CZ122	B124 C37700	
2.0406	≤0.20			≤0.40	56.0-58.0	≤0.30	rem	1.50-2.50	≤0.10	≤0.40	2.0406	CuZn41Pb2	2872 CZ123	B124 C37700	
2.0540	1.50-2.50		≤0.10	2.00-3.00	58.0-61.0	≤0.50	rem	≤0.80	0.30-1.5	≤0.50	2.0540	CuZn35Ni			
2.0966	≤1.50			3.00-6.00	79.5-85.0				8.50-10.5	2.50-5.30	2.0966	CuAl10Ni	2872 Ca104	B150 C63000	
2.0975.01	≤2.50			4.00-6.50	>76.0				8.50-11.0	3.50-5.50	2.0975.01	G-CuAl10Ni	1400 AB2	B148 C95500	
2.1030		0.01-0.40		≤0.30	rem	7.50-9.00	≤0.30	≤0.05		≤0.10	2.1030	CuSn8	2872 Pb104	B103 C52100	
2.1050.01		≤0.20			88.0-90.0	9.00-11.0	≤0.50	≤1.00		≤0.20	2.1050.01	G-CuSn10	1400 Pb4		
2.1086.01		≤0.05			86.0-89.0	9.00-11.0	1.00-3.00	≤1.50		≤0.25	2.1086.01	G-CuSn10Zn(Rg 10)	1400 G1	B584 C90500	
2.1090.01		≤0.05			81.0-85.0	6.00-8.00	3.00-5.00	5.00-7.00		≤0.25	2.1090.01	G-CuSn7ZnPb(Rg 7)	1400 LPB1	B584 C93200	
2.1096.01		≤0.05			84.0-86.0	4.00-6.00	4.00-6.00	4.00-6.00		≤0.30	2.1096.01	G-CuSn5ZnPb(Rg 5)	1400 LG2	B62 C83600	
3.2523	0.10-0.50		10.5-13.5	≤0.20	≤1.00	≤0.10	≤0.50	≤0.20	rem	≤0.80	3.2523	GB-AlSi12(Cu)			
3.2581	≤0.40		10.5-13.5		≤0.05		≤0.10		rem	≤0.50	3.2581	G-AlSi12			

list of material numbers according to the German Standards (DIN) as mentioned in this catalogue with the chemical composition thereof and the most closely corresponding numbers of British (BS) American (ASTM) and Russian (GOST) Standards

*equivalent materials to DIN to be used for guidance only

International System of Units (SI)

SI is the abbreviation of "Système International d'Unités".
This international system of units is based upon:
- Seven base units as "length", "time", "temperature", "mass" etc.
- Two supplementary units
- Derived units

Base units of SI

Base unit	Name	Symbol
Length	Metre	m
Mass	Kilogram	kg
Time	Second	s
Electrict current	Ampere	A
Temperature	Kelvin	K
Luminous intensity	Candela	cd
Amount of substance	Mole	mol

Supplementary units of SI

Supplementary unit	Name	Symbol
Plane angle	Radian	Rad
Solid angle	Steradian	Sr

The derived units may be divided into three groups:
- Units which are expressed in terms of base and supplementary unit
- Units which have been given special names and symbols
- Units which are expressed in terms of other derived units

Some derived units expressed in terms of base and supplementary units

Derived units	Name	Symbol
Acceleration	Metre per second squared	M/s^2
Angular acceleration	Radian per second squared	Rad/s^2
Area	Square metre	M^2
Density	Kilogram per cubic metre	Kg/m^3
Kinematic viscosity	Square metre per second	M^2/s
Mass flow rate	Kilogram per second	Kg/s
Molar mass	Kilogram per mole	kg/mol
Specific volume	Cubic metre per kilogram	M^3/kg
Velocity	Metre per second	M/s
Volume	Cubic metre	M^3

Some derived units having special names and symbols

Derived units	Name	Symbol
Force	Newton	1 N = kg.m/s^2
Pressure, stress	Pascal	1 Pa = N/m^2
Energy, work, Quantity of heat	Joule	1 J = N.m
Power, radiant flux	Watt	1 W = J/s
Electric potential, potential difference	Volt	1 V = W/A
Electrical resistance	Ohm	1Ω = V/A

Onwards are:
Kilopascal (kPa) = 10^3 N/m^2 = kN/m^2
Kilonewton (kN) = 10^3 $kg.m/s^2$
Kilojoule (kJ) = 10^3 N.m = kN.m

Conversion table

From the old (metre-kilogram-second-ampere) system to units of SI

1 bar	= 100 kPa (0.1N/mm^2)
1 Btu (British thermal unit)	= 1.055 kJ = 1055 J
1 cP (centipoise)	= 10^{-3}Pa.s.
1 cSt. (centistokes)	= $10^{-6}$$m^2$/s.
1 dyne = 1 g.cm/s^2	= 10^{-5} N
1 erg = 1 dyn.cm	= 10^{-7} J
1 hp (horsepower)	≈ 745.7 W.
1 kcal = 4.1868 kJ	= 41868 J
1 kcal/h	= 1.163 W
Kelvin	≈ °C + 273
1 mbar (millibar)	= 100 Pa
1 mmHg (torr)	≈ 133.32 Pa
1 mwc	≈ 9.81 kPa (9.81 kN/m^2)
1 pk (paardekracht NL)	≈ 735.5 W
1 psi	≈ 6.89 kPa (6.89 kN/m^2)
1 kgf	= 9.81 N
1 kgf/cm^2	= 98.07 kPa

Some more conversions

1 in = 1 inch = 25.4 x 10^{-3} m (=25.4 mm)
1 ft = 1 foot = 0.3048 m
1 in^2 = 1 $inch^2$ = 0.64516 x 10^{-3} m^2 (≈ 6.452 cm^2)
1 ft^2 = 1 $foot^2$ = 0.0929 m^2
1 lb = 0.454 kg
1 lb/h ≈ 0.12599 x 10^{-3} kg/s
1 in^3 ≈ 16.387 x 10^{-6} m^3 (= 16.387 cm^3)
1 UK gal ≈ 4.546 x 10^{-3} m^3 (= 4.546 dm^3)
1 US gal ≈ 3.785 x 10^{-3} m^3 (= 3.785 dm^3)

Temperature conversion table degrees centigrades (Farenheit)

