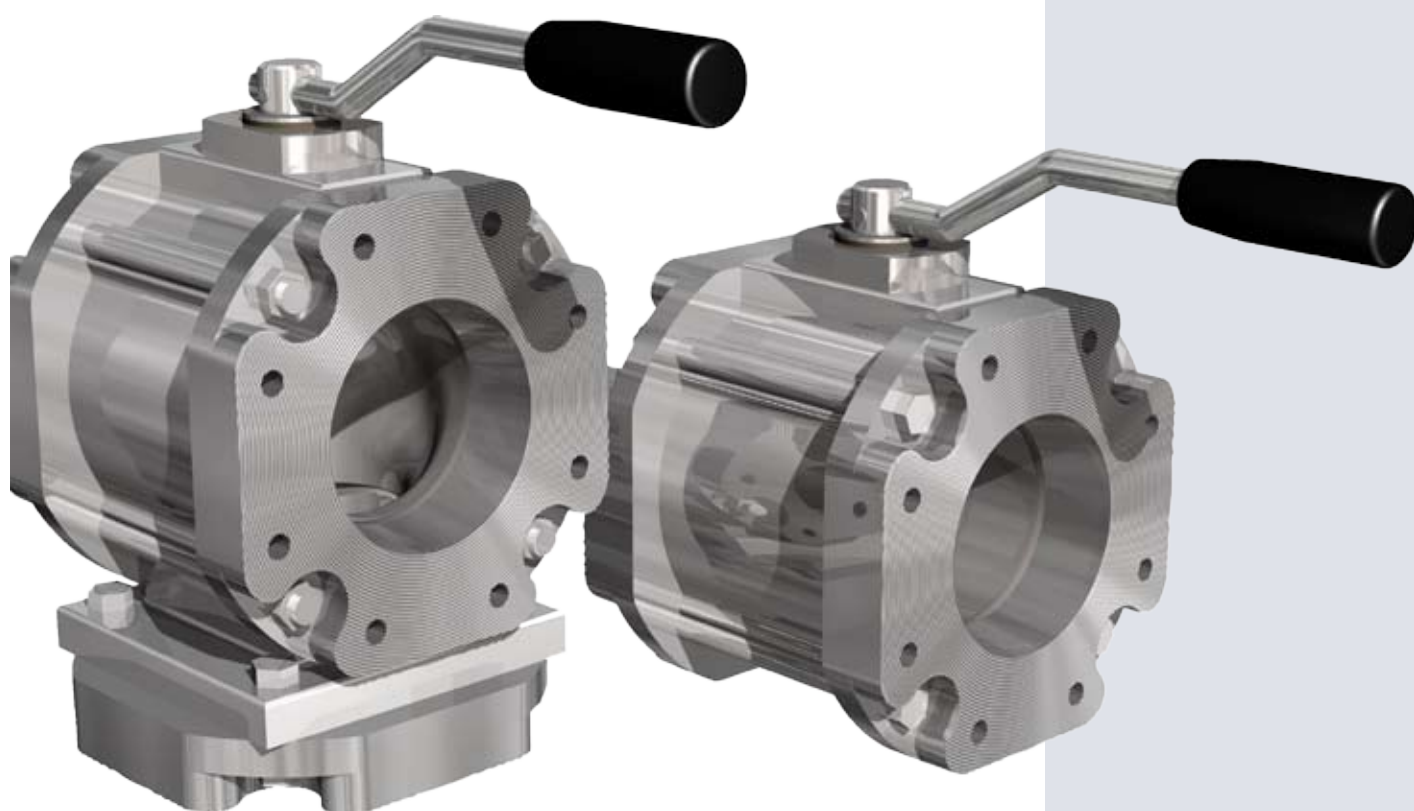




FFBall Valves

Full Flow Ball Valves



Product Information

Art. nr: PR-010201-0112 Version: 100504



About Mann Tek

Mann Teknik AB is a Swedish company located in Mariestad, Sweden.

Mann Teknik AB produces and markets products for safe and environmentally friendly handling of aggressive fluids for the chemical and petrochemical industries.

The main product is the Dry Disconnect Couplings, DDCouplings®, for spill free liquid handling. The products are marketed through independent representatives in more than 30 countries.

Mann Teknik AB have many years of experience in designing, producing and marketing of DDCouplings® all since 1977.

Mann Teknik AB has shown a high rate of growth during the past years and is now a major player in its specialized field of operation. This is due to a determined expansion into growing markets and recognition by customers of the robust design and reliable quality of the products.

Mann Teknik AB are certified to ISO9001:2008. The products are CE-labeled. The main products are certified to PED, the European Pressure Equipment Directive and ATEX, the European directive for Equipment intended for use in Potentially Explosive Atmospheres.

The products are produced in accordance with several important standards, e.g. the NATO STANAG 3756

KilltheSpill



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Ball Valves / 2-way Ball Valves in Aluminium

Full Flow Ball Valves and 2-way Ball Valves are specially designed for handling different types of fuels such as diesel, gasoline, Jet fuel etc. in Tank trucks. Mann Tek Ball Valves in Aluminium offer weight saving benefits to the road tanker industry and they are also used in different types of fixed plant and mobile fuelling applications.

All sizes of Mann Tek Ball Valves and 2-way Valves are available with pneumatic actuation in either single or double acting form.

Sizes

2" (DN 50) to 4" (DN 100)

Connections:

Full Flow ball Valves and 2-way Ball Valves are available with BSP- and NPT-threads and with flanges (DIN, ANSI, TW, TTMA, EN 1092-1:2001).

Maximum Working Pressure:

MWP PN 10
MAWP 150 psi

Material:

Body: Aluminium
Ball: Aluminium
Spindle: Stainless Steel

Seals:

Teflon® (PTFE), Viton® (FPM).
Other Seals on request.

Working temperature - Seals material

Lowest Operation Temperature:

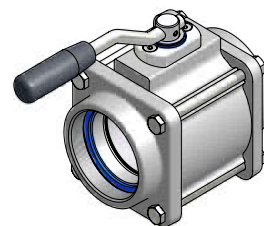
With Seals Material:	Lowest Temperature:
FPM (Standard Viton)	-20° C / -4° F
NBR	-25° C / -13° F
Low temperature NBR	-40° C / -40° F
FQM (Flourosilicon)	-55° C / -67° F

These materials must be tried individually and are subject to no obligation. Always check with chemical compability chart before use. Used with for example: Petrol, diesel, aviation fuel.

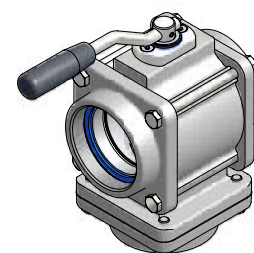
Recommendations and approvals:



Ball Valves in Aluminium.



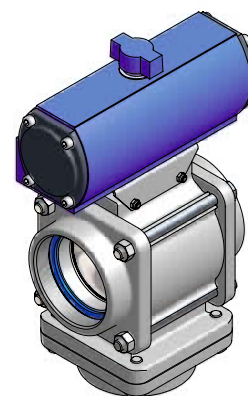
2-way Ball Valves in Aluminium.



Ball Valves in Aluminium with pneumatic actuator (springreturn or double acting).



2-way Ball Valves in Aluminium with pneumatic actuator double acting.



Business segment - Ball Valves



Aviation



Tank Trucks



Military

General information Full Flow Ball Valves

Advantages

- Unflattened flanges do not affect the balls torque.
- All wetted parts in: Aluminium, Stainless Steel, FPM (Viton®), PTFE (Teflon®). No Yellow parts.
- The sealing stays in its position also when you are regulating high flowrates.
- Low pressure drop.
- Easy to service: The spindle can easily be dismantled, even if the ball valve is installed.
- The valve is assembled as one unit - not kept together by the flanges.
- Inbuilt measurements as common standard.



Applications for Ball Valves

- Petroleum tank trucks
- Tank trucks for solvents
- Dispenser and Tank trucks for aircraft refuelling
- Stationary and mobile equipment for aircraft refuelling
- Valves for the paint industry
- Valves for the oil industry
- Waste water for railwaggons

Apragaz Type approval

Ball Valves acc. to ADR, RID, IMDG
2-way Valves acc. to ADR, RID, IMDG

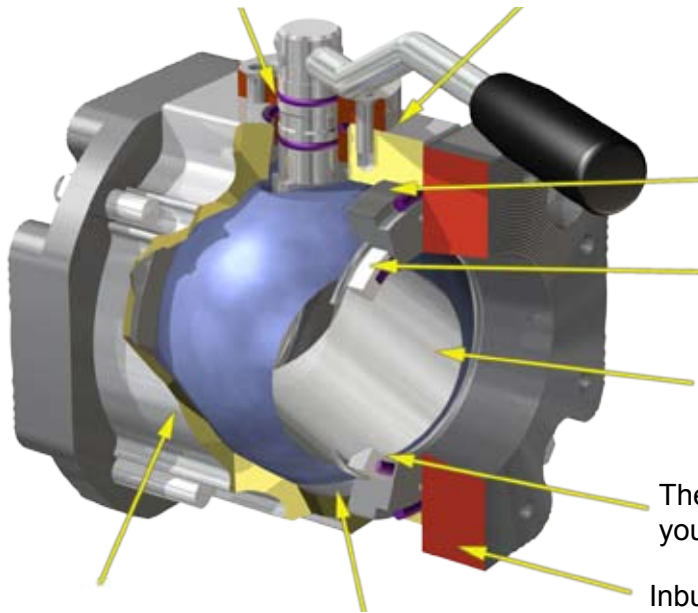


ADR, RID, IMDG

Advantages - Ball Valve in Aluminium

The spindle can easily be dismantled even when the ball valve is installed.

Pneumatic actuators available for all sizes, 90° operating, single/double acting.



Irregular or crowned flanges do not affect the ball torque.

All wetted parts in Aluminium and Stainless Steel, Sealings in FPM (Viton®) and PTFE (Teflon®).

The biggest run of all brands.

The sealing stays in its position also when you are regulating high pressure drop.

Inbuilt measurements replace other brands

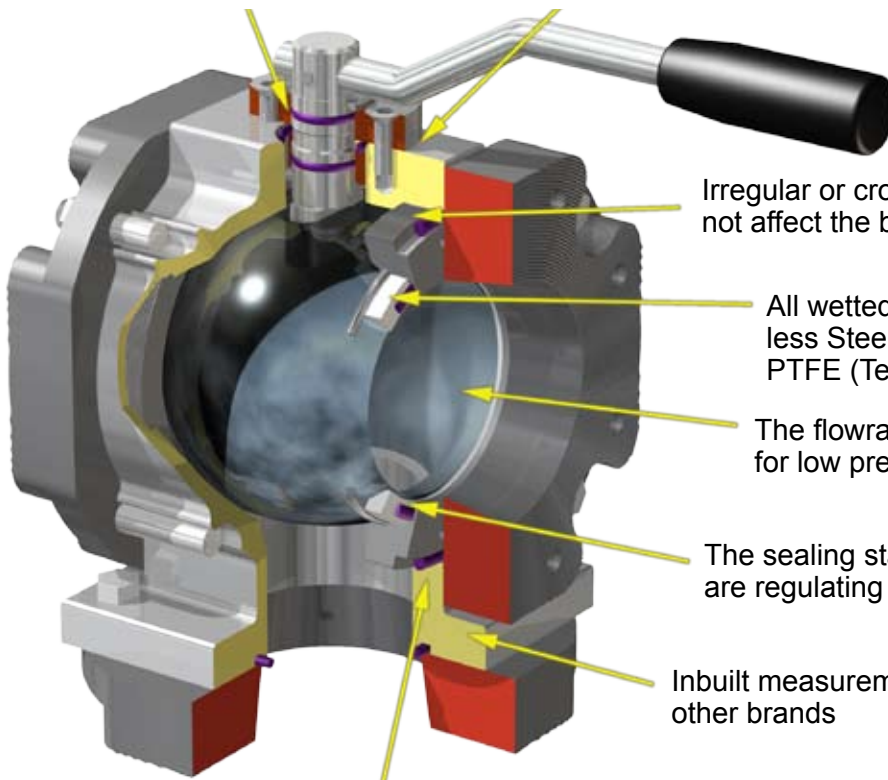
The valve is assembled as one unit - not kept together by the flanges

Minimum liquid remains in the ball valve

Advantages - 2-way Ball Valve in Aluminium

The spindle can easily be dismantled even when the ball valve is installed.

Pneumatic actuators available for all sizes, 180° operating, single/double acting.



Irregular or crowned flanges do not affect the ball torque.

All wetted parts in Aluminium and Stainless Steel, Sealings in FPM (Viton®) and PTFE (Teflon®).

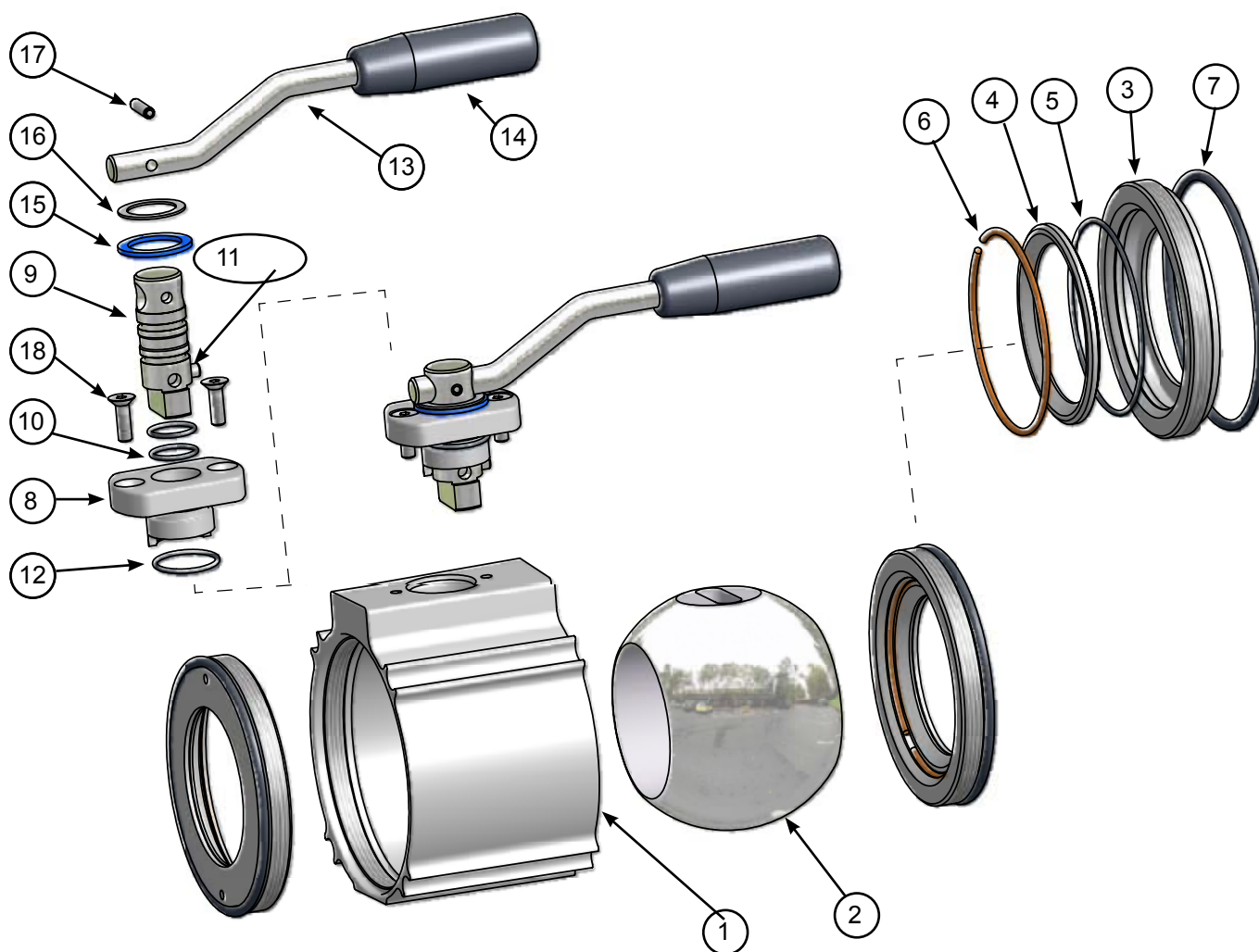
The flowrate through the ball is optimized for low pressure drop.

The sealing stays in its position also when you are regulating high pressure drop.

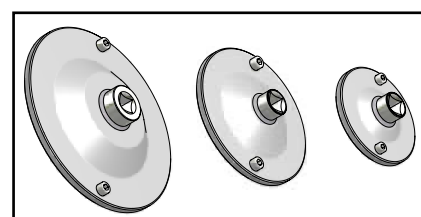
Inbuilt measurements replace other brands

The valve is assembled as one unit - not kept together by the flanges

Ball Valve - Exploded view

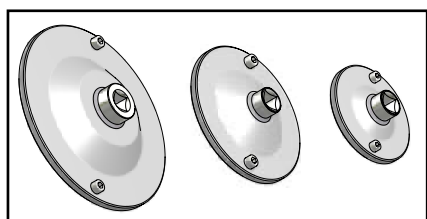
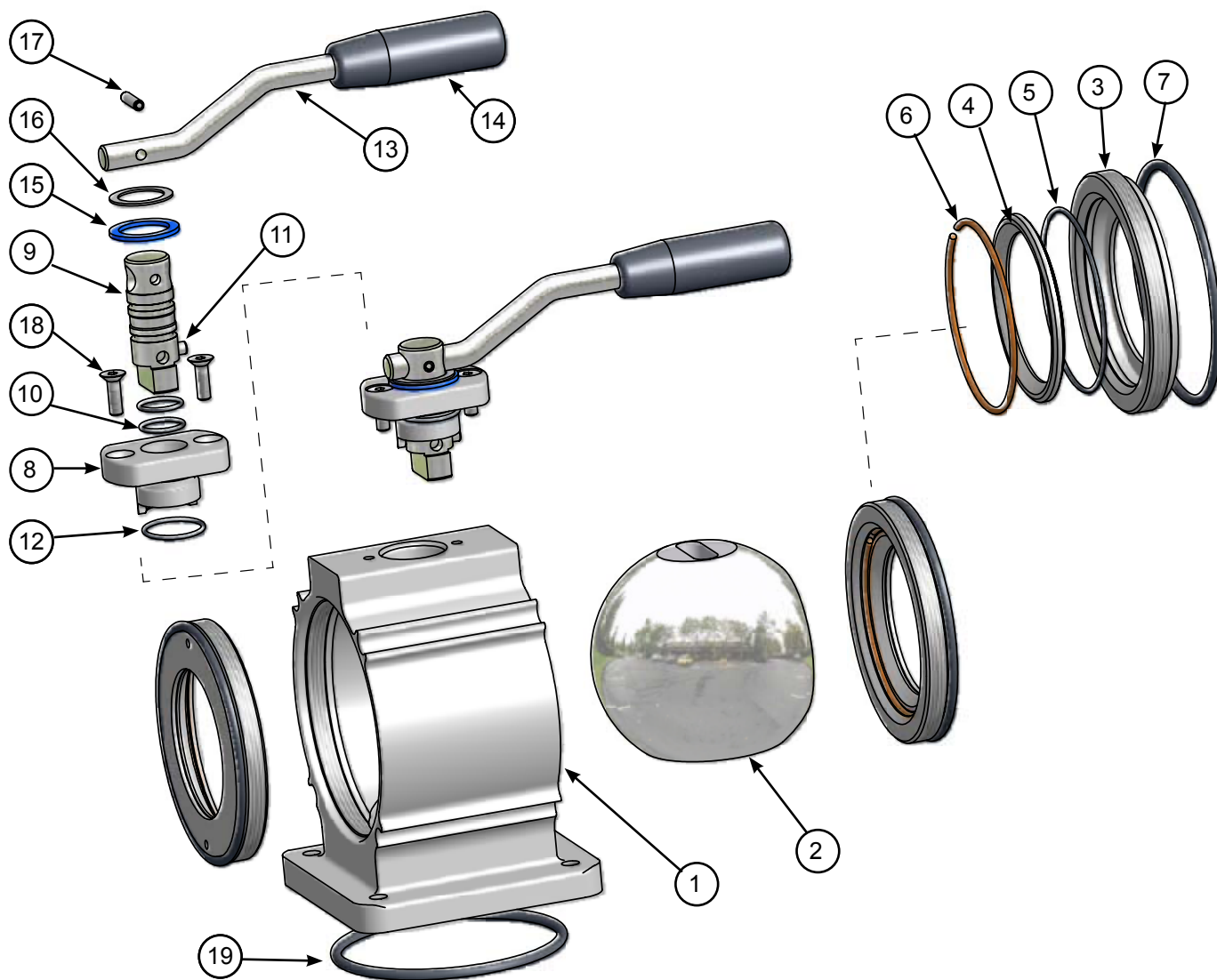


No	Description	Material	Quantity
001	BV-BODY 3"	ALUMINIUM	1.0
002	BALL 3"	ALUMINIUM	1.0
003	SUPPORT RING 3"	ALUMINIUM	2.0
004	SEALING RING 3"	PTFE (Teflon®)	2.0
005	O-RING	FPM (Viton®)	2.0
006	SECURE RING 3"	Stainless steel	2.0
007	O-RING	FPM (Viton®)	2.0
008	SPINDLE GUIDE	Stainless steel	1.0
009	SPINDLE	Stainless steel	1.0
010	O-RING	FPM (Viton®)	2.0
011	CYLINDRICAL PIN	Stainless steel	1.0
012	O-RING	FPM (Viton®)	1.0
013	LEVER	Stainless Steel	1.0
014	HANDLE	PLASTIC	1.0
015	FLAT SEAL 1"	PUR (Vulkollan®)	1.0
016	WASHER	Stainless Steel	1.0
017	TENSION PIN	Stainless steel	1.0
018	SCREW	Stainless steel	2.0



Mounting tools for support ring.

2-way Valve - Exploded view



**Mounting tools
for support ring.**

No	Description	Material	Quantity
001	BV-BODY 3" 2WAY	ALUMINIUM	1.0
002	BALL 3" 2 WAY	ALUMINIUM	1.0
003	SUPPORT RING 3"	ALUMINIUM	2.0
004	SEALING RING 3"	PTFE (Teflon®)	2.0
005	O-RING	FPM (Viton®)	2.0
006	SECURE RING 3"	Stainless steel	2.0
007	O-RING	FPM (Viton®)	2.0
008	SPINDLE GUIDE	Stainless steel	1.0
009	SPINDLE	Stainless steel	1.0
010	O-RING	FPM (Viton®)	2.0
011	CYLINDRICAL PIN	Stainless steel	1.0
012	O-RING	FPM (Viton®)	1.0
013	LEVER	Stainless Steel	1.0
014	HANDLE	PLASTIC	1.0
015	FLAT SEAL 1"	PUR (Vulkollan®)	1.0
016	WASHER	Stainless Steel	1.0
017	TENSION PIN	Stainless steel	1.0
018	SCREW	Stainless steel	2.0
019	O-RING	FPM (Viton®)	1.0

Viton® and Teflon® are registered Trademarks by Du Pont

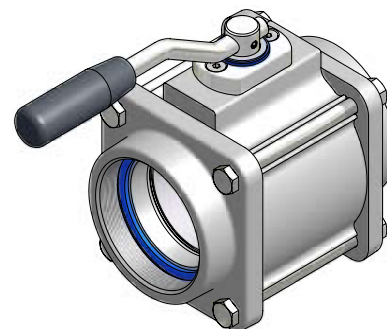
Ball Valves in Aluminium

Description: Ball Valves Dim DN 50-100 / 2"-4", W.P 10 bar / 150 PSI.

Flanges available in aluminium or steel. Flange seal in Viton® (FPM). Ball seal in Teflon® (PTFE).

Other materials and connection on request.

Inch DN ¹⁾	Connection ²⁾	Mtrl. Flange ³⁾	Weight kg	Code No.	Illustration
2" DN 50	-	-	1,4	B200A1001	Material Body: Aluminium Ball: Aluminium Spindle: Stainless Steel Sealing: Teflon® (PTFE), Viton® (FPM)
	BSP 2" F	Al	2,2	B210A1101	
		St	2,6	B210A1301	
	NPT 2" F	Al	2,3	B211A1101	
	BSP 2" M	Al	2,0	B278A1101	
	W Ø57 mm / 2.24 inch	Al	2,0	B289A1101	
		St	2,4	B290A1301	
	W Ø60 mm / 2.36 inch	SS	2,5	B290A1401	
Al		3,3	B287A1101		
3" DN 80	-	-	2,4	B400A1001	
	BSP 3" F	Al	-	B414A1101	
		St	4,7	B414A1301	
	NPT 3" F	Al	4	B415A1101	
	BSP 3" M	Al	3,8	B482A1101	
		St	4,7	B482A1301	
	W Ø76 mm / 2.99 inch	Al	3,9	B492A1101	
		St	-	B492A1301	
	W Ø89 mm / 3.50 inch	Al	3,8	B493A1101	
		St	5,4	B493A1301	
		SS	5,8	B493A1401	
	TW1 / 80	Al	5,5	B465A1101	
	DN 65 PN 10/16	Al	-	B433A1101	
	DN 80 PN 10/16	Al	5,4	B436A1101	
2½" ASA 150 PSI	Al	-	B459A1101		
3" ASA 150 psi	Al	5,9	B461A1101		
4" DN 100	-	-	5,2	B500A1001	
	BSP 4" F	Al	7,1	B516A1101	
		St	10	B516A1301	
	NPT 4" F	Al	7,5	B517A1101	
	BSP 4" M	Al	7,5	B584A1101	
		St	10	B584A1301	
	W Ø 102 mm / 4.02 inch	St	-	B595A1301	
	W Ø 108 mm / 4.25 inch	Al	6,7	B 596A1101	
	W Ø 114 mm / 4.49 inch	St	9,6	B597A1301	
	TW3 / 100	Al	8	B566A1101	
	DN 100 PN 10/16	Al	9,6	B539A1101	
4" ASA 150 PSI	Al	10	B563A1101		



1) Dimension Ball Valves

3) Mtrl:St=Steel, Al=Aluminium, SS=Stainless steel

2) F=Female thread

M=Male thread, W=Flange for welding

Threads:BSP=ISO 228, NPT=ANSI B1.20.3

Viton® (FPM) and Teflon® (PTFE) are registered trademarks of DuPont.

2-way Ball Valves in Aluminium

Description: Ball Valves Dim DN 50-100 / 2"-4", W.P 10 bar / 150 PSI.

Flanges available in aluminium or steel. Flange seal in Viton® (FPM). Ball seal in Teflon® (PTFE).

Other materials and connection on request.

Inch DN ¹⁾	Connection ²⁾	Mtrl. Flange ³⁾	Weight kg	Code No.	Illustration
2" DN 50	-	-	1,6	B200A1001C	Material Body: Aluminium Ball: Aluminium Spindle: Stainless Steel Sealing: Teflon® (PTFE), Viton® (FPM)
	BSP 2" F	Al	2,7	B210A1101C	
		St	3,5	B210A1301C	
	NPT 2" F	Al	2,8	B211A1101C	
	BSP 2" M	Al	2,5	B278A1101C	
	W Ø57 mm / 2.24 inch	Al	2,7	B289A1101C	
	W Ø60 mm / 2.36 inch	St	3,3	B290A1301C	
		SS	3,3	B290A1401C	
TW1 / 50	Al	4,4	B287A1101C		
3" DN 80	-	-	3,1	B400A1001C	
	BSP 3" F	Al	-	B414A1101C	
		St	6,4	B414A1301C	
	NPT 3" F	Al	5,4	B415A1101C	
	BSP 3" M	Al	5	B482A1101C	
		St	6,8	B482A1301C	
	W Ø76 mm / 2.99 inch	Al	5,1	B492A1101C	
		St	-	B492A1301C	
	W Ø89 mm / 3.50 inch	Al	5,1	B493A1101C	
		St	6,5	B493A1301C	
		SS	7,5	B493A1401C	
	TW1 / 80	Al	7,5	B465A1101C	
	DN 65 PN 10/16	Al	?	B433A1101C	
	DN 80 PN 10/16	Al	-	B436A1101C	
2½" ASA 150 PSI	Al	?	B459A1101C		
3" ASA 150 psi	Al	8,1	B461A1101C		
4" DN 100	-	-	5,8	B500A1001C	
	BSP 4" F	Al	8,6	B516A1101C	
		St	13	B516A1301C	
	NPT 4" F	Al	9,1	B517A1101C	
	BSP 4" M	Al	9,1	B584A1101C	
		St	12,9	B584A1301C	
	W Ø 102 mm / 4.02 inch	St	-	B595A1301C	
	W Ø 108 mm / 4.25 inch	Al	8	B 596A1101C	
	W Ø 114 mm / 4.49 inch	St	12,5	B597A1301C	
	TW3 / 100	Al	10	B566A1101C	
DN 100 PN 10/16	Al	12,1	B539A1101C		



1) Dimension Ball Valves

3) Mtrl:St=Steel, Al=Aluminium, SS=Stainless steel

2) F=Female thread

M=Male thread, W=Flange for welding

Threads: BSP=ISO 228, NPT=ANSI B1.20.3

Viton® (FPM) and Teflon® (PTFE) are registered trademarks of DuPont.

Ball Valves in Aluminium with pneumatic actuator springreturn

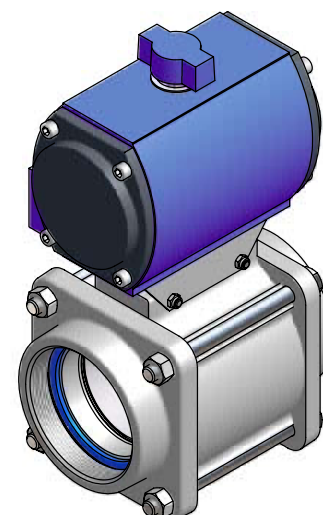
Description: Ball Valves Dim DN 50-100 / 2"-4", W.P 10 bar / 150 PSI.

Flanges available in aluminium or steel. Flange seal in Viton® (FPM). Ball seal in Teflon® (PTFE). Other materials and connection on request.

ATEX approved



Inch DN ¹⁾	Connection ²⁾	Mtrl. Flange ³⁾	Weight kg	Code No.	Illustration
2" DN 50	-	-	-	B200A1001-SR	Material Body: Aluminium Ball: Aluminium Spindle: Stainless Steel Sealing: Teflon® (PTFE), Viton® (FPM)
	BSP 2" F	Al	-	B210A1101-SR	
		St	-	B210A1301-SR	
	NPT 2" F	Al	-	B211A1101-SR	
	BSP 2" M	Al	-	B278A1101-SR	
	W Ø57 mm / 2.24 inch	Al	-	B289A1101-SR	
	W Ø60 mm / 2.36 inch	St	-	B290A1301-SR	
		SS	-	B290A1401-SR	
TW1 / 50	Al	-	B287A1101-SR		
3" DN 80	-	-	5,7	B400A1001-SR	
	BSP 3" F	Al	-	B414A1101-SR	
		St	7,6	B414A1301-SR	
	NPT 3" F	Al	6,9	B415A1101-SR	
	BSP 3" M	Al	6,7	B482A1101-SR	
		St	7,6	B482A1301-SR	
	W Ø76 mm / 2.99 inch	Al	6,8	B492A1101-SR	
		St	-	B492A1301-SR	
	W Ø89 mm / 3.50 inch	Al	6,7	B493A1101-SR	
		St	8,2	B493A1301-SR	
		SS	8,6	B493A1401-SR	
	TW1 / 80	Al	8,4	B465A1101-SR	
	DN 65 PN 10/16	Al	-	B433A1101-SR	
	DN 80 PN 10/16	Al	8,3	B436A1101-SR	
2½" ASA 150 PSI	Al	-	B459A1101-SR		
3" ASA 150 psi	Al	8,8	B461A1101-SR		
4" DN 100	-	-	8,4	B500A1001-SR	
	BSP 4" F	Al	9,8	B516A1101-SR	
		St	12,7	B516A1301-SR	
	NPT 4" F	Al	10,2	B517A1101-SR	
	BSP 4" M	Al	10,2	B584A1101-SR	
		St	12,7	B584A1301-SR	
	W Ø 102 mm / 4.02 inch	St	-	B595A1301-SR	
	W Ø 108 mm / 4.25 inch	Al	9,45	B 596A1101-SR	
	W Ø 114 mm / 4.49 inch	St	12,4	B597A1301-SR	
	TW3 / 100	Al	10,7	B566A1101-SR	
	DN 100 PN 10/16	Al	12,3	B539A1101-SR	
4" ASA 150 PSI	Al	12,7	B563A1101-SR		



1) Dimension Ball Valves

3) Mtrl:St=Steel, Al=Aluminium, SS=Stainless steel

2) F=Female thread

M=Male thread, W=Flange for welding

Threads: BSP=ISO 228, NPT=ANSI B1.20.3

Viton® (FPM) and Teflon® (PTFE) are registered trademarks of DuPont.

Ball Valves in Aluminium with pneumatic actuator double acting

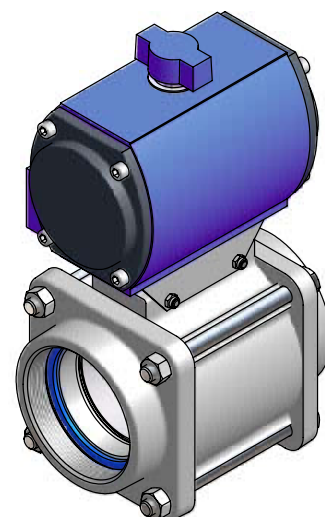
Description: Ball Valves Dim DN 50-100 / 2"-4", W.P 10 bar / 150 PSI.

Flanges available in aluminium or steel. Flange seal in Viton® (FPM). Ball seal in Teflon® (PTFE). Other materials and connection on request.

ATEX approved



Inch DN ¹⁾	Connection ²⁾	Mtrl. Flange ³⁾	Weight Kg	Code No.	Illustration
2" DN 50	-	-	-	B200A1001-DA	Material Body: Aluminium Ball: Aluminium Spindle: Stainless Steel Sealing: Teflon® (PTFE), Viton® (FPM)
	BSP 2" F	Al	-	B210A1101-DA	
		St	-	B210A1301-DA	
	NPT 2" F	Al	-	B211A1101-DA	
	BSP 2" M	Al	-	B278A1101-DA	
	W Ø57 mm / 2.24 inch	Al	-	B289A1101-DA	
	W Ø60 mm / 2.36 inch	St	-	B290A1301-DA	
		SS	-	B290A1401-DA	
TW1 / 50	Al	-	B287A1101-DA		
3" DN 80	-	-	5,7	B400A1001-DA	
	BSP 3" F	Al	-	B414A1101-DA	
		St	7,6	B414A1301-DA	
	NPT 3" F	Al	6,9	B415A1101-DA	
	BSP 3" M	Al	6,7	B482A1101-DA	
		St	7,6	B482A1301-DA	
	W Ø76 mm / 2.99 inch	Al	6,8	B492A1101-DA	
		St	-	B492A1301-DA	
	W Ø89 mm / 3.50 inch	Al	6,7	B493A1101-DA	
		St	8,2	B493A1301-DA	
		SS	8,6	B493A1401-DA	
	TW1 / 80	Al	8,4	B465A1101-DA	
	DN 65 PN 10/16	Al	-	B433A1101-DA	
	DN 80 PN 10/16	Al	8,3	B436A1101-DA	
2½" ASA 150 PSI	Al	-	B459A1101-DA		
3" ASA 150 psi	Al	8,8	B461A1101-DA		
4" DN 100	-	-	8,4	B500A1001-DA	
	BSP 4" F	Al	9,8	B516A1101-DA	
		St	12,7	B516A1301-DA	
	NPT 4" F	Al	10,2	B517A1101-DA	
	BSP 4" M	Al	10,2	B584A1101-DA	
		St	12,7	B584A1301-DA	
	W Ø 102 mm / 4.02 inch	St	-	B595A1301-DA	
	W Ø 108 mm / 4.25 inch	Al	9,45	B 596A1101-DA	
	W Ø 114 mm / 4.49 inch	St	12,4	B597A1301-DA	
	TW3 / 100	Al	10,7	B566A1101-DA	
	DN 100 PN 10/16	Al	12,3	B539A1101-DA	
	4" ASA 150 PSI	Al	12,7	B563A1101-DA	



1) Dimension Ball Valves

3) Mtrl:St=Steel, Al=Aluminium, SS=Stainless steel

2) F=Female thread

M=Male thread, W=Flange for welding

Threads:BSP=ISO 228, NPT=ANSI B1.20.3

Viton® (FPM) and Teflon® (PTFE) are registered trademarks of DuPont.

2-way Ball Valves in Aluminium with pneumatic actuator double acting

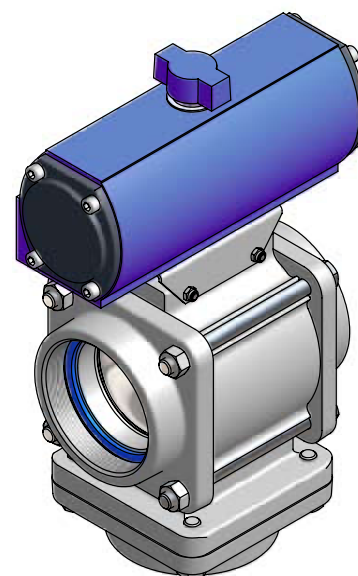
Description: Ball Valves Dim DN 50-100 / 2"-4", W.P 10 bar / 150 PSI.

Flanges available in aluminium or steel. Flange seal in Viton® (FPM). Ball seal in Teflon® (PTFE). Other materials and connection on request.

