



MARINE BUTTERFLY VALVE

*Over 60 years of profound experiences
in marine and offshore applications...*

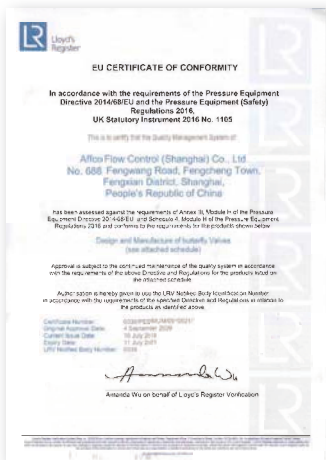
AFFCO General

AFFCO, having over 60 years abundant applications in the Netherlands and Europe market, building good reputation at international markets, has been proud of its vulcanized butterfly valves, replaceable valves, high performance butterfly valves, triple eccentric butterfly valves, damper valves with reliable quality, lower torque, friendly pricing and beautiful design.

AFFCO, were certified by LRQA, ISO9001-2015, PED 2014/68/EU directive, obtained major Marine type approvals from LR/BV/ABS/CCS/DNV&GL/RMRS/RINA and other industrial certificates for safety, drinking water and etc.

AFFCO, keep its penetration, presence and interaction with all water, marine, offshore, oil & gas, power, chemical, mining, HVAC, civil engineering and etc. major international industrial markets to achieve goal of being a globally renowned manufacturer of butterfly valves, valves and flow control systems.

AFFCO, mean Professionalism, Reliability, Market Orientation.





Professionalism

AFFCO, continue to offer quality products that provide higher performance and better value for customers. AFFCO people are global, diverse and dedicated, operating with the highest integrity and passion to fulfill our mission and deliver for AFFCO business partners. AFFCO fully equipped independent new products R&D centers together with labs are certified and backing up development of new products every year to cater for international market requirements, which has caused into company life gene.



Reliability

AFFCO, know that top quality valves and flow control products come from perfect integration of customer requirements, designing/engineering, casting/raw materials selection, machining, assembling/fabricating, inspecting/testing, performance verifying, conforming/certifying to standards, coating, packing, delivery to customer and even more detailed processes. AFFCO control them consistently for all batches without compromise.



Market Orientation

AFFCO, believe that customer satisfaction is fulfilled by listening, recording, analyzing and incorporating customer requirements and expectations into updated developments of products, which is also written into AFFCO long term development protocol.

AFFCO Globe

AFFCO, set globe sales and distribution centers strategically in the Netherlands, China, Dubai and Singapore, soon will expand into UK, US and the rest of major cities and continents. Equipped with internationally expertised teams, AFFCO are getting rooted in and contributing for local communities.



ROTTERDAM



SHANGHAI



SINGAPORE



SHARJAH

AFFCO Manufacturing

AFFCO have 6 product lines

- concentric butterfly valve
- high performance double eccentric butterfly valve
- triple eccentric butterfly valve
- PTFE-lined butterfly valve
- damper valve
- pneumatic actuator

Quadruple butterfly valves, cryogenic valves, high pressure gate, globe, check and ball valves, emergency PLC control panels, DCS/FCS flow control and etc technological products, more will also come into our production portfolio



AFFCO manufacturing center has full valves and actuators assembling and testing capabilities.

Latest processing, assembling and testing equipments including CNC, digital display horizontal boring & milling machine, machine center, centerless grinding machine, automatic feed drill, radial drilling machine, plasma stack welder, automotive coating, hydraulic valve tester are used in the product lines to assure precision, stable quality and manufacturing capabilities.



Yearly output: 200,000 pcs

MARINE BUTTERFLY VALVES

Concentric Butterfly Valves

- Vulcanized Butterfly Valves

Wafer Type Series 570	7
Lug Type Series 640	9
Double Flange Type Series 460	11
Mono Flange Type Series S600/610	13

- Replaceable Butterfly Valves

Wafer Type Series 575/576	15
Lug Type Series 645/646	17
Double Flange Type Series 465/466	19
U Flange Type Series 365/366	21
Semi Lug Type Series S578	23

High Performance Double Eccentric Butterfly Valves

- Double Eccentric Butterfly Valves

Wafer Type Series 960/961	25
Lug Type Series 970/971	28
Double Flange Type Series 980/981	31

- Double Eccentric Butterfly Valves with Replaceable Seat

Wafer Type Series 930/931/932	35
Lug Type Series 940/941/942	38
Double Flange Type Series 950/951/952	41

Actuator

- Manual
- Pneumatic Actuator
- Hydraulic Actuator
- Electric Actuator

Concentric Butterfly Valves Vulcanized Seat



Wafer Type Series 570

Nominal diameter: DN40-DN1200(1 1/2"-48")

DN1400-DN2000 (56"-80") other sizes on request

Flange connection: EN1092(PN6-10-16,PN25 up to DN400)

ASME B16.5(CL150)

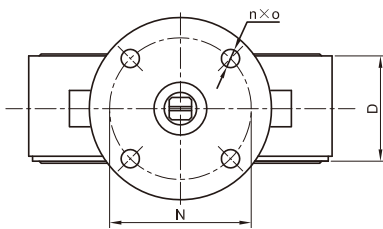
JIS B2239 & JISB2220 (JIS5K /10K /16K /30K)

Temperature range: -23 to + 200°C

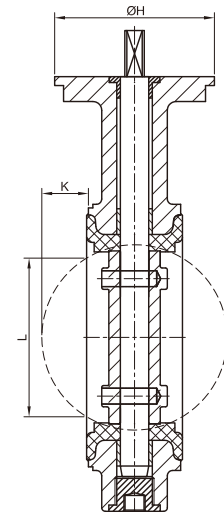
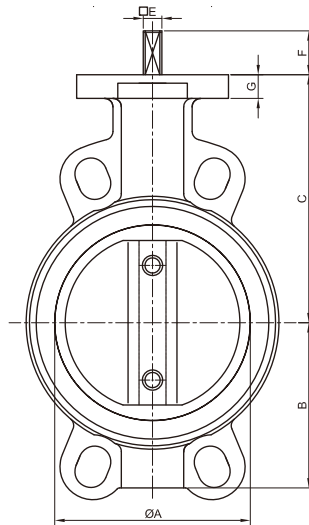
Face to face acc:EN558-1 row 20

Top flange acc: EN ISO 5211

Vacuum to 1*10⁻³ Torr absolute

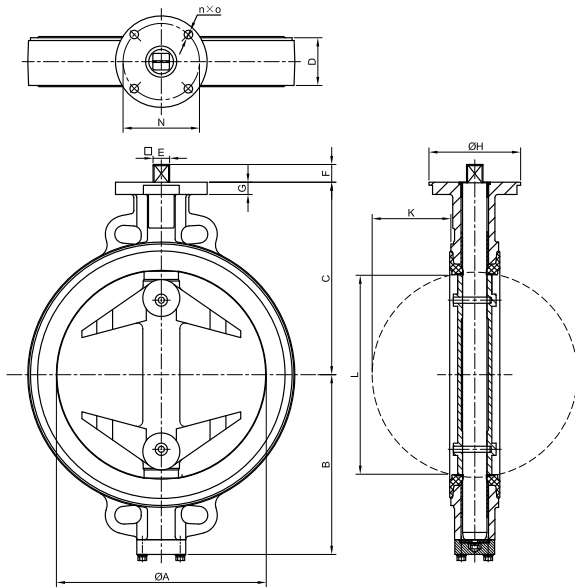


S57 DN40~DN300

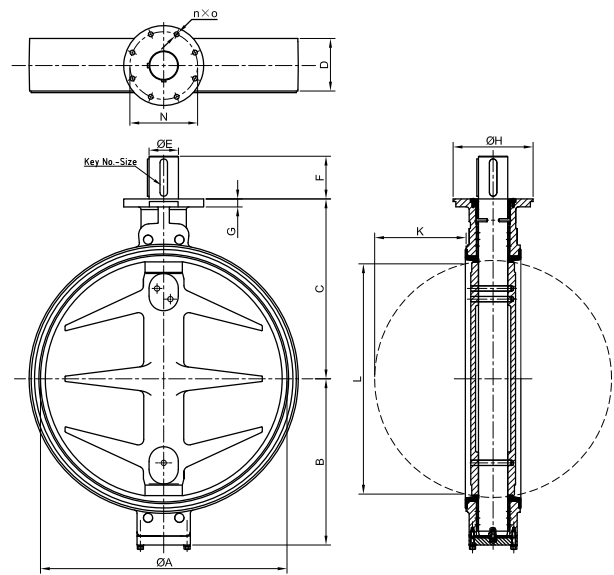


DIMENSION

DN	NPS	ØA	ØE	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	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



S57 DN350-DN650



S57 DN700-DN1200

DIMENSION

DN	NPS	ØA	ØE	F	B	C	ØH	D	"N(PCD) [ISO 5211]"	n x Ø	G	L	K	"Weight Appr.[KG]"
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]	4xΦ14	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]	8xΦ18	30	669	262	320kg
800(PN10)	32"	800	80	120	557	620	300	190	Φ254[F25]	8xΦ18	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]	8xΦ18	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]	8xΦ22	40	1146	410	1250kg
1200(PN16)	48"	1200	130	160	875	824	350	254	Φ298[F30]	8xΦ22	40	1146	410	1370kg



Concentric Butterfly Valves Vulcanized Seat

Lug Type Series 640

Nominal diameter: DN40-DN1200(1 1/2"-48")

DN1400-DN2000 (56"-80") other sizes on request

Flange connection: EN1092(PN6-10-16,PN25 up to DN400)

ASME B16.5(CL150)

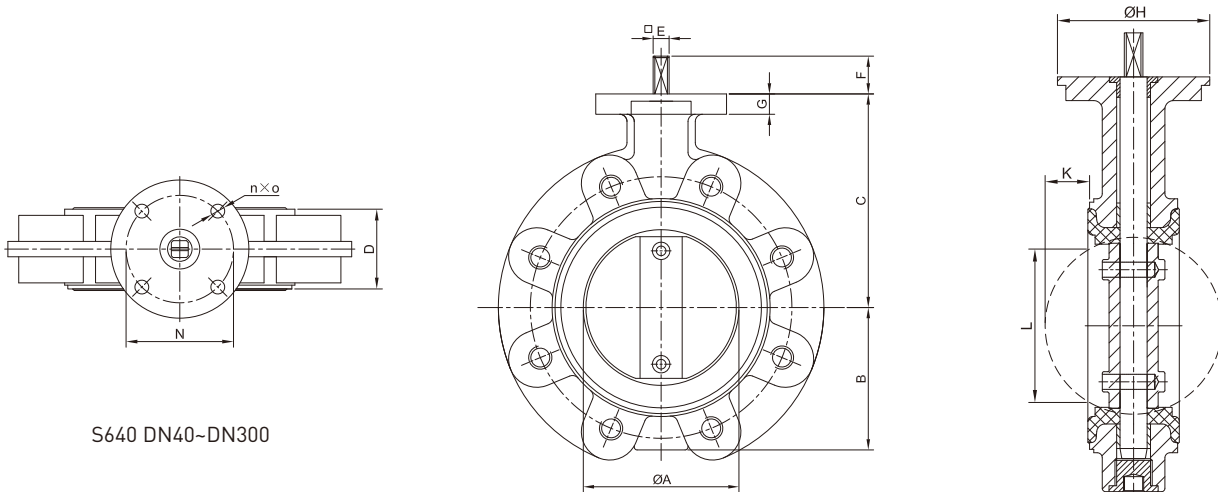
JIS B2239 & JISB2220 (JIS5K /10K /16K /30K)

Temperature range: -23 to + 200°C

Face to face acc:EN558-1 row 20

Top flange acc: EN ISO 5211

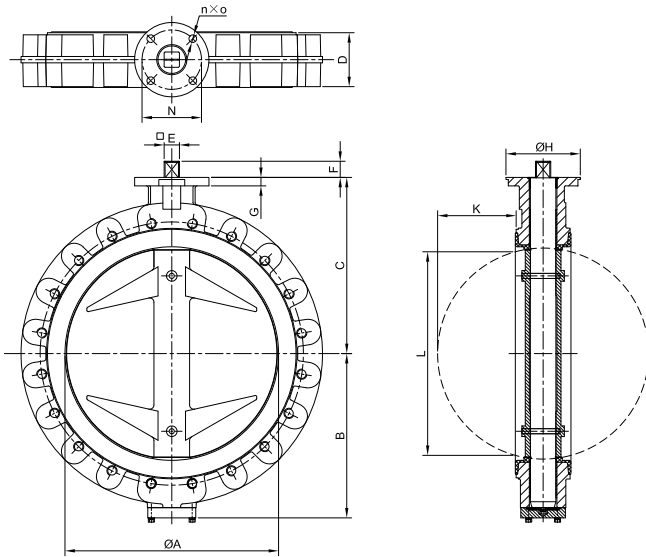
Vacuum to 1*10⁻³ Torr absolute



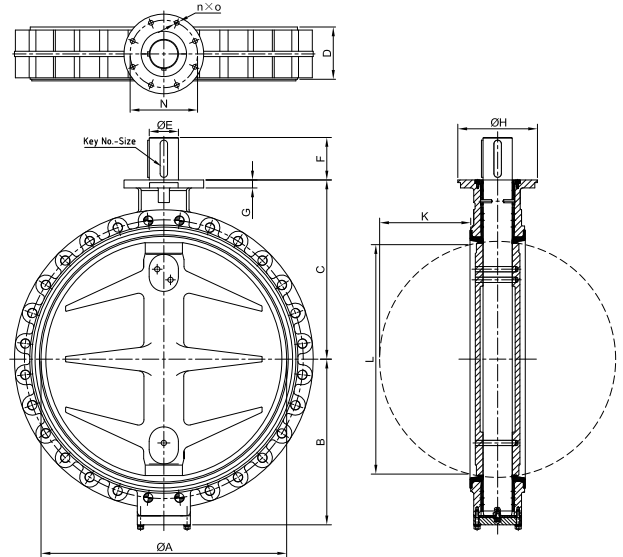
S640 DN40-DN300

DIMENSION

DN	NPS	ΦA	E	F	B	C	ΦH	D	"N(PCD) [ISO 5211]"	nxØ	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



S640 DN350~DN650



S640 DN700~DN1200

DIMENSION

DN	NPS	ΦA	E	F	B	C	ΦH	D	"N(PCD) [ISO 5211]"	n x 0	G	L	K	"Weight Appr. [KG]"
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

Concentric Butterfly Valves Vulcanized Seat



Double Flange Series 460

Nominal diameter: DN40-DN2000(1 1/2"-80")

DN1400-DN2000 (56"-80") other sizes on request

Flange connection: EN1092(PN6-10-16,PN25 up to DN400)

ASME B16.5(CL150)

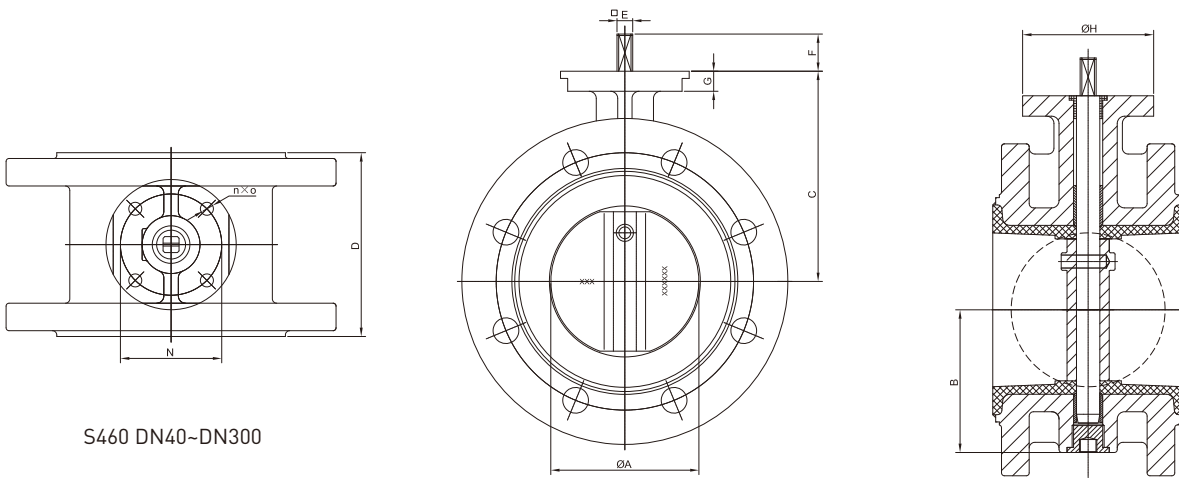
JIS B2239 & JISB2220 (JIS5K /10K /16K /30K)

Temperature range: -23 to + 200°C

Face to face acc:EN558-1 row 13

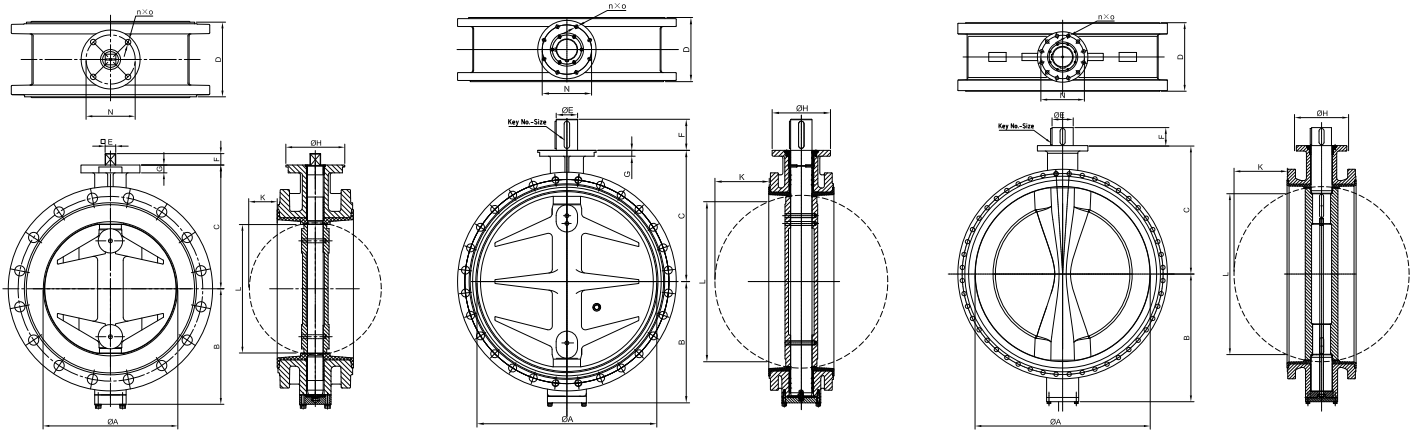
Top flange acc: EN ISO 5211

Vacuum to 1*10⁻³ Torr absolute



DIMENSION

DN	NPS	ΦA	E	F	B	C	ΦH	D	"N(PCD) [ISO 5211]"	nxO	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	99.5	147	90	127	Φ70[F07]	4xΦ9	14	NA	NA	13.1kg
125	5"	125	14	28	111.5	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



S460 DN350-DN650

S460 DN700-DN1200

S460 DN1300-DN2000

DIMENSION

DN	NPS	ΦA	E	F	B	C	ΦH	D	"N(PCD) [ISO 5211]"	nxO	G	L	K	"Weight Appr.(KG)"
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	--



Concentric Butterfly Valves Vulcanized Seat

Mono Flange Type Series 600

Nominal diameter: DN50-DN600(2"-24")

Flange connection: EN1092(PN6-10-16)

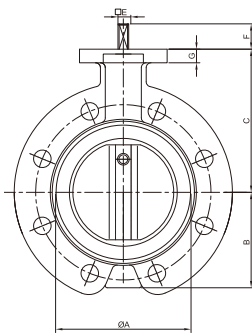
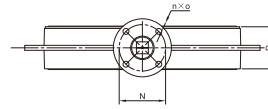
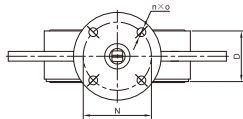
ASME B16.5(CL150)

Temperature range: -23 to + 200°C

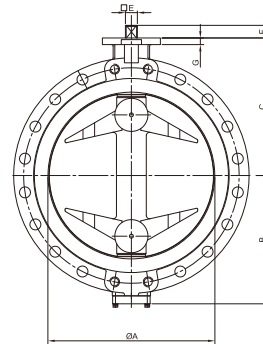
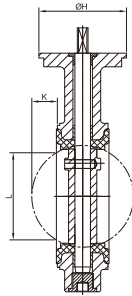
Face to face acc:EN558-1 row 20

Top flange acc: EN ISO 5211

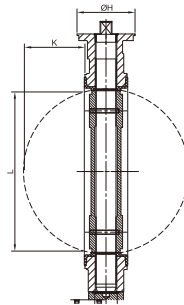
Vacuum to 1*10⁻³ Torr absolute



S600 DN40~DN300



S600 DN350~DN600



DIMENSION

DN	NPS	ΦA	E	F	B	C	ΦH	D	"N(PCD) [ISO 5211]"	nxØ	G	L	K	"Weight Appr.(KG)"
40	1 1/2"	40	11	25	61	113	90	33	Φ70[F07]	4xΦ9	12	23	3.5	2.7kg
50	2"	50	11	25	67	118	90	43	Φ70[F07]	4xΦ9	12	30	4.7	3kg
65	2 1/2"	65	11	25	74	126	90	46	Φ70[F07]	4xΦ9	12	49	11	4kg
80	3"	80	11	25	82	133	90	46	Φ70[F07]	4xΦ9	14	68	18	4.2kg
100	4"	102	11	25	100	147	90	52	Φ70[F07]	4xΦ9	14	90	26	6.1kg
125	5"	125	14	28	112	160	90	56	Φ70[F07]	4xΦ9	14	114	35	8.3kg
150	6"	150	14	28	134	180	90	56	Φ70[F07]	4xΦ9	14	140	47	10.5kg
200	8"	200	17	28	159	204	90	60	Φ70[F07]	4xΦ9	14	192	70	15kg
250	10"	250	22	30	195	245	125	68	Φ102[F10]	4xΦ11	15	243	91	25.8kg
300	12"	300	22	30	220	270	125	78	Φ102[F10]	4xΦ11	15	293	113	33.6kg
350	14"	336	27	29	294	315	150	78	Φ125[F12]	4xΦ14	20	327	129	54kg
400	16"	400	27	29	319	350	150	102	Φ125[F12]	4xΦ14	20	383	147	69kg
450	18"	450	36	38	352	375	175	114	Φ140[F14]	4xΦ18	20	432	167	101kg
500	20"	500	36	38	387	415	175	127	Φ140[F14]	4xΦ18	20	481	185	146kg
550	22"	550	36	38	420	480	210	154	Φ140[F14]	4xΦ18	25	526	198	155kg
600	24"	600	46	48	452	465	210	154	Φ165[F16]	4xΦ22	25	581	223	224kg



