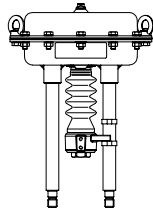
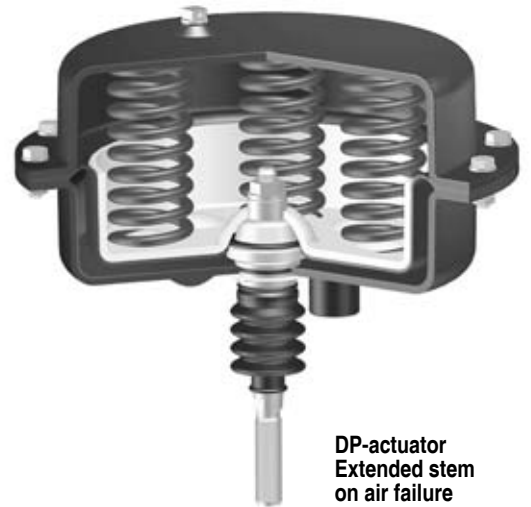


Pneumatic actuators DP 32 / DP 33 / DP 34 / DP 34 Tandem

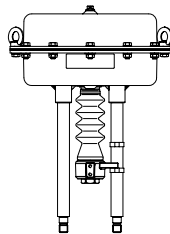
DP 32



Page 2



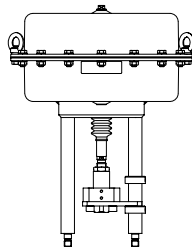
DP 33



Page 2

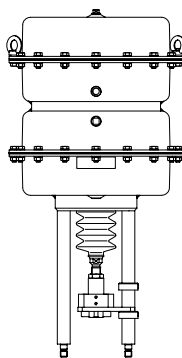


DP 34



Page 2

DP 34 Tandem



Page 4

Features:

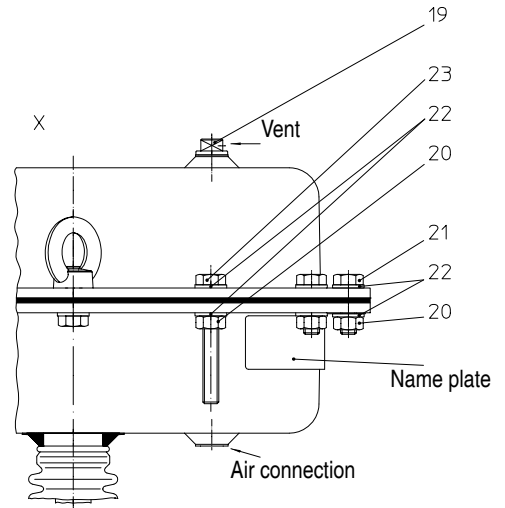
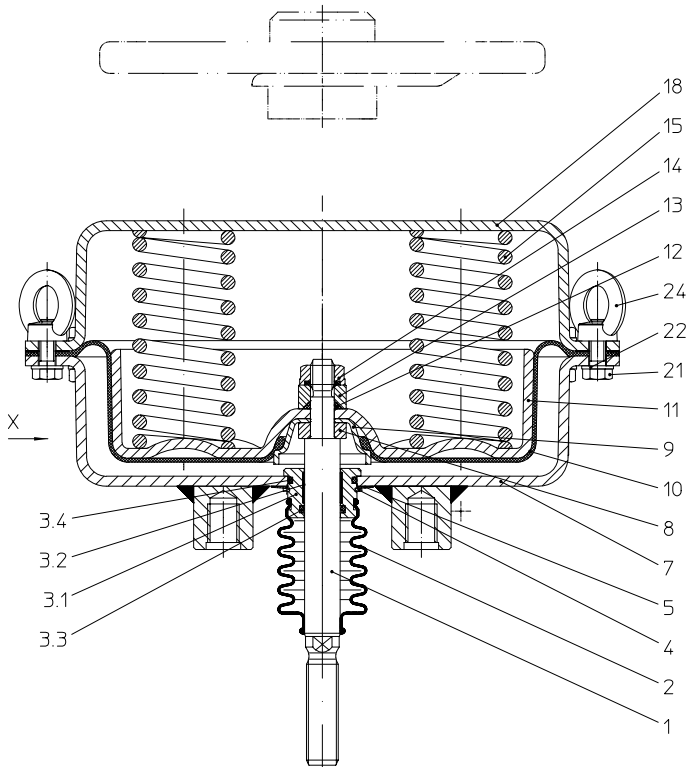
- Compact design
- Actuator with rolling diaphragm
- Actuator mountable in any position
- Travel up to 65 mm
- Direct or reverse acting
- Burnished stem protected by bellow
- Max. air supply pressure 6 bar
- High spring thrust
- Maintenance-free O-ring sealing with flexible guiding
- Assembly according to DIN IEC 60534-6
- Operative ambient temperatures -40°C to +100°C
- Favourable size / performance ratio



