

31000 Series Eccentric Rotary Control Valves with PFA Liner

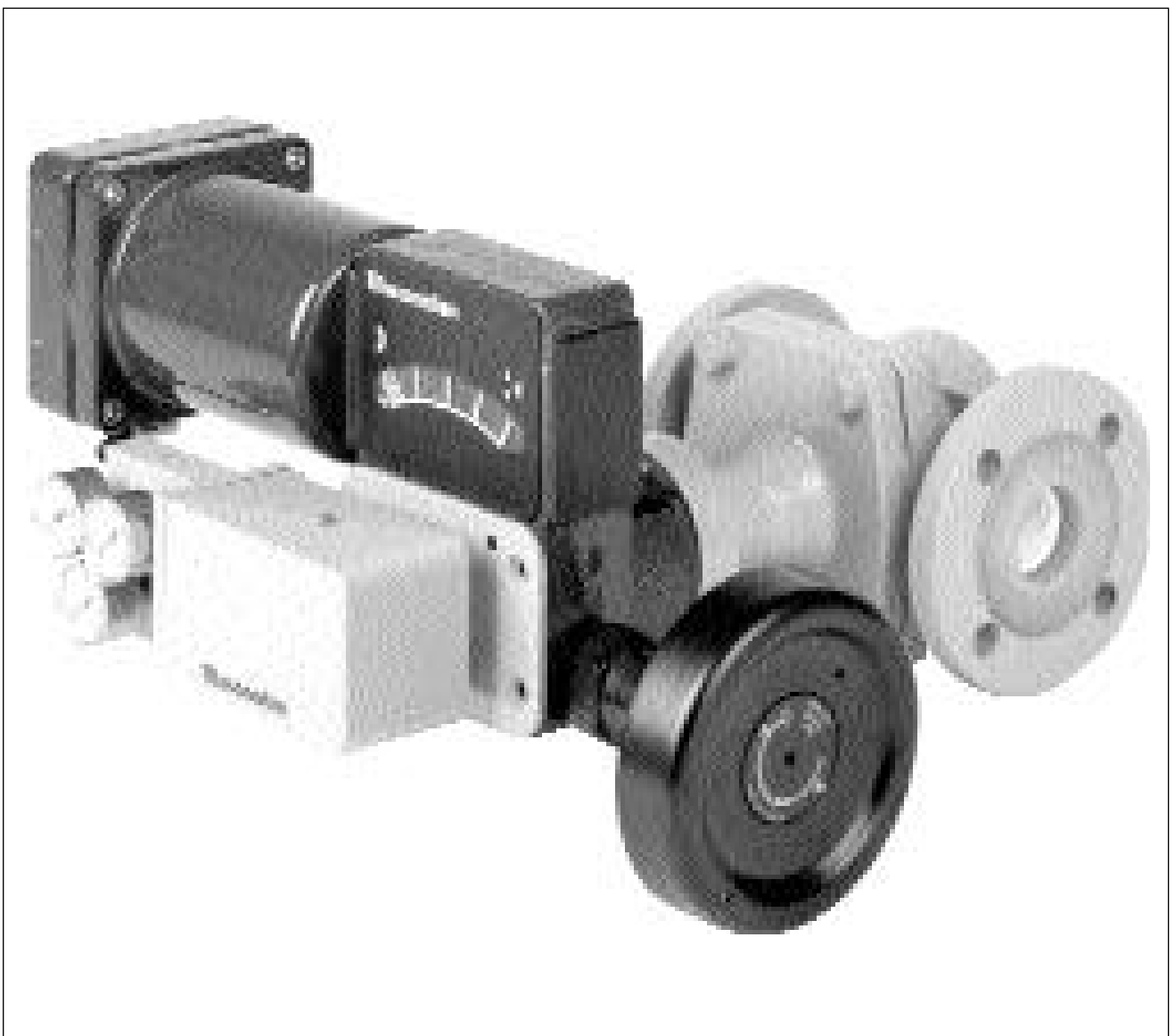


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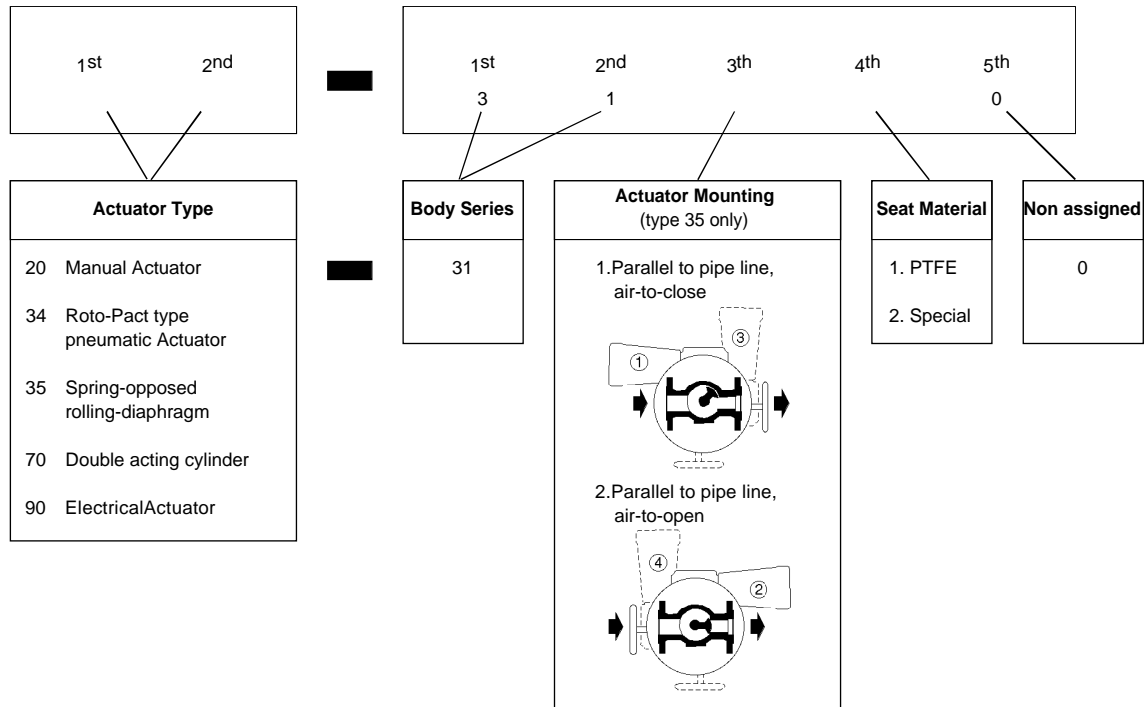
Foreword

The 31000 Series control valve is a PFA lined control valve for corrosive applications which incorporates into its design the following features :

- Eccentric rotary plug which results in tight shut off and low dynamic forces.
- PFA lining with guaranteed minimum wall thickness which provides resistance to most corrosive fluids.
- Straight through flow pattern resulting in larger flow capacities.
- PTFE packing, chevron rings, backed-up by double O-ring follower.
- Compact dimensions and low weight without compromise to piping forces.
- Dovetail grooves for mechanical anchoring between metal body and PFA lining to ensure high performance under vacuum and at high temperature.
- Powerful, field proven rolling diaphragm actuator guaranteeing positive fail-safe action
- Totally enclosed actuator linkage
- Combination handwheel/adjustable limit stop with locking mechanism
- Complete line of options and accessories

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Numbering System



Note: Actuator position ① and ② correspond to standard configuration.
Other positions are available : consult Masoneilan

General Data

• Body and Bonnet

Type : cast, one piece, top entry, self flushing
optional : with steam / hot water jacket (SJ)
 Material : nodular ductile iron, heat treated
 Lining : PFA, translucent, melt processed
optional : antistatic material
 Connections : flanged
 Bonnet connection : through-bolted
 Outside protection : epoxy coating

