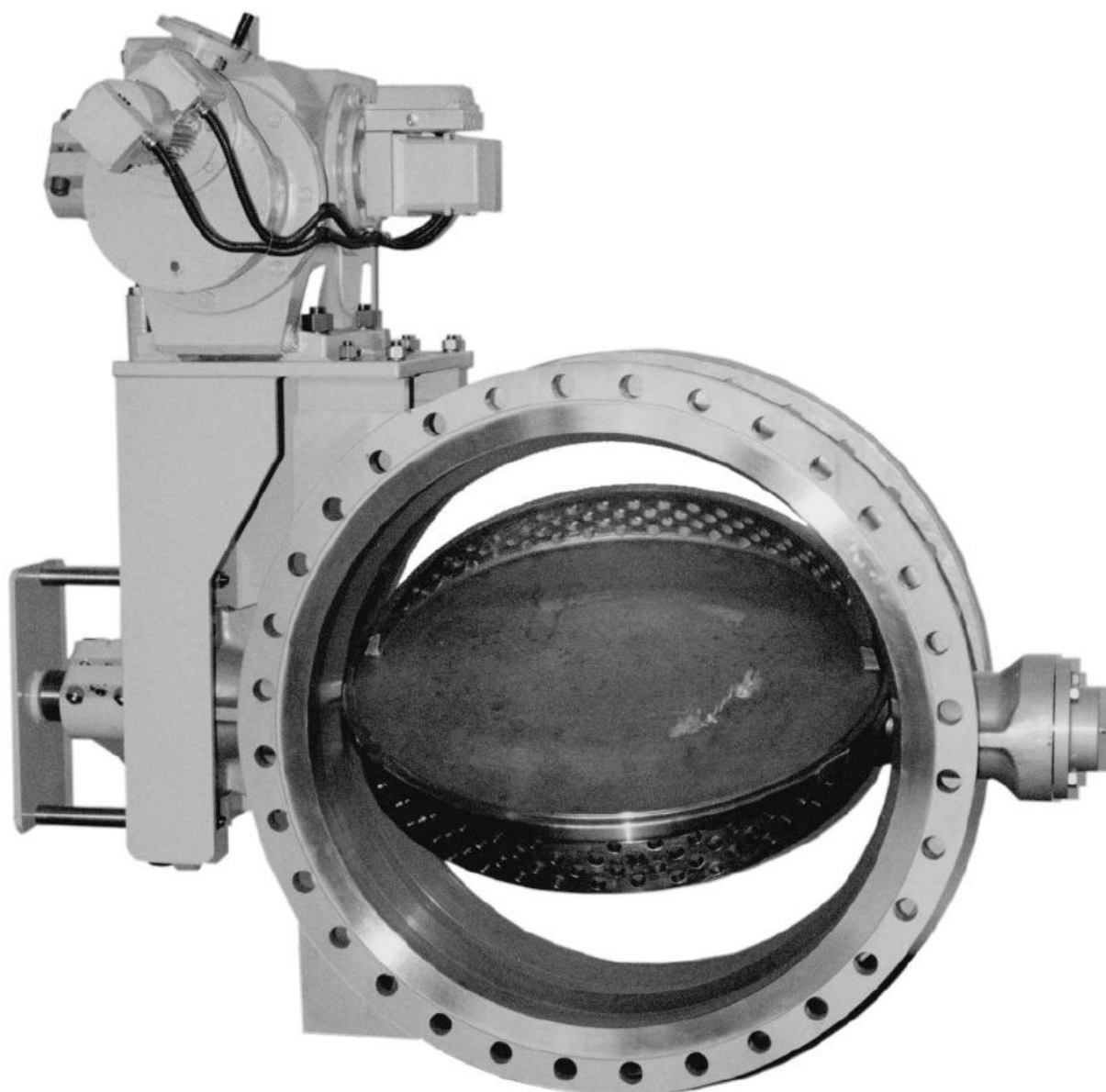




**1-2480 SERIES
ECCENTRIC DISC
CONTROL VALVES**

**1-2480 SERIES
ECCENTRIC DISC
CONTROL VALVES****1-2483 model with electric actuator top mounted for control service in a desalination plant**

The 1-2480 series PARCOL flanged control valves have a double eccentric disc which reduces torque requirements and seal ring wear by minimizing its contact with the disc.