Concentric Butterfly Valves Vulcanized Seat

Mono Flange Type Series 610

Nominal diameter: DN50-DN600(2"-24")

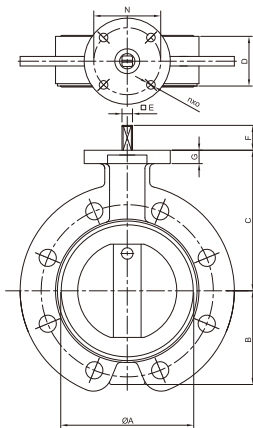
Flange connection: EN1092(PN6-10-16)
ASME B16.5(CL150)

Temperature range: -23 to + 200°C

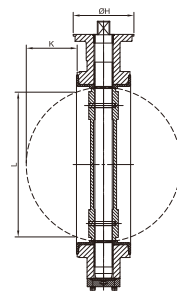
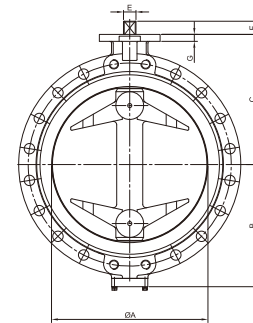
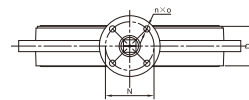
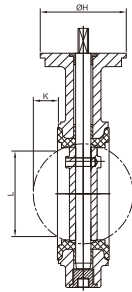
Face to face acc:EN558-1 row16

Top flange acc: EN ISO 5211

Vacuum to $1 \cdot 10^{-3}$ Torr absolute



S610 DN40-DN300



S610 DN350-DN600

DIMENSION

DN	NPS	ΦA	E	F	B	C	ΦH	D	"N(PCD) [ISO 5211]"	nxO	G	L	K	"Weight Appr.(KG)"
40	1 1/2"	40	11	25	61	113	90	33	Φ70[F07]	4xΦ9	12	23	3.5	2.7kg
50	2"	50	11	25	67	118	90	43	Φ70[F07]	4xΦ9	12	30	4.7	3kg
65	2 1/2"	65	11	25	74	126	90	46	Φ70[F07]	4xΦ9	12	50	11	4kg
80	3"	80	11	25	82	133	90	64	Φ70[F07]	4xΦ9	14	52	18	5.6kg
100	4"	102	11	25	100	147	90	64	Φ70[F07]	4xΦ9	14	82	26	7.5kg
125	5"	125	14	28	112	160	90	70	Φ70[F07]	4xΦ9	14	106	35	10.5kg
150	6"	150	14	28	134	180	90	76	Φ70[F07]	4xΦ9	14	131	47	13.5kg
200	8"	200	17	28	159	204	90	89	Φ70[F07]	4xΦ9	14	181	70	20kg
250	10"	250	22	30	195	245	125	114	Φ102[F10]	4xΦ11	15	225.3	91	33kg
300	12"	300	22	30	220	270	125	114	Φ102[F10]	4xΦ11	15	282	113	43kg
350	14"	336	27	29	294	315	150	127	Φ125[F12]	4xΦ14	20	311	129	70kg
400	16"	400	27	29	319	350	150	140	Φ125[F12]	4xΦ14	20	371	147	86kg
450	18"	450	36	38	352	375	175	152	Φ140[F14]	4xΦ18	20	420.3	167	113kg
500	20"	500	36	38	387	415	175	152	Φ140[F14]	4xΦ18	20	473.3	185	163kg
550	22"	550	36	38	420	480	210	178	Φ140[F14]	4xΦ18	25	519.3	198	173kg
600	24"	600	46	48	452	465	210	178	Φ165[F16]	4xΦ22	25	573.7	223	249kg



Concentric Butterfly Valves Replaceable Seat

Wafer Type Series 575/576

Nominal diameter: DN40-DN1200(1 1/2"-48")

DN1400-DN2000 (56"-80") other sizes on request

Flange connection: EN1092(PN6-10-16,PN25 up to DN400)

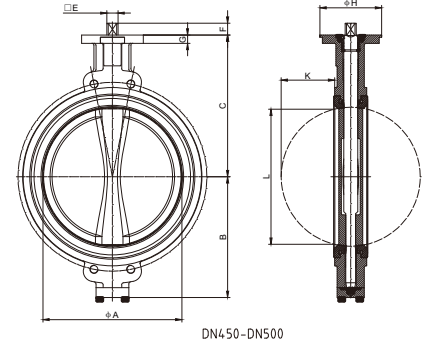
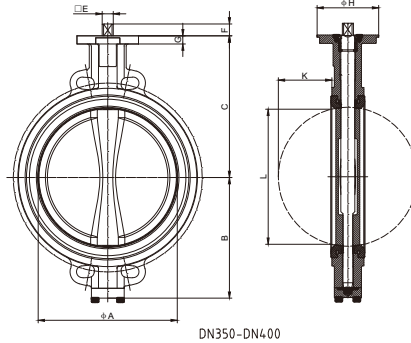
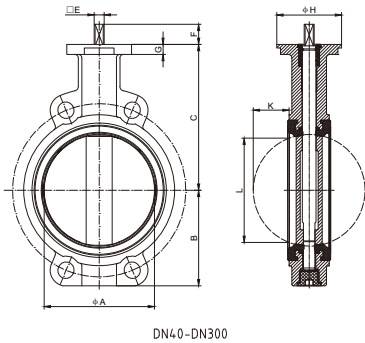
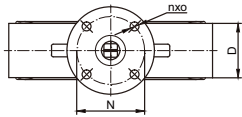
ASME B16.5(CL150)

JIS B2239 & JISB2220 (JIS5K /10K /16K /30K)

Temperature range: -23 to + 200°C

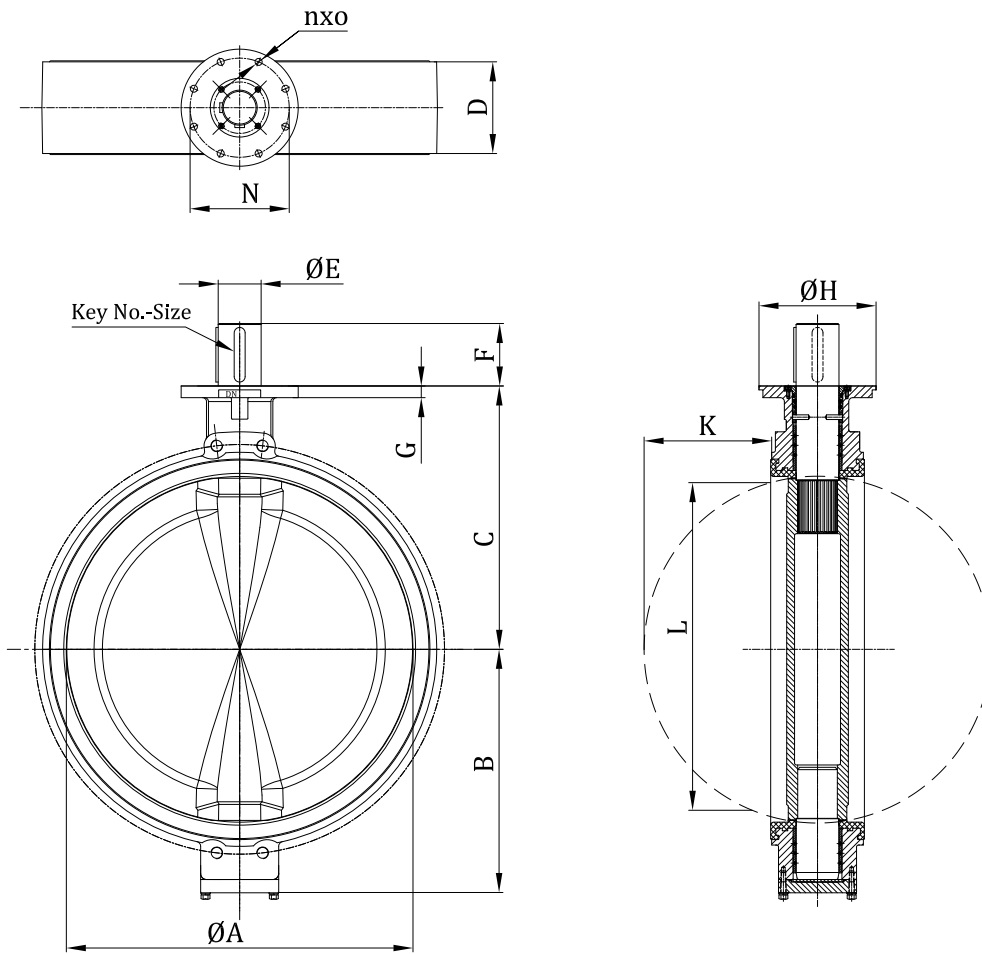
Face to face acc: EN558-1 row 20

Top flange acc: EN ISO 5211



DIMENSION

DN	NPS	ØA	E	F	B	C	ØH	D	N(PCD) (ISO 5211)	N*Ø	G	L	K
40	1[1/2]"	40.6	11	25	61	135	90	33	70(F07)	4*Ø9	13	26.3	4.6
50	2"	50.6	11	25	65	140	90	43	70(F07)	4*Ø9	13	29.6	4.6
65	2[1/2]"	62.5	11	25	73	152.5	90	46	70(F07)	4*Ø9	14	44.4	9
80	3"	80	11	25	80	157.5	90	46	70(F07)	4*Ø9	14	67	17.7
100	4"	102.5	11	25	98	176	90	52	70(F07)	4*Ø9	14	89.7	25.9
125	5"	125.5	14	28	110	191	90	56	70(F07)	4*Ø9	14	113.7	35.4
150	6"	154.2	14	28	133	203	90	56	70(F07)	4*Ø9	14	145.2	49.8
200	8"	200.9	17	28	158	240	90	60	70(F07)	4*Ø9	14	193.2	71.2
250	10"	248.9	22	30	194	273	125	68	102(F10)	4*Ø11	15	240.9	91.2
300	12"	297.9	22	30	219	311	125	78	102(F10)	4*Ø11	15	289.2	110.8
350	14"	337.2	27	29	294	345	150	78	125(F12)	4*Ø14	20	329.7	130.4
400	16"	388.1	27	29	319	375	150	102	125(F12)	4*Ø14	20	376.1	143.9
450	18"	443.8	36	38	352	405	175	114	140(F14)	4*Ø18	20	430.8	165.8
500	20"	489.7	36	38	387	438	175	127	140(F14)	4*Ø18	20	474.8	182.3



S576 DN550-DN1200

DIMENSION

DN	NPS	ΦA	E	F	B	C	ΦH	D	"N(PCD) [ISO 5211]"	nxO	G	L	K	"Weight Appr.(KG)"
550(PN10)	22"	550	Φ36	38	420	480	210	154	Φ140[F14]	4xΦ18	20	526	198	178kg
550(PN16)	22"	550	Φ46	48	420	480	210	154	Φ140[F14]	4xΦ18	25	526	198	178kg
600	24"	600	Φ46	48	452	465	210	154	Φ165[F16]	4xΦ22	25	581	223	203kg
650	26"	650	Φ46	48	475	530	210	165	Φ165[F16]	4xΦ22	30	621	239	281kg
700(PN10)	28"	700	Φ70	110	502	555	210	165	Φ165[F16]	4xΦ22	25	669	262	270kg
700(PN16)	28"	700	Φ80	120	502	555	300	165	Φ254[F25]	8xΦ18	30	669	262	320kg
800(PN10)	32"	800	Φ80	120	557	620	300	190	Φ254[F25]	8xΦ18	30	767	300	380kg
800(PN16)	32"	800	Φ100	120	557	620	300	190	Φ254[F25]	8xΦ18	30	767	300	430kg
900(PN10)	36"	900	Φ90	120	622	675	300	203	Φ254[F25]	8xΦ18	30	865	343	500kg
900(PN16)	36"	900	Φ110	160	622	675	300	203	Φ254[F25]	8xΦ18	30	865	343	550kg
1000(PN10)	40"	1000	Φ90	120	672	740	300	216	Φ254[F25]	8xΦ18	30	962	385	750kg
1000(PN16)	40"	1000	Φ120	160	672	740	300	216	Φ254[F25]	8xΦ18	30	962	385	825kg
1100(PN10)	44"	1100	Φ105	120	800	756	350	254	Φ298[F30]	8xΦ22	40	1042	410	1021kg
1100(PN16)	44"	1100	Φ125	160	800	756	350	254	Φ298[F30]	8xΦ22	40	1042	410	1120kg
1200(PN10)	48"	1200	Φ110	160	875	824	350	254	Φ298[F30]	8xΦ22	40	1146	410	1250kg
1200(PN16)	48"	1200	Φ130	160	875	824	350	254	Φ298[F30]	8xΦ22	40	1146	410	1370kg

* Shaft size of E is Ø from DN700



Concentric Butterfly Valves Replaceable Seat

Lug Type Series 645/646

Nominal diameter: DN40-DN1200(1 1/2"-48")

DN1400-DN2000 (56"-80") other sizes on request

Flange connection: EN1092(PN6-10-16,PN25 up to DN400)

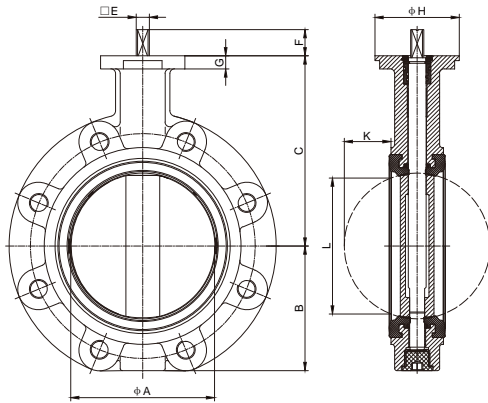
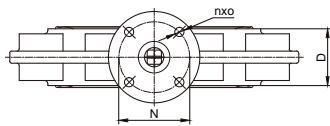
ASME B16.5(CL150)

JIS B2239 & JISB2220 (JIS5K /10K /16K /30K)

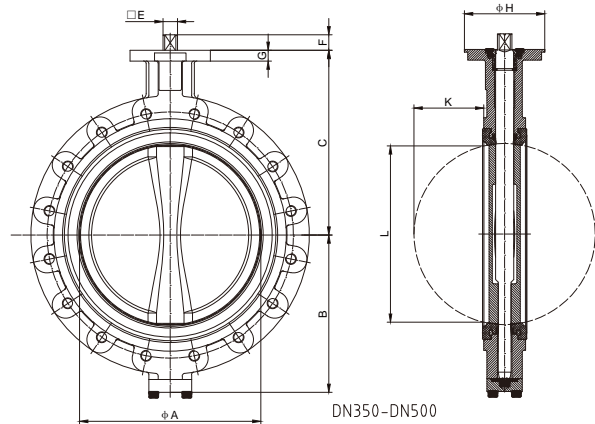
Temperature range: -23 to + 200°C

Face to face acc:EN558-1 row 20

Top flange acc: EN ISO 5211



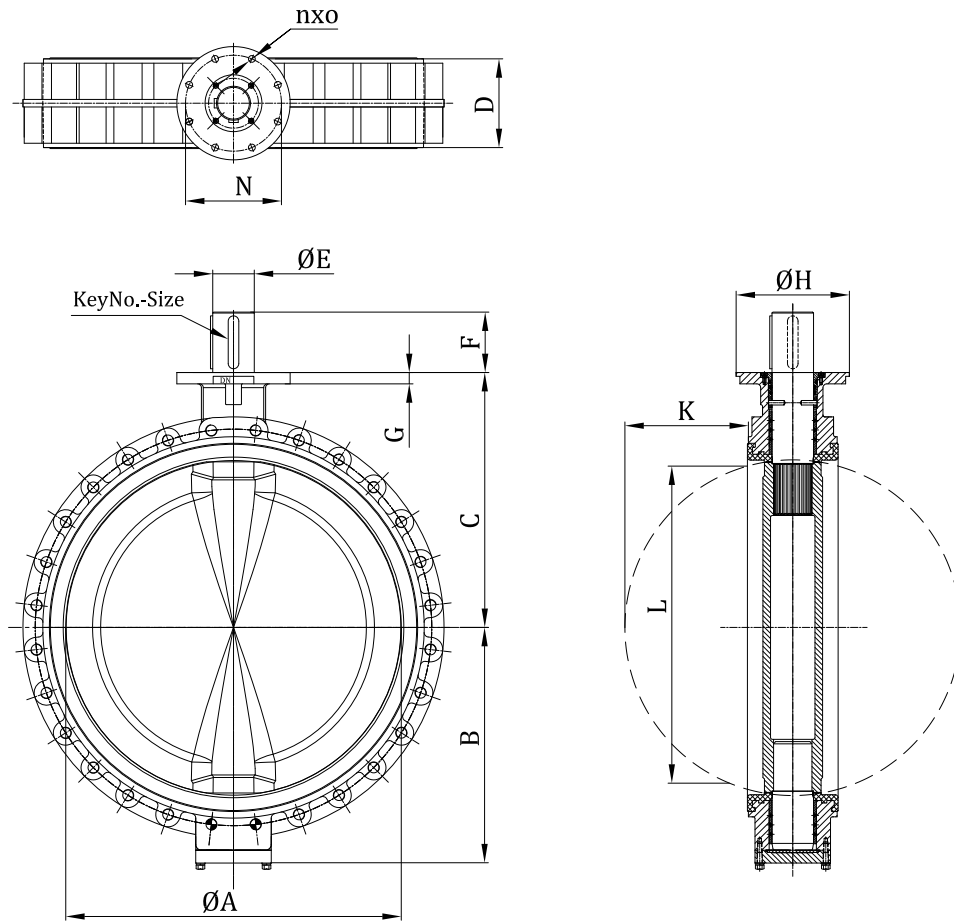
DN40-DN300



DN350-DN500

DIMENSION

DN	NPS	ØA	E	F	B	C	ØH	D	N(PCD) (ISO 5211)	N*Ø	G	L	K
40	1(1/2)"	40.6	11	25	61	135	90	33	70(F07)	4*Ø9	13	26.3	4.6
50	2"	50.6	11	25	65	140	90	43	70(F07)	4*Ø9	13	29.6	4.6
65	2(1/2)"	62.5	11	25	73	152.5	90	46	70(F07)	4*Ø9	14	44.4	9
80	3"	80	11	25	80	157.5	90	46	70(F07)	4*Ø9	14	67	17.7
100	4"	102.5	11	25	98	176	90	52	70(F07)	4*Ø9	14	89.7	25.9
125	5"	125.5	14	28	110	191	90	56	70(F07)	4*Ø9	14	113.7	35.4
150	6"	154.2	14	28	133	203	90	56	70(F07)	4*Ø9	14	145.2	49.8
200	8"	200.9	17	28	158	240	90	60	70(F07)	4*Ø9	14	193.2	71.2
250	10"	248.9	22	30	194	273	125	68	102(F10)	4*Ø11	15	240.9	91.2
300	12"	297.9	22	30	219	311	125	78	102(F10)	4*Ø11	15	289.2	110.8
350	14"	337.2	27	29	294	345	150	78	125(F12)	4*Ø14	20	329.7	130.4
400	16"	388.1	27	29	319	375	150	102	125(F12)	4*Ø14	20	376.1	143.9
450	18"	443.8	36	38	352	405	175	114	140(F14)	4*Ø18	20	430.8	165.8
500	20"	489.7	36	38	387	438	175	127	140(F14)	4*Ø18	20	474.8	182.3



S646 DN550-DN1200

DIMENSION

DN	NPS	ΦA	E	F	B	C	ΦH	D	"N(PCD) [ISO 5211]"	nxO	G	L	K	"Weight Aprr.(KG)"
550(PN10)	22"	550	Φ36	38	420	480	210	154	Φ140[F14]	4xΦ18	25	527	198	173kg
550(PN16)	22"	550	Φ46	48	420	480	210	154	Φ140[F14]	4xΦ18	25	527	198	180kg
600	24"	600	Φ46	48	452	465	210	154	Φ165[F16]	4xΦ22	25	581	223	249kg
650	26"	650	Φ46	48	451	530	210	165	Φ165[F16]	4xΦ22	30	621	239	281kg
700(PN10)	28"	700	Φ70	110	489	555	210	165	Φ165[F16]	4xΦ22	25	669	262	340kg
700(PN16)	28"	700	Φ80	120	489	555	300	165	Φ254[F25]	8xΦ18	30	669	262	375kg
800(PN10)	32"	800	Φ80	120	549	620	300	190	Φ254[F25]	8xΦ18	30	767	300	530kg
800(PN16)	32"	800	Φ100	120	549	620	300	190	Φ254[F25]	8xΦ18	30	767	300	580kg
900(PN10)	36"	900	Φ90	120	614	675	300	203	Φ254[F25]	8xΦ18	30	865	343	650kg
900(PN16)	36"	900	Φ110	160	614	675	300	203	Φ254[F25]	8xΦ18	30	865	343	700kg
1000(PN10)	40"	1000	Φ90	120	664	740	300	216	Φ254[F25]	8xΦ18	30	962	385	970kg
1000(PN16)	40"	1000	Φ120	160	664	740	300	216	Φ254[F25]	8xΦ18	30	962	385	1050kg
1100(PN10)	44"	1100	Φ105	120	756	800	350	254	Φ298[F30]	8xΦ22	40	1042	410	1221kg
1100(PN16)	44"	1100	Φ125	160	756	800	350	254	Φ298[F30]	8xΦ22	40	1042	410	1330kg
1200(PN10)	48"	1200	Φ110	160	824	875	350	254	Φ298[F30]	8xΦ22	40	1146	460	1417kg
1200(PN16)	48"	1200	Φ130	160	824	875	350	254	Φ298[F30]	8xΦ22	40	1146	460	1560kg

