

WATER TREATMENT

CATALOGUE

*Over 60 years world leading manufacturer
of high quality valves and actuators...*

AFFCO Company Info

AFFCO General

Valves play a pivotal role in a multitude of industries to provide flow control in pipelines. Seeing the significance of valves across multiple industries, AFFCO embarked on a journey to manufacture high quality, high performance valves and valve systems.

AFFCO pledges to build up an ever stronger research and development capability, further improve its product quality and design, and provide better customer service, to achieve their goals of being a globally renowned manufacturer of butterfly valves, valves and flow control systems.

AFFCO focus on three key aspects, quality, precision and service.



Innovation

AFFCO insists in NPD every year to breakthrough the existing problems and create more value to customers.



Sustainability

AFFCO advocates sustainable development in products concept to build eco system.



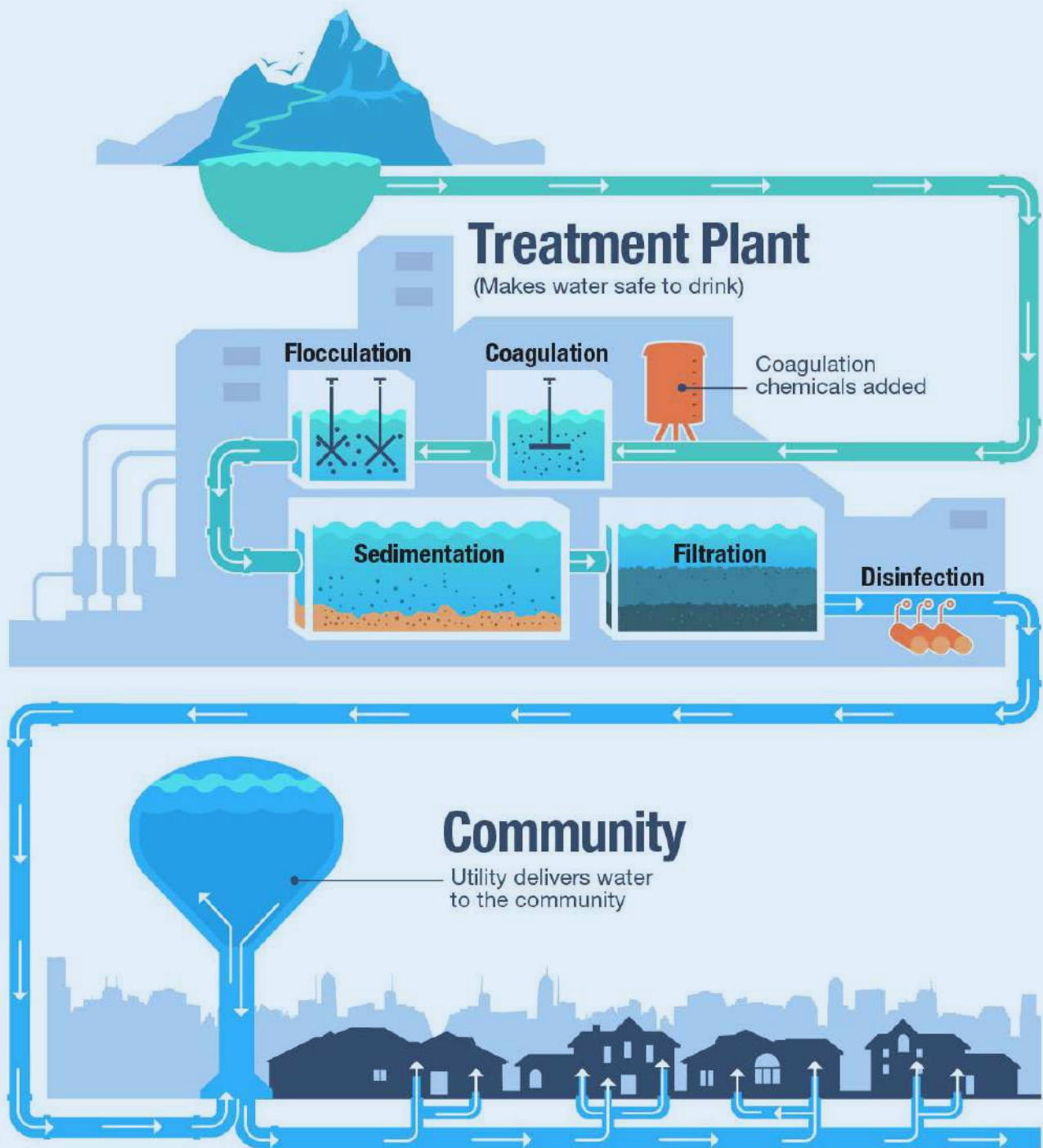
Reliability

AFFCO has stable operation torque, the sealing performance remains stable with temperature changes and long life time.

Water Treatment Market

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AFFCO Valve in Water and Water Treatment Market.

The term 'water treatment' comprises physical, chemical and biological procedures depending on the substances contained in the raw water. In drinking water treatment plants, sea-water desalination plants or pumping stations, valves control pressure and flow, shut off the flow of water in a targeted manner and protect pumps and pipelines. While for consumers clean water is a matter of course, we know about the complexity of these processes and the requirements for the quality of drinking water.

AFFCO Knife Gate Valve, for example, can score points in desilting systems due to its wide seal with extremely accurate closing behaviour. Because its knife runs entirely within a rubber lip on the sides its surface remains undamaged. In filter systems, AFFCO Plunger Valves control the flow with absolute reliability.

You as a decision-maker determine the quality requirements today for a plant that is profitable on a sustainable basis. Experience has shown that quality pays off. This is why our valves have a service life of many decades. AFFCO is the leading solution provider worldwide for water treatment with a product range that covers virtually any application and worldwide service. No matter what your requirements are- we will be able to meet them and to complete even major projects within a short period of time.

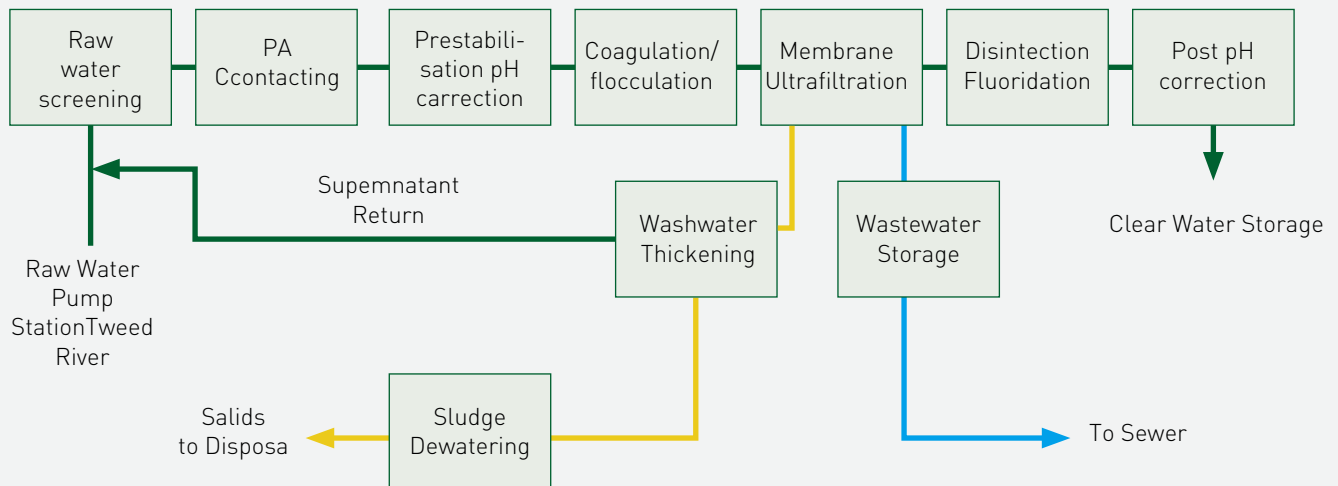
Benefit from our experience in water treatment. We will provide expert advice on materials, design and actuators. At AFFCO you can find innovative and proven solutions whose details meet the needs of real-life use.

Water Supply

The Water Treatment Process

Key:

Raw/Treated Water ———
Sludge ———
Wastewater ———



Water Distribution

When water has been treated in a water treatment plant, it is pumped to the consumer via a wide water distribution network. This network is made of different kinds of pipe material; typically ductile iron, PVC, steel or PE.

A water distribution network usually operates at a relatively low pressure, but water pressures may vary as the pressure just needs to be sufficiently high for the water to reach consumers living in highly elevated areas relative to the pumping station. In mountainous areas, the water distribution network is divided into pressure zones which are separated by means of pressure reducing stations, gate valves and check valves.

For water distribution, AFFCO offers various types of valves and accessories suitable for all kinds of pipe material and operating pressure such as: gate valves, centric and double eccentric butterfly valves, swing check valves, ball float valves, air valves etc. Furthermore, we offer a wide range of fire hydrants for use above ground level and for underground installations.

Water Plant Work

Water for human consumption is sourced from many different locations; i.e. groundwater, surface water from lakes and rivers, and water from water reservoirs. In some parts of the world, even seawater is used after going through a desalination process.

The water must be purified before use, regardless of the source. Water from certain areas may only need filtration and aeration, whereas water from other locations may need to go through a disinfection process. Water treatment is typically carried out in a water plant, in which the valves are often equipped with either electrical or pneumatic actuators to enable remote operation and control.

AFFCO offers a wide range of valves and accessories designed to comply with the conditions and demands in a typical water treatment plant, including gate valves, centric and double eccentric butterfly valves, swing check valves, air valves etc.



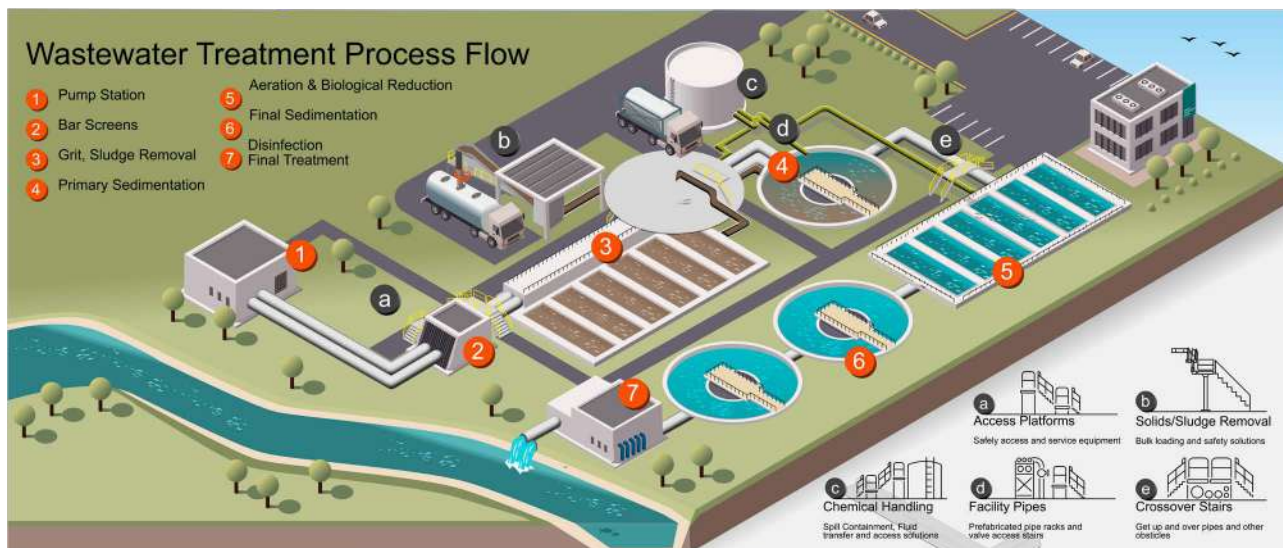
Water Transmission

The transport of water from storage facilities to distribution networks takes place through water transmission pipelines. The pressure is created either through gravity or through associated pumping stations. The water is channelled from the source, such as a reservoir, to water treatment plants and then usually pumped into service reservoirs and distribution networks to private homes and companies.

For water transmission, AFFCO offers a wide range of gate valves, centric and double eccentric butterfly valves, air valves and swing check valves etc.



Wastewater Treatment



Wastewater Collection

Wastewater collection normally takes place by means of gravity from domestic households and the industry where the wastewater is led to pumping stations and pumped into the wastewater treatment plants.

There are two main systems for the wastewater collection: collection systems with combined sewers and collection systems with separated sewers for rainwater and wastewater. Combined sewers transport the wastewater from private households and companies as well as rainwater in the same pipe. Many new collection systems provide separate sewers for wastewater and rainwater.

Rainwater is collected in sewers and led either directly to

the pumping stations or to rainwater storage tanks where it at a later stage is mixed with the wastewater. As the amount of rainwater is unpredictable it may be necessary to store the rainwater either in basins around the country side or in stormwater tanks inside the wastewater treatment plants. In this way it is easier to control the flow of the rainwater as it is mixed with the wastewater when the plant has the capacity to clean the rainwater.

For wastewater collection, AFFCO offers gate valves, check valves, knife gate valves, air valves etc.

Wastewater Treatment

At wastewater treatment plants the grease and sand is removed by means of a grease and sand trap to protect the equipment in the following processes from damage. There are many different technologies for cleaning wastewater but the far most common is a combination of mechanical treatment and biological treatment. The wastewater is cleaned in steps ending with a biological process or aeration of the wastewater in order to start the nitrification and denitrification processes.

Mechanical wastewater treatment is used to remove solid matter in the water. It involves two processes: filtration (or separation) and sedimentation. Filtration is carried out in various stages using various processes. These can remove coarse impurities such as paper or leaves using a rake or rotary screen. In the primary sedimentation tank the purification (reduction of organic material) takes place.

In the biological stage of the wastewater treatment process the main impurities, which are suspended in the water and not picked up by the mechanical process, are

treated. The biological wastewater treatment process takes place when the wastewater is being treated in the sludge activation tank. Other processes (e.g. trickling filter, immersion filter) are used in isolated cases.

Sludge is produced as a waste product in the wastewater treatment process. Treatment and preparation of sludge give rise to its own equipment requirements, which may vary significantly depending on the plant. The most common way of disposing of wastewater sludge is still using it in agriculture. This is why some countries utilize wastewater sludge thermally. In some cases, the wastewater sludge is delivered to an external biogas plant.

For wastewater treatment, AFFCO offers gate valves, butterfly valves, check valves, knife gate valves, air valves etc.

Wastewater Outlet

Before cleansed wastewater is discharged into a stream, creek, river or the sea it must be ensured that local legislation is fulfilled with regards to the wastewater outlet specifications. In the EU countries, each wastewater treatment plant is obliged to take samples of the discharged wastewater up to 5 times per day in order to document the content of harmful substances. If the discharge values are exceeded, the wastewater utility is obliged to pay a fine. Of course, this increases the motivation to clean the wastewater effectively in order to meet the EU discharge requirements of wastewater outlets.

For wastewater outlet, AFFCO offers gate valves, butterfly valves, knife gate valves, check valves etc.





Wafer Type Butterfly Valve

■ DN40-DN1200 Model Number: S571

Temp. Range	-20°C to +120°C
Flange Drilling	BS EN1092 PN16
Design Standard	EN593
Testing	EN12266

Application

- For flow control and isolation, widely used for clean and treated water applications

Features

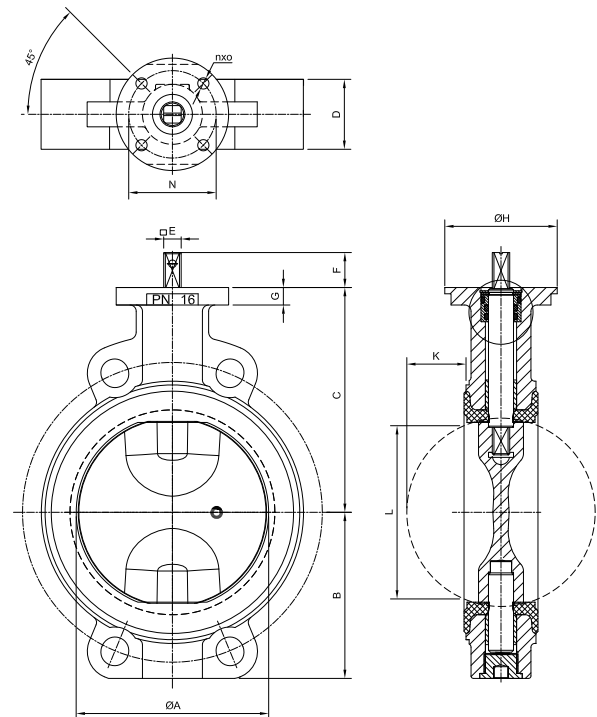
- Twin shaft design
- Suitable for end of line duty upto 10 bar (up to DN300)
- Compact design with streamlined disc
- High KV / CV valves
- Vulcanized bonded liner for longer lifetime and lower torque
- ISO EN5211 actuation flange
- ATEX certification

Options

- Under cut Discs (6 bar- 10 bar)
- Various body, disc, shaft and liners available
- PN10, PN16, PN25, BSTD/E, ANSI connections
- Lever/ gearbox operation
- Torque figures available on request

Accessories

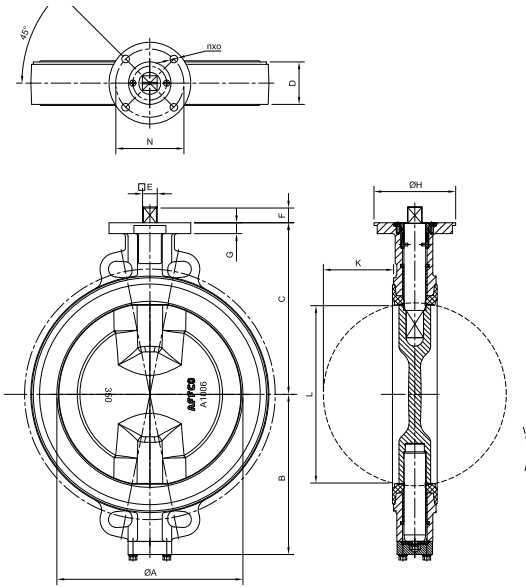
- Position indication, limit switches, locking facility, actuation, chain wheel assemblies, extension spindles, floor pillar



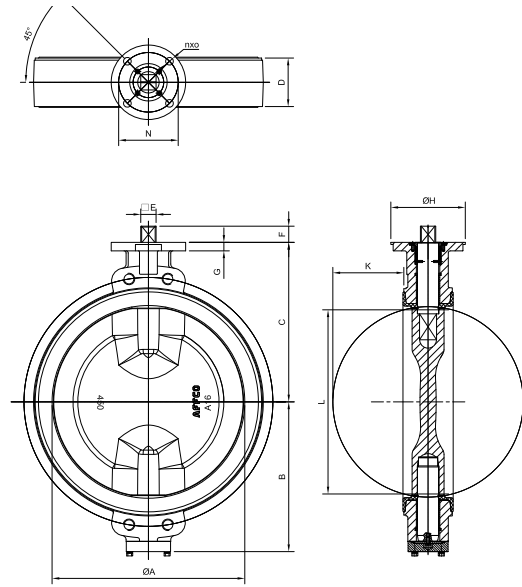
DN40-DN300

■ Materials

No.	Part Name	Material
1	Body	Ductile Iron, carbon steel, stainless steel, duplex, aluminium bronze, Zinc Bronze
2	Disc	Ductile iron 300 um Rilsan coated, aluminium bronze, bronze, stainless steel, duplex, monel
3	Shaft	Stainless steel, duplex, monel (K500), aluminium bronze
4	Liner	NBR, EPDM, VITON



DN350-DN400



DN350-DN650

Dimension

DN	NPS	ØA	E	F	B	C	ØH	D	N(PCD) [ISO 5211]	n x Ø	G	L	K	Weight Appr. (KG)
40	1 1/2"	40	11	25	61	113	90	33	Φ0[F07]	4xΦ9	12	23	3.5	2.2kg
50	2"	50	11	25	67	118	90	43	Φ70[F07]	4xΦ9	12	30	4.7	2.4kg
65	2 1/2"	65	11	25	74	126	90	46	Φ70[F07]	4xΦ9	12	49	11	3.0kg
80	3"	80	11	25	82	133	90	46	Φ70[F07]	4xΦ9	14	68	18	3.8kg
100	4"	102	11	25	100	147	90	52	Φ70[F07]	4xΦ9	14	90	26	4.6kg
125	5"	125	14	28	112	160	90	56	Φ70[F07]	4xΦ9	14	114	35	7.2kg
150	6"	150	14	28	134	180	90	56	Φ70[F07]	4xΦ9	14	140	47	9.5kg
200	8"	200	17	28	159	204	90	60	Φ70[F07]	4xΦ9	14	192	70	13.5kg
250	10"	250	22	30	195	245	125	68	Φ102[F10]	4xΦ11	15	243	91	20.2kg
300	12"	300	22	30	220	270	125	78	Φ102[F10]	4xΦ11	15	293	113	29.6kg
350	14"	336	27	29	282	315	150	78	Φ125[F12]	4xΦ14	20	327	129	39kg
400	16"	400	27	29	307	350	150	102	Φ125[F12]	4x14	20	383	147	70kg
450	18"	450	36	38	352	375	175	114	Φ140[F14]	4xΦ18	20	432	167	98kg
500	20"	500	36	38	387	415	175	127	Φ140[F14]	4xΦ18	20	481	185	128kg
550(PN10)	22"	550	36	38	420	480	210	154	Φ140[F14]	4xΦ18	20	526	198	178kg
550(PN16)	22"	550	46	48	420	480	210	154	Φ140[F14]	4xΦ18	25	526	198	185kg
600	24"	600	46	48	452	465	210	154	Φ165[F16]	4xΦ22	25	581	223	203kg
650	26"	650	46	48	475	530	210	165	Φ165[F16]	4xΦ22	30	621	239	281kg
700(PN10)	28"	700	70	110	502	555	210	165	Φ165[F16]	4xΦ22	25	669	262	270kg
700(PN16)	28"	700	80	120	502	555	300	165	Φ254[F25]	8x18	30	669	262	320kg
800(PN10)	32"	800	80	120	557	620	300	190	Φ254[F25]	8x18	30	767	300	380kg
800(PN16)	32"	800	100	120	557	620	300	190	Φ254[F25]	8xΦ18	30	767	300	430kg
900(PN10)	36"	900	90	120	622	675	300	203	Φ254[F25]	8xΦ18	30	865	343	500kg
900(PN16)	36"	900	110	160	622	675	300	203	Φ254[F25]	8x18	30	865	343	550kg
1000(PN10)	40"	1000	90	120	672	740	300	216	Φ254[F25]	8xΦ18	30	962	385	750kg
1000(PN16)	40"	1000	120	160	672	740	300	216	Φ254[F25]	8xΦ18	30	962	385	825kg
1100(PN10)	44"	1100	105	120	800	756	350	254	Φ298[F30]	8xΦ22	40	1042	410	1021kg
1100(PN16)	44"	1100	125	160	800	756	350	254	Φ298[F30]	8xΦ22	40	1042	410	1120kg
1200(PN10)	48"	1200	110	160	875	824	350	254	Φ298[F30]	8x22	40	1146	410	1250kg
1200(PN16)	48"	1200	130	160	875	824	350	254	Φ298[F30]	8x22	40	1146	410	1370kg



Fully Lugged Butterfly Valves

■ DN40-DN1200 Model Number: S641

Temp. Range	-20°C to +120°C
Flange Drilling	BS EN1092 PN16
Design Standard	EN593
Testing	EN12266

Application

- For flow control and isolation, widely used for clean and treated water applications

Features

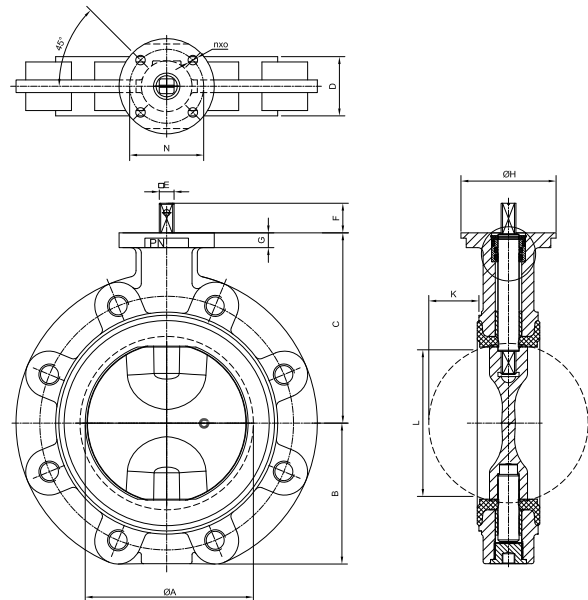
- Twin shaft design
- Suitable for end of line duty
- Fully lugged and tapped
- Compact design with streamlined disc
- High KV/ CV valves
- Vulcanized bonded liner for longer lifetime and lower torque
- ISO EN5211 actuation flange
- ATEX certification

Options

- Under cut Discs (6 bar- 10 bar)
- Various body, disc, shaft and liners available
- PN10, PN16, PN25, BSTD/E, ANSI connections
- Lever/ gearbox operation
- Torque figures available on request

Accessories

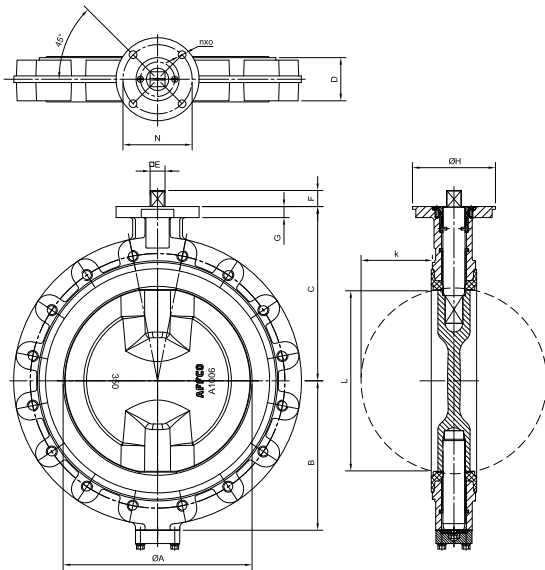
- Position indication, limit switches, locking facility, actuation, chain wheel assemblies, extension spindles, floor pillar



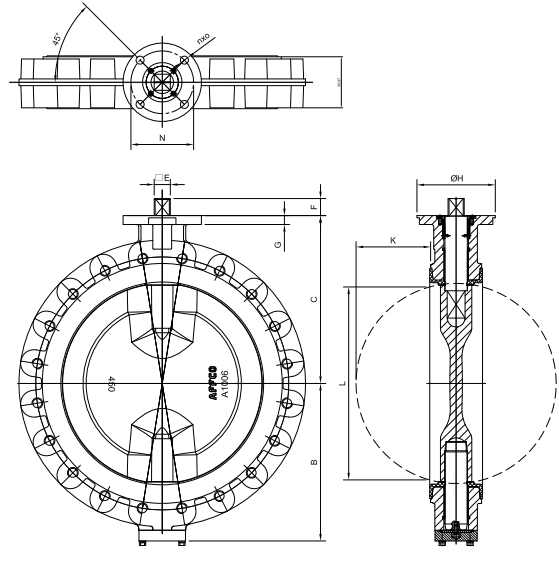
DN40-DN300

■ Materials

No.	Part Name	Material
1	Body	Ductile Iron, carbon steel, stainless steel, duplex, aluminium bronze, Zinc Bronze
2	Disc	Ductile iron 300 um Rilsan coated, aluminium bronze, bronze, stainless steel, duplex, monel
3	Shaft	Stainless steel, duplex, monel (K500), aluminium bronze
4	Liner	NBR, EPDM, VITON



DN350-DN400



DN450-DN650

Dimension

DN	NPS	ØA	E	F	B	C	ØH	D	N(PCD) [ISO 5211]	n x Ø	G	L	K	Weight Appr. (KG)
40	1 1/2"	40	11	25	61	113	90	33	Φ70[F07]	4xΦ9	12	23	3.5	4kg
50	2"	50	11	25	67	118	90	43	Φ70[F07]	4xΦ9	12	30	4.7	5.1kg
65	2 1/2"	65	11	25	74	126	90	46	Φ70[F07]	4xΦ9	12	49	11	5.9kg
80	3"	80	11	25	82	133	90	46	Φ70[F07]	4xΦ9	14	68	18	8.1kg
100	4"	102	11	25	100	147	90	52	Φ70[F07]	4xΦ9	14	90	26	9.1kg
125	5"	125	14	28	120	160	90	56	Φ70[F07]	4xΦ9	14	114	35	10.4kg
150	6"	150	14	28	134	180	90	56	Φ70[F07]	4xΦ9	14	140	47	17kg
200	8"	200	17	28	159	204	90	60	Φ70[F07]	4xΦ9	14	192	70	21kg
250	10"	250	22	30	195	245	125	68	Φ102[F10]	4xΦ11	15	243	91	39kg
300	12"	300	22	30	220	270	125	78	Φ102[F10]	4xΦ11	15	293	113	53kg
350	14"	336	27	29	282	315	150	78	Φ125[F12]	4xΦ14	20	327	129	63kg
400	16"	400	27	29	307	350	150	102	Φ125[F12]	4xΦ14	20	383	147	91kg
450	18"	450	36	38	352	375	175	114	Φ140[F14]	4xΦ18	20	432	167	113kg
500	20"	500	36	38	387	415	175	127	Φ140[F14]	4xΦ18	20	481	185	163kg
550(PN10)	22"	550	36	38	420	480	210	154	Φ140[F14]	4xΦ18	25	527	198	173kg
550(PN16)	22"	550	46	48	420	480	210	154	Φ140[F14]	4xΦ18	25	527	198	180kg
600	24"	600	46	48	452	465	210	154	Φ165[F16]	4xΦ22	25	581	223	249kg
650	26"	650	46	48	451	530	210	165	Φ165[F16]	4xΦ22	30	621	239	281kg
700(PN10)	28"	700	70	110	489	555	210	165	Φ165[F16]	4xΦ22	25	669	262	340kg
700(PN16)	28"	700	80	120	489	555	300	165	Φ254[F25]	8xΦ18	30	669	262	375kg
800(PN10)	32"	800	80	120	549	620	300	190	Φ254[F25]	8xΦ18	30	767	300	530kg
800(PN16)	32"	800	100	120	549	620	300	190	Φ254[F25]	8xΦ18	30	767	300	580kg
900(PN10)	36"	900	90	120	614	675	300	203	Φ254[F25]	8xΦ18	30	865	343	650kg
900(PN16)	36"	900	110	160	614	675	300	203	Φ254[F25]	8xΦ18	30	865	343	700kg
1000(PN10)	40"	1000	90	120	664	740	300	216	Φ254[F25]	8xΦ18	30	962	385	970kg
1000(PN16)	40"	1000	120	160	664	740	300	216	Φ254[F25]	8xΦ18	30	962	385	1050kg
1100(PN10)	44"	1100	105	120	756	800	350	254	Φ298[F30]	8xΦ22	40	1042	410	1221kg
1100(PN16)	44"	1100	125	160	756	800	350	254	Φ298[F30]	8xΦ22	40	1042	410	1330kg
1200(PN10)	48"	1200	110	160	824	875	350	254	Φ298[F30]	8xΦ22	40	1146	460	1417kg
1200(PN16)	48"	1200	130	160	824	875	350	254	Φ298[F30]	8xΦ22	40	1146	460	1560kg