ATEX approved



Inch DN ¹⁾	Connection ²⁾	Mtrl. Flange ³⁾	Weight kg	Code No.	Illustration
2" DN 50	-	-	4,6	B200A1001C-DA	Material Body: Aluminium Ball: Aluminium Spindle: Stainless Steel Sealing: Teflon® (PTFE), Viton® (FPM)
	BSP 2" F	Al	4,9	B210A1101C-DA	
		St	6,3	B210A1301C-DA	
	NPT 2" F	Al	5,8	B211A1101C-DA	
	BSP 2" M	Al	5,3	B278A1101C-DA	
	W Ø57 mm / 2.24 inch	Al	5,3	B289A1101C-DA	
	W Ø60 mm / 2.36 inch	St	6,0	B290A1301C-DA	
		SS	6,1	B290A1401C-DA	
TW1 / 50	Al	7,2	B287A1101C-DA		
3" DN 80	-	-	5,6	B400A1001C-DA	
	BSP 3" F	Al	-	B414A1101C-DA	
		St	8,5	B414A1301C-DA	
	NPT 3" F	Al	7,5	B415A1101C-DA	
	BSP 3" M	Al	7,5	B482A1101C-DA	
		St	8,5	B482A1301C-DA	
	W Ø76 mm / 2.99 inch	Al	7,3	B492A1101C-DA	
		St	-	B492A1301C-DA	
	W Ø89 mm / 3.50 inch	Al	7,2	B493A1101C-DA	
		St	9,5	B493A1301C-DA	
		SS	10,1	B493A1401C-DA	
	TW1 / 80	Al	9,8	B465A1101C-DA	
	DN 65 PN 10/16	Al	-	B433A1101C-DA	
	DN 80 PN 10/16	Al	9,6	B436A1101C-DA	
	2½" ASA 150 PSI	Al	-	B459A1101C-DA	
3" ASA 150 psi	Al	10,3	B461A1101C-DA		
4" DN 100	-	-	9,9	B500A1001C-DA	
	BSP 4" F	Al	12,2	B516A1101C-DA	
		St	16,5	B516A1301C-DA	
	NPT 4" F	Al	12,7	B517A1101C-DA	
	BSP 4" M	Al	12,7	B584A1101C-DA	
		St	16,5	B584A1301C-DA	
	W Ø 102 mm / 4.02 inch	St	-	B595A1301C-DA	
	W Ø 108 mm / 4.25 inch	Al	11,6	B596A1101C-DA	
	W Ø 114 mm / 4.49 inch	St	15,9	B597A1301C-DA	
	TW3 / 100	Al	13,4	B566A1101C-DA	
DN 100 PN 10/16	Al	16,5	B539A1101C-DA		



1) Dimension Ball Valves

3) Mtrl:St=Steel, Al=Aluminium, SS=Stainless steel

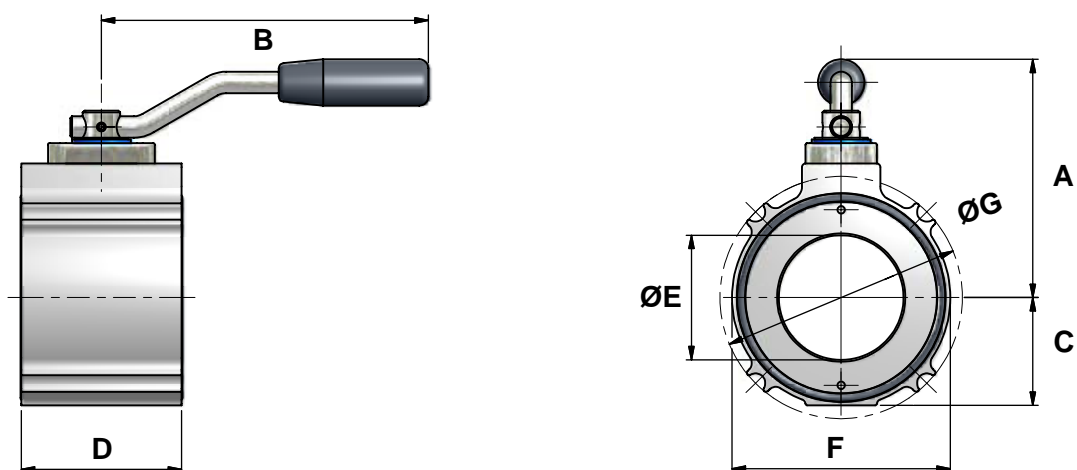
2) F=Female thread

M=Male thread, W=Flange for welding

Threads:BSP=ISO 228, NPT=ANSI B1.20.3

Viton® (FPM) and Teflon® (PTFE) are registered trademarks of DuPont.

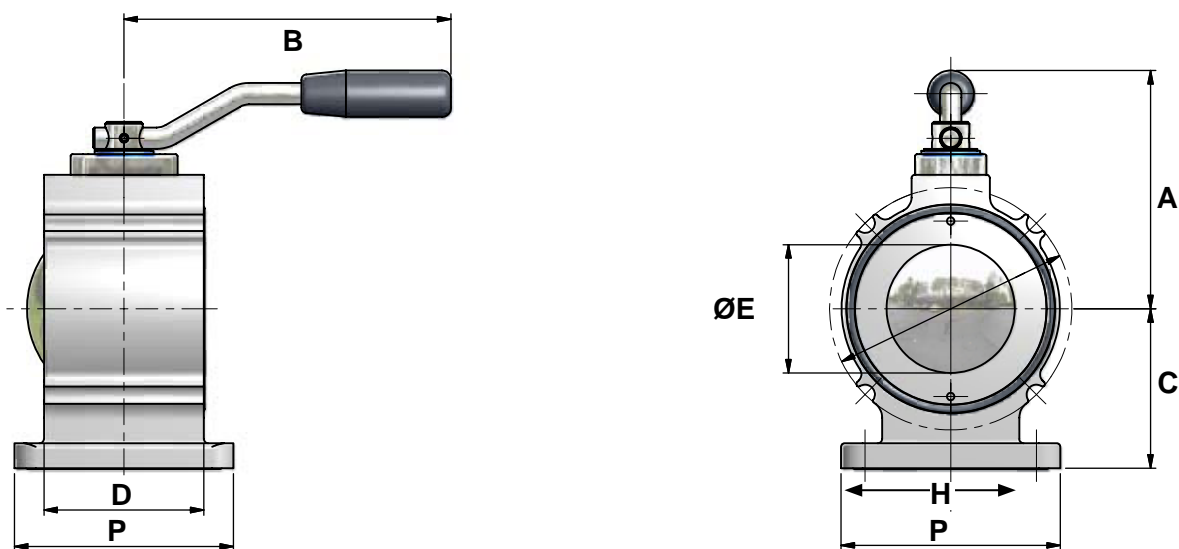
Ball Valves in Aluminium without flanges



All measurements in mm/inch

Inch DN		A	B	C	D	ØE	F	ØG	Code No.
2" / DN 50	mm	116	200	45	65	45	90	99	B200A1001
	inch	4.57	7.87	1.77	2.56	1.77	3.54	3.90	
3" / DN 80	mm	134	200	61	90	70	123	136	B400A1001
	inch	5.28	7.87	2.41	3.54	2.76	4.84	5.35	
4" / DN 100	mm	156	200	85	125	98	169	179	B500A1001
	inch	6.14	7.87	3.35	4.92	3.86	2.72	7.05	

2-way Valves in Aluminium without flanges

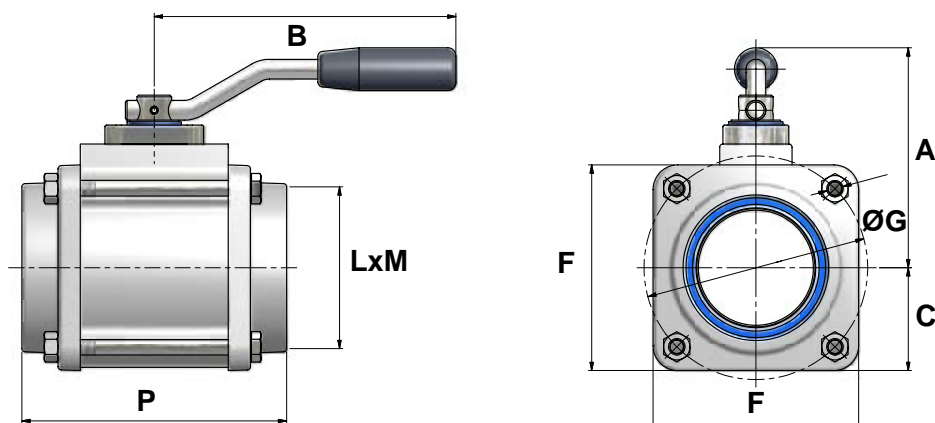


All measurements in mm/inch

Inch DN		A	B	C	D	ØE	ØG	H	P	Code No.	
2" / DN 50	mm	116	200	70	65	45	99	Ø99	4xØ8,4	92	B200A1001C
	inch	4.57	7.87	2.76	2.56	1.77	3.90	Ø 3.90	4xØ0.33	3.62	
3" / DN 80	mm	134	200	90	90	70	136	Ø136	4xØ10,5	123	B400A1001C
	inch	5.28	7.87	3.54	3.54	2.76	5.35	Ø 5.35	4xØ0.41	4.84	
4" / DN 100	mm	156	200	112	125	98	179	Ø179	4xØ10,5	166	B500A1001C
	inch	6.14	7.87	4.41	4.92	3.86	7.05	Ø 7.05	4xØ0.41	6.54	

Ball Valves in Aluminium. Female BSP threaded Aluminium flange.

Flat sealing surface

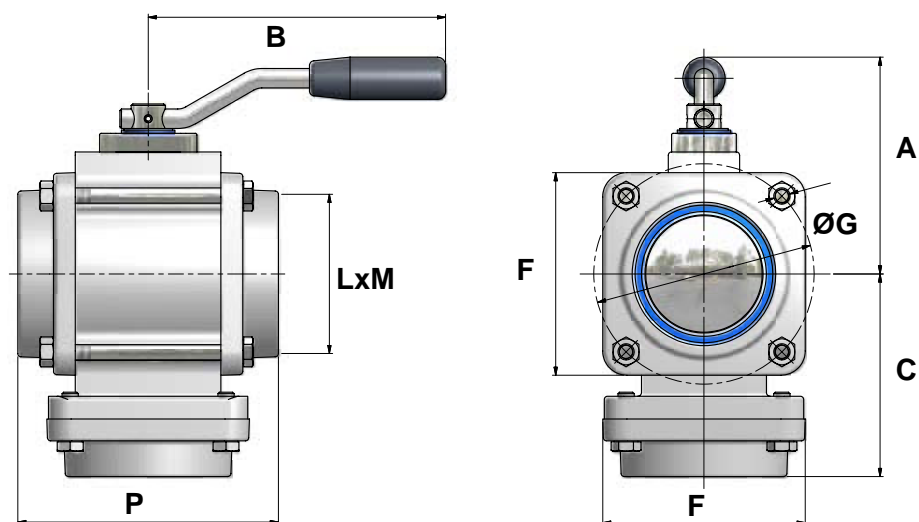


All measurements in mm/inch

Inch DN		A	B	C	F	ØG	L	M	P	Code No.
2" / DN 50	mm	116	200	50	93	99	2"BSP ISO228G2	20	114	B210A1101
	inch	4.57	7.87	1.97	3.66	3.90		0.79	4.49	
3" / DN 80	mm	134	200	66	125	136	3"BSP ISO228G3	22	161	B414A1101
	inch	5.28	7.87	2.60	4.92	5.35		0.87	6.34	
4" / DN 100	mm	156	200	86	165	179	4"BSP ISO228G4	24	185	B516A1101
	inch	6.14	7.87	3.39	6.60	7.05		0.95	7.28	

2-way Valves in Aluminium. Female BSP threaded Aluminium flange.

Flat sealing surface

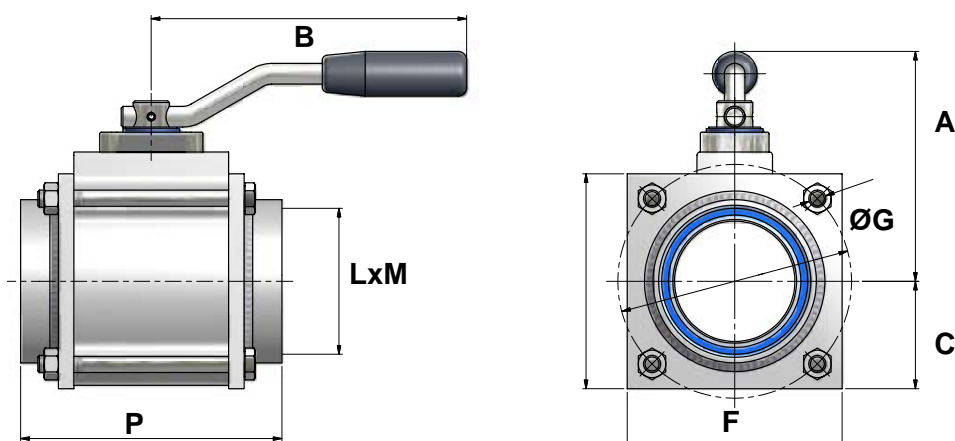


All measurements in mm/inch

Inch DN		A	B	C	F	ØG	L	M	P	Code No.
2" / DN 50	mm	116	200	100	93	99	2"BSP ISO228G2	20	114	B210A1101C
	inch	4.57	7.87	3.94	3.66	3.90		0.79	4.49	
3" / DN 80	mm	134	200	124	125	136	3"BSP ISO228G3	22	161	B414A1101C
	inch	5.28	7.87	4.88	4.92	5.35		0.87	6.34	
4" / DN 100	mm	156	200	150	165	179	4"BSP ISO228G4	24	185	B516A1101C
	inch	6.14	7.87	5.91	6.60	7.05		0.95	7.28	

Ball Valves in Aluminium. Female BSP threaded Steel flange.

Flat sealing surface

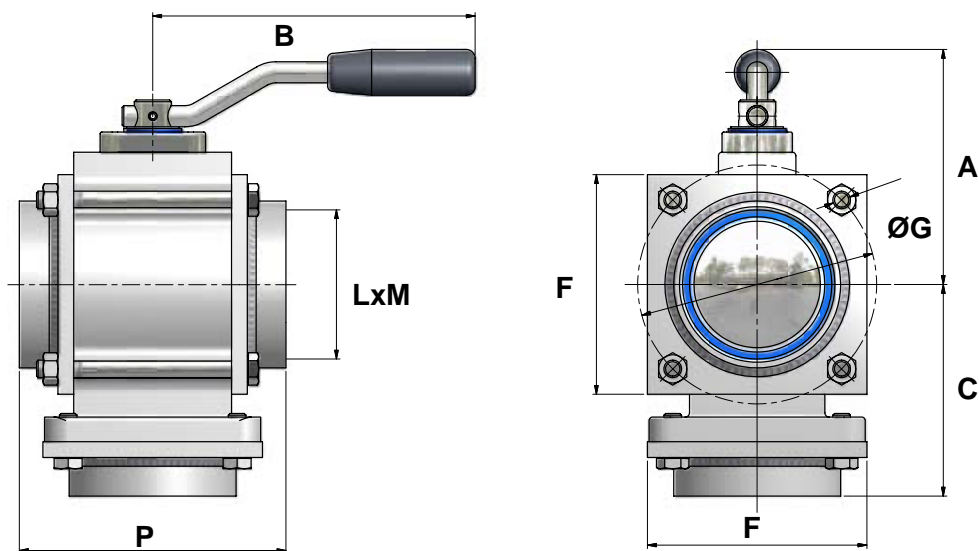


All measurements in mm/inch

Inch DN		A	B	C	F	ØG	L	M	P	Code No.
2" / DN 50	mm	116	200	47	93	99	2"BSP ISO228G2	20	114	B210A1301
	inch	4.57	7.87	1.85	3.66	3.90		0.79	4.49	
3" / DN 80	mm	134	200	63	125	136	3"BSP ISO228G3	22	161	B414A1301
	inch	5.28	7.87	2.48	4.92	5.35		0.87	6.34	
4" / DN 100	mm	156	200	83	165	179	4"BSP ISO228G4	24	185	B516A1301
	inch	6.14	7.87	3.27	6.50	7.05		0.95	7.28	

2-way Valves in Aluminium. Female BSP threaded Steel flange.

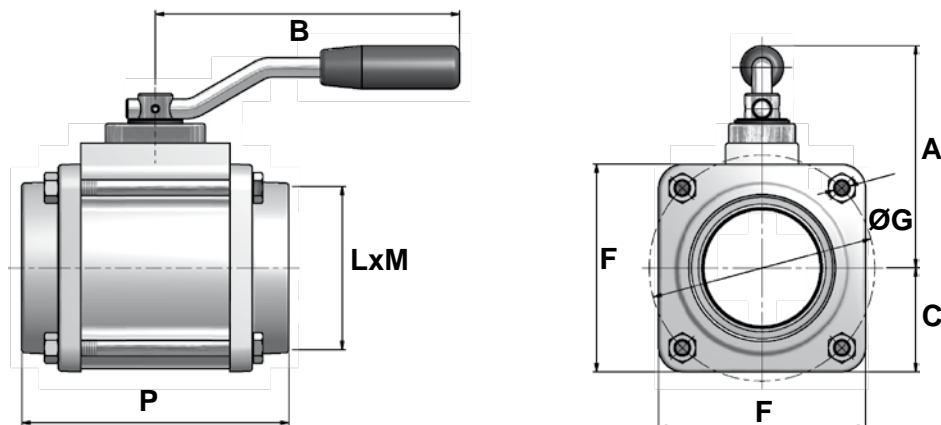
Flat sealing surface



All measurements in mm/inch

Inch DN		A	B	C	F	ØG	L	M	P	Code No.
2" / DN 50	mm	116	200	97	93	99	2"BSP ISO228G2	20	114	B210A1301C
	inch	4.57	7.87	3.82	3.66	3.90		0.79	4.49	
3" / DN 80	mm	134	200	121	125	136	3"BSP ISO228G3	22	161	B414A1301C
	inch	5.28	7.87	4.76	4.92	5.35		0.87	6.34	
4" / DN 100	mm	156	200	147	165	179	4"BSP ISO228G4	24	185	B516A1301C
	inch	6.14	7.87	5.79	6.50	7.05		0.95	7.28	

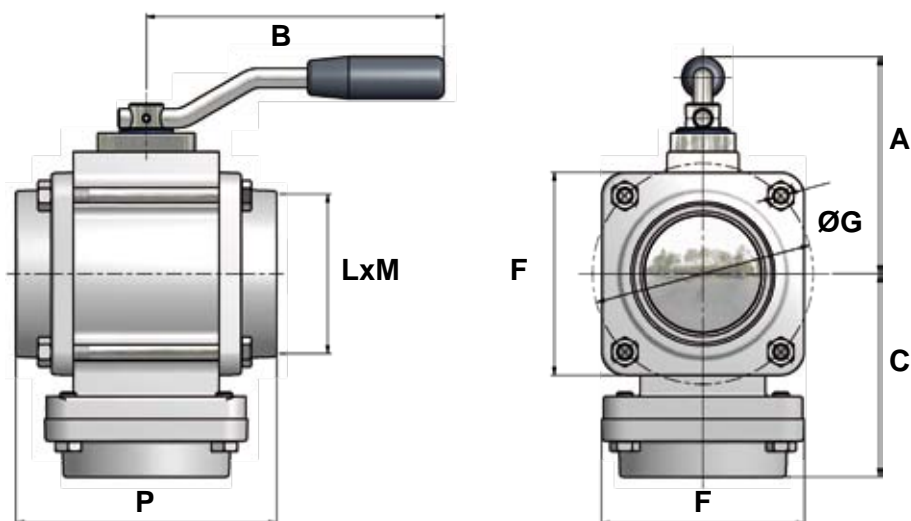
Ball Valves in Aluminium. Female NPT threaded Aluminium flange.



All measurements in mm/inch

Inch DN		A	B	C	F	ØG	L	M	P	Code No.
2" / DN 50	mm	116	200	47	93	99	2" NPT	21,5	134	B211A1101
	inch	4.57	7.87	1.85	3.66	3.90		0.85	5.28	
3" / DN 80	mm	134	200	63	125	136	3" NPT	32	181	B415A1101
	inch	5.28	7.87	2.48	4.92	5.35		1.26	7.13	
4" / DN 100	mm	156	200	83	165	179	4" NPT	34	208	B517A1101
	inch	6.14	7.87	3.27	6.50	7.05		1.34	8.19	

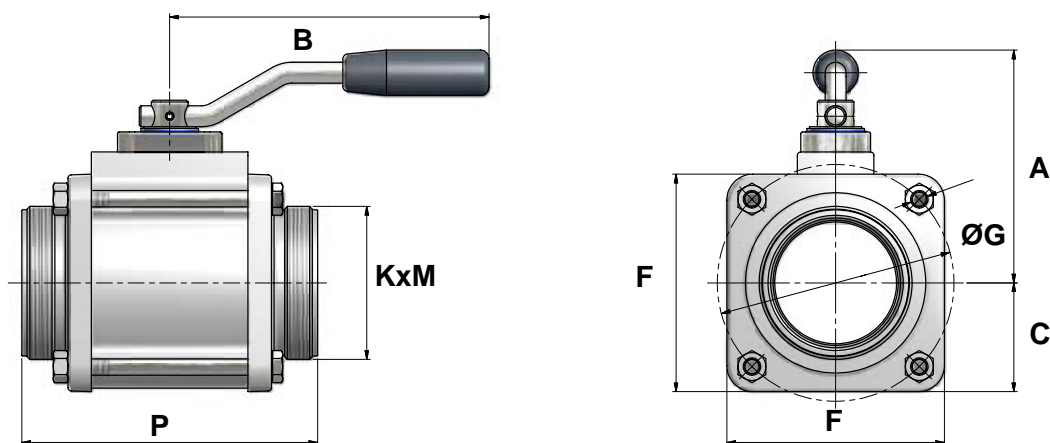
2-way Valves in Aluminium. Female NPT threaded Aluminium flange.



All measurements in mm/inch

Inch DN		A	B	C	F	ØG	L	M	P	Code No.
2" / DN 50	mm	116	200	105	93	99	2" NPT	21,5	134	B211A1101C
	inch	4.57	7.87	4.13	3.66	3.90		0.85	5.28	
3" / DN 80	mm	134	200	135	125	136	3" NPT	32	181	B415A1101C
	inch	5.28	7.87	5.31	4.92	5.35		1.26	7.13	
4" / DN 100	mm	156	200	153	165	179	4" NPT	34	208	B517A1101C
	inch	6.14	7.87	6.02	6.50	7.05		1.34	8.19	

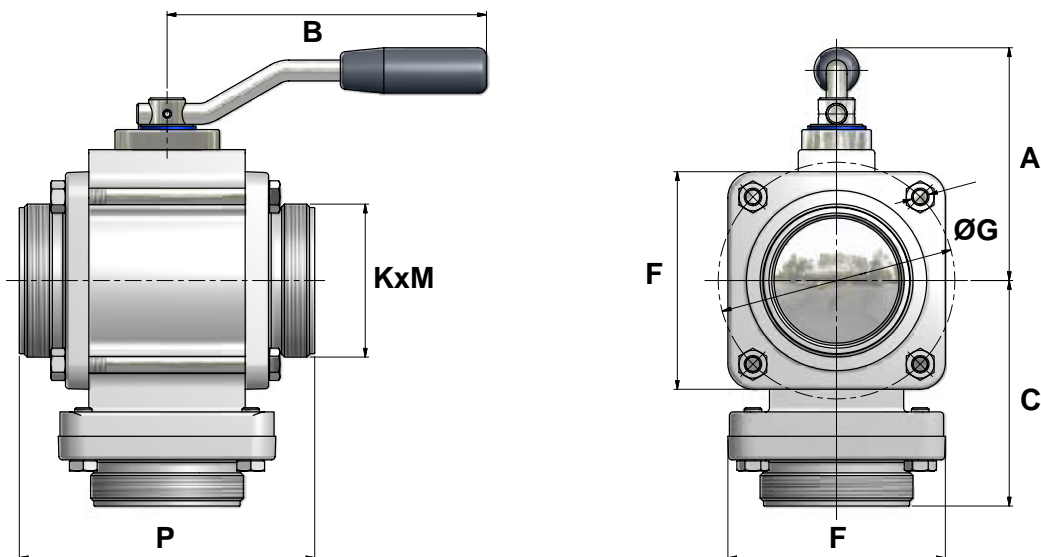
Ball Valves in Aluminium. Male BSP threaded Aluminium flange



All measurements in mm/inch

Inch DN		A	B	C	F	ØG	K	M	P	Code No.
2" / DN 50	mm	116	200	47	93	99	2"BSP ISO228G2	31	141	B278A1101
	inch	4.57	7.87	1.85	3.66	3.90		1.22	4.68	
3" / DN 80	mm	134	200	63	125	136	3"BSP ISO228G3	29	166	B482A1101
	inch	5.28	7.87	2.48	4.92	5.35		1.14	5.98	
4" / DN 100	mm	156	200	83	165	179	4"BSP ISO228G4	31	209	B584A1101
	inch	6.14	7.87	3.27	6.50	7.05		1.22	8.23	

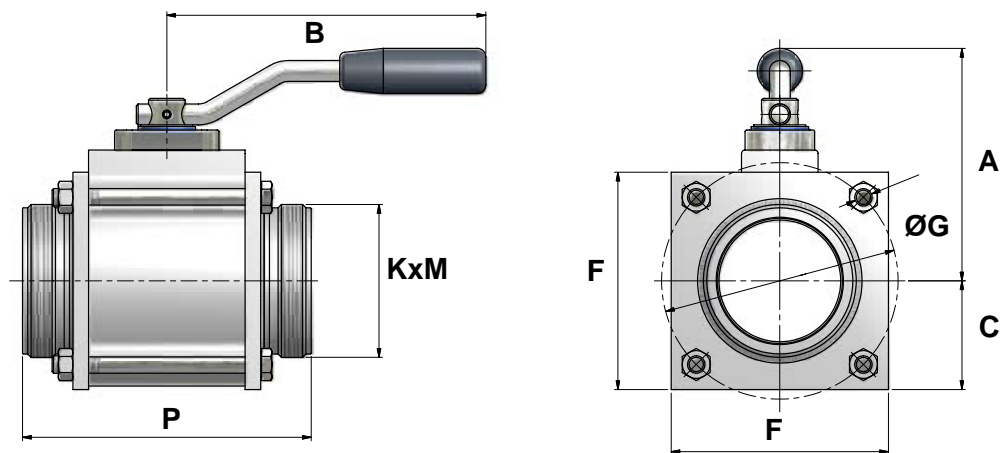
2-way Valves in Aluminium. Male BSP threaded Aluminium flange



All measurements in mm/inch

Inch DN		A	B	C	F	ØG	K	M	P	Code No.
2" / DN 50	mm	116	200	108	93	99	2"BSP ISO228G2	31	141	B278A1101C
	inch	4.57	7.87	4.25	3.66	3.90		1.22	4.68	
3" / DN 80	mm	134	200	128	125	136	3"BSP ISO228G3	29	166	B482A1101C
	inch	5.28	7.87	5.04	4.92	5.35		1.14	5.98	
4" / DN 100	mm	156	200	154	165	179	4"BSP ISO228G4	31	209	B584A1101C
	inch	6.14	7.87	6.06	6.50	7.05		1.22	8.23	

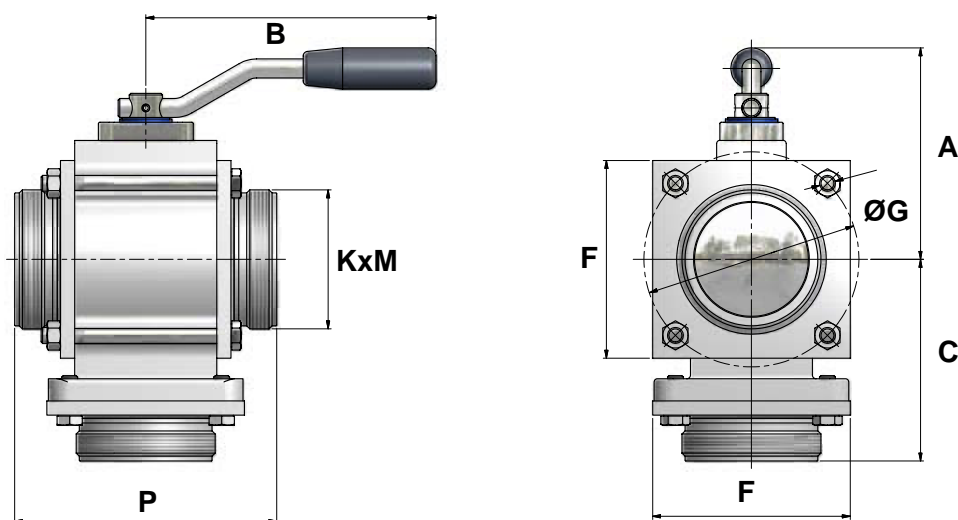
Ball Valves in Aluminium. Male BSP threaded Steel flange



All measurements in mm/inch

Inch DN		A	B	C	F	ØG	K	M	P	Code No.
2" / DN 50	mm	116	200	47	93	99	2"BSP ISO228G2	31	141	B278A1301
	inch	4.57	7.87	1.85	3.66	3.90		1.22	4.68	
3" / DN 80	mm	134	200	63	125	136	3"BSP ISO228G3	29	166	B482A1301
	inch	5.28	7.87	2.48	4.92	5.35		1.14	5.98	
4" / DN 100	mm	156	200	83	165	179	4"BSP ISO228G4	31	209	B584A1301
	inch	6.14	7.87	3.27	6.50	7.05		1.22	8.23	

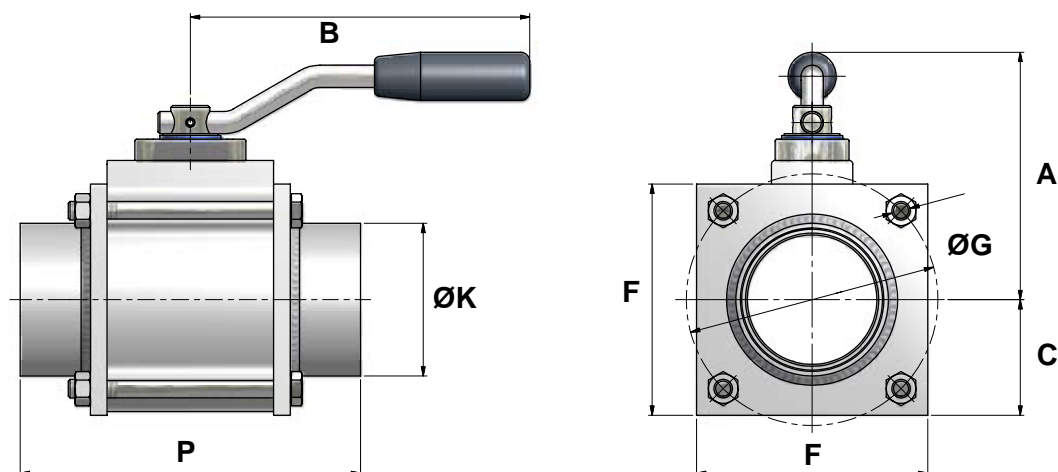
2-way Valves in Aluminium. Male BSP threaded Steel flange



All measurements in mm/inch

Inch DN		A	B	C	F	ØG	K	M	P	Code No.
2" / DN 50	mm	116	200	108	93	99	2"BSP ISO228G2	31	141	B278A1301C
	inch	4.57	7.87	4.25	3.66	3.90		1.22	4.68	
3" / DN 80	mm	134	200	128	125	136	3"BSP ISO228G3	29	166	B482A1301C
	inch	5.28	7.87	5.04	4.92	5.35		1.14	5.98	
4" / DN 100	mm	156	200	154	165	179	4"BSP ISO228G4	31	209	B584A1301C
	inch	6.14	7.87	6.06	6.50	7.05		1.22	8.23	

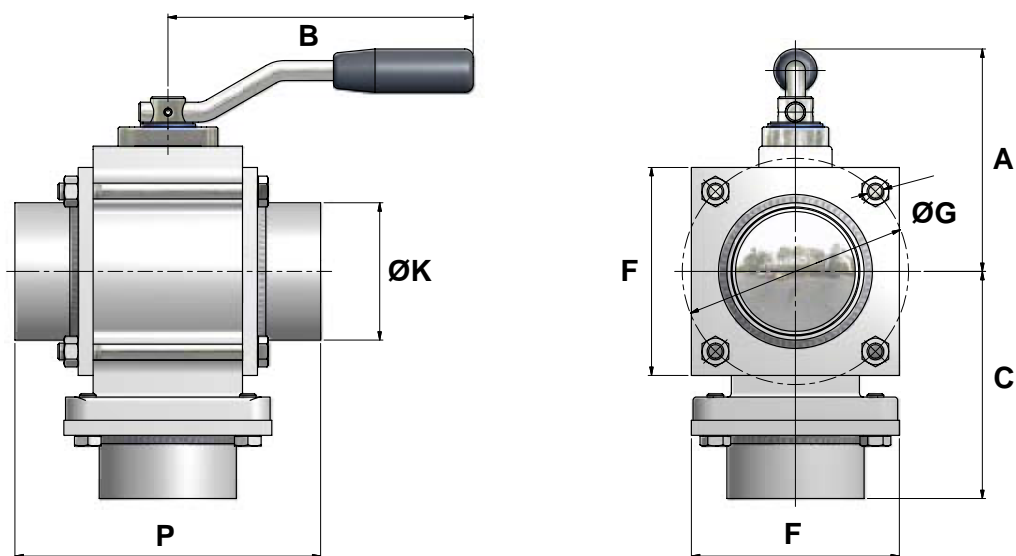
Ball Valves in Aluminium. Welding Steel flange 60 mm/89mm/114mm



All measurements in mm/inch

Inch DN		A	B	C	F	ØG	ØK	P	Code No.
2" / DN 50	mm	116	200	47	93	99	W60	134	B290A1301
	inch	4.57	7.87	1.85	3.66	3.90	W2.36	5.28	
3" / DN 80	mm	134	200	63	125	136	W89	149	B493A1301
	inch	5.28	7.87	2.48	4.92	5.35	W3.50	5.87	
4" / DN 100	mm	156	200	83	165	179	W114	223	B597A1301
	inch	6.14	7.87	3.27	6.50	7.05	W4.49	8.78	

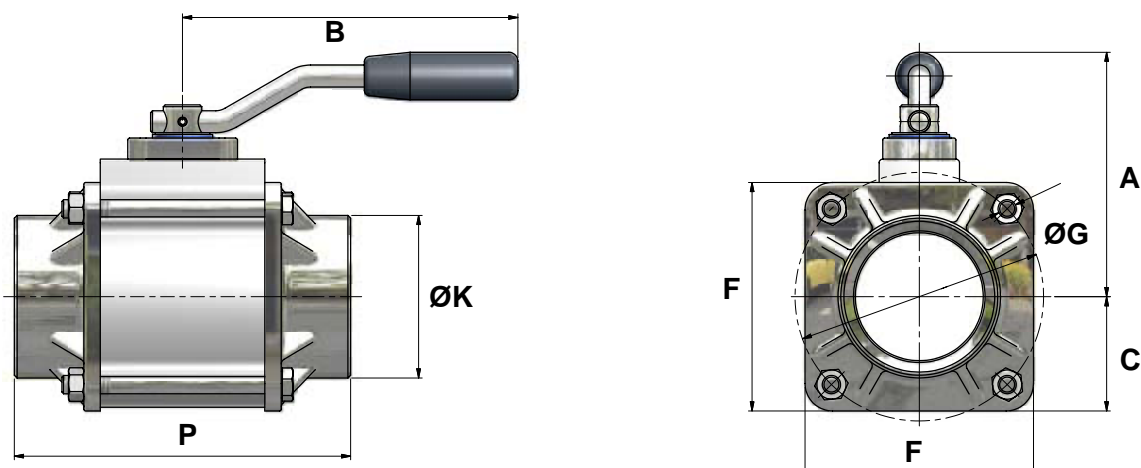
2-way Valves in Aluminium. Welding Steel flange 60 mm/89mm/114mm



All measurements in mm/inch

Inch DN		A	B	C	F	ØG	ØK	P	Code No.
2" / DN 50	mm	116	200	105	93	99	W60	134	B290A1301C
	inch	4.57	7.87	4.13	3.66	3.90	W2.36	5.28	
3" / DN 80	mm	134	200	120	125	136	W89	149	B493A1301C
	inch	5.28	7.87	4.72	4.92	5.35	W3.50	5.87	
4" / DN 100	mm	156	200	161	165	179	W114	223	B597A1301C
	inch	6.14	7.87	6.34	6.50	7.05	W4.49	8.78	

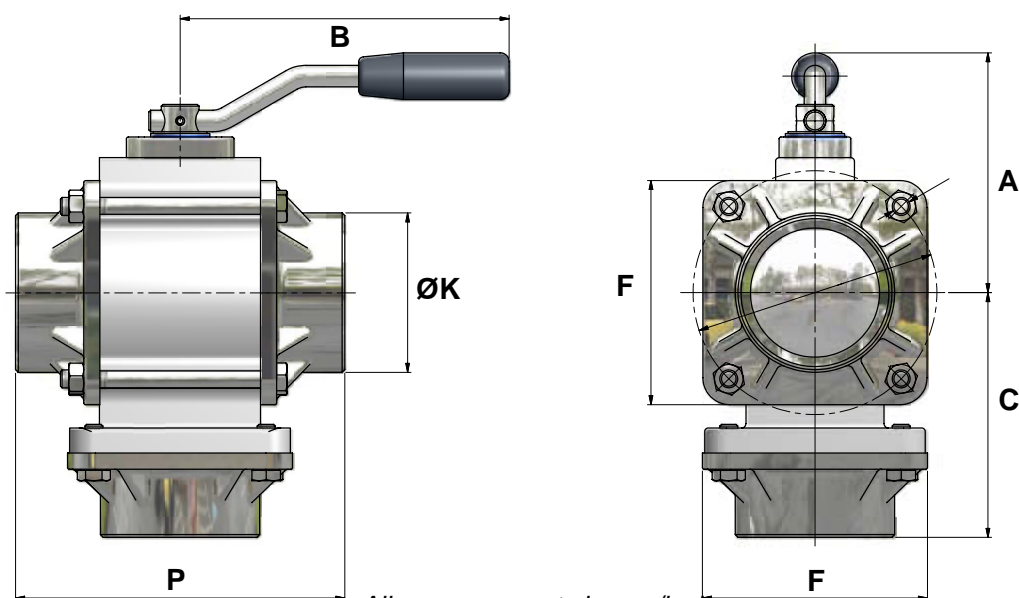
Ball Valves in Aluminium. Welding Stainless Steel flange 60 mm/89mm



All measurements in mm/inch

Inch DN		A	B	C	F	ØG	ØK	P	Code No.
2" / DN 50	mm	116	200	47	93	99	W60	134	B290A1401
	inch	4.57	7.87	1.85	3.66	3.90	W2.36	5.28	
3" / DN 80	mm	134	200	63	125	136	W89	149	B493A1401
	inch	5.28	7.87	2.48	4.92	5.35	W3.50	5.87	
4" / DN 100	mm	156	200	83	165	179	W114	223	B597A1401
	inch	6.14	7.87	3.27	6.50	7.05	W4.49	8.78	

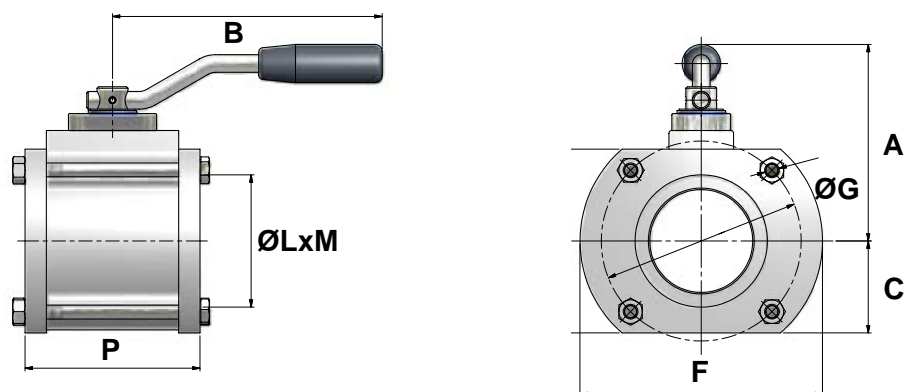
2-way Valves in Aluminium. Welding Stainless Steel flange 60 mm/ 89mm/114 mm



All measurements in mm/inch

Inch DN		A	B	C	F	ØG	ØK	P	Code No.
2" / DN 50	mm	116	200	105	93	99	W60	134	B290A1401C
	inch	4.57	7.87	4.13	3.66	3.90	W2.36	5.28	
3" / DN 80	mm	134	200	120	125	136	W89	149	B493A1401C
	inch	5.28	7.87	4.72	4.92	5.35	W3.50	5.87	
4" / DN 100	mm	156	200	161	165	179	W114	223	B597A1401C
	inch	6.14	7.87	6.34	6.50	7.05	W4.49	8.78	

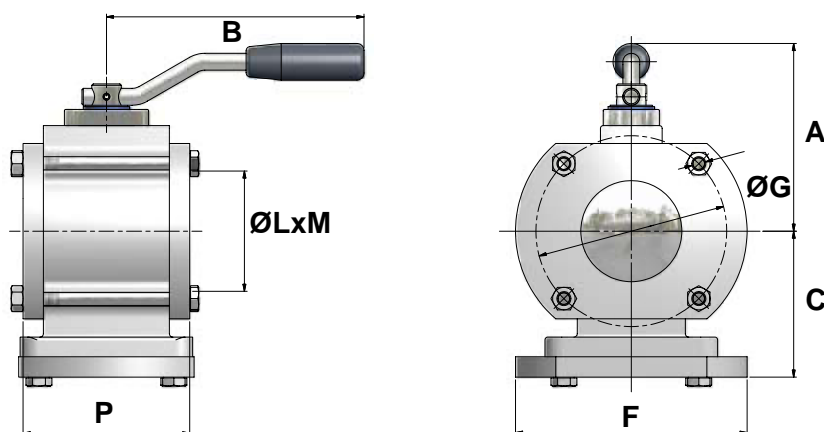
Ball Valves in Aluminium. Flat welding Aluminium flange 57mm/76 mm/89mm/108mm