Additional torque reduction is obtained by the profiled drilled integral wings of the design 1-2483.

The drilled wings of 1-2483 make the valve suitable for flow control in cavitating services on liquids and for low noise flow control on compressible fluids.

Due to the eccentric design of the disc, these valves can provide a stable flow control with limited negative gradients and excellent shut-off in closed position.

Also the flow characteristic is improved and it is close to an equal percentage shape for low openings.

The reduction of flow coefficients due to the wings is balanced by higher values of factors F_L , x_T and x_{FZ} which allow the use of this valves for high pressure drop and angular travel up to 80° on liquid and gas services.

For more critical service a special execution with extended wings and angular travel up to 100° is available.

MAIN FEATURES

BODY

- type : cast or welded double flanged.
- sizes : 8" through 80"
- FTF dimensions : according to ISO 5752 or EN558 basic series 13
- connections : ANSI 150, PN 10, 16
AWWA classes D and E
- body ratings : ANSI 150 up to DN 500;
PN 12 for DN 600 and over.
Higher ratings are available on request.
- materials : A216 WCB, AISI 316/316L, A890
4A duplex stainless steel, other materials are available on request.

DISC

- type : double eccentric design and two available styles:
 - plain disc on 1-2481 series;
 - drilled wings on 1-2483 series.
- flow characteristic : modified linear (see diagram)
- materials : the same as body
- rotation : through 80° - up to 90° with electric or hydraulic actuators
- flow direction : inlet on the flat side of disc (seal ring side)

SEAL RING

- construction : tightened against the body by a locking ring; two versions are available for any size: PTFE as standard and metal type for high temperature services.
Up to DN 300 included PTFE and metal type are interchangeable without any change.
 - temperature capabilities :
 - PTFE seal ring: max 200°C;
 - metal seal ring: max 375°C.
 - shut-off classification IEC 60534.4 :
 - PTFE seal ring: according to class V;
 - metal seal ring: according to class IVS1;
 - without seal ring; according to class II.
- Over DN 600 the max leakage will be specified according to service conditions.

SHAFT

- construction : made in one piece and pinned to the disc.
- materials : AISI 316, AISI 316L, 17-4-PH, duplex stainless steel 25Cr 5Ni 3Mo, Monel K500.

BEARINGS

- construction : AISI 316 or Inconel 625 + PTFE fibers, full-metal bushings for high temperature services.
- temperature capabilities :
 - metal + PTFE bearings may be used up to 220°C; full-metal bearings have not practical limitations.

PACKING

- construction : adjustable by follower with screws. Seal materials are braided PTFE split rings or pure graphite rings.
- temperature capabilities :
 - braided PTFE rings: up to 200°C;
 - pure graphite: no practical limits.

ACTUATORS

Up to DN 600 diaphragm pneumatic single action actuators 1-X-271 series are available.

For larger sizes cylinder pneumatic actuators double acting fail-safe can be supplied.