Double Flanged Butterfly Valves

■ DN40-DN2000 Model Number: S461

Temp. Range	-10°C to +120°C
Flange Drilling	BS EN1092-2 PN16
Design Standard	EN593
Testing	EN12266

Application

- For flow control and isolation, widely used for clean and treated water applications

Features

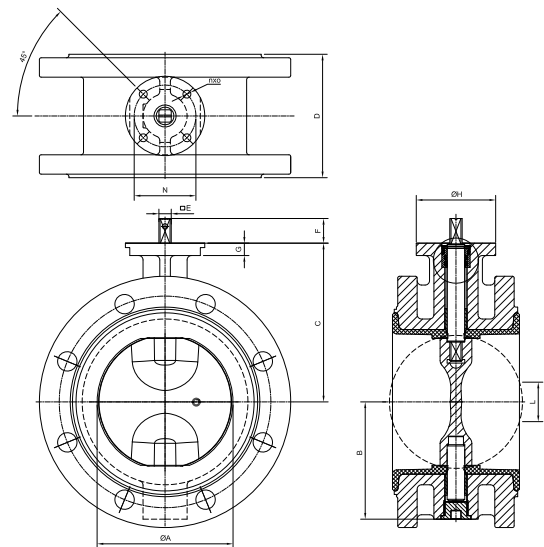
- Twin shaft design
- Suitable for end of line duty
- Double flanged series 3 EN558-1 row 13
- Streamlined disc
- High KV/ CV valves
- Vulcanized bonded liner for longer lifetime and lower torque
- ISO EN5211 actuation flange
- ATEX certification

Options

- Under cut Discs (6 bar- 10 bar)
- Various body, disc, shaft and liners available
- PN10, PN16, PN25, BSTD/E, ANSI connections
- Lever/ gearbox operation
- Torque figures available on request

Accessories

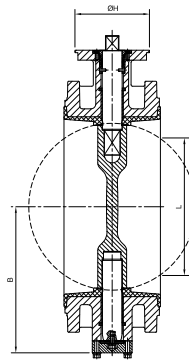
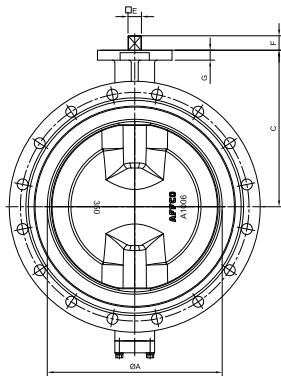
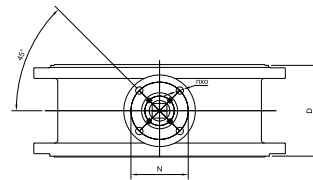
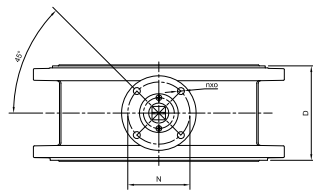
- Position indication, limit switches, locking facility, actuation, chain wheel assemblies, extension spindles, floor pillar



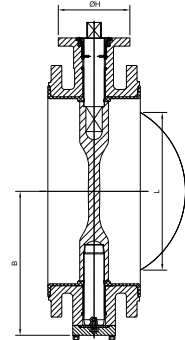
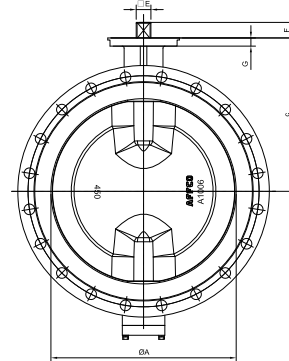
DN40-DN300

■ Materia

No.	Part Name	Material
1	Body	Ductile Iron, carbon steel, stainless steel, duplex, aluminium bronze, Zinc Bronze
2	Disc	Ductile iron 300 um Rilsan coated, aluminium bronze, bronze, stainless steel, duplex, monel
3	Shaft	Stainless steel, duplex, monel (K500), aluminium bronze
4	Liner	NBR, EPDM, VITON



DN350-DN400



DN450-DN650

Dimension

DN	NPS	ØA	E	F	B	C	ØH	D	N(PCD) [ISO 5211]	n x Ø	G	L	K	Weight Appr. (KG)
40	1 1/2"	40	11	25	61	113	90	106	Φ70[F07]	4xΦ9	12	NA	NA	7.2kg
50	2"	50	11	25	67	118	90	108	Φ70[F07]	4xΦ9	12	NA	NA	8kg
65	2 1/2"	65	11	25	74	126	90	112	Φ70[F07]	4xΦ9	12	NA	NA	8.8kg
80	3"	80	11	25	82	133	90	114	Φ70[F07]	4xΦ9	14	NA	NA	10kg
100	4"	102	11	25	100	147	90	127	Φ70[F07]	4xΦ9	14	NA	NA	13.1kg
125	5"	125	14	28	112	160	90	140	Φ70[F07]	4xΦ9	14	NA	NA	18kg
150	6"	150	14	28	134	180	90	140	Φ70[F07]	4xΦ9	14	56	5.4	23.1kg
200	8"	200	17	28	172	204	90	152	Φ70[F07]	4xΦ9	14	132	25	43kg
250	10"	250	22	30	203	245	125	165	Φ102[F10]	4xΦ11	15	190	43	52kg
300	12"	300	22	30	223	270	125	178	Φ102[F10]	4xΦ11	15	246	63	77kg
350	14"	336	27	29	282	315	150	190	Φ125[F12]	4xΦ14	20	277	73	95kg
400	16"	400	27	29	307	350	150	216	Φ125[F12]	4xΦ14	20	332	90	101kg
450	18"	450	36	38	352	375	175	222	Φ140[F14]	4xΦ18	20	388	112	154kg
500	20"	500	36	38	387	415	175	229	Φ140[F14]	4xΦ18	20	441	134	170kg
550(PN10)	22"	550	36	38	420	480	210	267	Φ140[F14]	4xΦ18	25	478	141	200kg
550(PN16)	22"	550	46	48	420	480	210	267	Φ140[F14]	4xΦ18	25	478	141	205kg
600	24"	600	46	48	452	465	210	267	Φ165[F16]	4xΦ22	25	538	167	231kg
650	26"	650	46	48	475	530	210	292	Φ165[F16]	4xΦ22	30	573	176	311kg
700(PN10)	28"	700	70	110	489	555	210	292	Φ165[F16]	4xΦ22	25	624	198	365kg
700(PN16)	28"	700	80	120	489	555	300	292	Φ254[F25]	8xΦ18	30	624	198	420kg
800(PN10)	32"	800	80	120	549	620	300	318	Φ254[F25]	8xΦ18	30	723	236	440kg
800(PN16)	32"	800	100	120	549	620	300	318	Φ254[F25]	8xΦ18	30	723	236	510kg
900(PN10)	36"	900	90	120	614	675	300	330	Φ254[F25]	8xΦ18	30	825	279	671kg
900(PN16)	36"	900	110	160	614	675	300	330	Φ254[F25]	8xΦ18	30	825	279	760kg
1000(PN10)	40"	1000	90	120	664	740	300	410	Φ254[F25]	8xΦ18	30	897	288	990kg
1000(PN16)	40"	1000	120	160	664	740	300	410	Φ254[F25]	8xΦ18	30	897	288	1050kg
1100(PN10)	44"	1100	105	120	740	800	350	410	Φ298[F30]	8xΦ22	40	942	332	1180kg
1100(PN16)	44"	1100	125	160	740	800	350	410	Φ298[F30]	8xΦ22	40	942	332	1250kg
1200(PN10)	48"	1200	110	160	802	875	350	470	Φ298[F30]	8xΦ22	40	1075	352	1440kg
1200(PN16)	48"	1200	130	160	802	875	350	470	Φ298[F30]	8xΦ22	40	1075	352	1580kg
1300(PN6)	52"	1300	110	160	935	990	415	490	Φ356[F35]	8xΦ33	35	1180	394	-
1300(PN10)	52"	1300	110	160	935	990	415	490	Φ356[F35]	8xΦ33	35	1180	394	-
1400(PN6)	56"	1400	140	160	1020	1000	415	530	Φ356[F35]	8xΦ33	35	1273	425	-
1400(PN10)	56"	1400	140	160	1020	1000	415	530	Φ356[F35]	8xΦ33	35	1273	425	-
1500(PN6)	60"	1500	150	160	1054	1050	415	570	Φ356[F35]	8xΦ33	40	1361	453	-
1500(PN10)	60"	1500	150	160	1054	1050	415	570	Φ356[F35]	8xΦ33	40	1361	453	-
1600(PN6)	64"	1600	160	180	1080	1150	415	600	Φ356[F35]	8xΦ33	50	1457	488	-
1600(PN10)	64"	1600	160	180	1080	1150	415	600	Φ356[F35]	8xΦ33	50	1457	488	-
1800(PN6)	72"	1800	180	200	1186	1200	475	670	Φ406[F40]	8xΦ39	45	1643	552	-
1800(PN10)	72"	1800	180	200	1186	1200	475	670	Φ406[F40]	8xΦ39	45	1643	552	-
2000(PN6)	80"	2000	200	200	1370	1425	560	760	Φ483[F48]	12xΦ39	60	1794	594	-
2000(PN10)	80"	2000	200	200	1370	1425	560	760	Φ483[F48]	12xΦ39	60	1794	594	-



High Performance Butterfly Valves

■ DN50-DN1200 Model Number: S960

Temp. Range	-40°C to +650°C
Flange Drilling	EN1092-2 PN10/16
Design Standard	EN558-1
Testing	EN12266

Application

- Flow control and tight shutoff in either direction in a variety of medias
- Vacuum to 1*10 torr absolute
- Chemical and corrosive processes

Features

- Double eccentric design for low torque, zero leakage
- Fire safe
- Used for more demanding service applications

Options

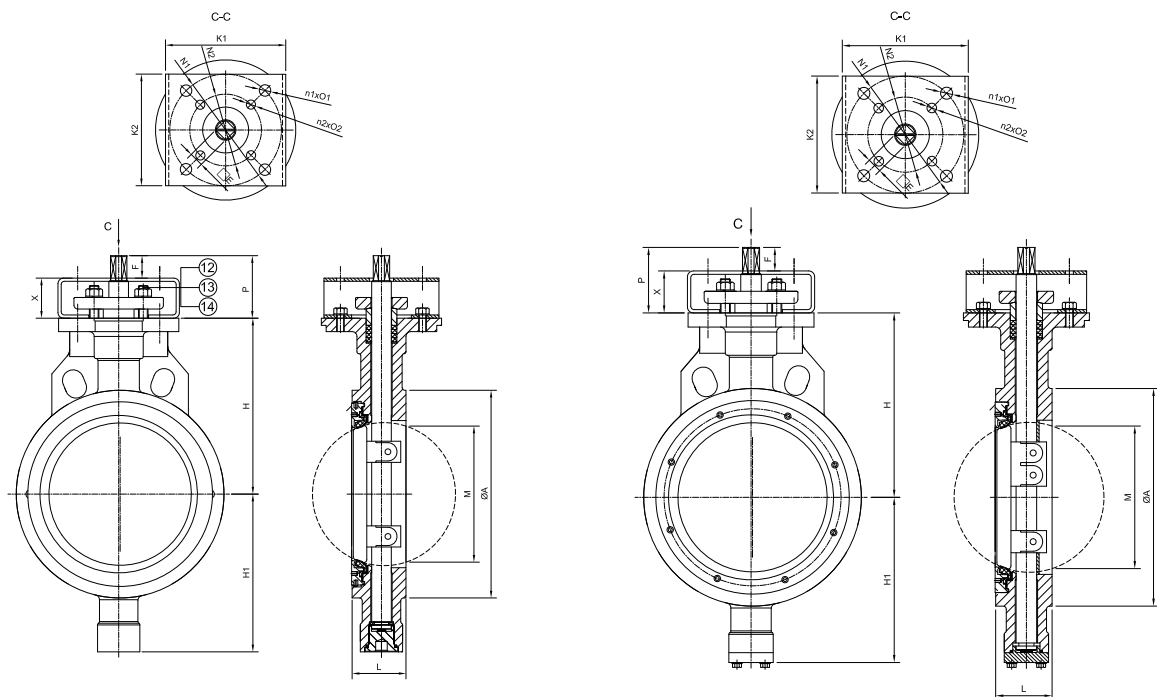
- PN25, ASME Class 150-300, JIS – 5K,10,16K,30K
- Various body, disc, shafts and seals available
- Fully PTFE lined

Accessories

- Position indication, limit switches, locking facility, actuation, gearboxes

■ Materials

No.	Part Name	Material	EN Standard
1	Body	Ductile Iron	JS1030 EN 1563(GGG40 DIN1693)
		Carbon Steel	1.0619(GP240GH) EN 10213
		Stainless Steel	1.4408 EN 10213
		Duplex	1.4470 EN 10213
		Aluminium Bronze	AB1,AB2 BS1400
		Zinc Bronze	CuSn57ZnPb(RG5 DIN1705) EN 1982/CuSn7ZnPb (RG7 DIN1705) EN 1982/CuSn10Zn(RG10 DIN1705) EN 1982
2	Disc	Ductile Iron 300um Rilsan coated/Halar coating	JS1030 EN 1563(GGG40 DIN1693)
		Stainless Steel	1.4408 EN 10213
		Aluminium Bronze	AB2 BS1400
		Duplex	1.4470 EN 10213
		Monel	
3	Shaft	Stainless Steel	1.4122 EN 10088-3
		Duplex	1.4462 EN 10088-3
		Monel(K500)	
		Aluminium Bronze	
4	Seat	NBR	Temp. -15-80°C
		EPDM	Temp. -23-120°C
		VITON	Temp. -15-200°C



S960 DN50-300 CL150/PN10/PN16/PN25
S960 DN50-200 CL300/PN40/PN63

S960 DN350-400 CL150/PN10/PN16/PN25

Dimension PN10/16/25/CL150

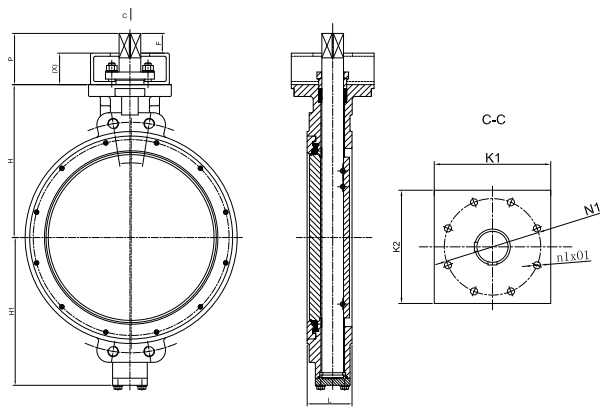
DN	ØA	E	F	H	H1	K1	K2	L	N1	N2	n1 x O1	n2 x O2	P	X	M
50	102	12	15	108	91	90	70	43	70	50	4xØ9	4xØ7	65	[50]	44
65	122	12	15	123	101	90	70	46	70	50	4xØ9	4xØ7	65	[50]	61
80	132	12	15	133	107	90	70	46	70	50	4xØ9	4xØ7	65	[50]	74
100	156	12	15	155	115	90	70	52	70	50	4xØ9	4xØ7	65	[50]	93
125	188	17	20	173	155	110	100	56	102	70	4xØ11	4xØ9	65	[45]	119
150	216	17	20	183	164	110	100	56	102	70	4xØ11	4xØ9	65	[45]	138
200	268	19	25	218	195	140	120	60	125	102	4xØ13	4xØ11	85	[60]	190
250	326	22	25	253	230	140	120	68	125	102	4xØ13	4xØ11	85	[60]	239
300	375	27	30	278	260	160	140	78	140	102	4xØ17	4xØ11	90	[60]	277
350	420	30	32	318	308	160	140	92	140	102	4xØ17	4xØ11	92	[60]	331
400	482	36	44	363	354	200	170	102	165	140	4xØ22	4xØ17	124	[80]	374

*Other sizes available on request.

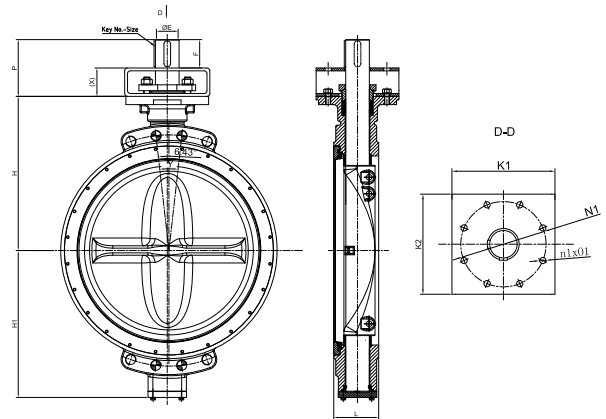
Dimension CL300

DN	ØA	E	F	H	H1	K1	K2	L	N1	N2	n1 x O1	n2 x O2	X	M
80	17	20	65	158	123	48	110	100	102	70	4xØ11	4xØ9	74	44
100	17	20	65	178	142	54	110	100	102	70	4xØ11	4xØ9	93	61
125	22	25	85	190	190	59	140	120	125	102	4xØ13	4xØ11	119	74
150	22	25	85	210	209	59	140	120	125	102	4xØ13	4xØ11	138	93
200	27	30	90	265	215	73	160	140	140	102	4xØ17	4xØ11	190	119
250	Ø40 2-12x8x40	45	105	284	266	83	170	165	165	--	4xØ22	--	239	138
300	Ø45 2-14x9x56	60	140	325	300	92	200	170	165	--	4xØ22	--	278	190
350	*Ø50 2-16x10x63*	68	168	360	345	118	300	300	254	--	8xØ18	--	317	239
400	*Ø60 2-20x12x80*	85	185	423	410	136	300	300	254	--	8xØ18	--	361	277

■ Valve Remote Control System



S960 DN450~650 CL150/PN10/PN16/PN25



S960 DN700~1200 CL150/PN10/PN16/PN25
S960 DN250~700 CL300/PN40/PN63

■ Dimension PN10/16/25/CL150

DN	E	F	P	H	H1	L	K1	K2	N1	N2	n1 x O1	n2 x O2	X	M
450	41	50	130	388	375	114	200	170	165	140	4xΦ22	4xΦ17	[80]	429
500	46	54	134	432	413	127	200	170	165	--	4xΦ22	--	[80]	477
550	55	63	163	458	439	154	300	300	254	--	8xΦ18	--	[100]	522
600	55	63	163	488	450	154	300	300	254	--	8xΦ18	--	[100]	571
650	55	63	163	516	500	165	300	300	254	--	8xΦ18	--	[100]	615
700(PN10)	Φ80 2-22x14x110"	120	220	576	542	165	360	350	298	--	8xΦ22	--	[100]	676
700(PN16/CL150)	Φ90 2-25x14x110"	120	240	576	542	165	360	350	298	--	8xΦ22	--	[120]	676
750(CL150)	Φ100 2-28x16x110"	120	240	625	585	190	360	350	298	--	8xΦ22	--	[120]	723
800(PN10)	Φ90 2-25x14x110"	120	240	652	621	190	360	350	298	--	8xΦ22	--	[120]	772
800(PN16/CL150)	Φ100 2-28x16x110"	120	240	652	621	190	360	350	298	--	8xΦ22	--	[120]	772
900(PN10)	Φ100 2-28x16x110"	120	240	720	690	210	360	350	298	--	8xΦ22	--	[120]	865
900(PN16/CL150)	Φ110 2-32x18x140"	160	280	720	690	210	415	415	356	--	8xΦ33	--	[120]	865
1000(PN10)	Φ110 2-32x18x140"	160	280	785	760	241	415	415	356	--	8xΦ33	--	[120]	955
1000(PN16/CL150)	Φ120 2-32x18x140"	160	280	785	760	241	415	415	356	--	8xΦ33	--	[120]	955
1200(PN10)	Φ120 2-32x18x140"	160	300	915	890	254	475	475	406	--	8xΦ39	--	[140]	1162
1200(PN16/CL150)	Φ130 2-32x18x140"	160	300	915	890	254	475	475	406	--	8xΦ39	--	[140]	1162

■ Dimension CL300

DN	E	F	P	H	H1	L	K1	K2	N1	N2	n1 x O1	n2 x O2	X	M
450	Ø70 2-20x12x90	100	200	445	439	152	300	300	254	--	8xØ18	--	[100]	418
500	Ø80 2-22x14x110	120	240	496	456	160	360	350	298	--	8xΦ22	--	[120]	474
600	Ø90 2-25x14x110	120	240	552	543	182	360	350	298	--	8xΦ22	--	[120]	571
700	Ø115 2-32x18x140	160	280	650	624	229	415	415	356	--	8xØ33	--	[120]	657



Double Eccentric Butterfly Valves

■ DN100-DN3000 Model Number: S956

Temp. Range	-10°C to +80°C
Flange Drilling	BS EN1092-2 PN16
Design Standard	BS EN593:2004
Testing	BS EN1226-1:2003 Rate A

Application

- Water distribution main isolation valve, suitable for above ground and buried service.

Features

- Double Eccentric and twin shaft design for maximum flow
- Material: 316 stainless steel seat
- Available in F13 and F14 standards
- Heavy duty design, ductile iron construction with WRAS fusion bonded epoxy

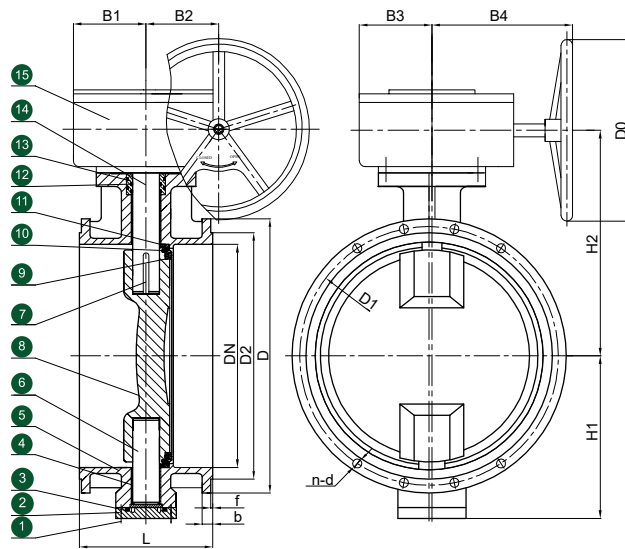
Options

- PN25, PN40 ANSI, BST D/ E
- Anti-clockwise closing
- Buried service gearbox
- Larger sizes on request
- Various seat materials

Accessories

- Position indication, limit switches, locking facility, chain wheel assemblies, extension spindles, floor pillar

■ Valve Remote Control System



■ Materials

No.	Part Name	Material
1	Bolts	Steel
2	End plate	Ductile Iron EN-GJS-500-7
3	O-ring	EPDM
4	Bushes	Sintered Bronze Bushes
5	Body	Ductile Iron EN-GJS-500-7
6	Stub shaft	Stainless Steel SS420
7	Pin	Stainless Steel SS420
8	Disc	Ductile Iron EN-GJS-500-7
9	Retaining	Stainless Steel SS304
10	Disc seal ring	EPDM
11	Body seal	Stainless Steel SS316
12	Seal	EPDM
13	Stuffing box	Gunmetal LG2
14	Main shaft	Stainless Steel SS420
15	Gearbox	Ductile Iron EN-GJS-500-7

■ Dimension

DN(mm)	L/F13	L/F14	D	D1	D2	b	f	n-d	B1	B2	B3	B4	L1	D0	H1	H2
100	127	190	Ø220	Ø180	Ø156	19	3	8-Ø19	80	53	80	257	-	Ø160	118	173
150	140	210	Ø285	Ø240	Ø211	19	3	8-Ø23	80	53	80	257	-	Ø160	156	218
200	152	230	Ø340	Ø295	Ø266	20	3	12-Ø23	120	73	108	308	-	Ø320	193	265
250	165	250	Ø405	Ø355	Ø319	22	3	12-Ø28	120	73	108	308	-	Ø320	223	300
300	178	270	Ø460	Ø410	Ø370	24.5	4	12-Ø28	120	73	108	308	-	Ø320	252	330
350	190	290	Ø520	Ø470	Ø429	26.5	4	16-Ø28	153	110	141	341	-	Ø360	296	381
400	216	310	Ø580	Ø525	Ø480	28	4	16-Ø31	153	110	141	449	-	Ø360	320	411
450	222	330	Ø640	Ø585	Ø548	30	4	20-Ø31	153	110	141	449	-	Ø360	354	441
500	229	350	Ø715	Ø650	Ø609	31.5	4	20-Ø34	153	110	141	449	-	Ø400	385	482
600	267	390	Ø840	Ø770	Ø720	36	5	20-Ø37	184	146	163	495	-	Ø400	465	544
700	292	430	Ø910	Ø840	Ø794	39.5	5	24-Ø37	184	146	163	495	465	Ø400	530	610
800	318	470	Ø1025	Ø950	Ø901	43	5	24Ø41	184	146	163	495	522	Ø500	570	659
900	330	510	Ø1125	Ø1050	Ø1001	46.5	5	28-Ø41	211	183	220	496	570	Ø500	640	811
1000	410	550	Ø1255	Ø1170	Ø1112	50	5	28-Ø44	237	218	263	545	635	Ø500	710	932
1100	440	550	Ø1355	Ø1270	Ø1218	53.5	5	32-Ø44	237	218	263	545	685	Ø500	760	973
1200	470	630	Ø1485	Ø1390	Ø1328	57	5	32-Ø50	237	218	263	545	750	Ø500	845	1058
1300	530	710	Ø1585	Ø1490	Ø1430	60	5	32-Ø50	237	218	263	545	802	Ø640	905	1118
1400	530	710	Ø1685	Ø1590	Ø1530	60	5	36-Ø50	285	275	325	546	850	Ø640	976	1251
1500	570	750	Ø1820	Ø1710	Ø1640	62.5	5	36-Ø57	285	275	325	546	918	Ø640	1035	1326
1600	600	790	Ø1930	Ø1820	Ø1750	65	5	40-Ø57	285	275	325	546	975	Ø500	1135	1424
1800	670	870	Ø2130	Ø2020	Ø1950	70	5	44-Ø57	352	320	330	779	1075	Ø500	1203	1594
2000	760	950	Ø2345	Ø2230	Ø2150	75	5	48-Ø62	352	320	330	779	1180	Ø640	1340	1715
2200	800	1030	Ø2555	Ø2440	Ø2370	80	6	52-Ø62	352	330	380	779	1290	Ø640	1418	1850
2400	850	1110	Ø2765	Ø2650	Ø2570	85	6	56-Ø62	595	550	570	921	1390	Ø640	1595	2095
2500	900	1150	Ø2865	Ø2750	Ø2670	88	6	56-Ø62	595	550	570	921	1440	Ø640	1700	2190
2600	900	1190	Ø2965	Ø2850	Ø2780	90	6	60-Ø62	595	550	570	921	1490	Ø640	1760	2280
2800	950	1270	Ø3185	Ø3070	Ø2990	95	6	64-Ø62	595	550	570	921	1600	Ø640	1910	2420
3000	1000	1350	Ø3390	Ø3270	Ø3190	100	6	68-Ø62	595	550	570	921	1703	Ø640	2040	2550

*L1=Center lines to feet as per photo



Resilient Seated Gate Valve

■ MANUAL OPERATION, DN50 -DN300 Model Number: S205

Temp. Range	-10°C to +70°C
Flange Drilling	EN1092-2 PN16
Design Standard	EN 1074-1&2 BS5163
Testing	EN12266

Application

- Type B.
- Suitable for pipeline isolation for water service & buried applications.

