

Butterfly Valves

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Introduction

Process Components Ltd is the only manufacturer and supplier of the Mucon product range, to the liquid, powder and bulk solids handling sectors.

Products

- Iris Valves - The Original Mucon Valve
- Slide Valves
- Butterfly Valves
- Disc Valves
- Discharge Aids
- Level Indicators



Industry Sectors

- Food Processing
- Pharmaceutical
- Chemical Processing
- Glass and Ceramics
- Plastics
- Sand and Cement

Mucon equipment has been used extensively in the bulk materials handling industries for over 60 years, during which time the company has built up an excellent reputation for both product reliability and service.

Industries search for increased economy, efficiency and demand faster processing of bulk solids for an ever growing range of applications. This is where our specialist knowledge and proven expertise is unrivalled.

Whatever the powder or granule needing to be handled, there will be a suitable Mucon product that will move it, measure it, control it and keep it moving quickly and efficiently.

Mucon Iris Diaphragm Valves are used world-wide, because of their superb flow control characteristics of bulk solids and versatility in other duties ranging from creating a gland seal around extruded plastic pipe, to controlling the flow of live fish from transport containers.

Advantages

- Low-pressure drop resulting in energy savings
- Lower weight and dimensions than other types of valves
- Easy operation
- Only the disc and liner are in contact with the fluid

Advantages of the Mucon Design

- Total and permanent water tightness up to 10bar
- No gaskets necessary for installation between flanges
- Liners are easy to replace
- Extremely low operating torque
- Cavity free
- The centering holes ensure correct alignment and fast installation into the pipeline
- Enables the use of insulation in heat-resistant installations
- Full components traceability
- Valves can be CE marked as required by the Pressure Equipment Directive 97/23/EC and European Directive ATEX 94/9/EC on equipment and protective systems intended for use in explosive atmospheres



The Mucon butterfly valve has many uses in many different fields. The following table contains some of the industries and fluids handled by our valves.

Industries	
Air and gas pipelines	Mining
Cement	Nuclear power
Chemical	Oil refinery
Combined cycles	Paper
Dairy	Power
Dams and water pumping	Purification plants
Desalination plants	River diversion
Distilleries	Sugar refineries
Fire-prevention equipment	Vacuum
Food	Water treatment
Heating and Air conditioning	Wine production
Iron and Steel	Tankers
Irrigation	Etc....

Fluids / Gases	
Acids	Gases
Air	Hydrogen
Beer	Kerosene
Concrete	Milk
Chlorine	Oils
Demineralised water	Oxygen
Solvents	Ozone
Drinking water	Paints
Fats	Petroleum
Flour	Raw oil
Fruit juice	Sea water
Fuels	Sewage
Wine	Steam

Key Figures

Our Butterfly valves are available in five main body configurations with a number of material choices for the body, disc and seat.

This table helps to identify most of the options available.

Body Types				
1	2	3	4	5
Wafer	Light Wafer	Flanged	Lug	Split

Body Materials			
Description	DIN/EN Standard	ASTM Standard	Coating
Ductile Iron	EN-JS 1020 EN 1563	A 395 M:88	RILSAN-EPOXY ⁽¹⁾
Stainless Steel	1.4408 EN 10213-4	A 351-94 CF8M	NONE
Aluminium	1706 AC44100	B 179 S12C	RILSAN

(1): Rilsan DN 50 to 300 and Epoxy from DN 350

Disc Materials			
Description	DIN/EN Standard	ASTM Standard	Coating
Ductile Iron	EN-JS 1020 EN 1563	A 395 M:88	EPOXY
Stainless Steel	1.4408 EN 10213-4	A 351-94 CF8M	NONE

Actuators		
Lever	Gearbox	Double acting pneumatic

Seat Materials			
EPDM	Silicone	Viton	White Rubber

Other materials and coatings are available, please discuss your needs with our Technical Sales department

Series 7481 Wafer Type

- Wafer type with ductile iron body.
- Other body materials available.
- Sizes up to 300mm available



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Series 7482 Light Wafer Type

- Light wafer type valve with Aluminium body.
- Sizes up to 1000mm available.
- Suitable for fixing between PN10/PN16 flange depending on size.



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Series 7483 Flanged Type

- Flanged type valve.
- Flanges to PN10/PN16 depending on size.
- Sizes from 100mm to 1000mm available.



p10

Series 7484 Lug Type

- Lug type valve.
- Threaded for assembly between PN10/PN16 flanges.
- Sizes from 50mm to 600mm available.



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Series 7485 Split Body

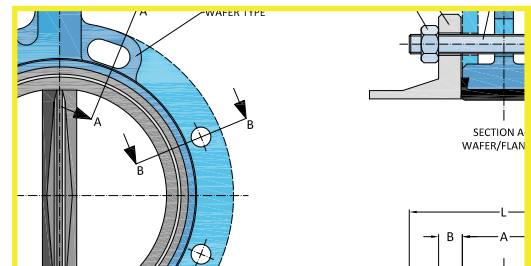
- Wafer and Lug type Split Body valve.
- PTFE lined with PTFE coated disc.
- Sizes up to 300mm available
- Suitable for high corrosion applications.
- Sizes from 50mm to 300mm available.



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Bolting List / Flow Rates / Torque Table

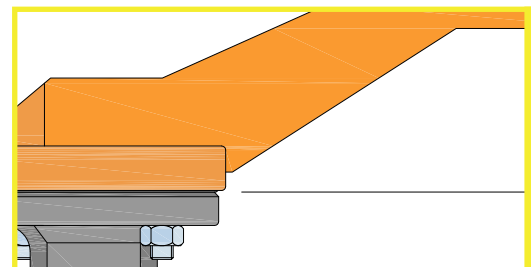
- DIN PN-10 Standard
- DIN PN-16 Standard
- ANSI Standard



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Hand Levers / Automatic Actuators

- Hand Levers
- Pneumatic Actuator
- Electric Actuator Type VJ
- Electric Actuator Type VAU



p24

Main Features

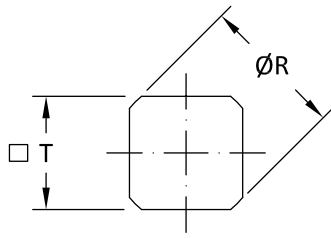
- Nominal diameters from 50 mm (2") to 1000mm (40")
- Assembly between flanges: From DN 50 (2") to DN 300 (12") multiflange system, allows mounting of the same model of valve between PN-6, PN-10, PN-16, ANSI 125/150lbs, and B.S. 10-D/E flanges. From DN 350 (14") the assembly can be between DIN PN-10, PN-16 and ANSI 125/150 flanges (for other drilling standards, please ask)
- Standard working pressure 10 Bar. For higher pressures, please ask our Technical Department
- Temperature limits from -40°C to +180°C (depending on type of liners and coatings)
- 4 centering holes for up to DN 500 assist with correct alignment and quick installation
- As this is a design to be used between flanges, the forces due to the pipe loading are transferred to the valve as compression only on the body, consequently there are limited stresses due to forces in tension
- From size DN 600 there are 4 threaded holes in each side of the body, depending on the drilling standard required. These must be taken into consideration if loaded in tension



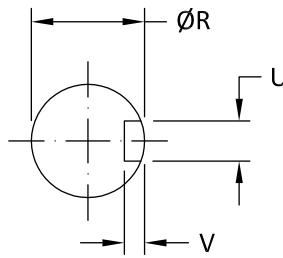
DN		Body Dimensions					Assembly Flange							Shaft End					Q	WEIGHT (Kg)
mm	Inch	A	B	Ø C	D	E	ISO-5211/2	No.	Ø J	Ø K	Ø L	Ø M(1)	N(1)	O	Ø R	□ T	U	V		
50	2"	140	83	102	12	43	F-07	4	9	70	90	55	3	26	13.2	11			32	3.3
65	2.5"	152	93	122	12	46	F-07	4	9	70	90	55	3	26	13.2	11			51	4
80	3"	159	98	139	12	46	F-07	4	9	70	90	55	3	26	13.2	11			69	4.3
100	4"	178	111	159	14	52	F-07	4	9	70	90	55	3	30	16.8	14			89	5.7
125	5"	191	127	189	14	56	F-07	4	9	70	90	55	3	30	16.8	14			115	7.4
150	6"	203	143	214	15	56	F-07	4	9	70	90	55	3	33	20.4	17			143	8.9
200	8"	245	172	269	15	60	F-07	4	9	70	90	55	3	33	20.4	17			194	13.5
250	10"	275	204	331	17	68	F-10	4	11	102	125	70	3	47	28	22			243	22.8
300	12"	315	242	380	17	78	F-10	4	11	102	125	70	3	47	28	22			293	31.7
350	14"	307	291	442	22	78	F-12	4	13	125	150	85	3	55	36		10	4.7	332	43.2
400	16"	342	325	493	24	102	F-14	4	17	140	175	100	4	65	42		12	4.9	382	65.2
450	18"	387	357	544	27	113	F-14	4	17	140	175	100	4	65	48		14	5.5	432	84.5
500	20"	425	381	601	27	126	F-14	4	17	140	175	100	4	65	48		14	5.5	478	119
600	24"	532	488	695	40	146	F-25	8	18	254	300	200	5	110	72		20	7.4	585	281
650	26"	550	493	736.5	40	175	F-25	8	18	254	300	200	5	110	72		20	7.4	619	348
700	28"	573	506	798	40	175	F-25	8	18	254	300	200	5	110	72		20	7.4	683	414
750	30"	622	555	872	40	176	F-25	8	18	254	300	200	5	110	72		20	7.4	733	508
800	32"	650	578	908	40	215	F-25	8	18	254	300	200	5	110	72		20	7.4	755	572
900	36"	707	643	1004	40	246	F-25	8	18	254	300	200	5	110	98		28	9.9	852	639
1000	40"	755	729	1114	40	280	F-25	8	18	254	300	200	5	110	98		28	9.9	958	918