* Shaft size of E is Ø from DN700



Concentric Butterfly Valves Replaceable Seat

Double Flange Type Series 465/466

Nominal diameter: DN40-DN2000(1 1/2"-80")

DN1400-DN2000 (56"-80") other sizes on request

Flange connection: EN1092(PN6-10-16,PN25 up to DN400)

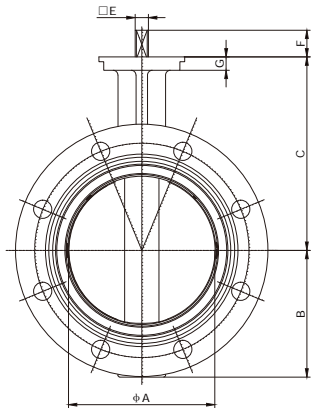
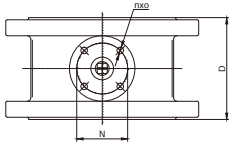
ASME B16.5(CL150)

JIS B2239 & JISB2220 (JIS5K /10K /16K /30K)

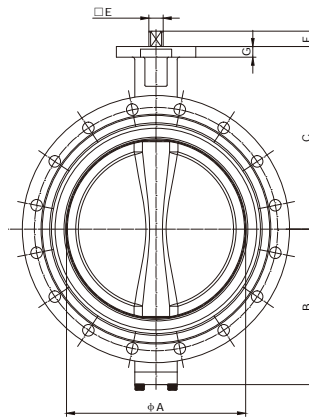
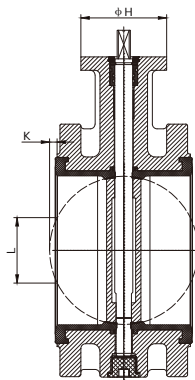
Temperature range: -23 to + 200°C

Face to face acc:EN558-1 row 13

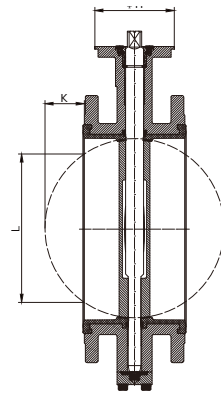
Top flange acc: EN ISO 5211



DN40-DN300

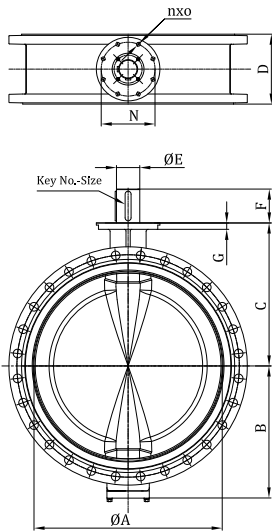


DN350-DN500

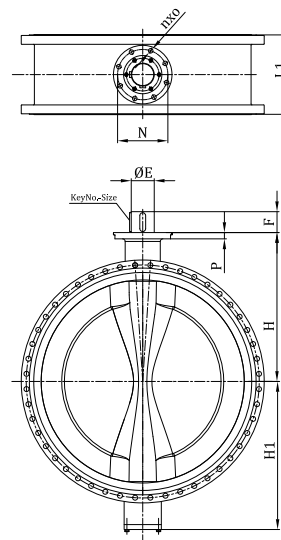
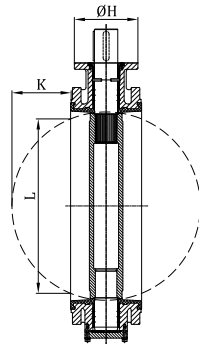


DIMENSION

DN	NPS	ØA	E	F	B	C	ØH	D	N(PCD) (ISO 5211)	N*Ø	G	L	K
40	1(1/2)"	40.6	11	25	61	135	90	106	70(F07)	4*Ø9	13	-	-
50	2"	50.6	11	25	65	140	90	108	70(F07)	4*Ø9	13	-	-
65	2(1/2)"	62.5	11	25	73	152.5	90	112	70(F07)	4*Ø9	14	-	-
80	3"	80	11	25	80	157.5	90	114	70(F07)	4*Ø9	14	-	-
100	4"	102.5	11	25	98	176	90	127	70(F07)	4*Ø9	14	-	-
125	5"	125.5	14	28	110	191	90	140	70(F07)	4*Ø9	14	-	-
150	6"	154.2	14	28	133	203	90	140	70(F07)	4*Ø9	14	67.9	7.8
200	8"	200.9	17	28	158	240	90	152	70(F07)	4*Ø9	14	133.5	25.2
250	10"	248.9	22	30	194	273	125	165	102(F10)	4*Ø11	15	188.2	42.7
300	12"	297.9	22	30	219	311	125	178	102(F10)	4*Ø11	15	240.9	60.8
350	14"	337.2	27	29	294	345	150	190	125(F12)	4*Ø14	20	280.5	74.4
400	16"	388.1	27	29	319	375	150	216	125(F12)	4*Ø14	20	324.4	86.9
450	18"	443.8	36	38	352	405	175	222	140(F14)	4*Ø18	20	386.4	111.8
500	20"	489.7	36	38	387	438	175	229	140(F14)	4*Ø18	20	434.9	131.3



S466 DN550-DN1200



S466 DN1300-DN2000

DIMENSION

DN	NPS	ΦA	E	F	B	C	ΦH	D	"N(PCD) [ISO 5211]"	nxO	G	L	K	"Weight Appr.(KG)"
550(PN10)	22"	550	Φ36	38	420	480	210	267	Φ140[F14]	4xΦ18	25	478	141	200kg
550(PN16)	22"	550	Φ46	48	420	480	210	267	Φ140[F14]	4xΦ18	25	478	141	205kg
600	24"	600	Φ46	48	452	465	210	267	Φ165[F16]	4xΦ22	25	538	167	231kg
650	26"	650	Φ46	48	475	530	210	292	Φ165[F16]	4xΦ22	30	573	176	311kg
700(PN10)	28"	700	Φ70	110	489	555	210	292	Φ165[F16]	4xΦ22	25	624	198	365kg
700(PN16)	28"	700	Φ80	120	489	555	300	292	Φ254[F25]	8xΦ18	30	624	198	420kg
800(PN10)	32"	800	Φ80	120	549	620	300	318	Φ254[F25]	8xΦ18	30	723	236	440kg
800(PN16)	32"	800	Φ100	120	549	620	300	318	Φ254[F25]	8xΦ18	30	723	236	510kg
900(PN10)	36"	900	Φ90	120	614	675	300	330	Φ254[F25]	8xΦ18	30	825	279	671kg
900(PN16)	36"	900	Φ110	160	614	675	300	330	Φ254[F25]	8xΦ18	30	825	279	760kg
1000(PN10)	40"	1000	Φ90	120	664	740	300	410	Φ254[F25]	8xΦ18	30	897	288	990kg
1000(PN16)	40"	1000	Φ120	160	664	740	300	410	Φ254[F25]	8xΦ18	30	897	288	1050kg
1100(PN10)	44"	1100	Φ105	120	740	800	350	410	Φ298[F30]	8xΦ22	40	942	332	1180kg
1100(PN16)	44"	1100	Φ125	160	740	800	350	410	Φ298[F30]	8xΦ22	40	942	332	1250kg
1200(PN10)	48"	1200	Φ110	160	802	875	350	470	Φ298[F30]	8xΦ22	40	1075	352	1440kg
1200(PN16)	48"	1200	Φ130	160	802	875	350	470	Φ298[F30]	8xΦ22	40	1075	352	1580kg

* Shaft size of E is Ø from DN700

DIMENSION

"Nominal Size"	PN	ΦQ	ΦE	" Key No-Size"	H1	H	F	P	L1	N	ΦK	n	ΦO	M	"Weight Appr.(KG)"
1300	10	1430	110	2-28x16x140	870	950	160	50	470	356	415	8	33	1196	1800
1400	10	1535	120	2-32x18x140	925	990	160	50	530	356	415	8	33	1280	2475
1500	10	1645	135	2-36x20x140	1000	1050	160	50	600	406	475	8	39	1350	2710
1600	10	1755	150	2-36x20x140	1085	1150	160	50	600	406	475	8	39	1449	2840
1800	10	1965	165	2-40x22x160	1214	1265	180	55	670	406	475	8	39	1638	3980
2000	10	2160	200	2-45x25x180	1437	1425	200	60	760	483	560	8	39	1900	6500
1300	16	1430	130	2-32x18x140	870	950	160	50	470	356	415	8	33	1196	1865
1400	16	1535	140	2-36x20x140	925	990	160	50	530	406	475	8	39	1280	2510
1500	16	1640	155	2-40x22x160	1000	1050	180	50	600	406	475	8	39	1350	2760
1600	16	1755	175	2-45x25x160	1085	1150	180	50	600	406	475	8	39	1449	2890
1800	16	1965	195	2-45x25x180	1214	1265	200	55	670	406	475	8	39	1638	4100
2000	16	2160	235	2-56x32x180	1437	1425	200	60	760	483	560	8	39	1900	6650



Concentric Butterfly Valves Replaceable Seat

U Flange Type Series 365/366

Nominal diameter: DN50-DN1200(2"-48")

Flange connection: EN1092(PN6-10-16,PN25 up to DN400)

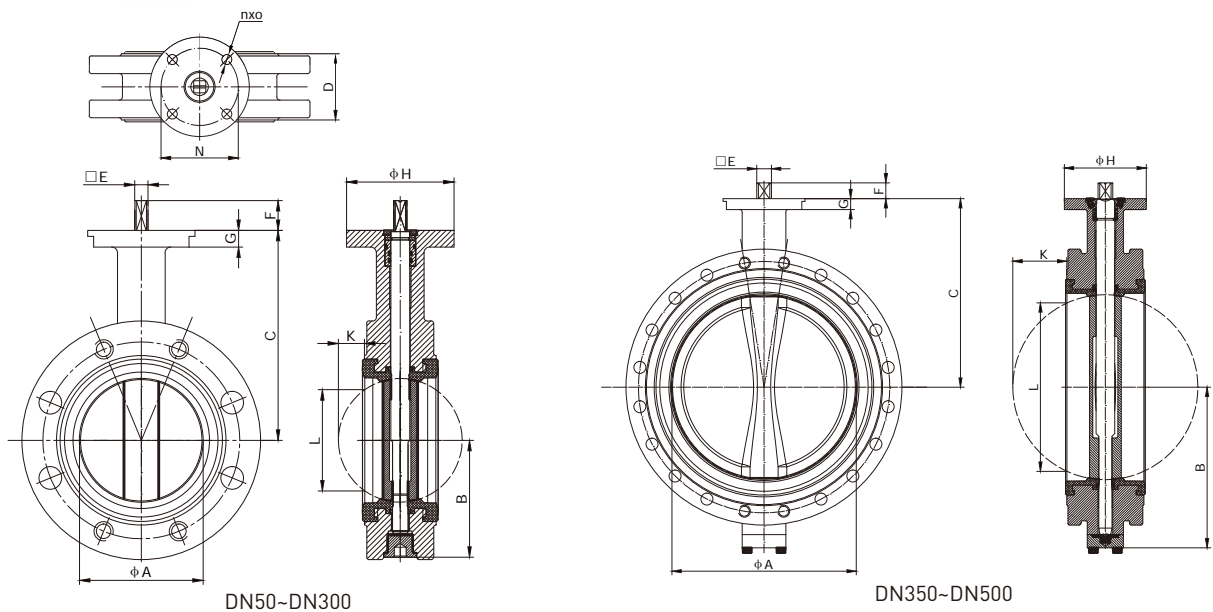
ASME B16.5(CL150)

JIS B2239 & JISB2220 (JIS5K /10K /16K /30K)

Temperature range: -23 to + 200°C

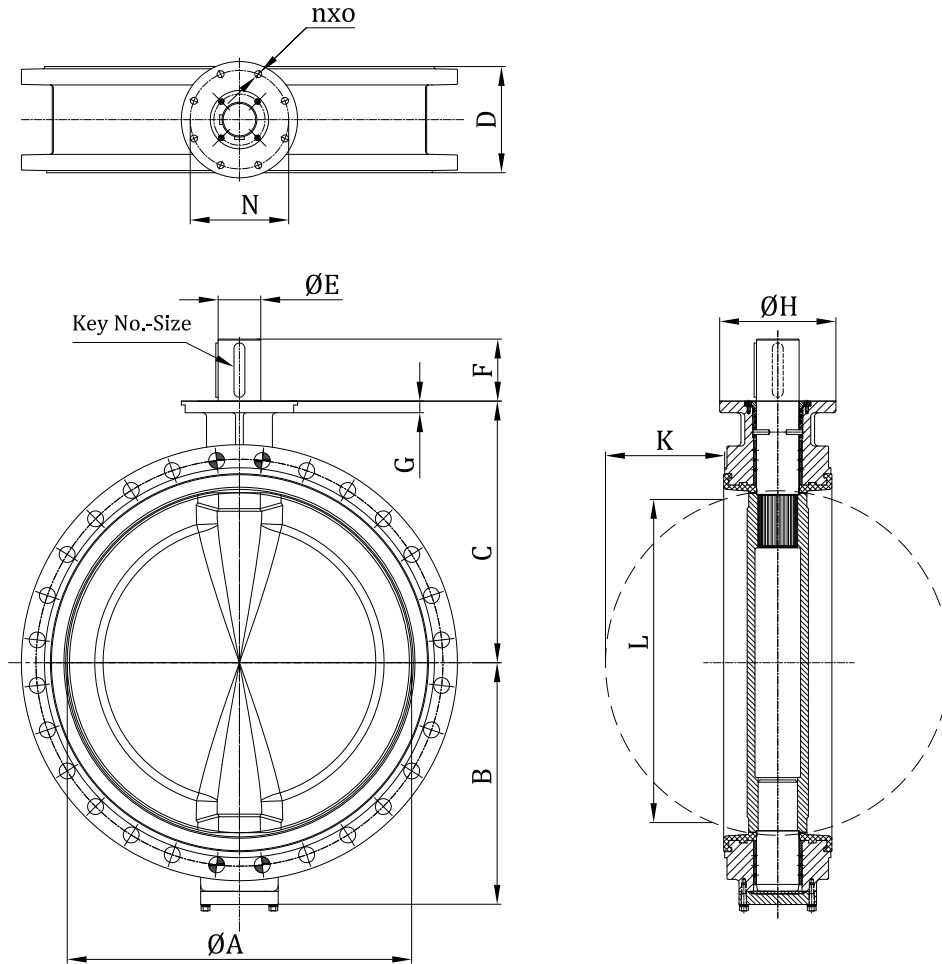
Face to face acc: JIS F7480

Top flange acc: EN ISO 5211



DIMENSION

DN	NPS	ϕA	E	F	B	C	ϕH	D	N(PCD) (ISO 5211)	N*O	G	L	K
50	2"	50.6	11	25	65	140	90	40	70(F07)	4* $\phi 9$	13	33.5	6.1
65	2[1/2]"	62.5	11	25	73	152.5	90	40	70(F07)	4* $\phi 9$	14	49.8	12
80	3"	80	11	25	80	157.5	90	60	70(F07)	4* $\phi 9$	14	54.9	10.7
100	4"	102.5	11	25	98	176	90	60	70(F07)	4* $\phi 9$	14	84.6	21.9
125	5"	125.5	14	28	110	191	90	100	70(F07)	4* $\phi 9$	14	77.8	13.4
150	6"	154.2	14	28	133	203	90	100	70(F07)	4* $\phi 9$	14	119.2	27.8
200	8"	200.9	17	28	158	240	125	100	102(F10)	4* $\phi 11$	14	175.9	51.2
250	10"	248.9	22	30	194	273	125	110	102(F10)	4* $\phi 11$	15	224.8	70.2
300	12"	297.9	22	30	219	311	125	110	102(F10)	4* $\phi 11$	15	278.6	94.8
350	14"	337.2	27	29	294	345	150	120	125(F12)	4* $\phi 14$	20	316.8	109.4
400	16"	388.1	27	29	319	375	175	130	140(F14)	4* $\phi 18$	20	367.4	129.9
450	18"	443.8	36	38	352	405	175	150	140(F14)	4* $\phi 18$	20	419.6	147.8
500	20"	489.7	36	38	387	438	210	160	165(F16)	4* $\phi 22$	20	464.7	165.8



S366 DN550-DN1200

DIMENSION

DN	NPS	ΦA	E	F	B	C	ΦH	D	"N(PCD) [ISO 5211]"	nxO	G	L	K	"Weight Appr.(KG)"
550(PN10)	22"	550	□36	38	420	480	210	170	Φ140[F14]	4xΦ18	25	478	141	182kg
550(PN16)	22"	550	□46	48	420	480	210	170	Φ140[F14]	4xΦ18	25	478	141	190kg
600	24"	600	□46	48	452	465	210	200	Φ165[F16]	4xΦ22	25	538	167	210kg
650	26"	650	□46	48	475	530	210	210	Φ165[F16]	4xΦ22	30	573	176	270kg
700(PN10)	28"	700	Φ70	110	489	555	210	220	Φ165[F16]	4xΦ22	25	624	198	330kg
700(PN16)	28"	700	Φ80	120	489	555	300	220	Φ254[F25]	8xΦ18	30	624	198	385kg
800(PN10)	32"	800	Φ80	120	549	620	300	240	Φ254[F25]	8xΦ18	30	723	236	440kg
800(PN16)	32"	800	Φ100	120	549	620	300	240	Φ254[F25]	8xΦ18	30	723	236	495kg
900(PN10)	36"	900	Φ90	120	614	675	300	290	Φ254[F25]	8xΦ18	30	825	279	645kg
900(PN16)	36"	900	Φ110	160	614	675	300	290	Φ254[F25]	8xΦ18	30	825	279	740kg
1000(PN10)	40"	1000	Φ90	120	664	740	300	300	Φ254[F25]	8xΦ18	30	897	288	910kg
1000(PN16)	40"	1000	Φ120	160	664	740	300	300	Φ254[F25]	8xΦ18	30	897	288	970kg
1100(PN10)	44"	1100	Φ105	120	740	800	350	300	Φ298[F30]	8xΦ22	40	942	332	1110kg
1100(PN16)	44"	1100	Φ125	160	740	800	350	300	Φ298[F30]	8xΦ22	40	942	332	1170kg
1200(PN10)	48"	1200	Φ110	160	802	875	350	360	Φ298[F30]	8xΦ22	40	1075	352	1300kg
1200(PN16)	48"	1200	Φ130	160	802	875	350	360	Φ298[F30]	8xΦ22	40	1075	352	1430kg

* Shaft size of E is Ø from DN700



Concentric Butterfly Valves

Replaceable Seat

Semi-Lug Type Series 578

Nominal diameter: DN50-DN500(2"-20")

Flange connection: EN1092(PN6-10-16)

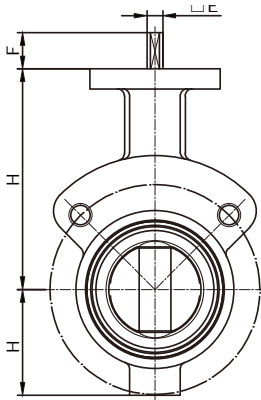
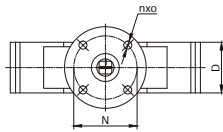
ASME B16.5(CL150)

JIS B2239 & JISB2220 (JIS5K /10K /16K)

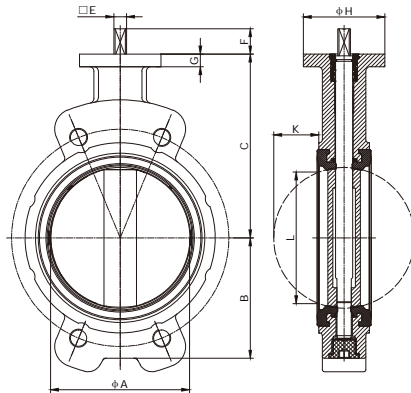
Temperature range: -23 to + 200°C

Face to face acc: EN558-1 row 20

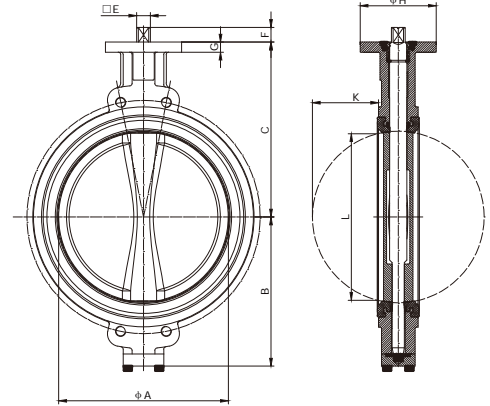
Top flange acc: EN ISO 5211



DN50-DN65



DN80-DN300



DN350-DN500

DIMENSION

DN	NPS	ØA	E	F	B	C	ØH	D	N(PCD) (ISO 5211)	N*Ø	G	L	K
50	2"	50.6	11	25	65	140	90	43	70(F07)	4*Ø9	13	29.6	4.6
65	2(1/2)"	62.5	11	25	73	152.5	90	46	70(F07)	4*Ø9	14	44.4	9
80	3"	80	11	25	80	157.5	90	46	70(F07)	4*Ø9	14	67	17.7
100	4"	102.5	11	25	98	176	90	52	70(F07)	4*Ø9	14	89.7	25.9
125	5"	125.5	14	28	110	191	90	56	70(F07)	4*Ø9	14	113.7	35.4
150	6"	154.2	14	28	133	203	90	56	70(F07)	4*Ø9	14	145.2	49.8
200	8"	200.9	17	28	158	240	125	60	102(F10)	4*Ø11	14	193.2	71.2
250	10"	248.9	22	30	194	273	125	68	102(F10)	4*Ø11	15	240.9	91.2
300	12"	297.9	22	30	219	311	125	78	102(F10)	4*Ø11	15	289.2	110.8
350	14"	337.2	27	29	294	345	150	78	125(F12)	4*Ø14	20	329.7	130.4
400	16"	388.1	27	29	319	375	175	102	140(F14)	4*Ø18	20	376.1	143.9
450	18"	443.8	36	38	352	405	175	114	140(F14)	4*Ø18	20	430.8	165.8
500	20"	489.7	36	38	387	438	210	127	165(F16)	4*Ø22	20	474.8	182.3