Pneumatic actuators DP 32 / DP 33 / DP 34

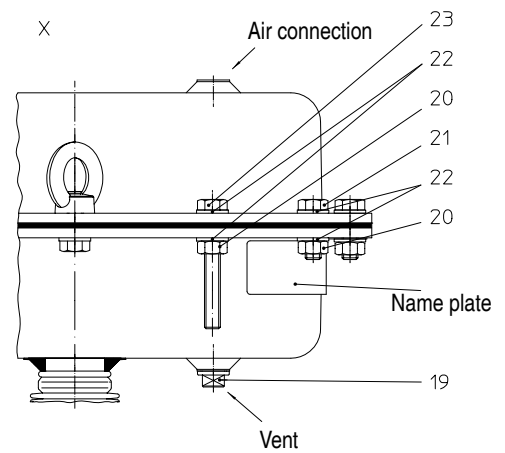
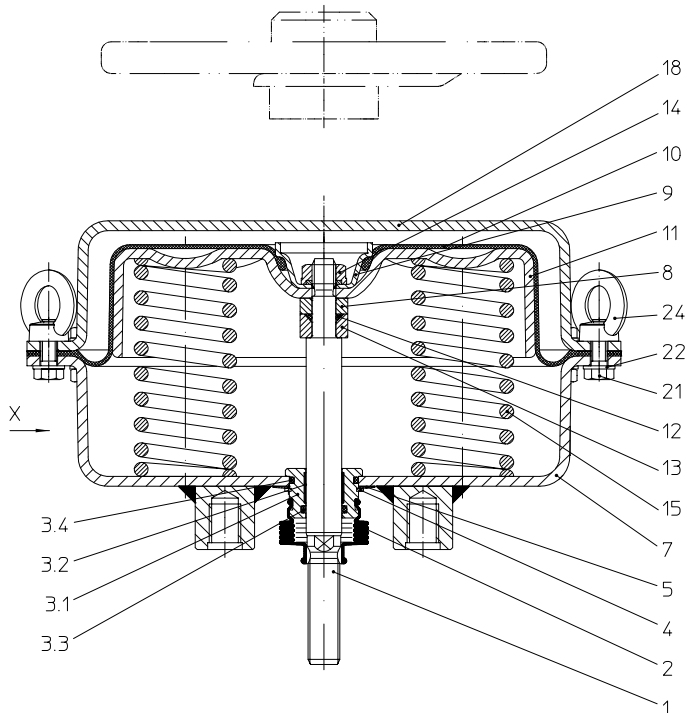
Operating mode: Extended stem on air failure

Top mounted handwheel (see page 6)



Operating mode: Retracted stem on air failure

Top mounted handwheel (see page 6)