°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F
-273	-459.4	-10	14	26	78.8	53	127.4	80	176.0	170	338	430	806	700	1292	970	1778	1750	3182
-270	-454	0	32	27	80.6	54	129.2	81	177.8	180	356	440	824	710	1310	980	1796	1800	3272
-260	-436	1	33.8	28	82.4	55	131.0	82	179.6	190	374	450	842	720	1328	990	1814	1850	3362
-250	-418	2	35.6	29	84.2	56	132.8	83	181.4	200	392	460	860	730	1346	1000	1832	1900	3452
-240	-400	3	37.4	30	86.0	57	134.6	84	183.2	210	410	470	878	740	1364	1020	1868	1950	3542
-230	-382	4	39.2	31	87.8	58	136.4	85	185.0	212	413.6	480	896	750	1382	1040	1904	2000	3632
-220	-364	5	41.0	32	89.6	59	138.2	86	186.8	220	428	490	914	760	1400	1060	1940	2050	3722
-210	-346	6	42.8	33	91.4	60	140.0	87	188.6	230	446	500	932	770	1418	1080	1976	2100	3812
-200	-328	7	44.6	34	93.2	61	141.8	88	190.4	240	464	510	950	780	1436	1100	2012	2150	3902
-190	-310	8	46.4	35	95.0	62	143.6	89	192.2	250	482	520	968	790	1454	1120	2048	2200	3992
-180	-292	9	48.2	36	96.8	63	145.4	90	194.0	260	500	530	986	800	1472	1140	2084	2250	4082
-170	-274	10	50.0	37	98.6	64	147.2	91	195.8	270	518	540	1004	810	1490	1160	2120	2300	4172
-160	-256	11	51.8	38	100.4	65	149.0	92	197.6	280	536	550	1022	820	1508	1180	2156	2350	4262
-150	-238	12	53.6	39	102.2	66	150.8	93	199.4	290	554	560	1040	830	1526	1200	2192	2400	4352
-140	-220	13	55.4	40	104.0	67	152.6	94	201.2	300	572	570	1058	840	1544	1220	2228	2450	4442
-130	-202	14	57.2	41	105.8	68	154.4	95	203.0	310	590	580	1076	850	1562	1240	2264	2500	4532
-120	-184	15	59.0	42	107.6	69	156.2	96	204.8	320	608	590	1094	860	1580	1260	2300	2550	4622
-110	-166	16	60.8	43	109.4	70	158.0	97	206.6	330	626	600	1112	870	1598	1280	2336	2600	4712
-100	-148	17	62.6	44	111.2	71	159.8	98	208.4	340	644	610	1130	880	1616	1300	2372	2650	4802
-90	-130	18	64.4	45	113.0	72	161.6	99	210.2	350	662	620	1148	890	1634	1350	2462	2700	4892
-80	-112	19	66.2	46	114.8	73	163.4	100	212.0	360	680	630	1166	900	1652	1400	2552	2750	4982
-70	-94	20	68.0	47	116.6	74	165.2	110	230	370	698	640	1184	910	1670	1450	2642	2800	5072
-60	-76	21	69.8	48	118.4	75	167.0	120	248	380	716	650	1202	920	1688	1500	2732	2850	5162
-50	-58	22	71.6	49	120.2	76	168.8	130	266	390	734	660	1220	930	1706	1550	2822	2900	5252
-40	-40	23	73.4	50	122.0	77	170.6	140	284	400	752	670	1238	940	1724	1600	2912	2950	5342
-30	-22	24	75.2	51	123.8	78	172.4	150	302	410	770	680	1256	950	1742	1650	3002	3000	5432
-20	-4	25	77.0	52	125.6	79	174.2	160	320	420	788	690	1274	960	1760	1700	3092		

Pressure conversion table psi (Bar)

1 - 40		41 - 80		81 - 200		205 - 500		510 - 900		910 - 1500	
psi	bar	psi	bar	psi	bar	psi	bar	psi	bar	psi	bar
1	0.07	41	2.83	81	5.59	205	14.13	510	35.17	910	62.76
2	0.14	42	2.90	82	5.65	210	14.48	520	35.86	920	63.45
3	0.21	43	2.97	83	5.72	215	14.82	530	36.55	930	64.14
4	0.28	44	3.03	84	5.79	220	15.17	540	37.24	940	64.83
5	0.34	45	3.10	85	5.86	225	15.51	550	37.92	950	65.52
6	0.41	46	3.17	86	5.93	230	15.86	560	38.62	960	66.21
7	0.48	47	3.24	87	6.00	235	16.20	570	39.31	970	66.90
8	0.55	48	3.31	88	6.07	240	16.55	580	40.00	980	67.59
9	0.62	49	3.38	89	6.14	245	16.89	590	40.69	990	68.28
10	0.69	50	3.45	90	6.21	250	17.24	600	41.37	1000	68.95
11	0.76	51	3.52	91	6.27	255	17.58	610	42.07	1010	69.66
12	0.83	52	3.59	92	6.34	260	17.93	620	42.76	1020	70.34
13	0.90	53	3.65	93	6.41	265	18.27	630	43.45	1030	71.03
14	0.97	54	3.72	94	6.48	270	18.62	640	44.14	1040	71.72
15	1.03	55	3.79	95	6.55	275	18.96	650	44.82	1050	72.41
16	1.10	56	3.86	96	6.62	280	19.31	660	45.52	1060	73.10
17	1.17	57	3.93	97	6.69	285	19.65	670	46.21	1070	73.79
18	1.24	58	4.00	98	6.76	290	20.00	680	46.90	1080	74.48
19	1.31	59	4.07	99	6.83	295	20.34	690	47.59	1090	75.17
20	1.38	60	4.14	100	6.90	300	20.69	700	48.27	1100	75.86
21	1.45	61	4.21	105	7.24	310	21.37	710	48.97	1120	77.24
22	1.52	62	4.28	110	7.58	320	22.06	720	49.66	1140	78.62
23	1.59	63	4.34	115	7.93	330	22.75	730	50.34	1160	80.00
24	1.65	64	4.41	120	8.27	340	23.44	740	51.03	1180	81.38
25	1.72	65	4.48	125	8.62	350	24.13	750	51.71	1200	82.76
26	1.79	66	4.55	130	8.96	360	24.82	760	52.41	1220	84.14
27	1.86	67	4.62	135	9.31	370	25.51	770	53.10	1240	85.52
28	1.93	68	4.69	140	9.65	380	26.20	780	53.79	1260	86.90
29	2.00	69	4.76	145	10.10	390	26.89	790	54.48	1280	88.28
30	2.07	70	4.83	150	10.34	400	27.58	800	55.16	1300	89.66
31	2.14	71	4.90	155	10.69	410	28.27	810	55.86	1320	91.03
32	2.21	72	4.96	160	11.03	420	28.96	820	56.55	1340	92.41
33	2.28	73	5.03	165	11.38	430	29.65	830	57.24	1360	93.79
34	2.34	74	5.10	170	11.72	440	30.34	840	57.93	1380	95.17
35	2.41	75	5.17	175	12.07	450	31.03	850	58.61	1400	96.55
36	2.48	76	5.24	180	12.41	460	31.72	860	59.31	1420	97.93
37	2.55	77	5.31	185	12.76	470	32.41	870	60.00	1440	99.31
38	2.62	78	5.38	190	13.10	480	33.10	880	60.69	1460	100.69
39	2.69	79	5.45	195	13.45	490	33.79	890	61.38	1480	102.07
40	2.76	80	5.52	200	13.79	500	34.48	900	62.06	1500	103.45

List of abbreviations
in the valve industry

American societies

AISI	American Iron and Steel Institute
ANSI	American National Standard Institute
API	American Petroleum Institute
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing Materials
AWS	American Welding Society
AWWA	American Water Works Association
MSS	Manufacturers Standardization Society of the Valve and Fittings Industry
NACE	National Association of Corrosion Engineers
SAE	Society of Automotive Engineers

European societies

DVGW	Deutscher Verein des Gas- und Wasserfaches
GIVEG	The Netherlands' Gas Institute
KIWA	The Netherlands' Water Works Institute for Testing and Certification
DIN	Deutschen Industrie Norm

Measurements

cfm	cubic feet per minute
gpm	gallons per minute
ipm	inches per minute
psi	pounds per square inch
psia	pounds per square inch absolute
psig	pounds per square inch gauge

Valve descriptions

Metallic materials

AL	Aluminium
BR	Bronze
CI	Cast Iron
CS	Carbon Steel
FS	Forged Steel
MI	Malleable Iron
Nod.CI	Nodular Cast Iron
SS	Stainless Steel
18-8	type 304, stainless steel
18-8 Mo	type 316, stainless steel
Cr.13	type 420, stainless steel
HF	(Hard Face) stellite face