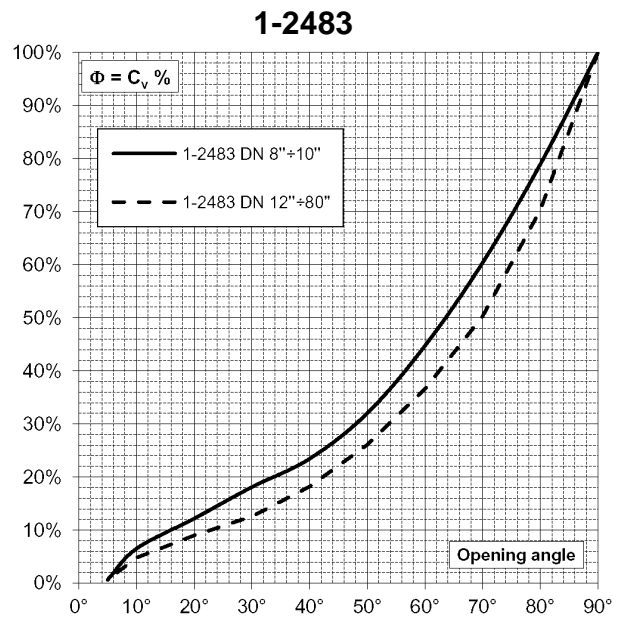
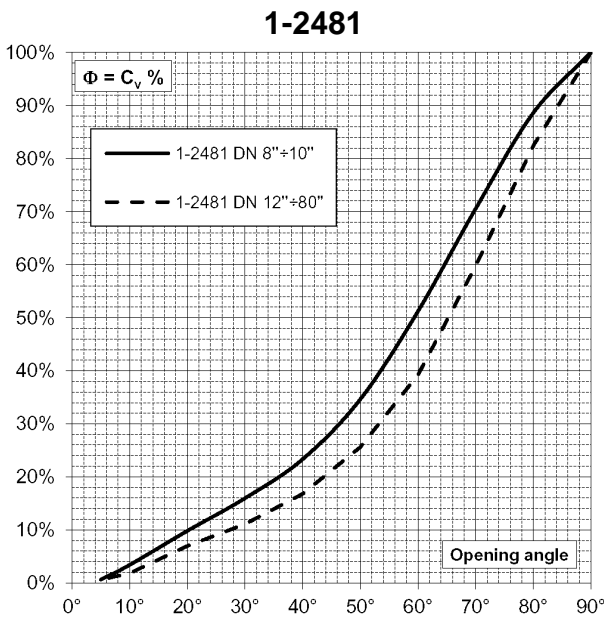
Electrical or hydraulic actuators are available for all sizes on request.

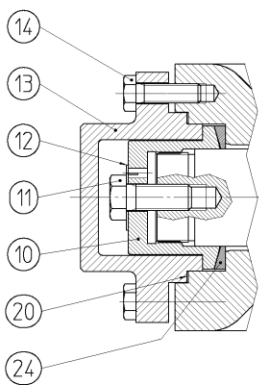
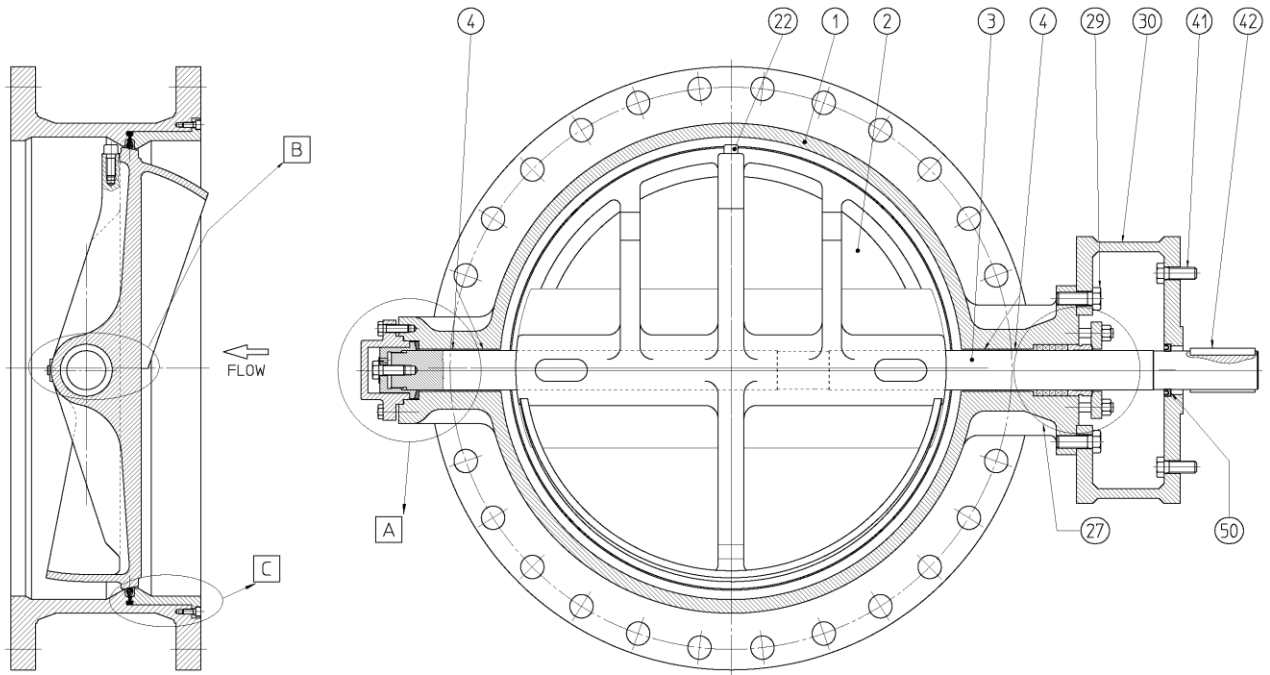
CV - F_L - x_T - x_{FZ} COEFFICIENTS AT 90° OPENING