Actuators thrust for operating mode: extended stem on air failure

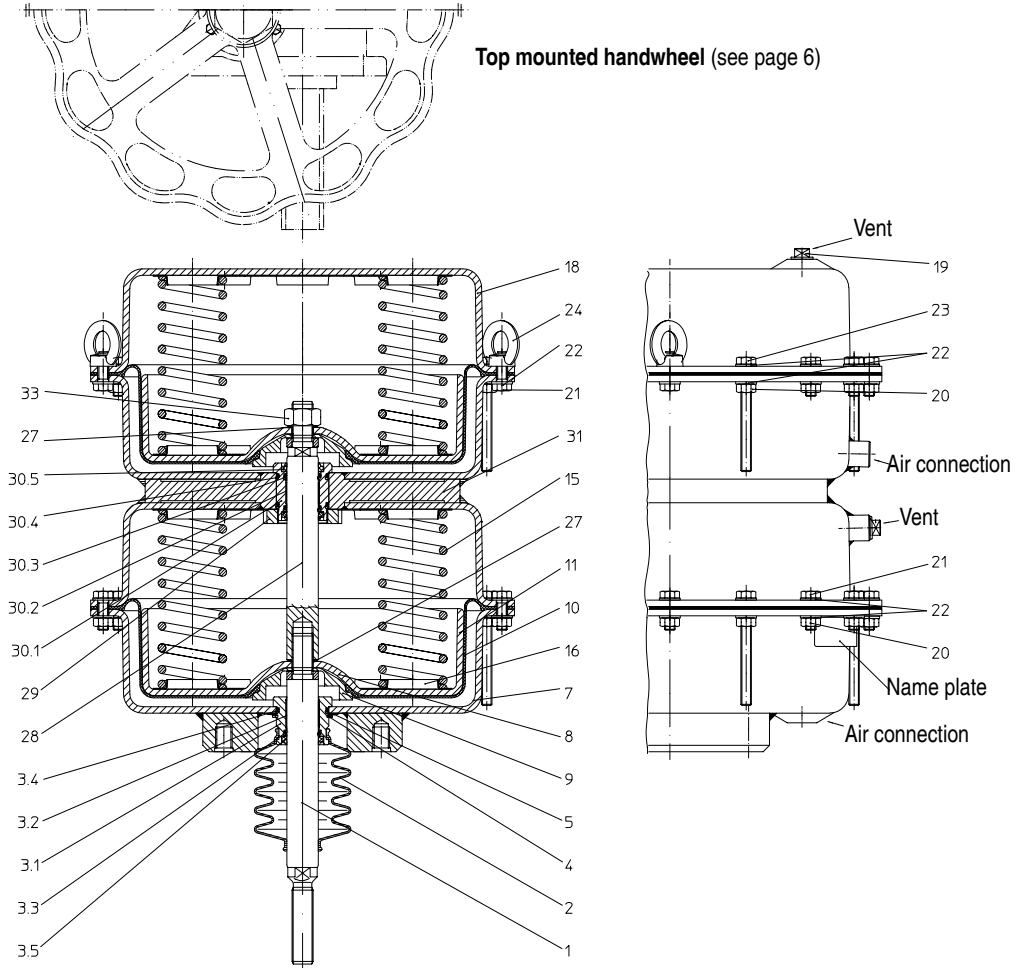
Type of actuator		DP 32		DP 33		DP 34		
Effective diaphragm area	(cm ²)	250		400		800		
Nominal travel	(mm)	20	30	20	30	30	50	65
Control signals (bar)	Req. air supply press. (bar)	Thrust through spring setting (N)						
0,2 - 1,0	1,2	490	490	780	780	1570	1570	1570
0,4 - 1,2	1,4	980	980	1560	1560	3140	3140	3140
0,8 - 2,4	2,7	1960	1960	3120	3120	6280	6280	--
1,0 - 2,0	2,4	--	--	--	--	--	--	7850
1,5 - 2,5	2,7	3675	--	--	--	--	--	--
1,5 - 3,0	3,3	--	--	--	5850	--	11775	--
1,7 - 2,7	3,1	--	--	6630	--	--	--	--
2,0 - 3,3	3,6	4900	--	--	--	--	--	--
2,0 - 4,0	4,5	--	--	--	7800	--	15700	15700
2,1 - 3,0	3,3	--	--	--	--	16485	--	--
2,3 - 3,7	4	--	--	8970	--	--	--	--
2,4 - 3,6	4	--	--	--	--	18840	--	--