Non-metallic materials

CR	Chloroprene or Neoprene
EPT	Ethylene-Propylene Ter polymer
FEP	Fluorinated Ethylene Propylene
FPM	Fluorocarbon or Viton rubber
NBR	Nitrile or Buna N rubber
NYL	Nylon
PE	Polyethylene
PP	Polypropylene
PTFE	Polytetrafluoroethylene
PVC	Polyvinyl chloride
Rilsan	Super Polyamide
TFE	TetrafluoroethylenePTFE

Ratings

CWP	Cold Working Pressure
SP	Special
WOG	Water, Oil, Gas pressure
WP	Working Pressure

Executions

OS&Y	Outside Screw and Yoke
NRS	Non Rising Stem
RS	Rising Stem
SDNR	Screw-Down Non-Return
NC	Normally Closed
NO	Normally Open

End connections

BSPP	British Standard Pipe thread, Parallel
BSPT	British Standard Pipe thread, Taper
BW	Butt Welding ends
FE	Flanged Ends
Flg	Flanged
RTJ	Ring Type Joint
Scr	Screwed ends
SE	Screwed Ends
SJ	Solder Ends
SW	Socket Welding ends

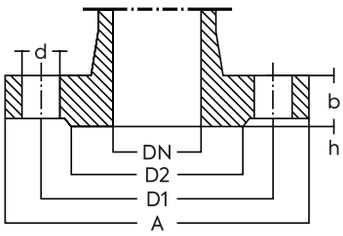
Size

d	diameter
D	Diameter
DN	Diameter NominalNPS
NPS	Nominal Pipe Size
OD	Outside Diameter
pcd	pitch circle diameter

Miscellaneous

fig.no.	figure number
max.	maximum
min.	minimum
no.	number
rpm	revolutions per minute
Ws.no.	material number acc. to DIN

Flange dimensions and drilling to ANSI B16.5



DN = diameter nominal (size)
A = flange Ø
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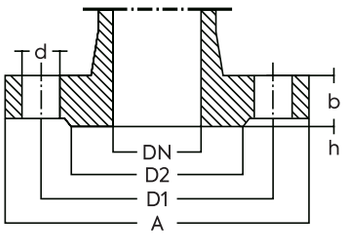
h = height of raised face (RF)

h* = 1/16" = 1.6 mm for ANSI Class 150 - 300
h* = 1/4" = 6.4 mm for ANSI Class 400 - 2500
* For steel flanges only

b = raised face included for ANSI Class 150 - 300
b = raised face not included for ANSI Class 400 - 2500

DN		125/150 lbs		300 lbs		400 lbs		600 lbs		900 lbs		1500 lbs		2500 lbs	
		inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
½"	A	3½	88.9	3¾	95.2	3¾	95.2	3¾	95.2	4¾	121	4¾	121	5¼	133.4
	b	7/16	11.1	9/16	14.3	9/16	14.3	9/16	14.3	7/8	22.2	7/8	22.2	1 3/16	30.2
	D_2	1⅜	34.9	1⅜	34.9	1⅜	34.9	1⅜	34.9	1⅜	34.9	1⅜	34.9	1⅜	34.9
	D_1	2⅜	60.3	2⅝	66.7	2⅝	66.7	2⅝	66.7	3¼	82.6	3¼	82.6	3½	88.9
	n	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	d	⅝	15.9	⅝	15.9	⅝	15.9	⅝	15.9	⅞	22.2	⅞	22.2	⅞	22.2
¾"	A	3⅞	98.4	4⅝	117.5	4⅝	117.5	4⅝	117.5	5⅛	130	5⅛	130	5½	139.7
	b	½	12.7	⅝	15.9	⅝	15.9	⅝	15.9	1	25.4	1	25.4	1¼	31.8
	D_2	1 11/16	42.9	1 11/16	42.9	1 11/16	42.9	1 11/16	42.9	1 11/16	42.9	1 11/16	42.9	1 11/16	42.9
	D_1	2¾	69.8	3¼	82.5	3¼	82.5	3¼	82.5	3⅛	88.9	3½	88.9	3¾	95.2
	n	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	d	⅝	15.9	¾	19	¾	19	¾	19	⅞	22.2	⅞	22.2	⅞	22.2
1"	A	4⅛	108	4⅞	123.8	4⅞	123.8	4⅞	123.8	5⅞	149.2	5⅞	149.2	6¼	159
	b	9/16	14.3	1 1/16	17.5	1 1/16	17.5	1 1/16	17.5	1⅛	28.6	1⅛	28.6	1⅜	34.9
	D_2	2	50.8	2	50.8	2	50.8	2	50.8	2	50.8	2	50.8	2	50.8
	D_1	3¼	79.4	3½	88.9	3½	88.9	3½	88.9	4	102	4	102	4¼	108
	n	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	d	⅝	15.9	¾	19	¾	19	¾	19	1	25.4	1	25.4	1	25.4
1 ¼"	A	4⅝	117.5	5¼	133.4	5¼	133.4	5¼	133.4	6¼	159	6¼	159	7¼	184.2
	b	⅝	15.9	¾	19	13/16	20.6	13/16	20.6	1½	28.6	1⅛	28.6	1½	38.1
	D_2	2½	63.5	2½	63.5	2½	63.5	2½	63.5	2½	63.5	2½	63.5	2½	63.5
	D_1	3½	88.9	3⅞	98.4	3⅞	98.4	3⅞	98.4	4⅜	111	4⅜	111	5⅛	130
	n	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	d	⅝	15.9	¾	19	¾	19	¾	19	1	25.4	1	25.4	1⅛	28.6
1 ½"	A	5	127	6⅛	155.6	6⅛	155.6	6⅛	155.6	7	177.8	7	177.8	8	203
	b	1 1/16	17.5	13/16	20.6	⅞	22.2	⅞	22.2	1¼	31.8	1¼	31.8	1¾	44.5
	D_2	2⅞	73	2⅞	73	2⅞	73	2⅞	73	2⅞	73	2⅞	73	2⅞	73
	D_1	3⅞	98.4	4½	114	4½	114	4½	114	4⅞	124	4⅞	124	5¼	146
	n	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	d	⅝	15.9	⅞	22.2	⅞	22.2	⅞	22.2	1⅛	28.6	1⅛	28.6	1¼	31.8
2"	A	6	152.4	6½	165.1	6½	165.1	6½	165.1	8½	215.9	8½	215.9	9¼	234.9
	b	¾	19	⅞	22.2	1	25.4	1	25.4	1½	38.1	1½	38.1	2	50.8
	D_2	3⅝	92.1	3⅝	92.1	3⅝	92.1	3⅝	92.1	3⅝	92.1	3⅝	92.1	3⅝	92.1
	D_1	4¾	121	5	127	5	127	5	127	6½	165.1	6½	165.1	6¼	171
	n	4	4	8	8	8	8	8	8	8	8	8	8	8	8
	d	¾	19	¾	19	¾	19	¾	19	1	25.4	1	25.4	1⅛	28.6
2 ½"	A	7	177.8	7½	190.5	7½	190.5	7½	190.5	9½	244	9½	244	10½	266.7
	b	⅞	22.2	1	25.4	1⅛	28.6	1⅛	28.6	1⅝	41.3	1⅝	41.3	2¼	57.2
	D_2	4⅛	104.8	4⅛	104.8	4⅛	104.8	4⅛	104.8	4⅛	105	4⅛	105	4⅛	105
	D_1	5½	139.7	5⅞	149.2	5⅞	149.2	5⅞	149.2	7½	190.5	7½	190.5	7¾	197
	n	4	4	8	8	8	8	8	8	8	8	8	8	8	8
	d	¾	19	⅞	22.2	⅞	22.2	⅞	22.2	1⅛	28.6	1⅛	28.6	1¼	31.8