(1): Central recess ØM x N optional in DN 50-200

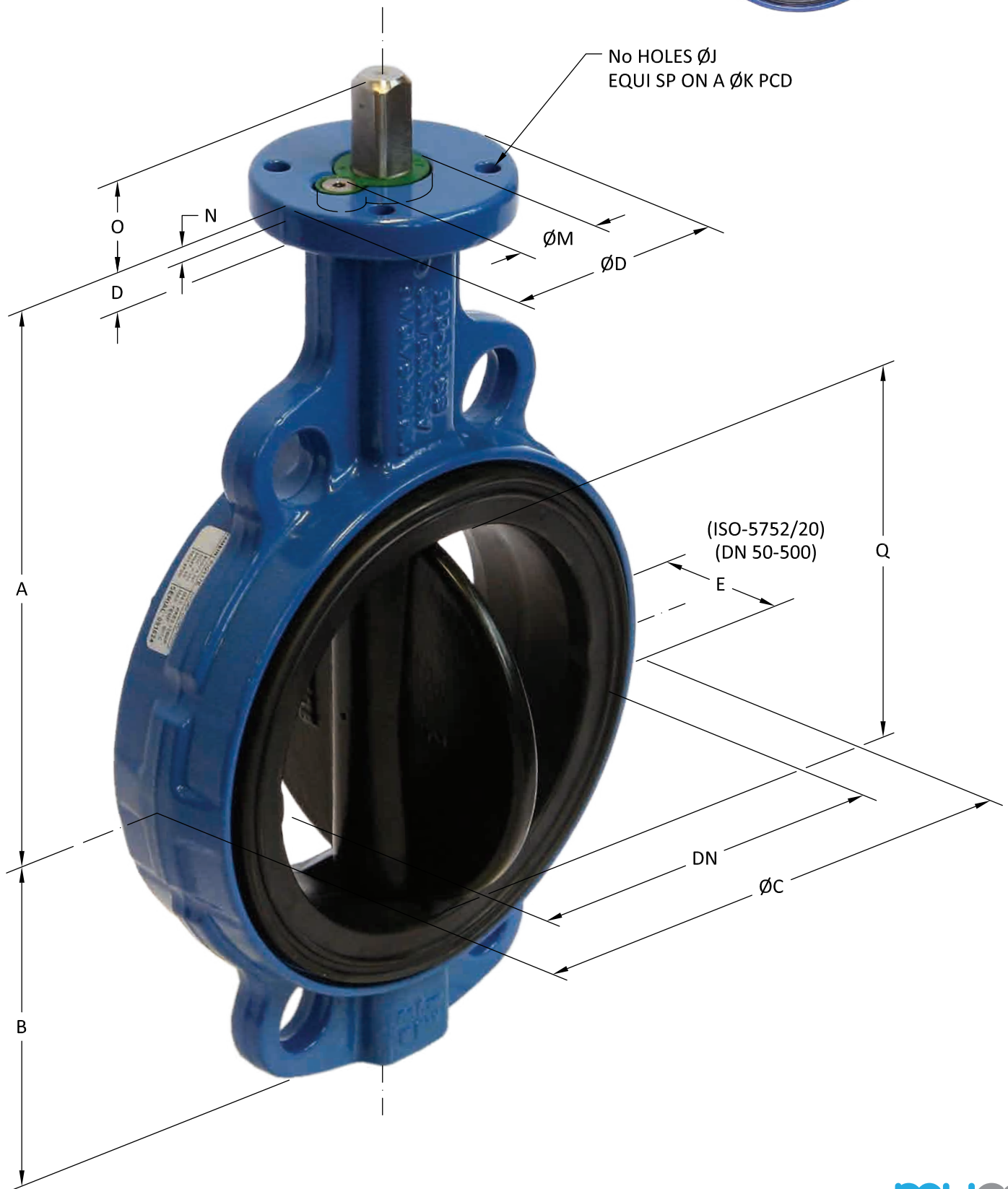
Dimensions are in mm



SQUARE
(DN 50-300)



KEYWAY
(DN 350-1200)



Series 7482 Light Wafer Type

Main Features

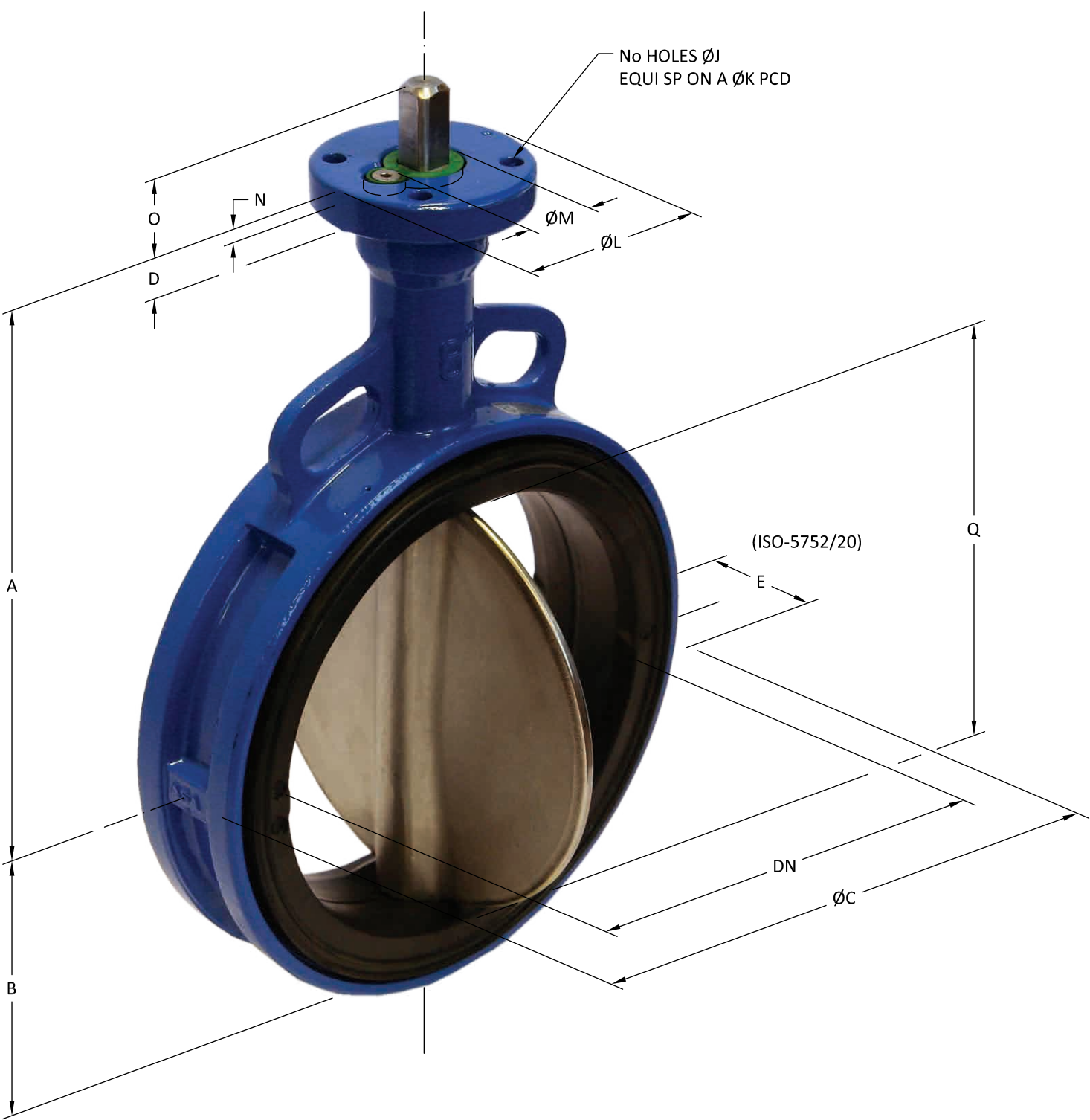
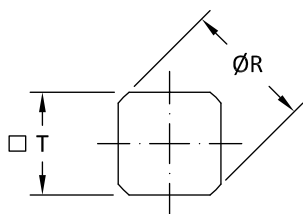
- Nominal diameters from 50 mm (2") to 300 mm (12")
- Assembly between flanges: From DN 50 (2") to DN 300 (12") multi-flange system, allows mounting of the same model of valve between PN-6, PN-10, PN-16, ANSI 125/150lbs, and B.S. 10-D/E flanges
- Standard working pressure 10 Bar.
- Temperature limits from -40°C to +180°C (depending on type of liners and coatings)
- 2 centering holes from DN 50 to DN 200 and 4 centering holes for DN 250 and DN 300 assist with correct alignment and quick installation
- As this is a design to be used between flanges, the forces due to the pipe loading are transferred to the valve as compression only on the body, consequently there are limited stresses due to forces in tension
- The LIGHT WAFER series was developed to meet market demands for a lightweight valve at a low price
- Also suitable for water treatment, air-conditioning and swimming pool installations



DN		Body Dimensions					Assembly Flange							Shaft End			Q	WEIGHT (Kg)
mm	Inch	A	B	Ø C	D	E	ISO-5211/2	No.	Ø J	Ø K	Ø L	Ø M(1)	N(1)	O	Ø R	□ T		
50	2"	140	55	95	12	43	F-07	4	9	70	90	55	3	26	13.2	11	32	1.2
65	2.5"	152	65	114	12	46	F-07	4	9	70	90	55	3	26	13.2	11	51	1.5
80	3"	159	73	131	12	46	F-07	4	9	70	90	55	3	26	13.2	11	69	1.7
100	4"	178	87	152	14	52	F-07	4	9	70	90	55	3	30	16.8	14	89	2.3
125	5"	191	102	182	14	56	F-07	4	9	70	90	55	3	30	16.8	14	115	3.5
150	6"	203	118	209	15	56	F-07	4	9	70	90	55	3	33	20.4	17	143	4.7
200	8"	245	149	262	15	60	F-07	4	9	70	90	55	3	33	20.4	17	194	7
250	10"	275	200	331	17	68	F-10	4	11	102	125	70	3	47	28	22	243	14.3
300	12"	315	227	380	17	78	F-10	4	11	102	125	70	3	47	28	22	293	19.8

(1): Central recess ØM x N optional in DN 50-200

Dimensions are in mm



Series 7483 Flanged Type

Main Features

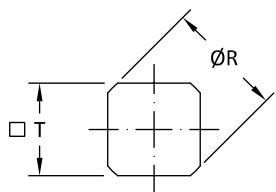
- Nominal diameters from 100 mm (4") to 1000mm (40")
- Assembly between flanges to DIN PN-10, PN-16 and ANSI 125/150 (for other drilling standards please ask)
- Standard working pressure 16 Bar (DN 100-300) and 10 Bar (DN 350-2000) (for higher pressures please ask)
- Temperature limits from -45°C to +200°C (depending on type of liners and coatings)
- Integral drilling making the installation time shorter and ensuring perfect alignment of the valve with the pipe flanges
- As this is a design to be used between flanges, the forces due to the pipe loading are transferred to the valve as compression only on the body, consequently there are limited stresses due to forces in tension
- 4 threaded holes on each side of the body from DN 600, according to the drilling standard required. This must be taken into consideration if the valve is to be loaded under tension



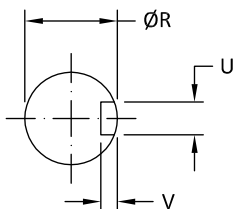
DN		Body Dimensions							Assembly Flange							Shaft End					Q	WEIGHT (kg)
mm	Inch	A	B	Ø C	D	E	Ø F	G	ISO-5211/2	No.	Ø J	Ø K	Ø L	Ø M(1)	N(1)	O	Ø R	□ T	U	V		
100	4"	178	120	229	14	52	152	32	F-07	4	9	70	90	55	3	30	16.8	14			89	10.3
125	5"	191	132	254	14	56	182	32	F-07	4	9	70	90	55	3	30	16.8	14			115	13.6
150	6"	203	148	285	15	56	207	32	F-07	4	9	70	90	55	3	33	20.4	17			143	17.3
200	8"	245	180	343	15	60	262	37	F-07	4	9	70	90	55	3	33	20.4	17			194	22.5
250	10"	275	211	406	17	68	323	38	F-10	4	11	102	125	70	3	47	28	22			243	38.8
300	12"	315	251	483	17	78	373	44	F-10	4	11	102	125	70	3	47	28	22			293	50.3
350	14"	307	291	535	22	78	425	44	F-12	4	13	125	150	85	3	55	36		10	4.7	332	66.7
400	16"	342	325	597	24	102	475	62	F-14	4	17	140	175	100	4	65	42		12	4.9	382	98.7
450	18"	387	357	635	27	113	530	65	F-14	4	17	140	175	100	4	65	48		14	5.5	432	128.6
500	20"	425	381	715	27	126	587	67	F-14	4	17	140	175	100	4	65	48		14	5.5	478	171.1
600	24"	532	488	840	40	146	680	90	F-25	8	18	254	300	200	5	110	72		20	7.4	585	304
650	26"	550	493	870	40	175	730.5	103	F-25	8	18	254	300	200	5	110	72		20	7.4	619	380
700	28"	573	506	927	40	175	792	103	F-25	8	18	254	300	200	5	110	72		20	7.4	683	456
750	30"	622	555	984	40	176	862	96	F-25	8	18	254	300	200	5	110	72		20	7.4	733	556
800	32"	650	583	1060	40	215	902	135	F-25	8	18	254	300	200	5	110	72		20	7.4	755	608
900	36"	707	643	1168	40	246	998	166	F-25	8	18	254	300	200	5	110	98		28	9.9	852	745
1000	40"	755	729	1255	40	280	1108	190	F-25	8	18	254	300	200	5	110	98		28	9.9	958	1038