All measurements in mm/inch

Inch	DN		A	B	C	F	ØG	ØL	M	P	Code No.
2"	DN 50	mm	116	200	47	93	99	W57	2	83	B289A1101
		inch	4.57	7.87	1.85	3.66	3.90	W2.24	0.08	3.27	
3"	DN 80	mm	134	200	63	125	136	W76	2	112	B492A1101
		inch	5.28	7.87	2.48	4.92	5.35	W2.99	0.08	4.41	
3"	DN 80	mm	134	200	63	125	136	W89	2	112	B493A1101
		inch	5.28	7.87	2.48	4.92	5.35	W3.50	0.08	4.41	
4"	DN 100	mm	156	200	83	165	179	W108	2	153	B596A1101
		inch	6.14	7.87	3.27	6.50	7.05	W4.25	0.08	6.02	

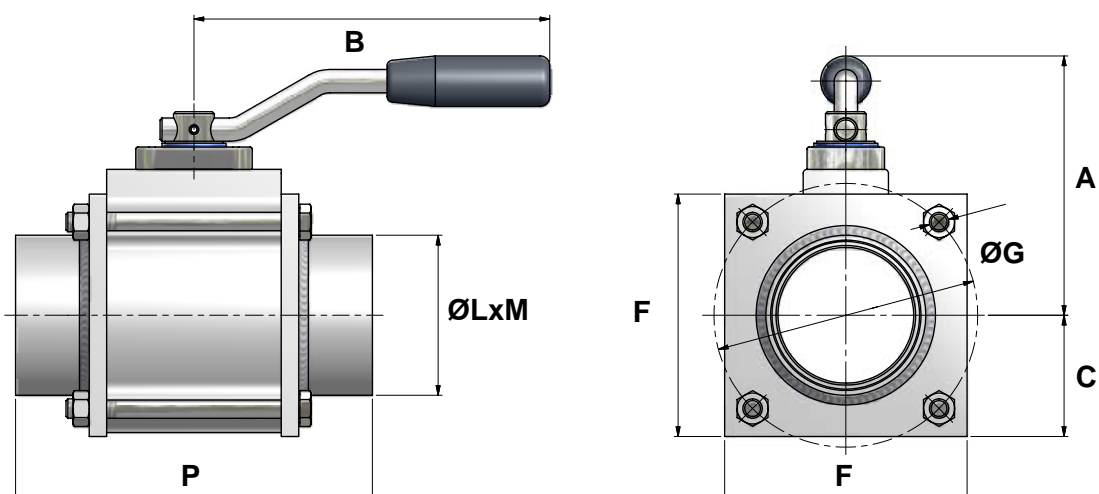
2-way Valves in Aluminium. Flat welding Aluminium flange 57mm/76 mm/89mm/108mm



All measurements in mm/inch

Inch	DN		A	B	C	F	ØG	ØL	M	P	Code No.
2"	DN 50	mm	116	200	88	93	99	W57	2	83	B289A1101C
		inch	4.57	7.87	3.46	3.66	3.90	W2.24	0.08	3.27	
3"	DN 80	mm	134	200	112	125	136	W76	2	112	B492A1101C
		inch	5.28	7.87	4.41	4.92	5.35	W2.99	0.08	4.41	
3"	DN 80	mm	134	200	112	125	136	W89	2	112	B493A1101C
		inch	5.28	7.87	4.41	4.92	5.35	W3.50	0.08	4.41	
4"	DN 100	mm	156	200	140	165	179	W108	2	153	B596A1101C
		inch	6.14	7.87	5.51	6.50	7.05	W4.25	0.08	6.02	

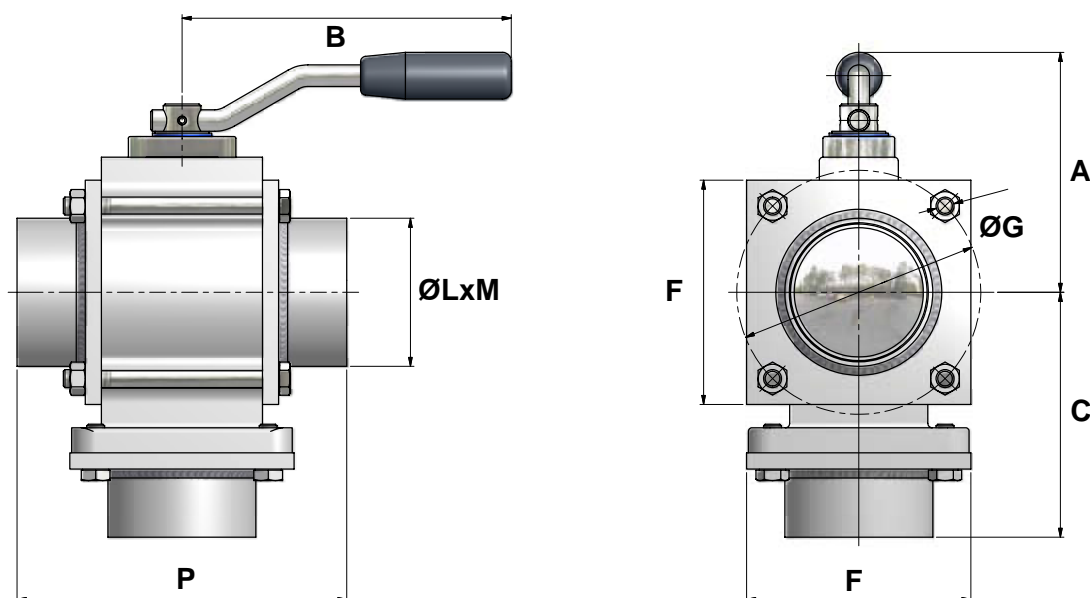
Ball Valves in Aluminium. Welding Steel flange 76 mm/102mm



All measurements in mm/inch

Inch DN		A	B	C	F	ØG	ØL	M	P	Code No.
3" / DN 80	mm	134	200	63	125	136	W76	4	148	B492A1301
	inch	5.28	7.87	2.48	4.92	5.35	W2.99	0.16	5.83	
4" / DN 100	mm	156	200	83	165	179	W102	8	223	B595A1301
	inch	6.14	7.87	3.27	6.50	7.05	W4.02	0.31	8.78	

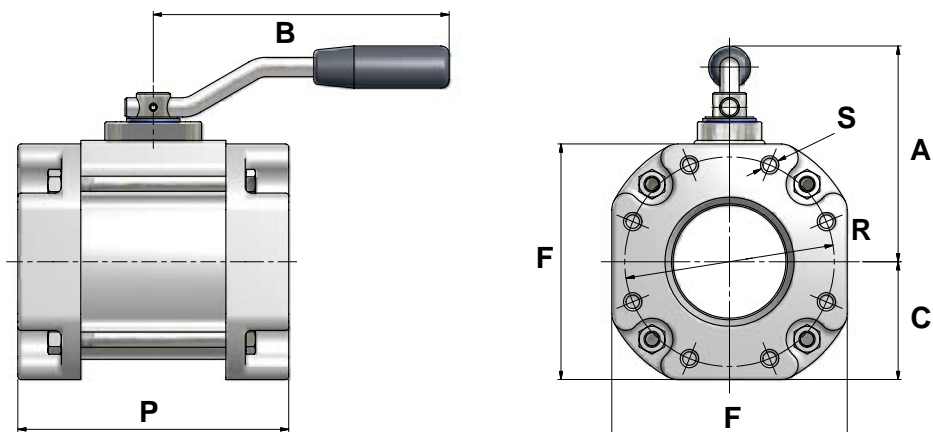
2-way Valves in Aluminium. Welding Steel flange 76 mm/102mm/



All measurements in mm/inch

Inch DN		A	B	C	F	ØG	ØL	M	P	Code No.
3" / DN 80	mm	134	200	120	125	136	W76	4	148	B492A1301C
	inch	5.28	7.87	4.72	4.92	5.35	W2.99	0.16	5.83	
4" / DN 100	mm	156	200	161	165	179	W102	8	223	B595A1301C
	inch	6.14	7.87	6.34	6.50	7.05	W4.02	0.31	8.78	

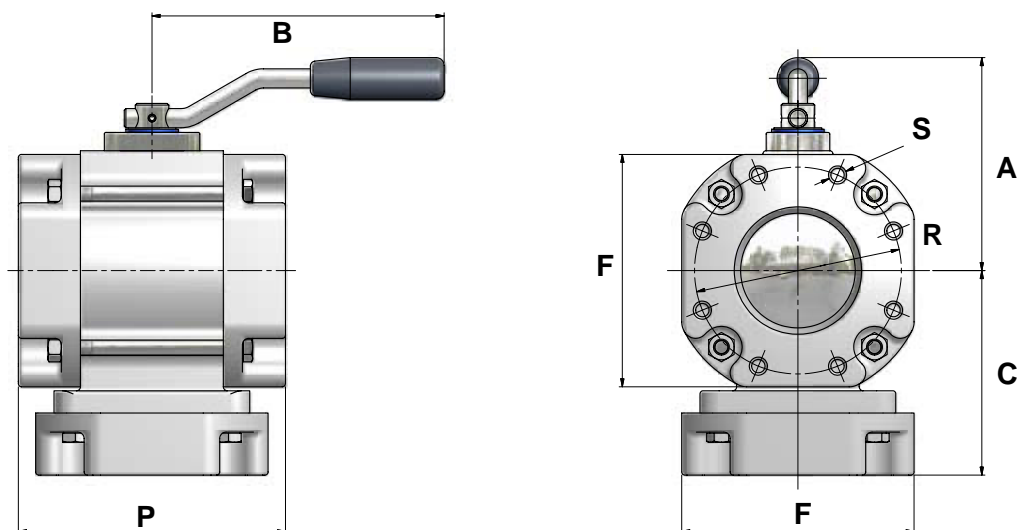
Ball Valves in Aluminium with TW flange in Aluminium



All measurements in mm/inch

Inch DN		A	B	C	F	P	R	S	Code No.
2" / DN 50	mm	116	200	73	146	142	TW1	M10	B287A1101
	inch	4.57	7.87	2.87	5.75	5.59			
3" / DN 80	mm	134	200	73	146	168	TW2	M10	B465A1101
	inch	5.28	7.87	2.87	5.75	6.61			
4" / DN 100	mm	156	200	83	165	180	TW3	M12	B566A1101
	inch	6.14	7.87	3.27	6.50	7.09			

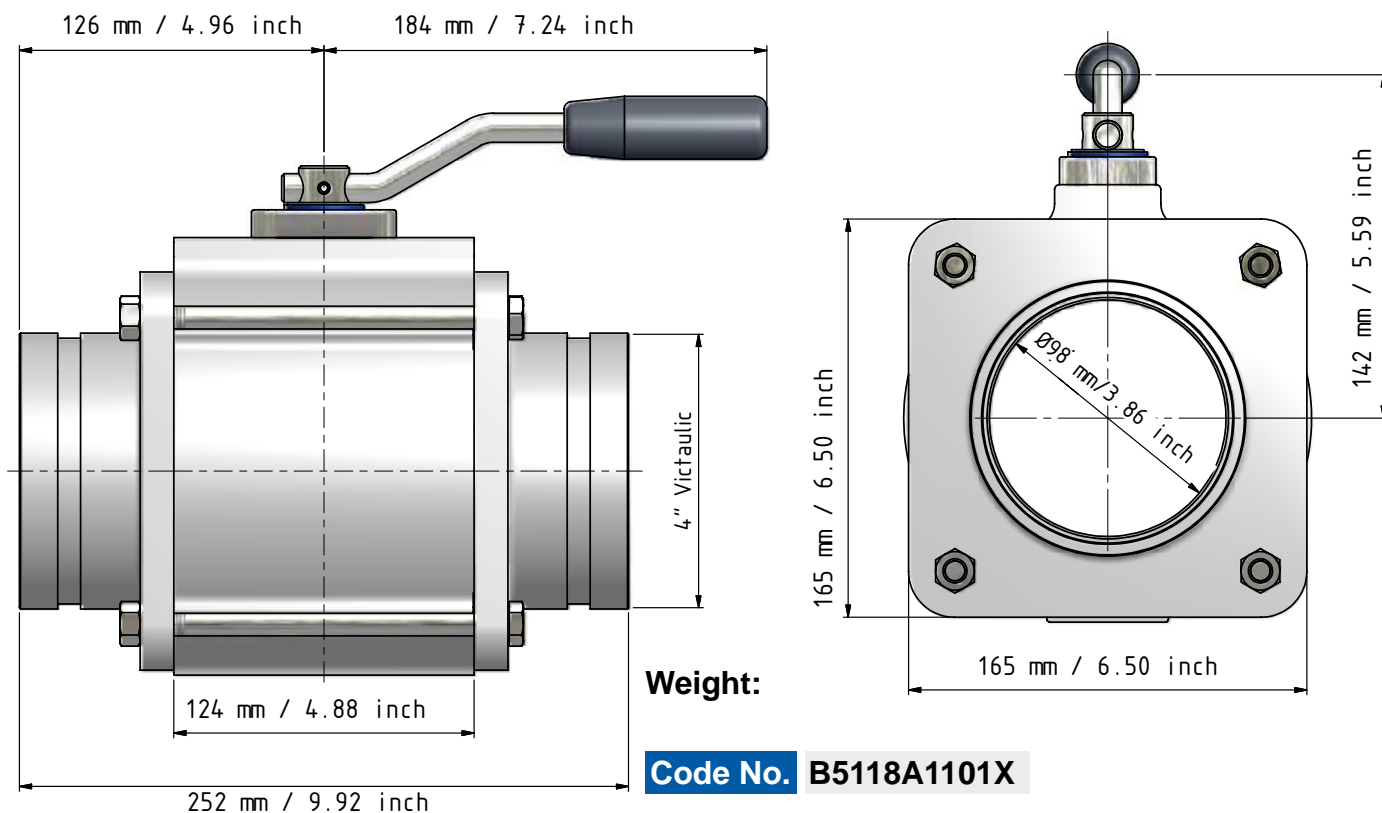
2-way Valves in Aluminium with TW flange in Aluminium



All measurements in mm/inch

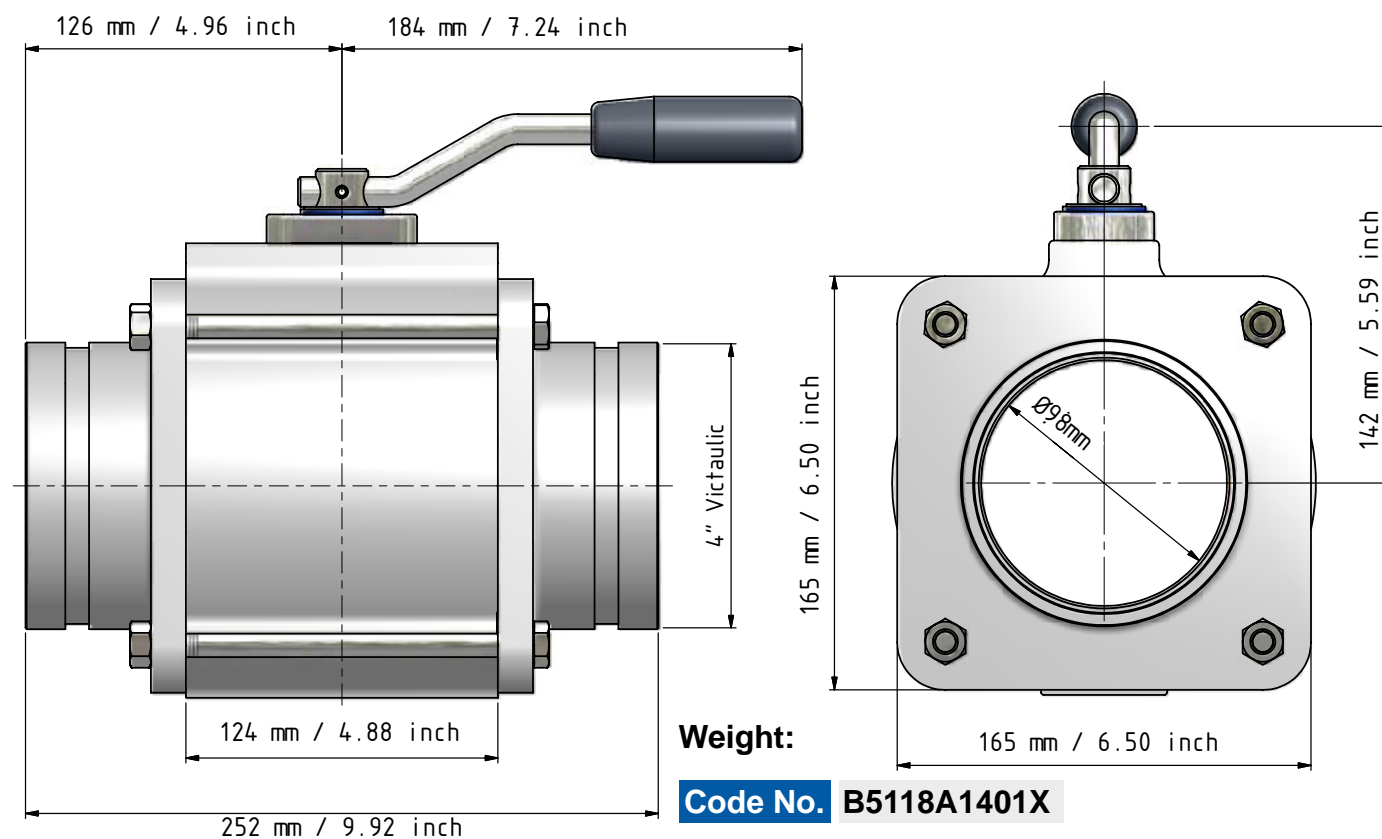
Inch DN		A	B	C	F	P	R	S	Code No.
2" / DN 50	mm	116	200	116	146	142	TW1	M10	B287A1101C
	inch	4.57	7.87	4.57	5.75	5.59			
3" / DN 80	mm	134	200	129	146	168	TW2	M10	B465A1101C
	inch	5.28	7.87	5.08	5.75	6.61			
4" / DN 100	mm	156	200	140	165	180	TW3	M12	B566A1101C
	inch	6.14	7.87	5.51	6.50	7.09			

4" Ball Valves with Aluminium flange Victaulic ANSI AWWA C-606



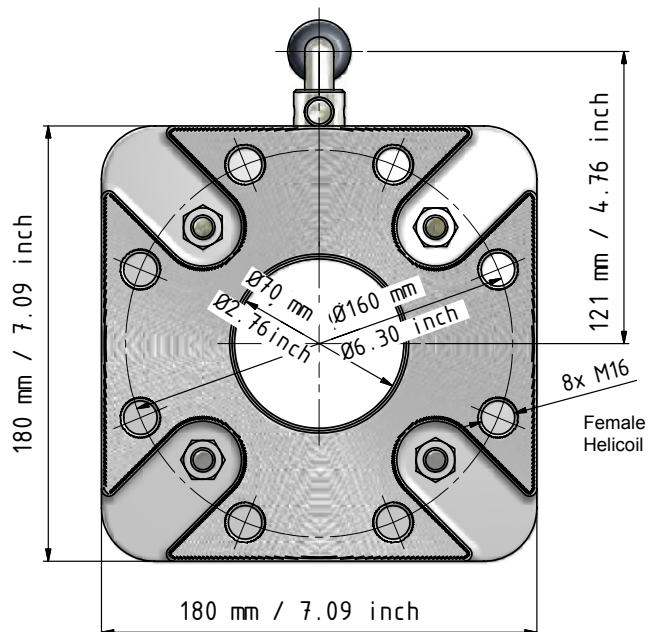
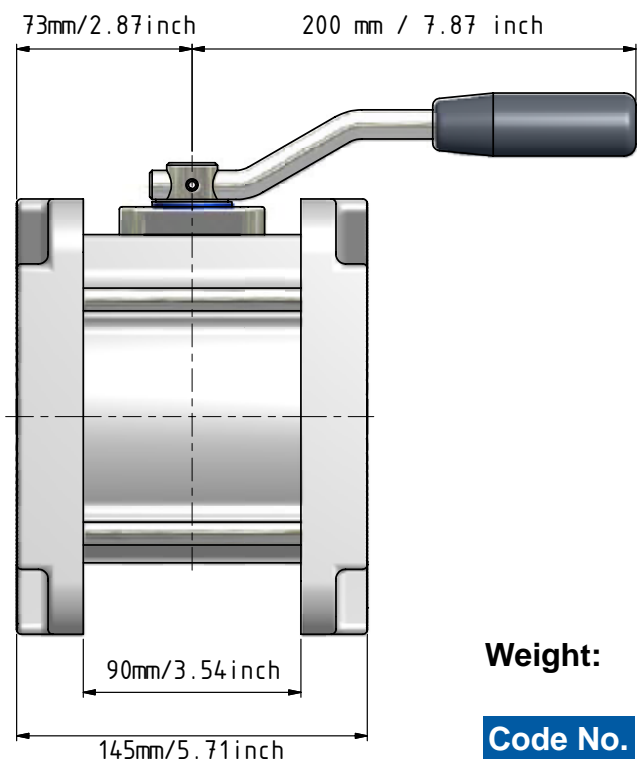
All measurements in mm/inch

4" Ball Valves with Stainless steel flange Victaulic ANSI AWWA C-606



All measurements in mm/inch

3" Ball Valves with Aluminium flange DN 80 PN 10/16

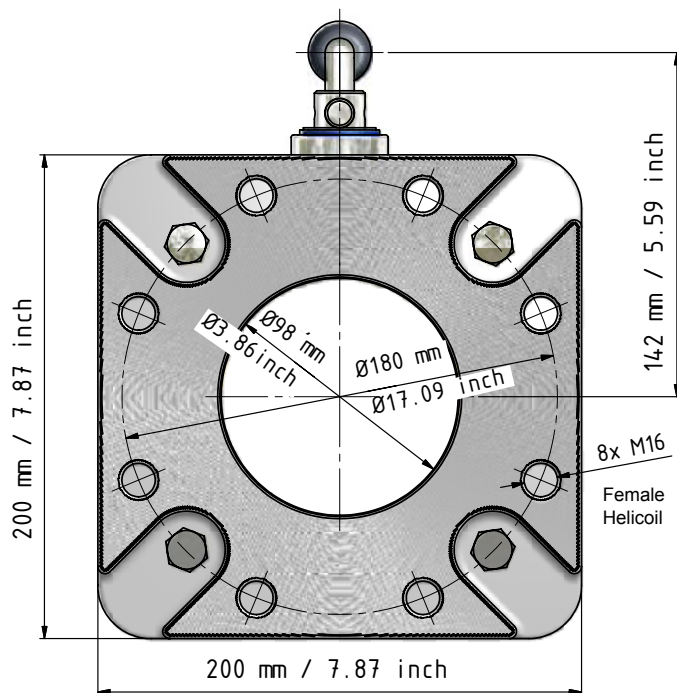
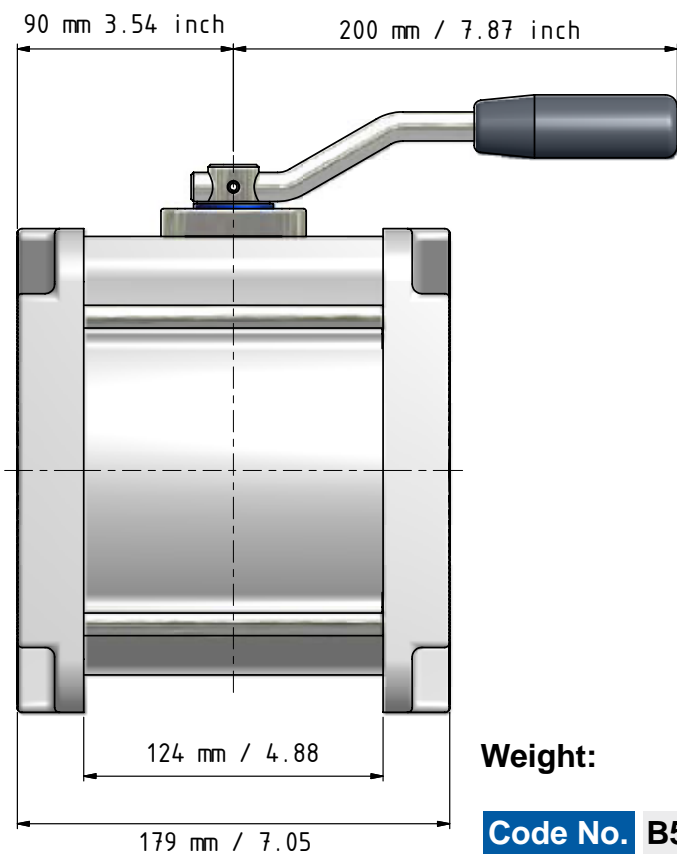


Weight:

Code No. B436A1101

All measurements in mm/inch

4" Ball Valves with Aluminium flange DN 100 PN 10/16



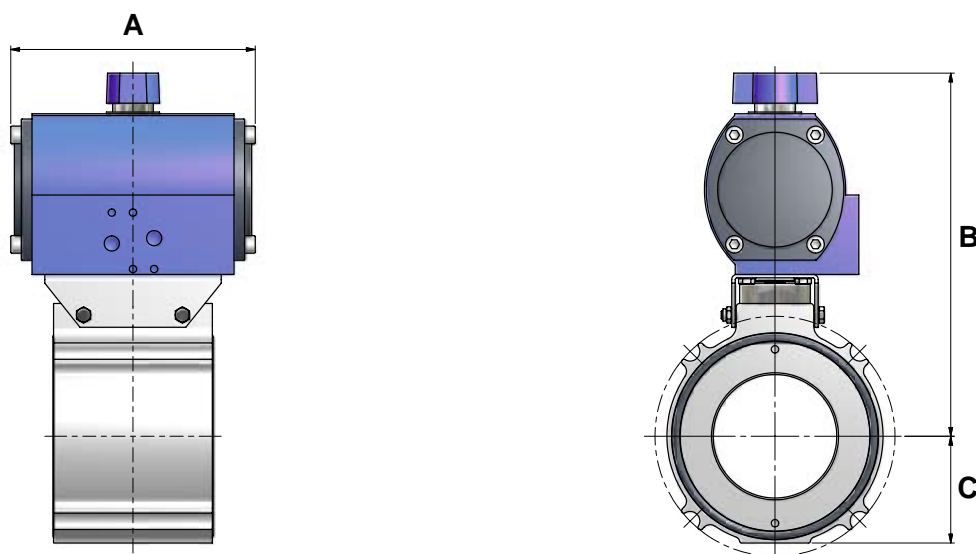
Weight:

Code No. B539A1101

All measurements in mm/inch

Ball Valves in Aluminium with pneumatic actuator double acting

ATEX approved

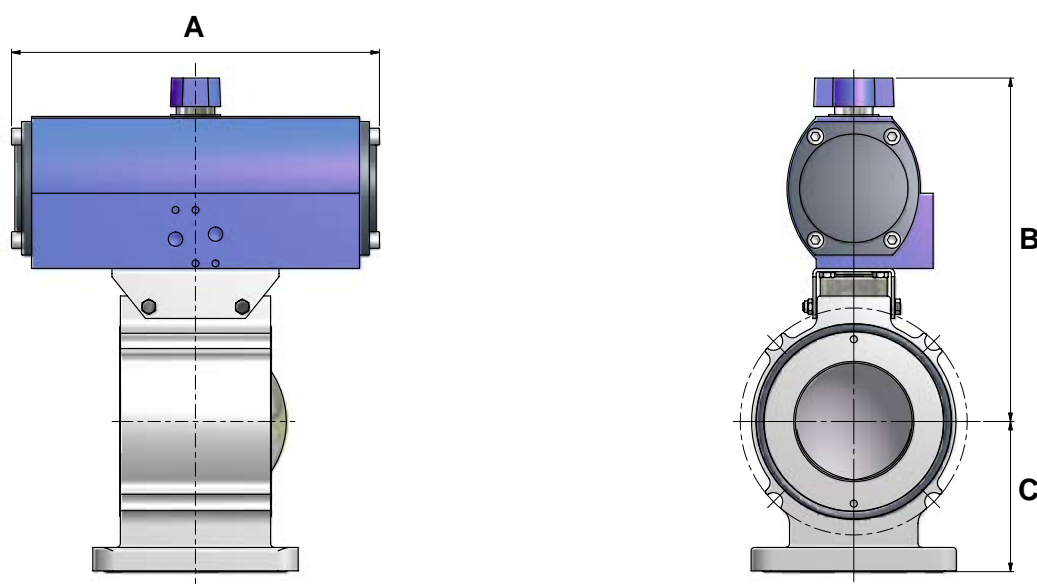


All measurements in mm/inch

Inch DN	A		B		C		Code No.
	mm	inch	mm	inch	mm	inch	
2" / DN 50	140	5.51	190	7.48	45	1.77	B200A1001-DA
3" / DN 80	140	5.51	206	8.11	61	2.40	B400A1001-DA
4" / DN 100	160	6.30	250	9.84	85	3.35	B500A1001-DA

2-way Valves in Aluminium with pneumatic actuator double acting

ATEX approved

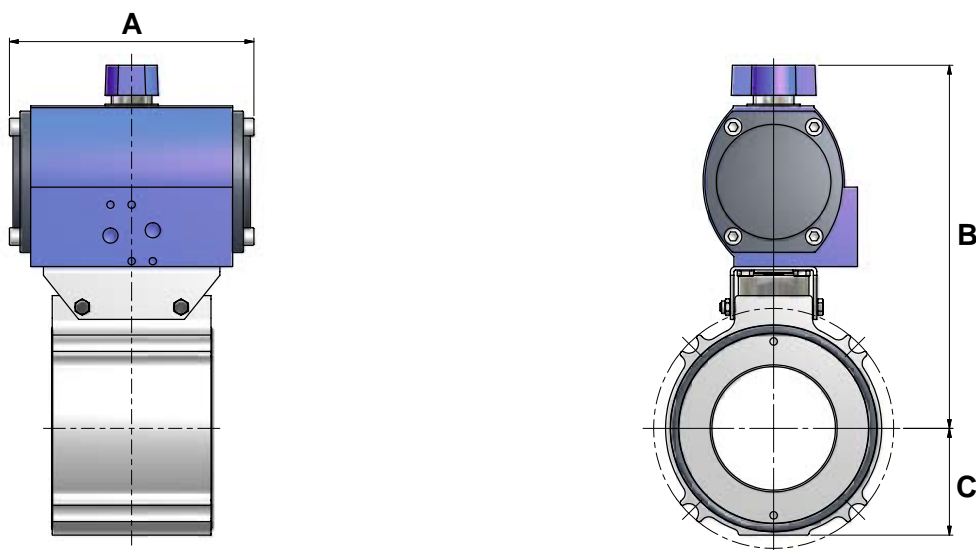


All measurements in mm/inch

Inch DN	A		B		C		Code No.
	mm	inch	mm	inch	mm	inch	
2" / DN 50	220	8.66	190	7.48	70	2.76	B200A1001C-DA
3" / DN 80	220	8.66	206	8.11	90	3.54	B400A1001C-DA
4" / DN 100	245	9.65	250	9.84	112	4.41	B500A1001C-DA

Ball Valves in Aluminium with pneumatic actuator springreturn

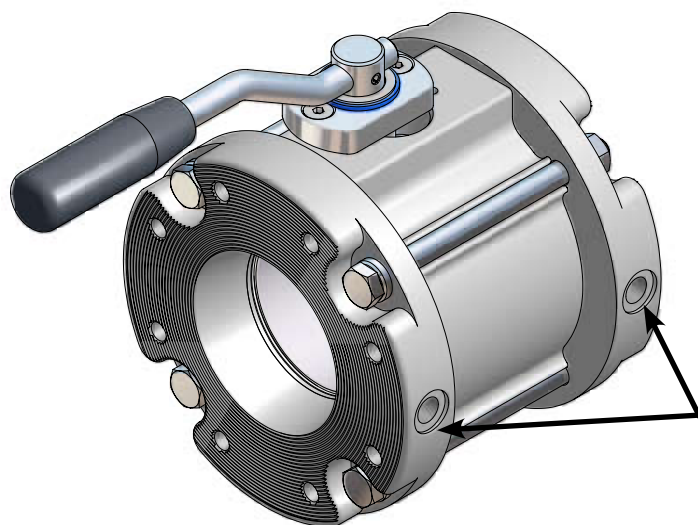
ATEX approved



All measurements in mm/inch

Inch DN	A		B		C		Code No.
	mm	inch	mm	inch	mm	inch	
2" / DN 50	140	5.51	190	7.48	70	2.76	200A1001-SR
3" / DN 80	140	5.51	206	8.11	90	3.54	B400A1001-SR
4" / DN 100	160	6.30	250	9.84	112	4.41	B500A1001-SR

Ball Valves - Special on request



3" Ball Valve

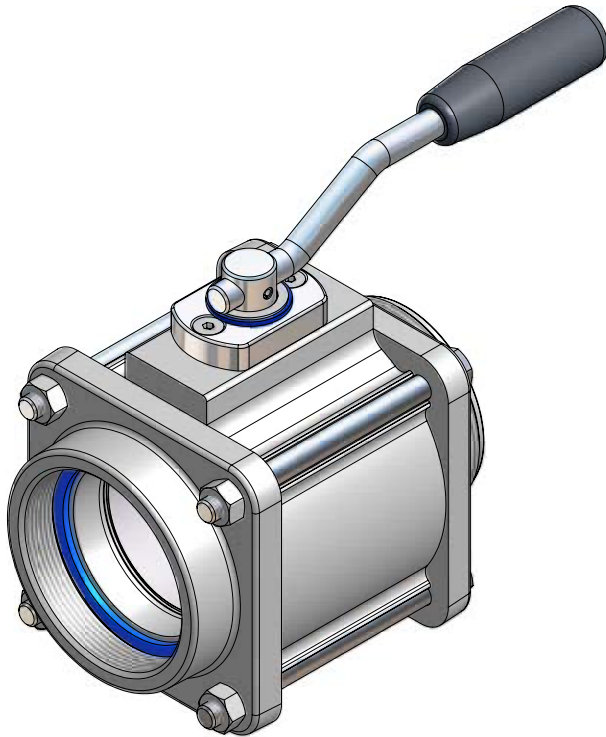
Connection:

Aluminium flanges TW1 (both sides).

Extra:

Female BSP 1/4" thread for draining or sensors (pressure, temperature)

Ball Valves - Special on request



3" Ball Valve with Aluminium female flanges

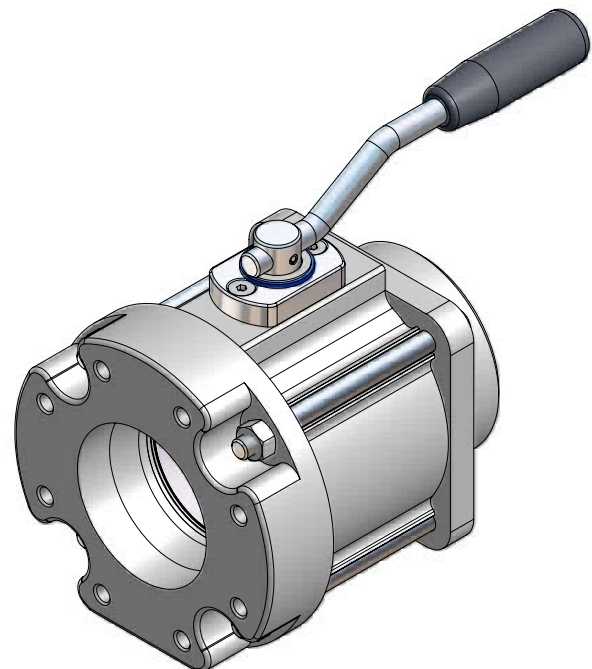
Connection:
One side female 3" BSP thread and other side male 3" BSP thread.

Code No. B400A1001 + 1322 -1B + 1329-1B

3" Ball Valve with Aluminium flanges

Connection:
One side Aluminium welding flange Ø89 mm and other side Aluminium flange TW1

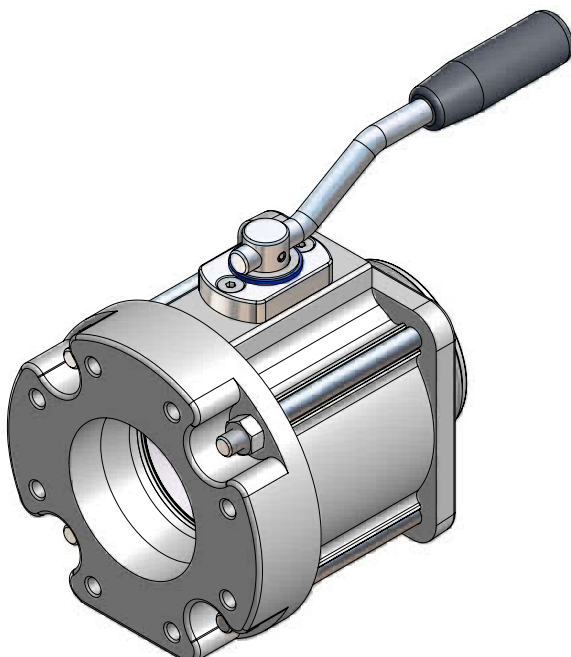
Code No. B400A1001 + 1340 -1 + 1327-1



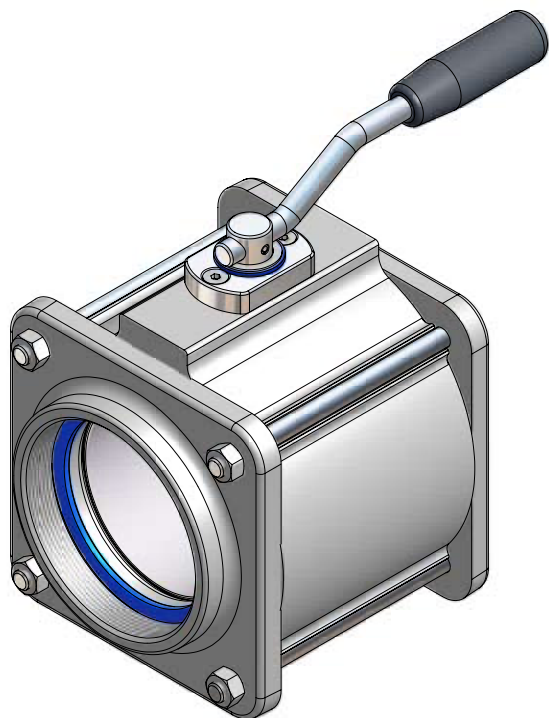
3" Ball Valve with Aluminium flanges

Connection:
One side 3" BSP male and other side Aluminium flange TW1

Code No. B400A1001 + 1329 -1B + 1327-1



Ball Valves - Special on request



**4" Ball Valve
with Aluminium flanges**

Connection:
One side 4" BSP male threads and other side 4" BSP female threads flanges

4" Ball Valve

- Option:**
- Long handle
 - Steel Zink plated, or Stainless steel
 - Body anodised, black
 - Not electrical conductivity



4" Ball Valve

- Option:**
- Painted according to RAL (Color standard for Military)
 - Bolts and nuts in Stainless steel.

Examples of Military RAL colours



RAL 6014
Yellow Olive
- Dutch Army



RAL 6031
Bronze Green
- Dutch, Germany, Denmark, Spain, Italy and Sweden.