Features

- Low maintenance 'O' Ring stem seals replaceable under pressure
- Fusion bonded epoxy → 300 Microns
- Vulcanized EPDM wedge
- Light weight design
- Cap top or hand wheel operation as standard
- Wax filled fasteners for corrosion resistance
- 100% full bore- no recess

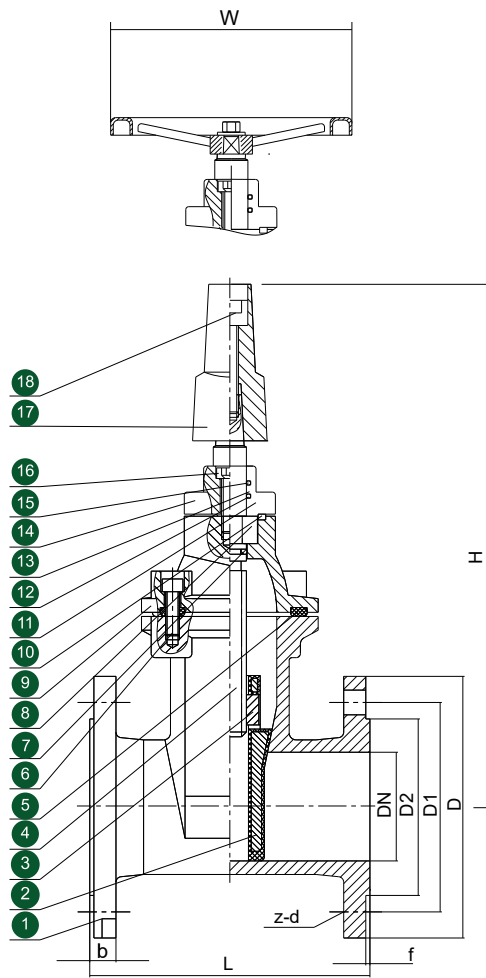
Options

- ISO mounting flange (gear box operation)
- Anti-clockwise closing
- Available in DIN and AWWA standards
- PN10, PN16, PN25, BST D/E connections

Accessories

- Position indicator and switches, locking facility, chain wheel assemblies, actuation, extension spindles & floor pillars

■ Valve Remote Control System



■ Materials

No.	Part Name	Material	Standar
1	Body	GGG40	EN-GJS-500-7
2	Wedge	GGG40+EPDM	EN-GJS-500-7 +EPDM
3	Stem Nut	LG2	BS1400
4	Stem	SS420	1•4021
5	Gasket	EPDM	WRAS Approved EPDM
6	Bonnet Bolt	SS304	1•4301
7	O-Ring	EPDM	WRAS Approved EPDM
8	Locating Ring	LG2	BS1400
9	Bonnet	GGG40	EN-GJS-500-7
10	Minipad	TEL/NYL	
11	O-Ring	EPDM	WRAS Approved EPDM
12	O-Ring	EPDM	WRAS Approved EPDM
13	Gland	GGG40	EN-GJS-500-7
14	Gland	GGG40	EN-GJS-500-7
15	O-Ring	EPDM	WRAS Approved EPDM
16	Washer/ Bolt	SS304	1•4301
17	Cap	GGG40	EN-GJS-500-7
18	Bolt	Zincd Carbon Steel	

■ Dimension

DN	D	ØD1	ØD2	H	L	b	f	Z-d
50	165	125	99	310	178	19	3	4-Ø19
65	185	145	118	335	190	19	3	4-Ø19
80	200	160	132	365	203	19	3	8-Ø19
100	220	180	156	400	229	19	3	8-Ø19
125	250	210	184	450	254	19	3	8-Ø19
150	285	240	211	495	267	19	3	8-Ø23
200	340	295	266	580	292	20	3	12-Ø23
250	405	355	319	660	330	22	3	12-Ø28
300	460	410	370	745	356	24.5	4	12-Ø28



Resilient Seated Large Bore Gate Valve

■ DN350 -DN1200 Model Number: S205

Temp. Range	-10°C to +70°C
Flange Drilling	EN1092-2 PN16
Design Standard	EN1074-1&2 BS5163
Testing	EN12266

Application

- Type B.
- Suitable for pipeline isolation for water service & buried applications.

Features

- Low maintenance 'O' Ring stem seals replaceable under pressure
- Fusion bonded epoxy → 300 Microns
- Vulcanized EPDM wedge
- 100% full bore
- ISO mounting pad and by-pass facility as standard valves 700 mm and above
- complete with manual gearbox

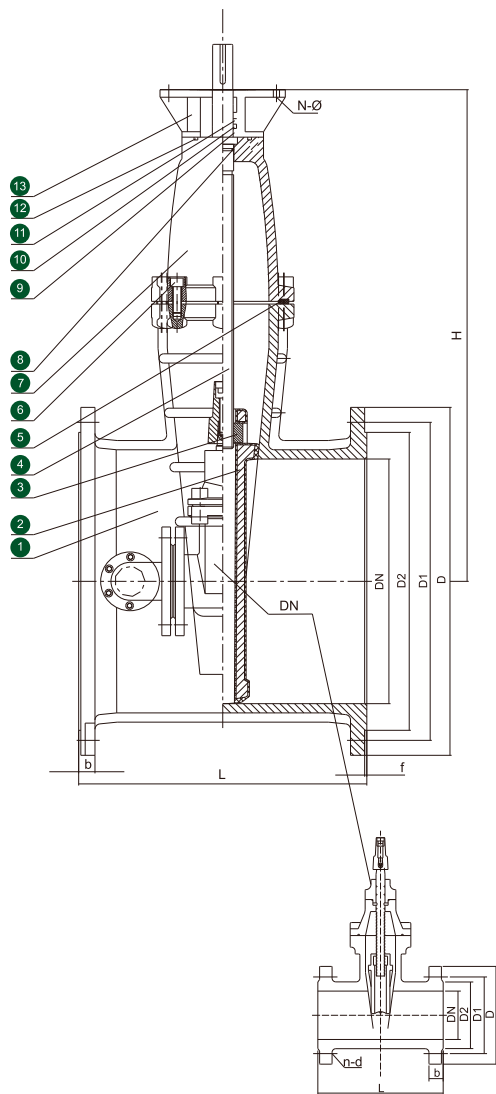
Options

- Bevel/ Spur gearbox
- Alternative flange drilling
- Anti-clockwise closing
- Bypass facility
- Available in DIN and AWWA standard

Accessories

- Position indicator and switches, locking facility, chain wheel assemblies, actuation, extension pindles & floor pillars

■ Valve Remote Control System



■ Materials

No.	Part Name	Material	Standar
1	Body	GGG40	EN-GJS-500-7
2	Wedge	GGG40+EPDM	EN-GJS-500-7 +EPDM
3	Stem Nut	LG2	BS1400
4	Stem	SS420	1•4021
5	Gasket	EPDM	WRAS Approved EPDM
6	Bonnet Bolt	SS304	1•4301
7	Bonnet	GGG40	EN-GJS-500-7
8	Thrust Collar	LG2	BS1400
9	O-Ring	EPDM	WRAS Approved EPDM
10	O-Ring	EPDM	WRAS Approved EPDM
11	O-Ring	EPDM	WRAS Approved EPDM
12	O-Ring	EPDM	WRAS Approved EPDM
13	ISO Gland	GGG40	EN-GJS-500-7

DN	A	B	E	H	H1	N-Ø
350	310	165	10	50	40	4-Ø22
400	310	165	10	50	40	4-Ø22
450	310	165	14	60	50	4-Ø22
500	310	165	14	60	50	4-Ø22
600	310	165	14	60	50	4-Ø22

■ Dimension

DN	D	D1	D2	H	L	b	f	Z-d	Z-d
350	Ø520	Ø470	Ø429	800	381	26.5	4	16-Ø28	Ø40
400	Ø580	Ø585	Ø480	880	406	28	4	16-Ø31	Ø40
450	Ø640	Ø585	Ø548	955	432	30	4	20-Ø31	Ø50
500	Ø715	Ø650	Ø609	1035	457	31.5	4	20-Ø34	Ø50
600	Ø840	Ø770	Ø720	1190	508	36	5	20-Ø37	Ø65
700	Ø910	Ø840	Ø794	2200	610	39.5	5	24-Ø37	Ø80
800	Ø1025	Ø950	Ø901	2450	660	43	5	24-Ø40	Ø80
900	Ø1125	Ø1050	Ø1001	2600	711	46.5	5	28-Ø40	Ø100
1000	Ø1255	Ø1170	Ø1112	2800	811	50	5	28-Ø44	Ø100
1200	Ø1485	Ø1390	Ø1328	3100	1015	57	5	32-Ø50	Ø100



Metal Seated Small Bore Gate Valve

■ DN50-DN300 Model Number: S205

Temp. Range	-10°C to +70°C
Flange Drilling	EN1092-2 PN16
Design Standard	EN1171 BS5163
Testing	EN12266

Application

- Suitable for pipeline isolation for clean water and waste water applications.

Features

- Type B for buried service
- 'O' Ring stem seals replaceable under pressure
- Fusion bonded epoxy → 300 Microns
- Bronze LG2 Seating
- Heavy duty design for dirty water application
- Cap top or hand wheel operation as standard

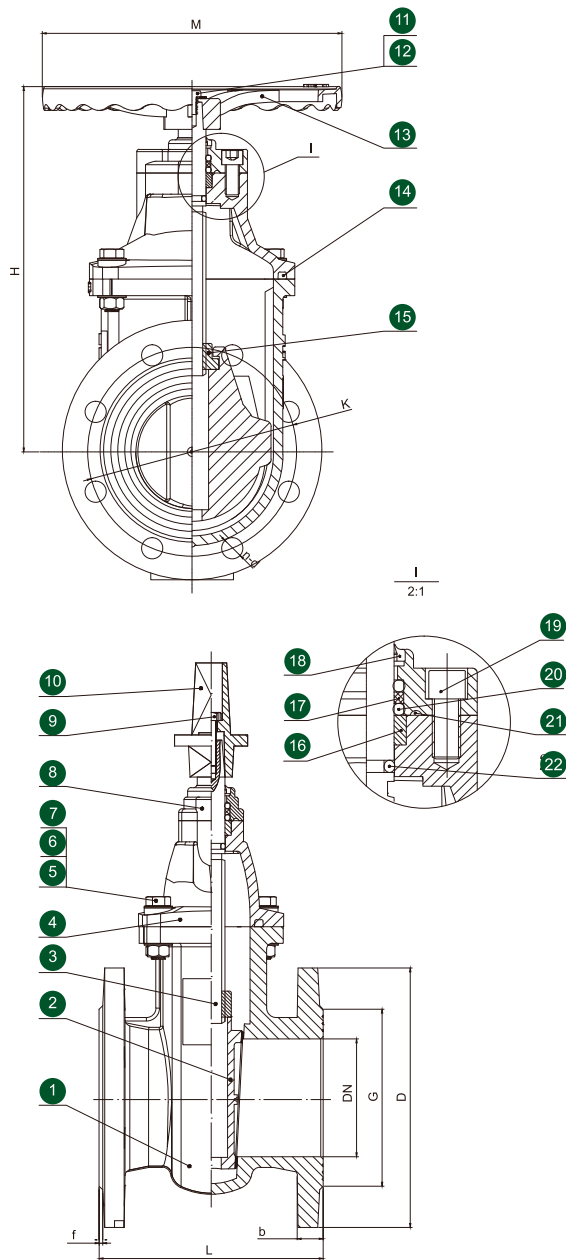
Options

- Alternative flange drillings
- ISO mounting flange (Gear box operation)
- Anti-clockwise closing
- Available in DIN and AWWA standards
- PN10, PN16, PN25, BST D/E connections

Accessories

- Position indicator and switches, locking facility, chain wheel assemblies, actuation, extension spindles & floor pillars

■ Valve Remote Control System



■ Materials

No.	Part Name	Material	Standar
1	Body	GGG50+Bronze	BS2789/BS1400
2	Wedge	GGG50+Bronze	BS2789/BS1400
3	Stem	420S37	BS970
4	Bonnet	GGG50	BS2789
5	Bolts	SS304	ASTM 283
6	Nuts	SS304	ASTM 283
7	Washers	SS304	ASTM 283
8	Gland	GGG50	BS2789
9	Cap Top Bolt	SS304	BS970
10	Cap Top	GGG50	BS2789
11	Hand Wheel Bolt	SS304	ASTM 283
12	Washers	SS304	ASTM 283
13	Hand Wheel	GGG50	BS2789
14	Bonnet Gasket	NBR	ISO4633
15	Stem Nut Bronze BS1400	LG2	BS1400
16	Holding Ring	Brass	BS2874
17	Separated Sets of Nylon	Nylon 66	
18	Dust Ring	NBR	ISO4633
19	Gland Bolts	SS304	BS970
20	O Ring	NBR	ISO4633
21	O Ring	NBR	ISO4634
22	O Ring	NBR	ISO4635

■ Dimension

DN	L	H	M	D	K	G	n-d1	b	f
50	178	220	200	165	125	99	4-Ø19	19	3
65	190	250	200	185	145	118	4-Ø19	19	3
80	203	280	254	200	160	132	8-Ø19	19	3
100	229	315	254	220	180	156	8-Ø19	19	3
125	254	370	315	250	210	184	8-Ø19	19	3
150	267	410	315	285	240	211	8-Ø23	19	3
200	292	495	315	340	295	266	12-Ø23	20	3
250	330	605	406	405	355	319	12-Ø28	22	3
300	356	655	406	460	410	370	12-Ø28	24.5	4



Metal Seated Large Bore Gate Valve

■ DN350-DN1200 Model Number: S205

Temp. Range	-10°C to +70°C
Flange Drilling	EN1092-2 PN16
Design Standard	EN1171 BS5163
Testing	EN12266

Application

- Suitable for pipeline isolation for clean water and waste water applications.

Features

- LG2 Bronze seats
- 'O' Ring stem seals replaceable under pressure
- Fusion bonded epoxy → 300 Microns
- Heavy duty design for dirty water application
- Cap top or hand wheel operation as standard

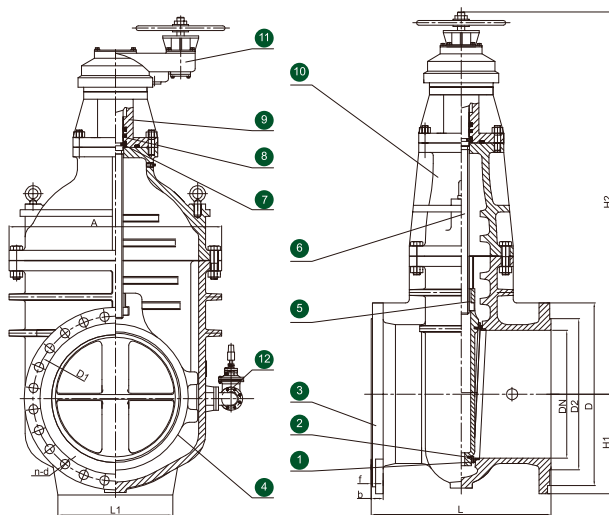
Options

- Inspection Hatches
- Jacking screw
- Slippers and guides
- ISO mounting flange (Gear box operation)
- Anti-clockwise closing
- Available in DIN and AWWA standards
- PN10, PN16, PN25, BST D/E connections

Accessories

- Position indicator and switches, locking facility, chain wheel assemblies, actuation, extension spindles & floor pillars

■ Valve Remote Control System



■ Materials

No.	Part Name	Material
1	Body Seal Ring	Bronze LG2
2	Wedge Seal Ring	Bronze LG2
3	Body	DuctileIron EN-GJS: 500-7
4	Gate	DuctileIron EN-GJS: 500-7
5	Stem Nut	Bronze AB2
6	Stem	Stainless Steel SS420
7	Stem Collar	Stainless Steel SS420
8	O-ring	EPDM
9	ISO Mount	DuctileIron EN-GJS: 500-7
10	Bonnet	Ductile Iron EN-GJS:500-7
11	Gearbox	Ductile Iron EN-GJS:500-7
12	Bypass assembly	Optional

■ Dimension

DN	L	D	D1	D2	b	f	n-d	A	L1	H1	H2	Torque Nm	No. Turns
350	381	520	470	429	26.5	4	16-Ø28	270	270	739	546	396	32
400	406	580	525	480	28	4	16-Ø31	300	300	831	606	528	36
450	432	640	585	548	30	4	20-Ø31	330	330	913	680	660	40
500	457	715	650	609	31.5	4	20-Ø34	370	370	992	730	792	44
600	508	840	770	720	36	5	20-Ø37	430	430	1161	850	1122	53
700	610	910	840	794	39.5	5	24-Ø37	1156	495	495	1876	320	372
800	660	1025	950	901	43	5	24-Ø41	1242	540	540	2025	267	665
900	711	1125	1050	1001	46.5	5	28-Ø41	1423	600	645	2204	344	751
1000	811	1255	1170	1112	50	5	28-Ø44	1448	680	680	2436	405	870
1100	811	1355	1270	1218	53.5	5	32-Ø44	1540	750	720	2601	498	960
1200	960	1485	1390	1328	57	5	32-Ø50	1625	825	825	2726	591	1035
1300	850	1585	1490	1429	58	5	32-Ø50	1760	850	820	2901	701	1125
1400	960	1685	1590	1530	60	5	36-Ø50	1860	870	870	3090	688	1440
1500	1140	1820	1710	1640	62.5	5	36-Ø57	1960	1010	940	3301	641	1928
1600	1140	1930	1820	1750	65	5	40-Ø57	2065	1000	1000	3490	733	2055



Metal Seated Swing Check Valve

■ DN50-DN900 LEVER WEIGHT AND GUARD Model Number: S243

Temp. Range	-10°C to +70°C
Flange Drilling	EN1092-2 PN16
Design Standard	EN1074-3 BS5153
Testing	EN12266

Application

- Suitable for the prevention of reverse flow for clean and waste water applications.

Features

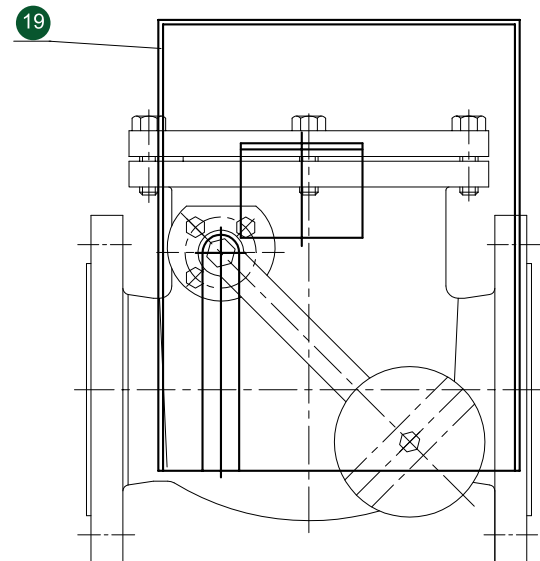
- Fusion bonded epoxy → 300 Microns
- Heavy duty design lever, weight and guard as standard
- Suitable for vertical installations

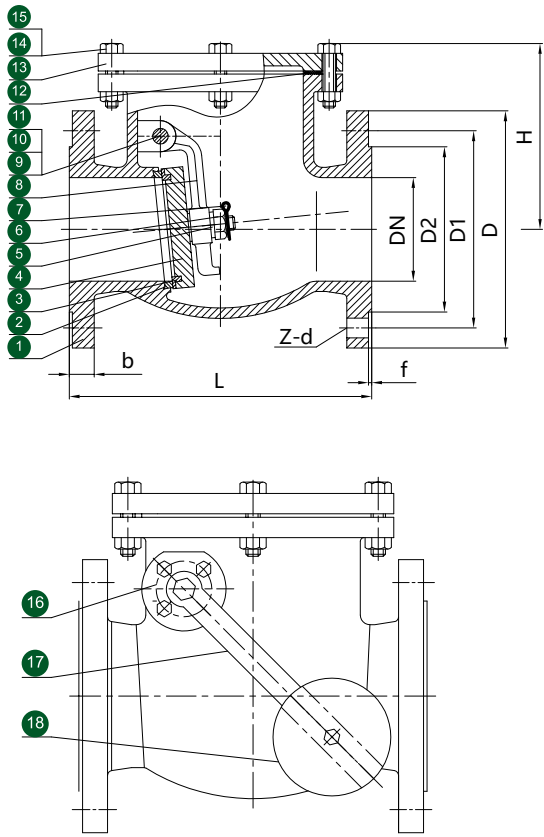
Options

- Available in DIN/AWWA Standard
- Lever arm can be handed left or right hand side
- PN10, PN16, PN25, BST D/E connections
- Standard valve without lever weight and guard

Accessories

- Limit / proximity switches
- Air vent / drain plug
- Hydraulic damper





No.	Part Name	Material	Standar
1	Body	Ductile Iron	BS2789
2	Body Seat Ring	Bronze LG2	BS1400
3	Disc Seat Ring	Bronze LG2	BS1400
4	Disc	Ductile Iron	BS2789
5	Washer	Stainless Steel	SS304
6	Nut	Stainless Steel	SS304
7	Retaining Pin	Stainless Steel	SS304
8	Arm	Ductile Iron	BS2789
9	Hinge Pin	Stainless Steel	SS420
10	Plug	Stainless Steel	SS304
11	Minipad	TFL	
12	Gasket	NBR	BS2494
13	Bonnet	Ductile Iron	BS2789
14	Bolt	Stainless Steel	SS304
15	Nut	Stainless Steel	SS304
16	Gland	Ductile Iron	BS2789
17	Arm	Ductile Iron	BS2789
18	Weight	Ductile Iron	BS2789
19	Guard Z	Caron Steel	A3

DN	D	ØD1	ØD2	L	b	f	Z-d	H
40	150	110	84	165	18	3	4-Ø19	122
50	165	125	99	203	20	3	4-Ø19	137
65	185	145	118	216	20	3	4-Ø19	147
80	200	160	132	241	22	3	8-Ø19	159
100	220	180	156	292	24	3	8-Ø19	180
125	250	210	184	330	26	3	8-Ø19	203
150	285	240	211	356	26	3	8-Ø19	223
200	340	295	266	495	30	3	12-Ø23	258
250	405	355	319	622	32	3	12-Ø28	290
300	460	410	370	698	32	4	12-Ø28	325
350	520	470	429	787	36	4	16-Ø28	361
400	580	525	480	914	38	4	16-Ø31	388
450	640	585	548	965	40	4	20-Ø31	450
500	715	650	609	1067	42	4	20-Ø34	518
600	840	770	720	1219	48	5	20-Ø37	620
800	1025	950	901	1850	58	5	20-Ø41	763
900	1125	1050	1001	2050	62	5	28-Ø41	960



Recoil Check Valve

■ DN100-DN1000 Model Number: S246

Temp. Range	-10°C to +70°C
Flange Drilling	EN1092-2 PN16
Design Standard	Manufacturers Standard
Testing	EN12266-1

Application

- Designed for heavy duty pumping and distribution of water or sewage with flow rates up to 5m/s.

Features

- Single door, fast acting
- Non-slam characteristics
- Low angle of closure

Options

- PN25
- Bypass assemblies
- Extra heavy door
- Multi-Door design also available

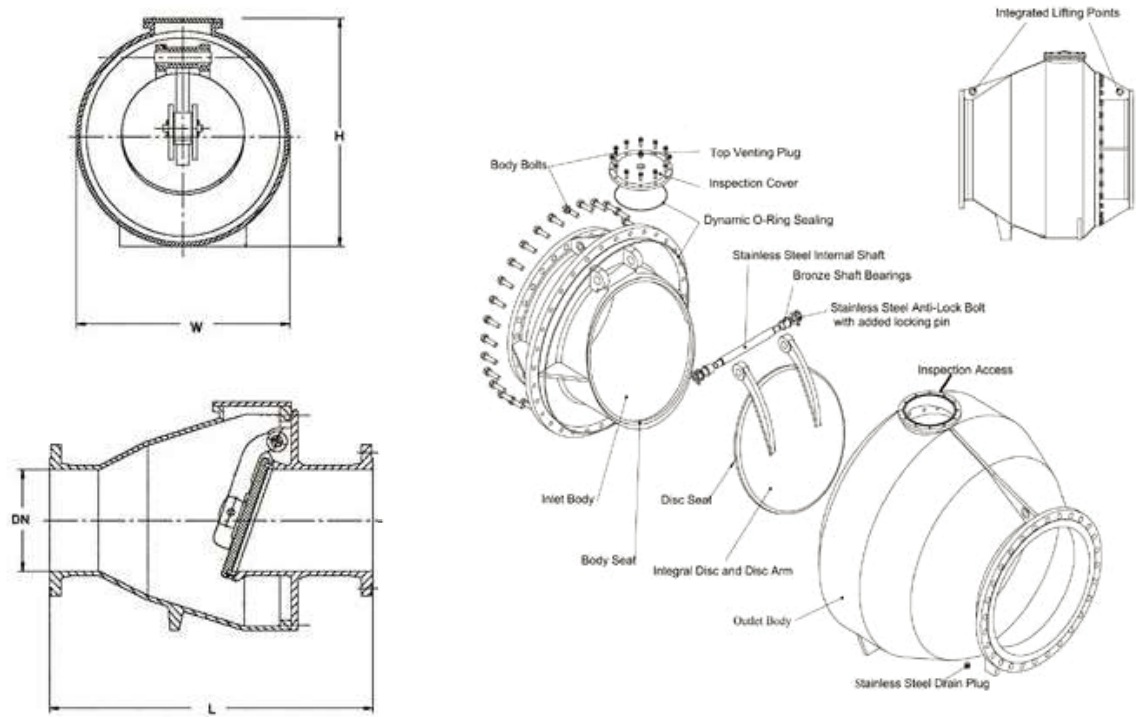
Accessories

- Monitor switch

■ Materials

No.	Part Name	Material	Standar
1	Body-Inlet & Outlet	Ductile Iron	BS2789-73 DIN 1693 - GGG50
2	Integrated Disc & Arm	Ductile Iron	BS2789-73 DIN 1693 - GGG50
3	Shaft	Stainless Steel	BS970 Grade SS 420
4	Body Seat	Aluminium Bronze	BS 1982 - Cu Al 8
5	Disc Seat	Aluminium Bronze	BS 1982 - Cu Al 8
6	Bearings	Bronze	BS1400 LG2 DIN 17705BS 1982
7	Inspection Cover	Ductile Iron	BS2789-73 DIN 1693 - GGG50
8	Locking Pin	Stainless Steel	BS970 Grade SS A4
9	O-Rings	EPDM or NBR	BS6920
10	Locking Bolts	Stainless Steel	BS970 Grade SS-A2
11	External Body Bolts	HTS Galvanised	BS 970 - HTS
12	Vent & Drain Plugs	Stainless Steel	BS970 Grade SS-A2 Min
13	Coating - Std.	F.B. Epoxy	250 microns DFT-WRAS approved

■ Valve Remote Control System



■ Dimension

DN	L	H	W	Flange Thickness	Approx Weight KG
100	460	325	290	24	63
150	610	470	430	26	140
200	755	560	520	30	218
250	965	600	556	32	298
300	1070	715	670	32	413
350	1145	880	832	36	533
400	1145	890	838	38	657
450	1220	1020	970	40	837
500	1320	1090	1040	44	1000
600	1450	1190	1130	48	1359
700	1580	1280	1210	54	1764
800	1680	1370	1300	43	2233
900	1800	1470	1390	47	2941
1000	1920	1570	1490	50	3697



Dual-Plate Wafer Check Valve

■ DN50-DN600 Model Number: S252

Temp. Range	-10°C to +120°C
Flange Drilling	EN1092-2 PN16
Design Standard	Manufacturers Standard
Testing	EN12266-1

Application

- Designed for pumping and distribution of water with flow rates up to 5 m/s.