1-2481 – plain disc				
DN	C _v	F _L	x _T	x _{FZ}
200	960	0.70	0.32	0.33
250	3300	0.56	0.20	0.17
300	5000	0.52	0.17	0.13
350	6700	0.52	0.18	0.14
400	9100	0.52	0.18	0.14
450	11600	0.52	0.18	0.14
500	14100	0.53	0.18	0.14
600	21000	0.52	0.18	0.14
700	29400	0.52	0.18	0.13
800	39000	0.52	0.18	0.13
900	49500	0.52	0.18	0.13
1000	61000	0.52	0.18	0.13
1200	90500	0.51	0.17	0.12
1400	125500	0.51	0.17	0.12
1600	164500	0.51	0.17	0.12
1800	209000	0.51	0.17	0.12
2000	260000	0.51	0.17	0.12

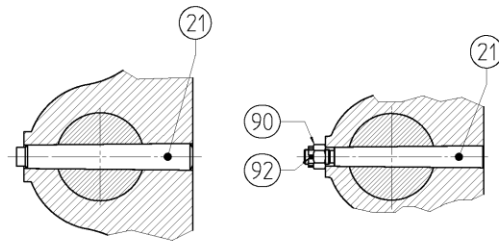
1-2483 – drilled wings				
DN	C _v	F _L	x _T	x _{FZ}
200	1400	0.68	0.34	0.30
250	2450	0.66	0.32	0.27
300	3850	0.61	0.28	0.22
350	4900	0.63	0.29	0.24
400	7100	0.61	0.28	0.22
450	8900	0.62	0.28	0.22
500	10400	0.63	0.30	0.24
600	16000	0.62	0.29	0.23
700	22400	0.62	0.29	0.22
800	29500	0.62	0.29	0.22
900	38000	0.61	0.28	0.22
1000	47000	0.62	0.28	0.22
1200	70000	0.60	0.27	0.21
1400	97000	0.60	0.27	0.20
1600	127000	0.60	0.27	0.21
1800	162000	0.60	0.27	0.21
2000	200000	0.60	0.27	0.21