Actuators thrust for operating mode: retracted stem on air failure

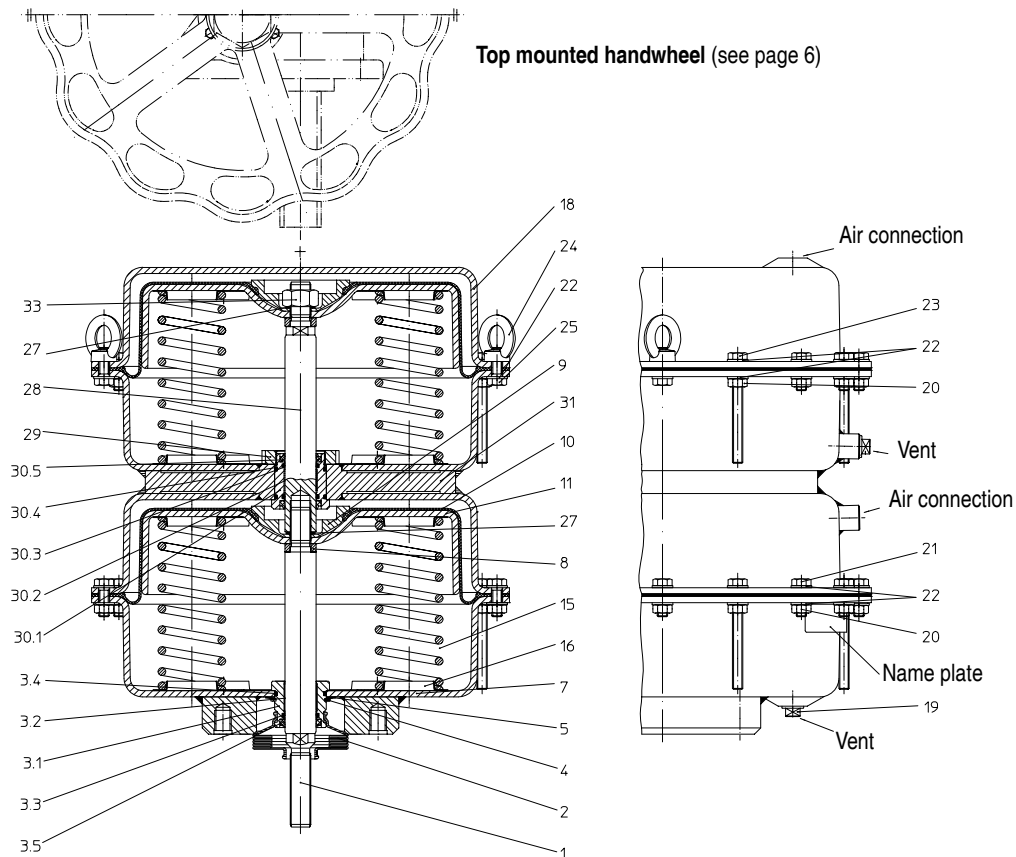
Type of actuator		DP 32		DP 33		DP 34		
Effective diaphragm area	(cm ²)	250		400		800		
Nominal travel	(mm)	20	30	20	30	30	50	65
Control signals (bar)	Req. air supply press. (bar)	Thrust through air supply pressure (N)						
0,2 - 1,0	1,2	490		780		1570		
0,2 - 1,0	1,4	980		1560		3140		
0,2 - 1,0	2	2450		3900		7850		
0,2 - 1,0	3	4900		7800		15700		
0,2 - 1,0	4	7350		11700		23550		
0,2 - 1,0	5	9800		15600		31400		
0,2 - 1,0	6	12250		19500		39250		