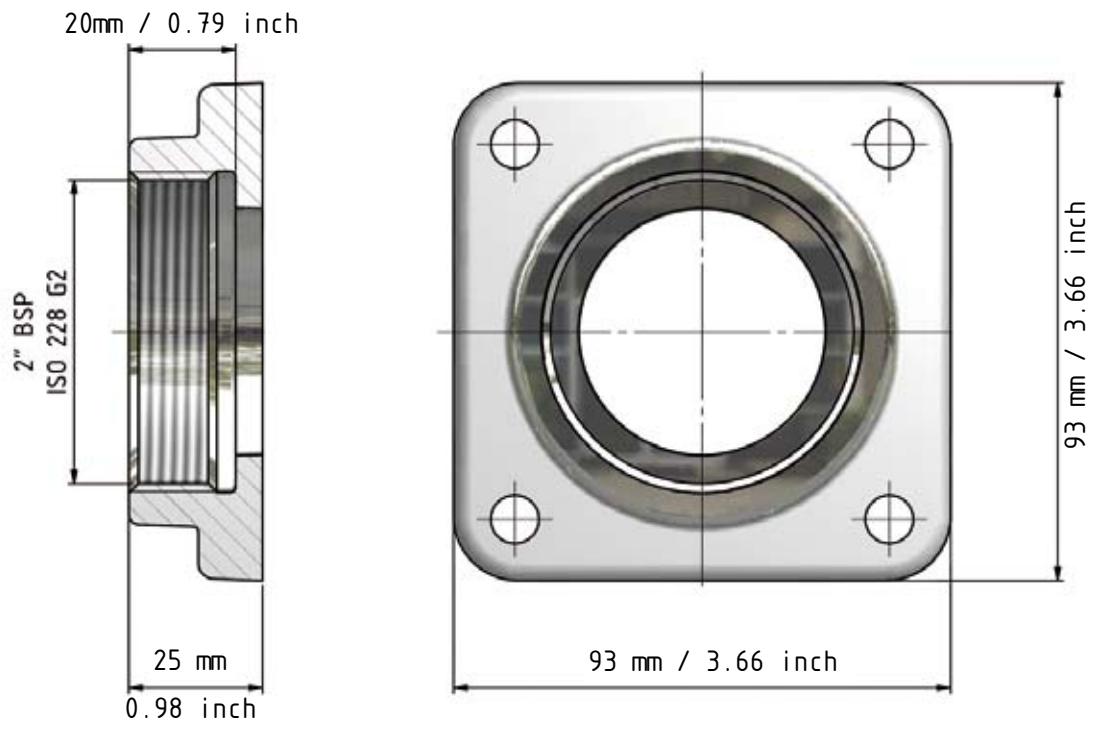
RAL 8027
Leather Brown
- Germany



RAL 9021
Tar Black
- Germany

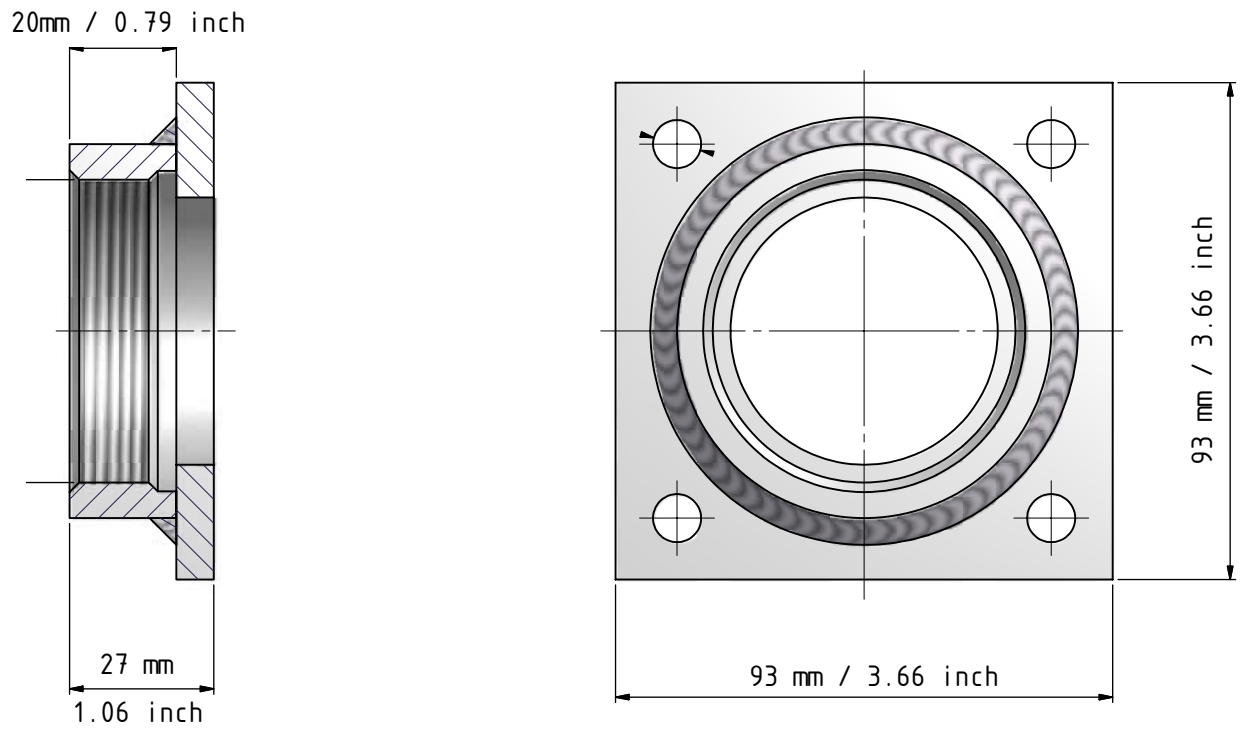
Other colours on request

2" DN 50 2" BSP Female thread flange, Aluminium



Code No. 1383-1B

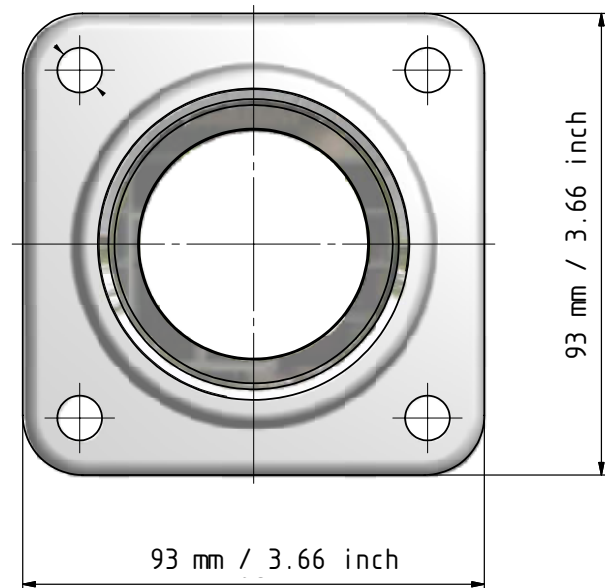
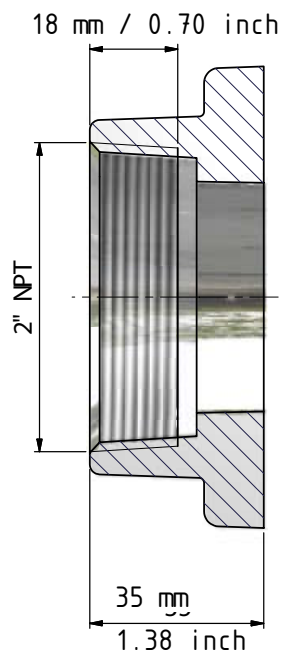
2" / DN 50 2" BSP Female thread flange, Steel



Code No. 1383-3

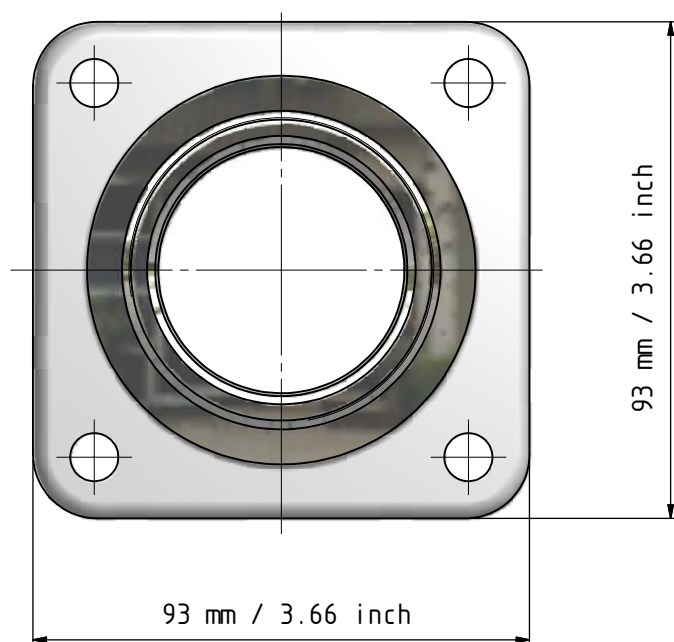
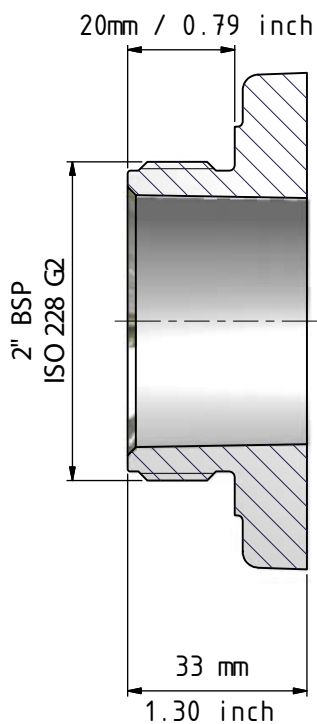
Specifications subject to change without notice - Copyright Mann Teknik AB

2" / DN 50 2" NPT Female thread flange, Aluminium



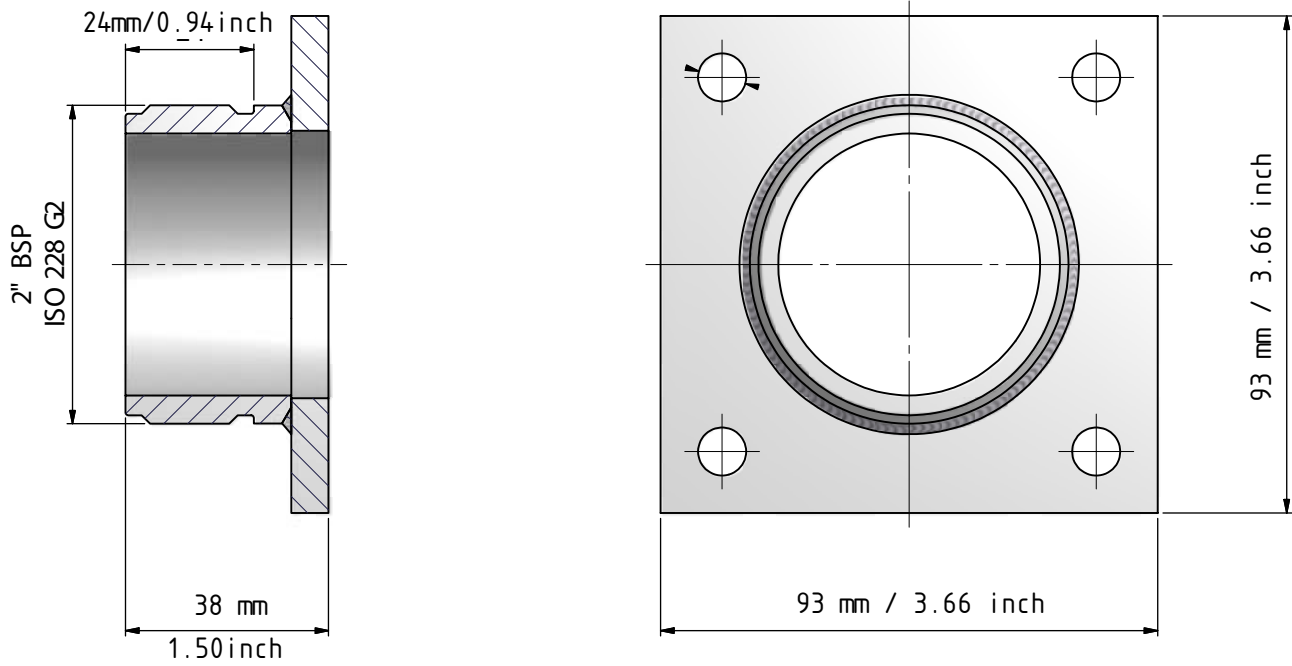
Code No. 1725-1B

2" / DN 50 2" BSP Male thread flange, Aluminium



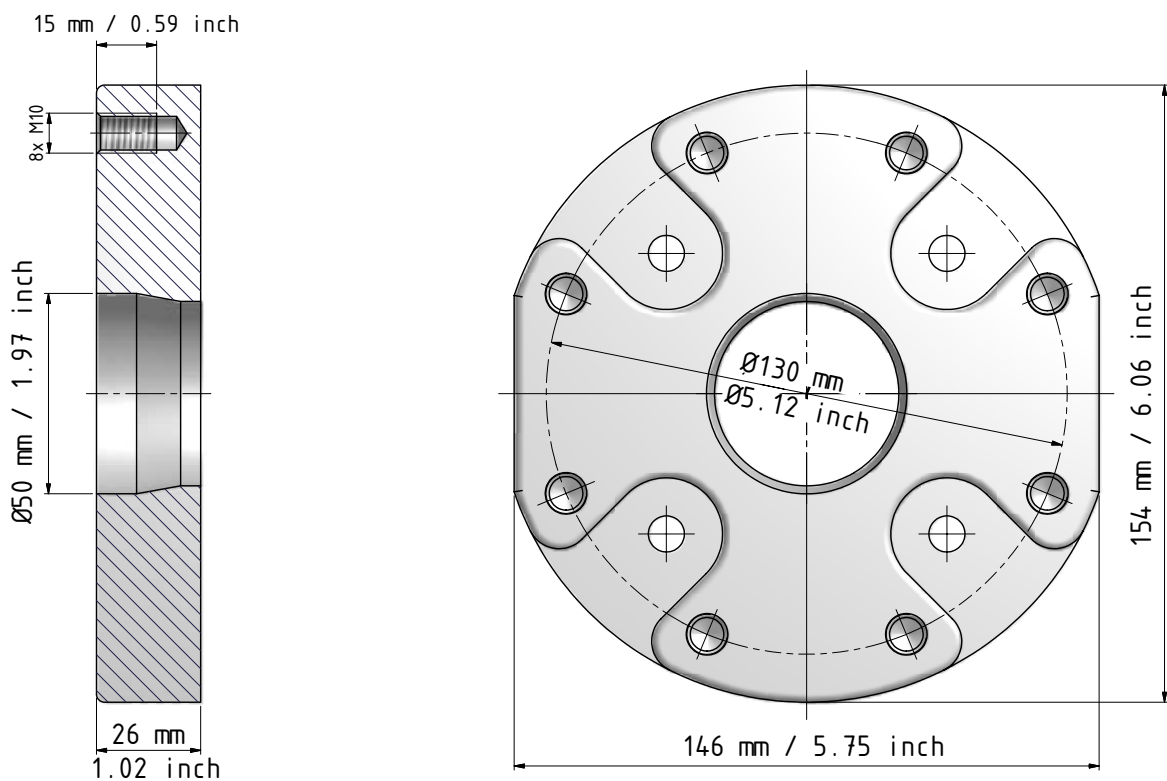
Code No. 1378-1

2" / DN 50 2" BSP Male thread flange, Steel



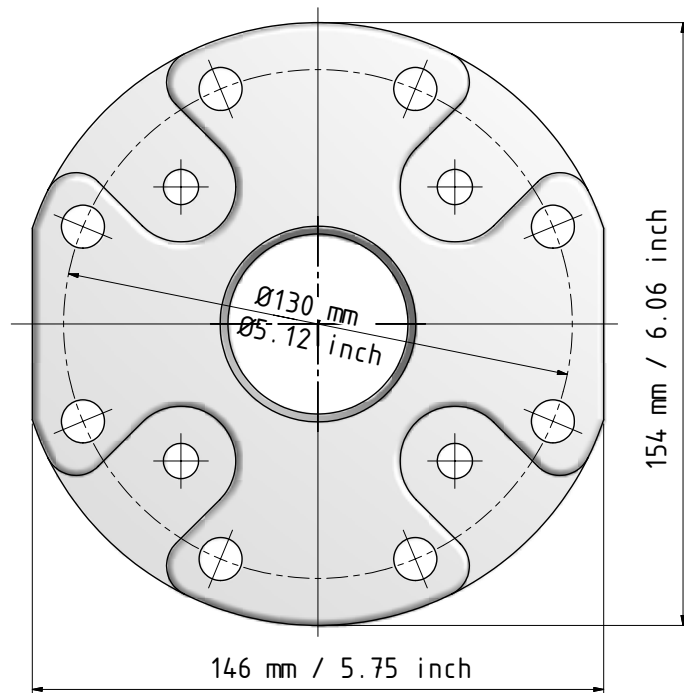
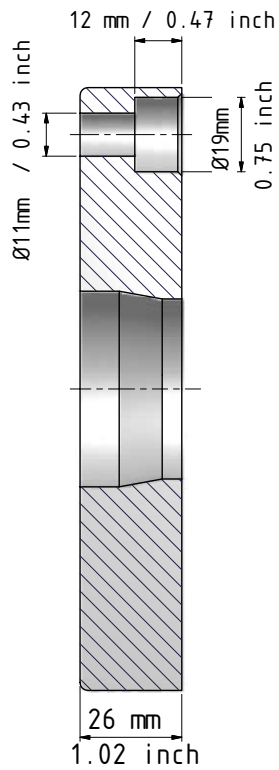
Code No. 1378-3

2" / DN 50 2" TW1 / 50, Aluminium



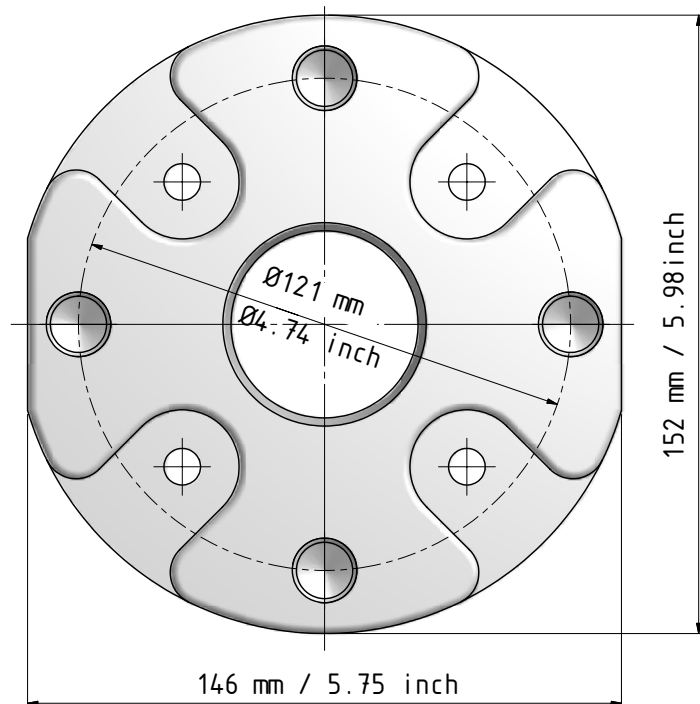
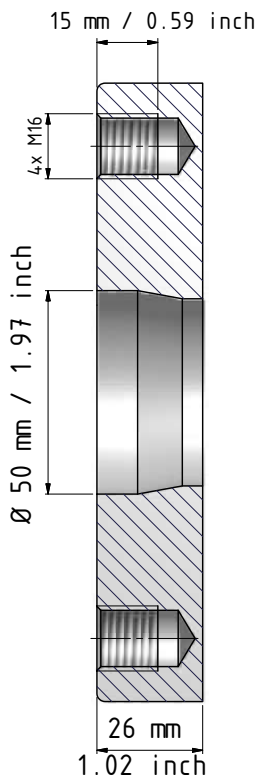
Code No. 2449

2" / DN 50 2" TW1 / 50, Aluminium



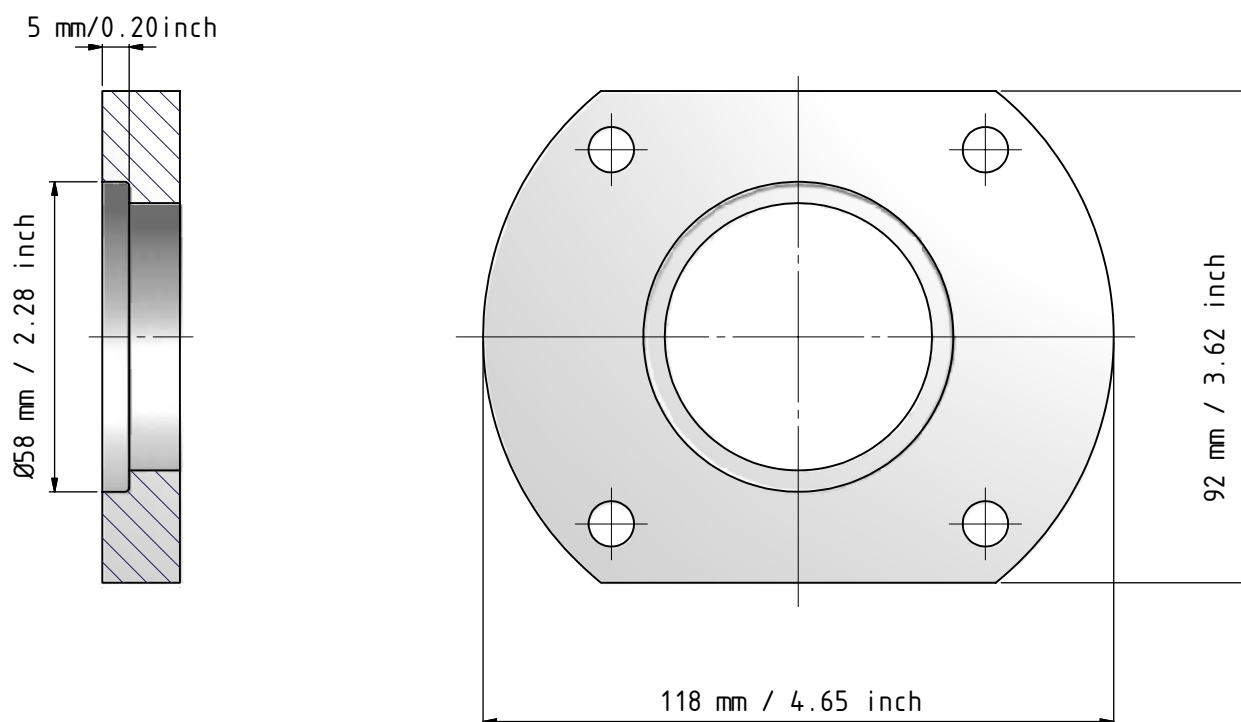
Code No. 2450

2" / DN 50 2" ANSI - 150 psi, Aluminium



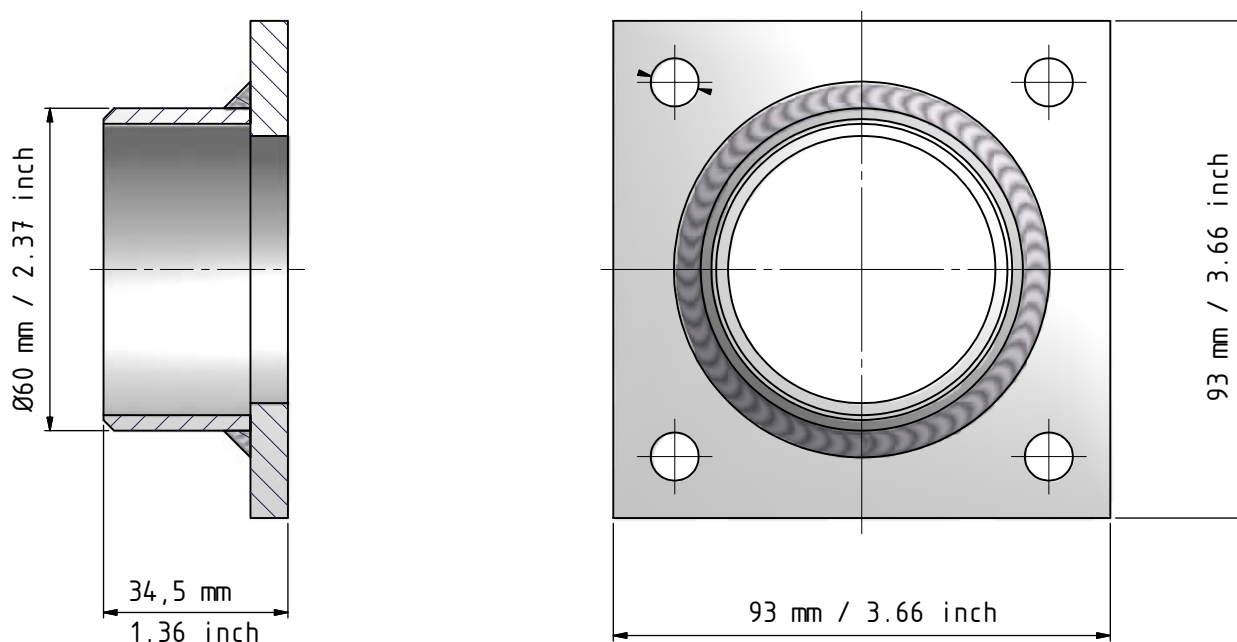
Code No. 2525

2" / DN 50 2" Welding flange W Ø57 mm, Aluminium



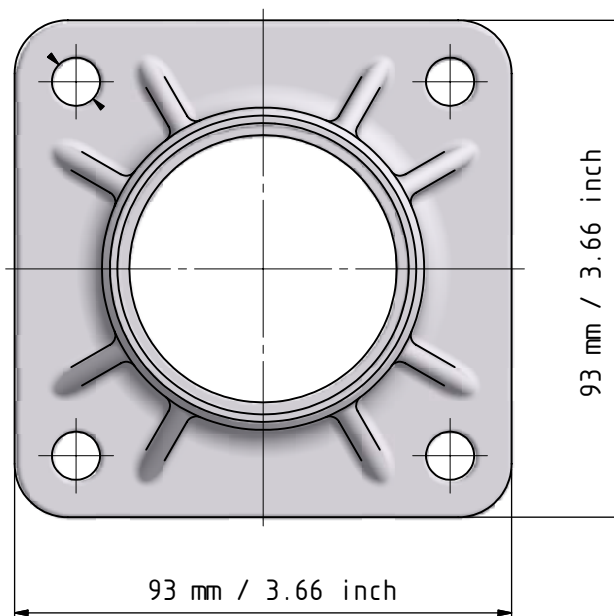
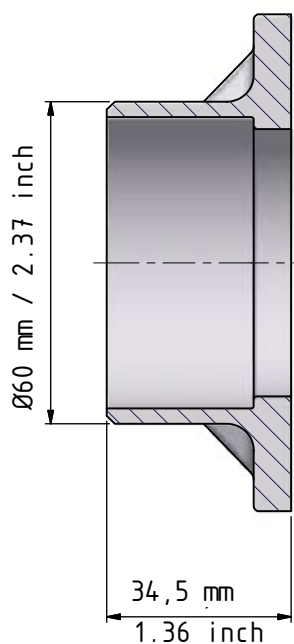
Code No. 1335-1

2" / DN 50 2" Welding flange W Ø60 mm, Steel



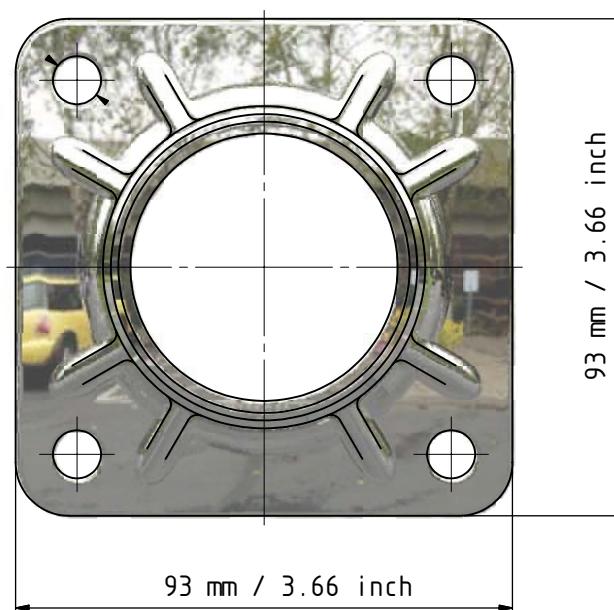
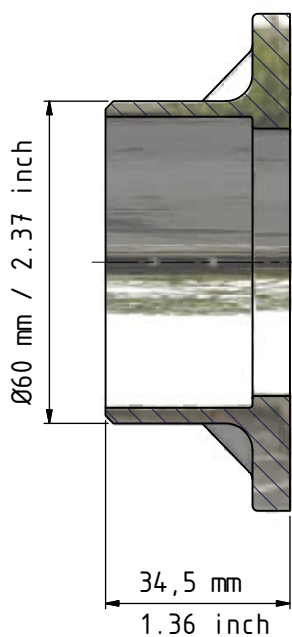
Code No. 1376-3

2" / DN 50 2" Welding flange W Ø60 mm, Steel



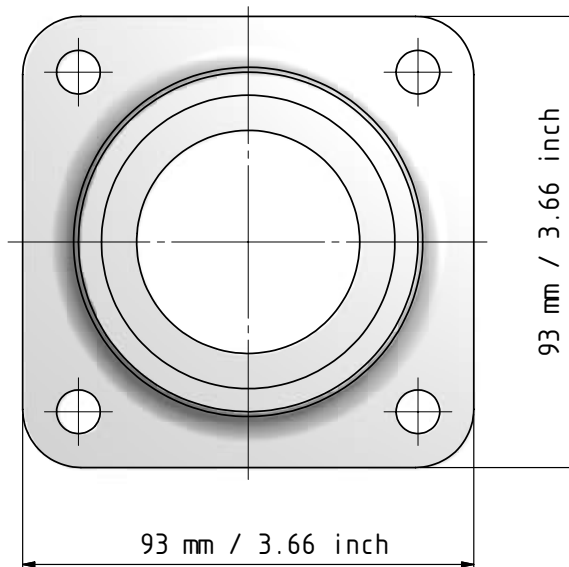
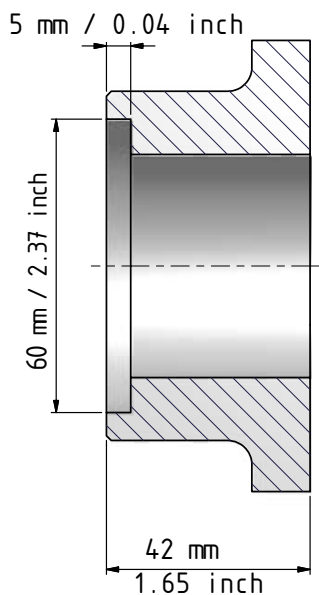
Code No. 1376-3B

2" / DN 50 2" Welding flange W Ø60 mm, Stainless Steel



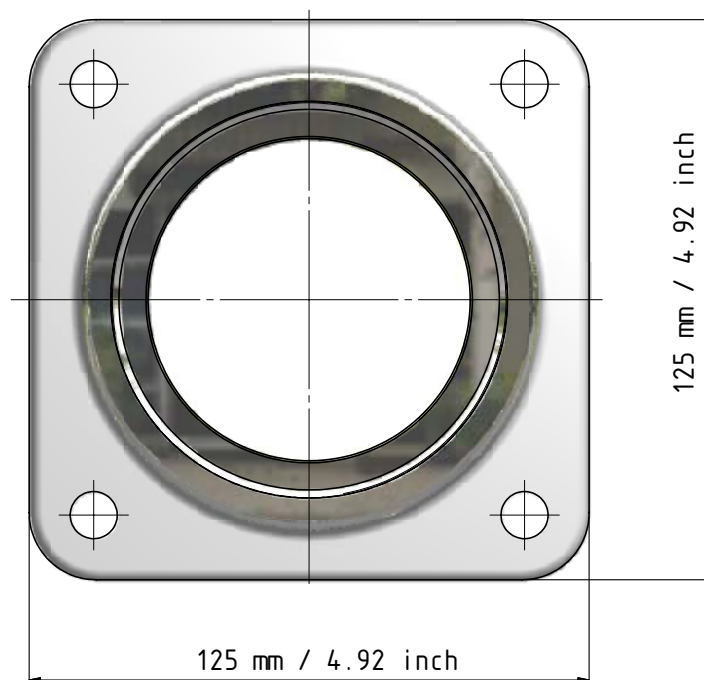
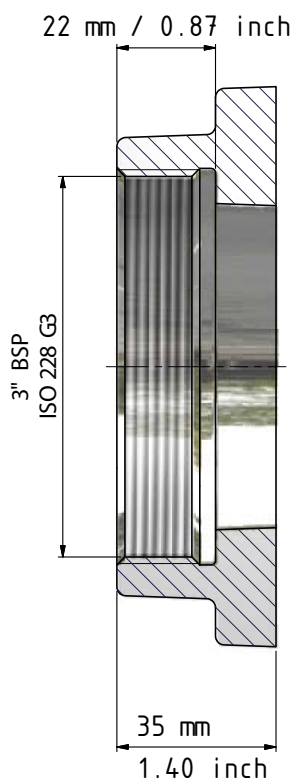
Code No. 1376-4B

2" / DN 50 2" Welding flange Ø57 mm, Aluminium



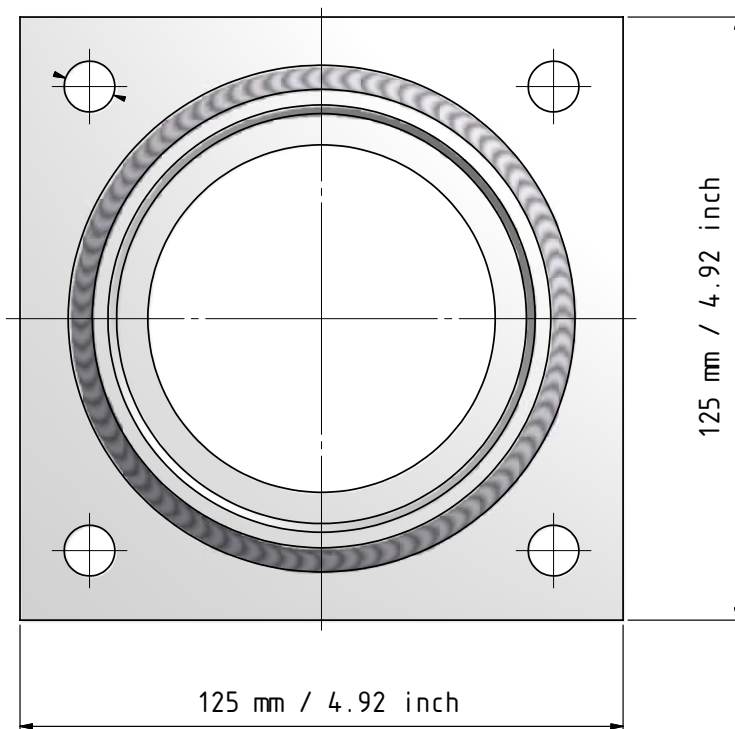
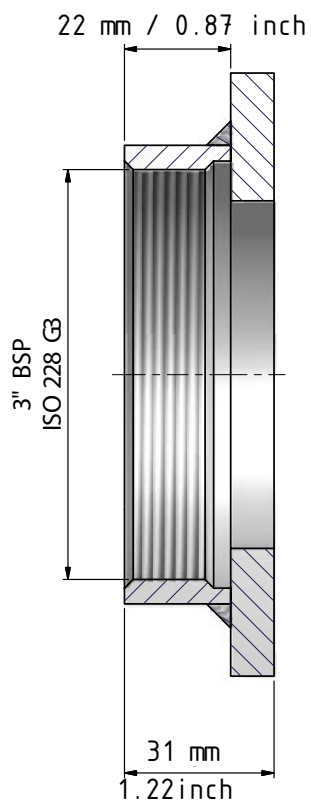
Code No. 1936-1

3" / DN 80 3" BSP Female thread flange, Aluminium



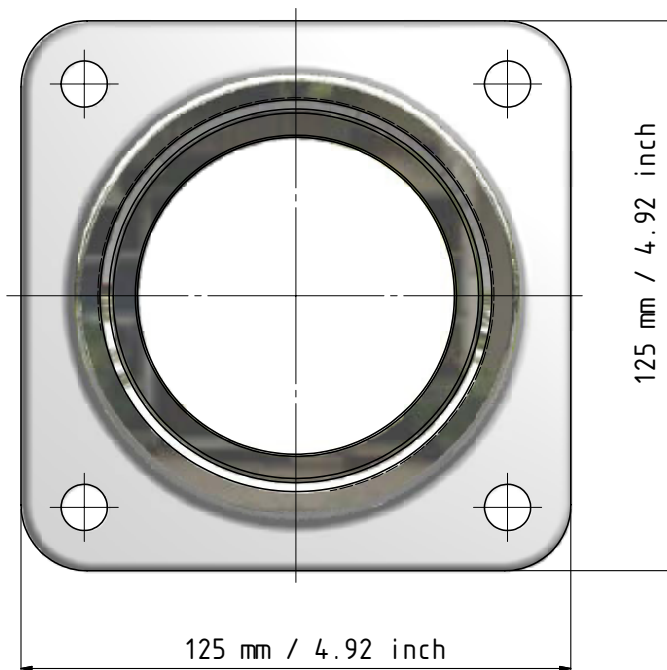
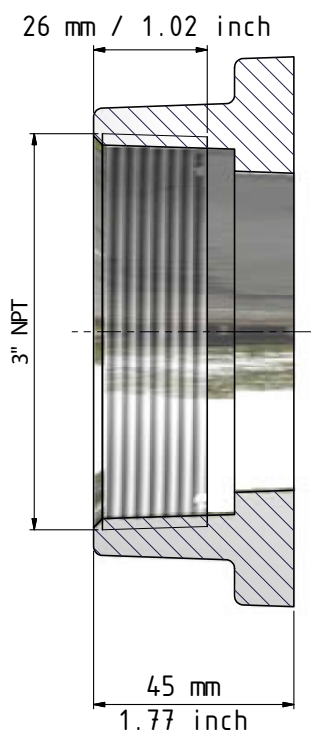
Code No. 1322-1B

3" / DN 80 3" BSP Female thread flange, Steel



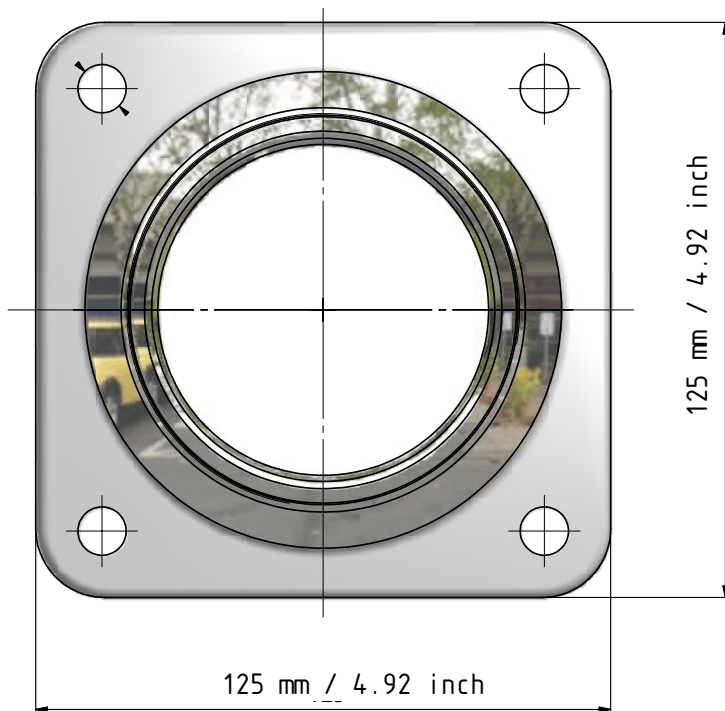
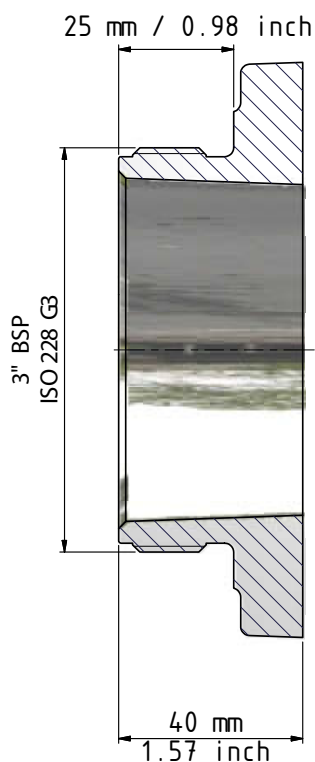
Code No. 1322-3