(1): Central recess ØM x N optional in DN 50-200

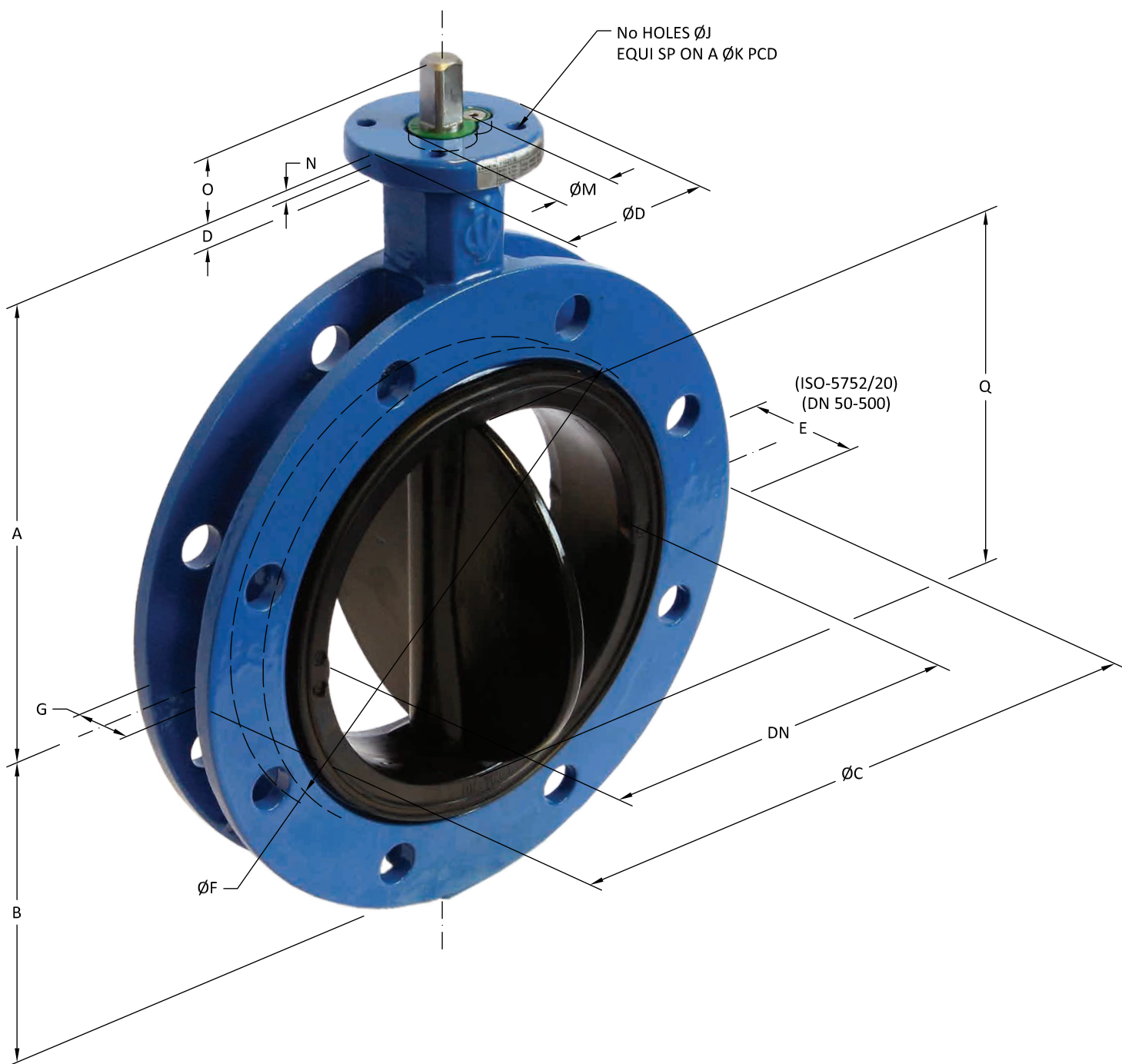
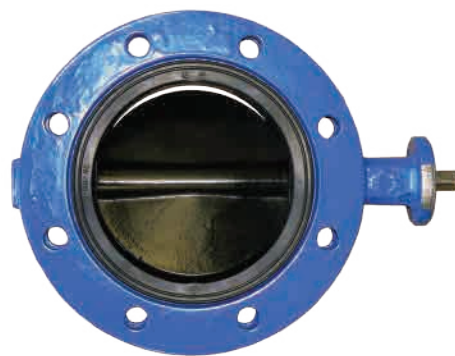
Dimensions are in mm



SQUARE
(DN 50-300)



KEYWAY
(DN 350-1200)



Main Features

- Nominal diameters from 100 mm (4") to 1000mm (40")
- Assembly between flanges to DIN PN-10, PN-16 and ANSI 125/150 (for other drilling standards please ask)
- Standard working pressure 16 Bar (DN 100-300) and 10 Bar (DN 350-2000) (for higher pressures please ask)
- Temperature limits from -45°C to +200°C (depending on type of liners and coatings)
- This design requires assembly into the pipeline by bolts or studs which are threaded in to the valve body. Consideration must be given to forces in compression and tension, induced by the pipework on the valve. The use of compensation joints or any other elements absorbing the above mechanical effects must be considered
- Perfect alignment with the pipe flanges thanks to its design
- Other types of valves or devices can be close coupled in line, eliminating the need for pipeline accessories and gaining useful space
- As the valve is serviceable from both sides it enables repairs downstream as the valve would remain secured to the upstream flange
- Should the LUG type valve be positioned at the end of the line, the body should not be constructed from cast iron due to the mechanical stresses. It is also critical that the following pressures are not exceeded:

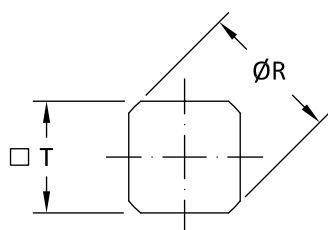
DN 50 through DN 150 < 5.6 bar.
DN 200 through DN 600 < 3.5 bar.

- The ideal configuration of the valve assembly is between flanges

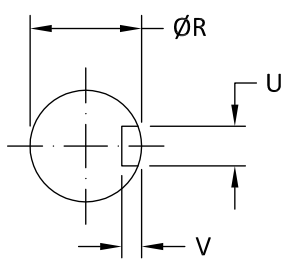
DN		Body Dimensions					Assembly Flange							Shaft End						WEIGHT (kg)
mm	Inch	A	B	Ø C	D	E	ISO-5211/2	No.	Ø J	Ø K	Ø L	Ø M(1)	N(1)	O	Ø R	□ T	U	V	Q	
50	2"	140	63	152	12	43	F-07	4	9	70	90	55	3	26	13.2	11			32	3.2
65	2.5"	152	73	178	12	46	F-07	4	9	70	90	55	3	26	13.2	11			51	4.3
80	3"	159	81	200	12	46	F-07	4	9	70	90	55	3	26	13.2	11			69	6
100	4"	178	97	229	14	52	F-07	4	9	70	90	55	3	30	16.8	14			89	8
125	5"	191	112	254	14	56	F-07	4	9	70	90	55	3	30	16.8	14			115	9.8
150	6"	203	122	280	15	56	F-07	4	9	70	90	55	3	33	20.4	17			143	11.5
200	8"	245	149	343	15	60	F-07	4	9	70	90	55	3	33	20.4	17			194	18.3
250	10"	275	203	406	17	68	F-10	4	11	102	125	70	3	47	28	22			243	31.5
300	12"	315	241	483	17	78	F-10	4	11	102	125	70	3	47	28	22			293	48.3
350	14"	307	291	535	22	78	F-12	4	13	125	150	85	3	55	36		10	4.7	332	57.6
400	16"	342	325	597	24	102	F-14	4	17	140	175	100	4	65	42		12	4.9	382	93.1
450	18"	377	357	635	27	113	F-14	4	17	140	175	100	4	65	48		14	5.5	432	114.1
500	20"	425	381	715	27	126	F-14	4	17	140	175	100	4	65	48		14	5.5	478	158.3
600	24"	532	488	840	40	146	F-25	8	18	254	300	200	5	110	72		20	7.4	585	297

(1): Central recess ØM x N optional in DN 50-200

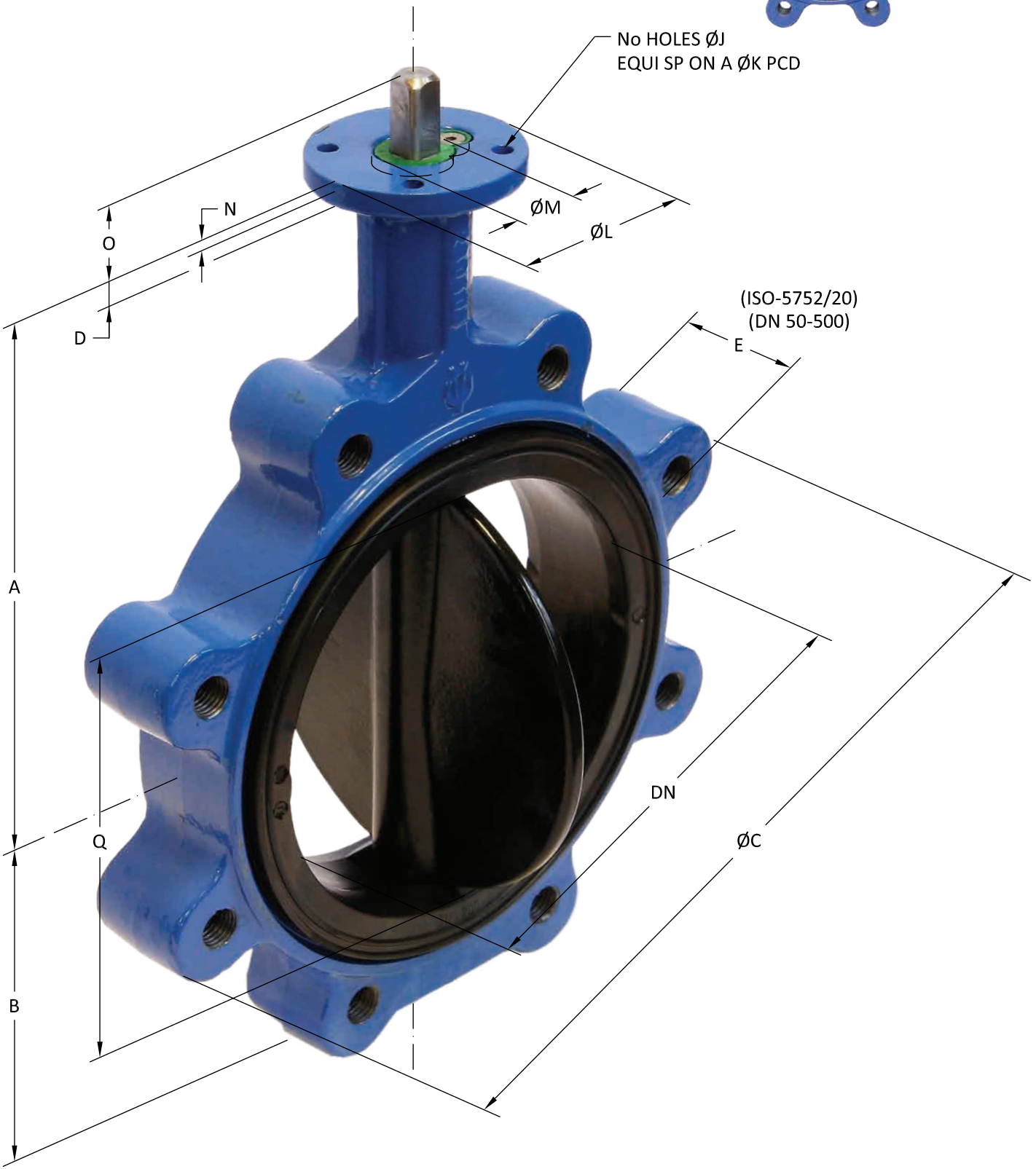
Dimensions are in mm



SQUARE
(DN 50-300)