Pneumatic actuators DP 34 Tandem

Operating mode: Extended stem on air failure



Operating mode: Retracted stem on air failure

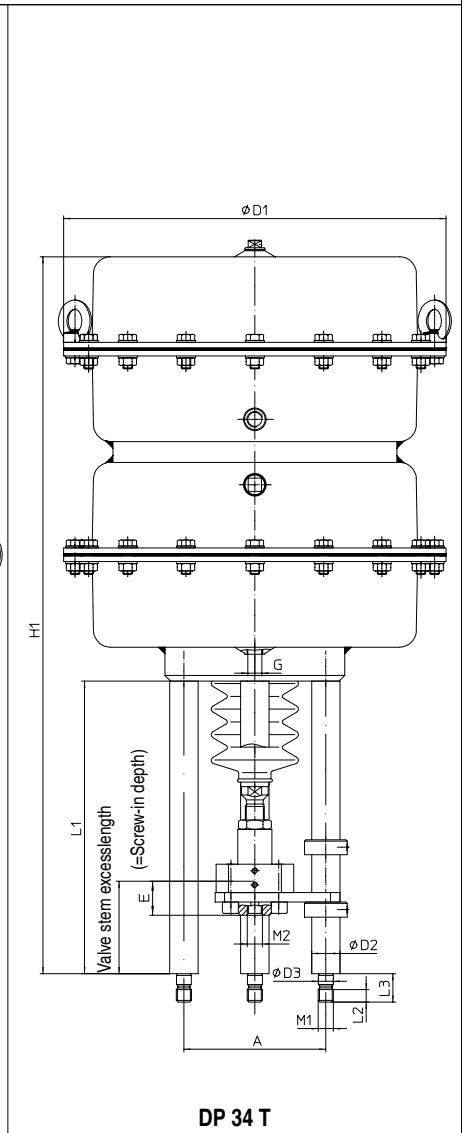