Flange dimensions and drilling to ANSI B16.5



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* For steel flanges only

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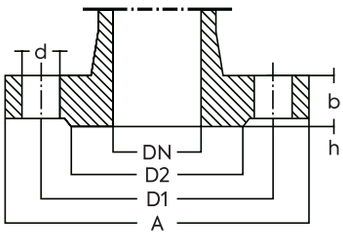
DN		125/150 lbs		300 lbs		400 lbs		600 lbs		900 lbs		1500 lbs		2500 lbs	
		inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
3″	A	7½	190.5	8¼	209.6	8¼	209.6	8¼	209.6	9½	241	10½	267	12	305
	b	15/16	23.8	1⅛	28.6	1¼	31.6	1¼	31.8	1½	38.1	1⅞	47.6	2⅝	66.7
	D_2	5	127	5	127	5	127	5	127	5	127	5	127	5	127
	D_1	6	152.4	6⅝	168.3	6⅝	168.3	6⅝	168.3	7½	190.5	8	203	8	228.6
	n	4	4	8	8	8	8	8	8	8	8	8	8	8	8
	d	¾	19	⅞	22.2	⅞	22.2	⅞	22.2	1	25.4	1¼	31.8	1⅜	34.9
3½″	A	8½	215.9	9	228.6	9	228.6	9	228.6						
	b	15/16	23.8	1 3/16	30.2	1⅜	34.9	1⅜	34.9						
	D_2	5½	139.7	5½	139.7	5½	139.7	5½	139.7						
	D_1	7	177.8	7¼	184.2	7¼	184.2	7¼	184.2						
	n	8	8	8	8	8	8	8	8						
	d	¾	19	⅞	22.2	1	25.4	1	25.4						
4″	A	9	228.6	10	254	10	254	10¾	273	11½	292	12¼	311	14	356
	b	15/16	23.8	1¼	31.7	1⅜	34.9	1½	38.1	1¾	44.4	2⅛	54	3	76.2
	D_2	6⅛	157.2	6 3/16	157.2	6 3/16	157.2	6 3/16	157.2	6 3/16	157.2	6 3/16	157.2	6 3/16	157.2
	D_1	7½	190	7⅞	200	7 5/8	200	8½	215.9	9¼	235	9½	241	10¾	273
	n	8	8	8	8	8	8	8	8	8	8	8	8	8	8
	d	¾	19	7/8	22.2	1	25.4	1	25.4	1¼	31.8	1⅜	34.9	1⅞	41.3
5″	A	10	254	11	279.4	11	279.4	13	330.2	13¾	349	14¾	375	16½	419
	b	15/16	23.8	1⅜	34.9	1½	38.1	1¾	44.4	2	50.8	2⅞	73	3⅝	92.1
	D_2	7⅜	185.7	7 5/16	185.7	7 5/16	185.7	7 5/16	185.7	7 5/16	185.7	7 5/16	185.7	7 5/16	185.7
	D_1	8½	215.9	9¼	234.9	9¼	234.9	10½	266.7	11	279	11½	292	12¾	324
	n	8	8	8	8	8	8	8	8	8	8	8	8	8	8
	d	⅞	22.2	⅞	22.2	1	25.4	1⅛	28.6	1⅜	34.9	1⅝	41.3	1⅞	47.6
6″	A	11	279	12¼	317.5	12¼	317.5	14	355.6	15	381	15½	394	19	483
	b	1	25.4	1 1/16	36.5	1⅝	41.3	1⅞	47.6	2 3/16	55.6	3¼	82.6	4⅛	108
	D_2	8½	216	8½	215.9	8½	215.9	8½	215.9	8½	215.9	8½	215.9	8½	216
	D_1	9½	241	10⅝	269.9	10⅝	269.9	11½	292.1	12½	318	12½	318	14½	368
	n	8	8	12	12	12	12	12	12	12	12	12	12	8	8
	d	⅞	22.2	⅞	22.2	1	25.4	1⅛	28.6	1¼	31.8	1½	38.1	2⅛	54
8″	A	13½	342.9	15	381	15	381	16½	419	18½	470	19	482.6	21¾	552
	b	1⅛	28.6	1⅝	41.3	1⅞	47.6	2 3/16	55.6	2½	63.5	3⅝	92.1	5	127
	D_2	10⅝	269.9	10⅝	269.9	10⅝	269.9	10⅝	269.9	10⅝	269.9	10⅝	269.9	10⅝	269.9
	D_1	11¾	298.4	13	330.2	13	330.2	13¾	349.2	15½	394.2	15¼	394.2	17¼	438
	n	8	8	12	12	12	12	12	12	12	12	12	12	12	12
	d	⅞	22.2	1	25.4	1⅛	28.6	1¼	31.8	1½	38.1	1¾	44.5	2⅛	54
10″	A	16	406.4	17½	444.5	17½	444.5	20	508	21½	546	23	584	26½	673
	b	1 3/16	30.2	1⅞	47.6	2⅛	54	2½	63.5	2¾	69.8	4⅛	108	6½	165
	D_2	12¾	323.8	12¾	323,8	12¾	323.8	12¾	323.8	12¾	323.8	12¾	323.8	12¾	323.8
	D_1	14¼	361.9	15¼	387.4	15¼	387.4	17	431.8	18½	470	19	482.6	21¼	540
	n	12	12	16	16	16	16	16	16	16	16	12	12	12	12
	d	1	25.4	1⅛	28.6	1¼	31.8	1⅜	34.9	1½	38.1	2	50.8	2⅝	66.7