FLOW CHARACTERISTIC





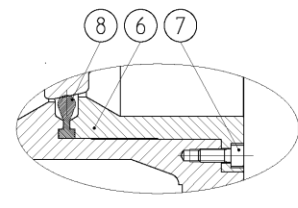
Detail A



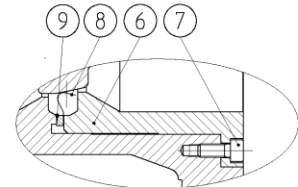
DN < 1000

DN > 1200

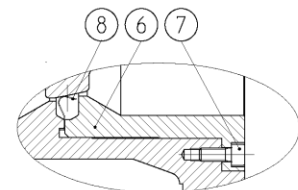
Detail B



PTFE seal ring



METAL seal ring DN ≤ 300



METAL seal ring DN > 300

Detail C

ITEM	PART NAME	ITEM	PART NAME
1	BODY	18	STUD
2	DISC	19	NUT
3	SHAFT	20	GASKET
4	BEARING	21	PIN
6	STOP RING	22	SCREW
7	SCREW	23	SPACER RING
8	SEAL RING	24	ANTIFRICTION RING
9	SUPPORT RING (see detail C)	27	PACKING
10	ADJUSTING RING	29	SCREW
11	SCREW	30	SUPPORT
12	LOCK WASHER	41	ACTUATOR SCREW
13	COVER	42	KEY
14	SCREW	50	SAND PROTECTION
15	PACKING RING	90	NUT (see detail B)
16	PACKING FOLLOWER	92	STOP PIN (see detail B)
17	PACKING FLANGE		

MATERIALS OF CONSTRUCTION

ITEM	PART NAME	BASIC CLASS				NACE (MR0175 - MR0103)	
		A	G	H	K	(A)	(G)
1	BODY	A 216 WCB	AISI 316	AISI 316L	ASTM A890/A890M 4A	A 216 WCB	AISI 316
2	DISC	A 216 WCB	AISI 316	AISI 316L	ASTM A890/A890M 4A	22HRC max	AISI 316 22HRC max
3	SHAFT	SEE 1 st SUB CLASS TABLE					
4	BEARING	SEE 1 st SUB CLASS TABLE					
6	STOP RING	A 105	AISI 316	AISI 316L	UNS S31803 (SAF 2205) / ASTM A890/A890M 4A	A 105 22HRC max	AISI 316 22HRC max
7	SCREW	AISI 316					
8	SEAL RING	SEE 2 nd SUB CLASS TABLE					
9	SUPPORT RING	SEE 2 nd SUB CLASS TABLE					
10	ADJUSTING RING	DN ≤ 800 AISI 316L	S 21800		AISI 316L	S 21800	
11	SCREW	AISI 304		AISI 316	MONEL 400	AISI 304	
12	LOCK WASHER	AISI 304			AISI 316L	AISI 304	
13	COVER	A 105	AISI 316	AISI 316L		A 105 22HRC max	AISI 316L 22HRC max
14	SCREW	8.8 UNI 3740	AISI 304		AISI 316L	8.8 UNI 3740	AISI 304
20	GASKET	INORGANIC COMPOUND T ≤ 300 °C - ARMOURED GRAPHITE T > 300 °C					
21	PIN	SEE 2 nd SUB CLASS TABLE					
22	SCREW	AISI 316			MONEL K500	AISI 316 22HRC max	
24	ANTIFRICTION RING	DN ≤ 800 AISI 316L	AISI 316L		BSZN 5-BRONZE	AISI 316 22HRC max	
		DN > 800 BSZN 5-BRONZE					
27	PACKING	SEE PACKING TABLE					
29	SCREW	8.8 UNI 3740	AISI 304		8.8 UNI 3740	AISI 304	
30	SUPPORT	CARBON STEEL					
41	ACTUATOR SCREW	8.8 UNI 3740	AISI 304		8.8 UNI 3740	AISI 304	
42	KEY	ASTM A564-630 H900					
50	SAND PROTECTION	GACO NB-70					
90	NUT	AISI 316			MONEL K500	AISI 316	
92	STOP PIN	MONEL 400					

ITEM	3	4
PART NAME	SHAFT	BEARING
1 st SUB-CLASS	01	CARBON STEEL + BRONZE + PTFE
	02	ASTM A 564-630 H900 (FOR NACE ASTM A 564-630 H1150 M)
	03	ASTM B 148-955 (grade D)
	04	AISI 316 (FOR NACE 22HRC max)
	05	AISI 316L (FOR NACE 22HRC max)
	06	XM 19 (FOR NACE 35HRC max)
	07	UNS S31803 (SAF 2205) (FOR NACE 25HRC max)
	14	XM 19 (FOR NACE 35HRC max)