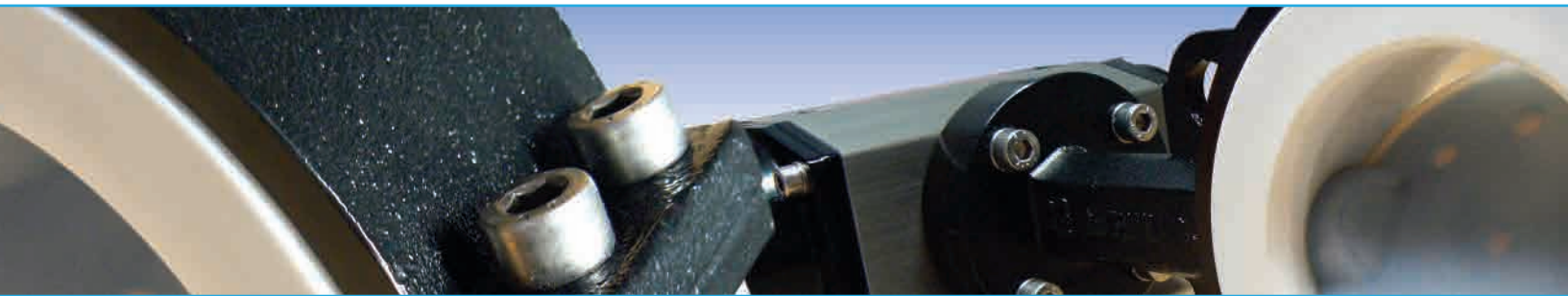


KEYWAY
(DN 350-1200)



Main Features

- Body is fully lined with a seat made of virgin 'PTFE', the disc is isostatically over-moulded at a thickness of 3mm, making this valve highly suited to chemical applications
- Disc encapsulated with PFA and UHMWPE at a 3mm thickness, mechanically fastened and isostatically moulded
- This one piece investment cast stainless steel slim disc and shaft offers a very high 'Cv' or Kv' (flow coefficient) that minimizes obstructions to the flow (low pressure drop)
- The shaft PFA or UHMWPE coating covers the areas in contact with the liner, ensuring a complete isolation of the stem from the process fluid
- The contact between the PTFE liner and the encapsulated PFA disc ensures a minimal friction coefficient and therefore minimum wear and a constantly low torque operation
- Only the disc and the liner are in contact with the fluid
- PTFE coated self-lubricating bearings
- Centering holes in Wafer body for the correct alignment with flanges during installation
- Body design enables the use of heat insulation
- Actuator flange to ISO-5211 to fit any type of standard actuator
- Stainless steel body fixing bolts are standard
- Maintenance free
- Full traceability of components
- Manufactured according to latest standards and applicable regulations



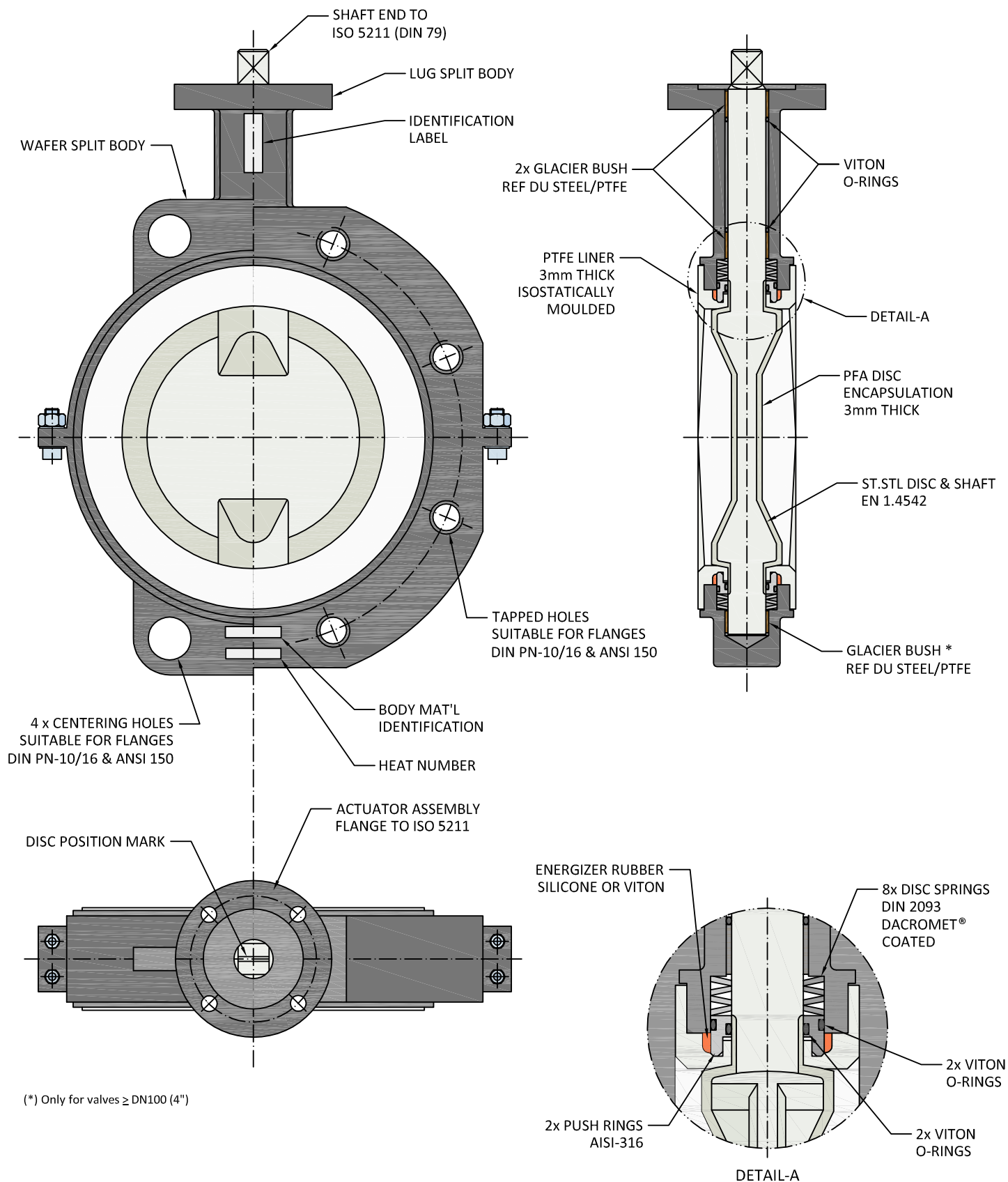
DN		Body Dimensions					Assembly Flange							Shaft End			Q	WEIGHT (Kg)
mm	Inch	A	B	Ø C	D	E	ISO-5211/2	No.	Ø J(1)	Ø K	Ø L	Ø M	N(1)	O	Ø R	□ T		
50	2"	135	57	95	10	43	F-07	4	55	70	90	9	3	16	14	11	27.4	2.8
65	2.5"	145	63	114	10	46	F-07	4	55	70	90	9	3	16	14	11	46.6	3.5
80	3"	159	86	132	10	46	F-07	4	55	70	90	9	3	16	14	11	66.1	4
100	4"	175	104	152	12	52	F-07	4	55	70	90	9	3	18	18	14	85.5	5.2
125	5"	190	118	183	12	56	F-07	4	55	70	90	9	3	18	18	14	110	6.8
150	6"	203	132	207	14	56	F-07	4	55	70	90	9	3	20	22	17	140.3	8
200	8"	240	160	260	14	60	F-07	4	55	70	90	9	3	20	22	17	188.7	12.5
250	10"	275	197	327	16	68	F-10	4	70	102	125	11	3	22	28	22	237.5	22
300	12"	310	232	375	16	78	F-10	4	70	102	125	11	3	22	28	22	286.6	31

(1): Central recess Ø J x N only for valves >= DN 100

Dimensions are in mm



Design Features of the Type 7485 Split Body



Torque Tables

Torque in lbs.ins at 150psi Differential Pressure									
Liner / Disc Material Combinations	Nominal Diameter								
	50 2"	65 2.5"	80 3"	100 4"	125 5"	150 6"	200 8"	250 10"	300 12"
PTFE / PFA	310	354	531	664	885	1372	2080	3098	4292
PTFE / STAINLESS STEEL	403	460	690	863	1151	1783	2704	4027	5580
UHMWPE / UHMWPE	465	531	797	996	1328	2058	3120	4646	6438