Flange dimensions and drilling to ANSI B16.5



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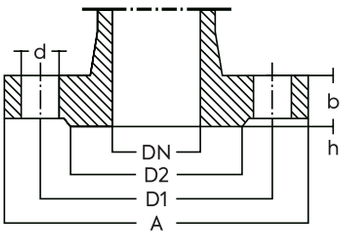
DN		125/150 lbs		300 lbs		400 lbs		600 lbs		900 lbs		1500 lbs		2500 lbs	
		inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
12"	A	19	482.6	20½	520.7	20½	520.7	22	558.8	24	610	26½	673	30	762
	b	1¼	31.7	2	50.8	2¼	57.2	2⅝	66.7	3⅛	79.4	4⅞	124	7¼	184
	D_2	15	381	15	381	15	381	15	381	15	381	15	381	15	381
	D_1	17	431.8	17¾	450.9	17¾	450.9	19¼	488.9	21	533.4	22½	571.5	24¾	619
	n	12	12	16	16	16	16	20	20	20	16	16	16	12	12
	d	1	25.4	1¼	31.8	1⅜	34.9	1⅜	34.9	1½	38.1	2⅛	54	2⅞	73
14"	A	21	533.4	23	584	23	584	23¾	603	25¼	641	29½	749		
	b	1⅜	34.9	2⅛	54	2⅜	60.3	2¾	69.8	3⅜	85.7	5¼	133		
	D_2	16¼	412.7	16¼	412.7	16¼	412.7	16¼	412.7	16¼	412.7	16¼	412.7		
	D_1	18¾	476.2	20¼	514.4	20¼	514.4	20¾	527	22	558.8	25	635		
	n	12	12	20	20	20	20	20	20	20	20	16	16		
	d	1⅛	28.6	1¼	31.8	1⅜	34.9	1½	38.1	1⅝	41.3	2⅜	60.3		
16"	A	23½	596.9	25½	647.7	25½	648	27	686	27¾	705	32½	826		
	b	1⅞	36.5	2¼	57.2	2½	63.5	3	76.2	3½	88.9	5¾	146		
	D_2	18¼	470	18½	470	18½	470	18½	470	18½	470	18¼	470		
	D_1	21¼	539.8	22½	571.5	22½	571.5	23¾	603.3	24¼	616	27¾	705		
	n	16	16	20	20	20	20	20	20	20	20	16	16		
	d	1¼	28.6	1¾	34.9	1½	38.1	1⅝	41.3	1¾	44.4	2⅝	66.7		
18"	A	25	635	28	711	28	711	29¼	743	31	787	36	914		
	b	1⁹⁄₁₆	39.7	2⅜	60.3	2⅝	66.7	3¼	82.6	4	102	6⅜	162		
	D_2	21	533.4	21	533.4	21	533.4	21	533.4	21	533.4	21	533.4		
	D_1	22¾	577.9	24¾	628.7	24¾	628.7	25¾	654.1	27	685.8	30½	775		
	n	16	16	24	24	24	24	20	20	20	20	16	16		
	d	1¼	31.8	1⅜	34.9	1½	38.1	1¾	44.5	2	50.8	2⅞	73		
20"	A	27½	698.5	30½	774.7	30½	774.7	32	813	33¾	857	38¾	984		
	b	1¹¹⁄₁₆	42.9	2½	63.5	2¾	69.8	3½	88.9	4¼	108	7	178		
	D_2	23	584.2	23	584.2	23	584.2	23	584.2	23	584.2	23	584.2		
	D_1	25	635	27	685.8	27	685.8	28½	724	29½	749.3	32¾	832		
	n	20	20	24	24	24	24	24	24	20	20	16	16		
	d	1¼	31.8	1⅜	34.9	1⅝	41.3	1¾	44.5	2⅛	54	3⅛	79.4		
24"	A	32	812.8	36	914	36	914	37	940	41	1041	46	1168		
	b	1⅛	47.6	2¾	69.8	3	76.2	4	102	5½	140	8	203		
	D_2	24¼	692.2	27¼	692.2	27¼	692.2	27¼	692.2	27¼	692.2	27¼	692.2		
	D_1	29½	749.3	32	812.8	32	812.8	33	838.2	35½	902	39	991		
	n	20	20	24	24	24	24	24	24	20	20	16	16		
	d	1⅜	34.9	1⅝	41.3	1⅞	47.6	2	50.8	2⅝	66.7	3⅝	92.1		

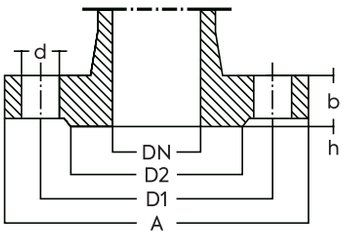
Flange dimensions and drilling to DIN 2501



DN = diameter nominal (size)
A = flange Ø
D_2 = diameter of raised face Ø
D_1 = diameter of bolt circle Ø
n = number of bolts
d = diameter of bolt holes Ø
□ = not standardized

DN		PN 6 DIN 2631	PN 10 DIN 2632	PN 16 DIN 2633	PN 25 DIN 2634	PN 40 DIN 2636	PN 63 DIN 2636	PN 100 DIN 2637	PN 160 DIN 2738	PN 250 DIN 2629	PN 320 DIN 2629
10	A D_1 D_2 n x d	75 50 35 4 x 11	90 60 40 4 x 14	90 60 40 4 x 14	90 60 40 4 × 14	90 60 40 4 x 14	100 70 40 4 x 14	100 70 40 4 x 14	100 70 40 4 x 14	125 85 40 4 x 18	125 85 40 4 x 18
15	A D_1 D_2 n x d	80 55 40 4 x 11	95 65 45 4 x 14	95 65 45 4 x 14	95 65 45 4 × 14	95 65 45 4 × 14	105 75 45 4 x 14	105 75 45 4 x 14	105 75 45 4 x 14	130 90 45 4 x 18	130 90 45 4 x 18
20	A D_1 D_2 n x d	90 65 50 4 x 11	105 75 58 4 x 14	105 75 58 4 x 14	105 75 58 4 × 14	105 75 58 4 × 14					
25	A D_1 D_2 n x d	100 75 60 4 x 11	115 85 68 4 x 14	115 85 68 4 x 14	115 85 68 4 × 14	115 85 68 4 × 14	140 100 68 4 x 18	140 100 68 4 x 18	140 100 68 4 x 18	150 105 68 4 x 22	150 105 68 4 x 22
32	A D_1 D_2 n x d	120 90 70 4 x 14	140 100 78 4 x 18	140 100 78 4 x 18	140 100 78 4 × 18	140 100 78 4 × 18					
40	A D_1 D_2 n x d	130 100 80 4 x 14	150 110 88 4 x 18	150 110 88 4 x 18	150 110 88 4 × 18	150 110 88 4 × 18	170 125 88 4 x 22	170 125 88 4 x 22	170 125 88 4 x 22	185 135 88 4 x 26	195 145 88 4 x 26
50	A D_1 D_2 n x d	140 110 90 4 x 14	165 125 102 4 x 18	165 125 102 4 x 18	165 125 102 4 × 18	165 125 102 4 × 18	180 135 102 4 x 22	195 145 102 4 x 26	195 145 102 4 x 26	2000 150 102 8 x 26	210 160 102 8 x 26
65	A D_1 D_2 n x d	160 130 110 4 x 14	185 145 122 4 x 18	185 145 122 4 x 18	185 145 122 8 × 18	185 145 122 8 × 18	205 160 122 8 x 22	220 170 122 8 x 25	220 170 122 8 x 26	230 180 122 8 x 26	255 200 122 8 x 30
80	A D_1 D_2 n x d	190 150 128 4 x 18	200 160 138 8 x 18	200 160 138 8 x 18	200 160 138 8 × 18	200 160 138 8 × 18	215 170 138 8 x 22	230 180 138 8 x 26	230 180 138 8 x 26	255 200 138 8 x 30	275 220 138 8 x 30
100	A D_1 D_2 n x d	210 170 148 4 x 18	220 180 158 8 x 18	220 180 158 8 x 18	235 190 162 8 x 22	235 190 162 8 x 22	250 200 262 8 x 26	265 210 162 8 x 30	265 210 162 8 x 30	300 235 162 8 x 33	335 265 162 8 x 36
125	A D_1 D_2 n x d	240 200 278 8 x 18	250 210 188 8 x 18	250 210 188 8 x 18	270 220 188 8 × 26	270 220 188 8 × 26	295 240 188 8 x 33	315 250 188 8 x 33	315 250 188 8 x 33	340 275 188 12 x 33	380 310 188 12 x 36
150	A D_1 D_2 n x d	265 225 202 8 x 18	285 240 212 8 x 22	285 240 212 8 x 22	300 250 218 8 × 26	300 250 218 8 × 26	345 280 218 8 x 33	355 290 218 12 x 33	255 290 218 12 x 33	390 320 218 12 x 36	425 350 218 12 x 39
(175)	A D_1 D_2 n x d		315 270 242 8 x 22	315 270 242 8 x 22	330 280 248 12 × 26	350 295 248 12 × 26	375 310 260 12 x 33	385 320 260 12 x 33	390 320 260 12 x 36	430 355 260 12 x 39	485 400 260 12 x 42
200	A D_1 D_2 n x d	320 280 268 8 x 18	340 295 268 8 x 22	340 295 268 12 x 22	360 310 278 12 × 26	375 320 285 12 × 30	415 345 285 12 x 36	430 360 285 12 x 36	430 360 285 12 x 36	485 400 285 12 x 42	525 440 285 16 x 42
250	A D_1 D_2 n x d	375 335 312 12 x 18	395 350 320 12 x 22	405 355 320 12 x 26	425 370 335 12 × 30	450 385 345 12 × 33	470 400 345 12 x 36	505 430 345 12 x 39	515 430 345 12 x 42	585 490 345 16 x 48	640 540 345 16 x 52