3" / DN 80 3" NPT Female thread flange, Aluminium



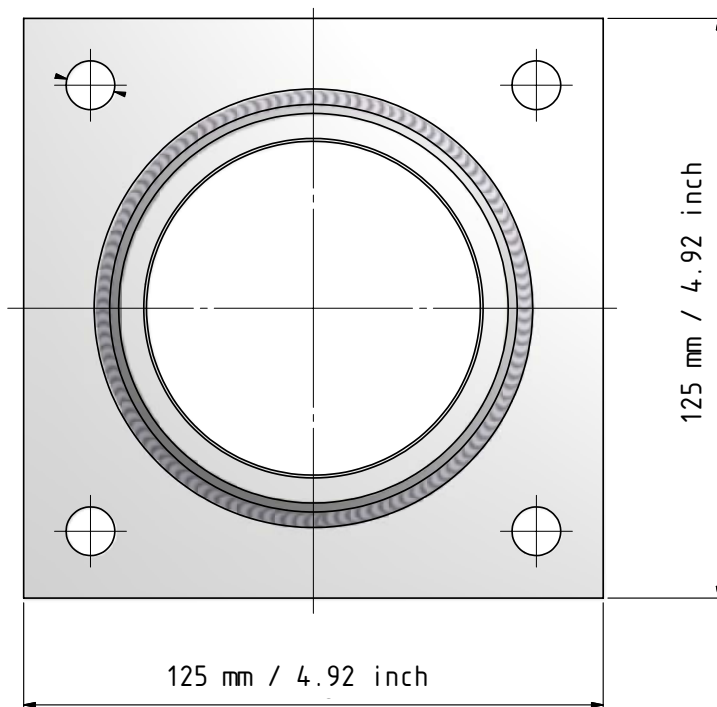
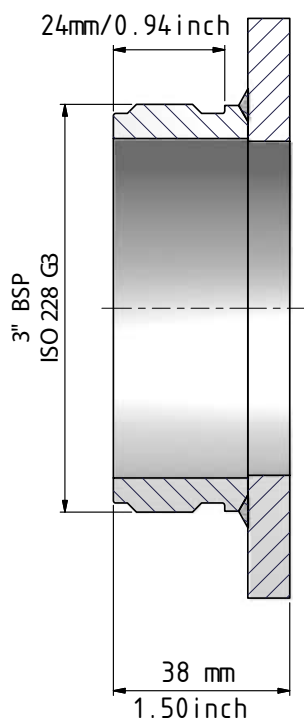
Code No. 1827-1B

3" / DN 80 3" BSP Male thread flange, Aluminium



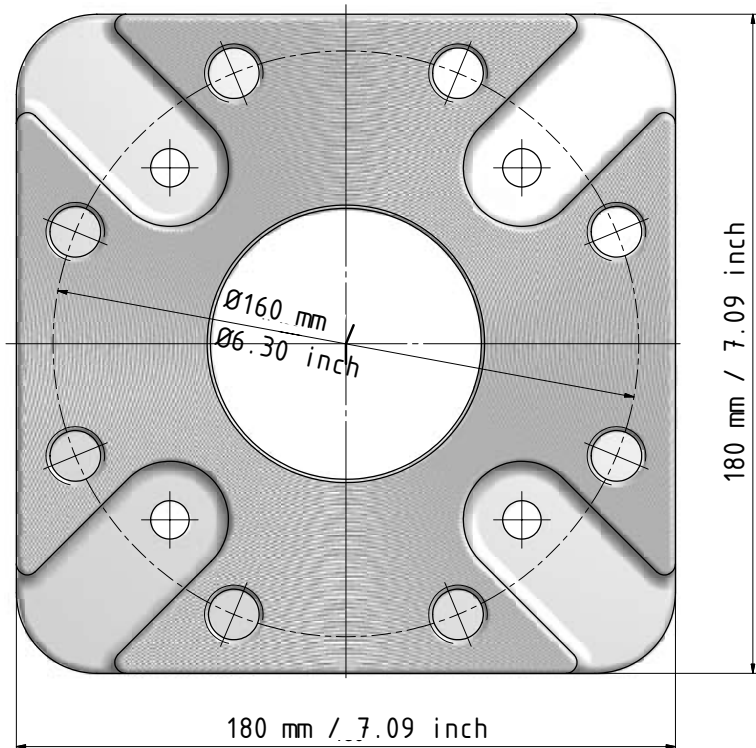
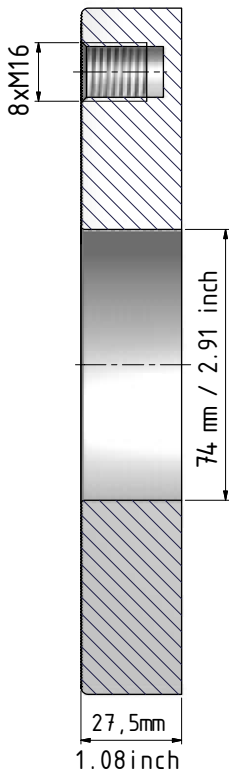
Code No. 1329-1B

3" / DN 80 3" BSP Male thread flange, Steel



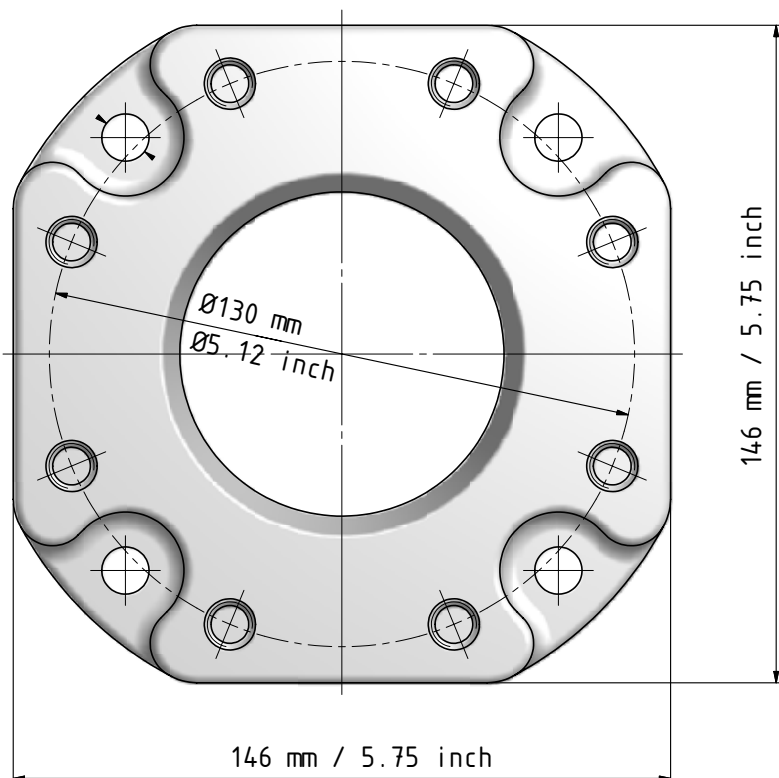
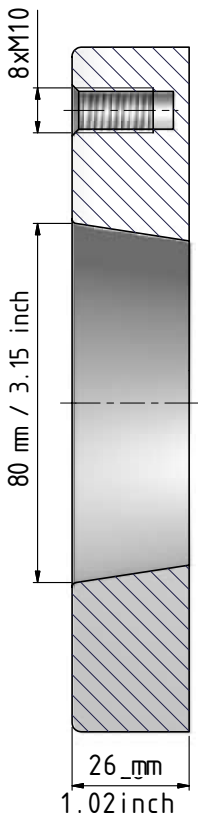
Code No. 1329-3

3" / DN 80 3" PN 10/16, Aluminium



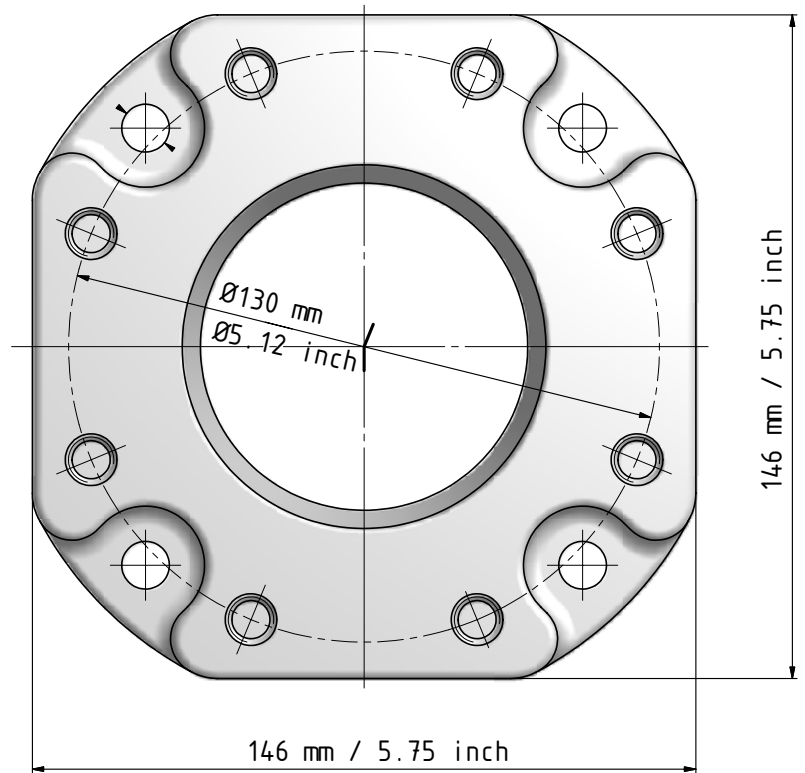
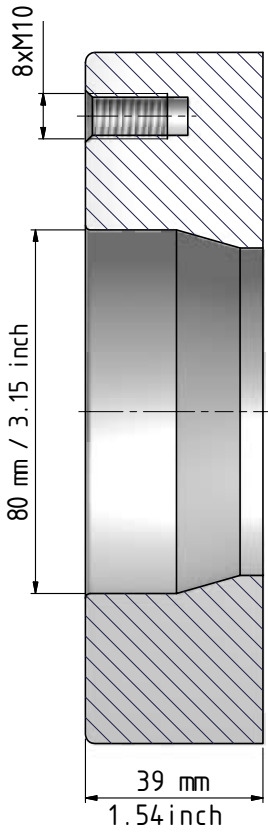
Code No. 2047-1

3" / DN 80 3" TW1 / 50, Aluminium



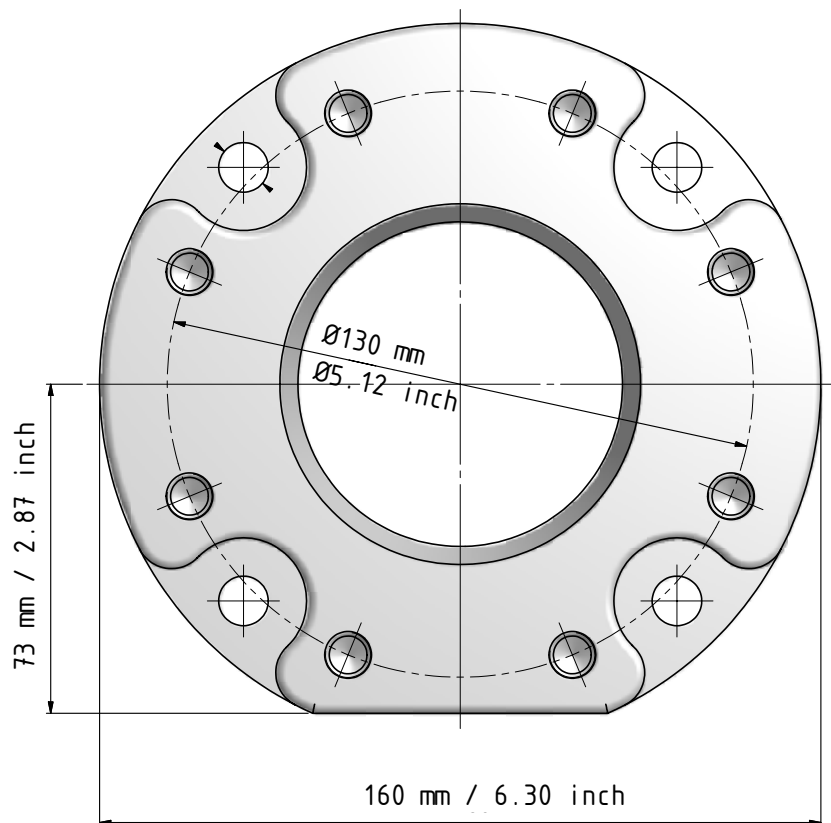
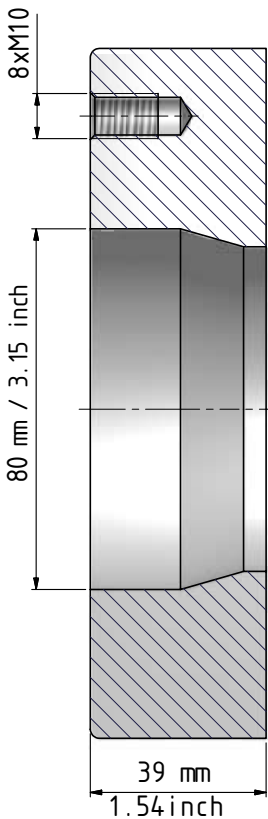
Code No. 1327-1

3" / DN 80 3" TW 1 / 80, Aluminium



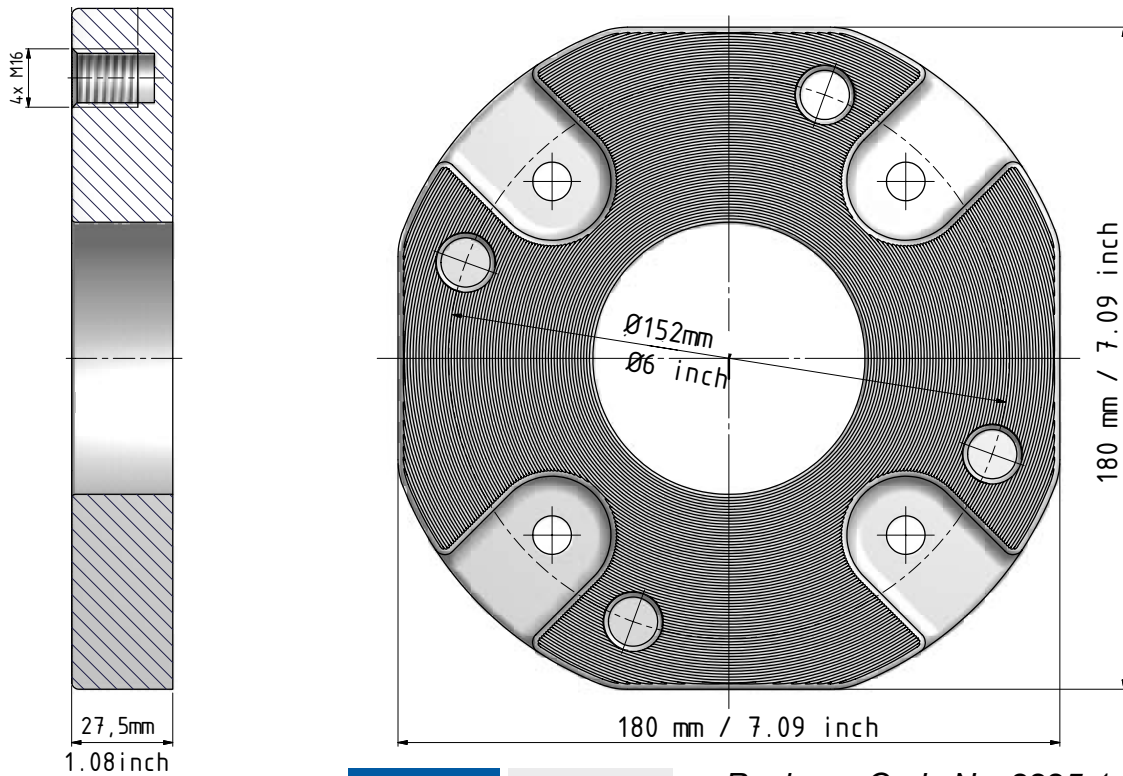
Code No. 1325-1

3" / DN 80 3" TW 1 / 80, Aluminium



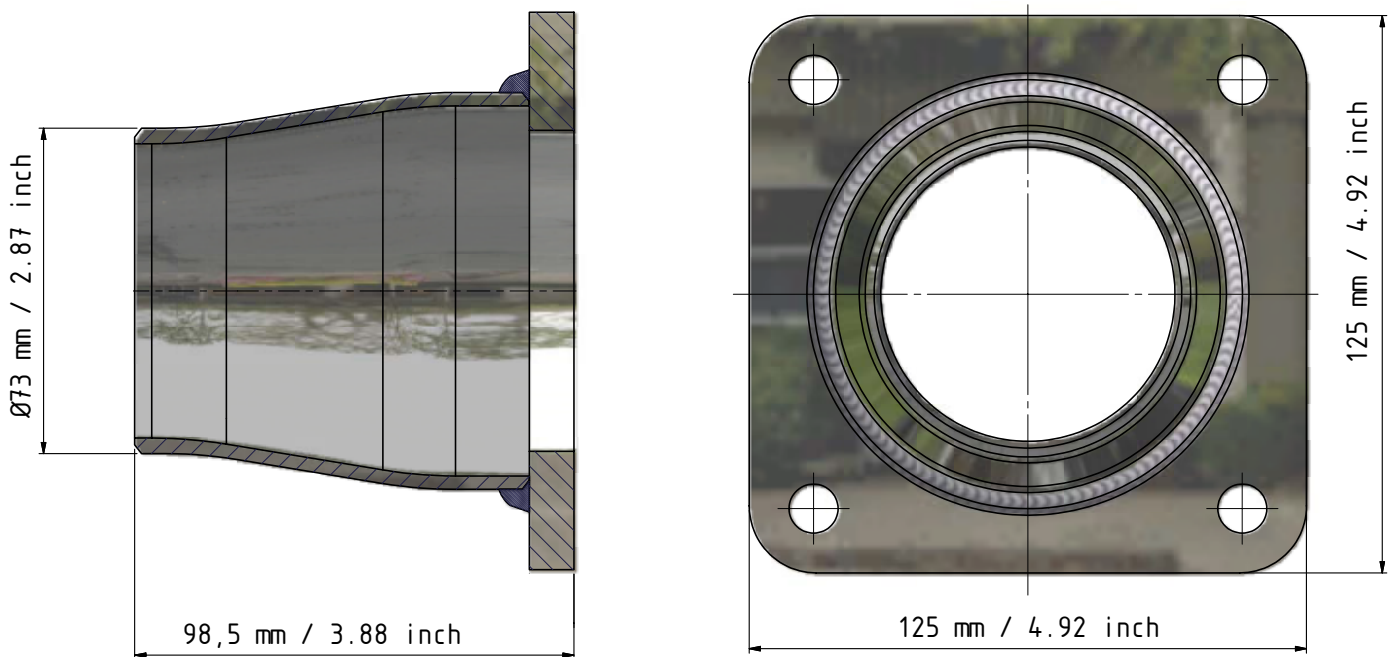
Code No. 1325-1BT

3" / DN 80 3" ANSI - 150 psi, Aluminium



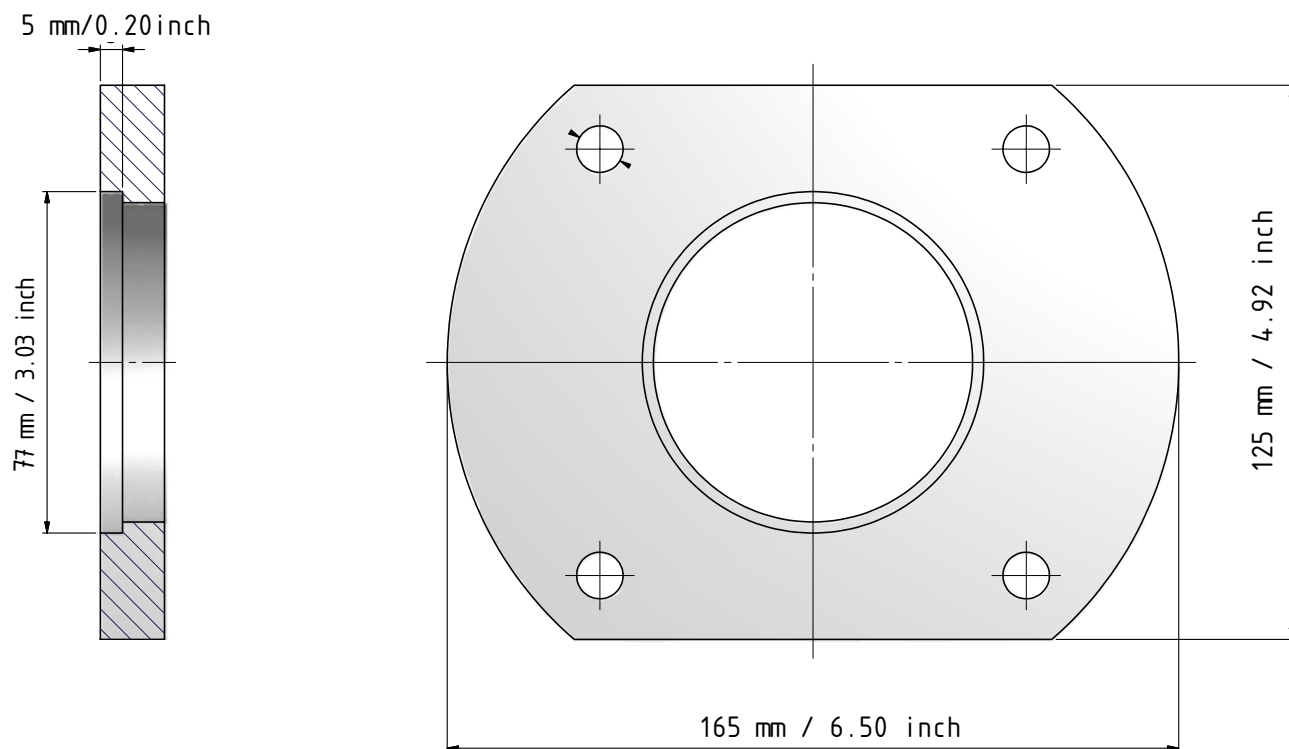
Code No. 2599-1 Replaces Code No 2225-1

3" / DN 80 3" Welding flange Ø73 mm, Stainless Steel



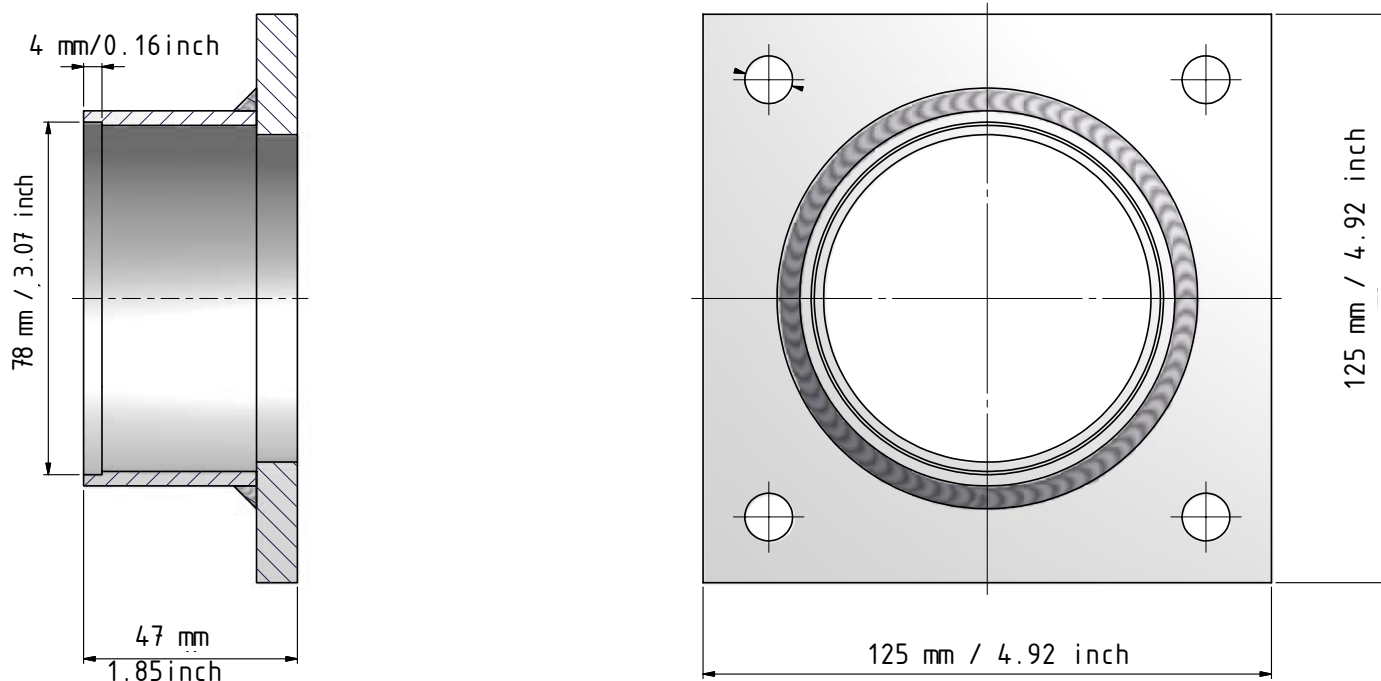
Code No. 2472-4

3" / DN 80 3" Welding flange Ø76 mm, Aluminium



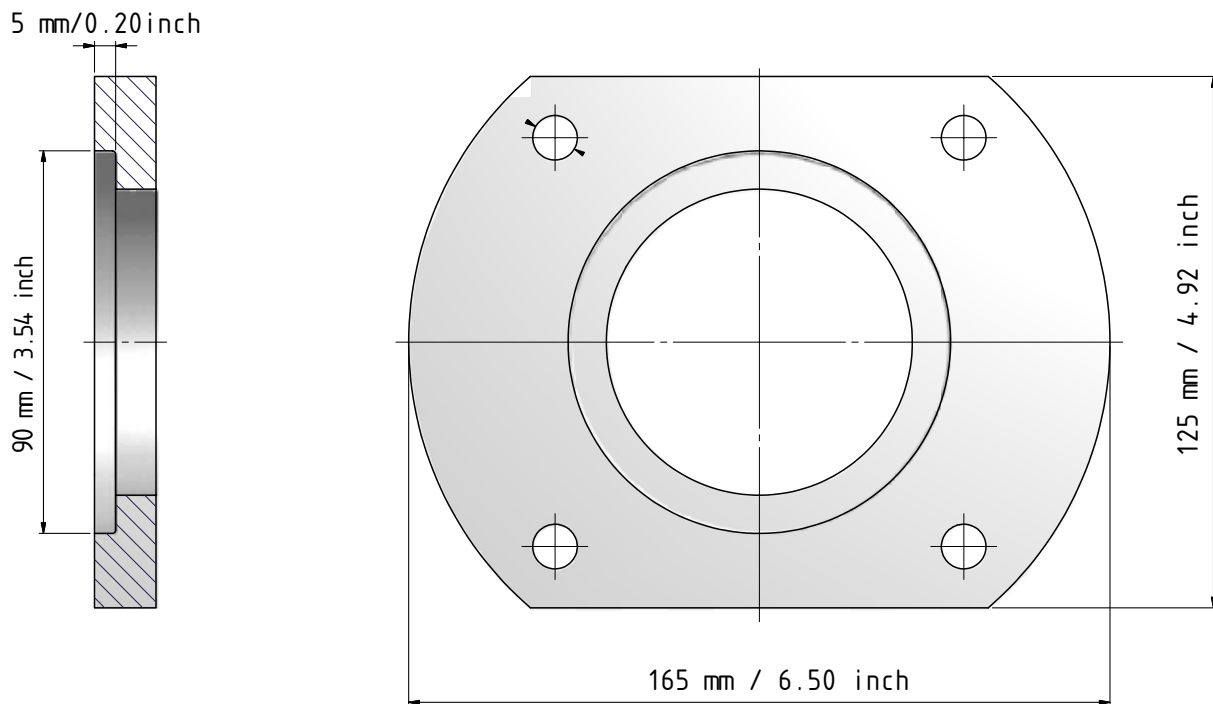
Code No. 1339-1

3" / DN 80 3" Welding flange Ø76 mm, Steel



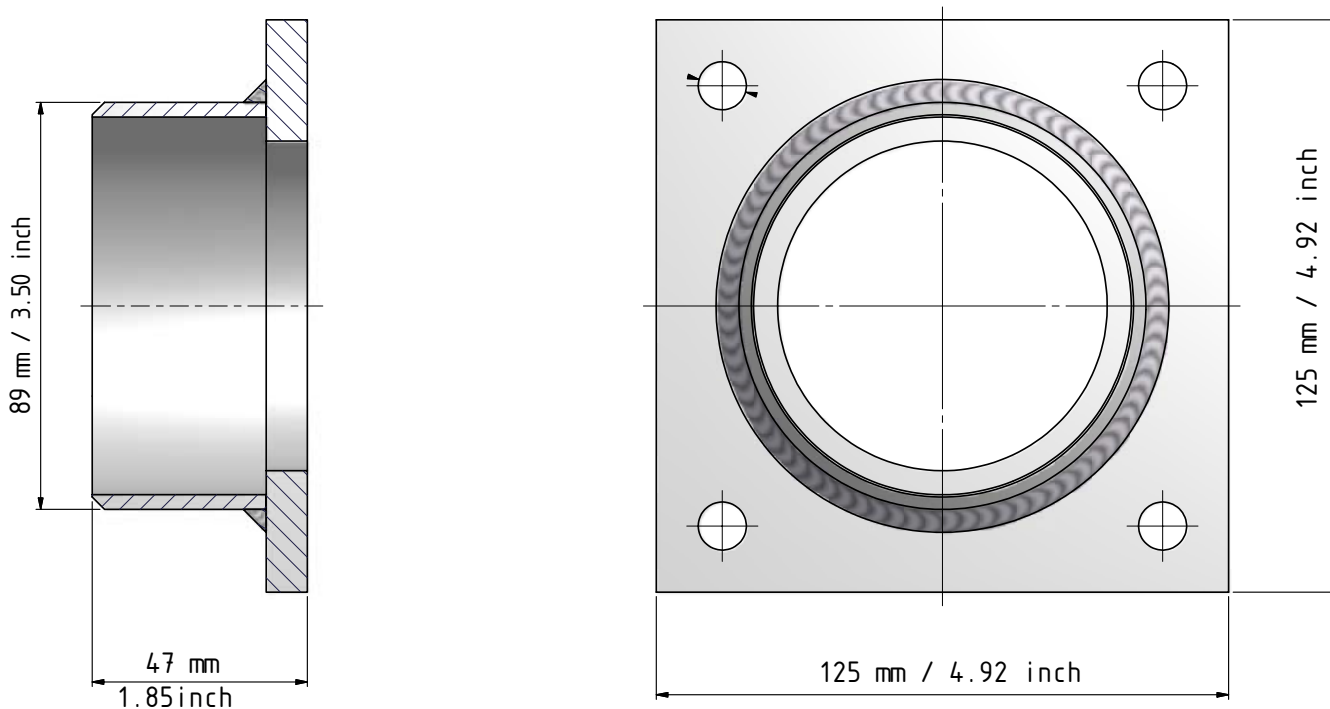
Code No. 1338-3

3" / DN 80 3" Welding flange Ø89 mm, Aluminium



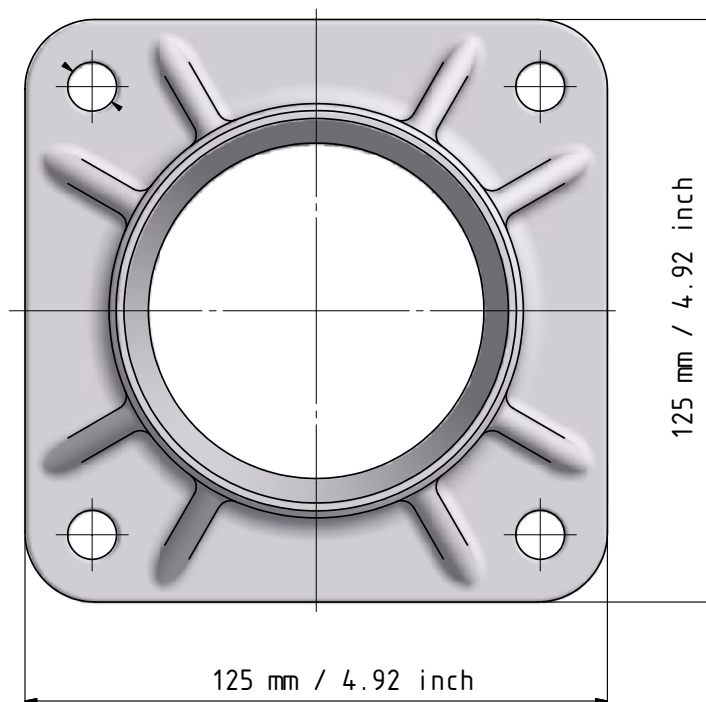
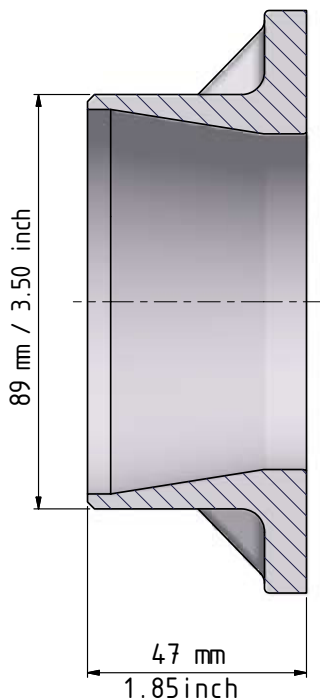
Code No. 1340-1

3" / DN 80 3" Welding flange Ø89 mm, Steel



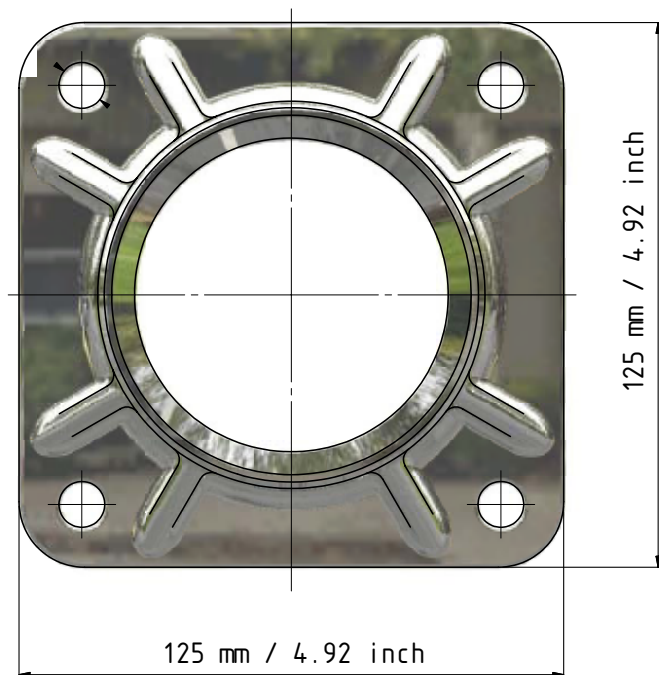
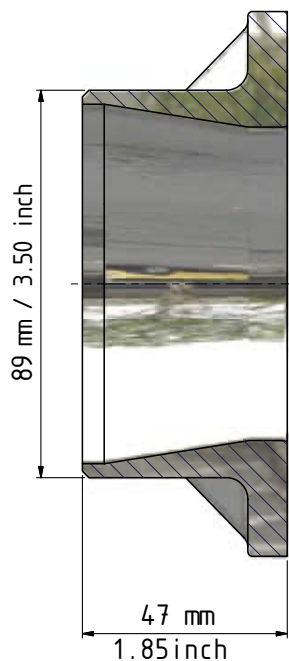
Code No. 1340-3

3" / DN 80 3" Welding flange Ø89 mm, Steel



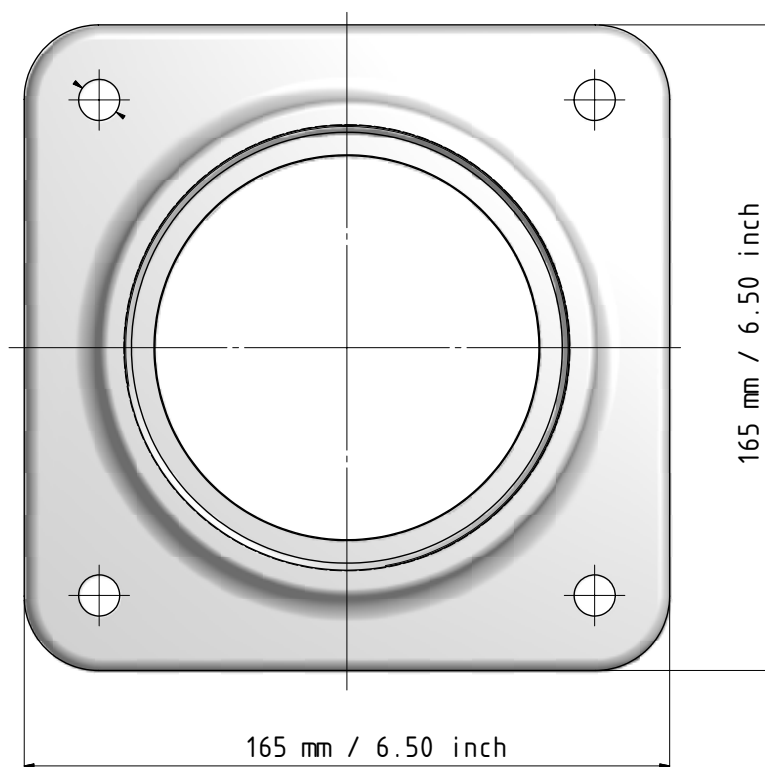
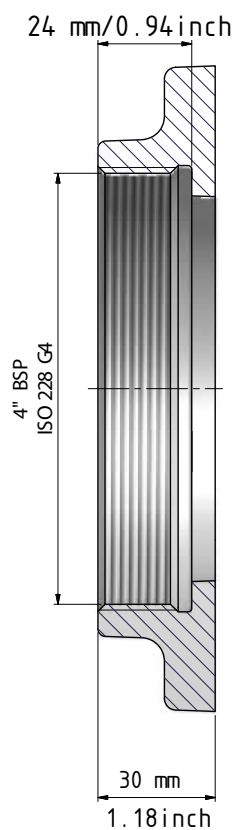
Code No. 1340-3B