Features

- Spring assisted for better dynamic behaviour
- Compact design
- Soft seated for bubble tight seal at low differential pressures
- Internally and externally liquid epoxy painted or fusion bonded powder coated (FBE)

Options

- Various seats available
- Various body and Disc materials available
- PN25 rating

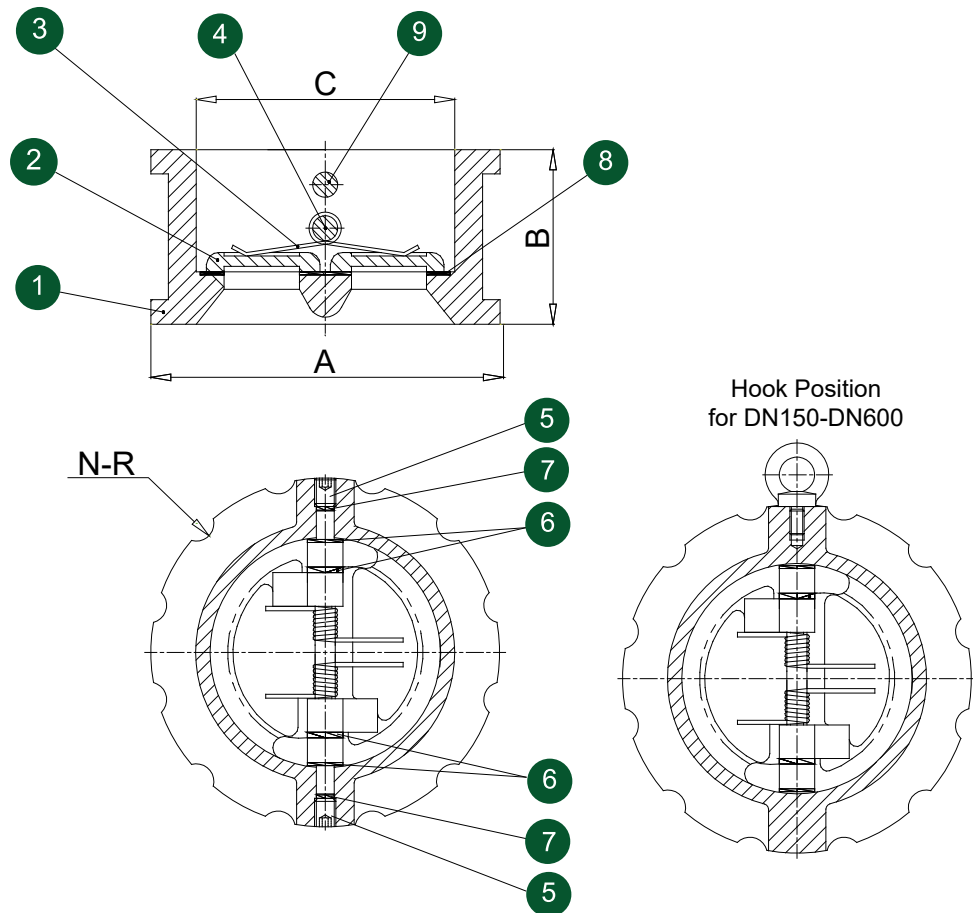
Accessories

- Lifting eye bolts

■ Materials

No.	Part Name	Material	EN Specification	ASTM Specification
1	Body	Grey Cast Iron	EN1561 EN-GJL-250	A126 Class B
2	Disc	Stainless Steel	EN 10088 X5CrNi18-10	A351 Grade CF8
3	Seat	Rubber	EN681 EPDM or NBR	D2000
4	Hinge Pin	Stainless Steel	EN10088 X20Cr13	A276 Type 420
5	Stop Pin	Stainless Steel	EN10088 X20Cr13	A276 Type 420
6	Pin Retainer	Stainless Steel	EN 10088 X5CrNi18-10	A276 Type 304
7	Spring	Stainless Steel	EN10088 X5CrNi18-10	A276 Type 304
8	Washer	Plastic	Commercial PTFE	Commercial PTFE
9	Gasket	Rubber	WRAS EPDM EN681	Commercial

■ Valve Remote Control System



■ Dimension

DN	A			B	N-R
	Table D/ E Flange	ANSI 125#/ 150# Flange	EN1092-2 PN16 Flange		
50	96	102	106	54	-
65	109	121	126	54	-
80	126	134	141	57	-
100	158	172	161	64	-
125	190	194	191	70	-
150	210	220	217	76	-
200	267	277	272	95	12-R12.5
250	331	337	327	108	12-R15
300	379	407	382	143	12-R15
350	445	447	442	184	16-R15
400	493	511	494	191	16-R16.5
450	559	546	554	203	-
500	616	602	616	213	-
600	723	715	733	222	-



Flex Check Valve

■ DN50- DN300 Model Number: S246

Temp. Range	-10°C to +80°C
Flange Drilling	EN1092-2 PN16
Design Standard	BS5153
Testing	EN12266

Application

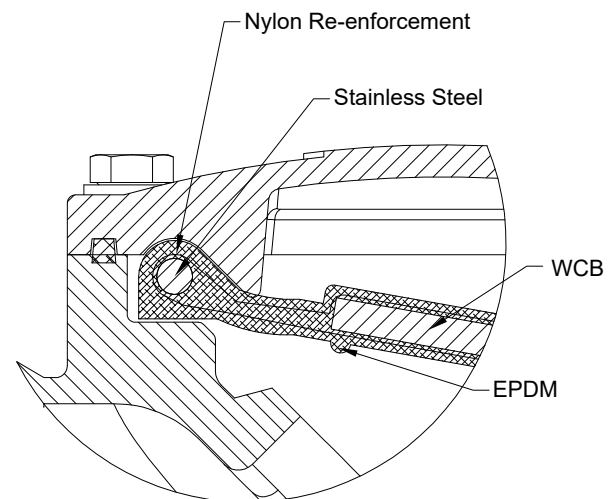
- Prevention of reverse flow of potable /clean water services.
- Clear untreated water quick closing due to 45° seat horizontal or vertical install

Features

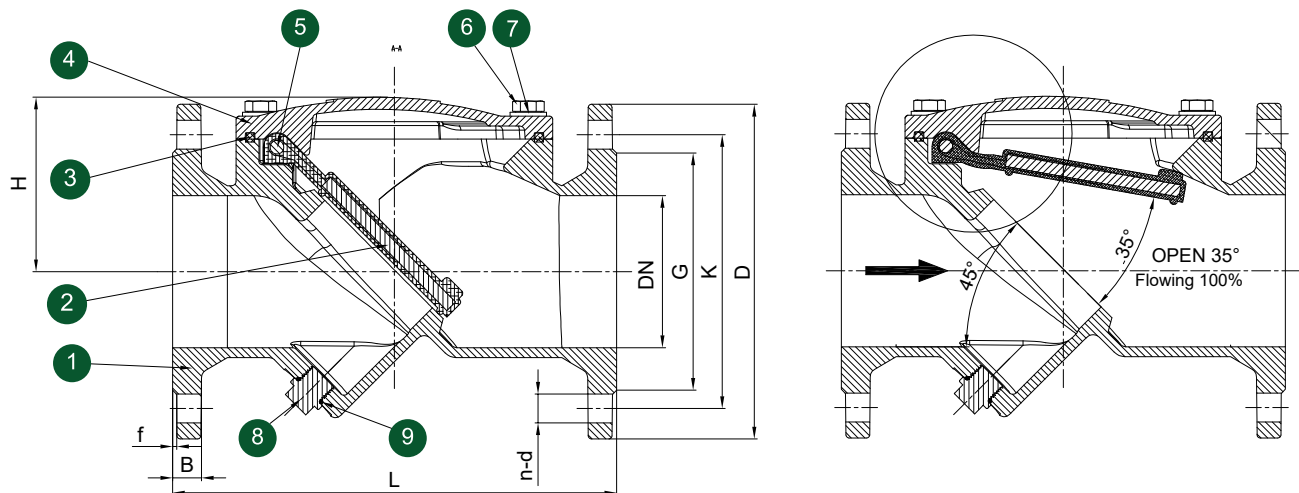
- WRAS wetted parts
- FBE 250 microns
- 100% unrestricted flow
- Ductile iron lightweight construction
- No maintenance

Options

- Larger sizes up to 600mm available
- Air vent in top cover
- For fitting of flow sensors.



■ Valve Remote Control System



■ Materials

No.	Part Name	Material	Standard
1	Body	GGG50	DIN 1693
2	Flapper	EPDM+ WCB	ASTM A216/ ISO4633
3	Bonnet Gasket	NBR	ISO 4633
4	Bonnet	GGG50	DIN 1693
5	Pin	2Cr13	ASTM A276
6	Bolt	304	ASTM A276
7	Washers	304	ASTM A276
8	Nuts	304	ASTM A276
9	O-Ring	NBR	ISO 4633

■ Dimension

DN	L	D	K	G	n-d	B	f	H
50	203	165	125	99	4-Ø19	19	3	88
65	216	185	145	118	4-Ø19	19	3	100
80	241	200	160	132	8-Ø19	19	3	108
100	292	220	180	156	8-Ø19	19	3	118
125	330	250	210	184	8-Ø19	19	3	150
150	356	285	240	211	8-Ø23	19	3	160
200	495	340	295	266	12-Ø23	20	3	250
250	622	405	355	319	12-Ø28	22	3	295
300	698	460	410	370	12-Ø28	24.5	4	330



Ball Check Valve

■ DN25 -DN300 Model Number: S248

Temp. Range	-10°C to + 180°C
Working Pressure	EN1092-2 PN16
Standard	ISO-15848-1

Application

- Non return valve for dirty water, sewage treatment and other loaded fluids.
- Can be used as an air vent or anti-flooding valve.

Features

- Full bore, quiet operation
- Automatic cleaning
- Elastomer coated ball ensures positive sealing on return flow.

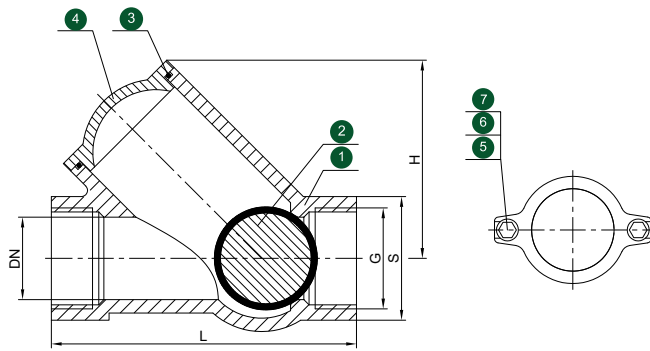
Options

- BSP Screwed end connection 25mm to 65mm
- Lighter/ floating balls
- Alternative materials for aggressive liquids and industrial processes

Accessories

- Replacement balls for service/ maintenance.

■ Valve Remote Control System

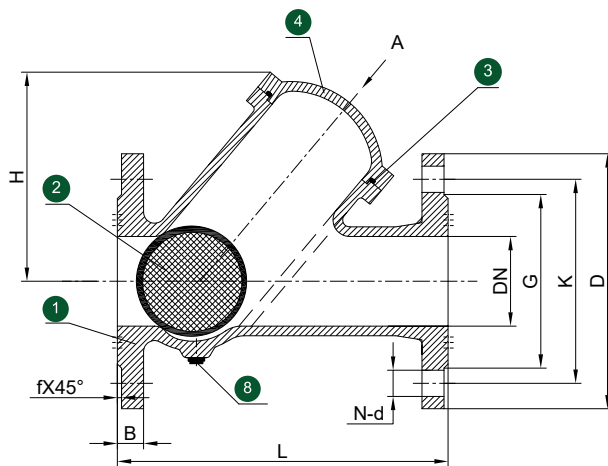


■ Materials

No.	Part Name	Material
1	Body	GGG50
2	Float Ball	NBR+Aluminum
3	O-Ring	NBR
4	Cover	GGG50
5	Gasket	Stainless Steel
6	Washer	Stainless Steel
7	Nut	Stainless Steel

■ Dimension

DN	L	S	H	G
25	137	50	75	1"
32	137	50	75	1 1/4"
40	145	60	93	1 1/2"
50	175	72	106	2"
65	200	90	131	2 1/2"

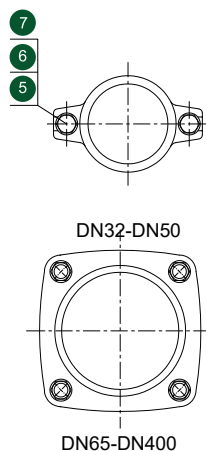


■ Materials

No.	Part Name	Material
1	Body	Ductile Iron
2	Plug	Stainless Steel
3	Ball	Steel+NBR
4	O-Ring	NBR
5	Bonnet	Ductile iron
6	Bolts	Stainless Steel
7	Washer	Stainless Steel

■ Dimension

DN	L	H	D	K	N-d	G	B
40	180	88	150	110	4- Ø19	84	19
50	200	98	165	125	4- Ø19	99	19
65	240	115	185	145	4- Ø19	118	19
80	260	137	200	160	8- Ø19	132	19
100	300	154	220	180	8- Ø19	156	19
125	350	180	250	210	8-Ø19	184	19
150	400	220	285	240	8-Ø23	211	19
200	500	287	340	295	8-Ø23/12-Ø23	266	20
250	600	355	395/405	350/355	12-Ø23/12-Ø28	319	22
300	700	425	445/460	400/410	12Ø23/12-Ø28	370	24.5





Eccentric Plug Valve

■ DN65-DN600 Model Number: S199

Temp. Range	-10°C to +120°C
Flange Drilling	EN1092-2 PN16
Design Standard	BS5158
Testing	EN12266

Application

- Suitable for control and isolation applications offering a near linear flow characteristics control of non-abrasive applications up to 10 m/s.
- Quick acting 1/4 turn.
- Suitable for Potable water, process waste water/sewage and aeration lines.

Features

- Compact robust design giving dependable service
- Common with face to face dimensions of gate valves 50-300mm.
- Low torque due to eccentric action and permanently lubricated bearings.
- Long life service
- Quick acting applications
- Bi-directional applications
- Maintainable
- Round port for maximum flow (full round port design offers better CV/ KV valves over rectangle design)

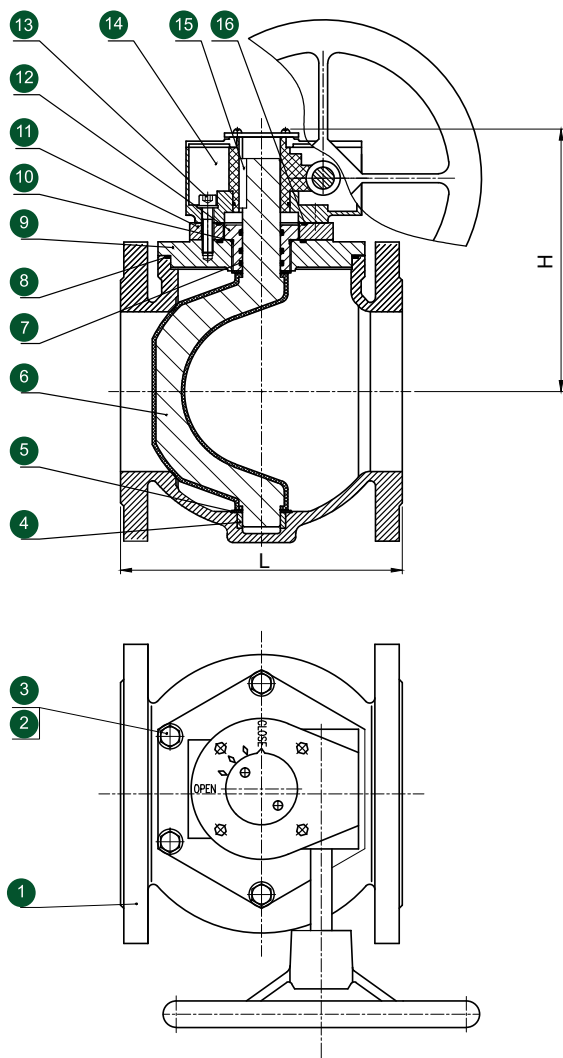
Options

- ISO mounting gearbox/ actuation
- Alternative elastomers
- Metal seated 100mm to 2700mm
- PN10, PN16, PN25, BST D/E connections

Accessories

- Position indication, switches, locking facility, actuation, chain wheel assemblies, extension spindles, floor pillars

■ Valve Remote Control System



■ Pressures / temperatures

Maximum working	NBR: 80°C
differential pressures	EPDM: 110°C

■ Materials

No.	Part Name	Material
1	Body	EN-GJS-450-10
2	HEX Bolt	SS316
3	Washer	SS316
4	Bearing	SS316
5	Thrust Washer	PTFE
6	Plug	Ductile+ NBR/EPDM
7	O-ring	EPDM
8	O-ring	EPDM
9	Bonnet	EN-GJS-450-10
10	O-ring	EPDM
11	Plate	Carbon Steel
12	Gland	Brass
13	Cap Head Screw	SS316
14	Gear Box	Cast Iron
15	Key	Carbon Steel

■ Dimension

Size		2"	2.5"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"
L	PN16	7	7.5	8	9	10	10.5	11.5	13	14	17	17.75	21.5	23.5	30
	PN25	NA	9.5	11.12	12	15	15.88	16.5	18	19.75	18.5	19.38	-	25	42.88
H		5.25	6	6	7	7.5	8.5	9	11.5	13	16.6	18.1	20.2	22.3	23.5
Weight (Kg)		12	13.6	18.1	31.7	52.5	62	86.2	156.5	199.5	240	445	590	751	934



Knife Gate Valve

■ DN50-DN700 Model Number: S208

Temp. Range	0°C to +80°C
Flange Drilling	EN1092-2 PN16
Design Standard	Manufacturers Standard
Testing	EN12266

Application

- Bi-directional valve designed for general industries, such as waste water, minerals, pulp and paper.
- Suitable for end of line duty

Features

- Fully lugged to suit PN16-BS4504 flanges
- Replaceable gland packing without the need to disassemble
- Full bore
- Cavity free body
- 'U' shaped one piece NBR body sealing
- Suitable for end of line duty

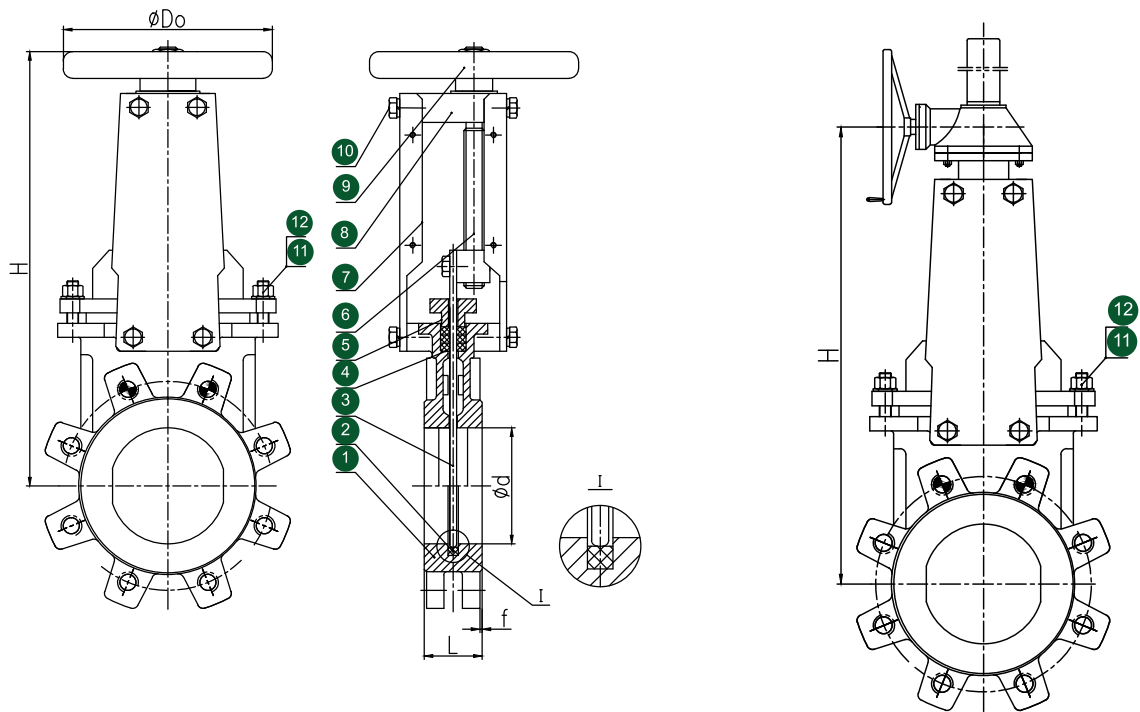
Options

- ISO mounting flange for actuation
- Gearbox Operation
- Rising stem
- Larger sizes on request
- EPDM or VITON seats for higher temperatures
- Materials of construction: SS316
- PTFE lined valves available
- Uni-directional

Accessories

- Limit switches/ proximity switches, deflector cones, locking facility, pneumatic actuators, electric actuators

■ Valve Remote Control System



■ Materials

No.	Part Name	Material
1	Body	ASTM A536 65-45-12/ GGG40
2	Seat	EPDM/NBR
3	Gate	SS304
4	Packing	PTFE
5	Gland	WCB/D.I
6	Stem	SS420
7	Support Yoke	ASTM A36
8	Yoke	C.S
9	Bevel Gear	DI and MS
10	Bolt	AISI 1035
11	Bolt	A2-70 (ASTM A193 B8)
12	Nut	A2-70 (ASTM A194 8)

■ Pressures/ temperatures

DN (NPS)	Maximum working differential pressures
DN50-DN250 [2"-10"]	10 Bar
DN300-DN450 [12"-18"]	7 Bar
DN500-DN600 [20"-24"]	4 Bar
DN700-DN900 [28"-36"]	2 Bar
Maximum working differential pressures	NBR: 80°C
	EPDM: 110°C
	PTFE: 150°C

■ Dimension(PN16)

DN	D	L	f	D0	H
50	50	40	2	200	299
65	65	40	2	200	322
80	80	50	2	200	350
100	100	50	2	200	385
125	125	50	2	200	425
150	150	60	2	300	485
200	200	60	2	300	580
250	250	70	2	350	699
300	300	76	2	350	803

DN	D	L	f	H
350	350	96	2	1020
400	400	100	2	1070
450	438	106	2	1205
500	500	110	2	1290
600	570	110	2	1445
700	680	110	2	1600



Stainless Steel Ball Valve

■ DN50- DN200 S111 (Floating)

Temp. Range	-10°C to +180°C
Flange Drilling	EN1092-2 PN16
Design Standard	Manufacturers Standard
Testing	EN12266-1

Application

- For flow, pressure control and isolation of water, corrosive fluids, slurries and gases.

Features

- Anti-blowout stem
- Anti-static device
- Firesafe design
- Locking device as standard
- Full bore
- Three-piece design

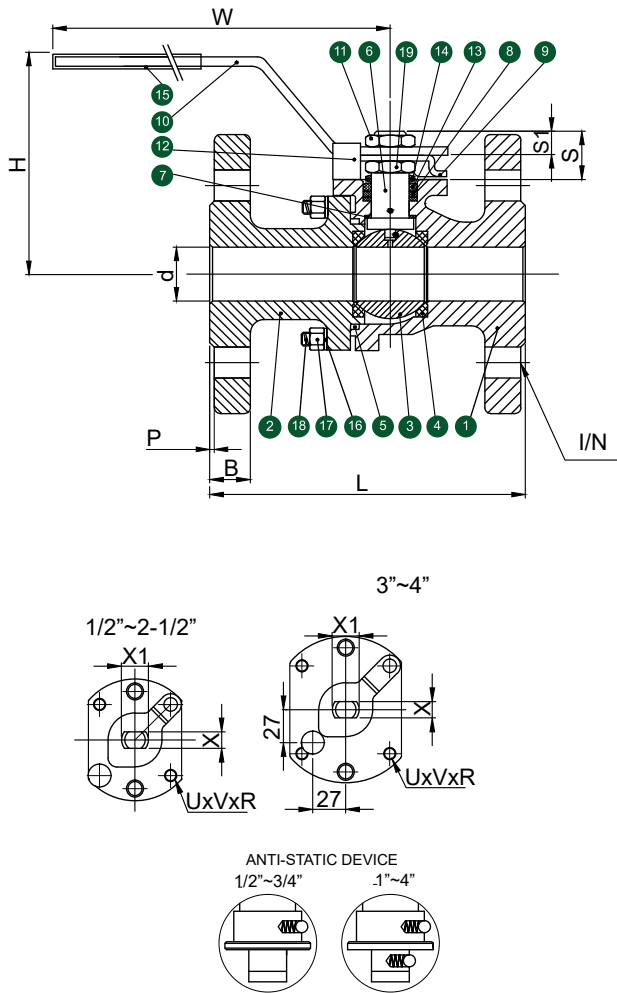
Options

- ISO mounting flange/ V notch ball options
- ATEX certification
- Various pressure ratings
- Various end connections
- Also available with cavity filled seats

Accessories

- Position indication, switches, actuation, extension spindles

■ Valve Remote Control System

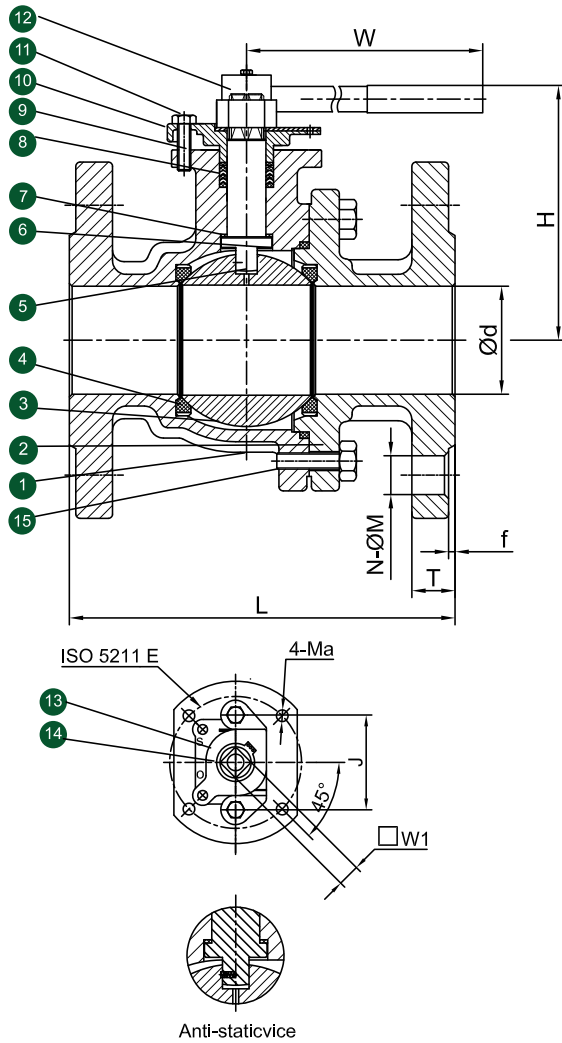


■ Materials

No.	Part Name	Material
1	Body	CF8M Stainless Steel
2	Cap	CF8M Stainless Steel
3	Ball	CF8M Stainless Steel
4	Seats	PTFE
5	Joint Gasket	PTFE
6	Stem	316 Stainless Steel
7	Thrust Washer	PTFE
8	Stem Packing	PTFE
9	Stopper	304 Stainless Steel
10	Handle	304 Stainless Steel
11	Handle Nut	304 Stainless Steel
12	Stop Pi	304 Stainless Steel
13	Stem Ring	304 Stainless Steel
14	Belleville Washer	301 Stainless Steel
15	Cover	PVC
16	Spring Washer	304 Stainless Steel
17	Nut	304 Stainless Steel
18	Stud Bolt	304 Stainless Steel
19	Stem Nut	304 Stainless Steel

■ Dimension

DN	L	B	P	I/N	X	X1	U x V x R	S	S1	H	W	Kg
15	115	14	2	14/4	8.6	M14x2.0	4-42xM5xP0.8	19.8	6.3	94	138	1.8
20	120	16	2	14/4	8.6	M14x2.0	4-42xM5xP0.8	21	7.5	97	138	2.5
25	125	16	2	14/4	10	M16x2.0	4-50xM6xP1.0	24.3	9.1	115	173	3.4
32	130	16	2	18/4	10	M16x2.0	4-50xM6xP1.0	25.8	10.8	119	173	4.6
38	140	16	3	18/4	12	M20x2.5	4-70xM8xP1.25	36	17.5	141	195	6.4
50	150	18	3	18/4	12	M20x2.5	4-70xM8xP1.25	37.2	18.7	149	195	8.5
65	170	18	3	18/4	12	M20x2.5	4-70xM8xP1.25	37.5	19	164	220	12.1
80	180	20	3	18/8	16	M27x3.0	4-102xM10xP1.5	47	26.1	172	328	17.9
100	190	20	3	18/8	16	M27x3.0	4-102xM10xP1.5	44.3	23.4	187	328	23.3

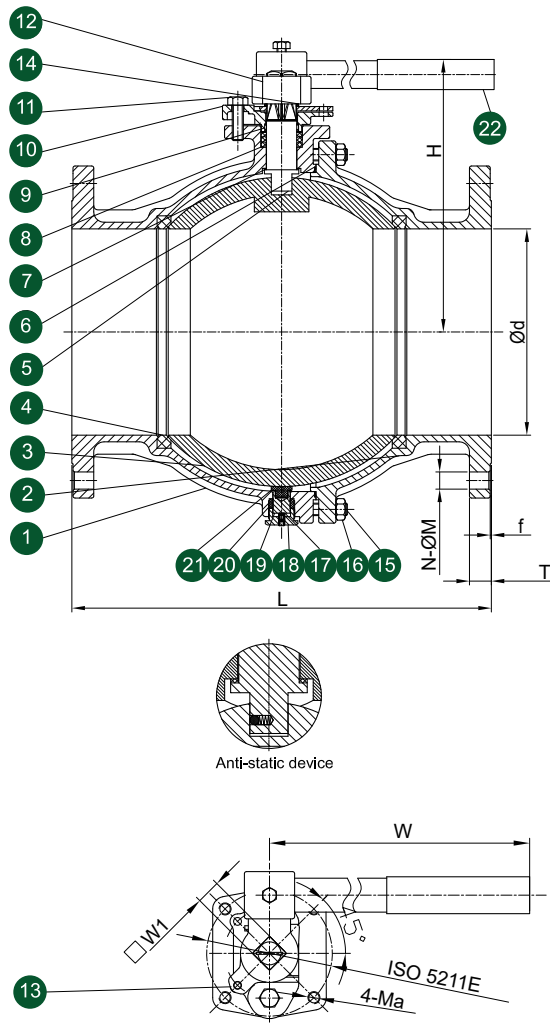


Materials

No.	Part Name	Material
1	Body	CF8M Stainless Steel
2	Cap	CF8M Stainless Steel
3	Ball	CF8M Stainless Steel
4	Seats	PTFE
5	Stem	316 Stainless Steel
6	Gasket	PTFE
7	Thrust Washer	PTFE+25% Carbon
8	Gland Packing	PTFE
9	Stem Bushing	PTFE
10	Gland	304 Stainless Steel
11	Gland Bolt	304 Stainless Steel
12	Handle	FCD
13	Stop Plate	304 Stainless Steel
14	Snap Ring	304 Stainless Steel
15	Bolt	304 Stainless Steel

Dimension

DN	L	T	F	N/M	W1	4-Ma	ISO	E	H	W	Kg
150	350	22	3	8/22	24	M12	F12	125	247	750	53



Stainless Steel Ball Valve

■ DN50- DN200 S101 (Trunnion)

■ Materials

No.	Part Name	Material
1	Body	CF8M Stainless Steel
2	Cap	CF8M Stainless Steel
3	Ball	CF8M Stainless Steel
4	Seats	PTFE
5	Stem	316 Stainless Steel
6	Gasket	PTFE
7	Thrust Washer	PTFE+25% Carbon
8	Packing	PTFE
9	Stem Packing	PTFE
10	Gland	304 Stainless Steel
11	Gland Bolt	304 Stainless Steel
12	Handle	1.0619 Carbon Steel
13	Stop Plate	304 Stainless Steel
14	Snap Ring	301 Stainless Steel
15	Stud	304 Stainless Steel
16	Nut	304 Stainless Steel
17	Tuning Screw	304 Stainless Steel
18	Support Nut	304 Stainless Steel
19	Support Pin	316 Stainless Steel
20	Pin Packing	Graphite
21	Pin Seat	PTFE
22	Cover	PVC

■ Dimension

DN	L	T	F	N/M	W1	4-Ma	ISO	E	H	W	Kg
200	400	24	3	12/22	32	M12	F12	125	305	1000	80



Potable Water Air Valve

■ DN65-DN400 Triple Function Potable Water Air Valves Model Number: S831

Temp. Range	-10°C - 60°C
Flange Drilling	EN 1092-2 PN16
Design Standard	BS EN 1074-4

Application

- Potable water mains
- Treated water mains and irrigation systems

Features

- Maximum operating pressure 40 Bar Minimum operating pressure 0.1 Bar
- Single body combination air valve Solid polypropylene frictionless float
- Stainless steel screen to prevent contamination
- Three optional outlets

Options

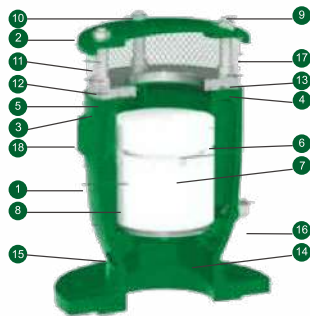
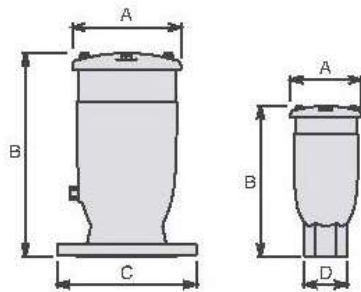
- Anti-Surge Protection
- Rapid Fill Protection

Accessories

- Exit Only and Entrance Only Kits Snorkel Kit
- Critical Air Valve Monitoring Sensor
- Flanged Outlet Soak Away

AFFCO offers complete air valve analysis and surge analysis design capabilities that will help to identify the right type, size and location of an air valve to protect the main or application from transient surge events. This will give complete peace of mind and help to greatly reduce maintenance issues through leaks and catastrophic bursts.