• Trim

Plug type : eccentrically rotating
 Plug materials : PFA coated stainless steel
 Seat ring type : conical, sealed with O-ring
 Seat ring material : solid virgin PTFE
optional : other materials (consult Masoneilan)
optional : PFE O-ring
 Capacity : full capacity and reduced factor (0.4) in all sizes
 Flow characteristic : modified linear
 C_v ratio : 80 / 1
 Packing : virgin PTFE, chevron type rings backed-up by double O-ring follower
optional : leak detector or flushing connection

• Flow direction : flow to close

• Actuator*

Type : spring opposed rolling diaphragm (model 35)
 Yoke : cast iron
optional : auxiliary handwheel / limit-stop manual actuator (20)
*Roto-Pact type pneumatic piston (34)**
*double acting cylinder (70)**
*electrical actuator (90)**

• Accessories*

4600 series cam pneumatic positioner
 8013 series cam electro-pneumatic positioner
 8007/8008 series electro-pneumatic transducers
 496 series switch (one or two contacts)
 496-8 series opto-electronic position transmitter
 77-4/77-40 series airsets
 77-6 series lock-up valve
 solenoid valves, booster relay, etc. (consult Masoneilan)

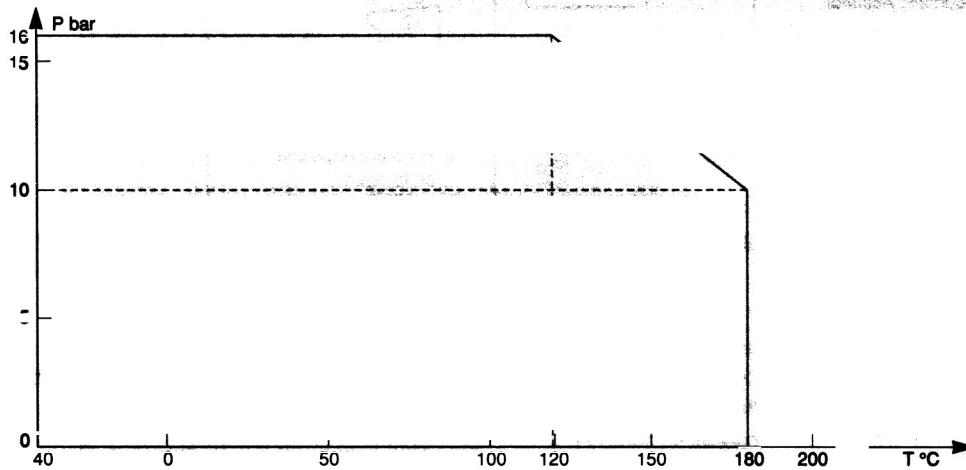
* Interface according to ISO 5211 standard

☆ Refer to specific actuator and accessory specification literature for complete information

Connections

Valve size		PN connections		ANSI connections	
mm	Inch	Flanges	Face to face dimension	Flanges	Face to face dimension
25 to 80	1 to 3	PN 10 ① PN 16 (125 AARH)	IEC 534-3 ② Table II	150 RF ③ (125 AARH)	IEC 534-3 ④ Table I

Pressure / Temperature rating



Vacuum operation within the same temperature range

Leakage class

Class VI, according to IEC 534-4 mod. 1, 1986 and ANSI/FCI 70.2 (R 1982)

Cv and F_L versus travel (with type 35 actuator)

Plug rotation (%)				10	20	30	40	50	60	70	80	90	100
F_L				0.9	0.88	0.86	0.8	0.74	0.69	0.66	0.65	0.64	0.64
Valve Size		Orifice Diameter mm	Actuator Travel mm	Cv									
mm	inch												
25	1	10	89	0.12	0.35	0.7	1.3	2	2.6	3.3	4	4.5	5
		12	89	0.2	0.57	1.2	2	3.2	4.3	5.2	6.3	7.2	8
		21	89	0.5	1.4	2.8	5	7.7	10	13	16	18	20
50	2	24	89	0.8	2.3	4.7	8.5	13	17	21	26	30	33
		40	89	2	5.8	11.7	21	32	43	53	65	74	82
80	3	44	89	2.6	7.3	14.5	26	41	54	68	83	94	104
		58	89	4.6	12.7	25.5	46	73	95	118	146	164	182
		71	89	6.5	18	36	65	104	135	169	208	235	260