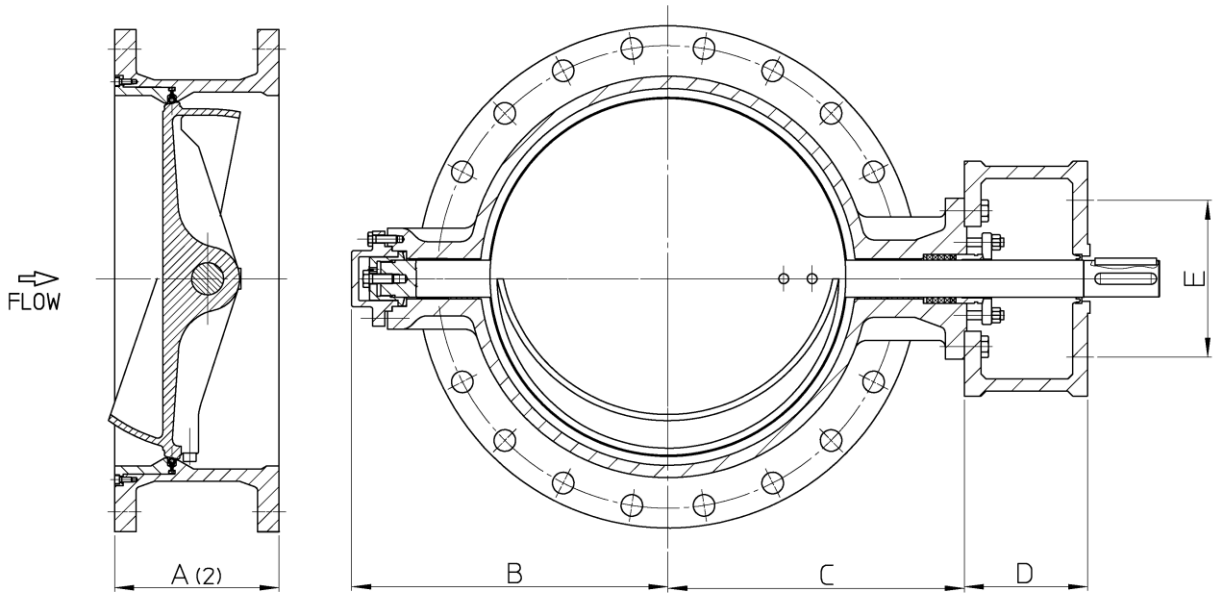
ITEM	8	9	21	MAX LEAKAGE CLASS
PART NAME	SEAL RING	SUPPORT RING	PIN	
2 nd SUB-CLASS	N	WHITOUT SEAL	MONEL K500 240÷300 HB	II
	T	PTFE	MONEL K500 240÷300 HB	V
	F	AISI 304L	AISI 304 SILVER PLATED	MONEL K500 240÷300 HB

ITEM	PART NAME	PACKING TYPE	
		TFK	GRF
15	PACKING RING	Reinforced PTFE	FLEXIBLE GRAPHITE
16	PACKING FOLLOWER	AISI 316	AISI 316
17	PACKING FLANGE	AISI 316	AISI 316
18	STUD	AISI 304	AISI 304
19	NUT	AISI 304	AISI 304
23	SPACER RING	25% Glass loaded PTFE	CT 527 GRAPHITE

⁽¹⁾ Not suitable for hydrochloric acid. For strong solvents the compatibility must be checked with bushing manufacturer