■ Valve Remote Control System



Connection inch/mm	A	B	C		D	Weight Kg
Threaded 2"	117	240	-	-	CH 70	4.8
Flanaed 50	117	250	165	-	-	6.8
Flanaed 65	117	250	185	-	-	7.6
Flanaed 80	141	305	210	205	-	10.8
Flanaed 100	172	303	235	220	-	13.8
Flanaed 150	206	337	305	285	-	23
Flanaed 200	285	555	375	340	-	55
Flanaed 250	365	635	450	405	-	101
Flanaed 300	420	785	515	455	-	127
Flanaed 350	515	940	580	520	-	250.5
Flanaed 400	600	1075	620	580	-	304

Connection	PN 10	PN16	PN 25	PN 40
2"- DN65	1.5	1.2	1	0.8
DN80	1.8	1.5	1.2	1
DN100	1.8	1.5	1.2	1
DN150	3	2.4	1.8	1.2
DN200	4	3	2.4	1.8
DN250	4	4	4	3
DN300	4	4	4	4
DN350	4	4	4	4
DN400	4	4	4	4

■ Materials

No.	Part Name	Material	EN Specification
1	Body	Ductile Cast Iron	GJS 500-7/ GJS 450-10
2	Cap	Ductile Cast Iron	GJS 500-7/ GJS 450-10
3	O-ring	NBR	
4	O-ring	NBR	
5	Seat	Stainless Steel	AISI 304
6	RFP Flat with O-ring	Polypropylene and NBR	
7	Upper Flat with Nozzle	Subset polypropylene and stainless steel	AISI 316
8	Float	Polypropylene	
9	Studs	Stainless Steel	AISI 304
10	Nuts	Stainless Steel	AISI 304
11	Spacers	Stainless Steel	AISI 304
12	Nuts	Stainless Steel	AISI 304
13	Washers	Stainless Steel	AISI 304
14	Deflector	Stainless Steel	AISI 304
15	Screws	Stainless Steel	AISI 304
16	Drain Valve	Stainless Steel	AISI 304
17	Screen	Stainless Steel	AISI 304
18	Tag	Stainless Steel	AISI 304



Sewage Air Valve

■ DN50-DN200 Triple Function Sewage Air Valves Model Number: S832

Temp. Range	-10°C - 60°C
Flange Drilling	EN 1092-2 PN16
Design Standard	BS EN 1074-4

Application

- Sewage water mains industrial applications treatment works

Features

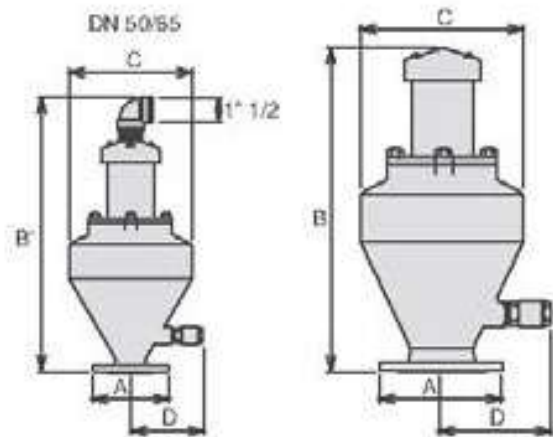
- Maximum operating pressure 40 Bar Minimum operating pressure 0.1 Bar
- Single body combination air valve Stainless steel frictionless float
- Three optional outlets

Options

- Anti-Surge Protection
- Rapid Fill Protection

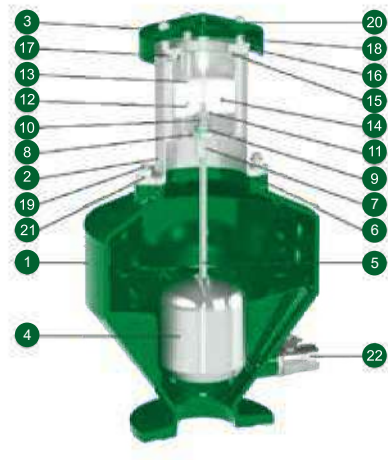
Accessories

- Exit only and entrance only kits snorkel kit
- Critical air valve monitoring sensor
- Flanged outlet soak away
- Odour control boxes



AFFCO offers complete air valve analysis and surge analysis design capabilities that will help to identify the right type, size and location of an air valve to protect the main or application from transient surge events. This will give complete peace of mind and help to greatly reduce maintenance issues through leaks and catastrophic bursts.

■ Valve Remote Control System



Outlet Information

Outlet diameter in mm according to the air valve and PN.

Connection		PN 10			PN16	
DN50/65		2.4			2.4	
DN80/100		3.0			3.0	
DN150/200		4.0			4.0	

Connection inch/mm	A	B	C		D	Weight Kg
50/65	185	-	680	300	190	29.0
80/100	220	645	-	350	202	40.0
150	285	870	-	488	243	78.0
200	340	870	-	488	243	82.0

■ Materials

No.	Part Name	Material
1	Lower Body	Ductile Cast Iron GJS 500-7/ GJS 450-10
2	RFP Upper Body	Stainless Steel AISI 316
3	Float	Ductile Cast Iron GJS 500-7/ GJS 450-10
4	Float Shaft	Stainless Steel AISI 316
5	O-ring	NBR
6	Driving Sleeve	Stainless Steel AISI 303
7	Nut	Stainless Steel AISI 304
8	Plane Gasket	NBR
9	Gasket Holder	Stainless Steel AISI 316
10	Nozzle Subset	Stainless Steel AISI 316
11	RFP Obtrator Flat	Polypropylene
12	Anti-Surge Flat	Polypropylene
13	Anti-Surge Flat Gasket	NBR
14	Seat Gasket	NBR
15	O-ring	NBR
16	Seat	Stainless Steel AISI 316
17	Spacers	Stainless Steel AISI 304
18	Studs	Stainless Steel AISI 304
19	Nuts	Stainless Steel AISI 304
20	Washers	Stainless Steel AISI 304
21	Ball Valve 1"	Stainless Steel AISI 316



Plunger Valve

■ DN200 –DN1400 Model Number: S809

Temp. Range	0°C to +90°C
Flange Drilling	BS EN1092 -2
Design Standard	EN1074-1&5
Testing	EN12266-1

Application

- For flow control and isolation, widely used for clean and treated water applications

Features

- The special structure design can make the water flow hedge in the center of the sleeves, and the energy dissipation effect is good. Compact design with streamlined interior.
- The balanced spool can effectively reduce the switching torque, the operating torque is light, the seal is reliable, and zero leakage can be achieved.
- ISO EN5211 actuation flange

Options

- A variety of valve bodies, sleeves, stems and cranks are available.
- PN10 PN16 PN25 PN40 PN64.
- Lever/ gearbox operation
- Torque figures available on request

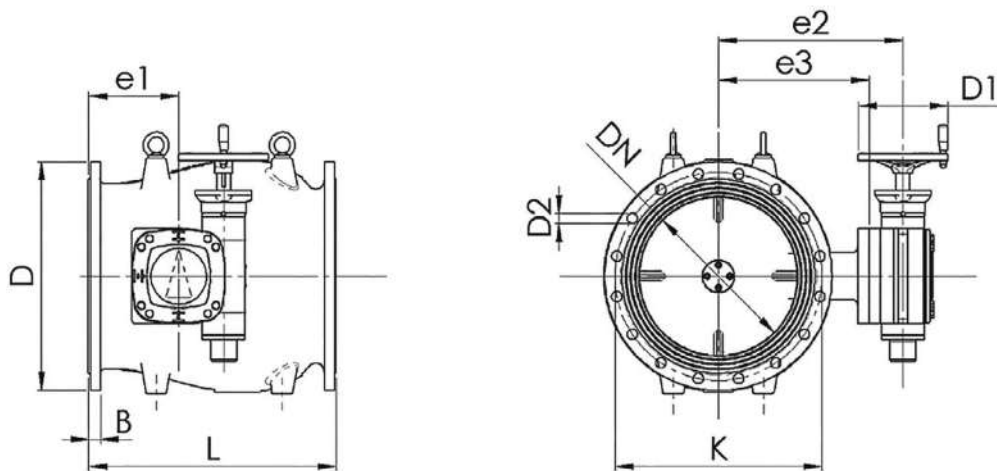
Accessories

- Position indication, limit switches, locking facility, actuation.

■ Materials

No.	Part Name	Material
1	Body	Ductile Iron, carbon steel, stainless steel, duplex
2	sleeves	stainless steel
3	Shaft	Stainless steel, duplex
4	sealing ring	NBR, EPDM, VITON

■ Valve Remote Control System



■ PN 10

DN		200	250	300	350	400	450	500	600	700	800	900	1000	1200	1400
D	[mm]	340	395	445	505	565	615	670	780	895	1015	1115	1230	1455	1675
D1	[mm]	200	200	200	250	250	250	250	250	250	250	250	250	250	250
D2	[mm]	23	23	23	23	28	28	28	31	31	34	34	37	41	44
B3	[mm]	20	22	24,5	24,5	24,5	25,5	26,5	30	32,5	35	37,5	40	45	46
e1	[mm]	160	164	185	200	230	235	245	318	310	325	350	360	425	475
e2	[mm]	273	300	352	410	440	470	500	563	647	700	753	815	1015	1128
e3	[mm]	228	255	295	335	365	395	425	488	572	625	678	740	900	1013
K	[mm]	295	350	400	460	515	565	620	725	840	950	1050	1160	1380	1590
L1	[mm]	400	450	500	550	600	650	700	800	900	1000	1100	1200	1400	1600
Holes	[nr]	8	12	12	16	16	20	20	20	24	24	28	28	32	36
Weight2	[kg]	106	145	195	290	335	495	470	700	1000	1330	1725	2265	3530	5020

■ PN 16

DN		200	250	300	350	400	450	500	600	700	800	900	1000	1200	1400
DN		200	250	300	350	400	450	500	600	700	800	900	1000	1200	1400
D	[mm]	340	405	460	520	580	640	715	840	910	1025	1125	1255	1485	1685
D1	[mm]	200	200	200	250	250	250	250	250	250	250	250	250	250	250
D2	[mm]	23	28	28	28	31	31	34	37	37	41	41	44	50	50
B3	[mm]	20	22	24,5	26,5	28	30	31,5	36	39,5	43	46,5	50	57	60
e1	[mm]	160	164	185	200	230	235	245	318	310	325	350	360	425	475
e2	[mm]	273	300	352	410	440	470	500	563	647	700	753	815	1015	1128
e3	[mm]	228	255	295	335	365	395	425	488	572	625	678	740	900	1013
K	[mm]	295	355	410	470	525	585	650	770	840	950	1050	1170	1390	1590
L1	[mm]	400	450	500	550	600	650	700	800	900	1000	1100	1200	1400	1600
Holes	[nr]	12	12	12	16	16	20	20	20	24	24	28	28	32	36
Weight2	[kg]	106	145	195	290	335	495	510	750	1005	1330	1770	2290	3575	5030

■ PN 25

DN		200	250	300	350	400	450	500	600	700	800	900	1000
D	[mm]	360	425	485	555	620	670	730	845	960	1085	1185	1320
D1	[mm]	200	200	250	250	250	250	250	250	250	250	250	250
D2	[mm]	28	31	31	34	37	37	37	41	44	50	50	57
B3	[mm]	22	24,5	27,5	30	32	34,5	36,5	42	46,5	51	55,5	60
e1	[mm]	160	164	185	200	230	235	245	318	310	325	350	360
e2	[mm]	273	300	370	410	440	470	500	563	682	735	778	840
e3	[mm]	228	255	295	335	365	395	425	488	607	660	703	725
K	[mm]	310	370	430	490	550	600	660	770	875	990	1090	1210
L1	[mm]	400	450	500	550	600	650	700	800	900	1000	1100	1200
Holes	[nr]	12	12	16	16	16	20	20	20	24	24	28	28
Weight2	[kg]	113	152	248	324	404	501	593	768	1190	1575	2160	2850

■ PN 40

DN		200	250	300	350	400	500	600	700	800	900	1000
D	[mm]	375	450	515	580	660	755	890	995	1140	1250	1360
D1	[mm]	250	250	250	250	250	250	250	315	315	400	400
D2	[mm]	31	34	34	37	41	44	50	48	56	56	56
B3	[mm]	30	34,5	39,5	43,5	48	52	58	64	72	76	80
e1	[mm]	160	164	185	200	200	245	275	-	-	-	400
e2	[mm]	262	287	345	440	470	555	610	-	-	-	999
e3	[mm]	205	240	270	390	420	480	535	-	-	-	854
K	[mm]	320	385	450	510	585	670	795	900	1030	1140	1250
L1	[mm]	400	450	500	550	600	700	800	1000	1100	1200	1300
Holes	[nr]	12	12	16	16	16	20	20	24	24	28	28
Weight2	[kg]	122	165	265	350	435	880	1020	1650	2300	3050	3950

■ PN 64

DN		200	250	300	350	400
D	[mm]	415	470	530	600	670
D1	[mm]	250	250	250	250	250
D2	[mm]	37	37	37	41	44
B3	[mm]	46	50	57	61	65
e1	[mm]	160	164	185	218	238
e2	[mm]	280	315	345	465	495
e3	[mm]	205	240	270	390	420
K	[mm]	345	400	460	525	585
L1	[mm]	400	450	500	585	636
Holes	[nr]	12	12	16	16	16
Weight2	[kg]	150	195	285	490	640



Fire Hydrant

■ DN80 Model Number: S296

Temp. Range	-10°C to +70°C
Flange Drilling	BS EN1092-2 PN16
Design Standard	BS750 EN14339:2005
Testing	BS 750

Application

- Squat type “FH2” fire hydrant for use with potable water
- Ductile iron construction
- WRAS approved
- 2-1/2” London round thread as standard

Features

- Automatic frost valve as standard universal drilled inlet flange BS EN1092-2,
- PN10/16, BS table 10 D/E fusion bonded epoxy to WIS4-52-01 fixed stopper as standard.

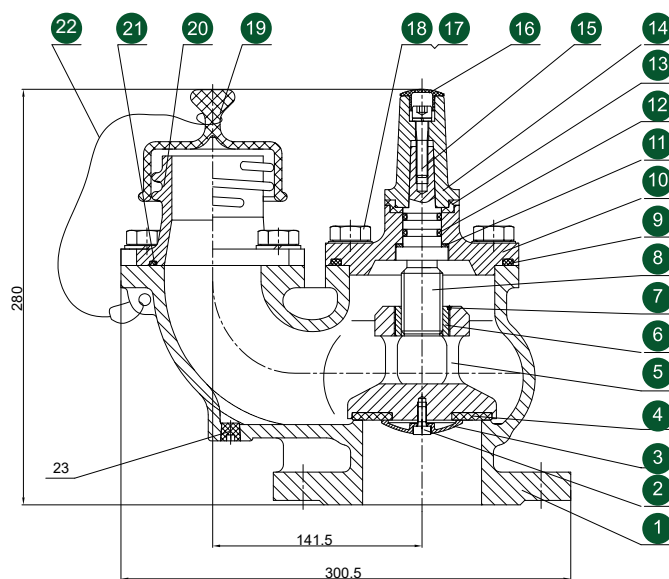
Options

- Various outlets: ‘V’ thread, bayonet, belfast, internal screwed Norwegian
- PN25

Accessories

- Hydrant outlet, raising pieces.
- Firemans and contractors standpipes.





Materials

No.	Part Name	Material
1	Body	ASTM A536 65-45-12
2	Bolt	Stainless Steel AISI 304
3	Holder	Stainless Steel AISI 304
4	Gasket	EPDM
5	Disc	ASTM A536 65-45-12
6	Stem Nut	H.T. Dezincification Resistant Brass ASTM B16 C36000
7	Screw	Steel
8	Stem	Stainless Steel AISI 420
9	O-Ring	EPDM
10	Cover	ASTM A536 65-45-12
11	Washer	Copper
12	O-Ring	EPDM
13	Cap Gasket	Plastic
14	Driver Cap	ASTM A126 Class B
15	Bolt	Stainless Steel A4-70
16	Indicator Cap	Plastic
17	Bolt	Stainless Steel A4-70
18	Washer	Stainless Steel AISI 304
19	Dust Cap	Plastic
20	Outlet	LG2 or SS304
21	O-Ring	EPDM
22	Rope	Stainless Steel
23	Frost Valve	Plastic



Pressure Control Valve

■ DN40-DN600 Model Number: S829

Temp. Range	-10°C - 70°C
Flange Drilling	EN1092-2 PN16
Design Standard	EN1074-5

Application

- Potable water
- Agriculture
- Buildings
- Mining

Features

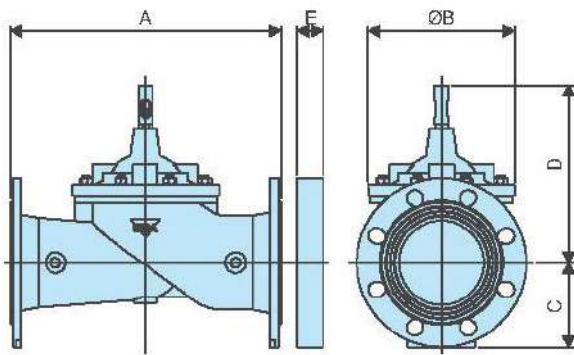
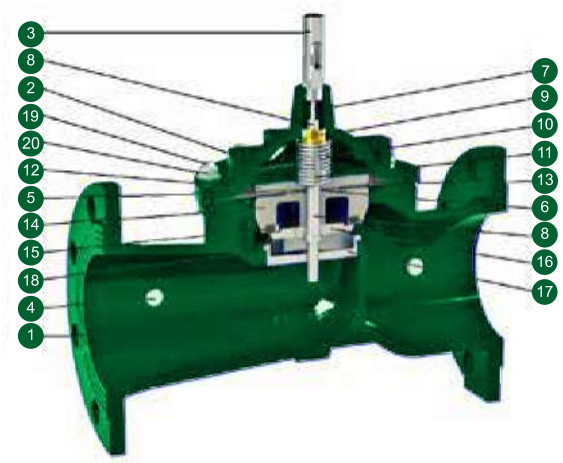
- Pressure reducing valve
- Option of PN25 flanged and rated valves
- Minimum operating pressure 0.7 Bar
- Stainless steel internal and external components
- External self-tapping points

Options

- Pressure sustaining
- Pressure relief
- Demand Control Valve

Accessories

- Pressure gauges
- Flexible hosing
- Dual chamber



Materials

No.	Part Name	Material
1	Body	Ductile Cast Iron GJS 500-7 or GJS 450-10
2	Cap	Ductile Cast Iron GJS 500-7 or GJS 450-10
3	Position indicator	S.S. AISI 303 (nickel-plated brass from DN 300)
4	Pressure outlet taps	Stainless Steel AISI 316
5	Upper flat O-ring	NBR
6	Obturator O-ring	NBR
7	Indicator stem	Stainless Steel AISI 303
8	Main shaft	Stainless Steel AISI 303
9	Guide ring	bronze CuSn5Zn5Pb5
10	Spring	Stainless Steel AISI 302
11	Locking nut	Stainless Steel AISI 304
12	Upper flat	Painted Steel
13	Diaphragm	Polyamide-Nylon
14	Obturator	AISI 303 (DN 50-65), Steel, Duct. C. Iron (from DN 150)
15	Plane gasket	NBR
16	Gasket holder	Stainless Steel AISI 303 (304 from DN 150)
17	Seat	Stainless Steel AISI 303 (316 from DN 150)
18	Seat O-ring	NBR
19	Studs	Stainless Steel AISI 304
20	Nuts and washers	Stainless Steel AISI 304

Reduced Bore

DN	A	B	C	D	E	Weight Kg
40	230	162	83	235	30	18
50	230	162	83	235	30	18
65	290	194	93	275	30	23.5
80	310	218	100	295	30	28
100	350	260	118	335	30	39
150	480	370	150	450	30	84
200	600	444	180	495	30	138
250	730	570	213	600	40	264
300	850	676	242	720	40	405
400	1100	870	310	915	40	704

Reduced Bore

DN	A	B	C	D	E	Weight Kg
80	310	162	100	245	30	24
100	350	218	118	280	30	34
125	400	260	135	350	30	47
150	480	260	150	350	30	54
200	600	370	180	460	30	97
250	730	444	213	515	40	172
300	850	570	242	605	40	304
400	1100	680	310	745	40	480
500	1250	870	365	945	40	782
600	1450	870	423	970	40	922



Level Control Valve

■ DN40-DN300 Model Number: S833

Temp. Range	-10°C - 70°C
Flange Drilling	EN1092-2 PN16
Design Standard	EN1074-5

Application

- Water applications
- Industrial applications
- Irrigation applications

Features

- Operating pressure 16 Bar
- Angle patterned
- Straight through pattern
- Dual pivot point operation

Options

- Extension arm 1.5m
- Stainless steel float

Accessories

- Anti-freeze device

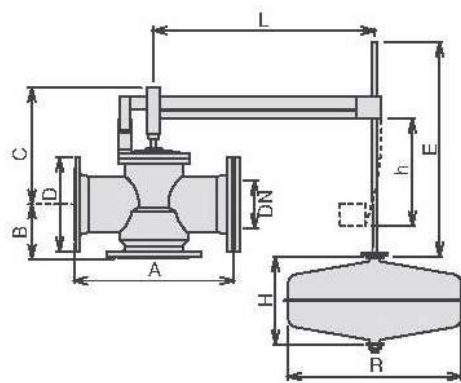
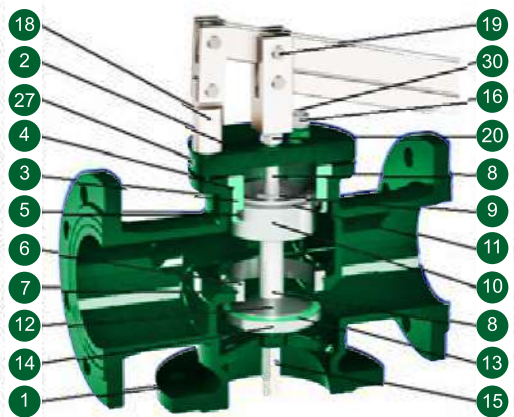
■ Head Loss Coefficient for Angle Pattern

DN (mm)	40	50	65	80	100	125	150	200	250	300
Kv (m ³ /h)/bar	21,6	21,6	46,8	68,4	108	155	245	360	648	1008

■ Head Loss Coefficient for Globe Pattern

DN (mm)	40	50	65	80	100	125	150	200	250	300
Kv (m ³ /h)/bar	18,4	18,4	39,6	59,4	90	133	209	313	576	864

Materials



No.	Part Name	Material
1	Body	Ductile Cast Iron GJS 450-10or GJS 500-7
2	Cap	Painted Steel
3	Guiding bushing	Bronze CuSn5Zn5Pb5 (painted steel for DN 250-300)
4	O-ring	NBR
5	Lip gasket	NBR
6	Seat	Stainless Steel AISI 304
7	O-ring	NBR
8	Guiding shaft	Stainless Steel AISI 303
9	Blocking nut	Stainless Steel AISI 304
10	Piston	Stainless Steel AISI 303
11	Guiding ring	PTFE
12	Counter-seat	Stainless Steel AISI 303 (painted steel for DN 250-300)
13	Plane gasket	NBR
14	Obturator	Stainless Steel AISI 303 (painted steel for DN 250-300)
15	Tightening nut	Stainless Steel AISI 303
16	Nuts (screws) and washers	Stainless Steel AISI 304
17	Upper coupling	Zinc-plated Steel
18	Lower coupling	Zinc-plated Steel
19	Pivots	Stainless Steel AISI 303
20	Blocking nut	Stainless Steel AISI 304
21	Shaft pivot	Zinc-plated Steel
22	Upper lever	Zinc-plated Steel
23	Lower lever (from DN 80)	Zinc-plated Steel
24	Float coupling (from DN 80)	Zinc-plated Steel
25	Float rod	Stainless Steel AISI 304
26	Float	Stainless Steel AISI 304
27	Plug (screw from DN 150 to 300)	Stainless Steel AISI 304
28	Elastic pin (from DN 80)	Stainless Steel AISI 304
29	Screw	Stainless Steel AISI 304
30	Studs (from DN 150 to 300)	Stainless Steel AISI 304

Weights&Dimensionw

DN	A	B	C	D	L	H	R	h	E	Weight Kg
40	230	82.5	173	165	600	0220	0220	105	525	21.0
50	230	82.5	173	165	600	0220	0220	105	525	21.0
65	290	92.5	193	185	600	0220	0220	180	525	26.0
80	310	100	235	200	800	200	300	210	600	33.0
100	350	125	233	220	800	180	400	267	600	41
125	400	125	238	250	800	180	400	267	600	49
150	480	162	371	285	1000	250	400	400	540	79
200	600	183	420	340	1000	250	400	418	540	118
250	730	270	540	405	1220	300	500	510	945	215
300	850	300	610	460	1400	400	500	610	1042	250



Application

- Flow control and Isolation of fluids within the water, irrigation and hydro power industries. Penstocks can be wall, channel or pipe mounted.

Features

- Flush invert
- non-rising stem
- low friction polyolefin seals
- light weight
- low torque

Penstocks

■ DN100-DN600 Model Number: S834

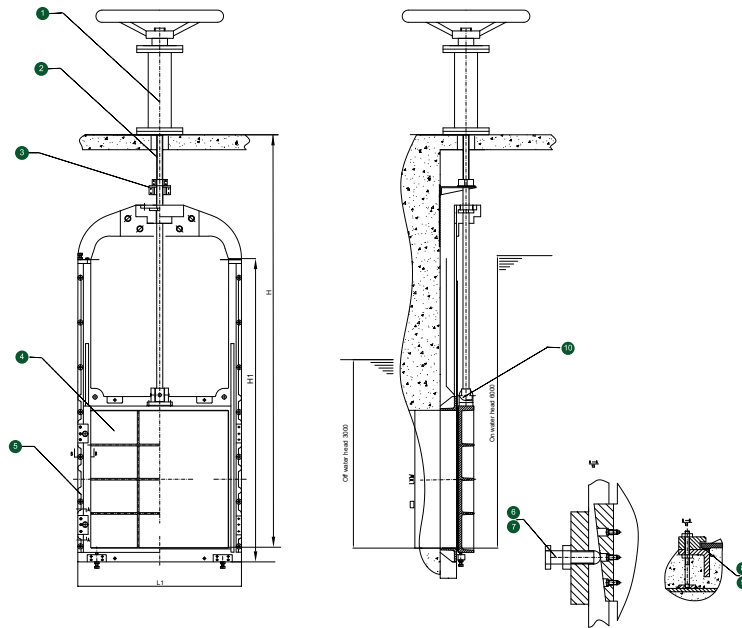
Temp. Range	0°C to +70°C
Flange Drilling	Manufacturers Standard
Design Standard	BS7775
Testing	On Seating: 1.2 L/min/Seal Perimeter Off Seating: 2.5 L/min/Seal Perimeter

Options

- Higher pressure
- Different materials: Steel, stainless steel
- Larger sizes with twin shafts
- Weir type for flow control
- Gear box operation
- AWWA standards on request

Accessories

- Position indication, switches, locking facility, actuation, extension spindles, floor pillars



■ Dimensionw

Size	L	f	H	H1	H2	L1
600X600	600	600	H	930	400	720
500X500	500	500	H	800	330	620
450X450	450	450	H	725	305	550
400X400	400	400	H	650	280	500
350X350	350	350	H	580	255	450
300X300	300	300	H	460	230	400
250X250	250	250	6000	425	205	350
200X200	200	200	H	350	170	300
150X150	150	150	H	255	145	250
100X100	100	100	H	180	120	200

■ Materials

No.	Part Name	Material	Material
1	Headstock With handwheel	Mild Steel- FBE Coated	1
2	Shaft	Stainless Steel 303	1
3	Guide	Cast Iron BS1452- 220	1
4	Gate	Cast Iron BS1452- 220	1
5	Frame	Cast Iron BS1452- 220	1
6	Wedge of frame	Copper Alloy BS2874.CZ121	4
7	Wedge of gate	Stainless Steel 304	4
8	Sealing ring of frame	Copper Alloy BS2874.CZ121	1
9	Sealing ring of gate	Copper Alloy BS2874.CZ121	1
10	shaft nut	Bronze LG2	1



Actuation-General Overview

■ Manual/Pneumatic/ Hydraulic/Electric

Application

– AFFCO Ltd offer a comprehensive, market leading valve and actuation solution for all your applications. We have the expertise to size valves and actuators for our clients specific requirements, offering a value engineered solution with lower whole life running costs. Our team of technical engineers can offer the reassurance of an engineered resolution to your flow control, isolation and slam shut applications.

Features

- Whether you require Pneumatic, Hydraulic or Electrically operated valves we can specify, assemble, commission and test custom built packages to your needs. All based and certified from our Telford (UK) valve and actuator center.
- In house hydrostatic test facilities to EN: 12266-1, enabling the commissioning of pneumatic, electric and hydraulic valves.
- After sale services, In house and on site training, site services and actuator retro fitting and commissioning by one of our qualified service engineers.
- Our engineers all carry upto date CSCS, hygiene and confined space training cards.
- Global manufacturing partners including Rotork, Auma and Bernard. Plus many others.