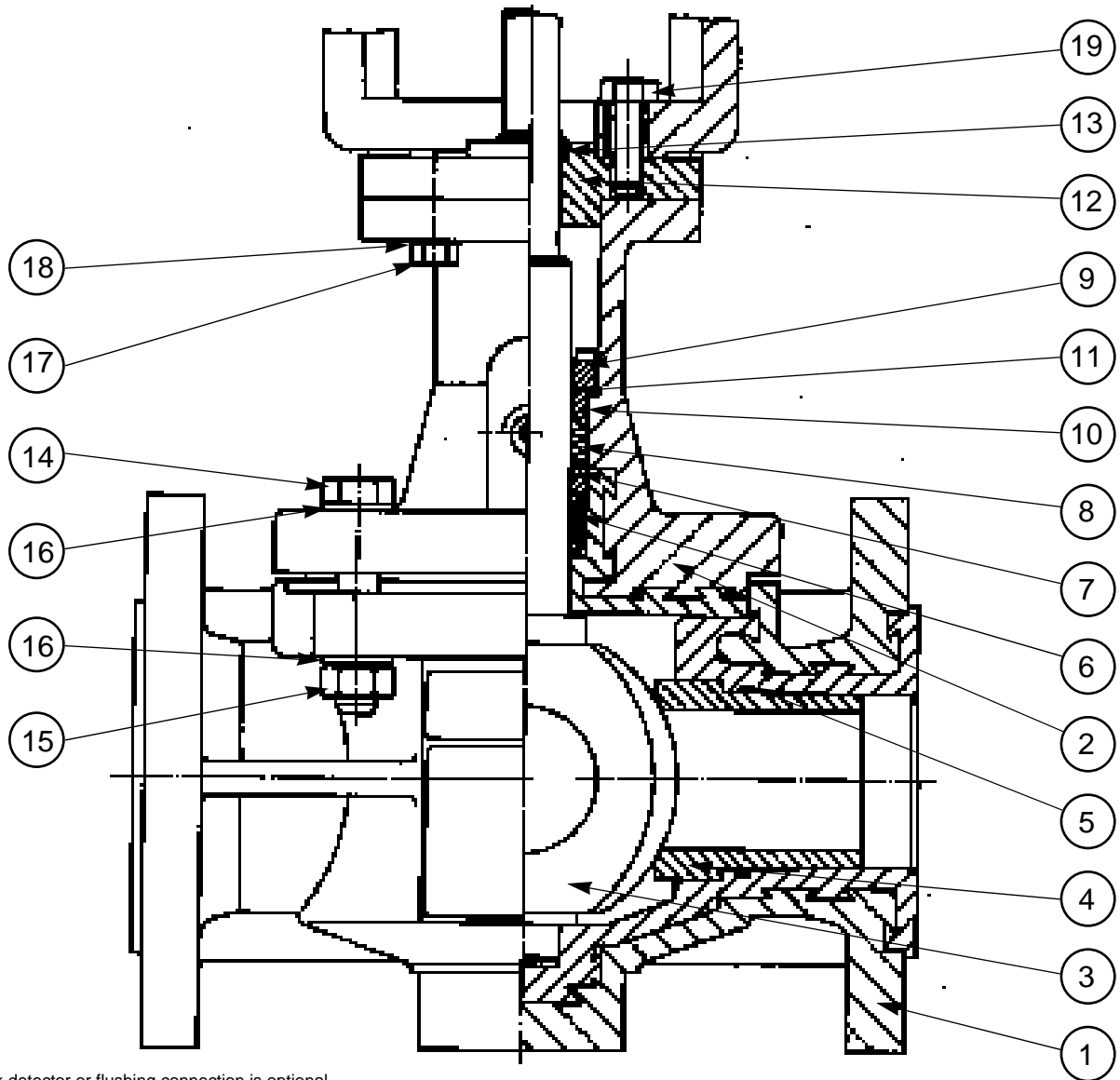
① Connections according to all standard PN (ISO, EN and equivalent National Standards, AFNOR, BS, DIN, etc.)