3" / DN 80 3" Welding flange Ø89 mm, Stainless Steel



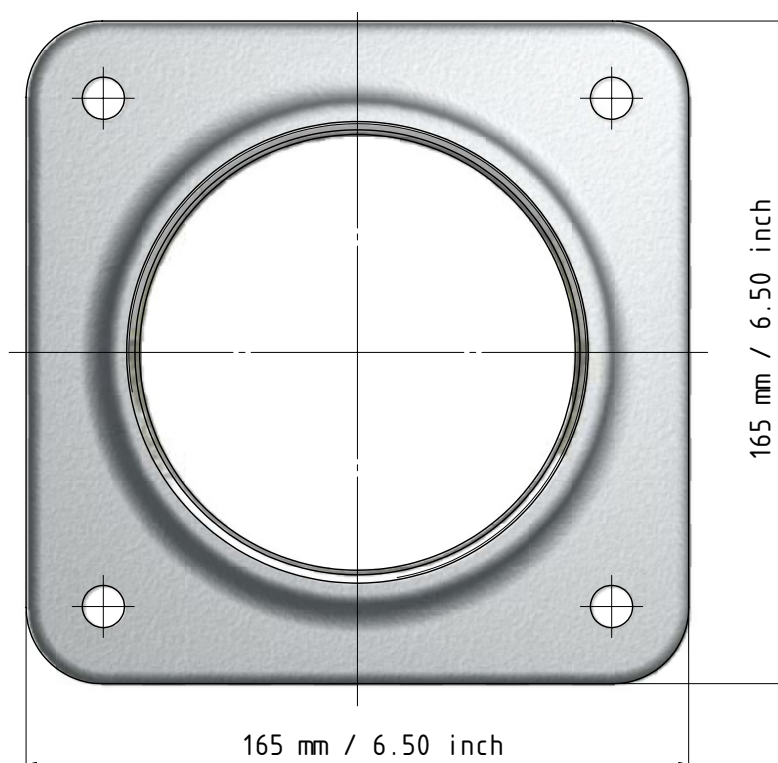
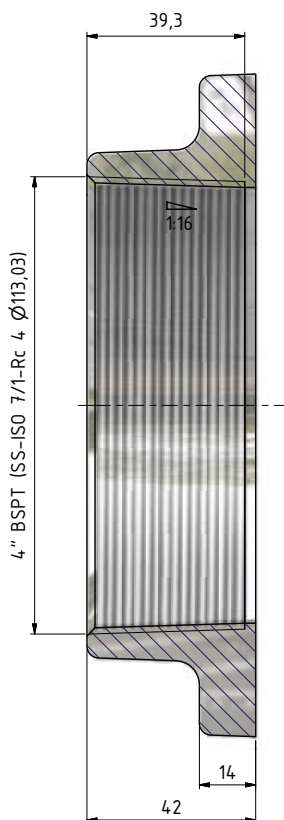
Code No. 1340-4B

4" / DN 100 4" BSP Female thread flange, Aluminium



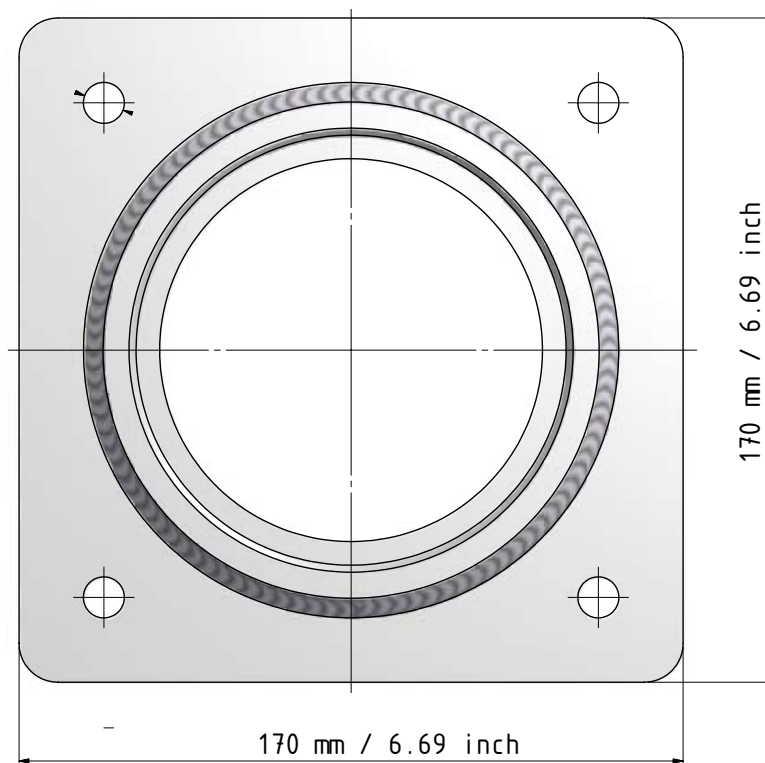
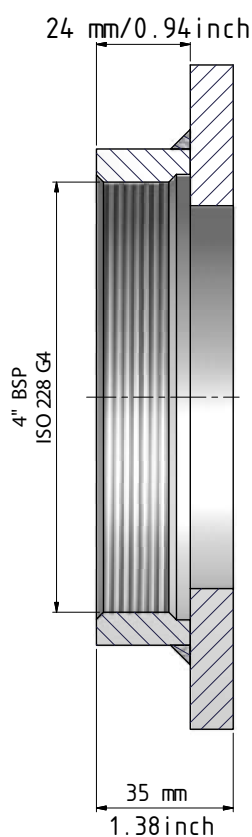
Code No. 1315-1B

4" / DN 100 4" BSPT Female thread flange, Aluminium



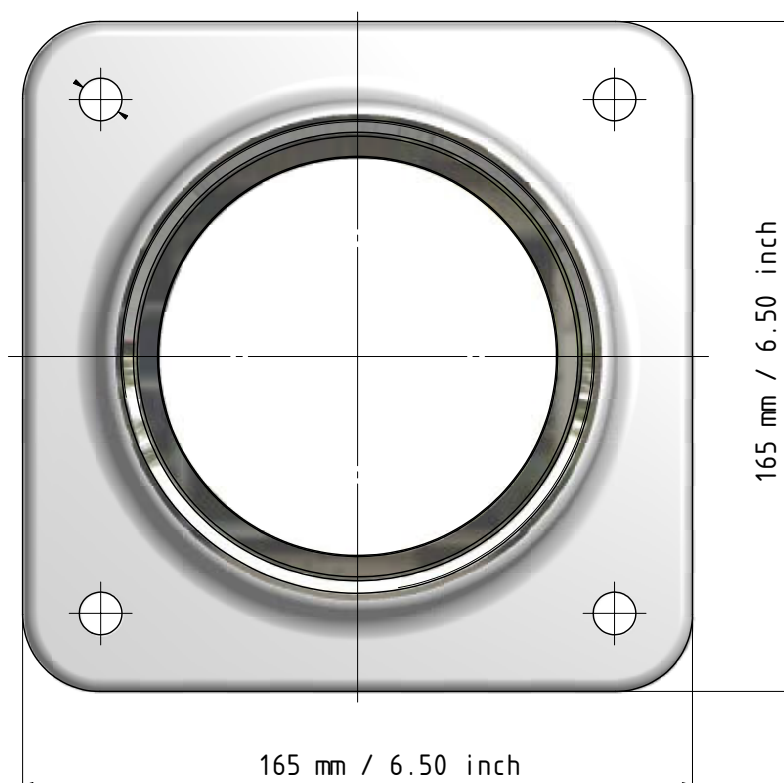
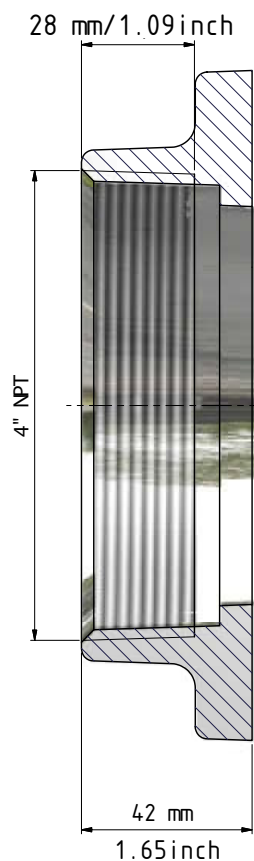
Code No. 1315-1B

4" / DN 100 4" BSP Female thread flange, Steel



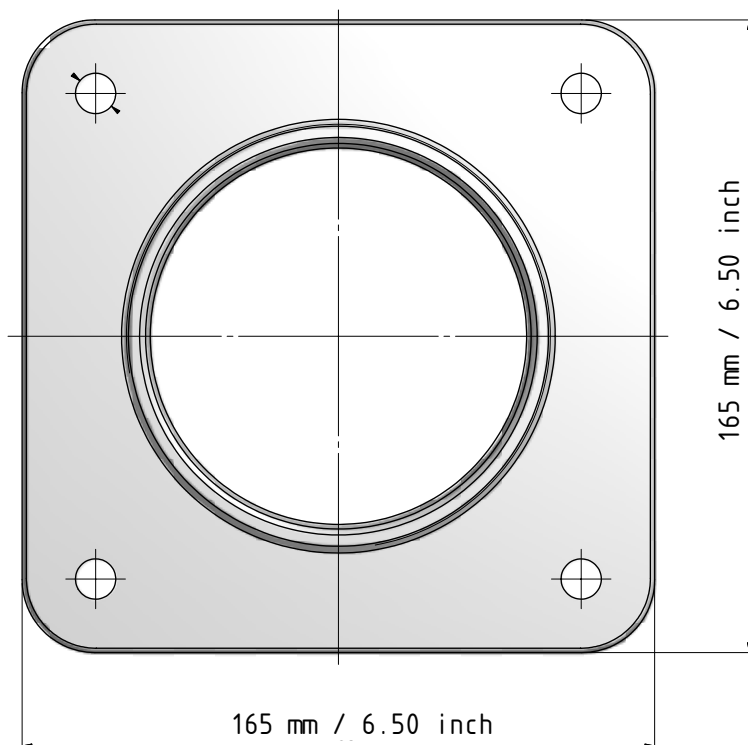
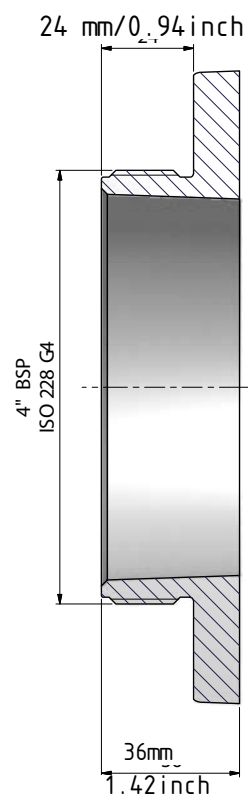
Code No. 1315-3

4" / DN 100 4" NPT Female thread flange, Aluminium



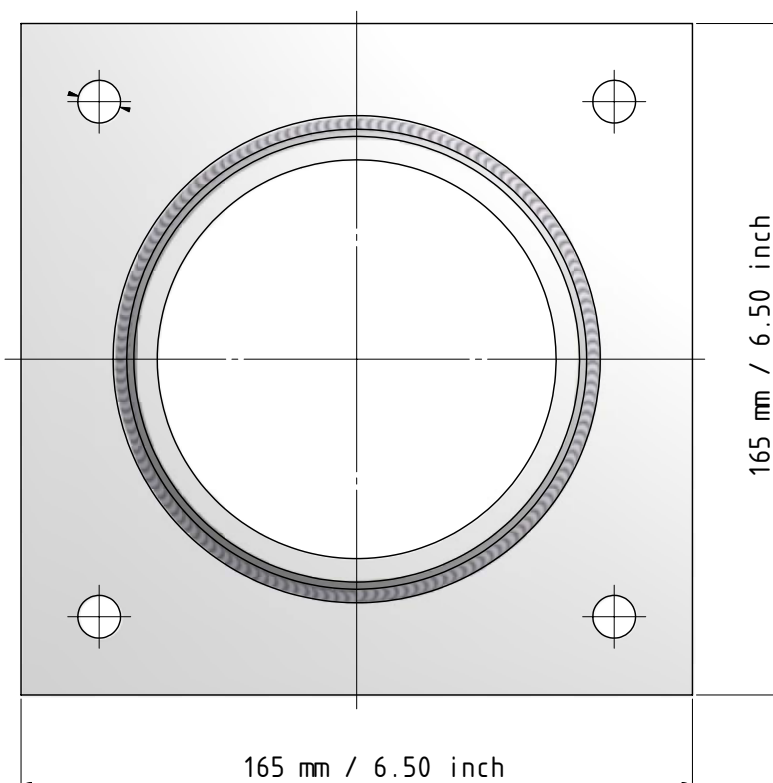
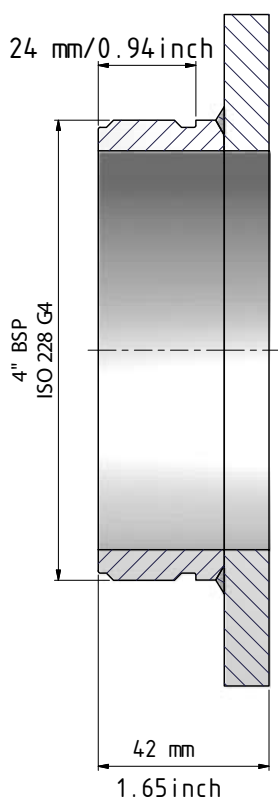
Code No. 1829-1B

4" / DN 100 4" BSP Male thread flange, Aluminium



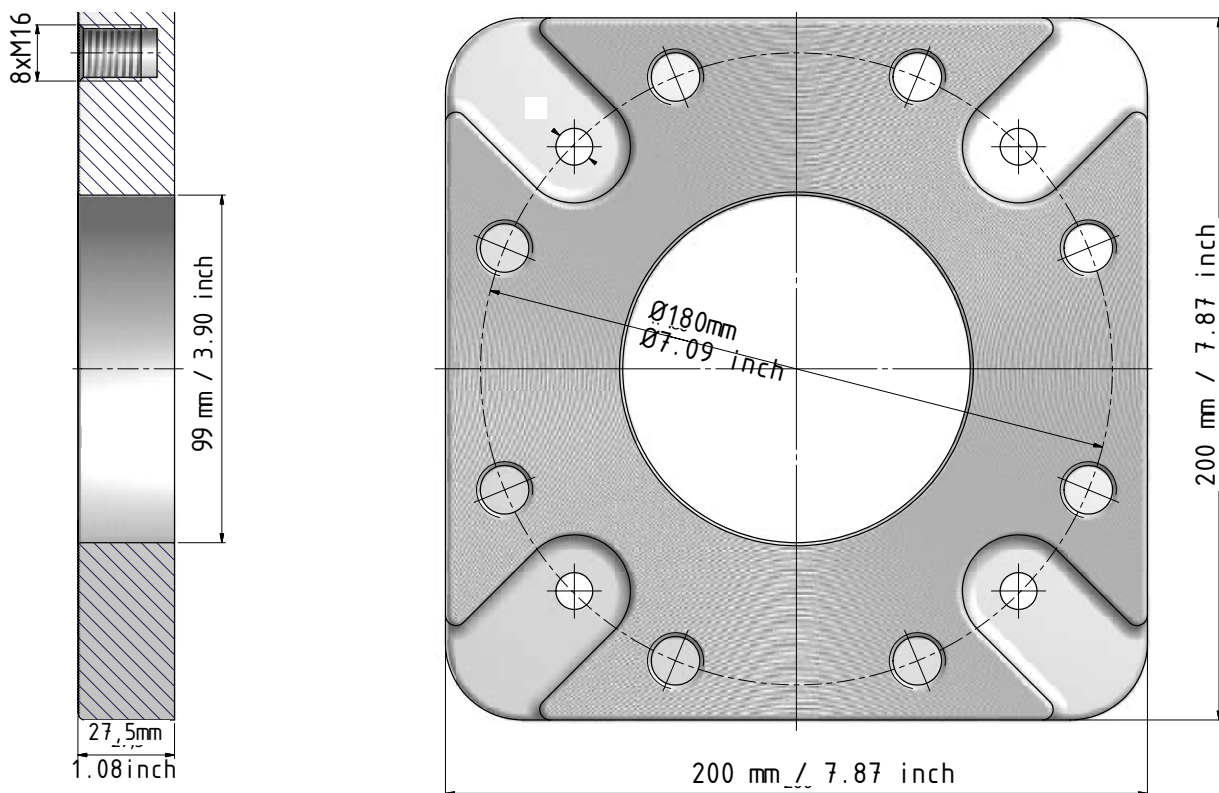
Code No. 1379-1

4" / DN 100 4" BSP Male thread flange, Steel



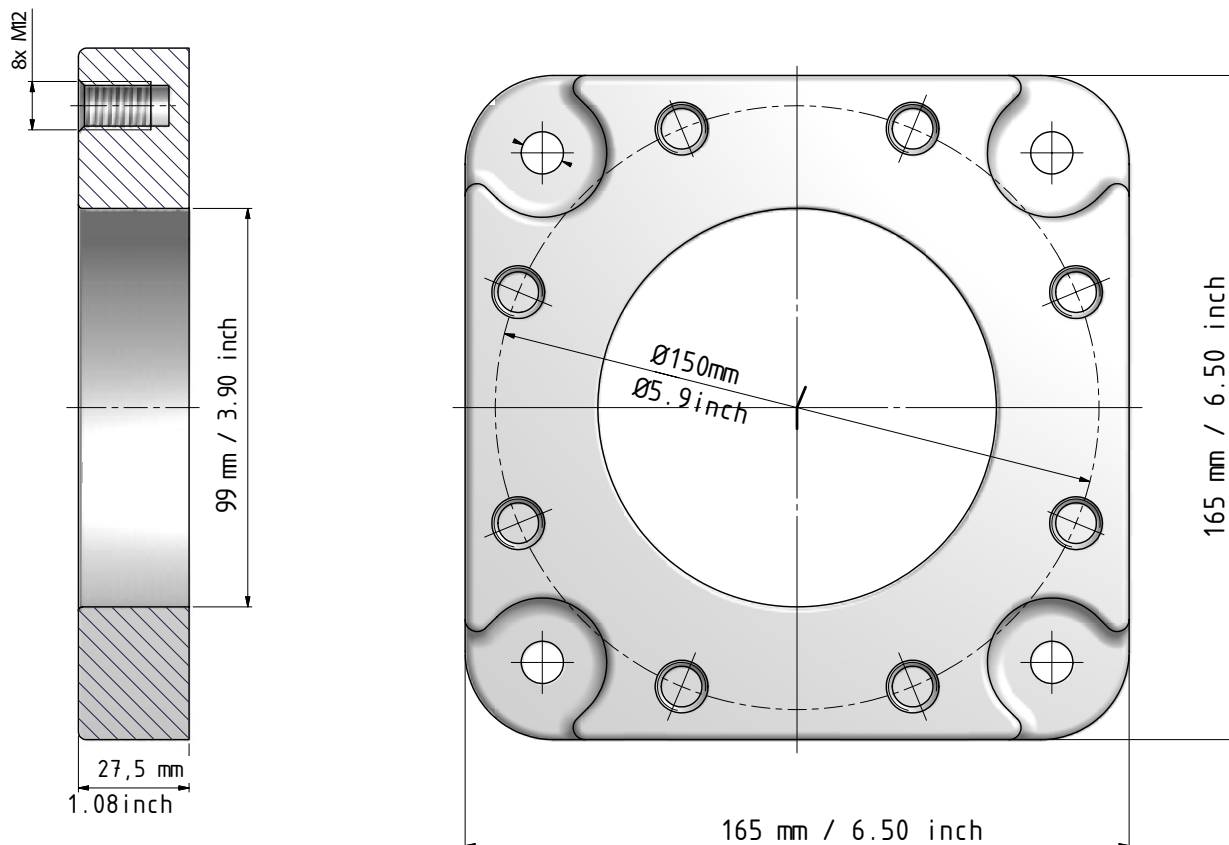
Code No. 1379-3

4" / DN 100 4" PN 10/16, Aluminium



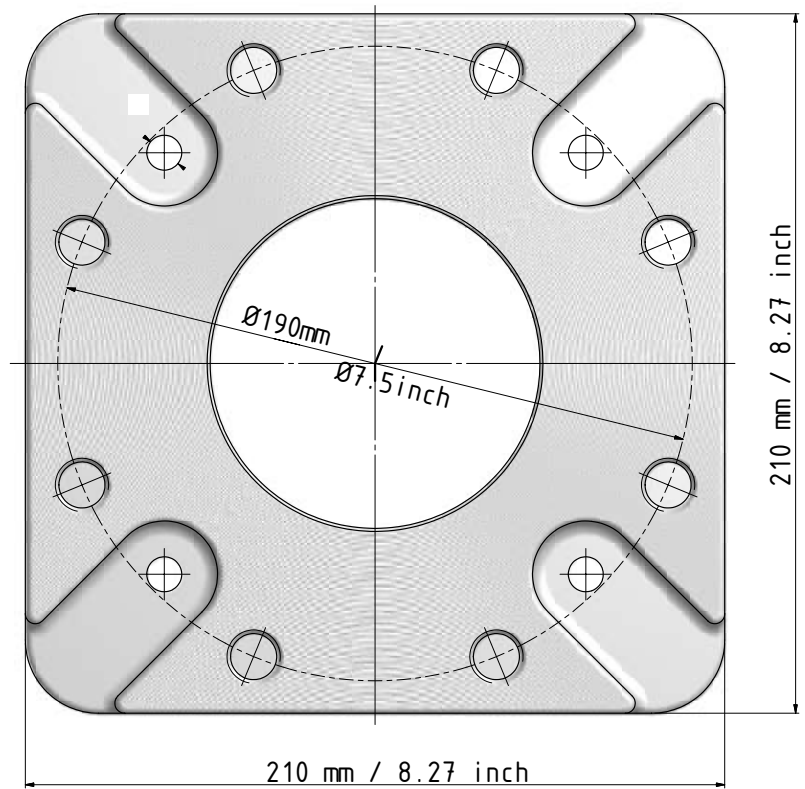
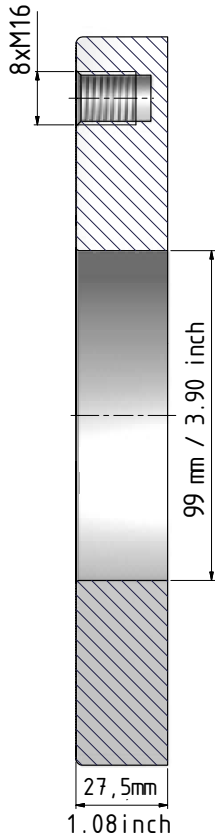
Code No. 1929-1

4" / DN 100 4" TW3 / 100, Aluminium



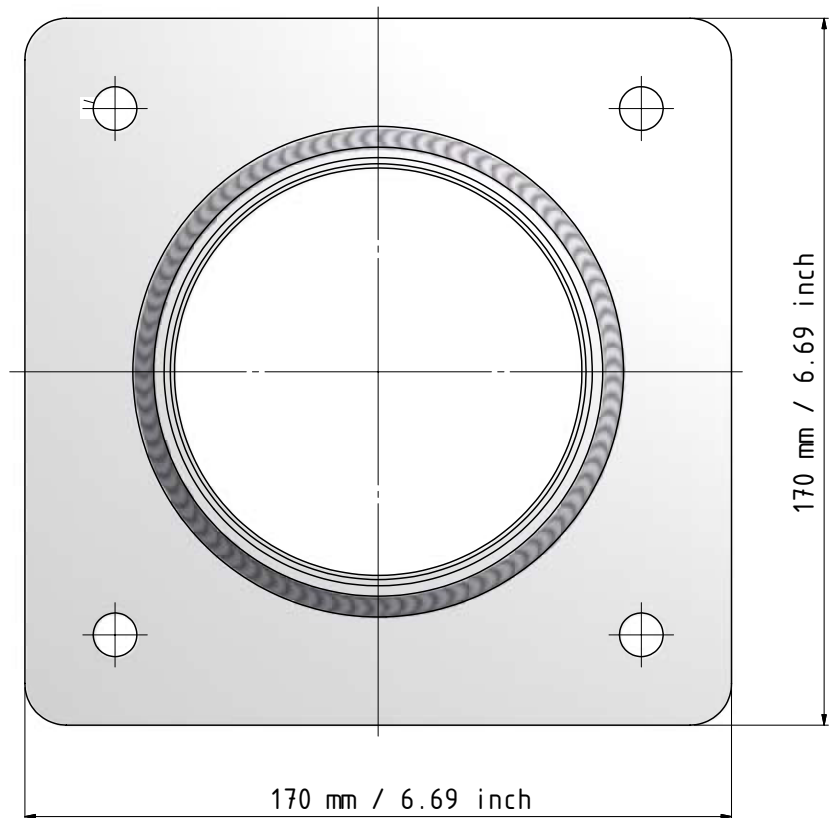
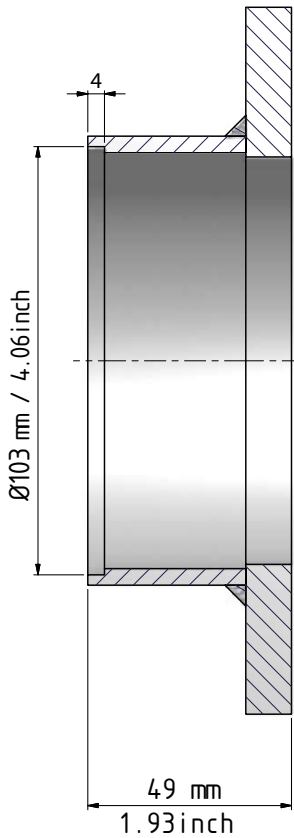
Code No. 1326-1

4" / DN 100 4" ANSI / ASA 150 psi, Aluminium



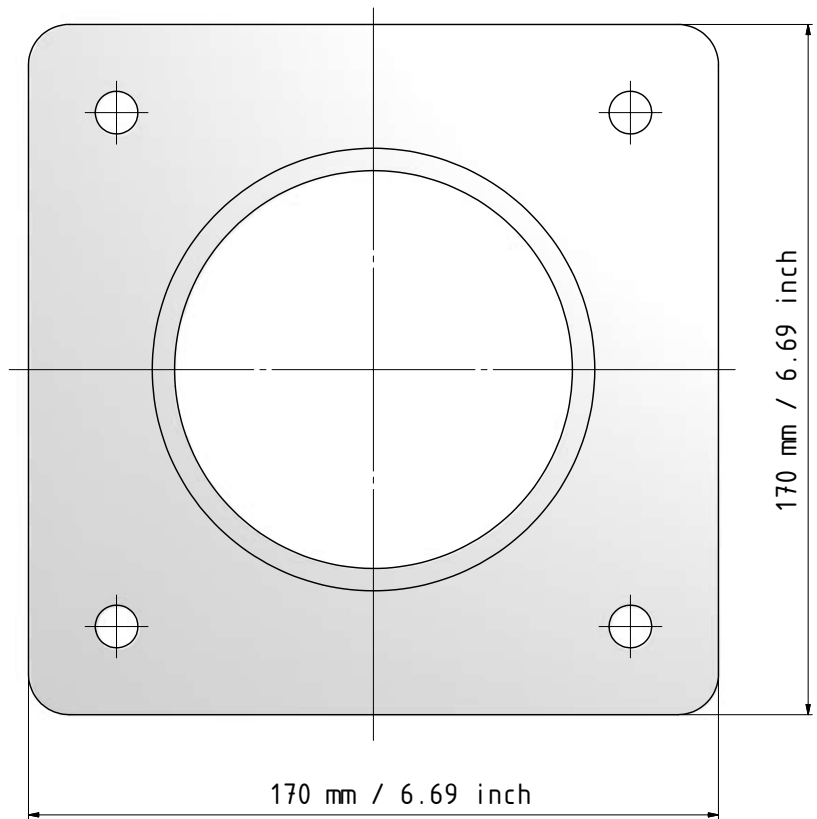
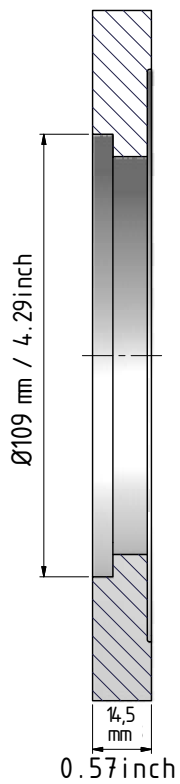
Code No. 2171-1

4" / DN 100 4" Welding flange W Ø102 mm, Steel



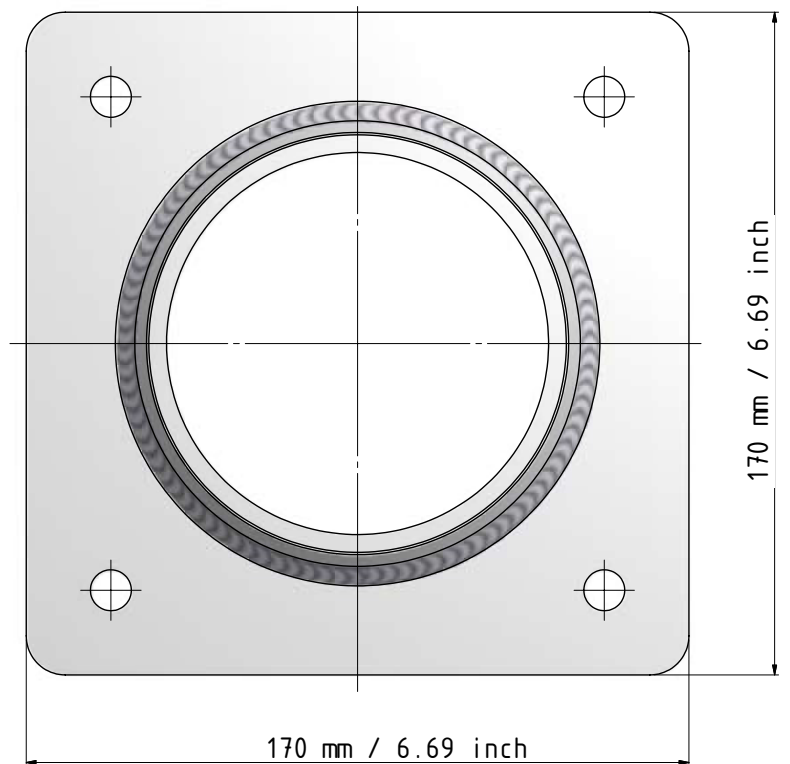
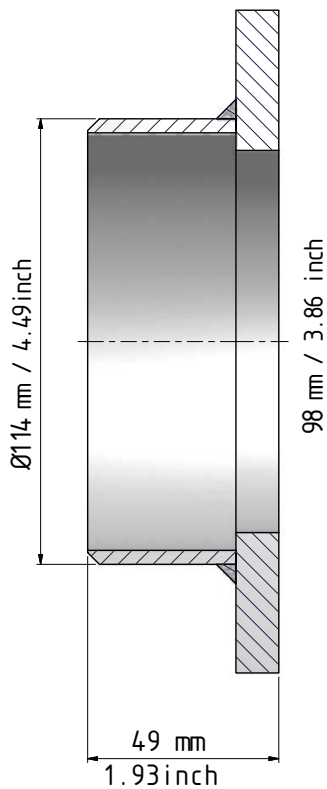
Code No. 1360-3

4" / DN 100 4" Welding flange W Ø108 mm, Aluminium



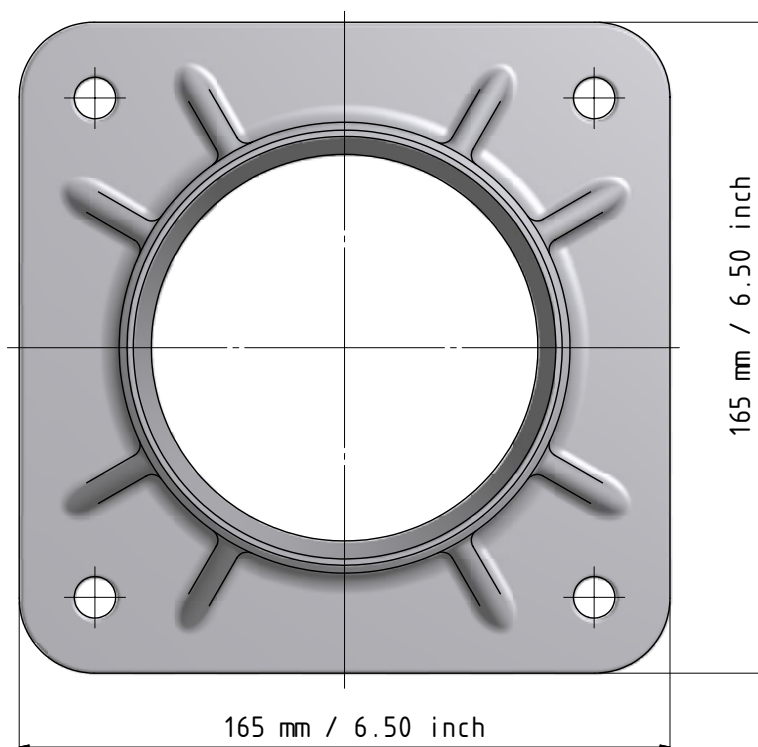
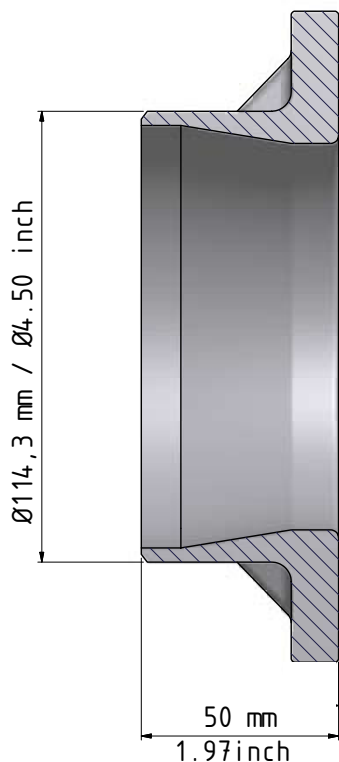
Code No. 1310-1

4" / DN 100 4" Welding flange W Ø114 mm, Steel



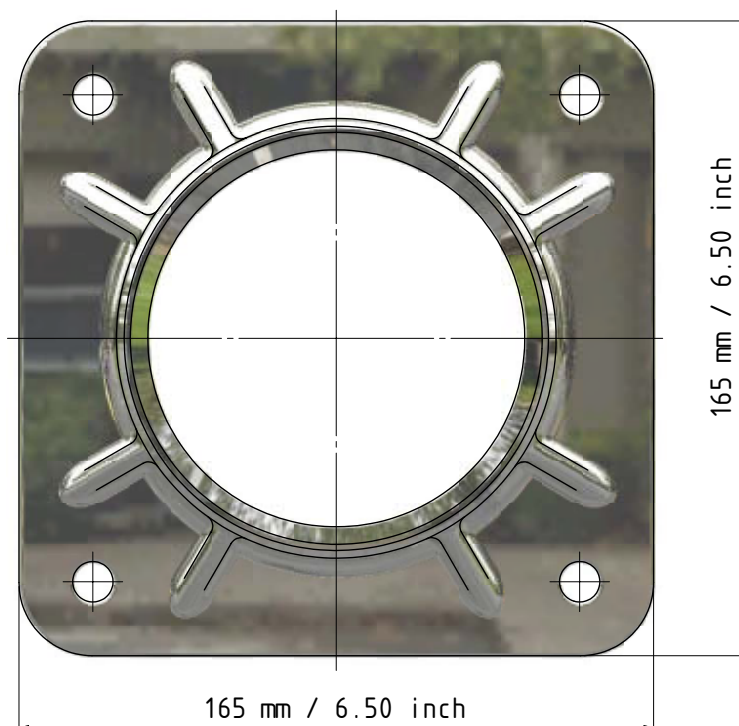
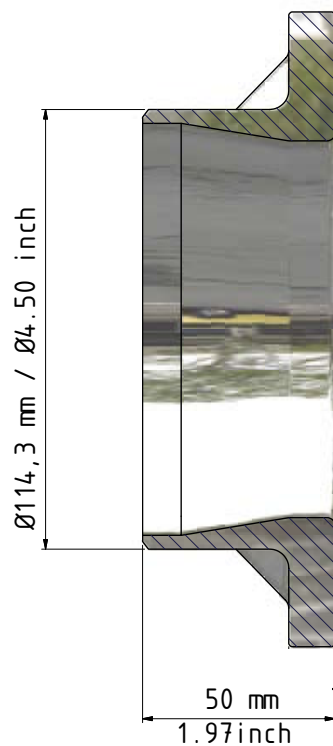
Code No. 1364-3

4" / DN 100 4" Welding flange W Ø114 mm, Steel



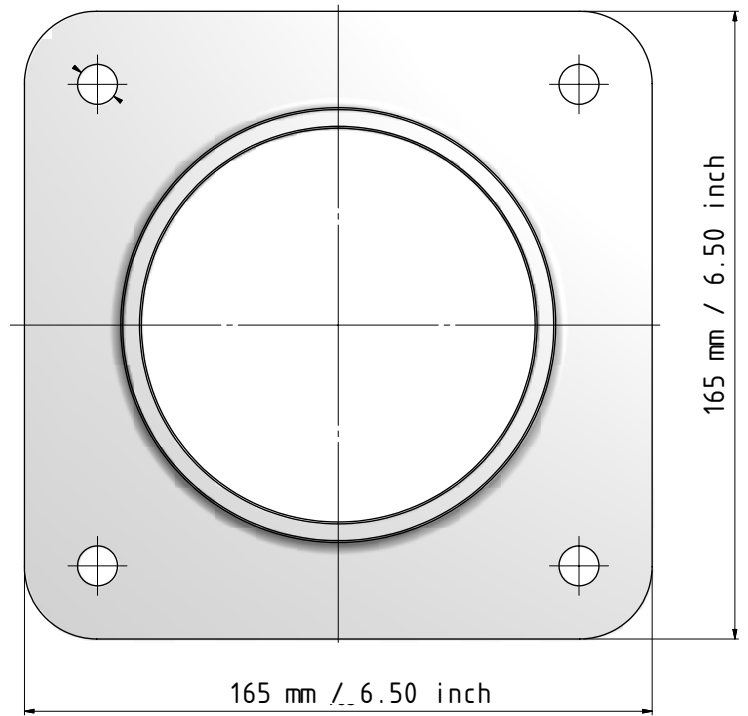
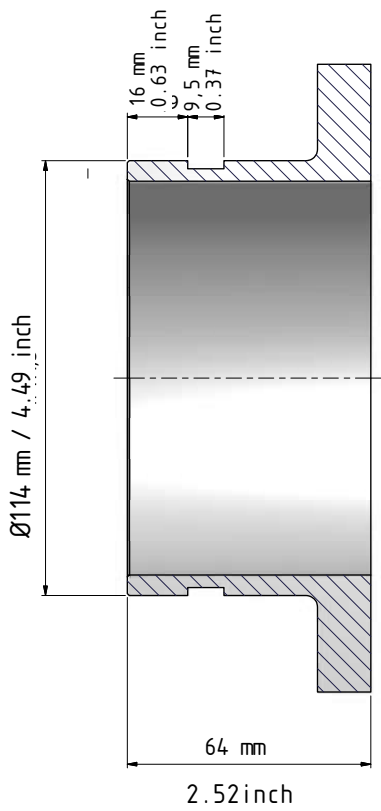
Code No. 1364-3G