Options

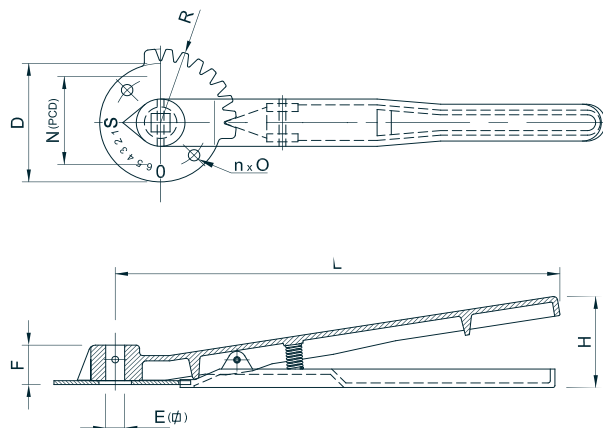
- On site build and test solutions
- Off site commissioning and site services
- Free issue build and test services
- Retrofit of actuators and controls
- Bespoke actuator packages
- Refurbishment and service agreements

Accessories

- In house fabricated Mounting Kits, extension spindles and floor pillars. Switch boxes, limit switches, Profibus and network enabled controls, positioners, proximity switches, ATEX certification

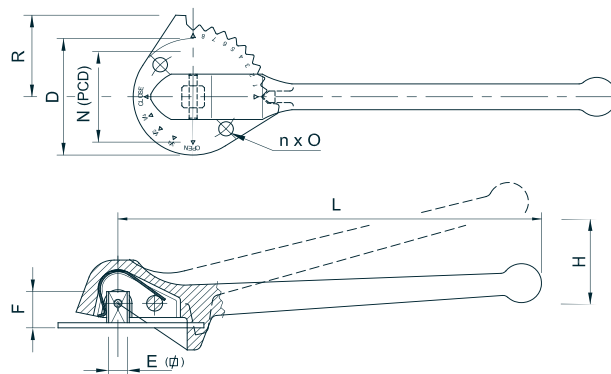
Hand Lever

Two series of levers are suitable for AFFCO butterfly valves from DN40 up to DN300, for open&close or regulation in 8 or 10 positions, ductile iron GGG40 powder coated, and notch plate steel galvanized.



Series 2

MODELS	E	F	L	H	D	N	R	n*O	WEIGHTS	MATCHING BUTTERFLY SIZE
HL 2.1-11	11	25	232	57.5	90	70	56	2*Ø9	0.75KG	DN40/ DN50/ DN65/ DN80/ DN100
HL 2.2-14	14	28	329	69	90	70	56	2*Ø9	1.25KG	DN125/ DN150
HL 2.2-17	17	28	329	69	90	70	56	2*Ø9	1.25KG	DN200
HL 2.3-22	22	30	400	80.5	125	102	74.5	2*Ø11	2.00KG	DN 250/ DN300



Series 2

MODELS	E	F	L	H	D	N	R	n*O	WEIGHTS	MATCHING BUTTERFLY SIZE
SL1-11	11	25	232	57.5	90	70	56	2*Ø9	1.00KG	DN40/ DN50/ DN65/ DN80/ DN100
SL2-14	14	28	329	69	90	70	56	2*Ø9	1.45KG	DN125/ DN150
SL2-17	17	28	329	69	90	70	56	2*Ø9	1.45KG	DN200
SL3-22	22	30	400	80.5	125	102	74.5	2*Ø11	3.2KG	DN 250/ DN300

Gearbox



Temperature range:-25°C to +110°C

"AMQ" series is manufactured in cast iron housing & components. Padlocking devices, memory stop, spur gears and limit switchboxes can be easily mounted on site without any machining, due to the integration of all necessary connections on the housing. This series is IP68 sealing.



"AMQ-SS" series is produced with stainless steel 316 housing and components, applicable with padlocking devices, limit switchboxes and memory stops. It is IP68 sealing, specially applicable for high corrosive environments.



"AMQ-X" series is light with aluminium alloy body & coverplate, IP67 sealing for waterwork.

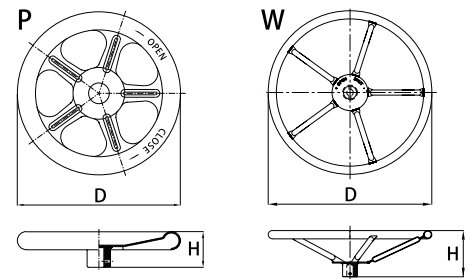


MOD series is declutchable gearbox to provide 90° manual operation for shut-off valves equipped with a pneumatic or hydraulic actuator.

■ AMQ Series



TYPE	RATIO	TORQUE(Nm)		M.A. ±10%	WEIGHT (Kg)
		OUTPUT	INPUT		
AMQ-2	40:1	200	16.8	11.9	2
AMQ-4	44:1	400	31.3	12.8	3.9
AMQ-8	40:1	800	60	13.3	7.7
AMQ-15	42:1	1,500	123	12.2	13.5
AMQ-20	48:1	2,000	131	15.3	14.6
AMQ-30	62:1	3,000	167	17.9	22.8
AMQ-40	72:1	4,000	185	21.6	31.5
AMQ-65	267:1	6,500	95	68.4	37.5
AMQ-120	267:1	12,000	168.5	71.2	56.7
AMQ-160	648:1	16,000	120	133.3	62.5
AMQ-240	720:1	24,000	140	171.4	192
AMQ-320	960:1	32,000	140	228.6	195
AMQ-500	960:1	50,000	150	333.3	352
AMQ-700	1280:1	70,000	185	378.4	352



How to size the diameter of the handwheel:

1 Get the output torque required

$$\text{Handwheel diameter} = \left(\frac{\text{Output Required}}{\text{M.A.}} \right) \times 5^*$$

2 Select the Handwheel diameter

* RIM pull 400 Nm

■ Handwheels “P(ressed)-series”

TYPE	D	H
P100	Ø 100	38
P125	Ø 125	42
P160	Ø 160	48
P200	Ø 200	53

Dimensions mentioned in mm.

■ Handwheels “W(elded)-series”

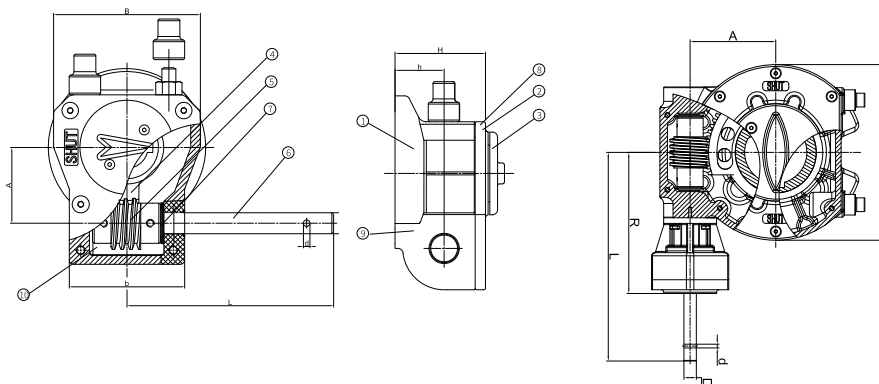
TYPE	D	H
W125	Ø 125	50.5
W160	Ø 160	56
W200	Ø 200	73
W250	Ø 250	86
W300	Ø 300	86
W400	Ø 400	122
W500	Ø 500	141
W600	Ø 600	157
W700	Ø 700	180

Dimensions mentioned in mm.

■ Valve Remote Control System

Parts/Materials list for "Q" Series				
	Description	Material	Specs/Standard	
1	Body	Cast Iron	GG25/ASTM A48	
2	Coverplate	Cast Iron	GG25/ASTM A48	
3	Pos. Indicator	Cast Iron	GG25/ASTM A48	
4	Quadrant	Ductile Iron	GGG40/ASTM A356	
5	Worm	Carbon steel	C45-k	
6	Shaft	Stainless steel	AISI 303	
7	Axial needle bearing	-	-	
8	Gasket	Nitrile/Silicone	NBR-70° shore/Silicone	
9	O-rings	Nitrile	NBR-70° shore	
10	Grease	Complex EP-O	DIN KG060.5N-30 ISO-L-XCIB0.5	
11	Fasteners	Stainless steel	-	

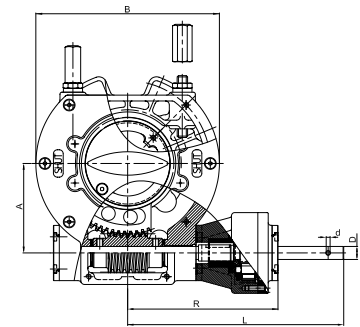
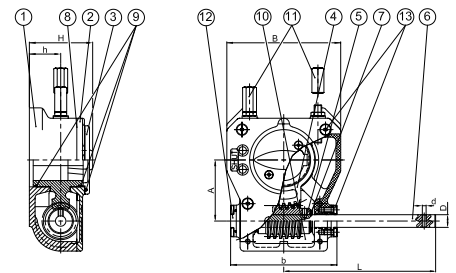
MODELS	Unit	A	b	B	d	D	h	H	L	R	Valve connection(ACC ISO5211)			
AMQ-2	mm	43.5	70	84	4	12	28.5	64	118	-	50(F05)	70(F07)	-	-
	inch	1.71	2.8	3.3	0.2	0.5	1.1	2.6	4.7	-	2	2.8	-	-
AMQ-4	mm	52.5	91	112	4	12	34	74.8	175	-	70(F07)	102(F10)	-	-
	inch	2.07	3.6	4.4	0.2	0.5	1.3	3	6.9	-	2.8	4.0	-	-
AMQ-8	mm	68.8	110	135	5	15	42.5	90.5	225	-	102(F10)	125(F12)	140(F14)	-
	inch	2.7	4.3	5.3	0.2	0.6	1.7	3.6	8.9	-	4	4.9	5.5	-
AMQ-15	mm	84	129	156	6	20	45	97	214	-	102(F10)	125(F12)	140(F14)	-
	inch	3.3	5.1	6.1	0.2	0.8	1.8	3.9	8.4	-	4	4.9	5.5	-
AMQ-20	mm	96.5	150	180	6	20	50	100	240	-	102(F10)	125(F12)	140(F14)	165(F16)
	inch	3.8	6	7.1	0.2	0.8	2	4	9.5	-	4	4.9	5.5	6.5
AMQ-30	mm	117.5	201	250	6	20	49	117.5	255	-	140(F14)	165(F16)	-	-
	inch	4.7	8	9.9	0.2	0.8	1.9	4.6	10	-	5.5	6.5	-	-
AMQ-40	mm	137.5	210	282	6	20	54.5	128	300	-	165(F16)	254(F25)	-	-
	inch	5.4	8.3	11.1	0.2	0.8	2.2	5	11.8	-	6.5	10	-	-
AMQ-65	mm	137.5	210	282	6	20	54.5	128	347	222	165(F16)	254(F25)	-	-
	inch	5.4	8.3	11.1	0.2	0.8	2.2	5	13.7	8.7	6.5	10	-	-
AMQ-120	mm	180	272	366	6	20	63.5	135	378	282	254(F25)	298(F30)	-	-
	inch	7.1	10.7	14.4	0.2	0.8	2.5	5.3	14.9	11.1	10	11.7	-	-
AMQ-160	mm	180	272	366	8	25	63.5	135	403	326	254(F25)	298(F30)	-	-
	inch	7.1	10.8	14.4	0.3	1	2.5	5.3	15.9	12.8	10	11.7	-	-
AMQ-240	mm	252.5	350	510	8	25	85	186	442	365	254(F25)	298(F30)	356(F35)	406(F40)
	inch	1	13.8	20.1	0.3	1	3.4	7.3	17.4	14.4	10	11.7	14	16
AMQ-320	mm	253	350	510	8	25	85	186	442	365	254(F25)	298(F30)	356(F35)	406(F40)
	inch	10	13.8	20.1	0.3	1	3.4	7.3	17.4	14.4	10.00	11.7	14	16
AMQ-500	mm	292	540	612	key 8mm	25	138	262.5	612	502	356(F35)	406(F40)	483(F48)	-
	inch	11.5	21.3	24.1	0.3" key	1	5.4	10.3	24.1	19.8	14	16	19	-
AMQ-700	mm	291.5	540	612	key 8mm	25	138	262.5	612	502	356(F35)	406(F40)	483(F48)	-
	inch	11.5	21.3	24.1	0.3" key	1	5.4	10.3	24.1	19.8	14	16	19	-



■ AMQ-SS Series



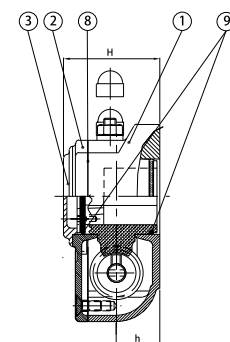
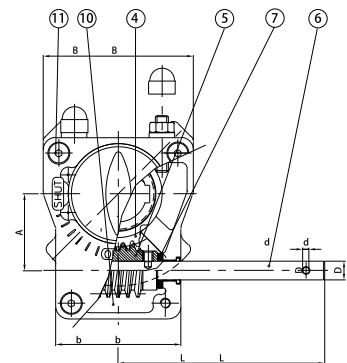
PART NO	DESCRIPTION	MATERIAL	SPECS/STANDARD
1	Body	Stainless steel-316	Werkstoffnr.1.4401-ASTM/AISI-316
2	Coverlate	Stainless steel-316	Werkstoffnr.1.4401-ASTM/AISI-316
3	Pos. Indicator	Stainless steel-316	Werkstoffnr.1.4401-ASTM/AISI-316
4	Quadrant	Aluminium Bronze	CC333G/ASTM C95800/AB2
5	Worm	Carbon steel	C45-K
6	Shaft	Stainless steel-316	Werkstoffnr.1.4401-ASTM/AISI-316
7	Axial needle bearing		
8	Gasket	Nitrile/silicone	NBR-65° shore
9	O-rings	Nitrile	NBR-65° shore
10	Grease	Complex EP-0	DIN KG0G0.5N-30 ISO-L-XCDIB0.5
11	Stud nuts	Stainless steel-316	Werkstoffnr.1.4401-ASTM/AISI-316
12	Closing plates	Stainless steel-316	Werkstoffnr.1.4401-ASTM/AISI-316
13	Fasteners	Stainless steel	Werkstoffnr.1.4401-A4



■ AMQ-X Series



PART NO	DESCRIPTION	MATERIAL	SPECS/STANDARD
1	Body	Aluminium alloy	ADC 12
2	Coverplate	Aluminium alloy	ADC 12
3	Pos. Indicator	PA	PA
4	Quadrant	Ductile-iron	GGG40/ASTM A356
5	Worm	Carbon steel	C45-K
6	Shaft	Stainless steel	
7	Axial needle bearing		
8	Gasket	Nitrile	NBR-70° shore
9	O-rings	Nitrile	NBR-70°shore
10	Grease	Complex EP-0	DIN KG0GO.5N-30 ISO-L-XCDIB0.5
11	Fasteners	Stainless steel	



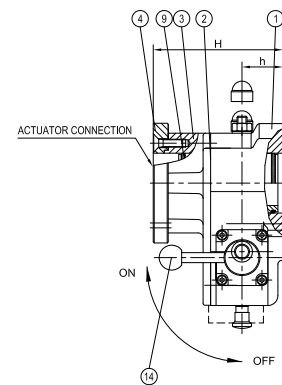
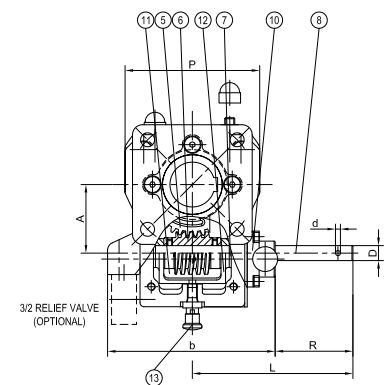
TYPE	RATIO	TORQUE(Nm)		M.A. ±10%	WEIGHT (Kg)
		OUTPUT	INPUT		
AMQ-X-2	40:1	200	19.7	10.2	0.9
AMQ-X-4	44:1	400	35.7	11.2	1.6
AMQ-X-6	34:1	600	51.3	11.7	2.8

GEARBOX	TYPE	A	b	B	d	D	h	H	L	VALVE CONNECTION ACC ISO 5211	
AMQ-X-2	MM	43.5	67	84	4	12	25.5	51.3	118	50(F05)	70(F07)
	INCH	1.71	2.64	3.3	0.2	0.5	1	2	4.7	2	2.8
AMQ-X-4	MM	52.5	85.5	112	4	12	30	63.5	126.5	70(F07)	102 (F10)
	INCH	2.07	3.4	4.4	0.2	0.5	1.2	2.5	5	2.8	4
AMQ-X-6	MM	61.3	100	120	5	15	35	77	165	102(F10)	125(F12)
	INCH	2.4	4	4.7	0.2	0.6	1.4	3	6.5	4	5

MOD Series



Part No.	Description	Material	Specs/standard
1	Body	Ductile-iron	GGG40/ ASTM A48
2	Gasket	Nitrile	NBR 70° Shore
3	Coverplate	Ductile-iron	GGG40/ ASTM 356
4	Top Mounting Flange	Ductile-iron	GGG40/ ASTM 356
5	Quadrant	Ductile-iron	GGG40/ ASTM 356
6	Worm	Carbon Steel	C45-K
7	Axial needle bearing	-	-
8	Shaft	Stainless steel	-
9	O-ring	Nitrile	NBR 70° Shore
10	Closing Plate Rack	Ductile -iron	GGG40/ ASTM 356
11	Grease	Complex EP-O	DIN KG0G0.5N-30/ ISO-L-XCDIB05
12	Excentric Rack	Ductile-iron	GGG40/ ASTM 356
13	Fixating bolt	Stainless steel	-
14	Excentric lever	AISI-316/Plastic	-
15	Fasteners	Steel 8.8	-



MODELS	Ratio	Torque(NM)		M.A. ±10%	Weight(Kg) excel insert & adaptor
		Output	Input		
MOD 150	40:1	150	12.6	11.9	3.1
MOD 350	44:1	350	31.3	11.2	6
MOD 700	52:1	700	50	14.0	16.3
MOD 1600	42:1	1,600	125	12.8	25
MOD 3000	72:1	3,000	155	19.4	49.5
MOD 5000	267:1	5,000	95	52.6	56

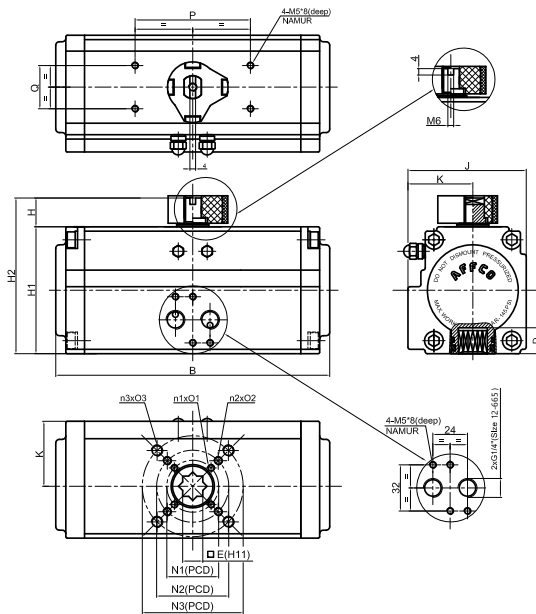
MODELS	Unit	A	b	B	d	D	h	H	L	R	Valve connection ACC ISO5211			Actuator connection ACC ISO5211			
MOD 150	mm	43.5	122.5	84	4	12	28.5	120	117.5	60	42(F04)	50(F05)	70(F05)	50(F05)	70(F05)	-	-
	inch	1.7	4.8	3.3	0.2	0.5	1.1	4	4.6	2.4	1.7	2	2.8	2	2.8	-	-
MOD 350	mm	52.5	143.5	112	4	12	34	122	148	78	70(F07)	102(F10)	-	70(F07)	102(F10)	-	-
	inch	2.1	5.7	4.4	0.2	0.5	1.3	4.8	5.8	3.1	2.8	4	-	2.8	4	-	-
MOD 700	mm	68.8	168	135	5	15	41	130	161	78	70(F07)	102(F10)	125(F12)	102(F10)	125(F12)	-	-
	inch	2.7	6.6	5.3	0.2	0.6	1.6	5.1	6.3	3.1	2.8	4	4.9	4	5	-	-
MOD 1600	mm	84	210	180	6.1	20	43	156	202.5	97.5	102(F10)	125(F12)	140(F14)	125(F12)	140(F14)	165(F16)	-
	inch	3.3	8.3	7.1	0.2	0.8	1.7	6.1	8	3.9	4	4.9	5.5	5	5.5	6.5	-
MOD 3000	mm	132.5	280.5	282	6.1	20	56.5	201	250.5	105	165(F16)	254(F25)	-	140(F14)	165(F16)	254(F25)	-
	inch	5.2	11	11.1	0.2	0.8	2.2	7.9	9.9	4.1	6.5	10	-	5.5	6.5	10	-
MOD 5000	mm	132.5	395.5	282	6.1	20	56.5	201	372.5	110	165(F16)	254(F25)	-	140(F14)	165(F16)	254(F25)	298(F30)
	inch	5.2	15.6	11.1	0.2	0.8	2.2	7.9	14.7	4.3	6.5	10	-	5.5	6.5	10	11.8



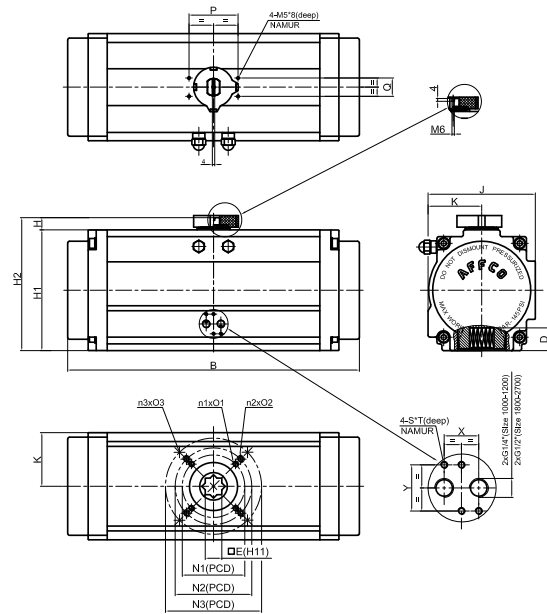
Pneumatic Actuator

PMA Series Rack and Pinion Pneumatic Actuators are with out-put troque from 4.3 to 4,678.6 NM;

- Both double acting and spring return types are available.
- Aluminum alloy, carbon steel and stainless steel materials available as options.



Size 12-665



Size 1000-2700

■ Dimensions

Actuator	E	D	B	J	H1	H2	K	Standard PCD				Optional PCD		Switchbox conn.			Solenoid conn.			
	[H11]							N1	n1*01	N2	n2*02	N3	n3*03	H	P	Q	X	Y	S	T
PMA-12	9	9	109	47	45	65	24	36	4*M5	-	-	-	-	20	50	25	-	-	-	-
PMA-20	11	14	158	65	74	94	33	50	4*M6	70	4*M8	-	-	20	80	30	-	-	-	-
PMA-35	14	17.5	190	82	88	108	45	50	4*M6	70	4*M8	-	-	20	80	30	-	-	-	-
PMA-50	14	18	206	97	100	120	52	50	4*M6	70	4*M8	-	-	20	80	30	-	-	-	-
PMA-75	17	20	213	100	109	129	53	50	4*M6	70	4*M8	-	-	20	80	30	-	-	-	-
PMA-110	17	21	259	110	120	140	58	50	4*M6	70	4*M8	-	-	20	80	30	-	-	-	-
PMA-160	22	28	287	123	133	153	64	70	4*M8	102	4*M10	-	-	20	80	30	-	-	-	-
PMA-255	22	32	340	139	155	175	70	70	4*M8	102	4*M10	-	-	20	80	30	-	-	-	-
PMA-435	27	32	414	154	172	192	77	102	4*M10	125	4*M12	-	-	20	80	30	-	-	-	-
PMA-665	27/36	34	476	175	197	217	88	102	4*M10	125	4*M12	140	4*M16	20	80	30	-	-	-	-
PMA-1000	36	46	535	206	230	260	103	140	4*M16	-	-	125	4*M12	30	130	30	24	32	M5	8
PMA-1200	36	46	603	226	255	285	113	140	4*M16	-	-	125	4*M12	30	130	30	24	32	M5	8
PMA-1800	46	57	668.5	258	291	321	129	165	4*M20	-	-	140	4*M16	30	130	30	40	45	M6	10
PMA-2700	46	57	744	292	320	350	146	165	4*M20	-	-	-	-	30	130	30	40	45	M6	10

Torque Table -Output Torque(NM) of Single Acting Actuators

Models	Spring	Spring torque		Output Torque(NM) of Single Acting Actuators with Air Pressure Supplied													
				2.5 Bar		3.0 Bar		4.0 Bar		5.0 Bar		6.0 Bar		7.0 Bar		8.0 Bar	
	qty	start	end	start	end	start	end	start	end	start	end	start	end	start	end	start	end
PMA-020-SR	5	6.2	4.3	5.7	3.8	7.6	5.7	-	-	-	-	-	-	-	-	-	-
	6	7.4	5.0	4.9	2.5	6.9	4.5	10.9	8.5	-	-	-	-	-	-	-	-
	7	8.6	5.9	4.0	1.3	6.0	3.3	9.8	7.3	14.0	10.4	-	-	-	-	-	-
	8	9.9	6.7	-	-	5.2	2.0	9.2	6.0	13.2	9.1	17.2	14.1	-	-	-	-
	9	11.1	7.6	-	-	4.3	0.8	8.3	4.8	12.3	7.9	16.3	12.8	20.3	16.8	-	-
	10	12.4	8.5	-	-	-	-	7.4	3.6	11.5	6.7	15.5	11.6	19.5	15.6	-	-
	11	13.6	9.3	-	-	-	-	6.6	2.3	10.6	5.4	14.6	10.4	18.6	14.3	22.6	18.3
	12	14.8	10.2	-	-	-	-	-	--	9.7	4.2	13.6	9.1	17.8	12.2	21.8	17.1
PMA-035-SR	5	10.4	6.8	11.4	7.7	15.0	11.4	22.3	14.9	-	-	-	-	-	-	-	-
	6	12.5	8.2	10.1	5.7	13.6	9.3	20.9	16.6	28.3	23.9	-	-	-	-	-	-
	7	14.6	9.6	8.6	3.6	12.5	7.2	19.5	14.5	26.8	21.9	-	-	-	-	-	-
	8	16.7	10.9	-	-	10.9	5.1	18.2	12.4	25.5	19.8	32.8	27.0	41.1	34.3	-	-
	9	18.8	12.3	-	-	-	-	16.8	10.4	24.1	17.7	31.4	24.9	38.7	32.2	-	-
	10	20.9	13.7	-	-	-	-	14.0	8.2	22.8	15.6	30.0	22.8	37.3	30.1	44.7	37.4
	11	22.9	15.0	-	-	-	-	-	-	21.5	13.5	28.7	20.7	36.0	28.0	43.3	35.3
	12	25.0	16.4	-	-	-	-	-	-	20.0	11.4	27.3	18.6	34.6	25.9	41.9	33.3
PMA-050-SR	5	14.5	10.5	14.5	10.6	19.4	15.5	29.5	25.7	-	-	-	-	-	-	-	-
	6	17.4	12.7	12.4	7.6	17.3	12.6	27.4	22.7	37.5	32.8	-	-	-	-	-	-
	7	20.3	14.8	10.4	4.8	15.2	9.7	25.3	19.9	35.4	29.9	-	-	-	-	-	-
	8	23.2	16.9	-	-	13.1	6.8	23.1	16.9	33.3	27.0	43.2	37.0	53.3	47.0	-	-
	9	26.1	19.0	-	-	-	-	21.0	14.1	31.2	24.1	41.1	34.1	51.2	44.2	-	-
	10	29.0	21.1	-	-	-	-	19.0	11.1	28.8	21.2	39.0	31.2	49.1	41.2	59.1	51.2
	11	31.9	23.2	-	-	-	-	-	-	27.0	18.3	37.0	28.3	47.0	38.4	57.0	48.4
	12	34.7	25.3	-	-	-	-	-	-	24.9	15.3	34.9	25.4	44.9	35.4	54.9	45.4
PMA-075-SR	5	23.0	15.8	23.3	16.1	31.1	24.0	46.8	39.7	-	-	-	-	-	-	-	-
	6	27.6	19.0	20.1	11.5	28.0	19.3	43.7	35.1	59.4	50.7	-	-	-	-	-	-
	7	32.2	22.1	17.0	6.9	24.8	14.8	40.5	30.5	56.2	46.2	-	-	-	-	-	-
	8	36.8	25.3	-	-	21.7	10.1	37.4	25.8	53.1	41.5	68.8	57.2	84.5	72.9	-	-
	9	41.4	28.5	-	-	-	-	34.2	21.3	49.9	37.0	65.6	52.6	81.2	68.3	-	-
	10	46.0	31.6	-	-	-	-	31.0	16.6	46.7	32.3	62.4	48.0	78.1	63.7	93.8	79.3
	11	50.6	34.8	-	-	-	-	-	-	43.6	27.7	59.3	43.4	75.0	59.1	90.6	74.8
	12	55.2	38.0	-	-	-	-	-	-	40.4	23.2	56.1	38.9	71.7	54.5	87.4	70.2
PMA-110-SR	5	34.4	23.3	33.1	22.0	44.2	33.2	66.8	55.9	-	-	-	-	-	-	-	-
	6	41.2	28.0	28.4	15.2	39.6	26.4	62.2	49.0	84.8	71.6	-	-	-	-	-	-
	7	48.1	32.7	23.8	8.2	34.9	19.4	57.5	42.1	80.2	64.7	-	-	-	-	-	-
	8	55.0	37.3	-	-	31.3	12.6	52.9	35.2	75.5	57.9	98.1	80.5	120.7	103.0	-	-
	9	61.9	42.0	-	-	-	-	48.2	28.4	70.9	51.0	93.5	73.6	116.0	96.1	-	-
	10	68.7	46.7	-	-	-	-	43.6	21.5	66.2	44.1	88.8	66.7	111.3	89.2	134.0	111.8
	11	75.6	51.4	-	-	-	-	-	-	61.5	37.2	84.1	59.9	106.6	82.4	129.2	105.0
	12	82.5	56.0	-	-	-	-	--	-	56.8	30.4	79.4	53.0	101.9	75.5	124.5	98.1
PMA-160-SR	5	49.2	31.6	51.0	33.4	67.5	49.9	100.6	83.0	-	-	-	-	-	-	-	-
	6	59.1	38.0	44.7	23.5	61.1	40.0	94.2	73.2	127.3	106.2	-	-	-	-	-	-
	7	68.9	44.3	38.4	13.7	54.9	30.3	87.9	63.4	121.0	96.4	-	-	-	-	-	-
	8	78.7	50.6	-	-	48.5	20.4	81.6	53.5	114.7	86.5	147.7	119.6	180.8	152.7	-	-
	9	88.6	56.9	-	-	-	-	75.3	43.7	108.4	76.8	141.5	109.8	174.5	142.9	-	-
	10	98.4	63.3	-	-	-	-	68.9	33.4	102.0	66.5	135.1	99.6	168.2	132.6	201.2	165.7
	11	108.3	69.6	-	-	-	-	-	-	95.7	57.0	128.7	90.1	161.8	123.1	194.8	156.2
	12	118.1	75.9	-	-	-	-	-	-	89.4	47.5	122.5	80.6	155.5	113.6	188.6	146.7
PMA-255-SR	5	79.0	52.0	73.0	47.0	98.0	72.0	148.0	122.0	-	-	-	-	-	-	-	-
	6	94.0	63.0	63.0	31.0	88.0	56.0	138.0	107.0	188.0	157.0	-	-	-	-	-	-
	7	110.0	73.0	52.0	15.0	77.0	40.0	127.0	90.0	178.0	141.0	-	-	-	-	-	-
	8	125.0	84.0	-	-	67.0	25.0	117.0	75.0	167.0	125.0	217.0	176.0	268.0	226.0	-	-
	9	141.0	94.0	-	-	-	-	107.0	59.0	157.0	109.0	207.0	159.0	257.0	210.0	-	-
	10	157.0	105.0	-	-	-	-	96.0	44.0	146.0	94.0	196.0	144.0	247.0	194.0	297.0	245.0
	11	173.0	115.0	-	-	-	-	-	-	136.0	78.0	186.0	128.0	236.0	178.0	286.0	228.0
	12	188.0	125.0	-	-	-	-	-	-	125.0	63.0	176.0	113.0	226.0	163.0	276.0	213.0
PMA-435-SR	5	129.0	86.0	128.0	85.0	171.0	127.0	256.0	213.0	-	-	-	-	-	-	-	-
	6	155.0	103.0	111.0	59.0	154.0	102.0	239.0	187.0	325.0	273.0	-	-	-	-	-	-
	7	181.0	120.0	94.0	33.0	137.0	76.0	222.0	162.0	308.0	247.0	-	-	-	-	-	-
	8	206.0	137.0	-	-	120.0	50.0	205.0	136.0	291.0	221.0	376.0	307.0	462.0	392.0	-	-
	9	232.0	155.0	-	-	-	-	187.0	110.0	273.0	196.0	358.0	281.0	444.0	367.0	-	-
	10	258.0	172.0	-	-	-	-	170.0	84.0	256.0	169.0	341.0	255.0	427.0	340.0	512.0	426.0
	11	284.0	189.0	-	-	-	-	-	-	238.0	143.0	324.0	229.0	409.0	314.0	495.0	400.0
	12	310.0	206.0	-	-	-	-	-	-	221.0	118.0	307.0	203.0	392.0	289.0	478.0	374.0