MATERIALS

Parts	General Material	EN Standard	ASTM Standard	JIS Standard
Body	Ductile Iron	JS1030 EN 1563(GGG40 DIN1693)	Gr.65-45-12 ASTM A536	FCD450 JIS G5502
	Carbon Steel	1.0619(GP240GH) EN 10213	WCB ASTM A216	SCPH2 JIS G5151
	Stainless Steel	1.4408 EN 10213	CF8,CF8M,CF3,CF3M ASTM A351	SCS14A,SCS16A JIS G5121
	Duplex	1.4470 EN 10213	Gr.4A,5A,6A ASTM A890	
	Aluminium Bronze	AB1,AB2 BS1400	C95500,C95800 ASTM B148	ALBC2,ALBC3 JIS H5114
	Zinc Bronze	CuSn57ZnPb(RG5 DIN1705) EN 1982/ CuSn7ZnPb(RG7 DIN1705) EN 1982/ CuSn10Zn(RG10 DIN1705) EN 1982	C52100 ASTM B103	
Disc	Ductile Iron 300um Rilsan coated/Halar coating	JS1030 EN 1563(GGG40 DIN1693)	Gr.65-45-12 ASTM A536	FCD450 JIS G5502
	Stainless Steel	1.4408 EN 10213	CF8,CF8M,CF3,CF3M ASTM A351	SCS14A,SCS16A JIS G5121
	Aluminium Bronze	AB2 BS1400	C95500,C95800 ASTM B148	ALBC2,ALBC3 JIS H5114
	Duplex	1.4470 EN 10213	Gr.4A,5A,6A ASTM A890	
	Monel		M35-1(Monel K400),M35-2(Monel K500) ASTM A494	
Shaft	Stainless Steel	1.4122 EN 10088-3	F431,F316,F316L ASTM A182	SUSF316,SUSF316L JIS G3214
	Duplex	1.4462 EN 10088-3	F51,F53,F55 ASTM A182	
	Monel(K500)		UNS N05500 ASTM B865	
	Aluminium Bronze		UNS C63000 ASTM B150	
Seat	NBR	Temp. -15~80 C		
	EPDM	Temp. -23~120 C		
	VITON	Temp. -15~200 C		

*Other materials are available on request.



High Performance Double Eccentric Butterfly Valves

Wafer Type Series 960/961

Nominal diameter: DN50-DN1200(2"-48")
 other sizes on request

Flange connection: EN1092(PN6-10-16-25-40-63)
 ASME B16.5(CL150-300)
 JIS B2220 (5K /10K /16K /30K)

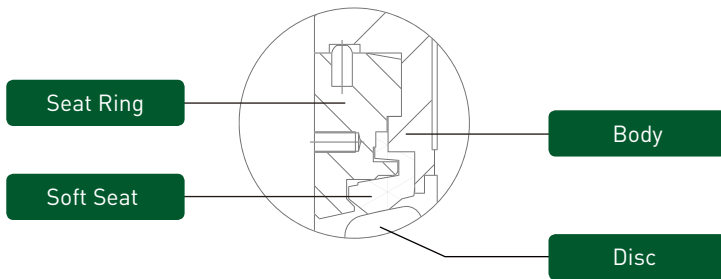
Temperature range: -40 to +650°C

Face to face acc: API609

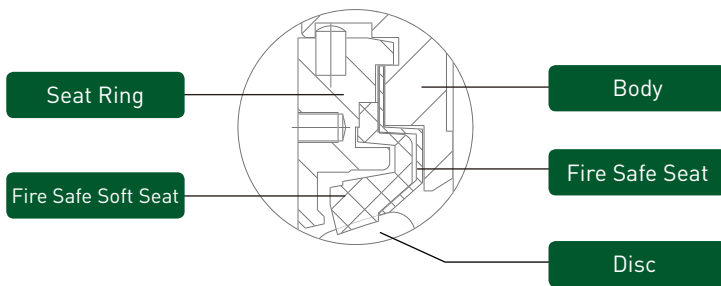
Top flange acc: EN ISO 5211

Vacuum to $1 \cdot 10^{-3}$ Torr absolute

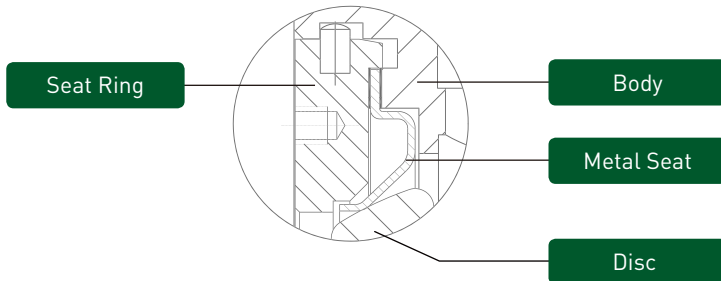
SEAT SEALING OPTIONS



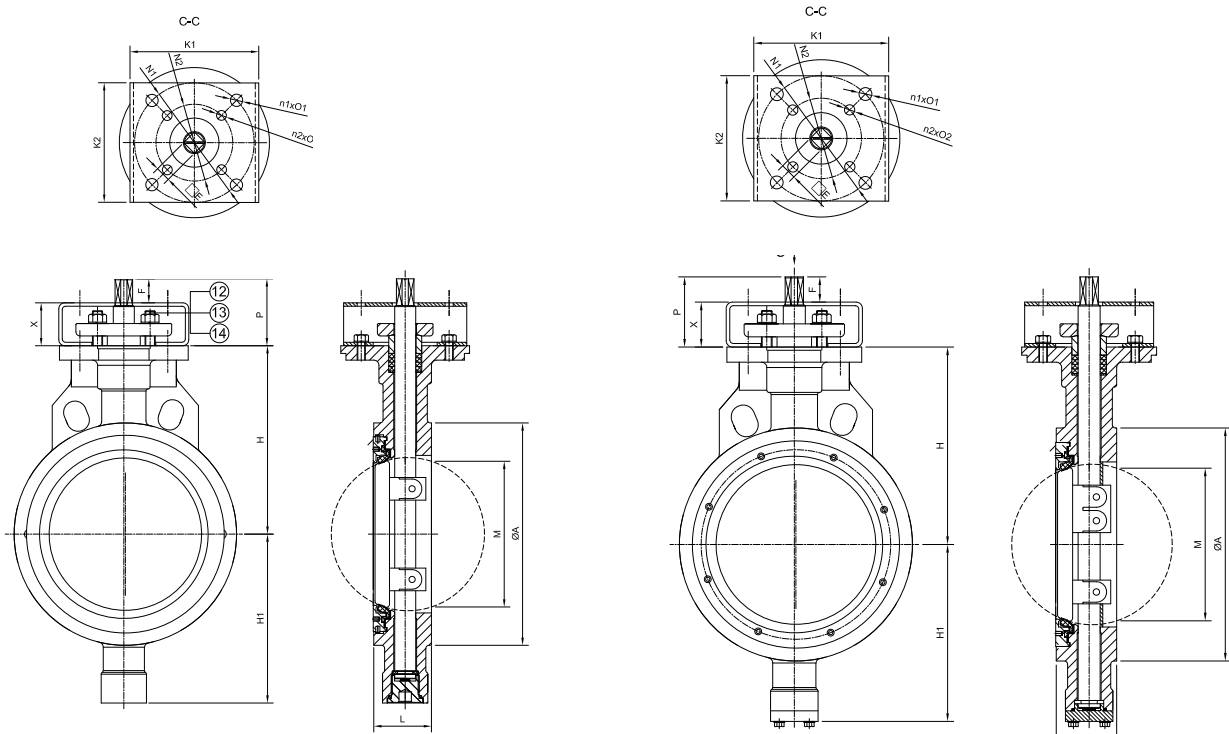
SOFT SEAT:
 The elasticity of the seat together with the fluid pressure ensures zero leakage.



FIRE SAFE SEAT:
 During a fire when the PTFE-R seat burns away, the supplementary metal seat activates automatically and prevents extraordinary leakage.



METAL SEAT:
 This version offers very high sealing capabilities.



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

S960 DN350-400 CL150/PN10/PN16/PN25

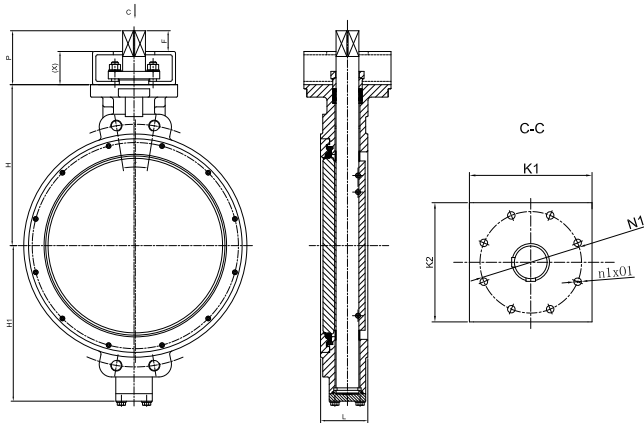
DIMENSION PN10/16/25/CL150

DN	ΦA	E	F	H	H1	K1	K2	L	N1	N2	n1xO1	n2xO2	P	X	M
50	102	12	15	108	91	90	70	43	70	50	4xΦ9	4xΦ7	65	[50]	44
65	122	12	15	123	101	90	70	46	70	50	4xΦ9	4xΦ7	65	[50]	61
80	132	12	15	133	107	90	70	46	70	50	4xΦ9	4xΦ7	65	[50]	74
100	156	12	15	155	115	90	70	52	70	50	4xΦ9	4xΦ7	65	[50]	93
125	188	17	20	173	155	110	100	56	102	70	4xΦ11	4xΦ9	65	[45]	119
150	216	17	20	183	164	110	100	56	102	70	4xΦ11	4xΦ9	65	[45]	138
200	268	19	25	218	195	140	120	60	125	102	4xΦ13	4xΦ11	85	[60]	190
250	326	22	25	253	230	140	120	68	125	102	4xΦ13	4xΦ11	85	[60]	239
300	375	27	30	278	260	160	140	78	140	102	4xΦ17	4xΦ11	90	[60]	277
350	420	30	32	318	308	160	140	92	140	102	4xΦ17	4xΦ11	92	[60]	331
400	482	36	44	363	354	200	170	102	165	140	4xΦ22	4xΦ17	124	[80]	374

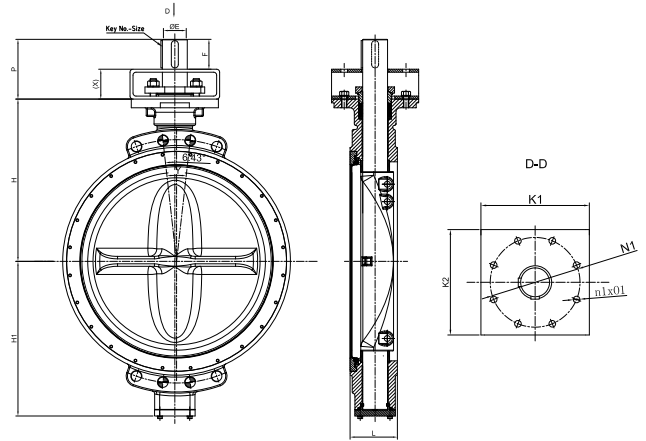
*Other sizes available on request.

DIMENSION CL300

DN	E	F	P	H	H1	L	K1	K2	N1	N2	n1xO1	n2xO2	X	M
80	17	20	65	158	123	48	110	100	102	70	4xØ11	4xØ9	[45]	74
100	17	20	65	178	142	54	110	100	102	70	4xØ11	4xØ9	[45]	93
125	22	25	85	190	190	59	140	120	125	102	4xØ13	4xØ11	[60]	119
150	22	25	85	210	209	59	140	120	125	102	4xØ13	4xØ11	[60]	138
200	27	30	90	265	215	73	160	140	140	102	4xØ17	4xØ11	[60]	190
250	Ø40 2-12x8x40	45	105	284	266	83	170	165	165	--	4xØ22	--	[60]	239
300	Ø45 2-14x9x56	60	140	325	300	92	200	170	165	--	4xØ22	--	[80]	278
350	Ø50 2-16x10x63	68	168	360	345	118	300	300	254	--	8xØ18	--	[100]	317
400	Ø60 2-20x12x80	85	185	423	410	136	300	300	254	--	8xØ18	--	[100]	361



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	n1x01	n2x02	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	n1x01	n2x02	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



High Performance Double Eccentric Butterfly Valves

Lug Type Series 970/971

Nominal diameter: DN50-DN1200(2"-48")
other sizes on request

Flange connection: EN1092(PN6-10-16-25-40-63)
ASME B16.5(CL150-300)
JIS B2220 (5K /10K /16K /30K)

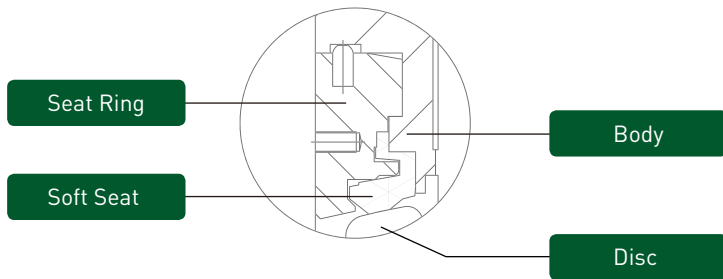
Temperature range: -40 to +650°C

Face to face acc:API609

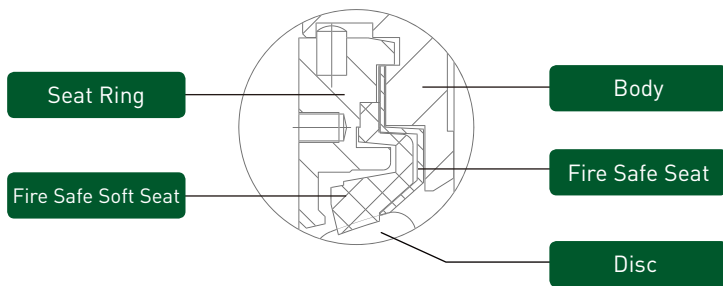
Top flange acc: EN ISO 5211

Vacuum to $1 \cdot 10^{-3}$ Torr absolute

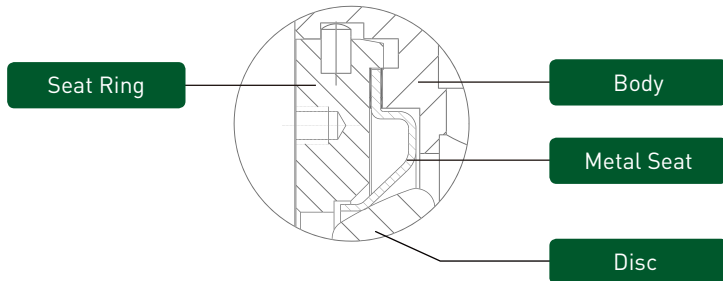
SEAT SEALING OPTIONS



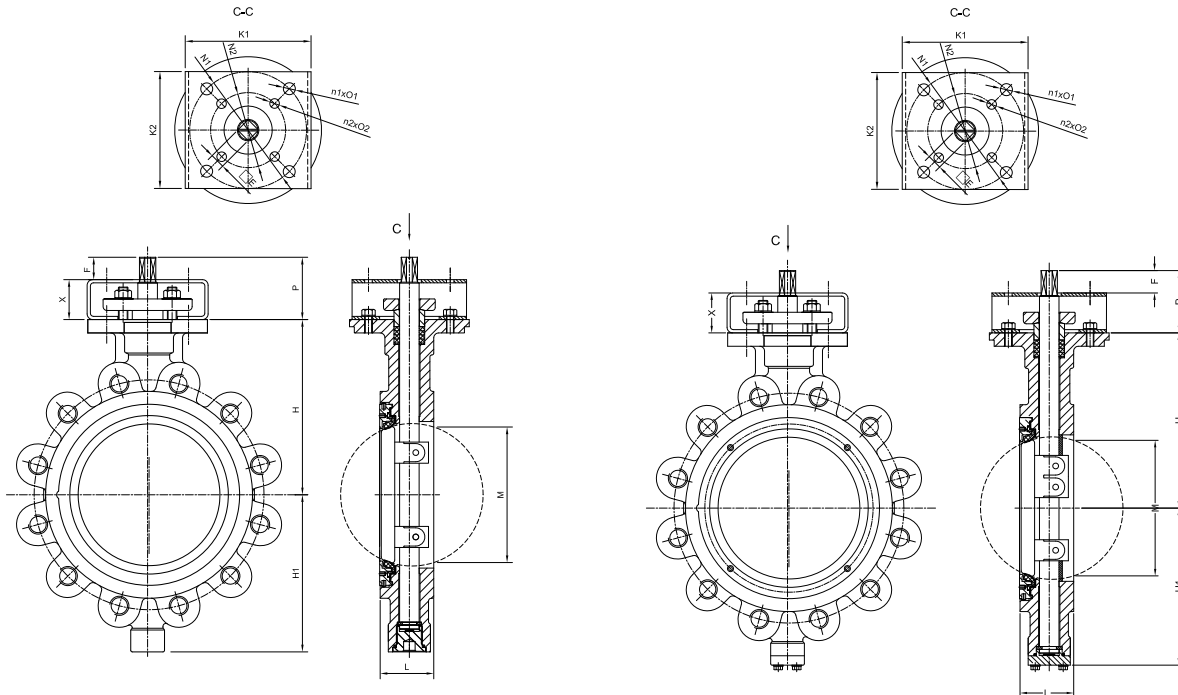
SOFT SEAT:
The elasticity of the seat together with the fluid pressure ensures zero leakage.



FIRE SAFE SEAT:
During a fire when the PTFE-R seat burns away, the supplementary metal seat activates automatically and prevents extraordinary leakage.



METAL SEAT:
This version offers very high sealing capabilities.



S970 DN50~300 CL150/PN10/PN16/PN25
S970 DN50~200 CL300/PN40/PN63

S970 DN350~400 CL150/PN10/PN16/PN25

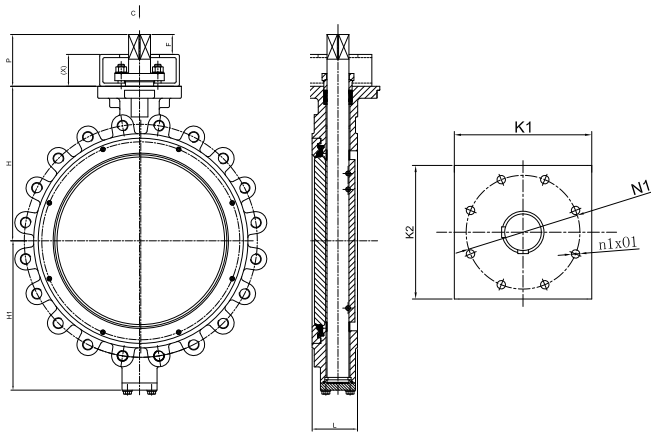
DIMENSION PN10/16/25/CL150

DN	E	F	P	H	H1	K1	K2	L	N1	N2	n1xO1	n2xO2	X	M
50	12	15	65	108	91	90	70	43	70	50	4xΦ9	4xΦ7	[50]	44.29
65	12	15	65	123	101	90	70	46	70	50	4xΦ9	4xΦ7	[50]	61.49
80	12	15	65	133	107	90	70	46	70	50	4xΦ9	4xΦ7	[50]	74.38
100	12	15	65	155	115	90	70	52	70	50	4xΦ9	4xΦ7	[50]	93.47
125	17	20	65	173	155	110	100	56	102	70	4xΦ11	4xΦ9	[45]	119.34
150	17	20	65	183	164	110	100	56	102	70	4xΦ11	4xΦ9	[45]	138.39
200	19	25	85	218	195	140	120	60	125	102	4xΦ13	4xΦ11	[60]	189.79
250	22	25	85	253	230	140	120	68	125	102	4xΦ13	4xΦ11	[60]	238.51
300	27	30	90	278	260	160	140	78	140	102	4xΦ17	4xΦ11	[60]	277.31
350	30	32	92	318	308	160	140	92	140	102	4xΦ17	4xΦ11	[60]	330.74
400	36	44	124	363	354	170	160	102	165	140	4xΦ22	4xΦ17	[80]	374.32

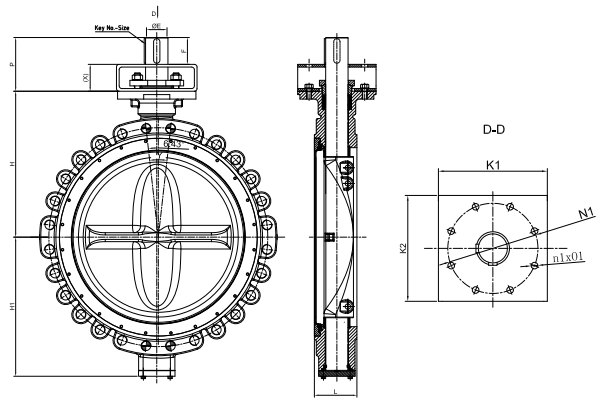
*Other sizes available on request.