4" / DN 100 4" Welding flange W Ø114 mm, Stainless Steel



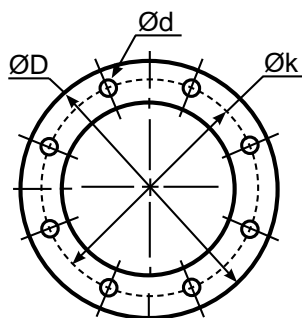
Code No. 1364-4G

4" / DN 100 4" Victualic ANSI AWWA C-606



Code No. 2198-1

Flange Measurement



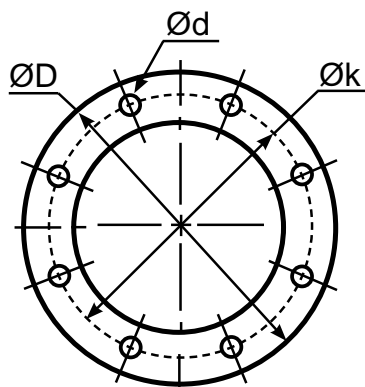
$\varnothing D$ = Diameter
 $\varnothing k$ = Centre diameter
 n = Numer of holes
 $\varnothing d$ = Hole diameter

EN 1092-1																	
DN	PN 10				PN 16				PN 25				PN 40				
		$\varnothing D$	$\varnothing k$	n	$\varnothing d$	$\varnothing D$	$\varnothing k$	n	$\varnothing d$	$\varnothing D$	$\varnothing k$	n	$\varnothing d$	$\varnothing D$	$\varnothing k$	n	$\varnothing d$
20	mm	105	75	4	14	105	75	4	14	105	75	4	14	105	75	4	14
	inch	4.13	2.95		0.55	4.13	2.95		0.55	4.13	2.95		0.55	4.13	2.95		0.55
25	mm	115	85	4	14	115	85	4	14	115	85	4	14	115	85	4	14
	inch	4.53	3.35		0.55	4.53	3.35		0.55	4.53	3.35		0.55	4.53	3.35		0.55
32	mm	140	100	4	18	140	100	4	18	140	100	4	18	140	100	4	18
	inch	5.51	3.94		0.71	5.51	3.94		0.71	5.51	3.94		0.71	5.51	3.94		0.71
40	mm	150	110	4	18	150	110	4	18	150	110	4	18	150	110	4	18
	inch	5.91	4.33		0.71	5.91	4.33		0.71	5.91	4.33		0.71	5.91	4.33		0.71
50	mm	165	125	4	18	165	125	4	18	165	125	4	18	165	125	4	18
	inch	6.50	4.92		0.71	6.50	4.92		0.71	6.50	4.92		0.71	6.50	4.92		0.71
65	mm	185	145	4	18	185	145	4	18	185	145	8	18	185	145	8	18
	inch	7.28	5.71		0.71	7.28	5.71		0.71	7.28	5.71		0.71	7.28	5.71		0.71
80	mm	200	160	8	18	200	160	8	18	200	160	8	18	200	160	8	18
	inch	7.87	6.30		0.71	7.87	6.30		0.71	7.87	6.30		0.71	7.87	6.30		0.71
100	mm	220	180	8	18	220	180	8	18	235	190	8	22	235	190	8	22
	inch	8.66	7.09		0.71	8.66	7.09		0.71	9.25	7.48		0.87	9.25	7.48		0.87
125	mm	250	210	8	18	250	210	8	18	270	220	8	26	270	220	8	26
	inch	9.84	8.27		0.71	9.84	8.27		0.71	10.63	8.66		1.02	10.63	8.66		1.02
150	mm	285	240	8	22	285	240	8	22	300	250	8	26	300	250	8	26
	inch	11.22	9.45		0.87	11.22	9.45		0.87	11.81	9.84		1.02	11.81	9.84		1.02
200	mm	340	295	8	22	340	295	12	22	360	310	12	26	375	320	12	30
	inch	13.39	11.61		0.87	13.39	11.61		0.87	14.17	12.20		1.02	14.76	12.60		1.18
250	mm	395	355	12	22	405	355	12	26	425	370	12	30	450	385	12	33
	inch	15.55	13.98		0.87	15.94	13.98		1.02	16.73	14.57		1.18	17.72	15.16		1.30
300	mm	445	400	12	22	460	410	12	26	485	430	16	30	515	450	16	33
	inch	17.52	15.75		0.87	18.11	16.14		1.02	19.09	16.93		1.18	20.28	17.65		1.30

Flange translation EN 1092 ---- DIN

EN 1092-1	DIN
EN 1092-1 PN 6	DIN 2631
EN 1092-1 PN 10	DIN 2632
EN 1092-1 PN 16	DIN 2633
EN 1092-1 PN 25	DIN 2634
EN 1092-1 PN 40	DIN 2635
EN 1092-1 Type B Raised Face	DIN 2526 Form C
EN 1092-1 Type C Tongue	DIN 2512 Form F
EN 1092-1 Type D Groove	DIN 2512 Form N
EN 1092-1 Type E Spigot	DIN 2513 Form V
EN 1092-1 Type F Recess	DIN 2513 Form R

Flange Measurement



- Ø D = Diameter
- Ø k = Centre diameter
- n = Numer of holes
- Ø d = Hole diameter

ANSI B 16,5										
DN		150 psi				300 psi				INCH
		ØD	Øk	n	Ød	ØD	Øk	n	Ød	
19	mm	98	70	4	16	117	82	4	19	3/4"
	inch	3.86	2.76	0.16	0.63	4.61	3.23	0.16	0.75	
25	mm	108	79	4	16	124	89	4	19	1"
	inch	4.25	3.11	0.16	0.63	4.88	3.50	0.16	0.75	
32	mm	117	89	4	16	133	98	4	19	1 1/4"
	inch	4.61	3.50	0.16	0.63	5.24	3.86	0.16	0.75	
40	mm	127	98	4	16	156	114	4	22	1 1/2"
	inch	5.00	3.86	0.16	0.63	6.14	4.49	0.16	0.87	
50	mm	152	121	4	19	165	127	8	19	2"
	inch	5.98	4.76	0.16	0.75	6.50	5.00	0.31	0.75	
65	mm	178	140	4	19	190	149	8	22	2 1/2"
	inch	7.01	5.51	0.16	0.75	7.48	5.87	0.31	0.87	
80	mm	190	152	4	19	209	168	8	22	3"
	inch	7.48	5.98	0.16	0.75	8.23	6.61	0.31	0.87	
100	mm	229	190	8	19	254	200	8	22	4"
	inch	9.02	7.48	0.31	0.75	10.00	7.87	0.31	0.87	
125	mm	254	216	8	22	279	235	8	22	5"
	inch	10.00	8.50	0.31	0.87	10.98	9.25	0.31	0.87	
150	mm	279	241	8	22	317	270	12	22	6"
	inch	10.98	9.41	0.31	0.87	12.48	10.63	0.47	0.87	
200	mm	343	298	8	22	381	330	12	25	6"
	inch	13.50	11.73	0.31	0.87	15.00	12.99	0.47	0.98	

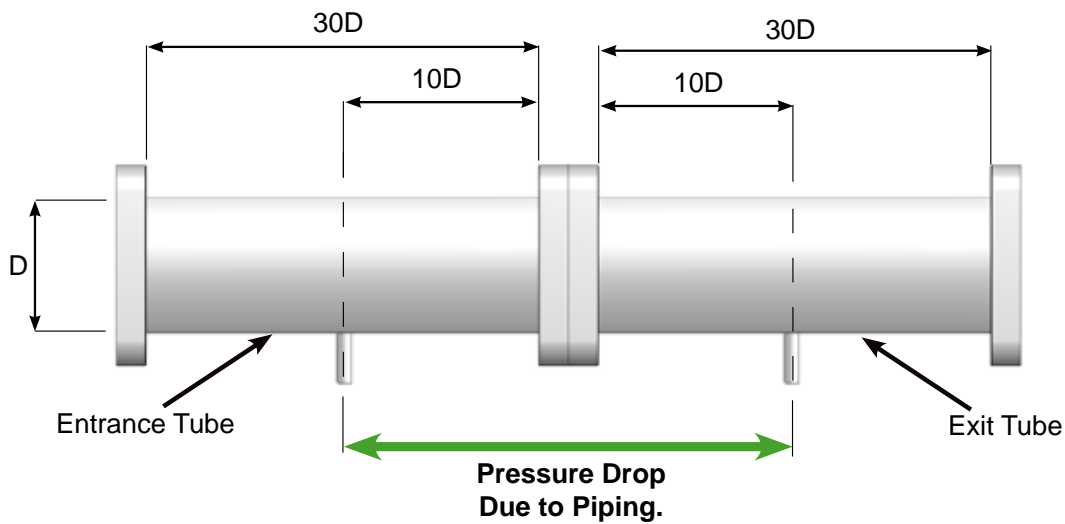
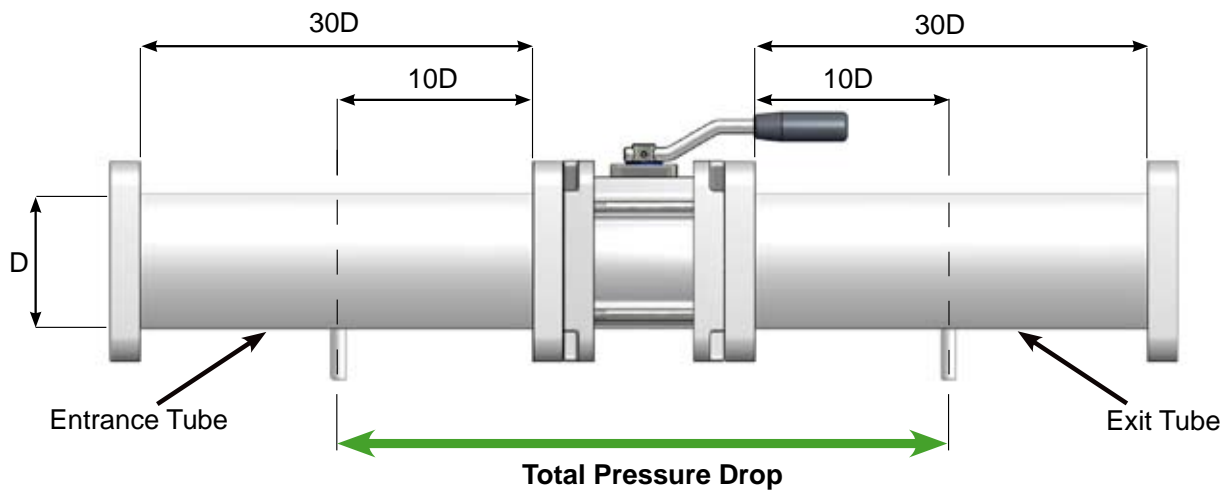
T.T.M.A						
DN		ØD	Øk	n	Ød	INCH
50	mm	114,3	95,3	6	11,1	2"
	inch	4.50	3.75	0.24	0.44	
80	mm	142,9	123,8	8	11,1	3"
	inch	5.63	4.87	0.31	0.44	
100	mm	168,3	149,2	8	11,1	4"
	inch	6.63	5.87	0.31	0.44	
125	mm	196,9	177,8	12	11,1	5"
	inch	7.75	7.00	0.47	0.44	
150	mm	228,6	206,4	12	11,1	6"
	inch	9.00	8.13	0.47	0.44	
200	mm	276,2	257,2	16	11,1	8"
	inch	10.87	10.13	0.63	0.44	

TW DIN 28459						
	DN		ØD	Øk	n	Ød
TW1	80	mm	154	130	8	11
		inch	6.06	5.12	0.31	0.43
TW3	100	mm	174	150	8	14
		inch	6.85	5.91	0.31	0.55
TW5	125	mm	204	176	8	14
		inch	8.03	6.93	0.31	0.55
TW7	150	mm	240	210	12	14
		inch	9.45	8.27	0.47	0.55

Pressure Drop Measurement

Pressure Drop Measurement

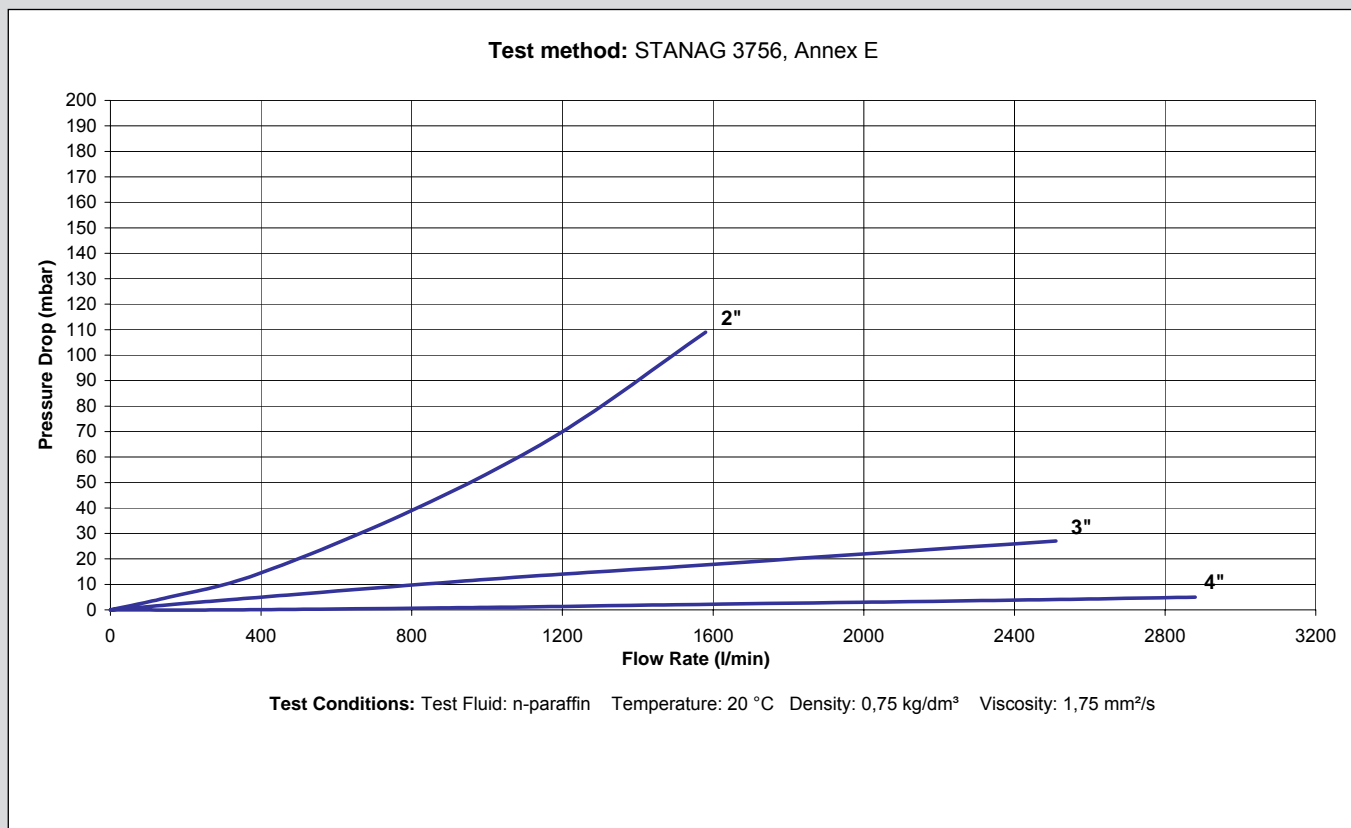
According to NATO STANAG 3756, Annex E



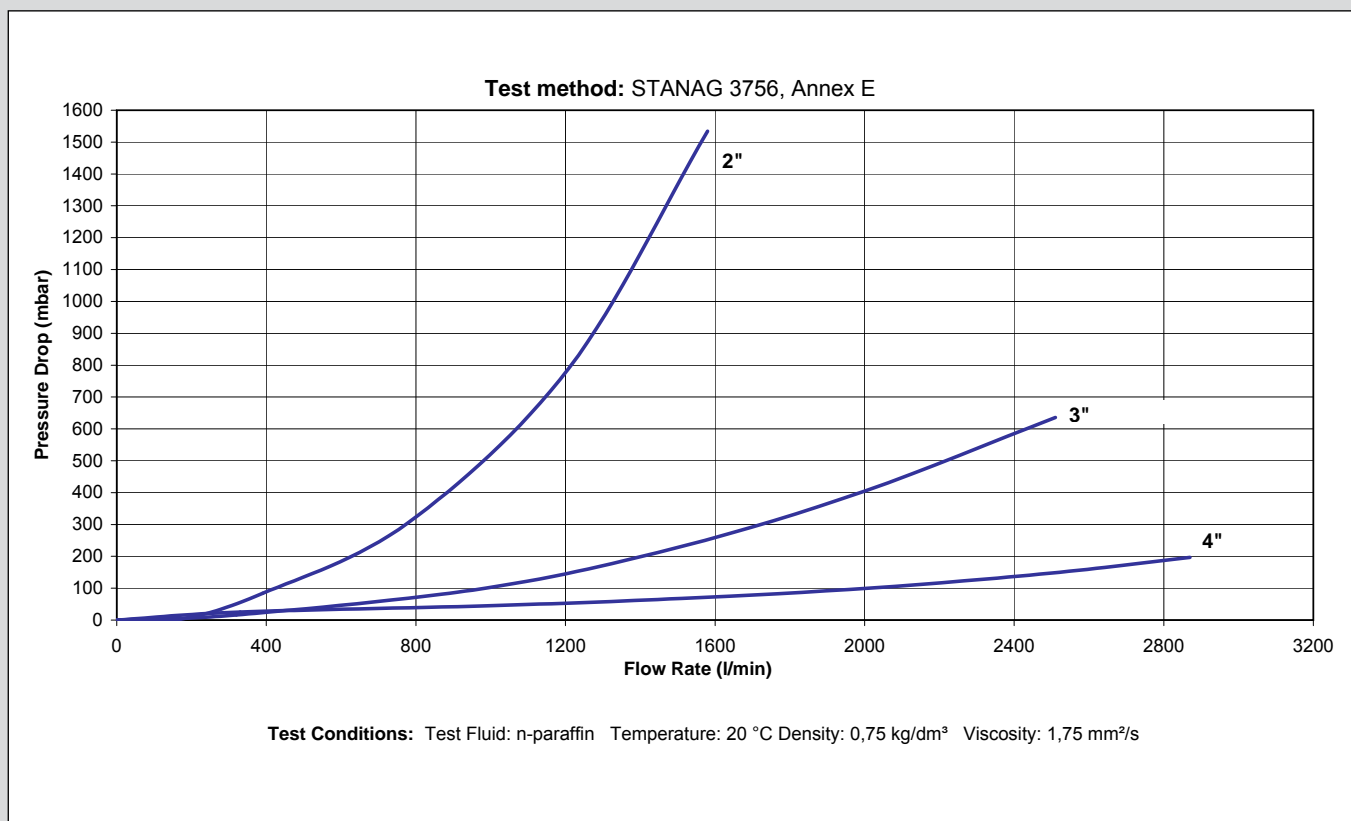
Pressure Drop Ball Valve = Total Pressure Drop - Pressure Drop Due to Piping

$$\text{Pressure Drop Ball Valve} = \Delta P$$

Flow Diagram - Pressure Drop for Ball Valves



Flow Diagram - Pressure Drop for 2-way Valves



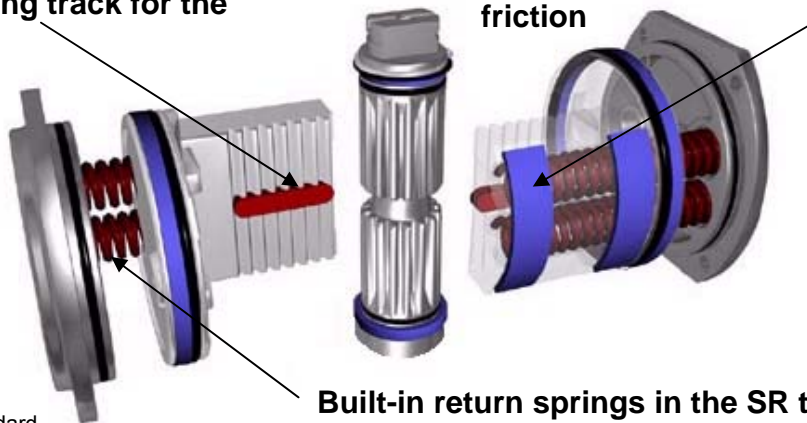
Efficient design pneumatic actuators

WM pneumatic actuators are designed according to Euro-standards DIN/ISO 5211 and Namur/VDI/VDE 3845. The actuator design has following features: Piston gear teeth are equipped with a support bar which rolls against the relief in the shaft. This relieves the load on the teeth, makes smooth travel and

increases life of actuator. As a result of our patented design of return springs, single acting actuators have the same dimensions as double acting. WM-actuators have 93 degrees travel with end stop adjustment, in order to compensate eventual play in valve shaft and coupling

Support bar – rolling track for the shaft relief

Hard sliding pads of POM for low friction

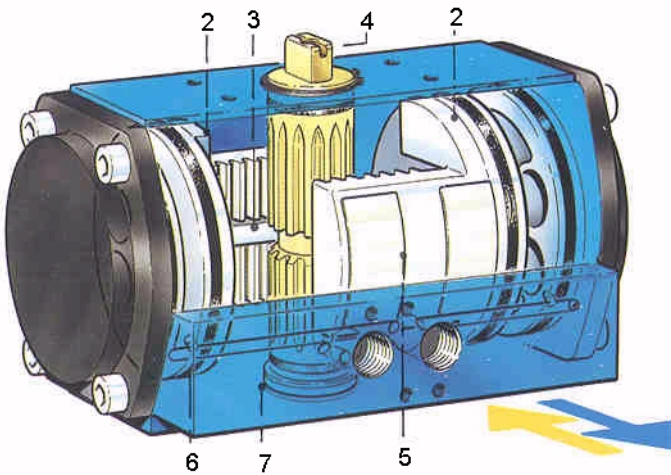


- ✓ DIN/ISO/NAMUR-standard
- ✓ Gear teeth relieved of load
- ✓ Built-in return springs

Built-in return springs in the SR type

Double-acting type DA

Single-acting type SR with Return springs



1. Return spring
2. Piston
3. Support bar
4. Shaft

5. Sliding pad
6. O-ring
7. Air connections

ATEX approved



Operation actuators

WM actuators have a linear torque characteristic. The torque is constant throughout the angle of rotation (Double act.). This makes sizing of actuators easy.

WM actuators can easily be modified from DA to SR simply, by removing end caps fit the springs into the spring wells and refitting the end caps.

The direction of rotation can be altered easy by just turning the pistons.

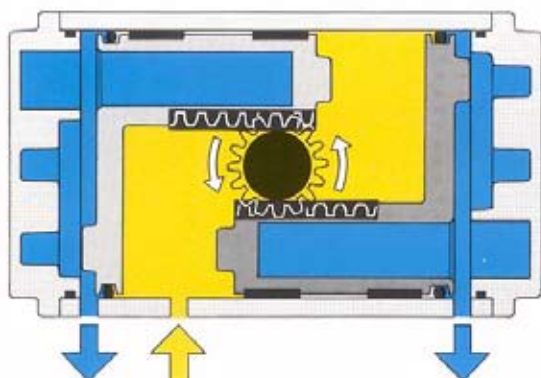
SR actuators can be used either to close or open the valve in the event of loss of air supply.

Adjustable end stop in outer position is standard.

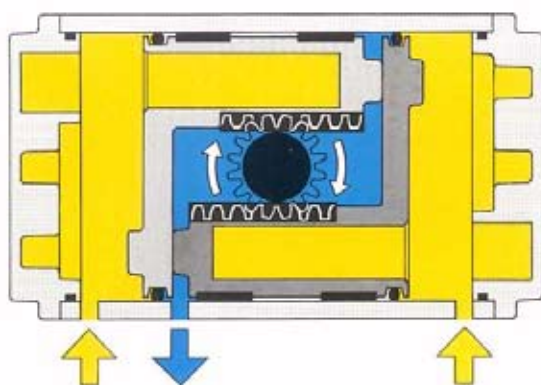
WM actuators are permanently greased and need not normally be connected to a mist lubricator.

Double-acting type DA

Anti-clockwise - opens



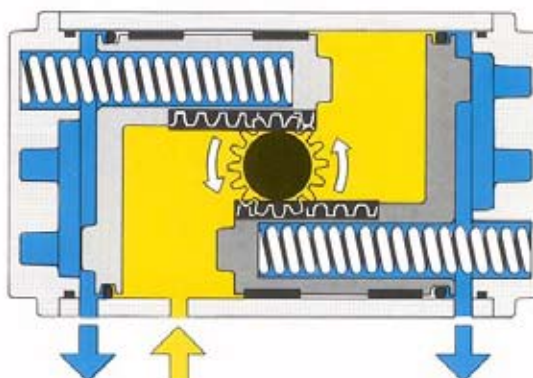
Clockwise - closes



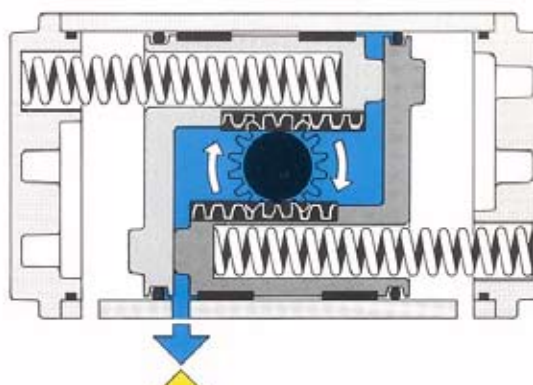
Air in

Single-acting type SR with return springs

Anti-clockwise - opens



Clockwise - closes



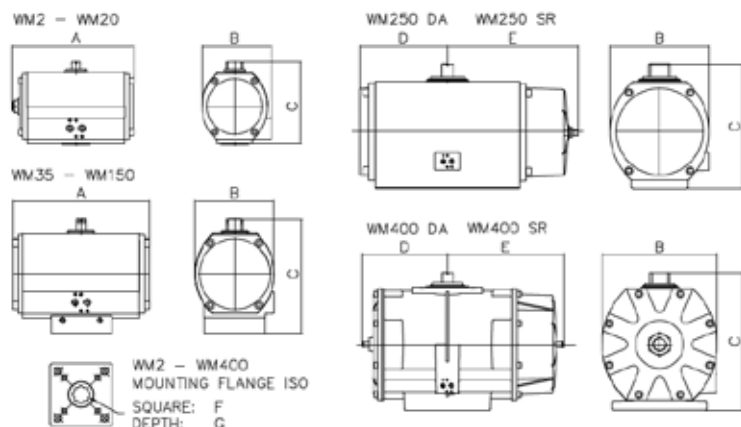
Air out

ATEX approved



Technical specification pneumatic actuators

Wire Matic is a Swedish produced rack and pinion actuator which gives a linear torque over the angle of rotation. WM actuators can easily be modified from double acting (DA) to single acting (SR) with spring return by fitting a spring kit. WM actuators are used for on-off and control valves. Standard blue anodized or ChemicalNickel impregnated (CNI) + PTFE treatment for corrosive environments.



Type	DA Torque Nm@ 5.5bar	DA Actuator Varenr:	DA Weight Kg.	A mm.	B mm.	C mm.	D mm.	E mm.	F mm.	G mm.	ISO 5211	SR Torque Nm@ 5.5bar	SR Spring kit Varenr:	SR Weight Kg.	DA/SR Seal kit Varenr:
WM 2	21	xxxxxxxx	1.0	125	76	93	-	-	11	15	F04	6/9	xxxxxxxx	1.1	xxxxxxxx
WM 4	41	xxxxxxxx	1.7	147	88	111	-	-	11	15	F05	13/16	xxxxxxxx	1.9	xxxxxxxx
WM 8	75	xxxxxxxx	2.8	186	105	129	-	-	14	18	F05/F07	25/27	xxxxxxxx	3.2	xxxxxxxx
WM 12	122	xxxxxxxx	4.0	218	120	139	-	-	14	18	F05/F07	37/37	xxxxxxxx	4.6	xxxxxxxx
WM 12	122	xxxxxxxx	4.0	218	120	139	-	-	17	21	F05/F07	37/37	xxxxxxxx	4.6	xxxxxxxx
WM 20	206	xxxxxxxx	6.3	238	137	161	-	-	17	21	F07	67/71	xxxxxxxx	7.2	xxxxxxxx
WM 35	375	xxxxxxxx	10.1	270	156	226	-	-	22	54	F10	122/169	xxxxxxxx	11.8	xxxxxxxx
WM 55	595	xxxxxxxx	18.0	312	194	273	-	-	27	49	F10/F12	194/216	xxxxxxxx	21.1	xxxxxxxx
WM 70	727	xxxxxxxx	20.3	358	198	277	-	-	27	59	F10/F12	243/239	xxxxxxxx	23.0	xxxxxxxx
WM 100	1140	xxxxxxxx	25.6	366	229	333	-	-	36	62	F14	379/554	xxxxxxxx	32.1	xxxxxxxx
WM 150	1680	xxxxxxxx	33.0	394	280	381	-	-	36	65	F14	720/691	xxxxxxxx	45.0	xxxxxxxx
WM 250	2697	xxxxxxxx	58.0	-	280	352	249	369	46	50	F16	1042/1121	xxxxxxxx	82.0	xxxxxxxx
WM 400	4543	xxxxxxxx	115.0	-	360	435	268	364	55	58	F25	2207/1409	xxxxxxxx	140.0	xxxxxxxx

Specifications:

Cylinder & end caps	Aluminium, Anodized
Shaft	Steel, plated
Adjustment screw & bolts:	Stainless steel
Air supply WM 2-8	Namur 1/8"
Air supply WM 12-400	Namur 1/4"
Mounting flanges	ISO
Max pressure	10 bar

Option:

Corrosion resistant (CNI) actuators
Solenoid valve Joucomatic 24V DC
Solenoid valve Joucomatic 230V AC
Limit switch box ITS-100
Limit switch box Eex"d" ITS-300
Positioner PMV D3 (In 4-20mA/out 4-20mA)

Varenr.

Contact	xxxxxxxx
xxxxxxxx	xxxxxxxx
xxxxxxxx	xxxxxxxx
xxxxxxxx	xxxxxxxx
xxxxxxxx	xxxxxxxx

ATEX approved



Technical specification pneumatic actuators

Actuating medium: Compressed air or nitrogen
 Max pressure: 10 bar
 Actuating air demand/5,5 bar: 52 to 17.500 cm³ – see tabled below
 Temperature limits: -30° to +80°

Double-acting type DA

Actuator designation		Torque Nm	Air consumption cm ³		Displacement cm ³	Actuator time* sec		Weight Kg
			Clockwise	Anti-clockwise		Opening	Closing	
WM 2	DA	21	96	125	120	<1	<1	1
WM 4	DA	41	184	236	240	<1	<1	1,7
WM 8	DA	75	340	430	430	<1	<1	2,8
WM 12	DA	122	486	636	700	1-1,5	1-1,5	4
WM 20	DA	206	900	994	1180	1-2	1-2	6,3
WM 35	DA	375	1694	1900	2180	1,5-2,5	1,5-2,5	10,1
WM 55	DA	595	2800	3400	3560	2-4	2-4	18
WM 70	DA	727	3050	3700	4160	2-4	2-4	20,3
WM 100	DA	1140	5518	5900	6520	3-4,5	3-4,5	25,6
WM 150	DA	1680	7600	9600	9620	3,5-5	3,5-5	33
WM 250	DA	2697	8500	9800	16258	4-7	4-7	58
WM 400	DA	4543	13600	17500	27392	8-12	8-12	115

* The times are dependent on the size of solenoid valve used for the air supply

Single-acting SR with return springs

Actuator designation		Torque Nm				Air consumption cm ³ Anti-clockwise	Displacement cm ³	Actuator time* seconds		Weight Kg
		Anti-clockwise with air at		Clockwise with & spring at				air Opening	spring Closing	
		0°	90°	0°	90°					
WM 2	SR	15	9	12	6	125	120	<1	<1	1,1
WM 4	SR	27	16	25	13	236	240	<1	<1	1,9
WM 8	SR	47	25	49	27	408	430	<1	<1	3,2
WM 12	SR	84	37	84	37	636	700	1-1,5	0,5-1	4,6
WM 20	SR	138	71	134	67	994	1180	1-2	1-1,5	7,2
WM 35	SR	251	169	204	122	1900	2180	1,5-2,5	1-2	11,8
WM 55	SR	402	216	308	194	3400	3560	2-4	1,5-3	21,1
WM 70	SR	484	239	488	243	3700	4160	2-4	1,5-3	23
WM 100	SR	758	554	583	379	5900	6520	3,5-5,5	2-3	32,1
WM 150	SR	963	691	992	720	9600	9620	4,5-7	2,5-4	45
WM 250	SR	1655	1121	1576	1046	9800	16258	5-8	3-5	82
WM 400	SR	2517	1409	3134	2026	17500	27392	10-13	8-10	140

* The times are dependent on the size of solenoid valve used for the air supply

ATEX approved



SOLENOID VALVE JOUCOMATIC NAMUR 5/2 - 3/2

Multi function 3/2 or 5/2 for SR/DA-actuators

The solenoid valve is delivered with two different namurplates. One for 3/2- ways and one for 5/2- ways. The valve is directly mounted on a WM-actuator



Solenoid Valve designation:

Solenoid Valve Namur 3/2

Solenoid Valve Namur 5/2



Specifications:

Body:	Aluminium, anodized
Pressure:	2 – 10 Bar
Enclosure:	IP 65
Temperature:	-25°C - +60°C
Coils:	12, 24, 48, 110 and 230V AC/DC
Connector:	mPm-Connector, PG11
Operators:	Pilot: Solenoid, air Return: Spring
Air inlets:	BSP 1/4"
Options:	Ex-coil Double pulse coil Connector with LED varistor Connector with cable Silencer/Speed control

ATEX approved



Accessories - pneumatic actuators

LIMIT SWITCH BOX WM-ITS100



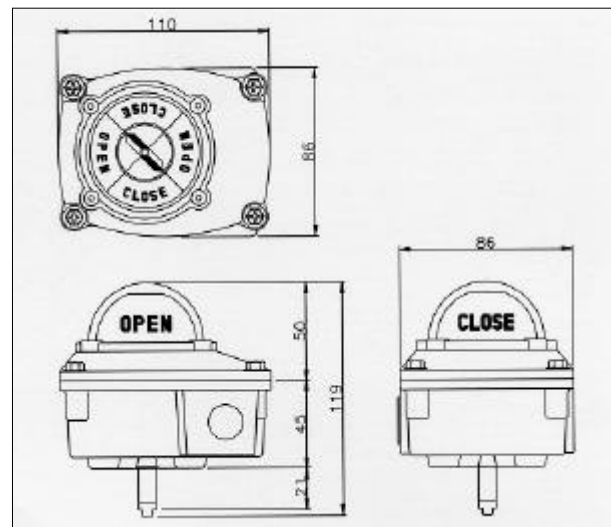
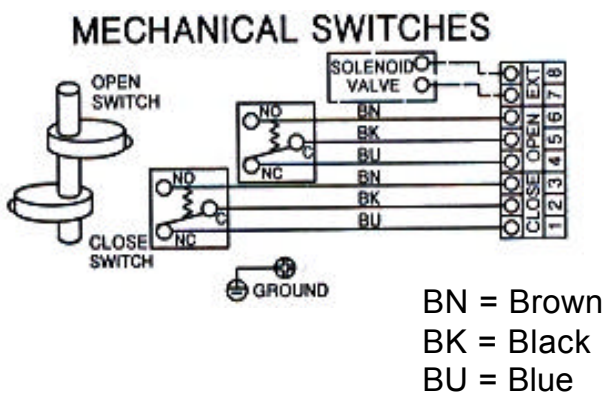
Specifications:

- Body:** Aluminium, epoxy – powder coated
- Enclosure:** IP 67 CE- Marked
- Shaft:** Stainless steel
- Bracket:** Stainless steel
- Switch cams:** Adjustable, preset for 90°
- Cable inlets:** 2x M20
- Terminal block:** Plastic, 8 -ways
- Mechanical switches:** 2 pcs. Max 250V AC 16A, 125 V DC 0.6A

Limit Switch Box designation:
Switch Box WM-ITS 100

Alternative Switches

- Proximity sensors:** 2 pcs. type V3, IFM IS 5001, 10-36V DC PNP
- Proximity sensors:** 2 pcs type V3, IFM NS 5002, 5-25V DC Namur





II 2 GD Ex d IIB T6
tD A21 IP67 T80°C
CE 0081 LCIE 06 ATEX 6006X

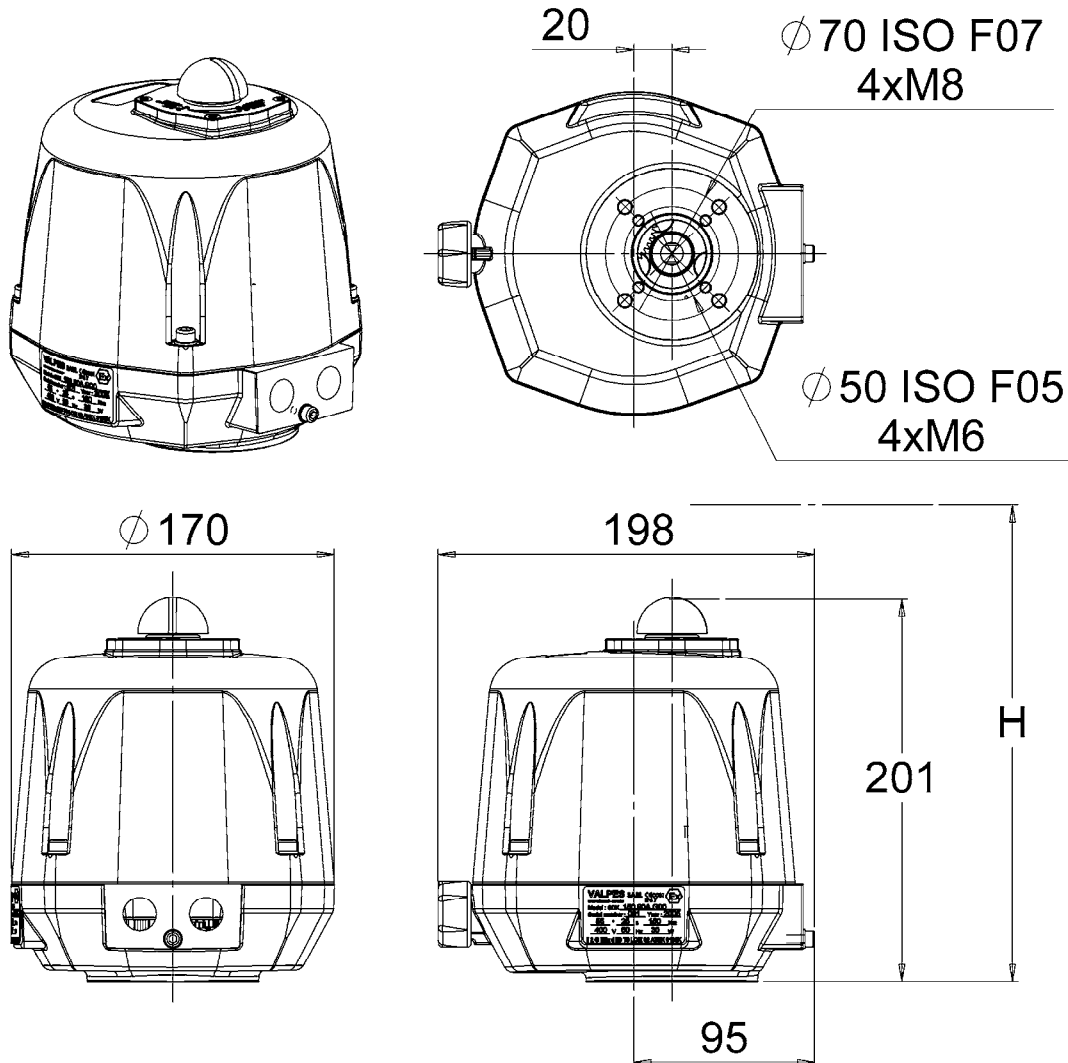
For 400V actuators with EBS.24 / Für 400V Stellantriebe und mit EBS.24 :

II 2 GD Ex d IIB T5
tD A21 IP67 T95°C

Electric Actuators - Mechanical mounting

DIMENSIONS OF THE ACTUATOR

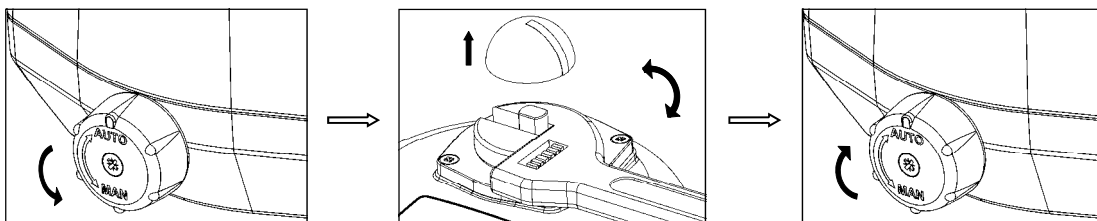
- The actuator is set to its closed position in our factory.
- Possible fixations : F05 (4xM6 with $\varnothing 50$) and F07 (4xM8 with $\varnothing 70$), star 17, depth 19mm.
- Do not mount the actuator « upside down ».
- Necessary height above the valve for the mounting of the actuator : H=300mm.