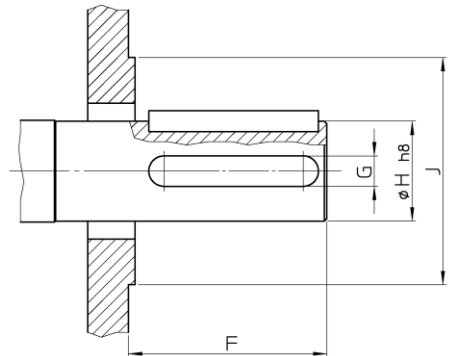
SELECTION GUIDE					
BASIC CLASS	SUB-CLASS		TEMPERATURE	SERVICE	
A	01	NT	-29 °C ÷ 200 °C	NOT CORROSIVE	NOT SUITABLE FOR COPPER FREE SERVICE
	02	NF	-29 °C ÷ 375 °C	NOT CORROSIVE T > 200 °C	
	02	NF	-29 °C ÷ 375 °C	CORROSIVE T > 200 °C	
G	03	NT	-50 °C ÷ 200 °C	CORROSIVE	
	04	NT	-50 °C ÷ 200 °C	CORROSIVE (NACE)	
	06	NT	-50 °C ÷ 200 °C	CORROSIVE FOR HIGH Δp (NACE)	
	14	NF	-100 °C ÷ -51 °C	CORROSIVE FOR HIGH Δp, LOW TEMPERATURE (NACE)	
H	05	NT	-29 °C ÷ 200 °C	CORROSIVE (NACE)	
	06	NT	-29 °C ÷ 200 °C	CORROSIVE FOR HIGH Δp (NACE)	
K	07	NT	-29 °C ÷ 200 °C	SEAWATER (BRINE)	NOT SUITABLE FOR COPPER FREE SERVICE

OVERALL DIMENSIONS - [mm]



DN		A	B	C	D	E ⁽¹⁾	F	G	H	J	Mass
in.	mm										kg
8	200	152	245	244	113	F14	80	10	30	100	150
10	250	165	270	269	113	F14	80	10	30	100	200
12	300	178	326	301	113	F14	87	10	34	100	250
14	350	190	334	317	113	F14	87	12	40	100	300
16	400	216	360	342	113	F14	87	12	40	100	350
18	450	222	410	386	153	F16	107	16	50	130	400
20	500	229	450	431	153	F16	117	18	59	130	480
24	600	267	513	481	200	F25	117	18	59	200	550
28	700	292	570	531	250	F25	117	18	64	200	650
32	800	318	633	601	250	F25	128	20	69	200	900
36	900	330	703	660	250	F30	144	22	79	230	1100
40	1000	410	780	736	250	F35	160	25	89	260	1350
48	1200	470	930	861	250	F35	182	28	104	260	2150
56	1400	530	1080	1010	270	F40	205	32	124	300	3200
64	1600	600	1200	1120	300	F40	245	36	139	300	4000
72	1800	670	1325	1240	320	F48	280	40	154	370	4600
80	2000	760	1450	1350	340	F48	280	45	174	370	5150

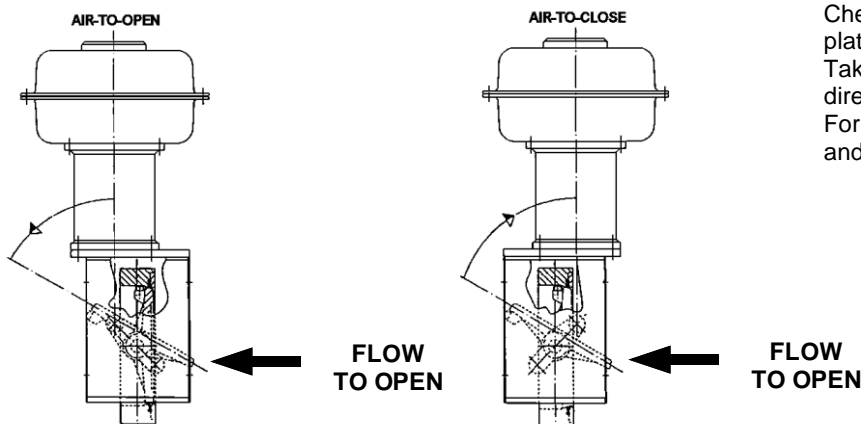
ACTUATOR COUPLING DIMENSIONS⁽³⁾



NOTES:

- 1) ISO 5211 flange dimensions.
- 2) Tolerances:
DN ≤ 500, ± 3 mm;
DN ≥ 600, ± 5 mm.
- 3) Final dimensions can be changed according to actuator supplier requirements.

FLOW DIRECTION



INSTALLATION

Check the flow direction outlined on the plate fixed on the body. Take care that the standard flow direction is on opposite shaft side. For further information see instructions and maintenance book.