② Equivalent to DIN 3202/F1

③ Connections according to ANSI B16-5

④ Equivalent to ANSI B16-10

Construction



Note : leak detector or flushing connection is optional

Materials of construction

1	Body	Ductile iron GGG40.3/PFA lined
2	Bonnet	Ductile iron GGG40.3/PFA lined
3	Plug	PFA coated stainless steel
4	Seat ring	Virgin solid PTFE <i>Other materials (consult Masoneilan)</i>
5	O-ring	FEP coated Viton® <i>Perfluoroelastomer (PFE)</i>
6	Packing	Virgin PTFE - chevron ring system
7	Packing box ring	Stainless steel
8	Disc springs (set)	Spring steel
9	Packing follower	Stainless steel
10-11	O-rings	Viton®
12	Actuator connecting flange	Stainless steel
13	Wiper ring	Neoprene
14-19	Bolting	Stainless steel

Allowable Differential Pressures (bar)

Rolling Diaphragm Pneumatic Actuator (type 35)

Air to open

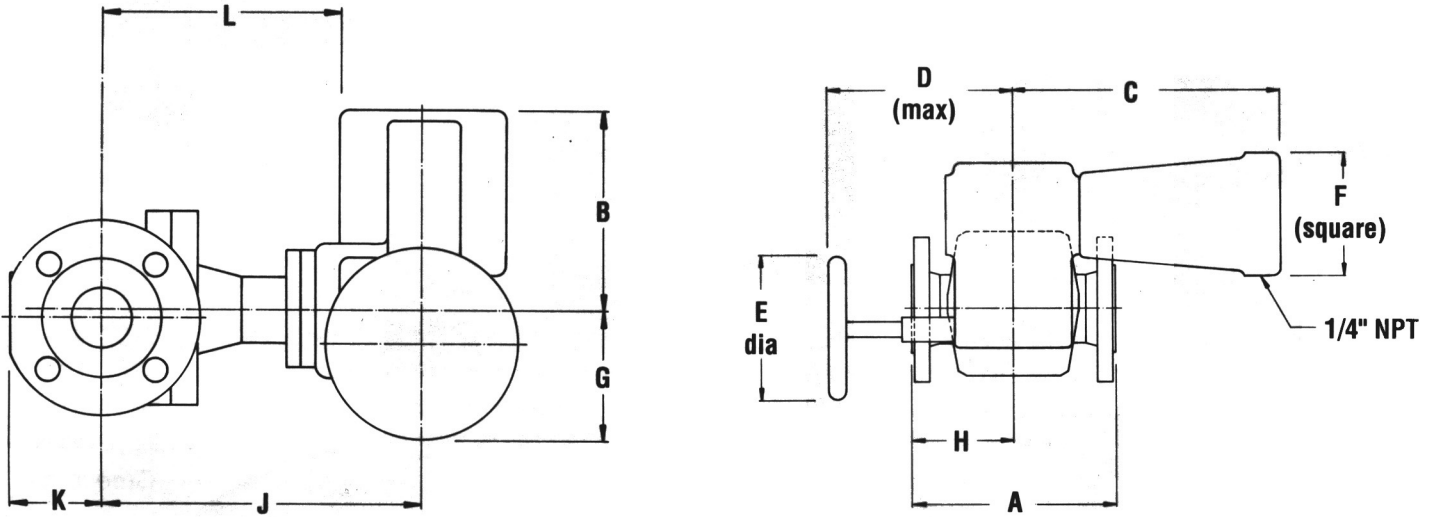
Valve Size		Cv	Actuator Size n°	Bench Range	Air Supply (bar)			
mm	inch				1.4	1.7	2	2.5
		ΔP max (bar)						
25	1	20	4 1/2	7-15	16			
		8	4 1/2	7-15	16			
		5	4 1/2	7-15	16			
50	2	82	4 1/2	7-15	13	16		
		33	4 1/2	7-15	16			
80	3	260	4 1/2	7-15	3.3	6.5	10	16
		182	4 1/2	7-15	5	10	14	16
		104	4 1/2	7-15	8	16		