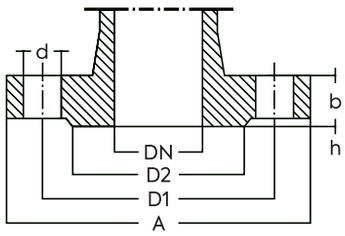
Flange dimensions and drilling to DIN 2501



DN = diameter nominal (size)
A = flange Ø
D_2 = diameter of raised face Ø
D_1 = diameter of bolt circle Ø
n = number of bolts
d = diameter of bolt holes Ø
□ = not standardized

DN		PN 6 DIN 2631	PN 10 DIN 2632	PN 16 DIN 2633	PN 25 DIN 2634	PN 40 DIN 2636	PN 63 DIN 2636	PN 100 DIN 2637	PN 160 DIN 2638	PN 250 DIN 2628	PN 320 DIN 2629
300	A D_1 D_2 n x d	440 295 365 12 × 22	445 400 370 12 x 22"	460 410 378 12 x 26	485 430 395 16 x 30	515 450 410 16 x 33	530 450 410 16 x 33	585 500 410 16 x 42	585 500 410 16 x 42	690 590 410 16 x 52	
350	A D_1 D_2 n x d	490 445 415 12 × 22	505 460 430 16 × 22	520 470 438 16 × 26	555 490 450 16 × 33	580 510 465 16 × 36	600 525 465 16 × 39	655 560 465 16 × 48			
400	A D_1 D_2 n x d	540 495 465 16 × 22	565 515 482 16 × 26	580 525 490 16 × 30	620 550 505 16 × 36	660 585 535 16 × 39	670 585 535 16 × 42	715 620 535 16 × 48			
(450)	A D_1 D_2 n x d	595 550 520 16 × 22	615 565 532 20 × 26	640 585 550 20 × 30		685 610 560 20 × 39					
500	A D_1 D_2 n x d	645 600 570 20 × 22	670 620 585 20 × 26	715 650 610 20 × 33	730 660 615 20 × 36	755 670 615 20 × 42	800 705 615 20 × 48	870 760 615 20 × 56			
600	A D_1 D_2 n x d	755 795 670 20 × 26	780 725 685 20 × 30	840 770 725 20 × 36	845 770 720 20 × 39	890 795 735 20 × 48	930 820 735 20 × 56	990 875 735 20 × 62			
700	A D_1 D_2 n x d	860 810 775 24 × 26	895 840 800 24 × 30	910 840 795 24 × 36	960 875 820 24 × 42	995 900 840 24 × 48	1045 935 840 24 × 56	1145 1020 840 24 × 70			
800	A D_1 D_2 n x d	975 920 880 24 × 30	1015 950 905 24 × 33	1025 950 900 24 × 39	1085 990 930 24 × 48	1140 1030 960 24 × 56	1165 1050 960 24 × 62				
900	A D_1 D_2 n x d	1075 1020 980 24 × 30	1115 1050 1005 28 × 33	1125 1050 1000 28 × 39	1185 1090 1030 28 × 48	1250 1140 1070 28 × 56	1285 1170 1070 28 × 62				
1000	A D_1 D_2 n x d	1175 1120 1080 28 × 30	1230 1160 1110 28 × 36	1255 1170 1115 28 × 42	1320 1210 1140 28 × 56	1360 1250 1180 28 × 56	1415 1290 1180 28 × 70				
1200	A D_1 D_2 n x d	1405 1340 1295 32 × 33	1455 1380 1330 32 × 39	1485 1390 1330 32 × 48	1530 1420 1350 32 × 56	1575 1460 1380 32 × 62	1665 1530 1380 32 × 78				
1400	A D_1 D_2 n x d	1630 1560 1510 36 × 36	1675 1590 1535 36 × 42	1685 1590 1530 36 × 48	1755 1640 1560 36 × 62	1795 1680 1600 36 × 62					
1600	A D_1 D_2 n x d	1830 1760 1710 40 × 36	1915 1820 1760 40 × 48	1930 1820 1750 40 × 56	1975 1860 1780 40 × 62	2025 1900 1815 40 × 70					
1800	A D_1 D_2 n x d	2045 1970 1920 44 × 39	2115 2020 1960 44 × 48	2130 2020 1950 44 × 56	2195 2070 1985 44 × 70						
2000	A D_1 D_2 n x d	2265 2180 2125 48 × 42	2325 2230 2170 48 × 48	2345 2230 2150 48 × 62	2425 2300 2210 48 × 70						

Flange dimensions and drilling to JIS B 2210 (1984)



DN = diameter nominal (size)
A = flange Ø
D_2 = diameter of raised face Ø
D_1 = diameter of bolt circle Ø
n = number of bolts
d = diameter of bolt holes Ø

DN		5K	10K	16K	20K	30K	40K
10	A D_1 D_2 n x d	75 55 39 4 × 12	90 65 46 4 × 15	90 65 46 4 × 15	90 65 46 4 × 15	110 75 52 4 × 19	110 75 52 4 × 19
15	A D_1 D_2 n x d	80 60 44 4 × 12	95 70 51 4 × 15	95 70 51 4 × 15	95 70 51 4 × 15	115 80 55 4 × 19	115 80 55 4 × 19
20	A D_1 D_2 n x d	85 65 49 4 × 12	100 75 56 4 × 15	100 75 56 4 × 15	100 75 56 4 × 15	120 85 60 4 × 19	120 85 60 4 × 19
25	A D_1 D_2 n x d	95 75 59 4 × 12	125 90 67 4 × 19	125 90 67 4 × 19	125 90 67 4 × 19	130 95 70 4 × 19	130 95 70 4 × 19
32	A D_1 D_2 n x d	115 90 70 4 × 15	135 100 76 4 × 19	135 100 76 4 × 19	135 100 76 4 × 19	140 105 80 4 × 19	140 105 80 4 × 19
40	A D_1 D_2 n x d	120 95 75 4 × 15	140 105 81 4 × 19	140 105 81 4 × 19	140 105 81 4 × 19	160 120 90 4 × 23	160 120 90 4 × 23
50	A D_1 D_2 n x d	130 105 85 4 × 15	155 120 96 4 × 19	155 120 96 8 × 19	155 120 96 8 × 19	165 130 105 8 × 19	165 130 105 8 × 19
65	A D_1 D_2 n x d	155 130 110 4 × 15	175 140 116 4 × 19	175 140 116 8 × 19	175 140 116 8 × 19	200 160 130 8 × 23	200 160 130 8 × 23
80	A D_1 D_2 n x d	180 145 121 8 × 19	185 150 126 8 × 19	200 160 132 8 × 23	200 160 132 8 × 23	210 170 140 8 × 23	210 170 140 8 × 23
100	A D_1 D_2 n x d	200 165 141 8 × 19	210 175 151 8 × 19	225 185 160 8 × 23	225 185 160 8 × 23	240 195 160 8 × 25	250 205 165 8 × 25
125	A D_1 D_2 n x d	235 200 176 8 × 19	250 210 182 8 × 23	270 225 195 8 × 25	270 225 195 8 × 25	275 230 195 8 × 25	300 250 200 8 × 27
150	A D_1 D_2 n x d	265 230 206 8 × 19	280 240 212 8×23	305 260 230 12×25	305 260 230 12×25	325 275 235 12×27″	355 295 240 12×33
200	A D_1 D_2 n x d	320 280 252 8 × 23	330 290 262 12×23	350 305 275 12×25	350 305 275 12×25	370 320 280 12×27″	405 345 290 12×33
250	A D_1 D_2 n x d	385 345 317 12×23	400 355 324 12×25	430 380 345 12×27	430 380 345 12×27	450 390 345 12×33	475 410 355 12×33
300	A D_1 D_2 n x d	430 390 360 12×23	445 400 368 16×25	480 430 395 16×27	480 430 395 16×27	515 450 405 16×33	540 470 410 16×39