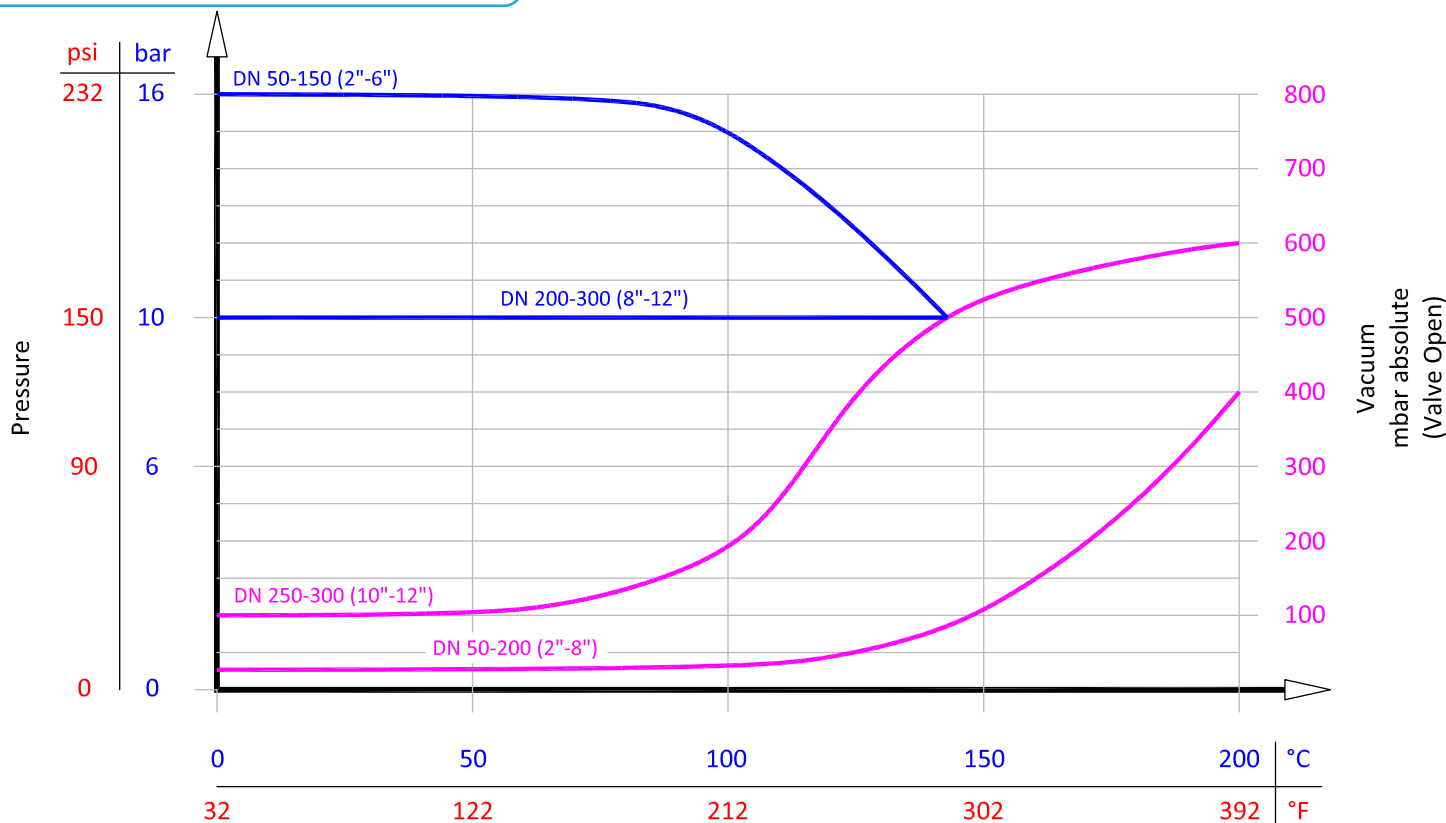
Torque in Nm at 10bar Differential Pressure									
Liner / Disc Material Combinations	Nominal Diameter								
	50 2"	65 2.5"	80 3"	100 4"	125 5"	150 6"	200 8"	250 10"	300 12"
PTFE / PFA	35	40	60	75	100	155	235	350	485
PTFE / STAINLESS STEEL	46	52	78	98	130	202	306	455	631
UHMWPE / UHMWPE	53	60	90	113	150	233	353	525	728

The flow of a liquid through a partially open butterfly valve creates a force on the disc which tends to close it, this effect is called 'Dynamic Torque'. For valves smaller than DN 150mm (6") this dynamic torque does not usually have an important effect and is negligible.

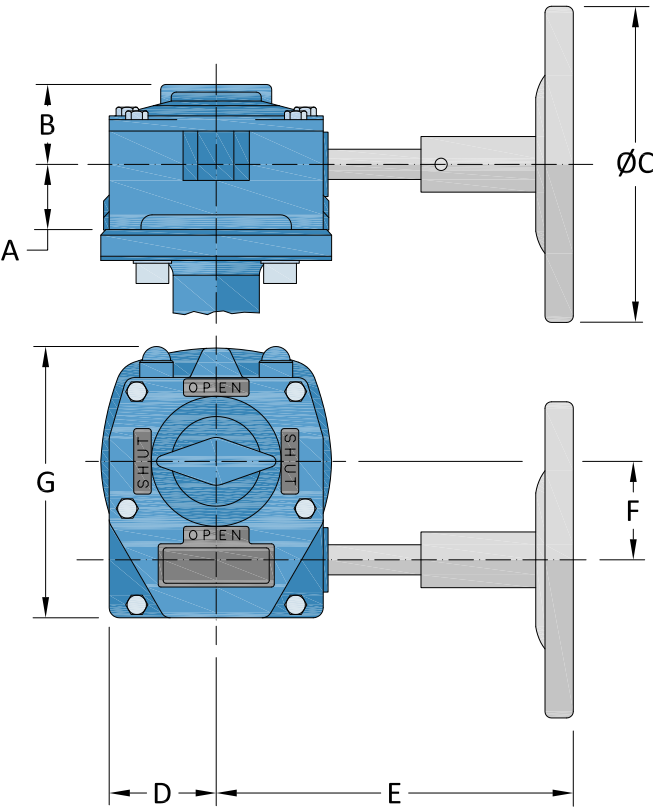
For valves from DN 150mm (6") and larger, the Dynamic Torque must be taken into account when choosing an actuator. Therefore, for manual options, gearbox actuators are recommended for valves from this nominal diameter and upwards.

The maximum normal torque values are given for valves at their optimal working conditions in a normal pipe line application. The necessary normal torque to operate a valve, varies depending on the service conditions, valve condition as well as on the operation frequency.

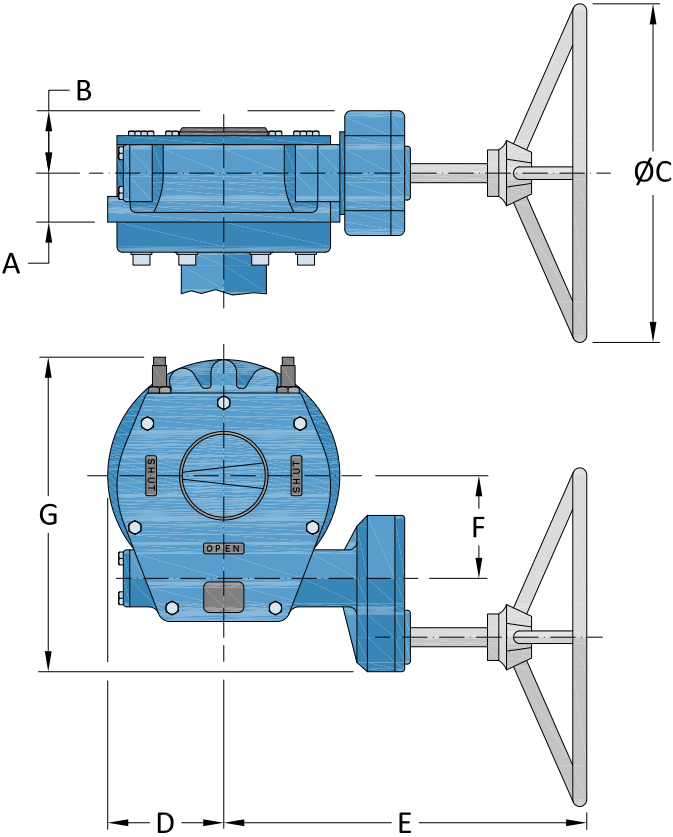
Pressure/Temperature



DN 50-500



DN 600-1200

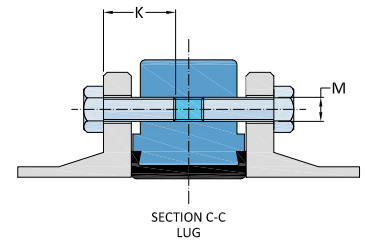
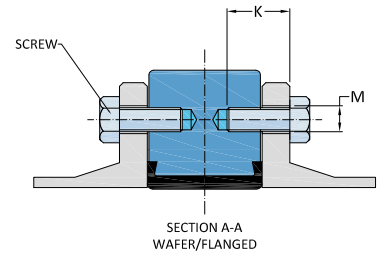
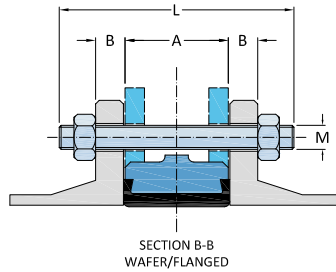
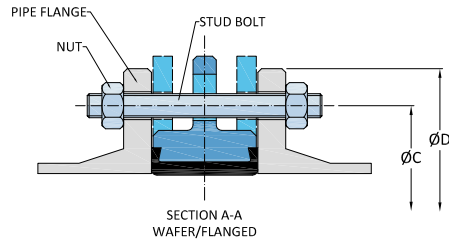
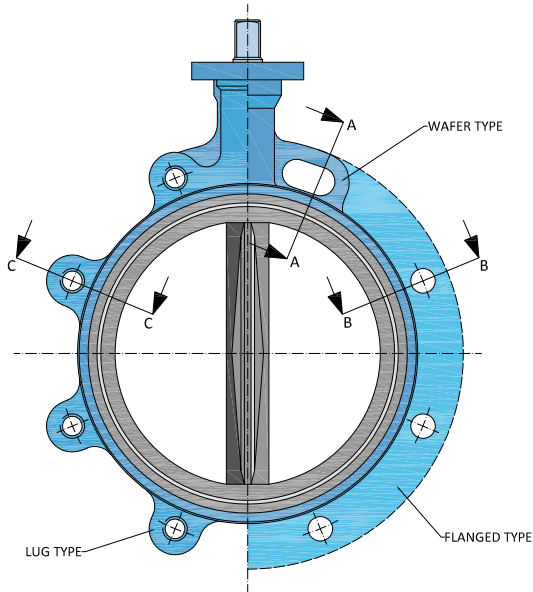


DN		Body Dimensions							Gearbox Ref.	Ratio	Turns for 90° op	WEIGHT (Kg)
mm	Inch	A	B	Ø C	D	E	F	G				
50 - 65 - 80	2" - 2.5" - 3"	26.5	31.8	140	44	145.5	38.5	107.3	RS 50-80	40:1	10	3.1
100 - 125	4" - 5"	26.5	31.8	140	44	145.5	38.5	107.3	RS 100-125	40:1	10	3.1
150 - 200	6" - 8"	26.5	31.8	140	44	145.5	38.5	107.3	RS 150-200	40:1	10	3.1
250 - 300	10" - 12"	28.6	34	250	51	212	52	130	RS 250-300	37:1	9.25	5.2
350	14"	40.5	47	300	65	282	71	180	RS 350	34:1	8.5	10.5
400	16"	42	50.5	300	77	270	86	226	RS 400	38:1	9.5	16
450 - 500	18" - 20"	48	53.5	400	91	326	104.5	258	RS 450-500	55:1	13.75	26
600 - 800	24" - 32"	55	100	500	142.5	447	130	402.5	RS 600-800	208:1	52	49
900 - 1000	36" - 40"	59	100	600	185	500	182	482	RS 900-1000	312:1	79	75