EMERGENCY MANUAL OVERRIDE

In case of an electric supply failure, it is possible to operate the actuator manually :

- Turn the knob (appendix p.14 mark 9) to position MAN and hold it in position.
- Turn the outgoing drive shaft of the actuator with the help of an adjusting spanner.
- In order to re-engage the reduction, release the knob.



MOUNTING / DISASSEMBLY OF THE COVER AND POSITION INDICATOR

For the wiring and setting of the actuator, it is necessary to remove the cover.

- Mounting of the cover (appendix p.14 mark 2) : make sure that the seal ring (appendix p.14 mark 7) is correctly placed in its position, grease of the flame path (Molydal 3790 grease or equivalent), mount the cover and tighten the 4 screws M6 (appendix p.14 mark 3, torque : 6Nm).
- Mounting of the position indicator (appendix p.14 mark 1) : fit the indicator onto the outgoing axle.

Electric Actuators - Electric Connection

The caps placed on M20x1.5 threaded openings (appendix p.14 mark 15) must be replaced by ATEX certified connection glands.

- Remove the position indicator, unscrew the four screws and take off the cover.

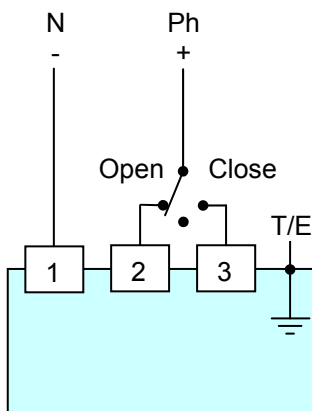


RESPECT SAFETY INSTRUCTIONS

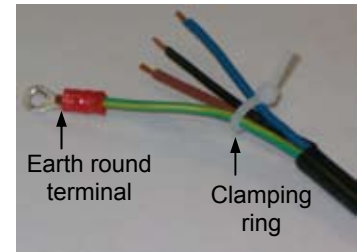
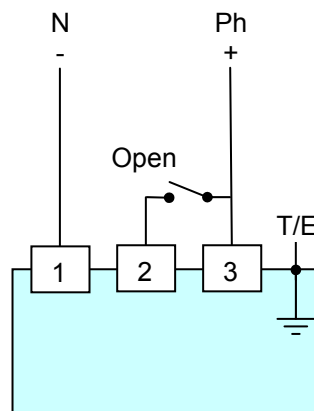
SUPPLY AND CONTROL WIRING

- Ensure that the voltage indicated on the actuator ID label (appendix p.14 mark 11) corresponds to the voltage supply.
- Connect to earth through the exterior bolt M5 located under the cable gland (appendix p.14 mark 16). It is also possible to connect the actuator to earth inside the actuator through the bolt M3 next to the terminal strip (appendix p.15 mark A).
- Unscrew the left cable gland and insert the cable.
- Connect the wires to the terminal strip (appendix p.15 mark B) in accordance with the required control mode.

3-points modulating mode



On-Off mode (pre-set to closed)

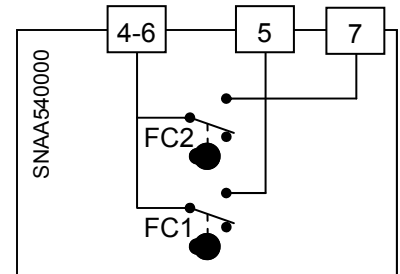


- Put a lacing cord around the wires (see the picture beside) and re-tighten the cable gland.

WIRING OF THE FEEDBACK SIGNAL

Our actuators are equipped with two simple limit switch contacts normally set in their open position (NO). As per factory setting, the white cam is used to detect the open position (FC1) and the black cam is used to detect the closed position (FC2). This feedback system accepts voltages between 24V and 240V AC/DC.

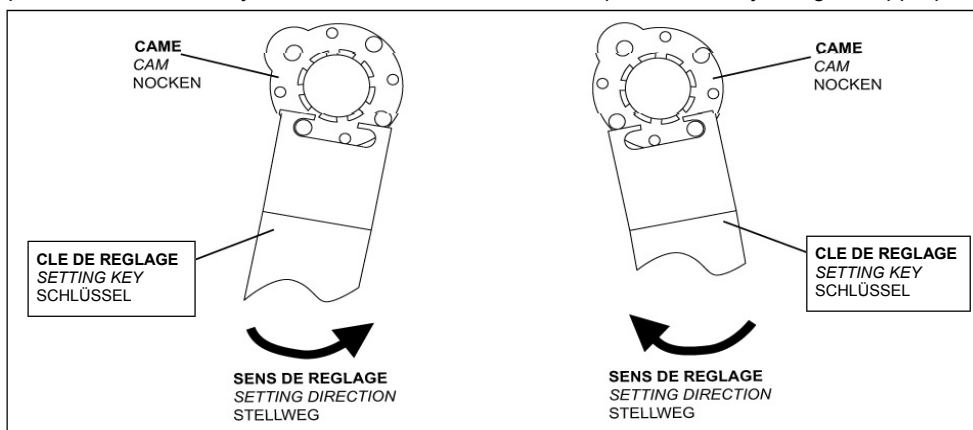
- Unscrew the right cable gland and insert the cable.
- Remove 25mm of the cable sheath and strip each wire by 8mm.
- Connect the wires to the terminal strip (appendix p.14 mark 12) in accordance with the diagram beside.
- Tighten the cable gland.



SETTING OF END LIMIT SWITCHES

The actuator is pre-set in our factory. Do not touch the two lower cams in order to avoid any malfunctioning or even damage to the actuator.

- To adjust the position of the auxiliary contacts, make rotate the two superior cams by using the appropriate wrench.



- Re-mount the cover, fasten the four screws and attach the position indicator.

Electric Actuators - Instructions

DESCRIPTION

The electric actuators VALPES have been designed to perform the control of a valve with 90° rotation. Please consult us for any different application. Valves cannot be held responsible if the mentioned actuators are used in contradiction to this advice.

SAFETY INSTRUCTIONS



To be read prior to the installation of the product

- The electric power supply must be switched-off before any intervention on the electric actuator (i.e. prior demounting its cover or manipulating the manual override knob). Wait 30 minutes before opening the cover.
- Any intervention must only be carried out by a qualified electrician or other person instructed in accordance with the regulations of electric engineering, safety, and all other applicable directives.
- Strictly observe the wiring and set-up instructions as described in the manual: otherwise, the proper working of the actuator can not be guaranteed anymore. Verify that the indications given on the identification label of the actuator fully correspond to the characteristics of the electric supply.
- The product must be protected by an easily accessible electric safety device (power isolator) corresponding to its power.
- As stipulated in the applicable regulation, the connection to earth contact is compulsory for devices with working voltages exceeding 42 V.

- Used symbols :



Danger : risk of electric shock



Earth protection



Direct and alternating voltage

- **The caps placed on M20x1.5 threaded openings must be replaced by ATEX certified connection glands.**

TRANSPORT AND STORAGE

- The forwarding agents being held as responsible for damages and delays of the delivered goods, the consignees are obliged to express if applicable their reserves, prior to accept the goods. The goods delivered directly ex works are subject to the same conditions.
- The transport to the place of destination is carried out by using rigid packing material.
- The products must be stored in clean, dry, and ventilated places preferably on appropriate palettes or shelves.

MAINTENANCE

- Maintenance is ensured by our factory. If the supplied unit does not work, please check the wiring according to the electric diagram as well as the power supply of the concerned electric actuator.
- For any question, please contact our after-sales service by phone 0033-476350606 or by email : info@valpes.com.
- To clean the external elements of the unit, please use a wet rag.

GUARANTEE

- 100% of the actuators are fully tested and set in the factory.
- The VALPES products are guaranteed two years from the delivery date or 50,000 operating cycles against all types of manufacturing and material faults (operating time and model class according to standard CEI34).
- This guarantee will only be valid if the unit has not been disassembled or self-repaired during its service life. It does not cover any wear and damage caused by shocks or faulty operation neither by the use of the unit under conditions not in accordance with its nominal characteristics. The guarantee is strictly limited to the replacement of original parts found defective on checking by our service personnel. The cost of shipping to our premises, the return of devices to the customer as well as the repair cost will be chargeable. We will not assume the responsibility for any direct or indirect accidents/risks originated by a failure of our products. The guarantee does not cover the consequences of breakdown and excludes any payments for indemnities. The accessories and adaptations are excluded from the guarantee. In the case where a customer has not proceeded to payments within the agreed period, our guarantee will be suspended until the delayed payments have been received and with the consequence that this suspension will not prolong the guarantee period in any case.

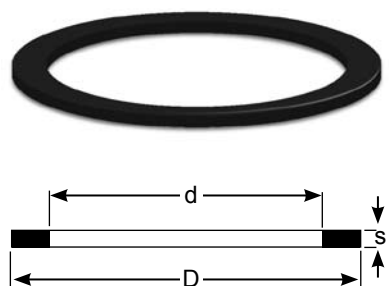
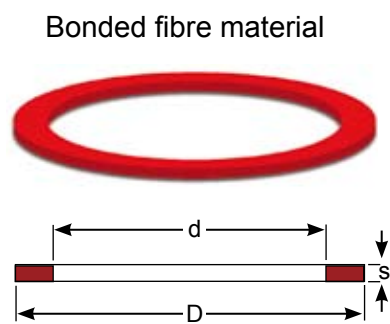
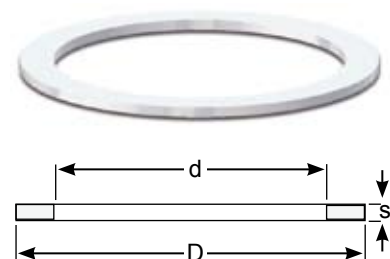
RETURN OF GOODS

- The customer is obliged to check the conformity of the goods with regard to their definition at the time of delivery.
- The acceptance of the goods by the purchaser disclaims the supplier of all responsibility if the purchaser discovers any non-conformity after the date of acceptance. In such case, the repair cost will be borne by the purchaser who will also exclusively bear all financial consequences of any resulting damage. Returned goods will only be accepted if our prior agreement has been given to this procedure: the goods must be sent free of all cost and being shipped solely and in their original packing. The returned goods will be credited to the purchaser with a reduction of 20% on the unit's price charged in accordance with the original invoice of the returned goods.

- Do not mount the actuator « upside down ».
- Do not mount the actuator less than 30 cm of an electromagnetic disturbances source.

Flat Seals for thread

weight ≈kg	Thread BSP	Materials Application	Dimensions ≈ mm			Product No
			D	d	s	
0,001	BSP 1/2"	PTFE (Teflon®) white , massive continuously hard, universally resistant Teflon® is a registered trademark of DuPont	20	13	2	On request
0,001	BSP 3/4"		26	19	2	1498-06
0,002	BSP 1"		33	24	2	1220-06
0,003	BSP 1 1/4"		42	34	2	1536-06
0,003	BSP 1 1/2"		48	39	2	1196-06
0,004	BSP 2"		60	49	2	1052-06
0,007	BSP 2 1/2"		76	63	2,5	1181-06
0,006	BSP 3"		88	77	3	1110-06
0,009	BSP 4"		114	100	3	1295-06
0,016	BSP 6"		164	150	3	1963-06
0,001	BSP 1/2"	Thermopac asbestos free, light hard. Especially for hot oils and hot bitumen up to 250° C and for hot water and saturated steam up to 25 bar.	20	13	2	On request
0,001	BSP 3/4"		26	19	2	1498-25
0,002	BSP 1"		33	24	2	1220-25
0,002	BSP 1 1/4"		42	34	2	1536-25
0,003	BSP 1 1/2"		48	39	2	1196-25
0,004	BSP 2"		60	49	2	1052-25
0,005	BSP 2 1/2"		76	63	3	1181-25
0,009	BSP 3"		88	77	3	1110-25
0,013	BSP 4"		114	100	3	1295-25
0,016	BSP 6"		164	150	3	1963-25
0,001	BSP 1/2"	FPM/FKM (Viton®) soft for aromatic hydrocarbons and hot oils. Viton® is a registered trademark of DuPont	20	13	2	On request
0,001	BSP 3/4"		26	19	2	1498-01
0,002	BSP 1"		33	24	2	1220-01
0,002	BSP 1 1/4"		42	34	2	1536-01
0,003	BSP 1 1/2"		48	39	2	1196-01
0,004	BSP 2"		60	49	2	1052-01
0,006	BSP 2 1/2"		76	63	3	1181-01
0,008	BSP 3"		88	77	3	1110-01
0,014	BSP 4"		114	100	3	1295-01
0,016	BSP 6"		164	150	3	1963-01



Notice! Seals are not included when you order flanges. You have to order Seals separately.

Flat Seals for thread

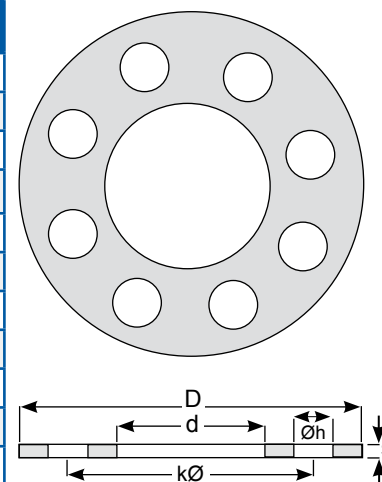
Standard sizes of PUR (VULKOLLAN® polyurethane elastomer), injection molded. Colour:blue.Other sizes of PUR (VULKOLLAN® Cast polyurethane). Colour: honey-coloured. **Vulkollan®** is a registered trademark of Bayer

Weight Appr. ≈ Kg	Suitable for	Dimensions ≈ mm			Product No
		D	d	s	
0,001	BSP 3/4"	26	19	2	1498-09
0,001	BSP 1"	33	24	2	1220-09
0,001	BSP 1 1/4" (DN 25 + DN 32)	42	34	2	1536-09
0,002	BSP 1 1/2" (DN 32 + DN 38)	48	39	2	1196-09
0,003	BSP 1 3/4"	54	44	2,5	On request
0,003	BSP 2"	60	49	2	1052-09
0,005	BSP 2 1/2"	76	63	2,5	1181-09
0,006	BSP 3"	88	77	3	1110-09
0,010	BSP 3 1/2"	100	80	3	On request
0,009	BSP 4"	114	100	3	1295-09
0,012	BSP 5" (No standard)	140	124	3	On request
0,016	BSP 6"	164	150	3	1963-09



ELAPAC Flange Seals FD, QFD

Flange Standard / Suitable for	Dimensions ≈ mm					Product No
	D	d	Øk	Øh	s	
DN 25 PN 10/16	108	78,5	91	4 x 6,5	2	-
DN 32 PN 10/16	140	43	100	4 x 18	2	-
DN 50 PN 6	140	61	110	4 x 15	2	-
DN 50 TW 1	154	50	130	8 x 12	2	-
DN 80 TW 1	154	90	130	8 x 12	2	-
DN 50 PN 10/16	165	61	125	4 x 18	2	-
DN 100 TW3	174	110	150	8 x 14	2	-
DN 65 PN 10/16	185	76	145	4 x 18	2	-
DN 80 PN 10/16	200	90	160	8 x 18	2	-
DN 125 TW5	204	135	176	8 x 14	2	-
DN 100 PN 10/16	220	115	180	8 x 18	2	-
DN 150 TW7	240	160	210	12 x 14	2	-
DN 125 PN 10/16	250	141	210	8 x 18	2	-
DN 150 PN 10/16	280	169	240	8 x 22	2	-
DN 200 PN 10	340	220	295	8 x 22	2	-
DN 200 PN 16	340	220	295	12 x 22	2	-



Notice! Seals are not included when you order flanges. You have to order Seals separately.

About NPT and BSP threads

NPT

Sealing NPT threads can be an exasperating experience if certain techniques are not followed. The following tips will help alleviate many common problems in thread sealing:

1. Always use some type of sealant (tape or paste) and apply sealant to male thread only. If using a hydraulic sealant, allow sufficient curing time before system is pressurized.

2. When using tape sealant, wrap the threads in a clockwise motion starting at the first thread and, as layers are applied, work towards the imperfect (vanishing) thread. If the system that the connection being made to cannot tolerate foreign matter (i.e. air systems), leave the first thread exposed and apply the tape sealant as outlined above.

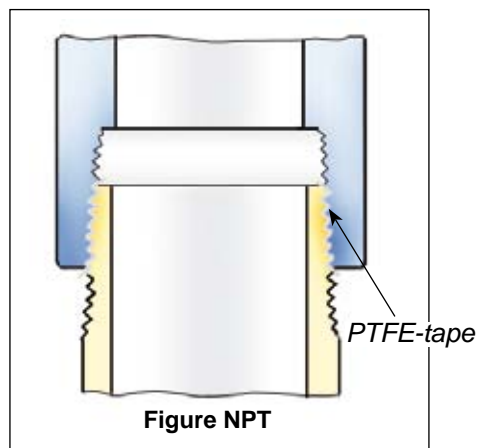
3. When using paste sealant, apply to threads with a brush, using the brush to work the sealant into the threads. Apply enough sealant to fill in all the threads all the way around.

4. When connecting one stainless steel part to another stainless steel part that will require future disassembly, use a thread sealant that is designed for stainless steel. This stainless steel thread sealant is also useful when connecting aluminium to aluminium that needs to be disconnected in the future. These two materials gall easily, and if the correct sealant is not used, it can be next to impossible to disassemble.

5. When connecting parts made of dissimilar metals (i.e. steel and aluminium), standard tape or paste sealant performs satisfactory.

6. For sizes 2" and below, tape or paste performs satisfactory. When using thread tape, four wraps (covering all necessary threads) is usually sufficient.

7. For sizes 2½" and above, thread paste is recommended. If thread tape is used, eight wraps (covering all necessary threads) is usually sufficient. Apply more wraps if necessary.



8. For stubborn to seal threads, apply a normal coating of thread paste followed by a normal layer of thread tape.

9. For extremely stubborn to seal threads, apply a normal coating of thread paste followed by a single layer of gauze bandage followed by a normal layer of thread tape.

Caution!

When this procedure is done, the connection becomes permanent. Extreme measures will be necessary to disconnect these components. All other measures to seal the threads should be explored prior to use of this technique.

10. Over-tightening threads can be just as detrimental as insufficient tightening. For sizes 2" and below, hand tighten the components and, with a wrench, tighten 3 full turns. For sizes 2½" and above, hand tighten the components and, with a wrench, tighten 2 full turns.

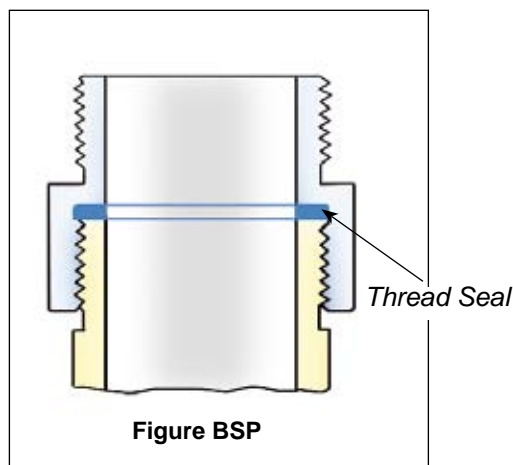
BSP

The threads are parallel with flat sealing surface.

This allows to use the full thread length for screwed-on parts. The largest possible transfer of force is guaranteed for short length. The thread seal behind the relief groove of the thread cannot drop out.

Simple screwing down, makes a safe connection. Subsequent tightening during operation is possible at any time. Change of seal and new assembly do not require any expert knowledge.

The European standardisations for hose assemblies require parallel threads with flat seals, because of the advantages.



Explanation of designations 1/2

Ver 1003

NOTE! When swivels are chosen, the second and the third sign indicates one outlet, the fourth and the fifth sign the second outlet.

First sign (letter): Indicates the type of coupling

A = API-adapter	H = Sampling Vent & Drain Unit	R = Pressure Cap
B = Ball Valve	I = Dust Plug ISO 45	S = Hose Unit STANAG 3765
C = Dust Cap	K = Dust Cap ISO 45	SN = Hose Unit int. Break Away Pin
CG = Dust Cap LPG	L = Tank Unit LPG	SO = Hose Unit int. Break Away Wire
D = Swivel	M = Hose Unit LPG	T = Tank Unit STANAG 3765
E = Tank Unit with pressure valves	N = Break Away Pin	U = Filter
F = Hose Unit ISO 45	O = Break Away Wire	V = Dust Plug LPG
G = Tank Unit ISO 45	P = Dust Plug	WA= Hose Fittings
GS = Tank Unit ISO 45 with selectivity		

Second sign (numeral): Indicates the socket diameter and/or the nominal diameter

0 = 50mm or 3/4"	3 = 105mm or 2 1/2"	V= 5"
1 = 56mm or 1", 1 1/4"	4 = 119mm or 3"	6 = 238mm or 6"
2 = 70mm or 1 1/2", 2"	5 = 164mm or 4"	8 = 272mm or 8"

Third and fourth sign (numeral): Indicates connection, (thread, flange etc.)

01 = 3/4" BSP (Female)	54 = Flange 1 1/4" ANSI 300 PSI	106 = Flange 8" ANSI 300 PSI
02 = 3/4" NPT (Female)	55 = Flange 1 1/2" ANSI 150 PSI	107 = Flange Square ISO 45
03 = 1" BSP (Female)	56 = Flange 1 1/2" ANSI 300 PSI	108 = S60x6 (Female)
04 = 1" NPT (Female)	57 = Flange 2" ANSI 150 PSI	109 = S60x6 (Male)
05 = 1 1/4" BSP (Female)	58 = Flange 2" ANSI 300 PSI	110 = 6" BSP (Female)
06 = 1 1/4" NPT (Female)	59 = Flange 2 1/2" ANSI 150 PSI	111 = 6" NPT (Female)
07 = 1 1/2" BSP (Female)	60 = Flange 2 1/2" ANSI 300 PSI	112 = W2" - 7 (Female)
08 = 1 1/2" NPT (Female)	61 = Flange 3" ANSI 150 PSI	113 = Weld.flange 3" Ø92 inner
09 = 1 3/4" BSP (Female)	62 = Flange 3" ANSI 300 PSI	114 = Square flange, 4 holes
10 = 2" BSP (Female)	63 = Flange 4" ANSI 150 PSI	115 = 6" BSP (Male)
11 = 2" NPT (Female)	64 = Flange 4" ANSI 300 PSI	116 = 6" NPT (Male)
12 = 2 1/2" BSP (Female)	65 = Flange TW 1 (3" - DN 80)	117 = 8" NPT (Female)
13 = 2 1/2" NPT (Female)	66 = Flange TW 3 (4" - DN 100)	118 = 4" Victaulic
14 = 3" BSP (Female)	67 = Flange 3" T.T.M.A.	119 = Flange DN 50 PN 25/40**
15 = 3" NPT (Female)	68 = Flange 4" T.T.M.A.	120 = Flange DN 65 PN 25/40**
16 = 4" BSP (Female)	69 = 3/4" BSP (Male)	121 = Flange DN 80 PN 25/40**
17 = 4" NPT (Female)	70 = 3/4" NPT (Male)	122 = Flange DN 100 PN 25/40**
18 = Flange undrilled Ø156	71 = 1" BSP (Male)	123 = W2" - 7 (Male)
19 = Flange undrilled Ø165	72 = 1" NPT (Male)	124 = 5" NPT (Female)
20 = Flange undrilled Ø210	73 = 1 1/4" BSP (Male)	125 = 5" NPT (Male)
21 = Flange undrilled Ø230	74 = 1 1/4" NPT (Male)	126 = Flange DN100 PN6
22 = Flange undrilled Ø254	75 = 1 1/2" BSP (Male)	127 = Flange DN80 PN6
23 = Flange DN 25 PN 10/16	76 = 1 1/2" NPT (Male)	128 = Flange DN65 PN6
24 = Flange DN 25 PN 25/40	77 = 1 3/4" BSP (Male)	129 = Flange DN50 PN6
25 = Flange DN 32 PN 10/16	78 = 2" BSP (Male)	130 = Flange 8" ANSI 600 PSI
26 = Flange DN 32 PN 25/40	79 = 2" NPT (Male)	131 = W90x1/6" (Female)
27 = Flange DN 40 PN 10/16	80 = 2 1/2" BSP (Male)	132 = 1/2" NPT (Female)
28 = Flange DN 40 PN 25/40	81 = 2 1/2" NPT (Male)	133 = 1/2" BSP (Female)
29 = Flange DN 50 PN 25/40*	82 = 3" BSP (Male)	134 = Flange ø184.2, 6 holes
30 = Flange DN 50 PN 10/16	83 = 3" NPT (Male)	135 = Flange TW 7 (6" - DN 150)
31 = Flange DN 50 PN 25/40	84 = 4" BSP (Male)	136 = 4" ASSPT (Female)
32 = Flange DN 65 PN 25/40*	85 = 4" NPT (Male)	137 = Triclamp DN 25
33 = Flange DN 65 PN 10/16	86 = Weld.flange 2" Ø60,5 inner	138 = M54x 1,5 (Female)
34 = Flange DN 65 PN 25/40	87 = Flange TW 1 (2" DN50)	139 = Triclamp DN50
35 = Flange DN 80 PN 25/40*	88 = Weld.flange 2" Ø50-Ø70 (flat)	140 = Weld.flange Ø73 (outer chamfer)
36 = Flange DN 80 PN 10/16	89 = Weld.flange 2" Ø57 (int. chamfer)	141 = 3" Victaulic
37 = Flange DN 80 PN 25/40	90 = Weld.flange 2" Ø60 (outer chamfer)	142 = Flange 5" ANSI 150 PSI
38 = Flange DN 100 PN 25/40*	91 = Weld.flange 3" Ø75-Ø90 (flat)	143 = 3" Ball valve
39 = Flange DN 100 PN 10/16	92 = Weld.flange 3" Ø76 (int. chamfer)	144 = 2" Victaulic
40 = Flange DN 100 PN 25/40	93 = Weld.flange 3" Ø89 (outer. chamfer)	145 = 3" BSPT (Male)
41 = Flange DN 125 PN 6	94 = Weld.flange 4" Ø100-Ø120 (flat)	146 = 5" Victaulic
42 = Flange DN 125 PN 10/16	95 = Weld.flange 4" Ø102 (int. chamfer)	147 = 2" BSPT (Female)
43 = Flange DN 125 PN 25/40	96 = Weld.flange 4" Ø108 (int. chamfer)	148 = 2" BSPT (Male)
44 = Flange DN 150 PN 6	97 = Weld.flange 4" Ø114 (outer. chamfer)	149 = 1 1/2" Victaulic
45 = Flange DN 150 PN 10/16	98 = Flange TW 1 (2" - DN 50)	150 = 2 1/2" Victaulic
46 = Flange DN 150 PN 25/40	with drain connection	151 = Flange 1" DIN 11864
47 = Flange DN 20 PN 10/16	99 = Flange DN 150 PN 25	152 = Flange 2" DIN 11864
48 = Flange DN 20 PN 25/40	100 = Flange 6" ANSI 150 PSI	153 = Flange ø135, 8xM6
49 = Flange 3/4" ANSI 150 PSI	101 = Flange 6" ANSI 300 PSI	154 = 4" BSPT (Female)
50 = Flange 3/4" ANSI 300 PSI	102 = Flange DN 200 PN 10	155 = 4" BSPT (Male)
51 = Flange 1" ANSI 150 PSI	103 = Flange DN 200 PN 16	156 = Weld flange 2" ø61,5 (inner)
52 = Flange 1" ANSI 300 PSI	104 = Flange DN 200 PN 25	157 = 3" BSPT (Female)
53 = Flange 1 1/4" ANSI 150 PSI	105 = Flange 8" ANSI 150 PSI	158 = Weld end 1 1/2" ø48 (outer)

* EN 1092-1:2001 Type E: Spigot

** EN 1092-1:2001 Type F

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NOTE! When swivels are chosen, the second and the third sign indicates one outlet, the fourth and the fifth sign the second outlet.

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Explanation of designations 2/2

Ver 1003

Fifth sign (letter): Indicates version

A = Version No.1 (Machined from bar)	F = 6" Flange Hydrante	K = Short Tank Unit/Swivel
B = Version No.2 (Casted)	G = Drain connection	P = Pressure relief valve
C = Version No.3 (Kokill casted)	H = Leaf spring lock	S = Sight Glass
D = Sep. piston guide	I = Bended Tank Unit Short	T = Transparent
E = Injection molded	J = Bended Tank Unit	

Sixth sign (numeral): Indicates material in the coupling body

1 = Aluminium	6 = Titan
2 = Brass	7 = Hastelloy
3 = Steel	8 = PVDF
4 = Stainless steel	9 = PEEK
5 = Inconel	

Seventn sign (numeral): Indicates material in the innerparts or other components

1 = Aluminium	6 = Titan
2 = Brass	7 = Hastelloy
3 = Steel	8 = PVDF
4 = Stainless steel	9 = PEEK
5 = Inconel	

Eight and Ninth sign (numeral): Indicates the O-ring material in the coupling

01 = Viton® (FPM/FKM)	16 = Hypalon (CSM)	51 = Nylon (PA)
02 = Nitrile® (NBR)	17 = Chemraz 505	61 = Viton® (FPM), FDA, USP C6 & ADI
03 = EPDM	18 = Xyflour 860	62 = Nitrile® (NBR), FDA, USP C6 & ADI
04 = Kalrez (FFPM) 6375	19 = Zetpol / Therban (HNBR)	63 = EPDM, FDA, USP C6 & ADI
05 = NBR Low temp	20 = NBR 90 shore	64 = Kalrez (FFPM) 6230, FDA, USP C6 & ADI
06 = Teflon (PTFE)	21 = Viton - GF (Special Viton quality)	66 = PTFE (Virgin), FDA
07 = Neoprene (CR)	22 = Composite	71 = FPM/FKM Low Temp
08 = Silicone (Q)	23 = Viton GF-LT	77 = Chemraz 505, FDA, USP C6 & ADI
09 = Vulkollan (PUR)	24 = Viton GLT	
10 = Butyl (IIR)	25 = Klingerit	
11 = Nitrile (Gasol NBR 70 K-6)	26 = POM	
12 = Perfluorelastomer (FFPM)	27 = Epiclorhydrin	
13 = PVC / NBR	40 = FEP PTFE encapsulated Viton	
14 = Fluorsilicone rubber (MFQ)	50 = Kalrez (PFPM) 1050LF	
15 = FEP encapsulated silicone		

Tenth sign (letter): Used for extra

A = Flat seal, Teflon®(PTFE)	J = EPDM	V = Locking house unit
B = Flat seal, Vulkollan®(PUR)	K = Locked piston guide	W = Double ball race
C = 2-way Ball Valve	P = Pressure Equalizing Valve	X = Special surface treatment
D = Flat seal, Viton® (FPM)	Q = Reduced bore diameter (Argus,Hydrant)	Z = Excentric tank unit
E = None projecting piston spindle	R = Hose unit with int. Brake Away	-RA = Racing
F = Flange thickness acc. to standard	S = Single Argus valve (Hydrant)	-LC = Locking Cap
G = Hypalon	T = TW-Flange extended circles	-ST = Steam
H = Nitrile (NBR)	U = Pressure Bleeding Valve	-45 = 45 Mesh
I = Emco comp		-60 = 60 Mesh
		-10 = 100 Mesh

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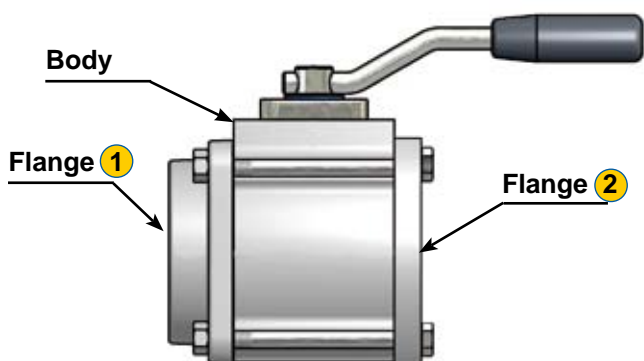
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Selection of registered trade names from Messrs BASF, Bayer AG, B.F. Goodrich, Chemische Werke Hüls, Daikin, Dow Company, DSM, Du Pont, DuPont Dow Elastomers, Esso Chemie, Hercules, Hoechst AG, Montedison, Monteflous, Nippon Zeon, Polysar LTD., Rhone Poulenc, 3 M Company, Wacker Chemie, Precision Polymer Engineering Ltd.

How to Order Ball Valves / 2-Way Valves with different Flanges

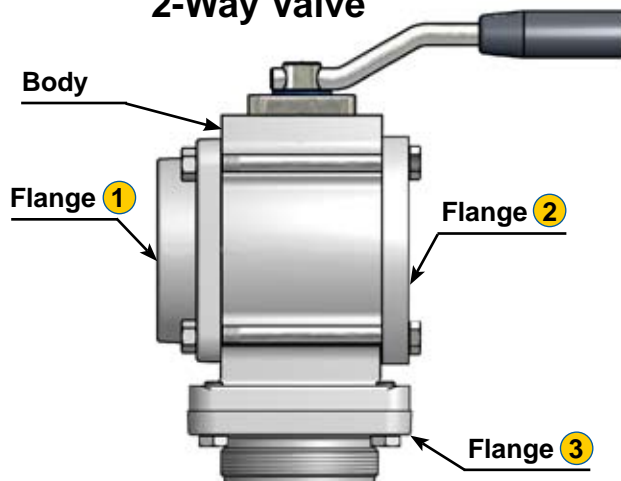
Ball Valve



Code No. Body + Flange 1 + Flange 2

Bults, nuts and handle in Steel Zink plated. Stainless steel on request.

2-Way Valve



Code No. Body + Flange 1 + Flange 2 + Flange 3

Bults, nuts and handle in Steel Zink plated. Stainless steel on request.

Questionnaire - Aluminium Ball Valves / 2-Way Valves

Date:	
Name:	Title:
Company:	Department:
Address:	Country:
Phone:	Fax:

Produkt data / Produktdaten:

Code no.:	Quantity:
Ball Valve: <input type="checkbox"/>	2-way Ball Valve: <input type="checkbox"/>
Internal diameter :	Connection:
Material:	Requested delivery:
Other remarks:	

Flow data:

Medium / Fluid (with chemical formulas/CAS no.):	Temp:
1)	
2)	
3)	
4)	
5)	
Working pressure :	Vaccum:

Customers note:

--



Repair service and certificate of decontamination

REPAIR SERVICE

To comply with Health & Safety Regulations, all returned couplings and valves must be accompanied by a Certificate of Cleanliness and a Data Sheet for the last product carried (even the cleaner).

CERTIFICATE OF DECONTAMINATION

We certify that the returned couplings/valves have been cleaned prior to despatch and are free of any harmful substances.

Quantity: _____

Code No: _____

Serial No: _____

Quantity: _____

Code No: _____

Serial No: _____

Quantity: _____

Code No: _____

Serial No: _____

Quantity: _____

Code No: _____

Serial No: _____

YES NO

Free of all liquid _____

Air blown _____

Coupling/Valve dismantled _____

The last known product the coupling/valve was in contact with:

Media Cast Number:

Data sheet of last product attached (Yes/No):

Company Name/Address:

Signature of Supervisor:

Company Stamp:

Maintenance and service instruction



Always depressurise the system and rinse off the parts before beginning any maintenance work. Use protective goggles. Do not handle O-ring seals if the material appears charred, gummy or sticky.



Use tweezers and wear neoprene or PVC gloves. Do not touch adjacent parts with unprotected hands. Rinse off the parts once again before starting the “daily inspection”

Daily inspection:

- 1 Inspect the Ball-Valve surface for cleanliness and corrosion
- 2 Inspect the spindle and the spindle bushing that they are without leakage and fixed assembled
- 3 Inspect the Ball-Valve unit for faultlessness and external signs for leakage

Do not remove this tag until installation is approved by user

Three-month inspection

1. Exterior cleaning of the Ball Valve with a neutral cleanser.
2. Careful “daily inspection” of cleaned units.

Once a year

1. Exchange sealing and washer at least once a year.
2. Refill grease where needed
3. Replace worn or damaged components. Repair procedures are straightforward and no special tools are required.

Check the state of the connection surface and verify that it is clean before proceeding with the connection.

Check for correct operation of the valve. Switch the unit(s) several times.

Use only original Mann Technik spare parts for maintenance.

Support ring kit (S-BSRX-yy)

Handle kit (S-BSHX-yy)

X and yy means the size and the material key according to the product catalogue. You will find it also as the 2nd to 8th/9th sign in the serial number (eg. BX00A10yy).

Product Information



DDCouplings®
Dry Disconnect Coupling.
½" to 8", PN 16 - PN 25. Aluminium, Brass-Gunmetal, Stainless Steel and PEEK. Other materials on request. According to NATO standard STANAG 3756.



DGCouplings®
Dry Gas Coupling.
1" to 4", PN25. Stainless steel.
Other materials on request. According to NATO standard STANAG 3756.



DACouplings,
Dry Aviation Coupling.
2½", PN 10. Main body in Aluminium.
Standards: ISO 45, MS 24484, NATO STANAG 3105, British Aerospace Spec. 2C14.



Sampling, Vent or Drain unit
Stainless Steel SS-EN 10 088-1.4404+AT (AISI 316L). Ball Valve in 1.0619 and 1.4301



Full Flow - ballvalves
2" to 4", PN 10, Aluminium.
Ballvalve and 2-way Ballvalve.
Made for Petroleum Tank Trucks. Variations of flange connections.



Swivel joints
¾" to 10", PN 10 - PN 25.
Aluminium, Brass-Gunmetal, Stainless Steel.
Other materials on request.
Connection: BSP, NPT.



SBCouplings, bolt series
Industrial and Marine Safety Break-away, breaking bolts,
Aluminium, Brass, Stainless Steel, 1" to 8", female/male threads and with flanges, with breaking bolts.
Safety Break-away, cable release
Stainless Steel, PN 25. 1" to 4", female threads. 6" to 12", flanged connection

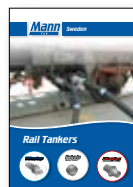
Business Segment Information



Offshore & Marine



Gas (LPG)



Rail tankers



Chemical industry



Tank trucks



Military



Container

Company Information



General Information about Mann Tek, products and Business Segments

Approval Information



Quality, Health, Safety and Environment Policy.
Quality Approvals,
Product Approvals and
Declaration of Conformity

Service



Service instructions and operation manuals

Your distributor

Your distributor:

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