DIMENSION CL300

DN	E	F	P	H	H1	L	K1	K2	N1	N2	n1xO1	n2xO2	X	M
80	17	20	65	158	123	48	110	100	102	70	4xØ11	4xØ9	[45]	74.38
100	17	20	65	178	142	54	110	100	102	70	4xØ11	4xØ9	[45]	93.47
125	22	25	85	190	190	59	140	120	125	102	4xØ13	4xØ11	[60]	119.34
150	22	25	85	210	209	59	140	120	125	102	4xØ13	4xØ11	[60]	138.39
200	27	30	90	265	215	73	160	140	140	102	4xØ17	4xØ11	[60]	189.79
250	Ø40 2-12x8x40	45	105	284	266	83	170	165	165	--	4xØ22	--	[60]	238.51
300	Ø45 2-14x9x56	60	140	325	300	92	200	170	165	--	4xØ22	--	[80]	278.4
350	Ø50 2-16x10x63	68	168	360	345	118	300	300	254	--	8xØ18	--	[100]	316.68
400	Ø60 2-20x12x80	85	185	423	410	136	300	300	254	--	8xØ18	--	[100]	360.6



S970 DN450-650 CL150/PN10/PN16/PN25



S970 DN700-1200 CL150/PN10/PN16/PN25
S970 DN250-700 CL300/PN40/PN63

DIMENSION PN10/16/25/CL150

DN	E	F	P	H	H1	L	K1	K2	N1	N2	n1x01	n2x02	X	M
450	41	50	130	388	375	114	200	170	165	140	4xΦ22	4xΦ17	[80]	428.56
500	46	54	134	432	413	127	200	170	165	--	4xΦ22	--	[80]	477.08
550	55	63	163	458	439	154	300	300	254	--	8xΦ18	--	[100]	522.02
600	55	63	163	488	450	154	300	300	254	--	8xΦ18	--	[100]	570.56
650	55	63	163	516	500	165	300	300	254	--	8xΦ18	--	[100]	615.38
700(PN10)	Φ80 2-22x14x110"	120	220	576	542	165	360	350	298	--	8xΦ22	--	[100]	676.24
700(PN16/CL150)	Φ90 2-25x14x110"	120	240	576	542	165	360	350	298	--	8xΦ22	--	[120]	676.24
700(PN25)	Φ100 2-28x16x110"	120	240	576	542	229	360	350	298	--	8xΦ22	--	[120]	676.24
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]	772.24
800(PN16/CL150)	Φ100 2-28x16x110"	120	240	652	621	190	360	350	298	--	8xΦ22	--	[120]	772.24
900(PN10)	Φ100 2-28x16x110"	120	240	720	690	210	360	350	298	--	8xΦ22	--	[120]	865.16
900(PN16/CL150)	Φ110 2-32x18x140"	160	280	720	690	210	415	415	356	--	8xΦ33	--	[120]	865.16
1000(PN10)	Φ110 2-32x18x140"	160	280	785	760	241	415	415	356	--	8xΦ33	--	[120]	955.02
1000(PN16/CL150)	Φ120 2-32x18x140"	160	280	785	760	241	415	415	356	--	8xΦ33	--	[120]	955.02
1200(PN10)	Φ120 2-32x18x140"	160	300	915	890	254	475	475	406	--	8xΦ39	--	[140]	1161.76
1200(PN16/CL150)	Φ130 2-32x18x140"	160	300	915	890	254	475	475	406	--	8xΦ39	--	[140]	1161.76

DIMENSION CL300

DN	E	F	P	H	H1	L	K1	K2	N1	N2	n1x01	n2x02	X	M
450	Ø70 2-20x12x90	100	200	445	439	152	300	300	254	--	8xØ18	--	[100]	418.42
500	Ø80 2-22x14x110	120	240	496	456	160	360	350	298	--	8xØ22	--	[120]	474.4
600	Ø90 2-25x14x110	120	240	552	543	182	360	350	298	--	8xØ22	--	[120]	570.76
700	Ø115 2-32x18x140	160	280	650	624	229	415	415	356	--	8xØ33	--	[120]	657.16



High Performance Double Eccentric Butterfly Valves

Double Flange Type Series 980/981

Nominal diameter: DN50-DN1200(2"-48")

other sizes on request

Flange connection: EN1092(PN6-10-16-25-40-63)

ASME B16.5(CL150-300)

JIS B2220 (5K /10K /16K /30K)

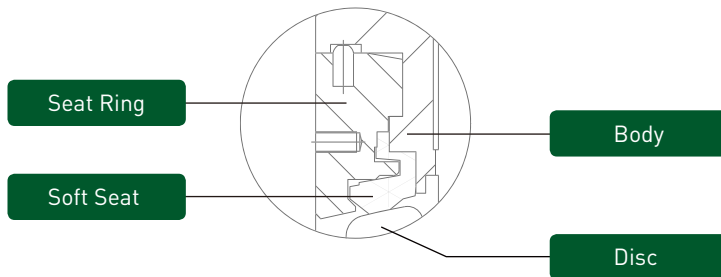
Temperature range: -40 to +650°C

Face to face acc:API609

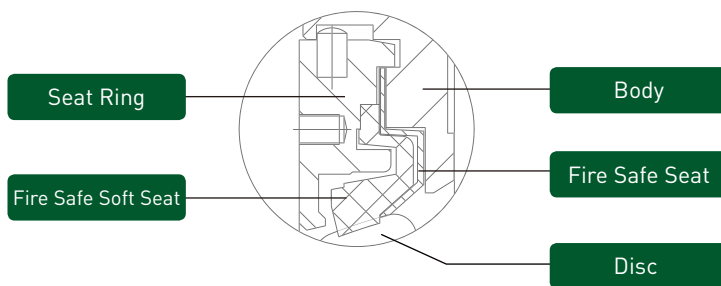
Top flange acc: EN ISO 5211

Vacuum to 1×10^{-3} Torr absolute

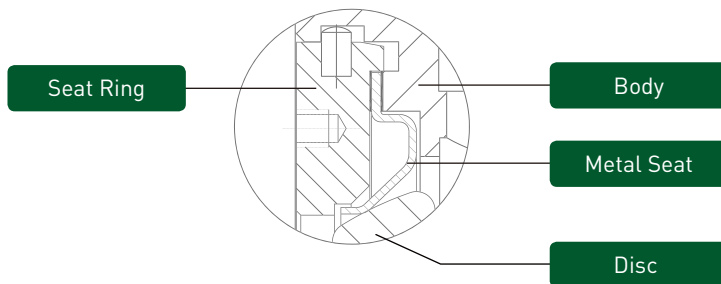
SEAT SEALING OPTIONS



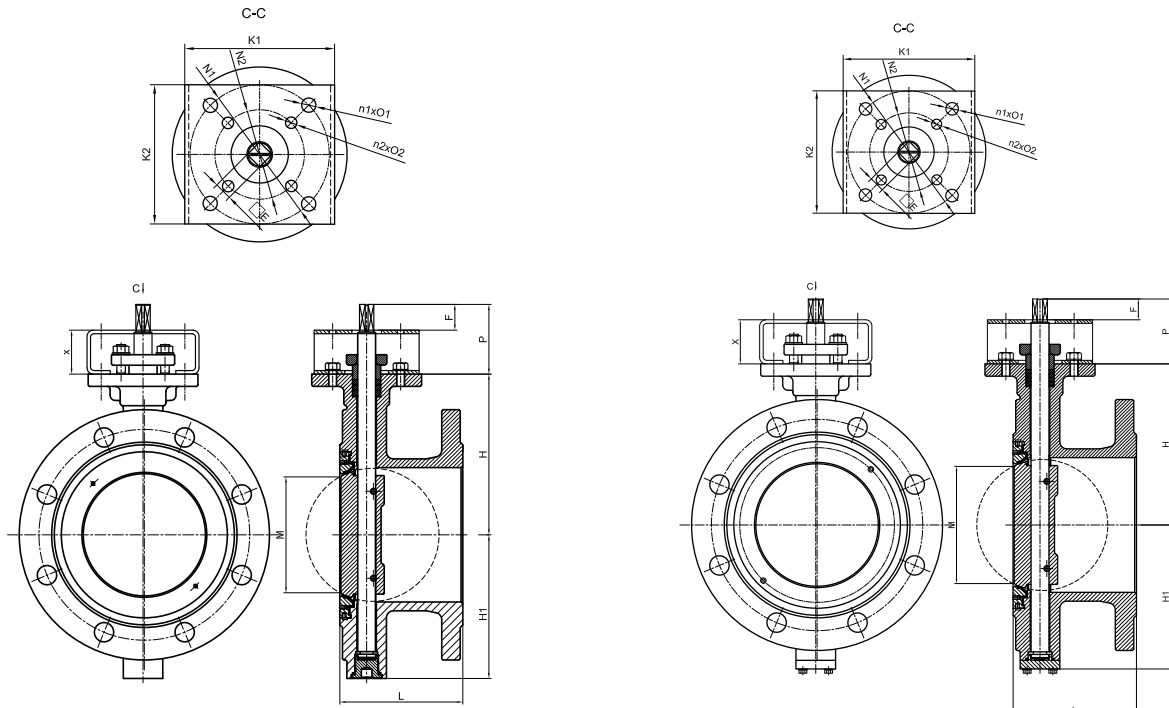
SOFT SEAT:
The elasticity of the seat together with the fluid pressure ensures zero leakage.



FIRE SAFE SEAT:
During a fire when the PTFE-R seat burns away, the supplementary metal seat activates automatically and prevents extraordinary leakage.



METAL SEAT:
This version offers very high sealing capabilities.



S980 DN50~300 CL150/PN10/PN16/PN25
S980 DN50~200 CL300/PN40/PN63

S980 DN350~400 CL150/PN10/PN16/PN25

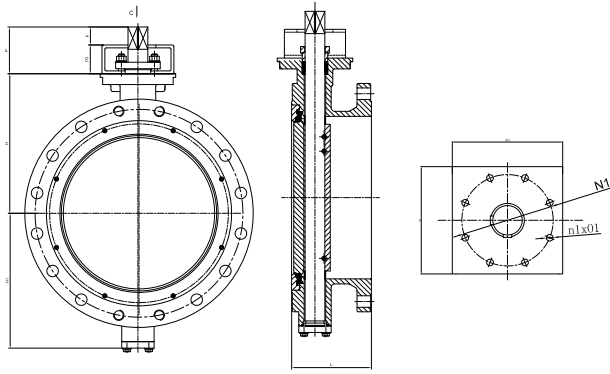
DIMENSION PN10/16/25/CL150

DN	E	F	P	H	H1	K1	K2	L	N1	N2	n1xO1	n2xO2	X	M
50	12	15	65	108	91	90	70	108	70	50	4xΦ9	4xΦ7	[50]	29
65	12	15	65	123	101	90	70	112	70	50	4xΦ9	4xΦ7	[50]	50
80	12	15	65	133	107	90	70	114	70	50	4xΦ9	4xΦ7	[50]	67
100	12	15	65	155	115	90	70	127	70	50	4xΦ9	4xΦ7	[50]	87
125	17	20	65	173	155	110	100	140	102	70	4xΦ11	4xΦ9	[45]	111
150	17	20	65	183	164	110	100	140	102	70	4xΦ11	4xΦ9	[45]	132
200	19	25	85	218	195	140	120	152	125	102	4xΦ13	4xΦ11	[60]	183
250	22	25	85	253	230	140	120	165	125	102	4xΦ13	4xΦ11	[60]	229
300	27	30	90	278	260	160	140	178	140	102	4xΦ17	4xΦ11	[60]	270
350	30	32	92	318	308	160	140	190	140	102	4xΦ17	4xΦ11	[60]	318
400	36	44	124	363	354	200	170	216	165	140	4xΦ21	4xΦ17	[80]	360

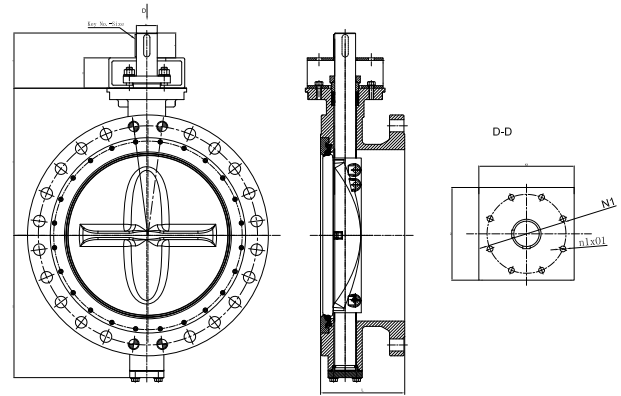
*Other sizes available on request.

DIMENSION CL300

DN	E	F	P	H	H1	L	K1	K2	N1	N2	n1xO1	n2xO2	X	M
80	17	20	65	158	123	114	110	100	102	70	4xΦ11	4xΦ9	[45]	67
100	17	20	65	178	142	127	110	100	102	70	4xΦ11	4xΦ9	[45]	87
125	22	25	85	190	190	140	140	120	125	102	4xΦ13	4xΦ11	[60]	111
150	22	25	85	210	209	140	140	120	125	102	4xΦ13	4xΦ11	[60]	132
200	27	30	90	265	215	152	160	140	140	102	4xΦ17	4xΦ11	[60]	183
250	Φ40 2-12x8x40"	45	105	284	266	165	170	165	165	--	4xΦ22	--	[60]	229
300	Φ45 2-14x9x56"	60	140	325	300	178	200	170	165	--	4xΦ22	--	[80]	270
350	Φ50 2-16x10x63"	68	168	360	345	190	300	300	254	--	8xΦ18	--	[100]	313
400	Φ60 2-20x12x80"	85	185	423	410	216	300	300	254	--	8xΦ18	--	[100]	354



S980 DN450-650 CL150/PN10/PN16/PN25



S980 DN700-1200 CL150/PN10/PN16/PN25
S980 DN250-700 CL300/PN40/PN63

DIMENSION PN10/16/25/CL150

DN	E	F	P	H	H1	L	K1	K2	N1	N2	n1x01	n2x02	X	M
350	30	32	92	318	308	160	140	190	140	102	4xØ17	4xØ11	[60]	318
400	36	44	124	363	354	200	170	216	165	140	4xØ21	4xØ17	[80]	360
450	41	50	130	388	375	222	200	170	165	140	4xØ22	4xØ17	[80]	420
500	46	54	134	432	413	229	200	170	165	--	4xØ22	--	[80]	468
550	55	63	163	458	439	267	300	300	254	--	8xØ18	--	[100]	517
600	55	63	163	488	450	267	300	300	254	--	8xØ18	--	[100]	563
650	55	63	163	516	500	292	300	300	254	--	8xØ18	--	[100]	605
700(PN10)	"Φ80 2-22x14x110"	120	220	576	542	292	360	350	298	--	8xΦ22	--	[100]	669
700(PN16/CL150)	"Φ90 2-25x14x110"	120	240	576	542	292	360	350	298	--	8xΦ22	--	[120]	669
700(PN25)	"Φ100 2-28x16x110"	120	240	576	542	292	360	350	298	--	8xΦ22	--	[120]	669
750(CL150)	"Φ100 2-28x16x110"	120	240	625	585	318	360	350	298	--	8xΦ22	--	[120]	723
800(PN10)	"Φ90 2-25x14x110"	120	240	652	621	318	360	350	298	--	8xΦ22	--	[120]	767
800(PN16/CL150)	"Φ100 2-28x16x110"	120	240	652	621	318	360	350	298	--	8xΦ22	--	[120]	767
900(PN10)	"Φ100 2-28x16x110"	120	240	720	690	330	360	350	298	--	8xΦ22	--	[120]	862
900(PN16/CL150)	"Φ110 2-32x18x140"	160	280	720	690	330	415	415	356	--	8xΦ33	--	[120]	862
1000(PN10)	"Φ110 2-32x18x140"	160	280	785	760	410	415	415	356	--	8xΦ33	--	[120]	957
1000(PN16/CL150)	"Φ120 2-32x18x140"	160	280	785	760	410	415	415	356	--	8xΦ33	--	[120]	957
1200(PN10)	"Φ120 2-32x18x140"	160	300	915	890	470	475	475	406	--	8xΦ39	--	[140]	1154
1200(PN16/CL150)	"Φ130 2-32x18x140"	160	300	915	890	470	475	475	406	--	8xΦ39	--	[140]	1154

DIMENSION CL300

DN	E	F	P	H	H1	L	K1	K2	N1	N2	n1x01	n2x02	X	M
450	"Φ70 2-20x12x90"	100	200	445	439	222	300	300	254	--	8xΦ18	--	[100]	418
500	"Φ80 2-22x14x110"	120	240	496	456	229	360	350	298	--	8xΦ22	--	[120]	466
600	"Φ90 2-25x14x110"	120	240	552	543	267	360	350	298	--	8xΦ22	--	[120]	560
700	"Φ115 2-32x18x140"	160	280	650	624	292	415	415	356	--	8xΦ33	--	[120]	667

MATERIALS

Parts	General Material	EN Standard	ASTM Standard	JIS Standard
Body	Carbon Steel	1.0619(GP240GH) EN 10213	WCB ASTM A216	SCPH2 JIS G5151
	Stainless Steel	14408 EN 10213	CF8,CF8M,CF3,CF3M ASTM A351	SCS14A,SCS16A JIS G5121
	Duplex	Duplex 1.4470 EN 10213	Gr.4A,5A,6A ASTM A890	
	Aluminium Bronze	AB2 BS1400	C95500,C95800 ASTM B148	ALBC2,ALBC3 JIS H5114
Disc	Stainless Steel	1.4408 EN 10213	CF8,CF8M,CF3,CF3M ASTM A351	SCS14A,SCS16A JIS G5121
	Duplex	1.4470 EN 10213	Gr.4A,5A,6A ASTM A890	
	Monel		Monel M35-1(Monel K400)),M35-2(Monel K500) ASTM A494	
	Aluminium Bronze	AB2 BS1400	C95500,C95800 ASTM B148	ALBC2,ALBC3 JIS H5114
Shaft	Stainless Steel	1.4122 EN 10088-3	F431,F316,F316L ASTM A182	SUSF316,SUSF316L JIS G3214
	Duplex	1.4462 EN 10088-3	F51,F53,F55 ASTM A182	
	Monel		Monel(k500) UNSN05500 ASTMB865	
	Aluminium Bronze		Aluminium Bronze UNS C6300 ASTM B150	
Seat	Soft Sea	PTFE (-20~180 C)		
	Fire Safe Seat	RPTFE(-40~230 C)+S.S.316L ASTM A240/S31803 ASTM A240/Inconel 625		
	Metal Seat	Metal Seat S.S316L ASTM A240/S31803 ASTM A240/Inconel 625(-40~450 C)		

Other materials are on request

(EN ISO)



High Performance Double Eccentric Butterfly Valves with Replaceable Seat

Wafer Type Series 930

Nominal diameter: DN50-DN900(2"-36")

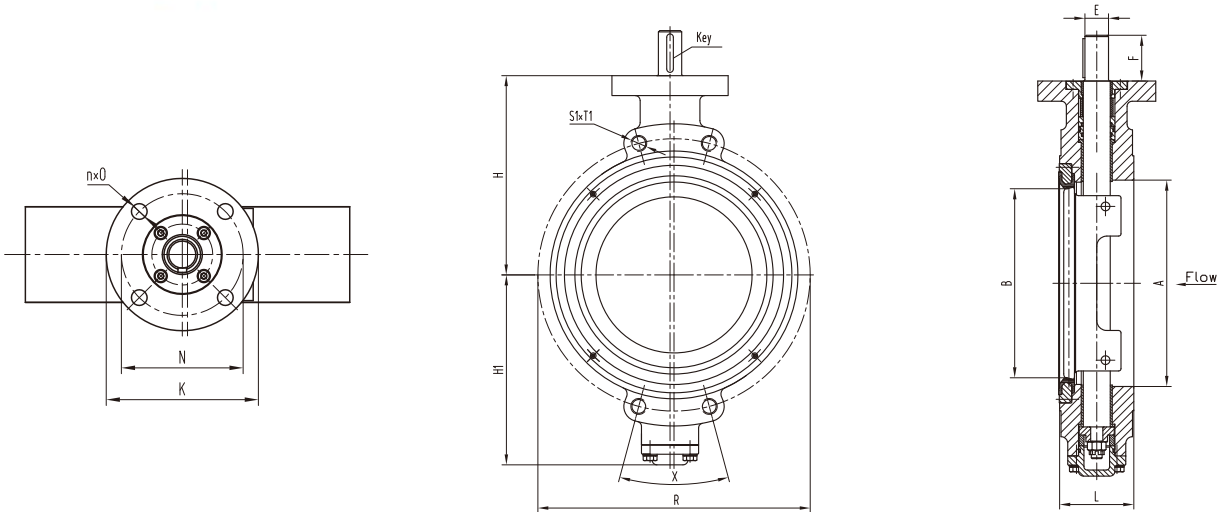
other sizes on request

Flange connection: EN1092(PN10-16)

Temperature range:-23 to + 200°C

Face to face acc:EN558-1 SERIES 16 (ISO 5752 Series 16)