■ Valve Remote Control System

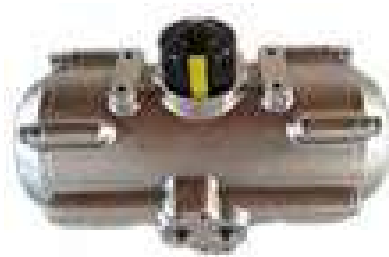
Models	Spring	Spring torque		Output Torque(NM) of Single Acting Actuators with Air Pressure Supplied													
				2.5 Bar		3.0 Bar		4.0 Bar		5.0 Bar		6.0 Bar		7.0 Bar		8.0 Bar	
	qty	start	end	start	end	start	end	start	end	start	end	start	end	start	end	start	end
PMA-665-SR	5	208.0	140.0	193.0	124.0	259.0	191.0	392.0	324.0	-	-	-	-	-	-	-	-
	6	250.0	168.0	165.0	83.0	232.0	149.0	365.0	282.0	498.0	415.0	-	-	-	-	-	-
	7	292.0	196.0	137.0	41.0	203.0	107.0	336.0	240.0	469.0	373.0	-	-	-	-	-	-
	8	333.0	223.0	-	-	176.0	66.0	309.0	199.0	442.0	237.0	575.0	465.0	708.0	598.0	-	-
	9	375.0	251.0	-	-	-	-	280.0	157.0	413.0	290.0	546.0	423.0	679.0	556.0	-	-
	10	417.0	279.0	-	-	-	-	253.0	115.0	386.0	248.0	519.0	381.0	652.0	514.0	785.0	647.0
	11	458.0	307.0	-	-	-	-	-	-	358.0	207.0	491.0	340.0	624.0	473.0	757.0	606.0
	12	500.0	335.0	-	-	-	-	-	-	330.0	165.0	463.0	298.0	596.0	431.0	729.0	564.0
PMA-1000-SR	5	309.0	200.0	332.0	222.0	438.0	329.0	651.0	542.0	-	-	-	-	-	-	-	-
	6	371.0	240.0	292.0	161.0	398.0	267.0	611.0	480.0	824.0	693.0	-	-	-	-	-	-
	7	433.0	280.0	252.0	99.0	358.0	206.0	571.0	418.0	784.0	631.0	-	-	-	-	-	-
	8	495.0	320.0	-	-	318.0	143.0	531.0	356.0	744.0	569.0	957.0	782.0	1169.0	995.0	-	-
	9	557.0	360.0	-	-	-	-	491.0	295.0	704.0	507.0	917.0	720.0	1130.0	933.0	-	-
	10	618.0	400.0	-	-	-	-	451.0	233.0	664.0	446.0	877.0	658.0	1090.0	871.0	1302.0	1084.0
	11	680.0	440.0	-	-	-	-	-	-	624.0	384.0	837.0	597.0	1050.0	809.0	1263.0	1022.0
	12	742.0	480.0	-	-	-	-	-	-	584.0	322.0	797.0	535.0	1010.0	748.0	1223.0	960.0
PMA-1200-SR	5	380.0	275.0	390.0	285.0	523.0	418.0	789.0	684.0	-	-	-	-	-	-	-	-
	6	456.0	330.0	335.0	209.0	468.0	342.0	734.0	608.0	1000.0	874.0	-	-	-	-	-	-
	7	532.0	385.0	280.0	133.0	413.0	266.0	679.0	532.0	945.0	798.0	-	-	-	-	-	-
	8	608.0	444.0	-	-	358.0	190.0	624.0	456.0	890.0	722.0	1146.0	988.0	1422.0	1254.0	-	-
	9	684.0	495.0	-	-	-	-	569.0	380.0	835.0	646.0	1101.0	912.0	1367.0	1178.0	-	-
	10	760.0	550.0	-	-	-	-	514.0	304.0	780.0	570.0	1046.0	836.0	1312.0	1102.0	1578.0	1368.0
	11	836.0	605.0	-	-	-	-	-	-	725.0	494.0	991.0	760.0	1257.0	1026.0	1523.0	1292.0
	12	912.0	660.0	-	-	-	-	-	-	670.0	418.0	936.0	684.0	1202.0	950.0	1468.0	1216.0
PMA-1800-SR	5	554.0	410.0	552.0	409.0	744.0	600.0	1129.0	985.0	-	-	-	-	-	-	-	-
	6	665.0	492.0	470.0	297.0	662.0	489.0	1047.0	874.0	1432.0	1259.0	-	-	-	-	-	-
	7	775.0	575.0	388.0	187.0	580.0	379.0	964.0	764.0	1349.0	1149.0	-	-	-	-	-	-
	8	886.0	656.0	-	-	498.0	268.0	883.0	653.0	1267.0	1073.0	1652.0	1422.0	2037.0	1807.0	-	-
	9	998.0	739.0	-	-	-	-	800.0	542.0	1185.0	926.0	1596.0	1311.0	1954.0	1696.0	-	-
	10	1108.0	821.0	-	-	-	-	718.0	431.0	1103.0	816.0	1488.0	1201.0	1872.0	1586.0	2257.0	1970.0
	11	1219.0	903.0	-	-	-	-	-	-	1021.0	705.0	1406.0	1090.0	1791.0	1474.0	2176.0	1859.0
	12	1330.0	985.0	-	-	-	-	-	-	939.0	594.0	1323.0	979.0	1708.0	1363.0	2093.0	1748.0
PMA-2700-SR	5	787.0	560.0	903.0	675.0	1195.0	968.0	1779.0	1552.0	-	-	-	-	-	-	-	-
	6	943.0	672.0	790.0	519.0	1093.0	811.0	1667.0	1396.0	2252.0	1981.0	-	-	-	-	-	-
	7	1101.0	783.0	679.0	361.0	972.0	654.0	1556.0	1238.0	2141.0	1823.0	-	-	-	-	-	-
	8	1258.0	895.0	-	-	860.0	497.0	1444.0	1081.0	2029.0	1666.0	2614.0	2252.0	3099.0	2836.0	-	-
	9	1416.0	1007.0	-	-	-	-	1332.0	923.0	1917.0	1509.0	2502.0	2094.0	3087.0	2678.0	-	-
	10	1572.0	1119.0	-	-	-	-	1220.0	767.0	1805.0	1352.0	2390.0	1937.0	2974.0	2521.0	3560.0	3107.0
	11	1730.0	1231.0	-	-	-	-	-	-	1693.0	1194.0	2278.0	1779.0	2862.0	2364.0	3448.0	2949.0
	12	1887.0	1342.0	-	-	-	-	-	-	1582.0	1037.0	2167.0	1623.0	2751.0	2207.0	3336.0	2792.0

■ Torque Table -Output Torque(NM) of Double Acting Actuators

Models	Output Torque(NM) of Double Acting Actuators with Air Pressure Supplied									
	2.5Bar	3.0Bar	4.0Bar	4.5Bar	5.0Bar	5.5Bar	6.0bar	7.0Bar	8.0Bar	
PMA-12-DA	3.48	4.2	6.0	6.8	7.5	8.4	9.0	10.0	11.5	
PMA-20-DA	10.0	12.0	16.0	18.0	20.0	21.9	23.9	27.9	31.9	
PMA-35-DA	18.2	21.9	29.2	32.8	36.5	40.1	43.8	51.1	58.4	
PMA-50-DA	25.1	30.1	40.1	45.1	50.2	55.2	60.2	70.2	80.3	
PMA-75-DA	39.2	47.0	62.7	70.5	78.4	86.2	94.1	109.7	125.4	
PMA-110-DA	56.4	67.7	90.3	101.6	112.9	124.1	135.4	158.0	180.6	
PMA-160-DA	82.7	99.2	132.2	148.8	165.3	181.1	198.4	231.4	264.5	
PMA-255-DA	125.4	150.5	200.6	225.7	250.8	275.9	301.0	351.1	401.3	
PMA-435-DA	213.8	256.5	342.0	384.8	427.5	470.3	513.0	598.5	684.0	
PMA-665-DA	332.5	399.0	532.0	598.5	665.0	731.5	798.0	931.0	1064.0	
PMA-1000-DA	532.0	638.4	851.2	957.6	1064.0	1170.4	1276.8	1489.6	1702.4	
PMA-1200-DA	665.0	798.0	1064.0	1197.0	1330.0	1463.0	1596.0	1862.0	2128.0	
PMA-1800-DA	961.9	1154.3	1539.0	1731.4	1928.8	2116.1	2308.5	2693.3	3078.0	
PMA-2700-DA	1462.1	1754.5	2339.3	2631.7	2924.1	3216.5	3508.9	4093.7	4678.6	

■ Air Volume (Dm3)

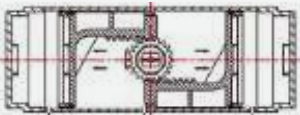

Models	PMA-12	PMA-20	PMA-35	PMA-50	PMA-75	PMA-110	PMA-255	PMA-235	PMA-435	PMA-665	PMA-1000	PMA-1200	PMA-1800	PMA-2700
Opening	0.08	0.12	0.21	0.30	0.43	0.64	0.95	1.60	2.50	3.70	5.90	7.50	11.00	17.00
Closing	0.07	0.16	0.23	0.34	0.47	0.73	0.88	1.40	2.20	3.20	5.40	7.50	9.00	14.00



Pneumatic Actuator

AFFCO underwater actuator solution:

- PMA SS series, with stainless steel material.
- IP Degree: IP68
- Standard: DIN EN ISO5211
- Applicable to salt water, oxygen-rich water.

Operation		Models	
Double Acting		PMA-020-DA-SS	PMA-035-DA-SS
		PMA-075-DA-SS	PMA-160-DA-SS
		PMA-255-DA-SS	PMA-435-DA-SS
		PMA-665-DA-SS	PMA-1200-DA-SS
		PMA-020-SR-SS	PMA-035-SR-SS
Spring Return		PMA-075-SR-SS	PMA-160-SR-SS
		PMA-255-SR-SS	PMA-435-SR-SS
		PMA-665-SR-SS	PMA-1200-SR-SS



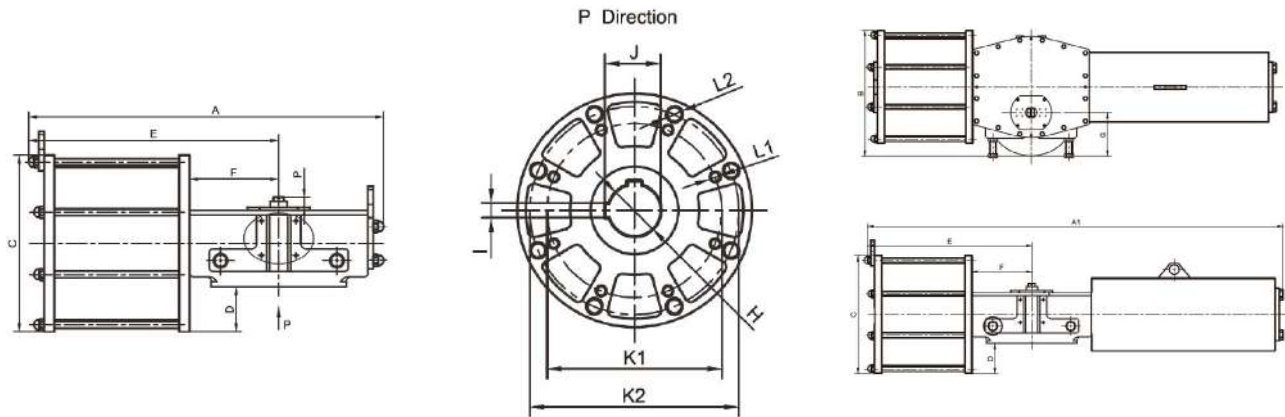
Pneumatic Actuator

PMAS/C series are Scotch Yoke Pneumatic Actuators

- PMAS series are symmetric scotch yoke actuators, with double acting type's out-put torque from 908 NM to 309,276NM, and spring return type's out-put torque from 495 to 233,891NM.
- PMAC series are canted scotch yoke actuators, with double acting out-put torque from 908 to 386,594NM, and spring return type's out-put torque from 452 to 302,163 NM.
- Body material: SG Iron, aluminum alloy.
- Temperature options: Low(-40°C); Standard(-20~80°C); High temperature(Up to 150°C).

■ Affco Pmas/C Series Actuator Air Volume & Weights

MODELS	A	A1		B	C	D	E	F	G	H	I	J	K1	K2
		4.2 bar	5.5 bar											
PMAS/C-02-20	720	1,240	1,255	311	Ø270	42	510	175	100	Ø50	14	53.8	Ø165	-
PMAS/C-02-25	720	1,255	1,285	336	Ø320	67	510	175	100	Ø50	14	53.8	Ø165	-
PMAS/C-02-30	720	1,315	1,325	361	Ø370	92	510	175	100	Ø50	14	53.8	Ø165	-
PMAS/C-02-35	720	1,355	1,370	386	Ø420	117	510	175	100	Ø50	14	53.8	Ø165	-
PMAS/C-03-35	840	1,545	1,550	467	Ø420	100	585	210	165	Ø80	20	84.9	Ø254	Ø298
PMAS/C-03-38	840	1,560	1,615	482	Ø450	115	585	210	165	Ø80	20	84.9	Ø254	Ø298
PMAS/C-03-43	840	1,600	1,665	507	Ø500	140	585	210	165	Ø80	20	84.9	Ø254	Ø298
PMAS/C-04-43	1,045	1,895	1,920	573	Ø510	127	735	264	200	Ø90	25	95.4	Ø298	Ø356
PMAS/C-04-48	1,045	1,935	2,070	598	Ø560	152	735	264	200	Ø90	25	95.4	Ø298	Ø356
PMAS/C-04-53	1,045	2,045	1,980	623	Ø610	177	735	264	200	Ø90	25	95.4	Ø298	Ø356
PMAS/C-05-53	1,365	2,405	2,475	680	Ø610	148	930	385	230	Ø120	32	127.4	Ø298	Ø356
PMAS/C-05-58	1,365	2,405	2,555	710	Ø670	178	930	385	230	Ø120	32	127.4	Ø298	Ø356
PMAS/C-05-63	1,365	2,535	2,645	735	Ø720	203	930	385	230	Ø120	32	127.4	Ø298	Ø356
PMAS/C-06-63	1,575	2,980	3,025	815	Ø720	160	1,075	440	275	Ø150	36	158.4	Ø406	Ø483
PMAS/C-06-68	1,575	3,030	3,100	850	Ø790	195	1,075	440	275	Ø150	36	158.4	Ø406	Ø483
PMAS/C-06-73	1,575	3,110	3,190	875	Ø840	220	1,075	440	275	Ø150	36	158.4	Ø406	Ø483
PMAS/C-07-68	1,915	3,490	3,510	910	Ø790	145	1,335	520	275	Ø190	45	200.4	Ø406	Ø483
PMAS/C-07-73	1,915	3,520	3,560	935	Ø840	170	1,335	520	275	Ø190	45	200.4	Ø406	Ø483
PMAS/C-07-80	1,915	3,565	3,595	975	Ø920	210	1,335	520	275	Ø190	45	200.4	Ø406	Ø483
PMAS/C-08-80	2,400	4,250	4,300	1,115	Ø920	140	1,680	650	335	Ø250	56	262.4	Ø483	Ø603
PMAS/C-08-90	2,400	4,380	4,420	1,170	Ø1030	195	1,680	650	335	Ø250	56	262.4	Ø483	Ø603
PMAS/C-08-100	2,400	4,480	4,550	1,220	Ø1130	245	1,680	650	335	Ø250	56	262.4	Ø483	Ø603



	L1	L2	M	N	O	P	X	Y	Z	Air Connection	Air volume (L)		Net weight(kg)	
											Double Acting	Spring Return	Double Acting	Spring Return
	4-M20	-	30	80	130	30	80	80	4-M8	RC 3/8"	6	6	90	135
	4-M20	-	30	80	130	30	80	80	4-M8	RC 1/2"	9.8	9.8	110	160
	4-M20	-	30	80	130	30	80	80	4-M8	RC 1/2"	14.1	14.1	130	185
	4-M20	-	30	80	130	30	80	80	4-M8	RC 1/2"	19.2	19.2	155	225
	8-M16	8-M20	30	80	130	30	80	80	4-M8	RC 3/4"	23	23	205	315
	8-M16	8-M20	30	80	130	30	80	80	4-M8	RC 3/4"	27	27	220	345
	8-M16	8-M20	30	80	130	30	80	80	4-M8	RC 3/4"	35	35	250	385
	8-M20	8-M30	30	80	130	30	100	100	4-M10	RC 1"	45	45	310	490
	8-M20	8-M30	30	80	130	30	100	100	4-M10	RC 1"	56	56	340	550
	8-M20	8-M30	30	80	130	30	100	100	4-M10	RC 1"	68	68	375	640
	8-M20	8-M30	30	80	130	30	140	160	4-M12	RC 1"	83	83	600	900
	8-M20	8-M30	30	80	130	30	140	160	4-M12	RC 1"	100	100	640	1020
	8-M20	8-M30	30	80	130	30	140	160	4-M12	RC 1"	118	118	680	1140
	8-M36	12-M36	30	80	130	30	160	160	4-M12	RC 1 1/4"	150	150	980	1600
	8-M36	12-M36	30	80	130	30	160	160	4-M12	RC 1 1/4"	175	175	1030	1720
	8-M36	12-M36	30	80	130	30	160	160	4-M12	RC 1 1/4"	200	200	1090	1850
	8-M36	12-M36	30	80	130	30	180	180	4-M16	RC 1 1/4"	230	230	1500	2150
	8-M36	12-M36	30	80	130	30	180	180	4-M16	RC 1 1/4"	260	260	1560	2400
	8-M36	12-M36	30	80	130	30	180	180	4-M16	RC 1 1/4"	316	316	1650	2700
	12-M36	20-M36	30	80	130	30	200	200	4-M16	RC 1 1/2"	416	416	2200	3400
	12-M36	20-M36	30	80	130	30	200	200	4-M16	RC 1 1/2"	530	530	2300	3800
	12-M36	20-M36	30	80	130	30	200	200	4-M16	RC 1 1/2"	652	652	2450	4200

■ Valve Remote Control System

■ Symmetric Yoke Pneumatic Actuator Out-Put Torque

MODELS	4.0 Bar			5.0 Bar			6.0 Bar			8.0 Bar		
	0°	R	90°	0°	R	90°	0°	R	90°	0°	R	90°
PMAS-D02-20	1,460	908	1,403	1,827	1,135	1,755	2,193	1,362	2,106	2,924	1,816	2,807
PMAS-D02-25	2,284	1,419	2,226	2,855	1,773	2,783	3,426	2,128	3,339	4,568	2,837	4,452
PMAS-D02-30	3,289	2,043	3,231	4,111	2,554	4,039	4,934	3,064	4,847	6,578	4,086	6,462
PMAS-D02-35	4,477	2,781	4,419	5,596	3,476	5,524	6,715	4,171	6,628	8,954	5,561	8,838
PMAS-D03-35	5,419	3,366	5,262	6,774	4,208	6,577	8,129	5,049	7,893	10,839	6,732	10,524
PMAS-D03-38	6,388	3,968	6,231	7,985	4,960	7,788	9,582	5,952	9,346	12,777	7,936	12,461
PMAS-D03-43	8,180	5,081	8,022	10,225	6,351	10,028	12,270	7,621	12,034	16,360	10,162	16,045
PMAS-D04-43	10,492	6,517	10,217	13,115	8,146	12,772	15,738	9,775	15,326	20,984	13,033	20,435
PMAS-D04-48	13,074	8,120	12,799	16,342	10,150	15,999	19,610	12,180	19,199	26,147	16,241	25,599
PMAS-D04-53	15,939	9,900	15,665	19,924	12,375	19,581	23,909	14,850	23,497	31,878	19,800	31,330
PMAS-D05-53	19,586	12,165	19,143	24,483	15,207	23,928	29,379	18,248	28,714	39,173	24,331	38,285
PMAS-D05-58	23,456	14,569	23,013	29,320	18,211	28,766	35,184	21,584	34,519	46,912	29,138	46,025
PMAS-D05-63	27,675	17,189	27,231	34,593	21,486	34,039	41,512	25,784	40,847	55,349	34,378	54,462
PMAS-D06-63	34,546	21,457	33,682	43,182	26,821	42,102	51,818	32,185	50,523	69,091	42,914	67,364
PMAS-D06-68	40,247	24,998	39,383	50,308	31,247	49,228	60,370	37,497	59,074	80,493	49,996	78,766
PMAS-D06-73	46,383	28,809	45,519	57,978	36,011	56,899	69,574	43,124	68,278	92,765	57,618	91,038
PMAS-D07-68	53,628	33,104	52,468	67,035	41,380	65,585	80,442	49,656	78,702	107,256	66,208	104,936
PMAS-D07-73	61,804	38,151	60,645	77,255	47,688	75,806	92,706	57,226	90,967	123,608	76,302	121,290
PMAS-D07-80	74,225	45,818	73,066	92,781	57,272	91,332	111,337	68,727	109,599	148,450	91,636	146,132
PMAS-D08-80	98,968	61,092	97,097	123,710	76,365	121,371	148,452	91,638	145,645	197,936	122,184	194,194
PMAS-D08-90	125,257	77,319	123,385	156,571	96,648	154,231	187,885	115,978	185,077	250,514	154,638	246,770
PMAS-D08-100	154,638	95,456	152,767	193,297	119,320	190,958	231,957	143,184	229,150	309,276	190,912	305,534

MODELS		Spring Torque			4.0 Bar			5.0 Bar			6.0 Bar			8.0 Bar		
		0°	R	90°	0°	R	90°	0°	R	90°	0°	R	90°	0°	R	90°
PMAS-S02-20	A	602	495	975	858	413	428	1,225	640	780	1,591	867	1,131	-	-	-
	B	790	650	1,280	-	-	-	1,037	485	475	1,403	712	826	2,134	1,166	1,527
PMAS-S02-25	A	913	751	1,479	1,371	668	747	1,942	1,022	1,304	2,513	1,377	1,860	-	-	-
	B	1,239	1,019	2,007	-	-	-	1,616	754	776	2,187	1,409	1,332	3,329	1,818	2,445
PMAS-S02-30	A	1,301	1,080	2,141	1,988	963	1,090	2,810	1,474	1,898	3,633	1,984	2,706	-	-	-
	B	1,787	1,469	2,894	-	-	-	2,324	1,085	1,145	3,147	1,595	1,953	4,791	2,617	3,568
PMAS-S02-35	A	1,628	1,352	2,679	2,849	1,429	1,740	3,968	2,124	2,845	5,087	2,819	3,949	-	-	-
	B	2,140	1,759	3,466	-	-	-	3,456	1,717	2,058	4,575	2,412	3,162	6,814	3,802	5,372
PMAS-S03-35	A	1,803	1,539	3,098	3,616	1,827	2,164	4,971	2,669	3,479	6,326	3,510	4,795	-	-	-
	B	2,566	2,120	4,189	-	-	-	4,208	2,088	2,388	5,563	2,929	3,704	8,273	4,612	6,335
PMAS-S03-38	A	2,480	2,049	4,048	3,908	1,919	2,183	5,505	2,911	3,740	7,102	3,903	5,298	-	-	-
	B	3,303	2,729	5,391	-	-	-	4,682	2,231	2,397	6,279	3,223	3,955	9,474	5,207	7,070
PMAS-S03-43	A	3,049	2,519	4,977	5,131	2,562	3,045	7,176	3,832	5,051	9,221	5,102	7,057	-	-	-
	B	4,097	3,554	7,223	-	-	-	6,128	2,797	2,805	8,173	4,067	4,811	12,263	6,608	8,822
PMAS-S04-43	A	4,167	3,569	7,202	6,325	2,948	3,015	8,948	4,577	5,570	11,571	6,206	8,124	-	-	-
	B	5,436	4,656	9,395	-	-	-	7,679	3,490	3,377	10,302	5,119	5,931	15,548	8,377	11,040
PMAS-S04-48	A	5,125	4,390	8,857	7,949	3,730	3,942	11,217	5,760	7,142	14,485	7,790	10,342	-	-	-
	B	6,406	5,582	11,372	-	-	-	9,936	4,568	4,627	13,204	6,598	7,827	19,741	10,659	14,227
PMAS-S04-53	A	6,214	5,323	10,745	9,275	4,577	4,920	13,710	7,052	8,836	17,695	9,527	12,752	-	-	-
	B	8,236	7,054	14,234	-	-	-	11,688	5,321	5,347	15,673	7,796	9,263	23,642	12,746	17,096
PMAS-S05-53	A	7,651	6,505	13,070	11,935	5,660	6,073	16,832	8,702	10,858	21,728	11,743	15,644	-	-	-
	B	10,204	8,675	17,431	-	-	-	14,279	6,532	6,497	19,175	9,573	11,283	28,969	15,656	20,854
PMAS-S05-58	A	9,296	7,733	15,538	14,160	6,836	7,475	20,024	10,478	13,228	25,888	14,121	18,981	-	-	-
	B	12,124	10,308	20,710	-	-	-	17,196	7,903	8,056	23,060	11,546	13,809	34,788	18,830	25,315
PMAS-S05-63	A	10,971	9,328	18,742	16,704	7,861	8,489	23,622	12,158	15,297	30,541	16,456	22,105	-	-	-
	B	14,127	12,010	24,132	-	-	-	20,466	9,476	9,907	27,385	13,774	16,715	41,222	22,368	30,330
PMAS-S06-63	A	13,456	11,608	23,515	21,090	9,849	10,167	29,726	15,213	18,587	38,362	20,577	27,008	-	-	-
	B	17,092	14,744	29,869	-	-	-	26,090	12,077	12,233	34,726	17,441	20,654	51,999	28,170	37,495
PMAS-S06-68	A	15,243	13,149	26,637	25,004	11,849	12,746	35,065	18,098	22,591	45,127	24,348	32,437	-	-	-
	B	20,474	17,662	35,779	-	-	-	29,834	13,585	13,449	39,896	19,835	23,295	60,019	32,334	42,987
PMAS-S06-73	A	17,816	15,368	31,314	28,567	13,441	14,385	40,162	20,643	25,765	51,758	27,846	37,114	-	-	-
	B	23,159	19,978	40,471	-	-	-	34,819	16,033	16,428	46,415	23,236	27,807	69,606	37,640	50,567
PMAS-S07-68	A	20,914	17,545	36,467	32,714	15,559	16,001	46,121	23,835	29,118	59,528	32,111	42,235	-	-	-
	B	26,143	21,931	45,583	-	-	-	40,892	19,449	20,002	54,299	27,725	33,119	81,113	44,277	59,353
PMAS-S07-73	A	24,103	20,220	42,026	37,701	17,931	18,619	53,152	27,468	33,780	68,603	37,006	48,941	-	-	-
	B	30,129	25,274	52,533	-	-	-	47,126	22,414	23,273	62,577	31,952	38,434	93,479	51,028	68,757
PMAS-S07-80	A	28,947	24,283	50,473	45,278	21,535	22,593	63,834	32,989	40,859	82,390	44,444	59,126	-	-	-
	B	36,184	30,354	63,091	-	-	-	56,597	26,918	28,241	75,153	38,373	46,508	112,266	61,282	83,041
PMAS-S08-80	A	38,597	32,378	67,298	60,371	28,714	29,799	85,113	43,987	54,073	109,855	59,260	78,347	-	-	-
	B	48,246	40,473	84,122	-	-	-	75,464	35,892	37,249	100,206	51,165	61,523	149,690	81,711	110,072
PMAS-S08-90	A	48,850	40,979	85,174	76,407	36,340	38,211	107,721	55,669	69,057	139,035	74,999	99,903	-	-	-
	B	61,062	51,223	106,468	-	-	-	95,509	45,425	47,763	126,823	64,755	78,609	189,452	103,415	140,302
PMAS-S08-100	A	60,308	50,591	105,153	94,330	44,865	47,614	132,989	68,729	85,805	171,649	92,593	123,997	-	-	-
	B	75,385	63,239	131,441	-	-	-	117,912	56,081	59,517	156,572	79,945	97,709	233,891	127,673	174,093