Air to close

Valve Size		Cv	Actuator Size n°	Bench Range	Air Supply (bar)	
mm	inch				1.4	2
		ΔP max (bar)				
25	1	20	4 1/2	7-15	16	
		8	4 1/2	7-15	16	
		5	4 1/2	7-15	16	
50	2	82	4 1/2	7-15	14	
		33	4 1/2	7-15	16	
80	3	260	4 1/2	7-24	-	7.5
		182	4 1/2	7-24	-	11
		104	4 1/2	7-24	-	16

For 3-15 bench range, consult Masoneilan

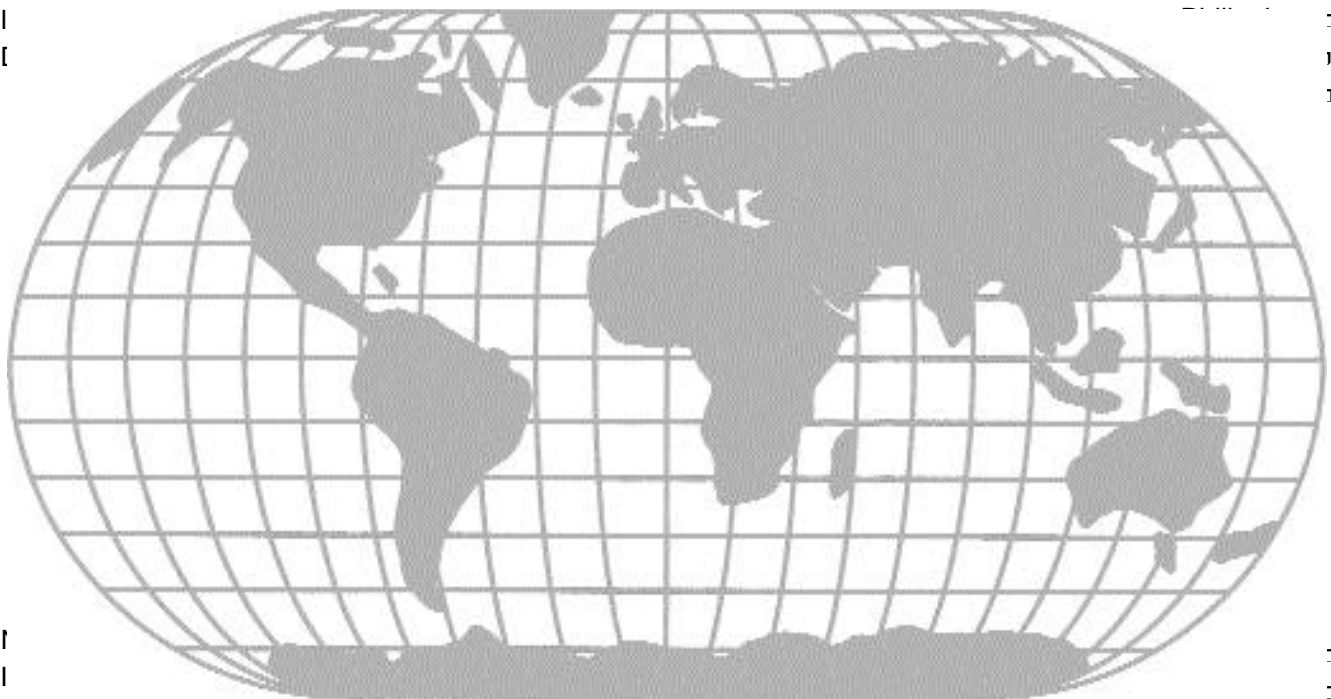
Dimensions (mm) and masses (kg)



Valve size		A		B	C	D	E	F	G	H		J	K	L	Valve mass *
mm	inch	PN 10 PN16	ANSI class 150							PN 10 PN 16	ANSI class 150				
25	1	160	184	176	300	211	163	140	117	80	92	255	52	185	18
50	2	230	254	176	300	211	163	140	117	115	127	270	78	200	27
80	3	310	298	176	300	211	163	140	117	155	149	290	100	220	44

* : including handwheel

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