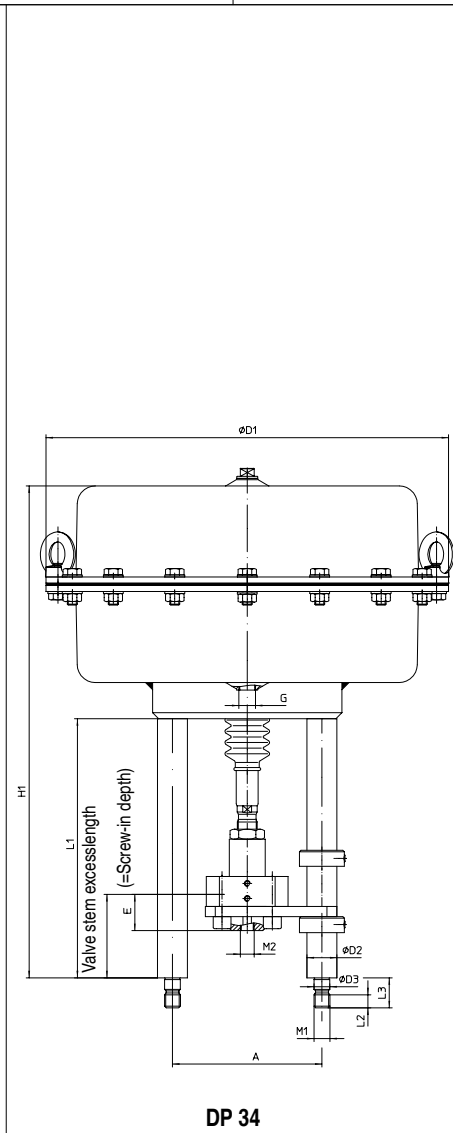
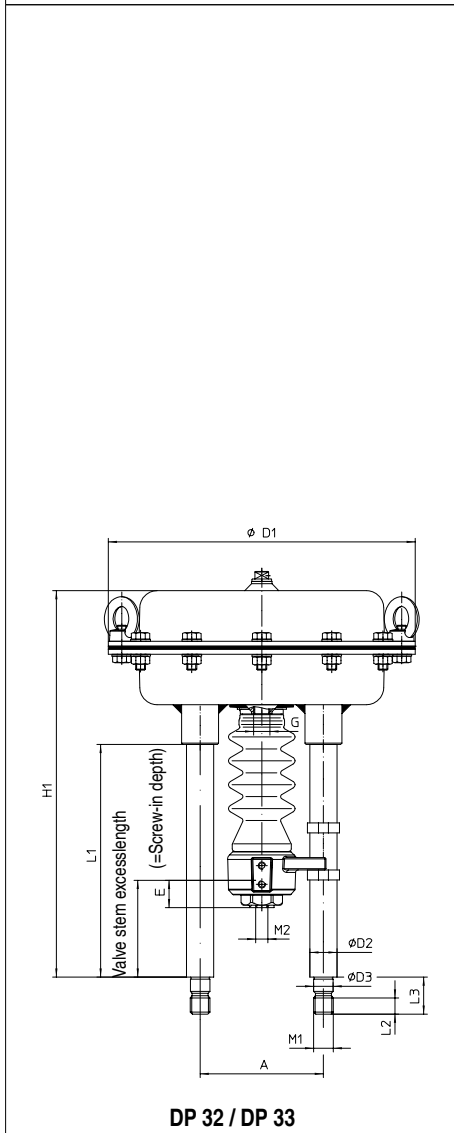
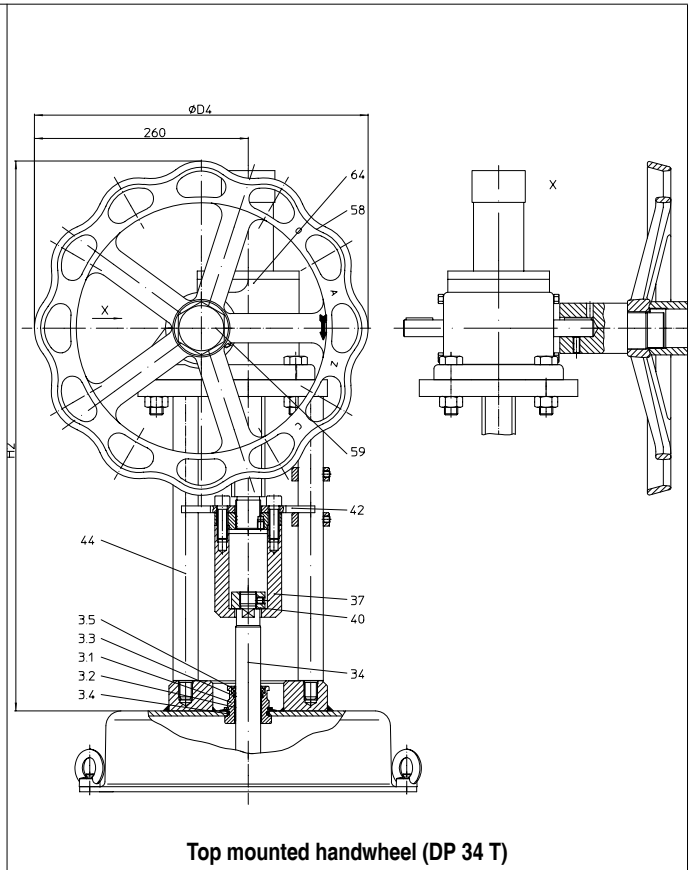
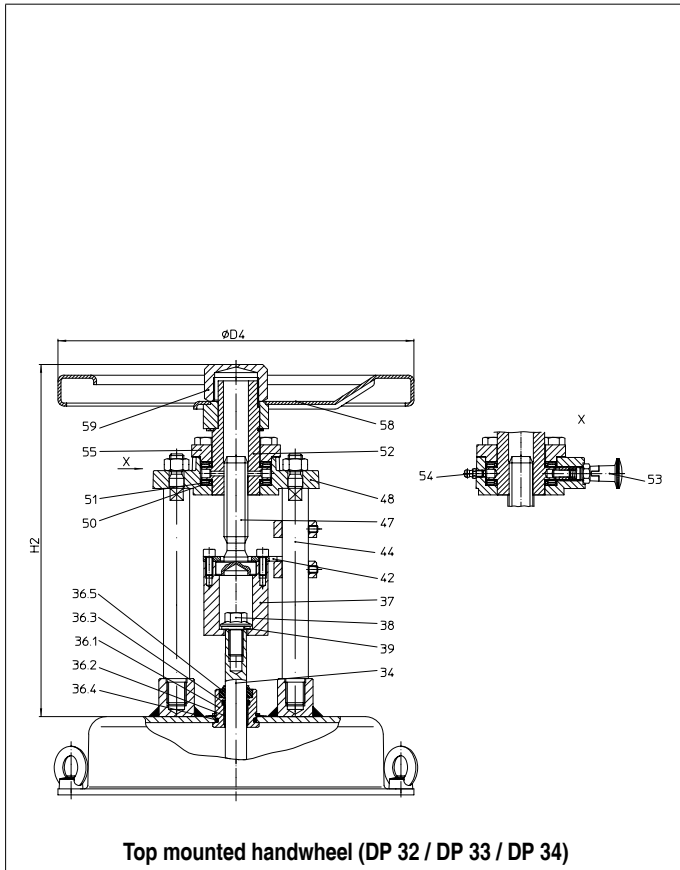