Top flange acc: EN ISO 5211



DIMENSION PN10/16-S930

DN	L	H	H1	A	B	R		X		S1*T1		E	F	K	N	n*Ø	KEY SIZE
						PN10	PN16	PN10	PN16	PN10	PN16						
50	43	108	102	64	47	125	125	90	90	4*M16	4*M16	11	30	90	70	4*Ø9	4*4*20
65	46	125	115	80	65	145	145	90	90	4*M16	4*M16	11	30	90	70	4*Ø9	4*4*20
80	64	158	136	87	68	160	160	45	45	4*M16	4*M16	16	35	90	70	4*Ø9	5*5*30
100	64	165	148	114	89	180	180	45	45	4*M16	4*M16	16	50	125	102	4*Ø12	5*5*40
125	70	190	171	133	114	210	210	45	45	4*M16	4*M16	16	50	125	102	4*Ø12	5*5*40
150	76	210	186	160	125	240	240	45	45	4*M20	4*M20	20	50	125	102	4*Ø12	6*6*40
200	89	235	217	200	180	295	295	45	30	4*M20	4*M20	25	55	150	125	4*Ø14	8*7*50
250	114	275	255	256	229	350	355	30	30	4*M20	4*M24	30	80	150	125	4*Ø14	8*7*70
300	114	300	286	306	280	400	410	30	30	4*M20	4*M24	35	80	175	140	4*Ø18	10*8*70
350	127	349	323	335	313	460	470	22.5	22.5	4*M20	4*M24	40	90	175	140	4*Ø18	12*8*80
400	140	385	353	391	365	515	525	22.5	22.5	4*M24	4*M27	50	110	175	140	4*Ø18	14*9*100
450	152	410	394	434	410	565	585	18	18	4*M24	4*M27	55	110	210	165	4*Ø22	16*10*100
500	152	445	429	492	459	620	650	18	18	4*M24	4*M30	60	110	210	165	4*Ø22	18*11*100
600	178	530	496	590	551	725	770	18	18	8*M27	8*M33	70	110	300	254	8*Ø18	20*12*100
700	229	610	528	698	650	840	840	15	15	8*M27	8*M33	80	120	300	254	8*Ø18	22*14*110
800	241	680	591	790	752	950	950	15	15	8*M30	8*M36	90	120	300	254	8*Ø18	25*14*110
900	241	690	674	892	847	1050	1050	12.86	12.86	8*M30	8*M36	105	120	350	298	8*Ø22	28*16*110

(JIS)



High Performance Double Eccentric Butterfly Valves with Replaceable Seat

Wafer Type Series 931

Nominal diameter: DN50-DN900(2"-36 ")

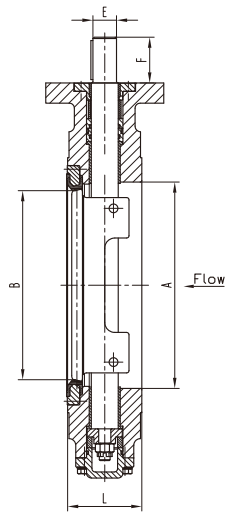
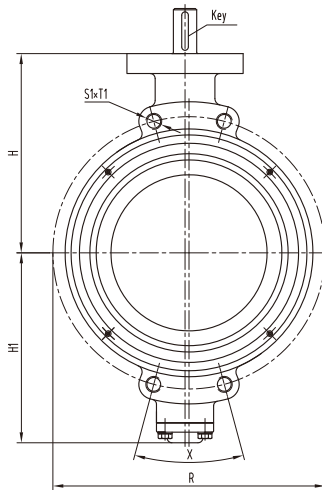
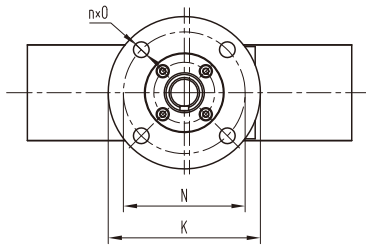
other sizes on request

Flange connection: JIS B2239 & JISB2220 (10K /16K)

Temperature range: -23 to + 200°C

Face to face acc: JIS B 2002 SERIES 45

Top flange acc: EN ISO 5211



DIMENSION JIS 10K/16K-S931

DN	L	H	H1	A	B	R		X		S1*T1		E	F	K	N	n*O	Key size
						10K	16K	10K	16K	10K	16K						
50	43	108	102	64	47	120	120	90	45	4*M16	4*M16	11	30	90	70	4*Ø9	4*4*20
65	46	125	115	80	65	140	140	90	45	4*M16	4*M16	11	30	90	70	4*Ø9	4*4*20
80	64	158	136	87	68	150	160	45	45	4*M16	4*M20	16	35	90	70	4*Ø9	5*5*30
100	65	165	148	114	89	175	185	45	45	4*M16	4*M20	16	50	125	102	4*Ø12	5*5*40
125	70	190	171	133	114	210	225	45	45	4*M20	4*M22	16	50	125	102	4*Ø12	5*5*40
150	90	210	186	160	125	240	260	45	30	4*M20	4*M22	20	50	125	102	4*Ø12	6*6*40
200	100	235	217	200	180	290	305	30	30	4*M20	4*M22	25	55	150	125	4*Ø14	8*7*50
250	110	275	255	256	229	355	380	30	30	4*M22	4*M24	30	80	150	125	4*Ø14	8*7*70
300	110	300	286	306	280	400	430	22.5	22.5	4*M22	4*M24	35	80	175	140	4*Ø18	10*8*70
350	120	349	323	335	313	445	480	22.5	22.5	4*M22	4*M30*3	40	90	175	140	4*Ø18	12*8*80
400	130	385	353	391	365	510	540	22.5	22.5	4*M24	4*M30*3	50	110	175	140	4*Ø18	14*9*100
450	150	410	394	434	410	565	605	18	18	4*M24	4*M30*3	55	110	210	165	4*Ø22	16*10*100
500	160	445	429	492	459	620	660	18	18	4*M24	4*M30*3	60	110	210	165	4*Ø22	18*11*100
550	170	500	461	540	513	680	720	18	18	4*M30	4*M36*3	65	110	300	254	8*Ø18	20*12*100
600	200	530	496	590	551	730	770	15	15	8*M30	8*M36*3	70	110	300	254	8*Ø18	20*12*100
650	210	585	511	634	602	780	--	15	--	8*M30	--	75	120	300	254	8*Ø18	20*12*110
700	220	610	528	698	650	840	--	15	--	8*M30	--	80	120	300	254	8*Ø18	22*14*110
750	230	660	583	734	700	900	--	15	--	8*M30	--	85	120	300	254	8*Ø18	22*14*110
800	240	680	591	790	752	950	--	12.86	--	8*M30	--	90	120	300	254	8*Ø18	25*14*110
900	241	690	674	892	847	1050	--	12.86	--	8*M30	--	105	120	350	298	8*Ø22	28*16*110

(API)



High Performance Double Eccentric Butterfly Valves with Replaceable Seat

Wafer Type Series 932

Nominal diameter: DN80-DN600(3"-24")

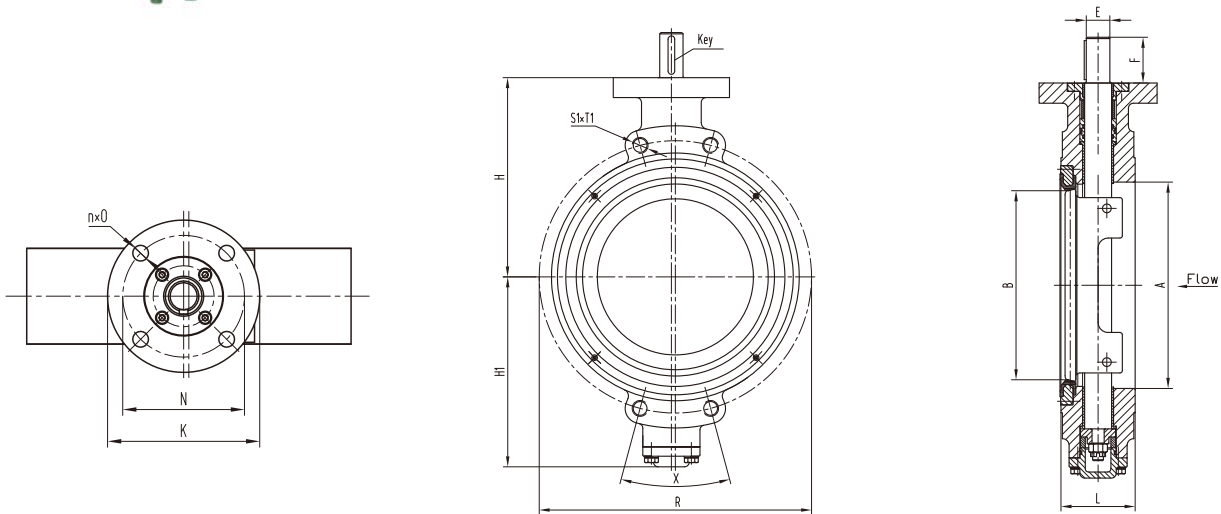
other sizes on request

Flange connection: ASME B16.5 (CL150)

Temperature range: -23 to + 200°C

Face to face acc: API 609 CATEGORY B

Top flange acc: EN ISO 5211



DIMENSION CL150-S932

DN	L	H	H1	A	B	R	X	S1*T1	E	F	K	N	n*Ø	Key size
80	48	158	136	87	68	152.4	90	4*5/8"UNC	16	35	90	70	4*Ø9	5*5*30
100	54	172	150	114	89	190.5	45	4*5/8"UNC	16	50	125	102	4*Ø12	5*5*40
150	57	210	186	160	125	241.3	45	4*3/4"UNC	20	50	125	102	4*Ø12	6*6*40
200	64	235	217	200	180	298.5	45	4*3/4"UNC	26	55	150	125	4*Ø14	8*7*50
250	71	275	255	256	229	362	30	4*7/8"UNC	30	80	150	125	4*Ø14	8*7*70
300	81	300	286	306	280	431.8	30	4*7/8"UNC	35	80	175	140	4*Ø18	10*8*70
350	92	349	323	335	313	476.3	30	4*1"UNC	40	75	175	140	4*Ø18	12*8*70
400	102	385	350	391	365	539.8	22.5	4*1"UNC	45	110	175	140	4*Ø18	14*9*100
450	114	410	395	434	410	577.9	22.5	4*1-1/8"-8UN*35*40	50	110	210	165	4*Ø22	16*10*100
500	127	445	426	492	459	635	18	4*1-1/8"-8UN*35*40	55	110	210	165	4*Ø22	18*11*100
600	154	530	496	590	551	749.3	18	8*1-1/4"-8UN*36*40	70	110	300	254	8*Ø18	20*12*100



High Performance Double Eccentric Butterfly Valves with Replaceable Seat

Lug Type Series 940

Nominal diameter: DN50-DN900(2"-36 ")

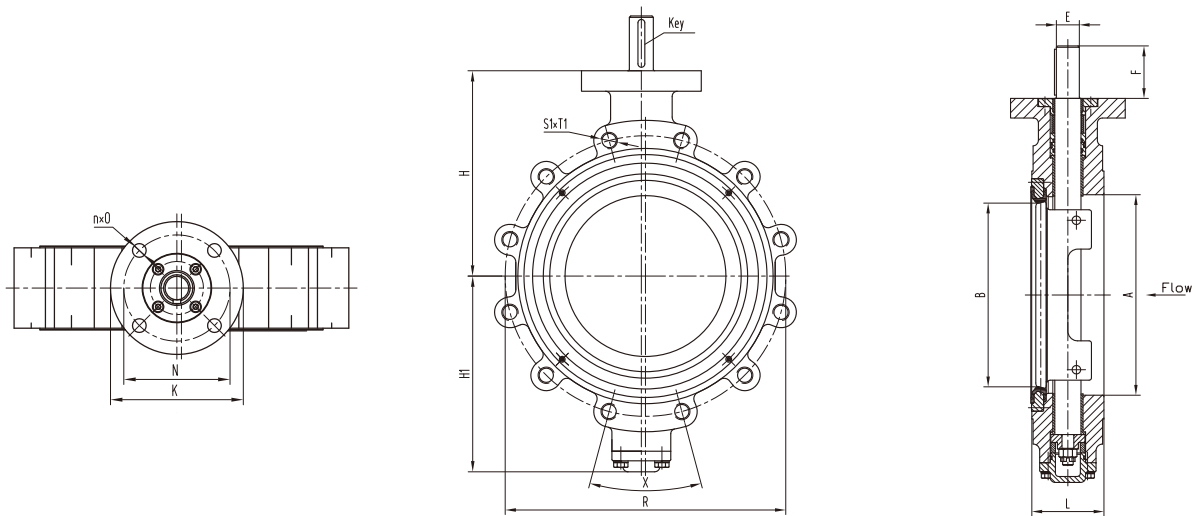
other sizes on request

Flange connection: EN1092(PN10-16)

Temperature range: -23 to + 200°C

Face to face acc:EN558-1 SERIES 16 (ISO 5752 Series 16)

Top flange acc: EN ISO 5211



DIMENSION PN10/16 -S940

DN	L	H	H1	A	B	R		X		S1*T1		E	F	K	N	n*O	Key size
						PN10	PN16	PN10	PN16	PN10	PN16						
50	43	108	102	64	47	125	125	90	90	4*M16	4*M16	11	30	90	70	4*Ø9	4*4*20
65	46	125	115	80	65	145	145	90	90	4*M16	4*M16	11	30	90	70	4*Ø9	4*4*20
80	64	158	136	87	68	160	160	45	45	8*M16	8*M16	16	35	90	70	4*Ø9	5*5*30
100	64	165	148	114	89	180	180	45	45	8*M16	8*M16	16	50	125	102	4*Ø12	5*5*40
125	70	190	171	133	114	210	210	45	45	8*M16	8*M16	16	50	125	102	4*Ø12	5*5*40
150	76	210	186	160	125	240	240	45	45	8*M20	8*M20	20	50	125	102	4*Ø12	6*6*40
200	89	235	217	200	180	295	295	45	30	8*M20	12*M20	25	55	150	125	4*Ø14	8*7*50
250	114	275	255	256	229	350	355	30	30	12*M20	12*M24	30	80	150	125	4*Ø14	8*7*70
300	114	300	286	306	280	400	410	30	30	12*M20	12*M24	35	80	175	140	4*Ø18	10*8*70
350	127	349	323	335	313	460	470	22.5	22.5	16*M20	16*M24	40	90	175	140	4*Ø18	12*8*80
400	140	385	353	391	365	515	525	22.5	22.5	16*M24	16*M27	50	110	175	140	4*Ø18	14*9*100
450	152	410	394	434	410	565	585	18	18	20*M24	20*M27	55	110	210	165	4*Ø22	16*10*100
500	152	445	429	492	459	620	650	18	18	20*M24	20*M30	60	110	210	165	4*Ø22	18*11*100
600	178	530	496	590	551	725	770	18	18	20*M27	20*M33	70	110	300	254	8*Ø18	20*12*100
700	229	610	528	698	650	840	840	15	15	24*M27	24*M33	80	120	300	254	8*Ø18	22*14*110
800	241	680	591	790	752	950	950	15	15	24*M30	24*M36	90	120	300	254	8*Ø18	25*14*110
900	241	690	674	892	847	1050	1050	12.86	12.86	28*M30	28*M36	105	120	350	298	8*Ø22	28*16*110

(JIS)



High Performance Double Eccentric Butterfly Valves with Replaceable Seat

Lug Type Series 941

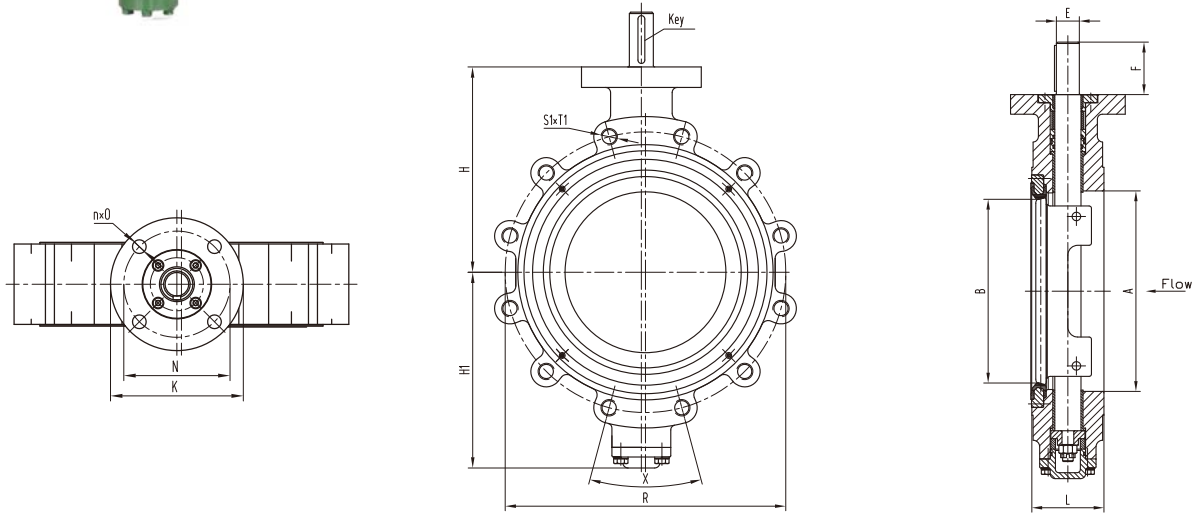
Nominal diameter: DN50-DN900(2"-36 ")
other sizes on request

Flange connection: JIS B2239 & JISB2220 (10K /16K)

Temperature range: -23 to + 200°C

Face to face acc: JIS B 2002 SERIES 45

Top flange acc: EN ISO 5211



DIMENSION JIS 10K/16K-S941

DN	L	H	H1	A	B	R		X		S1*T1		E	F	K	N	n*Ø	Key size
						10K	16K	10K	16K	10K	16K						
50	43	108	102	64	47	120	120	90	45	4*M16	8*M16	11	30	90	70	4*Ø9	4*4*20
65	46	125	115	80	65	140	140	90	45	4*M16	8*M16	11	30	90	70	4*Ø9	4*4*20
80	64	158	136	87	68	150	160	45	45	8*M16	8*M20	16	35	90	70	4*Ø9	5*5*30
100	65	165	148	114	89	175	185	45	45	8*M16	8*M20	16	50	125	102	4*Ø12	5*5*40
125	70	190	171	133	114	210	225	45	45	8*M20	8*M22	16	50	125	102	4*Ø12	5*5*40
150	90	210	186	160	125	240	260	45	30	8*M20	12*M22	20	50	125	102	4*Ø12	6*6*40
200	100	235	217	200	180	290	305	30	30	12*M20	12*M22	25	55	150	125	4*Ø14	8*7*50
250	110	275	255	256	229	355	380	30	30	12*M22	12*M24	30	80	150	125	4*Ø14	8*7*70
300	110	300	286	306	280	400	430	22.5	22.5	16*M22	16*M24	35	80	175	140	4*Ø18	10*8*70
350	120	349	323	335	313	445	480	22.5	22.5	16*M22	16*M30*3	40	90	175	140	4*Ø18	12*8*80
400	130	385	353	391	365	510	540	22.5	22.5	16*M24	16*M30*3	50	110	175	140	4*Ø18	14*9*100
450	150	410	394	434	410	565	605	18	18	20*M24	20*M30*3	55	110	210	165	4*Ø22	16*10*100
500	160	445	429	492	459	620	660	18	18	20*M24	20*M30*3	60	110	210	165	4*Ø22	18*11*100
550	170	500	461	540	513	680	720	18	18	20*M30	20*M36*3	65	110	300	254	8*Ø18	20*12*100
600	200	530	496	590	551	730	770	15	15	24*M30	24*M36*3	70	110	300	254	8*Ø18	20*12*100
650	210	585	511	634	602	780	--	15	--	24*M30	--	75	120	300	254	8*Ø18	20*12*110
700	220	610	528	698	650	840	--	15	--	24*M30	--	80	120	300	254	8*Ø18	22*14*110
750	230	660	583	734	700	900	--	15	--	24*M30	--	85	120	300	254	8*Ø18	22*14*110
800	240	680	591	790	752	950	--	12.86	--	28*M30	--	90	120	300	254	8*Ø18	25*14*110
900	241	690	674	892	847	1050	--	12.86	--	28*M30	--	105	120	350	298	8*Ø22	28*16*110

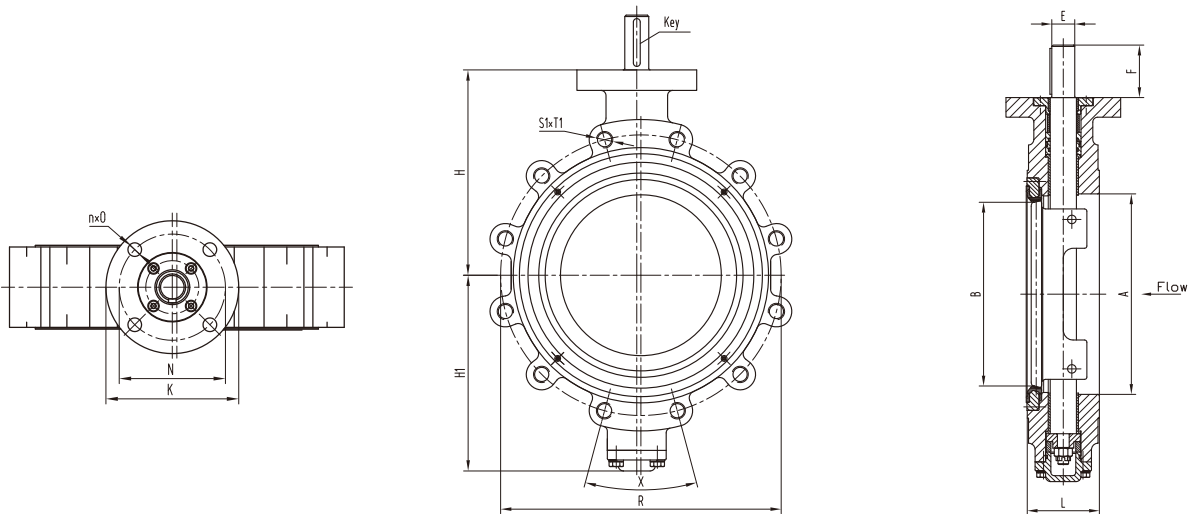
(API)