Dimensions are in mm



Bolting List DIN PN-10 Standard

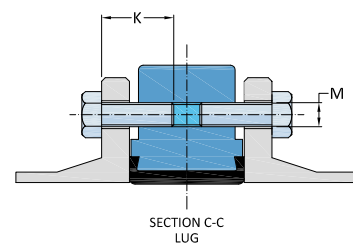
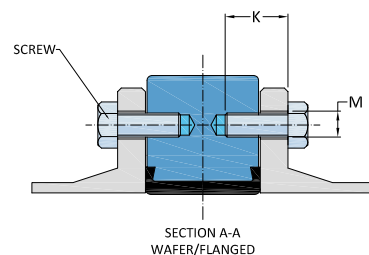
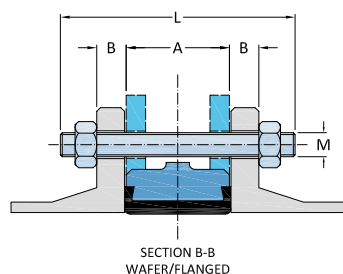
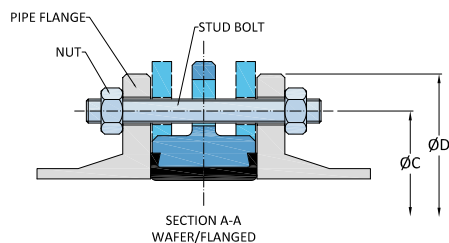
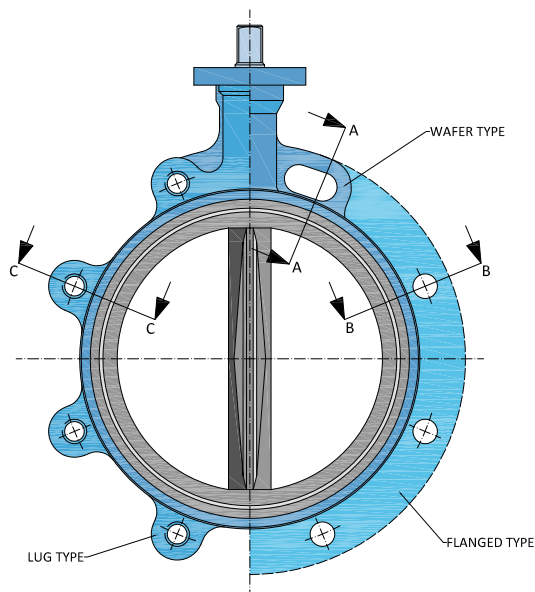


DIN PN-10 STANDARD																	
Valve			Flanges (DIN 2632)				Necessary Bolts for Wafer & Flanged Types									Bolts for Lug Type	
DN		Face to Face	Thickness	Bolt Centres	Quantity	External Diam	Stud Bolts			Nuts		Screws			Screws		
							Length	Thread	Quantity	Thread	Quantity	Length	Thread	Quantity	Length	Thread	Quantity
mm	Inch	A	B	Ø C	No	Ø D	L	M	No	M	No	L	M	No	L	M	No
50	2"	43	18	125	4	165	120	M16	4	M16	8				35	M16	8
65	2.5"	46	18	145	4	185	125	M16	4	M16	8				35	M16	8
80	3"	46	20	160	8	200	130	M16	8	M16	16				40	M16	16
100	4"	52	20	180	8	220	135	M16	8	M16	16				40	M16	16
125	5"	56	22	210	8	250	140	M16	8	M16	16				45	M16	16
150	6"	56	22	240	8	285	150	M20	8	M20	16				45	M20	16
200	8"	60	24	295	8	340	160	M20	8	M20	16				50	M20	16
250	10"	68	26	350	12	395	170	M20	12	M20	24				55	M20	24
300	12"	78	26	400	12	445	180	M20	12	M20	24				60	M20	24
350	14"	78	26	460	16	505	180	M20	16	M20	32				60	M20	32
400	16"	102	26	515	16	565	215	M24	16	M24	32				70	M24	32
*450	18"	113	28	565	20	615	230	M24	20	M24	40				80	M24	40
500	20"	126	28	620	20	670	240	M24	20	M24	40				85	M24	40
600	24"	146	28	725	20	780	270	M27	16	M27	32	75	M27	8	75 95	M27 M27	8 32
700	28"	175	30	840	24	895	305	M27	20	M27	40	80	M27	8			
750	30"	176	-	-	-	-	-	-	-	-	-	-	-	-			
800	32"	215	32	950	24	1015	355	M30	20	M30	40	90	M30	8			
900	36"	246	34	1050	28	1115	390	M30	24	M30	48	90	M30	8			
1000	40"	280	34	1160	28	1230	430	M33	24	M33	48	90	M33	8			

(*): As BS4504 PN-10

Dimensions are in mm

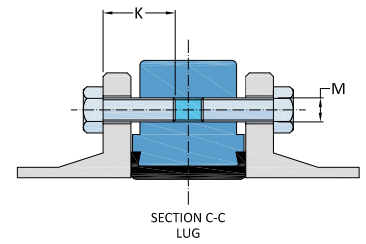
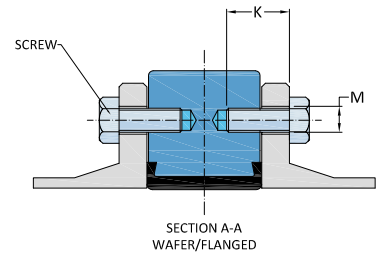
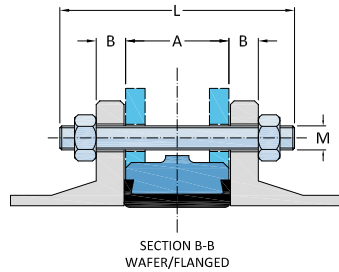
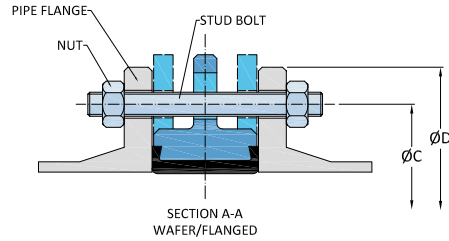
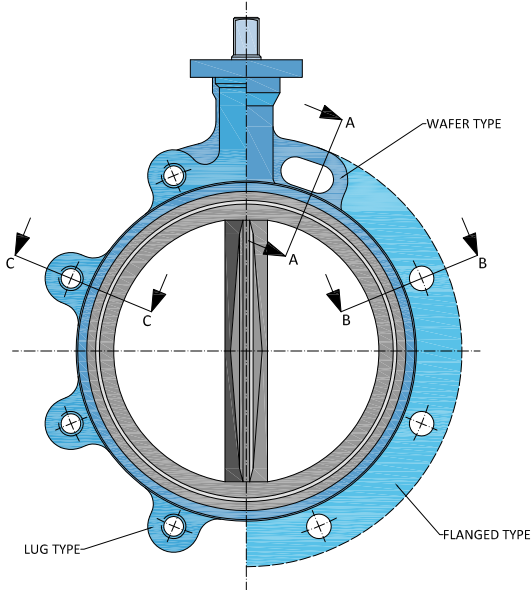
Bolting List DIN PN-16 Standard



DIN PN-16 STANDARD																	
VALVE			FLANGES (DIN 2633)				NECESSARY BOLTS FOR WAFER & FLANGED TYPES						BOLTS FOR LUG TYPE				
DN		Face to Face	Thickness	Bolt Centres	Quantity	External Diam	Stud Bolts			Nuts		Screws			Screws		
							Length	Thread	Quantity	Thread	Quantity	Length	Thread	Quantity	Length	Thread	Quantity
mm	Inch	A	B	Ø C	No	Ø D	L	M	No	M	No	L	M	No	L	M	No
50	2"	43	18	125	4	165	120	M16	4	M16	8				35	M16	8
65	2.5"	46	18	145	4	185	125	M16	4	M16	8				35	M16	8
80	3"	46	20	160	8	200	130	M16	8	M16	16				40	M16	16
100	4"	52	20	180	8	220	135	M16	8	M16	16				40	M16	16
125	5"	56	22	210	8	250	140	M20	8	M20	16				45	M16	16
150	6"	56	22	240	8	285	150	M20	8	M20	16				45	M20	16
200	8"	60	24	295	12	340	160	M20	12	M20	24				50	M20	24
250	10"	68	26	355	12	405	180	M24	12	M24	24				55	M24	24
300	12"	78	28	410	12	460	195	M24	12	M24	24				65	M24	24
350	14"	78	30	470	16	520	195	M24	16	M24	32				65	M24	32
400	16"	102	32	525	16	580	235	M27	16	M27	32				80	M27	32
*450	18"	113	34	585	20	640	250	M27	20	M27	40				85	M27	40
500	20"	126	34	650	20	715	270	M30	20	M30	40				95	M30	40
600	24"	146	36	770	20	840	300	M33	16	M33	32	75	M33	8	85 100	M33 M33	8 32
700	28"	175	36	840	24	910	325	M33	20	M33	40	80	M33	8			
750	30"	176	-	-	-	-	-	-	-	-	-	-	-	-			
800	32"	215	38	950	24	1025	380	M36	20	M36	40	90	M36	8			
900	36"	246	40	1050	28	1125	415	M36	24	M36	48	90	M36	8			
1000	40"	280	42	1170	28	1255	460	M39	24	M39	48	90	M39	8			

(*): As BS4504 PN-16

Dimensions are in mm



ANSI ASME B16.5 150lb STANDARD																	
VALVE			FLANGES				NECESSARY BOLTS FOR WAFER & FLANGED TYPES									BOLTS FOR LUG TYPE	
DN		Face to Face	Thickness	Bolt Centres	Quantity	External Diam	Stud Bolts			Nuts		Screws			Screws		
							Length	Thread	Quantity	Thread	Quantity	Length	Thread	Quantity	Length	Thread	Quantity
mm	Inch	A	B	Ø C	No	Ø D	L	M	No	M	No	L	M	No	L	M	No
50	2"	43	19.1	120.6	4	152.4	120	5/8"UNC	4	5/8"UNC	8				35	5/8"UNC	8
65	2.5"	46	22.2	139.7	4	177.8	130	5/8"UNC	4	5/8"UNC	8				40	5/8"UNC	8
80	3"	46	23.8	152.4	4	190.5	135	5/8"UNC	4	5/8"UNC	8				40	5/8"UNC	8
100	4"	52	23.8	190.5	8	228.6	140	5/8"UNC	8	5/8"UNC	16				45	5/8"UNC	16
125	5"	56	23.8	215.9	8	254	155	3/4"UNC	8	3/4"UNC	16				45	3/4"UNC	16
150	6"	56	25.4	241.3	8	279.4	155	3/4"UNC	8	3/4"UNC	16				45	3/4"UNC	16
200	8"	60	28.6	298.4	8	342.9	165	3/4"UNC	8	3/4"UNC	16				50	3/4"UNC	16
250	10"	68	30.2	361.9	12	406.4	185	7/8"UNC	12	7/8"UNC	24				60	7/8"UNC	24
300	12"	78	31.7	431.8	12	482.6	200	7/8"UNC	12	7/8"UNC	24				65	7/8"UNC	24
350	14"	78	34.9	476.2	12	533.4	215	1"UNC	12	1"UNC	24				70	1"UNC	24
400	16"	102	36.5	539.7	16	596.9	245	1"UNC	16	1"UNC	32				85	1"UNC	32
*450	18"	113	39.7	577.8	16	635	265	1-1/8"UNC	16	1-1/8"UNC	32				90	1-1/8"UNC	32
500	20"	126	42.9	635	20	698.5	285	1-1/8"UNC	20	1-1/8"UNC	40				100	1-1/8"UNC	40
600	24"	146	47.6	749.3	20	812.8	305	1-1/4"UNC	16	1-1/4"UNC	32	90	1-1/4"UNC	8	90 110	1-1/4"UNC 1-1/4"UNC	8 32
ASME B16.47 CLASS 150lb STANDARD A-SERIES																	
650	26"	175	68	806.45	24	869.9	380	1-1/4"UNC	24	1-1/4"UNC	48	110	1-1/4"UNC	8			
700	28"	175	71.4	863.6	28	927.1	390	1-1/4"UNC	24	1-1/4"UNC	48	115	1-1/4"UNC	8			
750	30"	176	74.6	914.4	28	984.2	400	1-1/4"UNC	24	1-1/4"UNC	48	120	1-1/4"UNC	8			
800	32"	215	81	977.9	28	1060.4	460	1-1/2"UNC	24	1-1/2"UNC	48	135	1-1/2"UNC	8			
900	36"	246	90.5	1085.8	32	1168.4	510	1-1/2"UNC	28	1-1/2"UNC	56	140	1-1/2"UNC	8			
1000	40"	280	90.5	1200.1	36	1289	545	1-1/2"UNC	32	1-1/2"UNC	64	145	1-1/2"UNC	8			