Canted Yoke Pneumatic Actuator Out-Put Torque

MODELS	4.0 Bar			5.0 Bar			6.0 Bar			8.0 Bar		
	0°	R	90°	0°	R	90°	0°	R	90°	0°	R	90°
PMAC-D02-20	1,836	908	1,279	2,295	1,135	1,599	2,754	1,362	1,919	3,672	1,816	2,559
PMAC-D02-25	2,869	1,419	1,999	3,586	1,773	2,499	4,303	2,128	2,998	5,737	2,837	3,998
PMAC-D02-30	4,131	2,043	2,879	5,164	2,554	3,598	6,196	3,064	4,318	8,262	4,086	5,757
PMAC-D02-35	5,623	2,781	3,918	7,028	3,476	4,898	8,434	4,171	5,877	11,245	5,561	7,836
PMAC-D03-35	6,806	3,366	4,743	8,508	4,208	5,929	10,209	5,049	7,114	13,613	6,732	9,486
PMAC-D03-38	8,023	3,968	5,591	10,029	4,960	6,988	12,035	5,952	8,386	16,046	7,936	11,182
PMAC-D03-43	10,273	5,081	7,159	12,842	6,351	8,949	15,410	7,621	10,738	20,547	10,162	14,318
PMAC-D04-43	13,177	6,517	9,182	16,471	8,146	11,477	19,765	9,775	13,773	26,353	13,033	18,364
PMAC-D04-48	16,419	8,120	11,441	20,524	10,150	14,302	24,629	12,180	17,162	32,838	16,241	22,883
PMAC-D04-53	20,018	9,900	13,959	25,023	12,375	17,347	30,027	14,850	20,924	40,036	19,800	27,899
PMAC-D05-53	24,598	12,165	17,141	30,748	15,207	21,426	36,898	18,248	25,712	49,197	24,331	34,282
PMAC-D05-58	29,459	14,569	20,528	36,823	18,211	25,660	44,188	21,854	30,792	58,917	29,138	41,055
PMAC-D05-63	34,757	17,189	24,220	43,446	21,486	30,274	52,135	25,784	36,329	69,512	31,378	54,462
PMAC-D06-63	43,386	21,457	30,233	54,332	26,821	37,791	65,079	32,185	45,349	86,771	42,914	60,465
PMAC-D06-68	50,546	24,998	35,222	63,182	31,247	44,027	75,818	37,497	52,833	101,091	49,996	70,444
PMAC-D06-73	58,252	28,809	40,592	72,815	3,6011	50,740	87,378	43,214	60,888	116,504	57,618	81,184
PMAC-D07-68	67,035	33,104	46,696	83,793	41,380	58,370	100,552	49,656	70,044	134,070	66,208	93,392
PMAC-D07-73	77,255	38,151	53,974	96,568	47,688	67,467	115,882	57,226	80,961	154,510	76,302	107,948
PMAC-D07-80	92,781	45,818	65,028	115,976	57,272	81,285	139,171	68,727	97,542	185,562	91,636	130,056
PMAC-D08-80	123,710	61,092	86,416	154,637	76,365	108,020	185,565	91,638	129,624	247,420	122,184	172,832
PMAC-D08-90	156,571	77,319	109,812	195,713	96,648	137,265	234,856	115,978	164,718	313,142	154,638	219,624
PMAC-D08-100	193,297	95,456	135,962	241,621	119,320	169,952	289,945	143,184	203,943	386,594	190,912	271,924

MODELS	Spring Torque			4.0 Bar			5.0 Bar			6.0 Bar			8.0 Bar			
		0°	R	90°	0°	R	90°	0°	R	90°	0°	R	90°	0°	R	90°
PMAC-S02-20	A	670	452	808	1,166	456	471	1,625	683	791	2,084	910	1,111	-	-	-
	B	876	591	1,056	-	-	-	1,419	544	543	1,878	771	863	2,796	1,225	1,503
PMAC-S02-25	A	1,063	717	1,282	1,806	702	717	2,523	1,056	1,217	3,240	1,411	1,716	-	-	-
	B	1,396	942	1,683	-	-	-	2,190	831	816	2,907	1,186	1,315	4,341	1,895	2,315
PMAC-S02-30	A	1,496	1,020	1,834	2,635	1,023	1,045	3,668	1,534	1,764	4,700	2,044	2,484	-	-	-
	B	2,059	1,404	2,524	-	-	-	3,105	1,150	1,704	4,137	1,660	1,794	6,203	2,682	3,233
PMAC-S02-35	A	1,807	1,262	2,299	3,816	1,519	1,619	5,221	2,214	2,599	6,627	2,909	3,578	-	-	-
	B	2,543	1,735	3,118	-	-	-	4,485	1,741	1,780	5,891	2,436	2,759	8,702	3,826	4,718
PMAC-S03-35	A	2,047	1,464	2,700	4,759	1,902	2,043	6,461	2,744	3,229	8,162	3,585	4,414	-	-	-
	B	3,093	2,098	3,759	-	-	-	5,415	2,110	2,170	7,116	2,951	3,355	10,520	4,634	5,727
PMAC-S03-38	A	2,759	1,973	3,641	5,264	1,995	1,950	7,270	2,987	3,347	9,276	3,979	4,745	-	-	-
	B	3,913	2,654	4,757	-	-	-	6,116	2,306	2,231	8,122	3,298	3,629	12,133	5,282	6,425
PMAC-S03-43	A	3,637	2,467	4,421	6,636	2,614	2,738	9,205	3,884	4,528	11,773	5,154	6,317	-	-	-
	B	5,017	3,403	6,099	-	-	-	7,825	2,948	2,850	10,393	4,218	4,639	15,530	6,759	8,219
PMAC-S04-43	A	4,735	3,340	6,118	8,442	3,177	3,064	11,736	4,806	5,359	15,030	6,435	7,655	-	-	-
	B	6,098	4,301	7,878	-	-	-	10,373	3,845	3,599	13,667	5,474	5,895	20,255	8,732	10,486
PMAC-S04-48	A	5,887	4,152	7,605	10,532	3,968	3,836	14,637	5,998	6,697	18,742	8,028	9,557	-	-	-
	B	7,754	5,469	10,017	-	-	-	12,770	4,681	4,285	16,875	6,711	7,145	25,084	10,772	12,866
PMAC-S04-53	A	7,035	4,962	9,088	12,983	4,938	4,861	17,988	7,413	8,349	22,992	9,888	11,836	-	-	-
	B	9,217	6,502	11,908	-	-	-	15,806	5,873	5,529	20,810	8,348	9,016	30,819	13,298	15,991
PMAC-S05-53	A	8,854	6,189	11,286	15,744	5,976	5,855	21,894	9,018	10,140	28,044	12,059	14,426	-	-	-
	B	11,770	8,235	15,018	-	-	-	18,978	6,972	6,408	25,128	10,013	10,694	37,427	16,096	19,264
PMAC-S05-58	A	10,195	7,133	13,008	19,264	7,436	7,520	26,628	11,078	12,652	33,993	14,721	17,784	-	-	-
	B	14,355	10,044	18,316	-	-	-	22,468	8,167	7,344	29,833	11,810	12,476	44,562	19,094	22,739
PMAC-S05-63	A	12,292	8,601	15,684	22,465	8,588	8,536	31,154	12,885	14,590	39,843	17,183	20,645	-	-	-
	B	16,158	11,306	20,617	-	-	-	27,288	10,180	9,657	35,977	14,478	15,712	53,355	23,072	27,822
PMAC-S06-63	A	14,480	10,292	18,928	28,906	11,165	11,305	39,752	16,529	18,863	50,599	21,893	26,421	-	-	-
	B	18,967	14,028	26,335	-	-	-	35,265	12,793	11,456	46,112	18,157	19,014	67,804	28,886	34,130
PMAC-S06-68	A	17,715	12,591	23,156	32,831	12,407	12,066	45,467	18,656	20,871	58,103	24,906	29,677	-	-	-
	B	22,115	16,357	30,708	-	-	-	41,067	14,890	13,319	53,703	21,140	22,125	78,976	33,639	39,736
PMAC-S06-73	A	19,992	14,209	26,132	38,260	14,600	14,460	52,823	21,802	24,608	67,386	29,005	34,756	-	-	-
	B	25,029	18,512	34,753	-	-	-	47,786	17,499	15,987	62,349	24,702	26,135	91,475	39,106	46,431
PMAC-S07-68	A	23,423	16,141	32,090	43,612	16,963	14,606	60,370	25,239	26,280	77,129	33,515	37,954	-	-	-
	B	29,280	20,176	40,113	-	-	-	54,513	21,204	18,257	71,272	29,480	29,931	104,790	46,032	53,279
PMAC-S07-73	A	26,995	18,602	36,982	50,260	19,549	16,992	69,573	29,086	30,485	88,887	38,624	43,979	-	-	-
	B	33,744	23,252	46,229	-	-	-	62,824	24,436	21,238	82,138	33,974	34,732	120,766	53,050	61,719
PMAC-S07-80	A	32,420	22,340	44,416	60,361	23,478	20,612	83,556	34,932	36,869	106,751	46,387	53,126	-	-	-
	B	40,526	27,925	55,520	-	-	-	75,450	29,347	25,765	98,645	40,802	42,022	145,036	63,711	74,536
PMAC-S08-80	A	43,228	29,787	59,222	80,482	31,305	27,194	111,409	46,578	48,798	142,337	61,851	70,402	-	-	-
	B	54,035	37,235	74,027	-	-	-	100,602	39,130	33,993	131,530	54,403	55,597	193,385	84,949	98,805
PMAC-S08-90	A	54,712	37,700	74,953	101,859	39,619	34,859	141,001	58,948	62,312	180,144	78,278	89,765	-	-	-
	B	68,389	47,125	93,691	-	-	-	127,324	49,523	43,574	166,467	68,853	71,027	244,753	107,513	125,933
PMAC-S08-100	A	67,544	47,049	92,534	125,753	48,407	43,428	174,077	72,271	77,418	222,401	96,135	111,409	-	-	-
	B	84,431	58,812	115,668	-	-	-	157,190	60,508	54,284	205,514	84,372	88,275	302,163	132,100	156,256

■ Valve Remote Control System



Hydraulic Actuator

AHR series are gear rack type hydraulic(electro-hydraulic) actuators, applicable to control 0-90° rotating valves like butterfly valves, ball valves and so on. major material is carbon steel.

■ Torque Table—Double Acting

MODELS	7Mpa	10Mpa	12Mpa	14Mpa	16Mpa	Weight (Kg)	Volume (L)
AHR-D01-40	90	128	153	180	205	5	0.024
AHR-D01-50	140	200	240	280	320	8	0.037
AHR-D02-40	187	267	321	375	427	16	0.051
AHR-D03-50	292	417	501	585	668	20	0.08
AHR-D03-63	465	662	795	927	1060	21	0.124
AHR-D05-63	1113	1590	1908	2226	2543	40	0.312
AHR-D06-80	1795	2565	3077	3590	4102	78	0.484
AHR-D06-100	2805	4006	4807	5608	6409	100	0.76
AHR-D06-125	4381	6259	7511	8763	10015	111	1.2
AHR-D09-125	4820	6885	8262	9639	11015	158	1.28
AHR-D10-160	7896	11279	13535	15791	18047	243	2.84
AHR-D10-200	12337	17625	21149	24675	28200	317	3.27

■ Torque Table—Spring Return

MODELS	Spring Torque		7Mpa			10Mpa			14Mpa			Weight (Kg)
	min	max	min	max	Dia of cylinder	min	max	Dia of cylinder	min	max	Dia of cylinder	
AHR-S01-50E	95	132	-	-	-	-	-	-	148	185	Ø50	15
AHR-S01-63C	95	132	91	128	Ø63	186	223	Ø63	-	-	-	15
AHR-S02-50E	161	293	-	-	-	-	-	-	291	423	Ø50	31
AHR-S02-63C	161	293	171	303	Ø63	369	501	Ø63	-	-	-	31
AHR-S02-63E	331	527	-	-	-	-	-	-	400	596	Ø63	39.5
AHR-S02-80D	331	527	-	-	-	541	737	Ø80	-	-	-	39.5
AHR-S02-100C	331	527	641	837	Ø100	-	-	-	-	-	-	39.5
AHR-S03-80D	425	662	-	-	-	406	643	Ø80	834	1,071	Ø80	43
AHR-S03-100C	425	662	506	743	Ø100	-	-	-	-	-	-	43
AHR-S04-63E	709	1,250	-	-	-	-	-	-	976	1,517	Ø63	78
AHR-S04-80D	709	1,250	-	-	-	1,313	1,855	Ø80	-	-	-	78
AHR-S04-100C	709	1,250	1,553	2,095	Ø100	-	-	-	-	-	-	78
AHR-S05-80D	852	1,535	-	-	-	1,029	1,712	Ø80	2,053	2,737	Ø80	87
AHR-S05-100C	852	1,535	1,269	1,952	Ø100	-	-	-	-	-	-	87
AHR-S06-80D	1,040	1,535	-	-	-	1,029	1,523	Ø80	2,053	2,549	Ø80	96.5
AHR-S06-100C	1,040	1,535	1,269	1,763	Ø100	-	-	-	-	-	-	96.5
AHR-S07-100D	1,418	2,652	-	-	-	1,355	2,588	Ø100	2,956	4,190	Ø100	128.5
AHR-S07-125C	1,418	2,652	1,728	2,962	Ø125	-	-	-	-	-	-	128.5
AHR-S08-100E	1,703	3,096	-	-	-	-	-	-	2,512	3,905	Ø100	148
AHR-S08-125D	1,703	3,096	-	-	-	3,161	4,553	Ø125	-	-	-	148
AHR-S08-140C	1,703	3,096	2,398	3,791	Ø140	-	-	-	-	-	-	148
AHR-S09-100E	2,800	4,700	-	-	-	-	-	-	1,468	3,308	Ø100	180
AHR-S09-125D	2,800	4,700	-	-	-	2,180	4,080	Ø125	-	-	-	180
AHR-S09-140C	2,800	4,700	1,345	3,245	Ø140	-	-	-	-	-	-	180
AHR-S10-125E	3,815	7,103	-	-	-	-	-	-	2,625	5,825	Ø125	193
AHR-S10-160D	3,815	7,103	-	-	-	4,263	7,461	Ø160	-	-	-	193
AHR-S10-180C	3,815	7,103	2,980	6,178	Ø180	-	-	-	-	-	-	193
AHR-S10-125E(III)	7,600	14,030	-	-	-	-	-	-	5,250	11,650	Ø125	365
AHR-S10-160D(III)	7,600	14,030	-	-	-	8,500	15,000	Ø160	-	-	-	365
AHR-S10-180C(III)	7,600	14,030	5,960	12,356	Ø180	-	-	-	-	-	-	365



Hydraulic Actuator

AHS series are scotch yoke type hydraulic(electro-hydraulic) actuators, applicable to control 0-90° rotating valves like butterfly valves, ball valves and so on. Carbon steel and nodular cast iron materials are available.

Torque Table—Double Acting

MODELS	7Mpa		10Mpa		12Mpa		14Mpa		16Mpa		Weight (Kg)
	Star& End	Run	Star& End	Run	Star& End	Run	Star& End	Run	Star& End	Run	
AHS-D03-100	4,590	2,638	6,556	3,768	7,868	4,522	9,179	5,276	10,490	6,029	105
AHS-D03-125	7,421	4,123	10,601	5,890	12,722	7,068	14,842	8,246	16,962	8,246	125
AHS-D04-80	5,033	2,815	7,190	4,022	8,629	4,826	10,067	5,630	11,505	6,435	174
AHS-D04-100	7,865	4,398	11,234	6,283	13,481	7,540	15,727	8,796	17,975	10,053	196
AHS-D05-100	9,438	5,278	13,480	7,540	16,177	9,048	18,872	10,556	21,570	12,065	237
AHS-D06-100	11,146	6,158	15,923	8,797	19,107	10,557	22,293	12,317	25,478	14,076	268
AHS-D06-125	17,417	9,622	24,879	13,746	29,855	16,495	34,831	19,245	39,807	21,993	320
AHS-D08-125	22,392	12,371	31,988	17,673	38,386	21,208	44,784	24,742	51,177	28,275	583
AHS-D08-140	28,079	15,514	40,112	22,162	48,135	26,595	56,157	31,027	64,180	35,460	657
AHS-D08-160	36,682	20,267	52,404	28,952	62,885	34,743	73,365	40,533	83,848	46,325	685
AHS-D08-180	46,428	25,651	66,327	36,645	79,592	43,973	92,856	51,302	106,122	58,631	707
AHS-D08-200	57,318	31,667	81,882	45,239	98,258	54,286	114,635	63,335	131,011	72,382	757

Torque Table— Spring Return

MODELS	Spring Torque			7Mpa				10Mpa				14Mpa				Weight (Kg)
	Star	Mid-stroke	End	Star	Mid-stroke	End	Dia of cylinder	Star	Mid-stroke	End	Dia of cylinder	Star	Mid-stroke	End	Dia of cylinder	
AHS-S03-100D	4,510	1,945	2,255	-	-	-	-	4,305	1,870	2,050	Ø100	6,929	3,278	4,675	Ø100	175
AHS-S03-125C	4,510	1,945	2,255	4,919	2,223	2,665	Ø125	-	-	-	-	-	-	-	-	175
AHS-S04-80D	5,865	2,460	2,932	-	-	-	-	4,258	1,562	2,178	Ø80	7,135	3,170	5,396	Ø80	387
AHS-S04-100C	5,865	2,460	2,932	4,933	1,938	2,932	Ø100	-	-	-	-	-	-	-	-	387
AHS-S04-110E	11,586	4,860	5,793	-	-	-	-	-	-	-	-	13,239	5,784	7,606	Ø110	436
AHS-S04-125D	11,586	4,860	5,793	-	-	-	-	11,758	4,956	5,965	Ø125	-	-	-	-	436
AHS-S04-160C	11,586	4,860	5,793	14,332	6,396	8,539	Ø160	-	-	-	-	-	-	-	-	436
AHS-S05-140E	17,376	13,032	8,688	-	-	-	-	-	-	-	-	28,750	7,652	20,062	Ø140	510
AHS-S05-160D	17,376	13,032	8,688	-	-	-	-	26,238	6,265	17,550	Ø160	-	-	-	-	510
AHS-S05-180C	17,376	13,032	8,688	22,265	4,068	13,579	Ø180	-	-	-	-	-	-	-	-	510
AHS-S06-140E	24,326	10,081	12,298	-	-	-	-	-	-	-	-	31,515	14,051	19,352	Ø140	580
AHS-S06-160D	24,326	10,081	12,298	-	-	-	-	28,900	12,431	16,870	Ø160	-	-	-	-	580
AHS-S06-180C	24,326	10,081	12,298	24,211	9,869	12,183	Ø180	-	-	-	-	-	-	-	-	580
AHS-S06-180E	49,200	21,352	24,595	-	-	-	-	-	-	-	-	48,425	18,549	23,819	Ø180	786
AHS-S06-200D	49,200	21,352	24,595	-	-	-	-	39,795	13,828	15,190	Ø200	-	-	-	-	786
AHS-S06-250C	49,200	21,352	24,595	45,831	17,132	22,226	Ø250	-	-	-	-	-	-	-	-	786
AHS-S08-180E	62,553	25,920	31,277	-	-	-	-	-	-	-	-	61,578	25,381	30,302	Ø180	980
AHS-S08-200D	62,553	25,920	31,277	-	-	-	-	50,606	19,319	19,330	Ø200	-	-	-	-	980
AHS-S08-250C	62,553	25,920	31,277	58,281	23,560	27,005	Ø250	-	-	-	-	-	-	-	-	980



Electric Actuator

AQTB series electric actuators provide wide range of torques from 50-20000 Nm.

- Applicable to 90° quarter-turn ball valves, butterfly valves, damper valves and so on.
- Available for use in ships, power plants, cement, petrochemical, waste water treatment and other industry.

■ AQTB Series Quarter Turn Electrical Actuator

Model	Max. outputtorque (N.M)	Power (W)	Open/ CloseTime 50HZ (sec.)	Open/ CloseTime 60HZ(sec.)	Handwheel diameter (mm)	No of handwheel turns	Handwheel thrust (Kg)	ISO5211	Max. Square Bore (mm)	Cableentry	Weight (Kg)
AQTB-0050	50	10	15	13	63	18.3	2.2	F05 & 07	11-14,Φ≤14, H(Deep)≤20	2 - PG13.5	3
AQTB-0080	80	10	22	18	63	36.6	1.8				3.6
AQTB-0100	100	40	19	16	120	12	4.5	F07 or F10	11-17,Φ≤22, H(Deep)≤35	2 - M25*1.5	11
AQTB-0200	200	40	39	33	120	12	8.9				11
AQTB-0300	300	40	39	33	120	12	8.9				11
AQTB-0400	400	90	29	24	197	14.5	9.8	F10 or F12 or F14	17-27,Φ≤35, H(Deep)≤55		22
AQTB-0600	600	90	39	33	197	14.5	14.7				22
AQTB-0800	800	90	47	39	197	14.5	19.6				22
AQTB-1000	1,000	120	47	39	197	14.5	24.5				22
AQTB-1300	1,300	120	47	39	197	14.5	24.5				22
AQTB-1700	1,700	200	34	28	290	16	22.6	F12 of F14 or F16	27-36,Φ≤50, H(Deep)≤65		36
AQTB-2000	2,000	200	34	28	290	16	22.6				36
AQTB-2300	2,300	200	47	39	290	16	30.5	F14 or F16	36-53,Φ≤65, H(Deep)≤85		36
AQTB-3500	3,500	200	76	63	290	35.6	20.9				76
AQTB-5000	5,000	200	105	88	290	35.6	29.9				76
AQTB-8000	8,000	200	143	119	290	48	35.4	F16 or F25	46-55,Φ≤85, H(Deep)≤130		107
AQTB-13000	13,000	400	109	91	290	141	18.3	F25 or F30	55-75,Φ≤95, H(Deep)≤120		218
AQTB-16000	16,000	400	129	108	290	141	22.6				218
AQTB-20000	20,000	400	155	129	290	141	28.3				218

■ Standard Specification

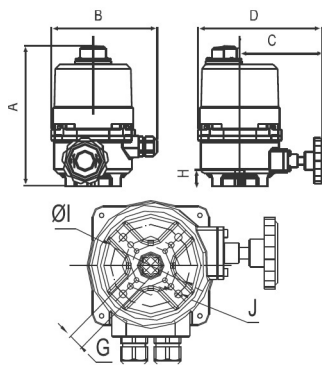
Enclosure	Weatherproof IP67, NEMA4 4X and 6, O-ring sealed.
Main Power supply	110/220VAC/1Ph/50/60Hz, 380/440/VAC/3Ph/50/60/Hz ±10%, 24VDC
Control power supply	110/220VAC/1Ph/50/60Hz±10%, 24VDC
Duty cycle(on-off)	S2: 10Min~30Min
Duty cycle(modulating)	S4, 30~50%, 300~1200 start/Hr
Motor	Squirrel Cage induction motor
Limit switches	2 each for Open and Close (SPDT 250VAC/10A rating)
Stall protection/ set temp.	Built in Thermal protection
Travel angle	90° ±5°
Position indicator	3D indicator,Red and Green
Manual override	Non-clutch ,Including handwheel
Mechanical stopper	1 each for each travel end (Open and Close), external & adjustable
Space Heater	8W~15W(110/220VAC) for anti-condensation
Lubrication	EP type grease
Terminal block	Screw and Lever Push type (spring loaded)
Ambient temperature	Basic actuator : -25°C~+70°C c/w control options : -10°C~+60°C
Ambient humidity	90%RH Max (Non-Condensing)
Anti vibration	XYZ 10g, 02~34Hz, 30 minutes
External coating	Dry powder (Polyester) RAL6001

■ Options Available

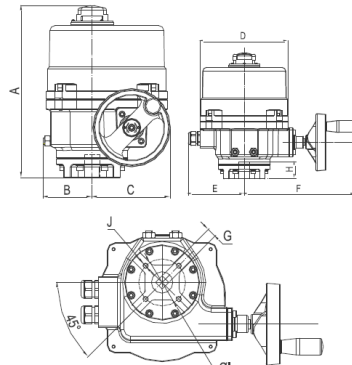
WT	Water Tight IP68
PCU	Remote Position Controller Unit (4-20mA input/output)
CT	Current Transmitter(4-20mA)
PK	Potentiometer Kit (0-1Kohm)
ALS	Auxiliary Limit Switches
ATS	Auxiliary Torque Switches
LCU1	Local Control Units 1 (for 1Ph)
LCU2	Local Control Units 2(for 3Ph)
LT	Low temperature(-40 degree)
BP	Battery Pack
ICU	Intelligent Control Unit,(Auto Phase Discriminator, LCD Display, Local Control Unit)

■ Dimension or Series AQTB0050-AQTB20000

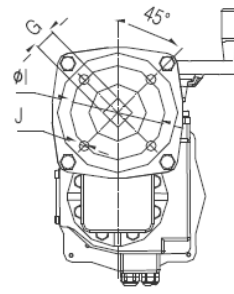
Model	A	B	C	D	E	F	G	H	I	J	Weight(Kg)
AQTB0050	192	150	135	170	--	--	11*11 14*14 17*17	20	36 50	4-M5 4-M6 4-M8	3.6
AQTB0080	212	150	135	170	--	--		20	70	4-M8	3.7
AQTB0100	268	77	123	216	121	240	14*14 17*17	35	70	4-M8	11
AQTB0200	268	77	123	216	121	240		35	70	4-M8	11
AQTB0300	268	77	123	216	121	240		35	70	4-M8	11
AQTB0400	327	103	187	266	150	297	22*22	55	102	4-M10	22
AQTB0600	327	103	187	266	150	297	22*22 27*27	55	102	4-M10	22
AQTB0800	327	103	187	266	150	297		55	125	4-M12	22
AQTB1000	327	103	187	266	150	297		55			22
AQTB1300	327	103	187	266	150	297	27*27	65	125	4-M12	22
AQTB1700	380	127	242	293	161	333	27*27 36*36	65	125	4-M12	36
AQTB2000	380	127	242	293	161	333		65	140	4-M12	36
AQTB2300	380	127	242	293	161	333		65		4-M12	36
AQTB3500	532	118	242	293	308	186	40*40 46*46	85	140 165	4-M16 4-M20	76
AQTB5000	532	118	242	293	308	186	55*55	85	165	4-M20	76
AQTB8000	545	160	242	293	343	160		130	254	8-M16	107
AQTB13000	672	520	--	293	281	331		120			218
AQTB16000	672	520	--	293	281	331	55*55 77*77	120	254 298	8-M16 8-M20	218
AQTB20000	672	520	--	293	281	331		120			218



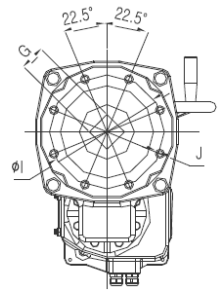
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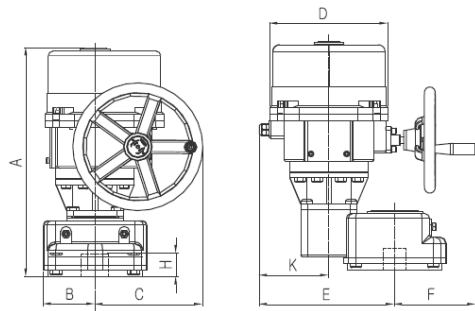
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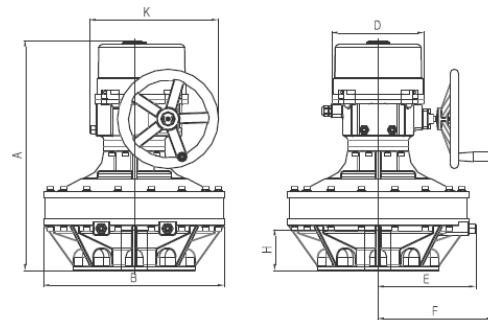
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AQTB8000

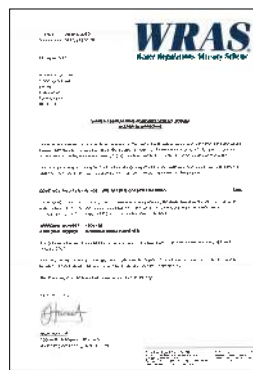


AQTB3500-AQTB8000



AQTB13000-AQTB20000

Certificates





Website

www.affco-flowcontrol.com

AFFCO Flow Control (Shanghai) Co., Ltd

No. 99 Desheng Road, Economic and Technological
Development Area, Feng Xian, Shanghai 201411

Tel: +86 (21) 5814 7016

Fax: +86 (21) 5814 7885

Email: sales@affco-flowcontrol.com

AFFCO Flow Control Europe B.V.

Opweg 90a

2871 NG Schoonhoven

The Netherlands

Tel: +31 (0) 85 877 27 56

Fax: +31 (0) 85 782 51 01

Email: europe@affco-flowcontrol.com

AFFCO Flow Control Pte Ltd

237, Pandan Loop, #05-04, Westech Building
Singapore 128424

Tel : +65 65709920

Fax : +65 65709923

Email: info@affco.com.sg

AFFCO Flow Control Mideast FZE SAIF

Suite Y-16 P.O. BOX 123612 Sharjah –
U.A.E.

Tel: +971 6 5220879

Email: infoME@affco-flowcontrol.com

AFFCO Flow Control UK Ltd

Unit 7, Stafford Park 12, Telford,
Shropshire, TF3 3BJ, England

Tel : +44 (0)1952 459 338

Email: sales@affco-flowcontrol.co.uk