ANSI B 16.34-1977
Max. working pressures for valves

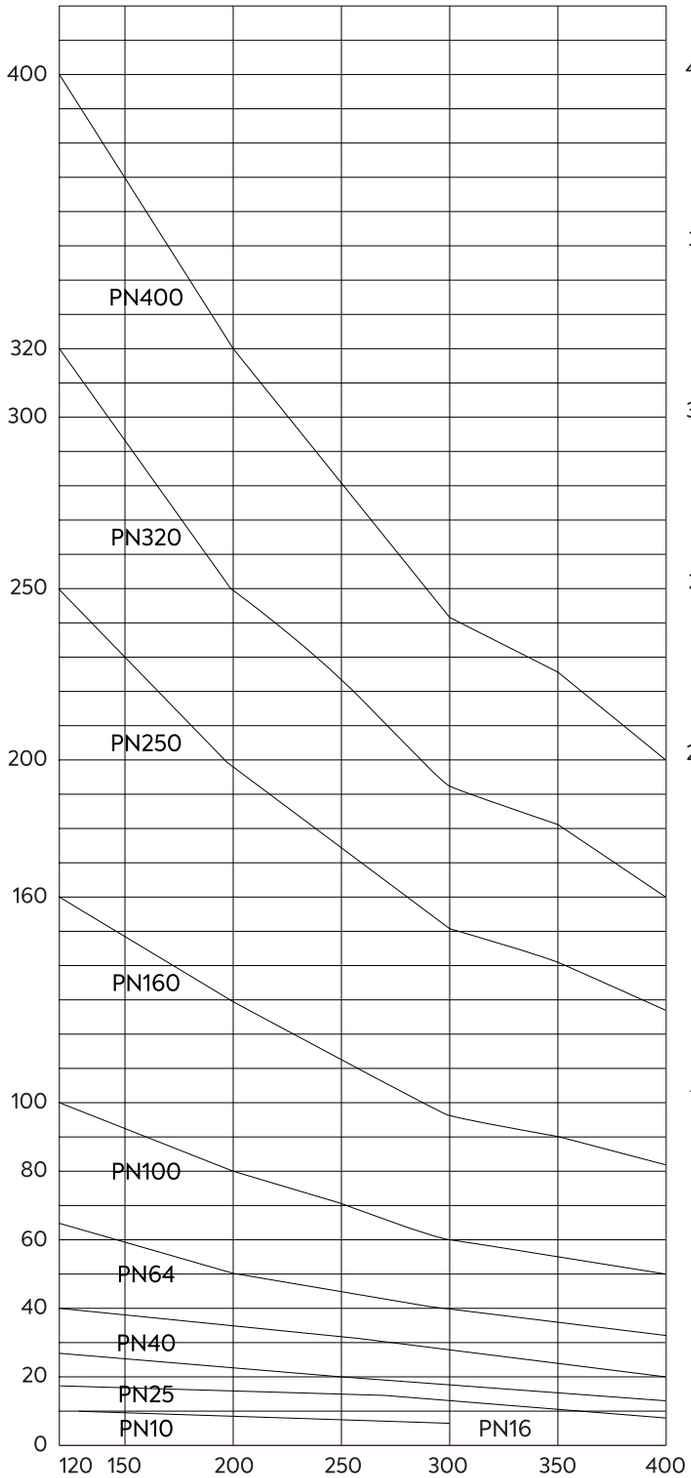
All pressures are in pounds per square inch (Gauge).
Temperatures and pressures listed are maximum internal fluid temperatures and pressure

Pressure Class Rating		150	300	600	900	1500	2500	4500
Hydrostatic Shell Test Pressure (PSIG)		450	1125	2250	3375	5825	9375	16875
Working Temp (deg.F.)	Material ASTM Specification Alloy Grade Designation	Maximum Non-Shock Working Pressure (PSIG) Standard Class Valves						
-20 to 100	WCB	285	740	1480	2220	3705	6170	11110
	WC6	290	750	1500	2250	3750	6250	11250
	WC9	290	750	1500	2250	3750	6250	11250
	C5	290	750	1500	2250	3750	6250	11250
	LCB	265	695	1390	2085	3470	5785	10415
	CF8M	275	720	1440	2160	3600	6000	10800
200	WCB	260	665	1350	2025	3375	5625	10120
	WC6	260	710	1425	2135	3560	5930	10675
	WC9	270	715	1430	2150	3580	5965	10740
	C5	260	750	1500	2250	3750	6250	11250
	LCB	250	655	1315	1970	3280	5470	9845
	CF8M	240	622	1240	1860	2795	4660	8390
300	WCB	230	655	1315	1970	3280	5470	9845
	WC6	230	675	1345	2020	3365	5605	10090
	WC9	230	675	1355	2030	3385	5640	10150
	C5	230	730	1455	2185	3640	5970	10560
	LCB	230	640	1275	1915	3190	5315	9565
	CF8M	215	560	1120	1680	2795	4660	8390
400	WCB	200	635	1270	1900	3170	5280	9505
	WC6	200	660	1315	1975	3290	5485	9875
	WC9	200	650	1295	1945	3240	5400	9720
	C5	200	705	1410	2115	3530	5880	10585
	LCB	200	620	1235	1850	3085	5145	9260
	CF8M	195	515	1030	1540	2570	4280	7705
500	WCB	170	600	1200	1795	2995	4990	8980
	WC6	170	640	1285	1925	3210	5330	9585
	WC9	170	640	1280	1920	3200	5330	9595
	C5	170	865	1330	1995	3325	5540	9965
	LCB	170	585	1165	1745	2910	4850	8735
	CF8M	170	480	955	1435	2390	3980	7165
600	WCB	140	550	1095	1640	2735	4560	8210
	WC6	140	605	1210	1815	3025	5040	9070
	WC9	140	605	1210	1815	3025	5040	9070
	C5	140	605	1210	1815	3025	5040	9070
	LCB	140	535	1060	1815	2665	4440	7990
	CF8M	140	450	905	1660	2255	3760	6770
650	WCB	125	535	1075	1610	2685	4475	8055
	WC6	125	590	1175	1765	2940	4905	8825
	WC9	125	590	1175	1765	2940	4905	8825
	C5	125	585	1175	1765	2940	4905	8825
	LCB	125	525	1045	1570	2615	4355	7840
	CF8M	125	445	890	1330	2220	3700	6860