High Performance Double Eccentric Butterfly Valves with Replaceable Seat

Lug Type Series 942

Nominal diameter: DN80-DN600(3"-24")
 other sizes on request
 Flange connection: ASME B16.5
 Temperature range: -23 to + 200°C
 Face to face acc: API 609 CATEGORY B
 Top flange acc: EN ISO 5211



DIMENSION CL150-S942

DN	L	H	H1	A	B	R	X	S1*T1	E	F	K	N	n*O	Key size
80	48	158	136	87	68	152.4	90	4*5/8"UNC	16	35	90	70	4*Ø9	5*5*30
100	54	172	150	114	89	190.5	45	8*5/8"UNC	16	50	125	102	4*Ø12	5*5*40
150	57	210	186	160	125	241.3	45	8*3/4"UNC	20	50	125	102	4*Ø12	6*6*40
200	64	235	217	200	180	298.5	45	8*3/4"UNC	26	55	150	125	4*Ø14	8*7*50
250	71	275	255	256	229	362	30	12*7/8"UNC	30	80	150	125	4*Ø14	8*7*70
300	81	300	286	306	280	431.8	30	12*7/8"UNC	35	80	175	140	4*Ø18	10*8*70
350	92	349	323	335	313	476.3	30	12*1"UNC	40	75	175	140	4*Ø18	12*8*70
400	102	385	350	391	365	539.8	22.5	16*1"UNC	45	110	175	140	4*Ø18	14*9*100
450	114	410	395	434	410	577.9	22.5	16*1-1/8"-8UN*35*40	50	110	210	165	4*Ø22	16*10*100
500	127	445	426	492	459	635	18	20*1-1/8"-8UN*35*40	55	110	210	165	4*Ø22	18*11*100
600	154	530	496	590	551	749.3	18	20*1-1/4"-8UN*36*40	70	110	300	254	8*Ø18	20*12*100

(EN ISO)



High Performance Double Eccentric Butterfly Valves with Replaceable Seat

Double Flange Type Series 950

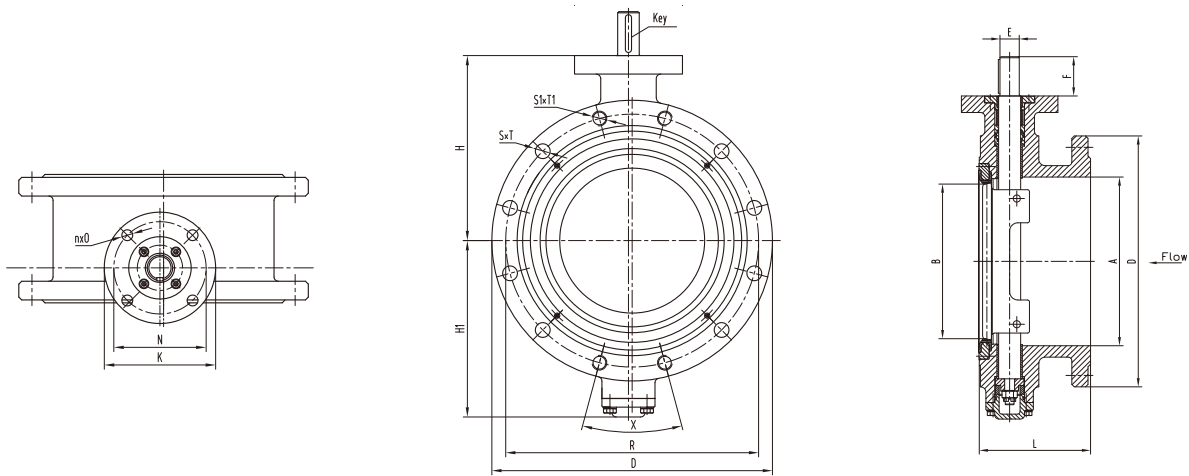
Nominal diameter: DN50-DN900(2"-36")
other sizes on request

Flange connection: EN1092(PN10-16)

Temperature range: -23 to + 200°C

Face to face acc:EN558-1 SERIES 13 (ISO 5752 Series 13)

Top flange acc: EN ISO 5211



DIMENSION PN10/16-S950

DN	L	H	H1	A	B	D		R		X		S*T		S1*T1		E	F	K	N	n*O	Key size
						PN10	PN16	PN10	PN16	PN10	PN16	PN10	PN16	PN10	PN16						
50	108	108	102	64	47	165	165	125	125	90	90	4*Ø18	4*Ø18	--	--	11	30	90	70	4*Ø9	4*4*20
65	112	125	115	80	65	185	185	145	145	90	90	4*Ø18	4*Ø18	--	--	11	30	90	70	4*Ø9	4*4*20
80	114	158	136	87	68	200	200	160	160	45	45	4*Ø18	4*Ø18	4*M16	4*M16	16	35	90	70	4*Ø9	5*5*30
100	127	165	148	114	89	220	220	180	180	45	45	4*Ø18	4*Ø18	4*M16	4*M16	16	50	125	102	4*Ø12	5*5*40
125	140	190	171	133	114	250	250	210	210	45	45	4*Ø18	4*Ø18	4*M16	4*M16	16	50	125	102	4*Ø12	5*5*40
150	140	210	186	160	125	285	285	240	240	45	45	4*Ø22	4*Ø22	4*M20	4*M20	20	50	125	102	4*Ø12	6*6*40
200	152	235	217	200	180	340	340	295	295	45	30	4*Ø22	8*Ø22	4*M20	4*M20	25	55	150	125	4*Ø14	8*7*50
250	165	275	255	256	229	395	405	350	355	30	30	8*Ø22	8*Ø26	4*M20	4*M24	30	80	150	125	4*Ø14	8*7*70
300	178	300	286	306	280	445	460	400	410	30	30	8*Ø22	8*Ø26	4*M20	4*M24	35	80	175	140	4*Ø18	10*8*70
350	190	349	323	335	313	505	520	460	470	22.5	22.5	12*Ø22	12*Ø26	4*M20	4*M24	40	90	175	140	4*Ø18	12*8*80
400	216	385	353	391	365	565	580	515	525	22.5	22.5	12*Ø26	12*Ø30	4*M24	4*M27	50	110	175	140	4*Ø18	14*9*100
450	222	410	394	434	410	615	640	565	585	18	18	16*Ø26	16*Ø30	4*M24	4*M27	55	110	210	165	4*Ø22	16*10*100
500	229	445	429	492	459	670	715	620	650	18	18	16*Ø26	16*Ø33	4*M24	4*M30	60	110	210	165	4*Ø22	18*11*100
600	267	530	496	590	551	780	840	725	770	18	18	16*Ø30	16*Ø36	4*M27	4*M33	70	110	300	254	8*Ø18	20*12*100
700	292	610	528	698	650	895	910	840	840	15	15	20*Ø30	20*Ø36	4*M27	4*M33	80	120	300	254	8*Ø18	22*14*110
800	318	680	591	790	752	1015	1025	950	950	15	15	20*Ø33	20*Ø39	4*M30	4*M36	90	120	300	254	8*Ø18	25*14*110
900	330	690	674	892	847	1115	1125	1050	1050	12.86	12.86	24*Ø33	24*Ø39	4*M30	4*M36	105	120	350	298	8*Ø22	28*16*110

(JIS)



High Performance Double Eccentric Butterfly Valves with Replaceable Seat

Double Flange Type Series 951

Nominal diameter: DN50-DN900(2"-36 ")

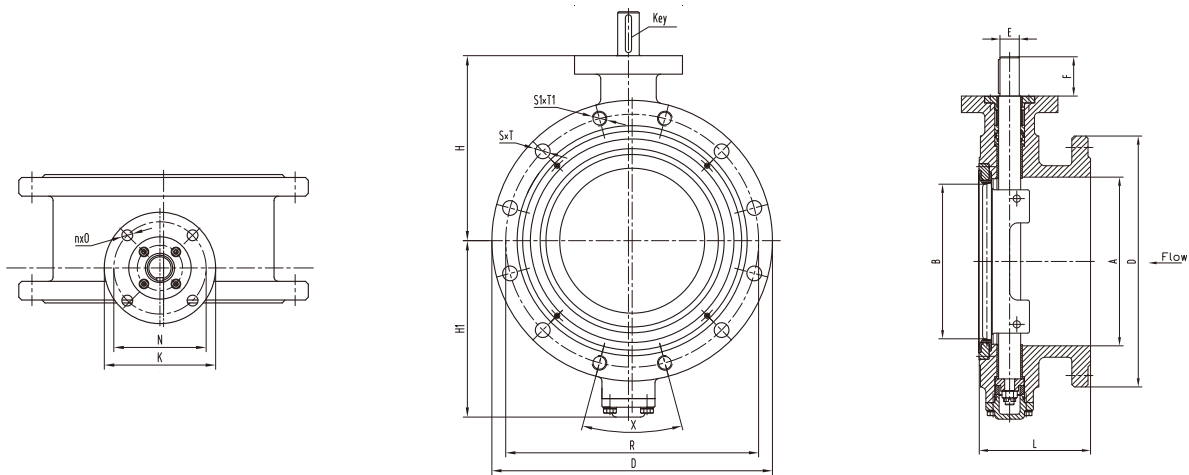
other sizes on request

Flange connection: JIS B2239 & JISB2220 (10K/16K)

Temperature range: -23 to + 200°C

Face to face acc: JIS B 2002 SERIES 42

Top flange acc: EN ISO 5211



DIMENSION JIS 10K/16K-S951

DN	L	H	H1	A	B	D		R		X		S*T		S1*T1		E	F	K	N	n*O	Key size
						10K	16K	10K	16K	10K	16K	10K	16K	10K	16K						
50	108	108	102	64	47	155	155	120	120	90	45	4*Ø19	4*Ø19	--	4*M16	11	30	90	70	4*Ø9	4*4*20
65	112	125	115	80	65	175	175	140	140	90	45	4*Ø19	4*Ø19	--	4*M16	11	30	90	70	4*Ø9	4*4*20
80	114	158	136	87	68	185	200	150	160	45	45	4*Ø19	4*Ø23	4*M16	4*M20	16	35	90	70	4*Ø9	5*5*30
100	127	165	148	114	89	210	225	175	185	45	45	4*Ø19	4*Ø23	4*M16	4*M20	16	50	125	102	4*Ø12	5*5*40
125	140	190	171	133	114	250	270	210	225	45	45	4*Ø23	4*Ø25	4*M20	4*M22	16	50	125	102	4*Ø12	5*5*40
150	140	210	186	160	125	280	305	240	260	45	30	4*Ø23	8*Ø25	4*M20	4*M22	20	50	125	102	4*Ø12	6*6*40
200	152	235	217	200	180	330	350	290	305	30	30	8*Ø23	8*Ø25	4*M20	4*M22	25	55	150	125	4*Ø14	8*7*50
250	165	275	255	256	229	400	430	355	380	30	30	8*Ø25	8*Ø27	4*M22	4*M24	30	80	150	125	4*Ø14	8*7*70
300	178	300	286	306	280	445	480	400	430	22.5	22.5	12*Ø25	12*Ø27	4*M22	4*M24	35	80	175	140	4*Ø18	10*8*70
350	190	349	323	335	313	490	540	445	480	22.5	22.5	12*Ø25	12*Ø33	4*M22	4*M30*3	40	90	175	140	4*Ø18	12*8*80
400	216	385	353	391	365	560	605	510	540	22.5	22.5	12*Ø27	12*Ø33	4*M24	4*M30*3	50	110	175	140	4*Ø18	14*9*100
450	222	410	394	434	410	620	675	565	605	18	18	16*Ø27	16*Ø33	4*M24	4*M30*3	55	110	210	165	4*Ø22	16*10*100
500	229	445	429	492	459	675	730	620	660	18	18	16*Ø27	16*Ø33	4*M24	4*M30*3	60	110	210	165	4*Ø22	18*11*100
550	267	500	461	540	513	745	795	680	720	18	18	16*Ø33	16*Ø39	4*M30	4*M36*3	65	110	300	254	8*Ø18	20*12*100
600	267	530	496	590	551	795	845	730	770	15	15	20*Ø33	20*Ø39	4*M30	4*M36*3	70	110	300	254	8*Ø18	20*12*100
650	267	585	511	634	602	845	--	780	--	15	--	20*Ø33	--	4*M30	--	75	120	300	254	8*Ø18	20*12*110
700	292	610	528	698	650	905	--	840	--	15	--	20*Ø33	--	4*M30	--	80	120	300	254	8*Ø18	22*14*110
750	292	660	583	734	700	970	--	900	--	15	--	20*Ø33	--	4*M30	--	85	120	300	254	8*Ø18	22*14*110
800	318	680	591	790	752	1020	--	950	--	12.86	--	24*Ø33	--	4*M30	--	90	120	300	254	8*Ø18	25*14*110
900	330	690	674	892	847	1120	--	1050	--	12.86	--	24*Ø33	--	4*M30	--	105	120	350	298	8*Ø22	28*16*110

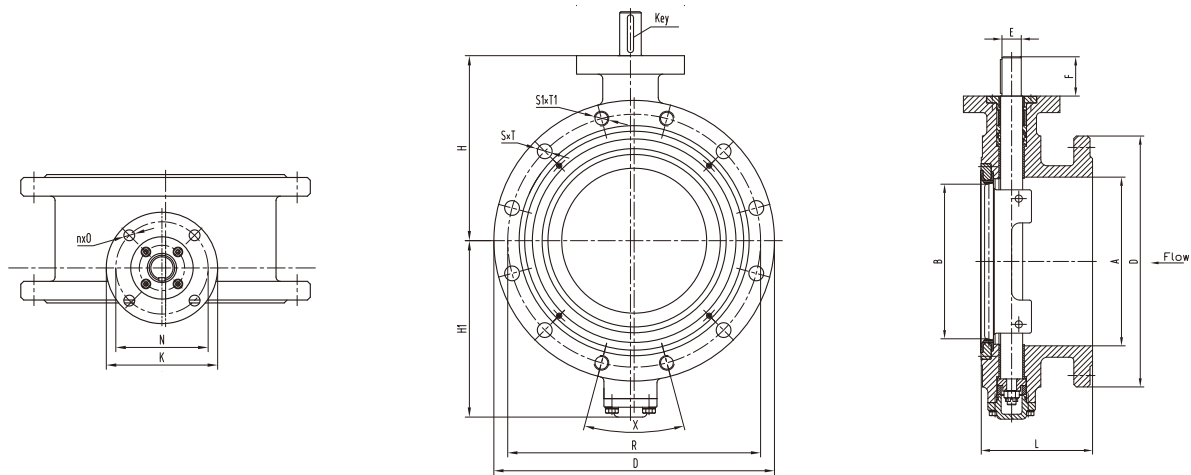
(API)

High Performance Double Eccentric Butterfly Valves with Replaceable Seat



Double Flange Type Series 952

Nominal diameter: DN80-DN600(3-24")
 other sizes on request
 Flange connection: ASME B16.5 (CL150)
 Temperature range: -23 to + 200°C
 Face to face acc: API 609 CATEGORY B
 Top flange acc: EN ISO 5211



DIMENSION CL150-S952

DN	L	H	H1	A	B	D	R	X	S*T	S1*T1	E	F	K	N	n*Ø	Key size
80	114	158	136	87	68	190	152.4	90	--	4*5/8"UNC	16	35	90	70	4*Ø9	5*5*30
100	127	165	148	114	89	230	190.5	45	4*Ø19	4*5/8"UNC	16	50	125	102	4*Ø12	5*5*40
150	140	210	186	160	125	280	241.3	45	4*Ø22	4*3/4"UNC	20	50	125	102	4*Ø12	6*6*40
200	152	235	217	200	180	345	298.5	45	4*Ø22	4*3/4"UNC	25	55	150	125	4*Ø14	8*7*50
250	165	275	255	256	229	405	362	30	8*Ø25	4*7/8"UNC	30	80	150	125	4*Ø14	8*7*70
300	178	300	286	306	280	485	431.8	30	8*Ø25	4*7/8"UNC	35	80	175	140	4*Ø18	10*8*70
350	190	349	323	335	313	535	476.3	30	8*Ø29	4*1"UNC	40	90	175	140	4*Ø18	12*8*80
400	216	385	353	391	365	595	539.8	22.5	12*Ø29	4*1"UNC	50	110	175	140	4*Ø18	14*9*100
450	222	410	394	434	410	635	577.9	22.5	12*Ø32	4*1-1/8"-8UN*34*36	55	110	210	165	4*Ø22	16*10*100
500	229	445	429	492	459	700	635	18	16*Ø32	4*1-1/8"-8UN*35*40	60	110	210	165	4*Ø22	18*11*100
600	267	530	496	590	551	815	749.3	18	16*Ø35	4*1-1/4"-8UN*36*40	70	110	300	254	8*Ø18	20*12*100

MATERIALS

Parts	General Material	EN Standard	ASTM Standard	JIS Standard
Body	DUCTILE IRON	JS1030 EN 1563(GGG40 DIN1693)	Gr.65-45-12 ASTM A536	FCD450 JIS G5502
	CARBON STEEL	1.0619(GP240GH) EN 10213	WCB ASTM A216	SCPH2 JIS G5151
	STAINLESS STEEL	1.4408 EN 10213	CF8M ASTM A351	SCS 14A
	ALUMINIUM BRONZE	AB2 BS 1400	C95500,C95800 ASTM B148	ALBC3
Disc	Ductile Iron 300um Rilsan coated/Halar coating	JS1030 EN 1563(GGG40 DIN1693)	Gr.65-45-12 ASTM A536	FCD450 JIS G5502
	CARBON STEEL	1.0619 EN 10213	WCB ASTM A216	SCS450
	STAINLESS STEEL	1.4408 EN 10213	CF8M ASTM A351	SCS14A
	ALUMINIUM BRONZE	AB2 BS1400	C95500,C95800 ASTM B148	A1BC3
Shaft	STAINLESS STEEL	1.4122 EN 10088-3	431 ASTM A276	SUS630
	DEPLEX	1.4462 EN 10088-3	F51,F53,F55 ASTM A182	DP8
	ALUMINIUM BRONZE	CA104 BS2874	UNS C63000 ASTM B63000	C6301
Seat	NBR(NITRILE)	Temp -15-80°C		
	EPDM	Temp. -23-120°C		
	VITON	Temp. -15-200°C		

Other materials are on request

ACTUATOR

Manual

- Hand lever

HL Series	46
SL Series	46

- Gearbox

Q Series	47
X Series	47
QSS Series	47
MOD Series	49

Hydraulic

- Rack & Pinion

AHR Series	58
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- Scotch Yoke

AHS Series	59
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Pneumatic

- Rack & Pinion

PMA Series	50
PMA-ST Series	53
PMA-SS Series	53

- Scotch Yoke

PMAS Series	54
PMAC Series	54

Electric

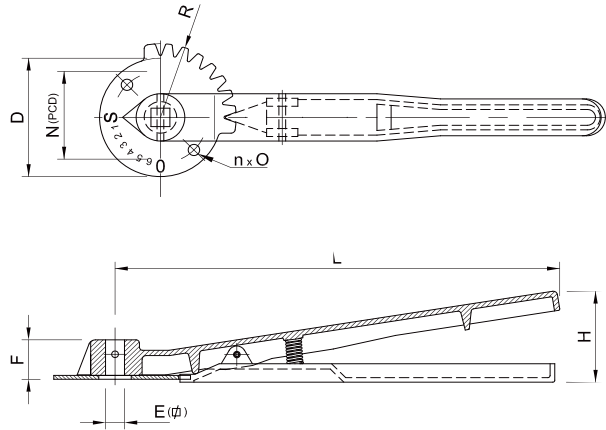
- Quarter Turn

AQT Series	60
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Hand Lever

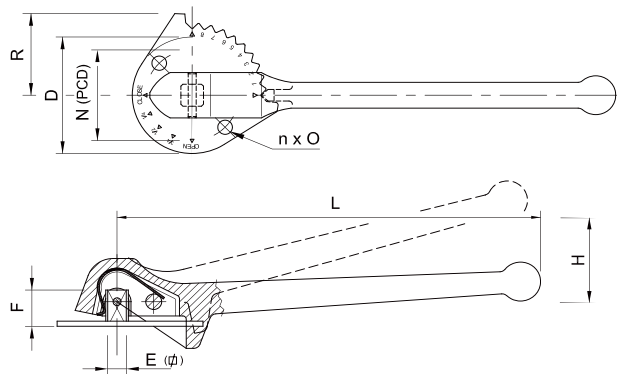


Two series of levers are suitable for AFFCO butterfly valves from DN40 up to DN300, for open&close or regulation in 8 or 10 positions, ductile iron GGG40 powder coated, and notch plate steel galvanized.



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

“Q” 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.