Dimensions are in mm unless otherwise stated

Hydraulic Flow Rates

DN		Opening Angle							
mm	Inch	20°	30°	40°	50°	60°	70°	80°	90°
50	2"	7	16	26	43	69	110	170	190
65	2.5"	9	22	38	60	95	155	250	280
80	3"	14	33	57	95	150	240	370	430
100	4"	24	54	95	155	240	400	620	710
125	5"	38	86	155	240	390	640	950	1100
150	6"	52	120	220	345	550	950	1400	1600
200	8"	95	220	345	600	950	1600	2400	2800
250	10"	155	345	610	950	1600	2600	4000	4700
300	12"	220	510	860	1500	2300	3800	5900	6900
350	14"	290	660	1200	1900	2900	4800	7800	8600
400	16"	380	860	1600	2400	3900	6400	9500	11200
450	18"	490	1100	2000	3100	5000	8300	12900	15500
500	20"	610	1400	2500	4000	6200	10300	15500	19000
600	24"	860	2000	3400	5500	8600	14700	22400	25900
650	26"	980	2300	4000	6100	10400	16650	25850	31500
700	28"	1100	2600	4600	6700	12200	18600	29300	37100
750	30"	1300	3100	5200	8500	13800	22400	34500	40500
800	32"	1800	3600	6600	9700	16600	28300	43200	52300
900	36"	2200	4500	7800	12900	19800	32800	51700	60300
1000	40"	3100	5300	8700	16000	24100	42200	62100	78400

Values shown in the above table are in m³/hour

Kv value is the metric measure for the flow of a valve and is defined as: The volume flow in cubic metres per hour of water at a temperature of between 5° and 40° celsius with a pressure drop across the valve of 1 bar.

Cv is the imperial measure for the flow of a valve and is defined as: The volume flow in US gallons per minute of water at a temperature of 60° fahrenheit with a pressure drop across the valve of 1 psi

$$Cv : Kv \text{ Ratio}$$

$$Cv \text{ (US gallons/minute)} = Kv \div 0.86 \text{ (l/minute)}$$



DN		Working Pressure	10 bar	16 bar	150 psi	225 psi
mm	Inch	Units	Nm	Nm	lb in	lb in
50	2"	Operating Torque	15	15	133	133
65	2.5"		20	20	177	177
80	3"		25	25	221	221
100	4"		40	40	354	354
125	5"		50	50	443	443
150	6"		60	60	531	531
200	8"		160	160	1416	1416
250	10"		250	250	2213	2213
300	12"		300	300	2655	2655
350	14"		900	1350	7965	11948
400	16"		1200	1800	10620	15930
450	18"		1650	2400	14603	21240
500	20"		2300	3500	20355	30975
600	24"		4100	6150	36285	54428
650	26"		4800	7200	42480	63720
700	28"		5500	8250	48675	73013
750	30"		6500	9500	57525	84075
800	32"		8100	12150	71685	107528
900	36"		10000	15000	88500	132750
1000	40"		13500	20000	119475	177000

Torques listed in the table above are a guideline only, they have been calculated for constant pressure working conditions and are valid for MUCON Type 7485 butterfly valves with PTFE liners and water at ambient temperature (20°C approx.) at 10 bar pressure.

As the figures presented in the above table were obtained from tests made on static benches, it is necessary to take into consideration the dynamic conditions of the fluid for every specific line (velocity, flow, cavitation, hydraulic factors etc), especially for the hydrodynamic stress caused by the flow on the valve disc.

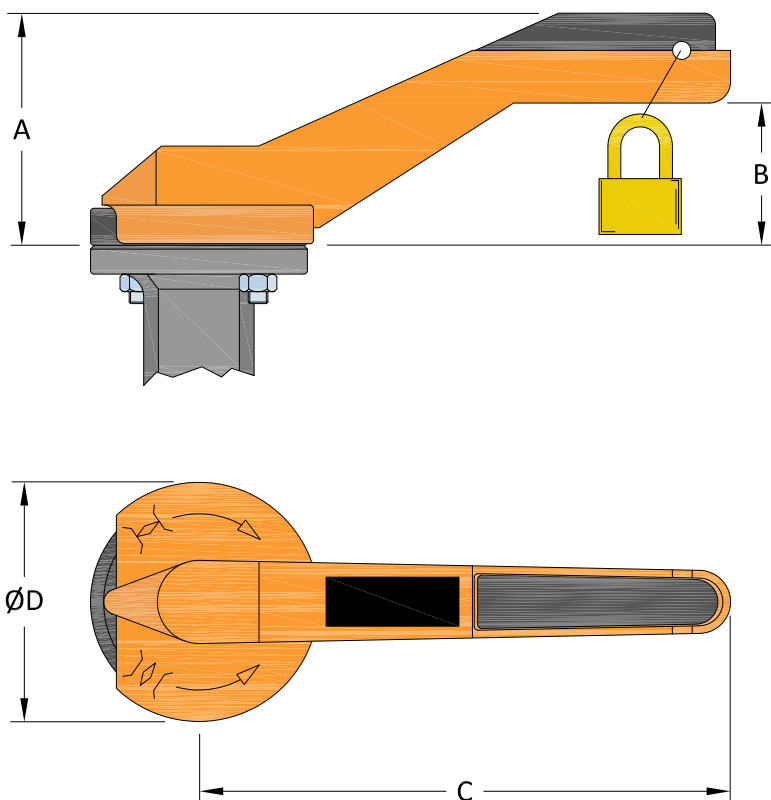
The MUCON Type 7485 butterfly valve is designed to work with fluids, which act like lubricants. For air or gas service, the torques are considerably higher (at least 35%). In this case please contact Process Components Ltd to analyse the situation and obtain the best advice.

Safety factors are included in these torque values.



Hand Lever Features - PAI01/02

- Pressure die cast aluminium construction
- Stainless steel bolting
- Complete integrated lever set for direct mounting on valve
- Ideal for mounting in pipe-systems with heat insulation
- 6 regulating positions
- Padlock locking facility
- Possible to fit limit switches for remote position indication

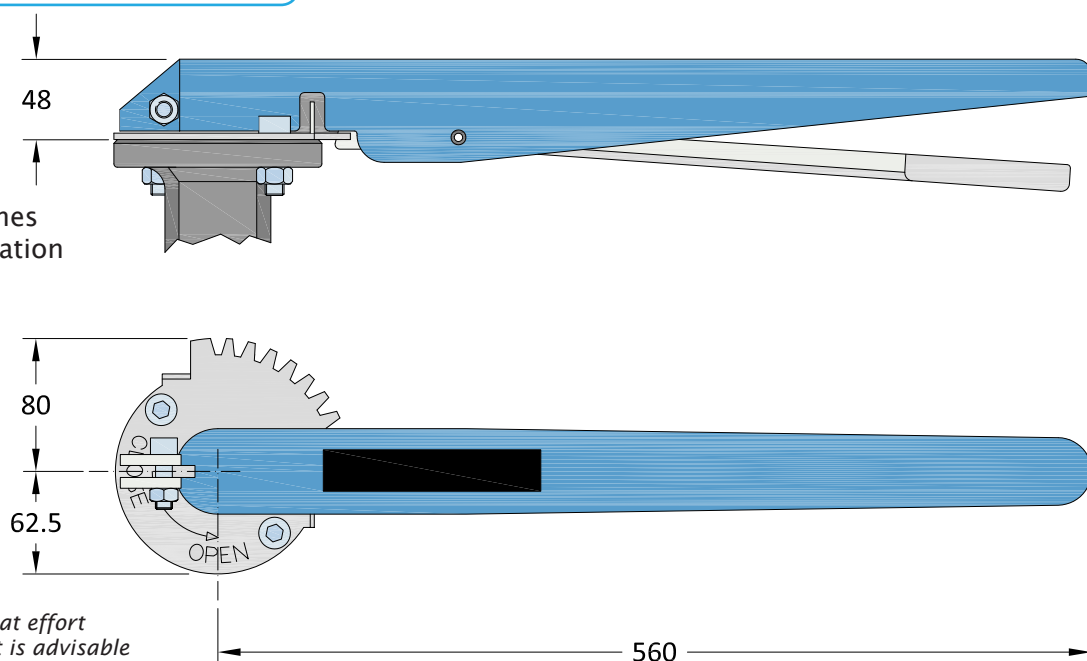


mm	DN	Dimensions				Actuator Ref	WEIGHT (Kg)
	Inch	A	B	C	Ø D		
50 - 65 - 80	2" - 2.5" - 3"	95	58	220	100	PAI01-11	0.7
100	4"	95	58	220	100	PAI01-14	0.7
125	5"	95	58	320	100	PAI02-14	0.8
150 - 200	6" - 8"	95	58	320	100	PAI02-17	0.8

Dimensions are in mm

Hand Lever Features - PA1005

- Aluminium casting
- 10 regulating positions
- Possible to fit limit switches for remote position indication



NOTE:
For DN 250 & 300, due to the great effort necessary to operate the levers, it is advisable to choose the gear-box as a manual actuator.

Pneumatic Actuator

The following quarter-turn actuators provide excellent performance in a robust and efficient package. Based on the proven rack and pinion principal, a highly efficient and totally linear operating torque is achieved.