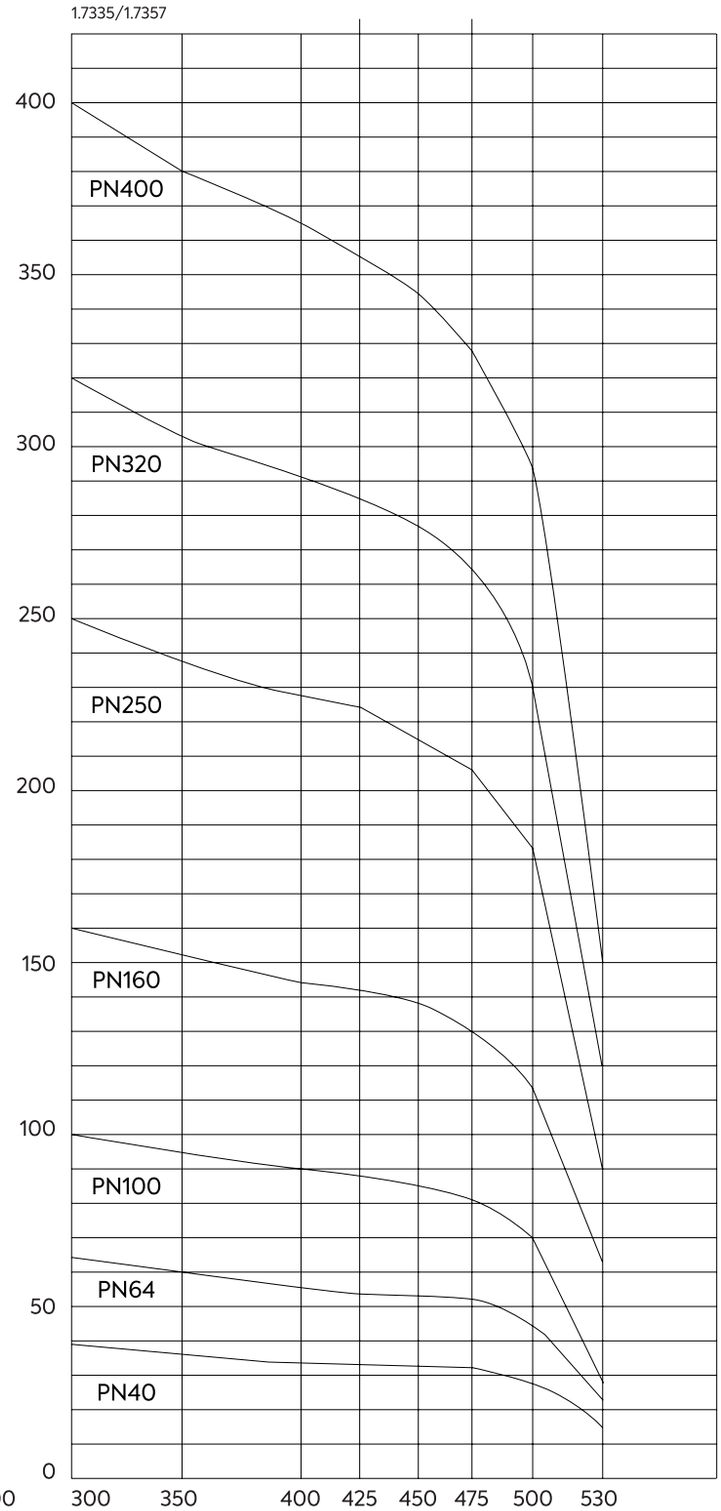
Pressure Class Rating		150	300	600	900	1500	2500	4500
Hydrostatic Shell Test Pressure (PSIG)		450	1125	2250	3375	5825	9375	16875
Working Temp (deg.F.)	Material ASTM Specification Alloy Grade Designation	Maximum Non-Shock Working Pressure (PSIG) Standard Class Valves						
700	WCB	110	535	1065	1600	2665	4440	7990
	WC6	110	570	1135	1705	2840	4730	8515
	WC9	110	570	1135	1705	2840	4730	8515
	C5	110	570	1135	1705	2840	4730	8515
	CF8M	110	430	865	1295	2160	3600	6480
750	WCB	95	505	1010	1510	2520	4200	7560
	WC6	95	530	1065	1595	2660	4430	7970
	WC9	95	530	1065	1595	2660	4430	7970
	C5	95	530	1065	1595	2660	4430	7970
	CF8M	95	425	845	1270	2110	3520	6335
800	WCB	80	410	825	1235	2060	3430	6170
	WC6	80	510	1015	1525	2540	4230	7610
	WC9	80	510	1015	1525	2540	4230	7610
	C5	80	500	995	1490	2485	4145	7460
	CF8M	80	415	830	1245	2075	3460	6230
850	WCB	65	270	535	805	1340	2230	4010
	WC6	65	485	975	1480	2435	4080	7305
	WC9	65	480	975	1480	2435	4060	7305
	C5	65	440	880	1315	2195	3660	6585
900	WCB	50	170	345	515	860	1430	2570
	WC6	50	450	900	1350	2245	3745	6740
	WC9	50	450	900	1350	2245	3745	6740
	C5	50	355	705	1080	1765	2845	5300
950	WCB	35	105	205	310	515	860	1545
	WC6	35	380	755	1130	1885	3145	5660
	WC9	35	380	755	1130	1885	3145	5660
	C5	35	260	520	780	1305	2170	3910
1000	WCB	20	50	105	155	260	430	770
	WC6	20	225	445	670	1115	1880	3345
	WC9	20	270	535	805	1340	2230	4010
	C5	20	190	385	575	960	1600	2880
1050	WC6	20[2]	140	275	410	685	1145	2080
	WC9	20[2]	200	400	595	995	1660	2985
	C5	20[2]	140	280	420	705	1170	2110
1100	WC6	20[2]	95	190	290	480	800	1440
	WC9	20[2]	115	225	340	565	945	1700
	C5	20[2]	105	205	310	515	860	1545
1150	C5	20[2]	70	140	205	345	570	1030
1200	C5	20[2]	45	90	135	225	370	670

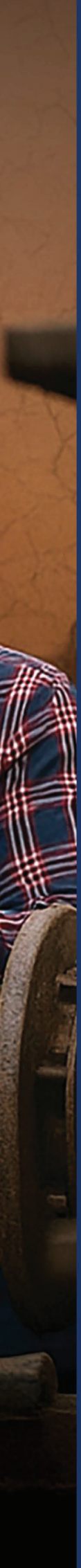
DIN 2401
Max. working pressures for valves with flanged ends

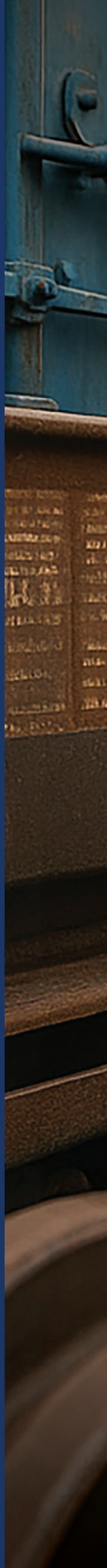
Non-alloy steels
1.0402/1.0619



Alloy steels
1.7335/1.7357







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