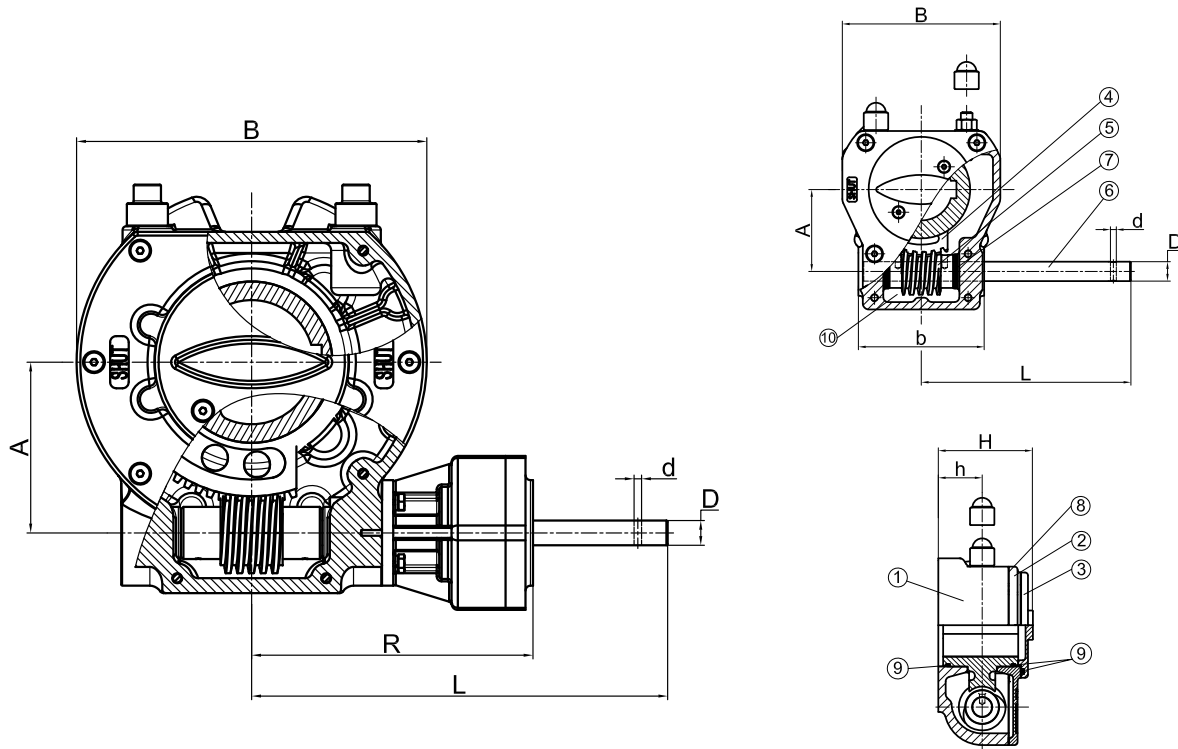
“QSS” series is produced with stainless steel 316 housing and components, applicable with padlocking devices, limit switchboxes and memory stops. It is IP68 sealing, specially applicable for high corrosive environments.

“X” series is light with aluminium alloy body & coverplate, IP67 sealing for waterwork.



Gearbox type	Ratio	Torque(Nm)		M.A. 10%	Weight (Kg)
		Output	Input		
Q-200	40:1	200	16.8	11.9	2
X-21	40:1	200	19.7	10.2	0.93
Q/QSS-400	44:1	400	31.25	12.8	3.87/ 4.72
X-41	44:1	400	35.7	11.2	1.62
X-61	34:1	600	51.3	11.7	2.76
Q/QSS-800	40:1	800	60	13.3	7.68/ 8.48
Q/QSS-1500	42:1	1500	122.95	12.2	13.50/ 11.59
Q/QSS-2000	48:1	2000	131	15.3	14.55/ 16.07
Q-3000	62:1	3000	167	17.9	22.80
Q/QSS-4000	72:1	4000	185	21.6	31.50/ 39.78
Q/QSS-6500	267:1	6500	95	68.4	37.50/ 46.41
Q-12000	267:1	12000	168.48	71.2	56.70
Q-16000	648:1	16000	120	133.3	62.50
Q-24000	720:1	24000	140	171.4	192
Q-32000	960:1	32000	140	228.6	195
Q-50000	960:1	50000	150	333.3	352
Q-70000	1280:1	70000	185	378.4	352

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 A536
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-0	DIN KG0G0.5N-30 ISO-L-XCDIB0.5
11	Fasteners	Stainless steel	-



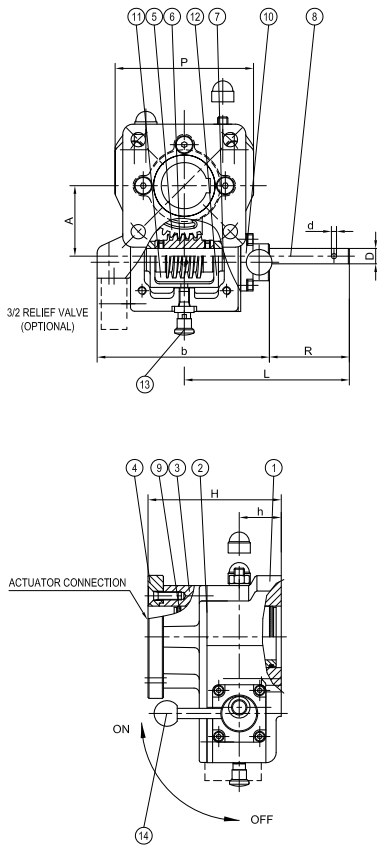
MODELS	Unit	A	b	B	d	D	h	H	L	R	Valve connection(ACC ISO5211)			
Q-200	mm	43.5	70	84	4	12	28.5	64	118	-	50(F05)	70(F07)	-	-
	inch	1.71	2.76	3.31	0.16	0.47	1.12	2.52	4.65	-	1.97	2.76	-	-
Q-400	mm	52.5	91	112	4	12	34	74.75	175	-	70(F07)	102(F10)	-	-
	inch	2.07	3.58	4.41	0.16	0.47	1.34	2.94	6.89	-	2.76	4.02	-	-
Q-800	mm	68.75	110	135	5	15	42.5	90.5	225	-	102(F10)	125(F12)	140(F14)	-
	inch	2.71	4.33	5.31	0.20	0.59	1.67	3.56	8.86	-	4.02	4.92	5.51	-
Q-1500	mm	84	129	156	6	20	45	97	214	-	102(F10)	125(F12)	140(F14)	-
	inch	3.31	5.08	6.14	0.24	0.79	1.77	3.82	8.43	-	4.02	4.92	5.51	-
Q-2000	mm	96.5	150	180	6	20	50	100	240	-	102(F10)	125(F12)	140(F14)	165(F16)
	inch	3.80	5.91	7.09	0.24	0.79	1.97	3.94	9.45	-	4.02	4.92	5.51	6.50
Q-3000	mm	117.5	201	250	6	20	48.5	117.5	255	-	140(F14)	165(F16)	-	-
	inch	4.63	7.91	9.84	0.24	0.79	1.91	4.63	10.04	-	5.51	6.50	-	-
Q-4000	mm	137.5	210	282	6	20	54.5	128	300	-	165(F16)	254(F25)	-	-
	inch	5.41	8.27	11.10	0.24	0.79	2.15	5.04	11.81	-	6.50	10.00	-	-
Q-6500	mm	137.5	210	282	6	20	54.5	128	347	222	165(F16)	254(F25)	-	-
	inch	5.41	8.27	11.10	0.24	0.79	2.15	5.04	13.66	8.74	6.50	10.00	-	-
Q-12000	mm	180	272	366	6	20	63.5	135	378	282	254(F25)	298(F30)	-	-
	inch	7.09	10.71	14.41	0.24	0.79	2.50	5.31	14.88	11.10	10.00	11.73	-	-
Q-16000	mm	180	272	366	8	25	63.5	135	403	326	254(F25)	298(F30)	-	-
	inch	7.09	10.71	14.41	0.31	0.98	2.50	5.31	15.87	12.83	10.00	11.73	-	-
Q-24000	mm	252.5	350	510	8	25	85	186	442	365	254(F25)	298(F30)	356(F35)	406(F40)
	inch	9.94	13.78	20.08	0.31	0.98	3.35	7.32	17.40	14.37	10.00	11.73	14.02	15.98
Q-32000	mm	252.5	350	510	8	25	85	186	442	365	254(F25)	298(F30)	356(F35)	406(F40)
	inch	9.94	13.78	20.08	0.31	0.98	3.35	7.32	17.40	14.37	10.00	11.73	14.02	15.98
Q-50000	mm	291.5	540	612	key 8mm	25	138	262.5	612	502	356(F35)	406(F40)	483(F48)	-
	inch	11.48	21.26	24.09	0.31'' key	0.98	5.43	10.33	24.09	19.76	14.02	15.98	19.02	-
Q-70000	mm	291.5	540	612	key 8mm	25	138	262.5	612	502	356(F35)	406(F40)	483(F48)	-
	inch	11.48	21.26	24.09	0.31'' key	0.98	5.43	10.33	24.09	19.76	14.02	15.98	19.02	-



Manual Override MOD Series

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

- Both double acting and spring return actuators are matching.
- ISO drive shaft matching.
- A 3/2 relief valve can be fitted on the housing in order to automatically evacuate air pressure from the actuator while engaging the manual override.



Part No.	Description	Material	Specs/standard
1	Body	Ductile-iron	GGG40/ ASTM 536
2	Gasket	Nitrile	NBR 70 Shore
3	Coverplate	Ductile-iron	GGG40/ ASTM 536
4	Top Mounting Flange	Ductile-iron	GGG40/ ASTM 536
5	Quadrant	Ductile-iron	GGG40/ ASTM 536
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 536
11	Grease	Complex EP-0	DIN KG0G0.5N-30/ ISO-L-XCDIB05
12	Excentric Rack	Ductile-iron	GGG40/ ASTM 536
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		
MO-D 150	40:1	150	12.6	11.9	3.1
MO-D 350	44:1	350	31.25	11.2	6
MO-D 700	52:1	700	50	14.0	16.3
MO-D 1600	42:1	1600	125	12.8	25
MO-D 3000	72:1	3000	155	19.4	49.5
MO-D 5000	267:1	5000	95	52.6	56

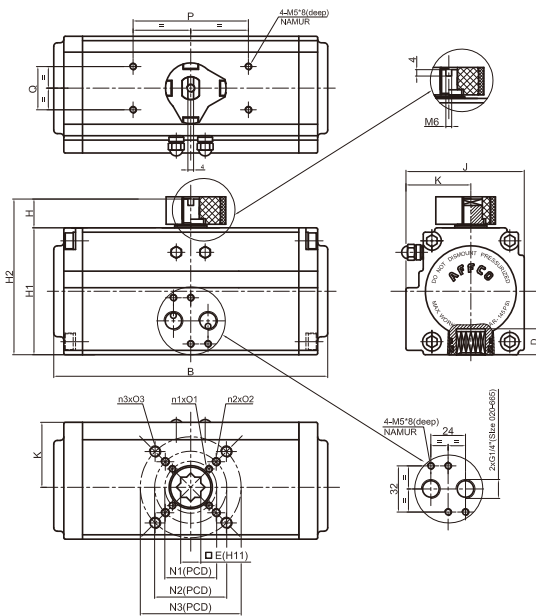
MODELS	Unit	A	b	B	d	D	h	H	L	R	Valve connection ACC ISO5211				Actuator connection ACC ISO5211		
MO-D 150	mm	43.5	122.5	84	4	12	28.5	120	117.5	60	42(F04)	50(F05)	70(F05)	50(F05)	70(F05)	-	-
	inch	1.71	4.82	3.31	0.16	0.47	1.12	4.02	4.63	2.36	1.65	1.97	2.76	1.97	2.76	-	-
MO-D 350	mm	52.5	143.5	112	4	12	34	122	148	78	70(F07)	102(F10)	-	70(F07)	102(F10)	-	-
	inch	2.07	5.65	4.41	0.16	0.47	1.34	4.80	5.83	3.07	2.76	4.02	-	2.76	4.02	-	-
MO-D 700	mm	68.75	168	135	5	15	41	130	161	78	70(F07)	102(F10)	125(F12)	102(F10)	125(F12)	-	-
	inch	2.71	6.61	5.31	0.20	0.59	1.61	5.12	6.34	3.07	2.76	4.02	4.92	4.02	4.92	-	-
MO-D 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	3.31	8.27	7.09	0.24	0.79	1.69	6.14	7.97	3.84	4.02	4.92	5.51	4.92	5.51	6.50	-
MO-D 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	5.22	11.04	11.10	0.24	0.79	2.22	7.91	9.86	4.13	6.50	10.00	-	5.51	6.50	10.00	-
MO-D 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	5.22	15.57	11.10	0.24	0.79	2.22	7.91	14.67	4.33	6.50	10.00	-	5.51	6.50	10.00	11.73



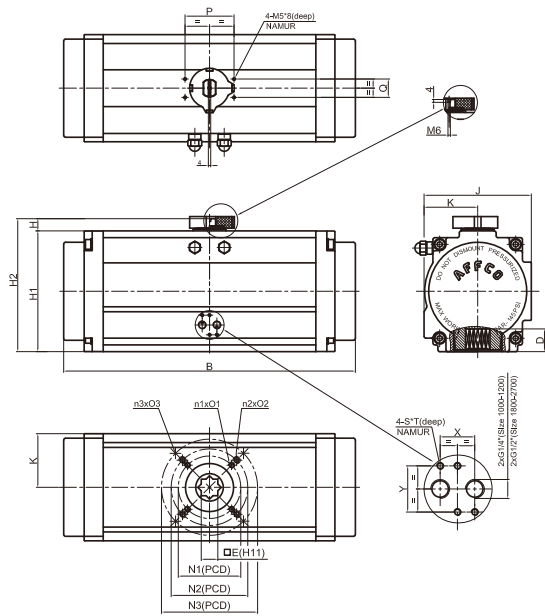
Pneumatic Actuator

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 012-665



Size 1000-2700

DIMENSION

Actuator	E (H11)	D	B	J	H1	H2	K	Standard PCD				Optional PCD		Switchbox conn.			Solenoid conn.			
								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 qty	Spring torque start end		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	
				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	

Models	Spring qty	Spring torque start end		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	
				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	PMA1000	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 aluminum alloy pneumatic actuator with Rilsan coating.

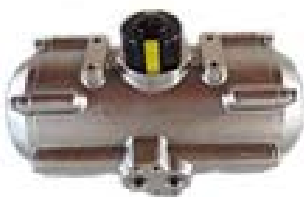
IP Degree: IP68

Standard: DIN EN ISO5211

Applicable to salt water, oxygen-rich water.

Series	Operation	Models	
PMA-DA-M Series	Double Acting 	PMA-020-DA-M	PMA-035-DA-M
		PMA-050-DA-M	PMA-075-DA-M
		PMA-110-DA-M	PMA-160-DA-M
		PMA-255-DA-M	PMA-435-DA-M
		PMA-665-DA-M	PMA-1000-DA-M
		PMA-1200-DA-M	PMA-1800-DA-M
		PMA-2700-DA-M	
PMA-SR-M Series	Spring Return 	PMA-020-DA-M	PMA-035-DA-M
		PMA-050-DA-M	PMA-075-DA-M
		PMA-110-DA-M	PMA-160-DA-M
		PMA-255-DA-M	PMA-435-DA-M
		PMA-665-DA-M	PMA-1000-DA-M
		PMA-1200-DA-M	PMA-1800-DA-M
		PMA-2700-DA-M	

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.

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

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.

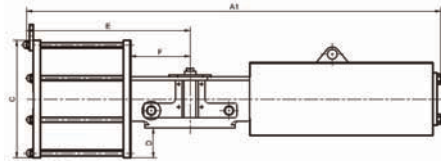
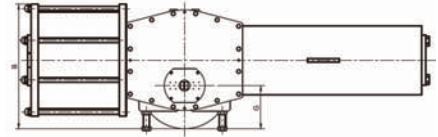
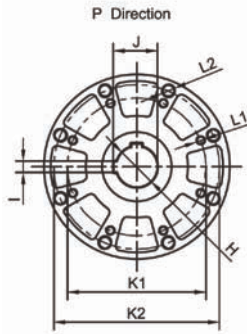
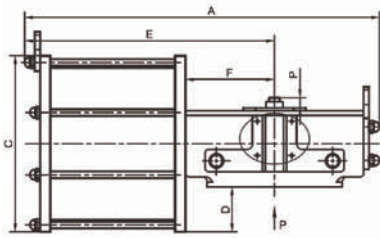
-PMAC series are canted scotch yoke actuators, with double acting out-put torque from 908 to 386,594NM, and spring return type's out-put torque from 452 to 302,163 NM.

-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 & Weight

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	-
PPMAS/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	M	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

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

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

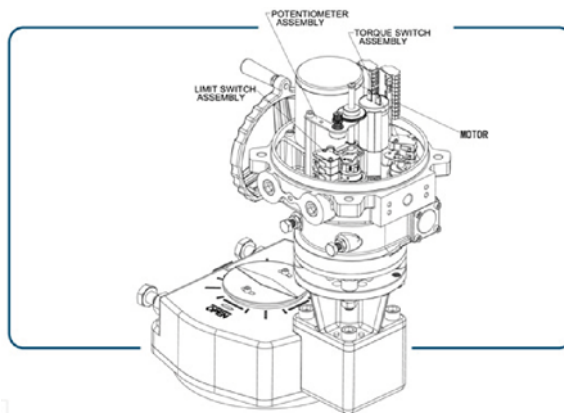
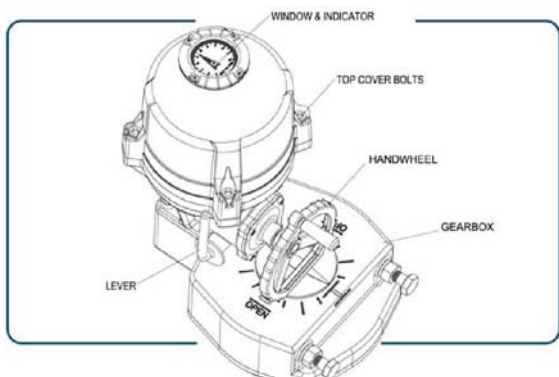
TORQUE TABLE— SPRING RETURN

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

AQT series electric actuators provide wide range of torques from 60Nm to max 3000Nm.
 -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.



STANDARD SPECIFICATION

Enclosure	Weatherproof IP67, NEMA 4 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%
Duty cycle(on-off)	S2: 10Min~30Min
Duty cycle(modulating)	S4, 30~50%, 300~1200 start/Hour
Motor	Squirrel Cage induction motor
Limit switches	2 each for Open and Close (SPDT 250VAC/10A rating)
Torque switches	1 each for Open& Close (SPDT 250VAC/10A rating except for AQT 0060,0100)
Stall protection/ set temp.	Built in Thermal protection, Open 150°C 5o°C , Close 97°C 15°C
Travel angle	90 5 (0 ~ 100)
Position indicator	Continuous mechanical indicator with arrow
Manual override	Declutchable
Self locking	Provided by double worm gearing (no brake)
Mechanical stopper	1 each for each travel end (Open and Close), external & adjustable
Space Heater	5W(110/220VAC) for anti-condensation
Cable entries	2 PF 3/4" TAP
Lubrication	EP type grease
Terminal block	Screw and Lever Push type (spring loaded)
Ambient temperature	Basic actuator : -20°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)

OPTIONS AVAILABLE

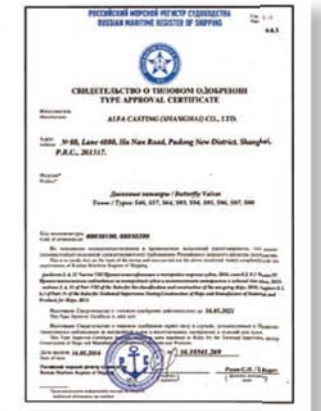
Mechanical		
Symbol	Description	Remark
EX	Explosion proof (Ex d II B T4)	Approved by NEPSI, except for AQT0060
WT	Watertight (IP68), Temporary submersible	Temporary submersion, except for AQT0060
ALS	Auxiliary limit switches (Max 2 for each travel end)	Except for AQT0060, 0100
ATS	Auxiliary torque switches (Max 2 for each travel end)	Except for AQT0060, 0100
EXT	Extended travel angle (up to 120 , 135 , 180 , 270 ,)	Except for AQT1500,2000,3000
SV	Variation in torque and operating speed	Please consult before ordering
LPA	Horizontal installation with output lever	Please consult before ordering

TECHNICAL INFORMATION

Models	AQT0060	AQT 0100	AQT 0160	AQT 0240	AQT 0350	AQT 0500	AQT 0800	AQT 1100	AQT 1500	AQT 2000	AQT 3000
Rated Torque(Nm)	60	100	160	240	350	500	800	1100	1500	2000	3000
Duty cycle S4(%)	40	40	30	30	30	30	30	30	30	30	30
Operating time 90 (s)	-	-	-	-	-	-	-	-	-	-	-
50Hz	14	21	26	26	31	31	39	39	93	117	117
60Hz	12	18	22	22	26	26	32	32	78	97	97
Max Bore Size(mm)	-	-	-	-	-	-	-	-	-	-	-
Key(Φ)	-	22	25	25	40	40	48	48	75	75	75
Square(Max.)	14	20	23	23	34	34	40	40	64	64	64
Rated current(A)	-	-	-	-	-	-	-	-	-	-	-
1Phase/110V/50Hz	0.39	0.98	1.60	1.62	1.72	3.60	3.90	3.90	3.60	3.80	3.80
60Hz	0.4	1.10	1.70	1.72	1.80	3.90	4.20	4.30	3.90	4.20	4.20
1Phase/220V/50Hz	0.19	0.52	0.85	0.87	0.92	1.50	2.05	2.15	1.50	2.05	2.15
60Hz	0.2	0.58	0.90	0.90	0.95	1.60	2.20	2.30	1.60	2.20	2.30
3Phase/380V/50Hz	-	0.43	0.30	0.32	0.32	0.52	0.82	0.84	0.52	0.82	0.84
60Hz	-	0.33	0.30	0.32	0.32	0.56	0.88	0.90	0.56	0.88	0.90
3Phase/440V/50Hz	-	0.59	0.30	0.32	0.32	0.55	0.82	0.84	0.55	0.82	0.84
60Hz	-	0.42	0.32	0.35	0.35	0.58	0.88	0.88	0.58	0.88	0.88
DC/24V	0.2	2.8	4	5	6.8	-	-	-	-	-	-
Motor insulation class	F	F	F	F	F	F	F	F	F	F	F
Motor Power(W)	15	15	40	40	40	90	180	180	90	180	180
ISO5211 mounting flange	F03/05/07	F07	F07/F10	F07/F10	F10/F12	F10/F12	F12/F14	F12/F14	F16	F16	F16
Weight(kgs)	3	7	15	15	20	20	25	25	65	75	75
No. of handwheel turns	8	10	12	12	14	14	17	17	65	70	70

CERTIFICATES

Your partner in flow control





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