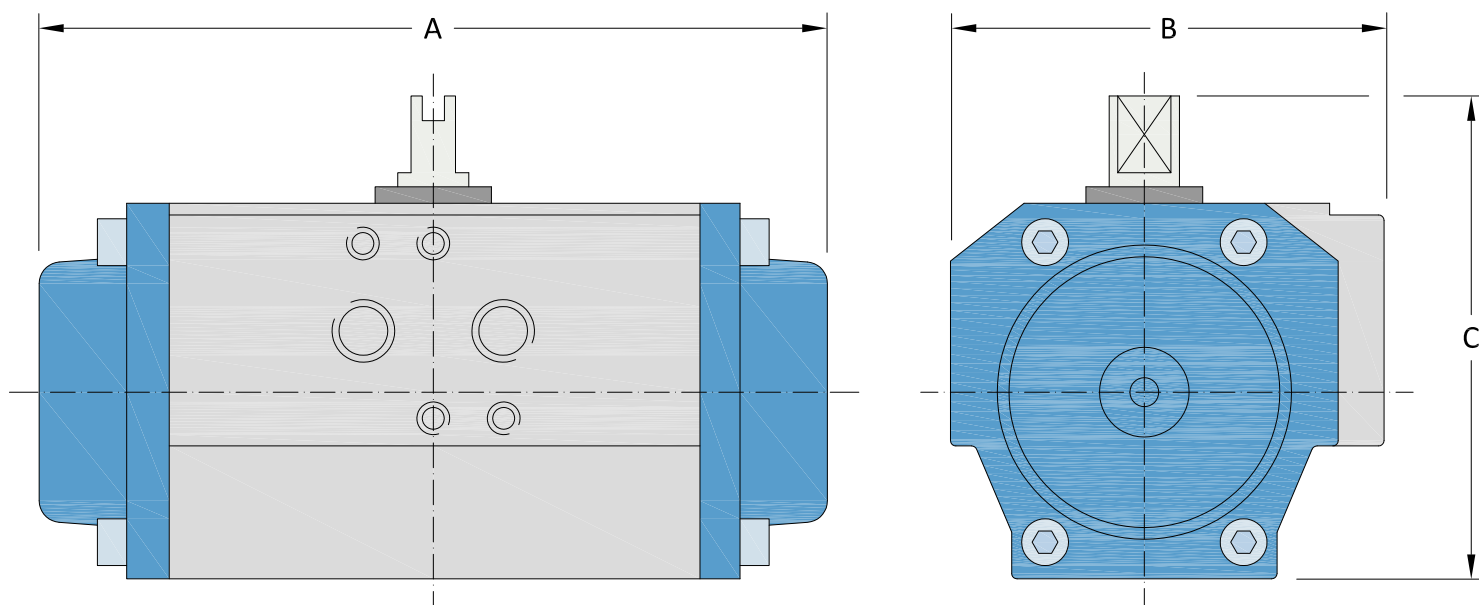
Thanks to this technique a wider range of torque values have been achieved, from 7.6Nm to 5860Nm for the double acting version and from 10Nm to 3480Nm for the spring return version, providing a constant air pressure supply of 6 bar.

The self lubrication, together with tight control of tolerances and an internal surface finish (Ra 0.4 – 0.6µm) coupled with materials that provide an extremely low coefficient of friction (LAT LUB) guarantee a long service life close to a million operations.

To provide a high resistance to corrosion, there is a surface coating available for most applications and operating atmospheres, including: anodized aluminium, chemical nickel or PTFE coated.

The actuators are suitable for a temperature range between -20°C and +80°C in normal service. All mounting positions are standardised to ISO 5211/DIN 3337.

Air supply connections and the upper connections for the mounting of ancillary devices such as solenoid valves, limit switch boxes or positioners, comply with NAMUR recommendations.



Options

- Limit Switch assembly (electromechanical, inductive, magnetic or pneumatic) with NAMUR (VDI/VDE-3845) Standard connection
- Inductive or magnetic detectors
- Solenoid valves (3/5 ways) including ATEX approved versions
- Pneumatic (3-15psi) and electro-pneumatic (4-20 mA) positioners
- Manual emergency override with declutching gearbox

DN		Dimensions			Actuator Ref	WEIGHT (Kg)
mm	Inch	A	B	C		
50 - 65 - 80	2" - 2.5" - 3"	156	86	103	CH063	1.6
100 - 125	4" - 5"	210	94	120	CH065	2.9
150 - 200	6" - 8"	280	120	145	CH100	5.8
250 - 300	10" - 12"	362	141	185	CH125	11.9
350 - 400	14" - 16"	575	220	290	CH200	43
450 - 500	18" - 20"	685	352	382	CH270	94
600 - 700	24" - 28"	850	400	464	CH330	105

Dimensions are in mm

Electric Actuator Type VJ

MUCON butterfly valves can easily be equipped with any electric, pneumatic or hydraulic actuator that has a mounting configuration standardised to DIN ISO 5211. The actuators are connected to the valve’s standard top flange.

Main Features

- Specifically developed for ¼ turn applications but with rotation angles up to 270°.
A wide range of operation torque values from 20 to 300 Nm with many features included in the standard version
- ATC - Automatic Temperature Control, ambient heater
- AVS - Automatic Voltage Sensing:
Series L 12-48V AC/DC. Series H 85-240V AC/DC
- ETL - Electronic Torque Limiter
- MO - Manual Emergency Operation

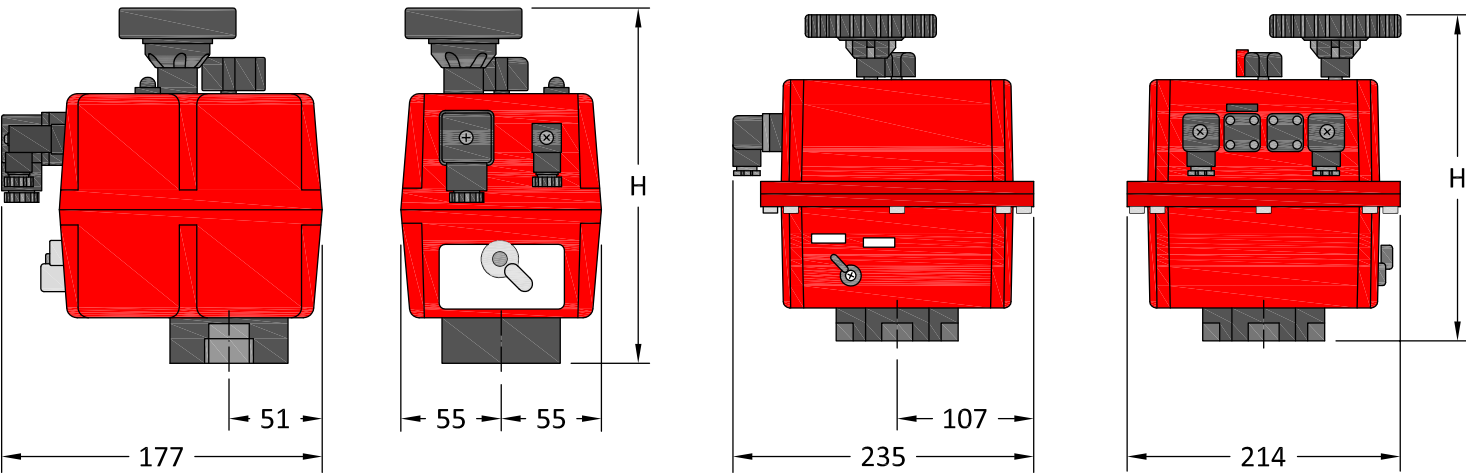
Options

- Housing and cover in aluminium or stainless steel
- Electronic positioner 4-20 mA or 0-10 V
- BSR Emergency battery pack
(equipped with rechargeable storage batteries)



Selection and Dimensions for Electric Actuators - Type VJ					
DN		Height	Operation Time	Actuator	Weight (Kg)
mm	Inch	H	(sec/90°)	Ref	
50 - 65 - 80	2" - 2.5" - 3"	171	11/12	H/L 35	1.7
100 - 125	4" - 5"	196	13/17	H/L 55	2.3
150	6"	196	32/33	H/L 85	2.8
200 - 250	8" - 10"	254	30-33/60-66	H/L 140/300	5.2

Dimensions are in mm

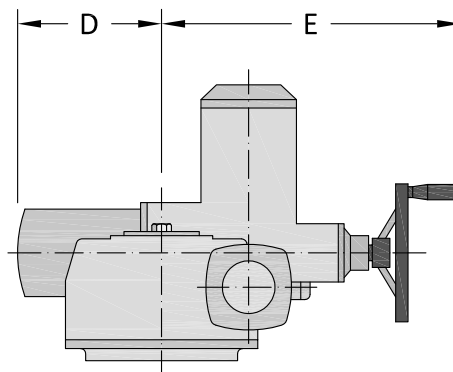
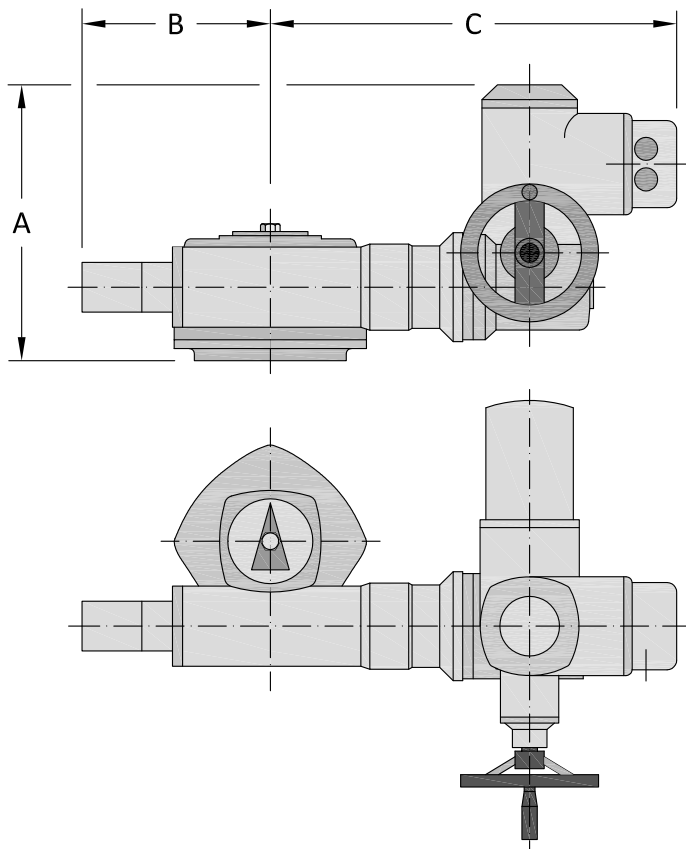


Electric Actuator Type VAU Features

- Cast iron and aluminium housing with excellent protection against corrosion. Enclosed to IP67
- Voltage range: 220/380/400/415/440/460 and 500V AC (three phase) and 110-120/220-240V AC (single phase), 50 or 60Hz
- 2 SPDT limit switches plus 2 adjustable torque settings
- Manual emergency override with clutch
- Adjustable turn angle between 80° and 120° through mechanical stops

Selection and Dimensions for Electric Actuators - Type VAU									
DN		Dimensions					Operation Time (sec/90°)	Actuator Ref	Weight (Kg)
mm	Inch	A	B	C	D	E			
50 - 65 - 80	2" - 2.5" - 3"	207	166	215	195	87	8/22	SG-03.3	8.3
100 - 150	4" - 6"	207	166	215	195	87	8/32	SG-04.3	8.3
200	8"	265	153	98	170	302	8/32	SG-05.1	18
250 - 300	10" - 12"	265	153	98	170	302	8/32	SG-07.1	18
350 - 400	14" - 16"	307	154	373	264	250	50/199	GS.80+SA-07.5.3	32.5
450 - 500	18" - 20"	321	220	470	264	250	75/600	GS.100.3/Vz3.3+SA-07.5	52
600 - 700	24" - 28"	330	230	480	264	250	98/780	GS.125.3/Vz4.3+SA-07.5	62
750 - 800	30" - 32"	313	337	653	264	250	74/829	GS.160.3/Gz160.3+SA-07.5	110
900 - 1000	36" - 40"	323	337	655	282	256	72/814	GS.160.3/Gz160.3+SA-10.1	110
1050 - 1200	42" - 48"	348	398	735	282	256	104/810	GS.200.3/Gz200.3+SA-10.1	189

Dimensions are in mm



Options

- Additional surface protection for especially corrosive atmospheres, intermediate position limit switches, electronic positioner 4-20 mA, enclosure to IP68, local control, ATEX compliance.



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