Actuators thrust for operating mode: extended stem on air failure

Type of actuator		DP 34 Tandem		
Effective diaphragm area	(cm ²)	(2x800) 1600		
Nominal travel	(mm)	30	50	65
Control signals (bar)	Req. air supply press. (bar)	Thrust through spring setting (N)		
0,2 - 1,0	1,2	3140	3140	3140
0,4 - 1,2	1,4	6280	6280	6280
0,8 - 2,4	2,7	12560	12560	--
1,0 - 2,0	2,4	--	--	15700
1,5 - 3,0	3,3	--	23550	--
2,0 - 4,0	4,5	--	31400	31400
2,1 - 3,0	3,3	32970	--	--
2,4 - 3,6	4	37680	--	--

Actuators thrust for operating mode: retracted stem on air failure

Type of actuator		DP 34 Tandem		
Effective diaphragm area	(cm ²)	(2x800) 1600		
Nominal travel	(mm)	30	50	65
Control signals (bar)	Req. air supply press. (bar)	Thrust through air supply pressure (N)		
0,2 - 1,0	1,2	3140		
0,2 - 1,0	1,4	6280		
0,2 - 1,0	2	15700		
0,2 - 1,0	3	31400		
0,2 - 1,0	4	47100		
0,2 - 1,0	5	62800		
0,2 - 1,0	6	78500		



Dimensions (mm)

Type	ØD1	H1*	L1*	A	ØD2	M1	L2	L3	ØD3	M2	E max.	G	ØD4	H2
DP 32 2-column mounting	Ø250	292	168	100	Ø22	M16	14	30	Ø16	M10	22	1/4"	Ø225	284
		312	188							M12	21			
		323	199							M14x1,5	21			
		337	213							M16	19			
										M16x1,5	20			
DP 33 2-column mounting	Ø300	334	168	100	Ø22	M16	14	30	Ø16	M10	22	1/4"	Ø300	297
		354	188							M12	21			
		365	199							M14x1,5	21			
		380	213							M16	19			
		394	228							M16x1,5	20			
DP 34 2-column mounting	Ø405	416	188	100	Ø22	M16	14	30	Ø16	M10	28	3/8"	Ø397	458
		441	213							M12	28			
		456	228							M14x1,5	28			
		468	240							M16	28			
		486	258							M16x1,5	28			
		506	278	150	Ø30		M20	36						
		456	228											
		486	258											
		506	278											
		538	310											
548	320	19	45											
DP 34 Tandem 4-column mounting	Ø405	678	228	150	Ø30	M16	14	30	Ø16	M16	36	3/8"	Ø400	608
		708	258							M20	36			
		728	278											
		760	310											
		770	320							19	45			

* The construction heights H1 of the actuator units vary due to the different lengths of the distance columns L1, which results from the excess length of the stem (83 mm, 98 mm, 130 mm), and the different control signals (bench settings) of the actuator units.

Weights

Type		DP 32	DP 33	DP 34	DP 34 Tandem
Actuator unit	(kg)	9	15	45	116
Actuator unit with top mounted handwheel	(kg)	14	20	62	157

Please indicate at order:

1. Type of actuator
2. Operating mode
3. Control signal
4. Nominal travel
5. Connection dimensions of the valve
6. Accessories

Example:

DP 34; Operating mode: extended stem on air failure; 1,5 - 3 bar; travel 50 mm; A = 100 mm; stem excess length = 83 mm; M2 = M12; E = 15 mm.

Dimensions in mm
Weight in kg
Pressures in barg (gauge)
1 bar $\hat{=}$ 10⁵ Pa $\hat{=}$ 0,1 MPa

Pos.	Description	Material, Material-No.
1	Stem	X20Cr13+QT, 1.4021+QT
2	Bellow	42 CR / 764
3.1	Stem guide *	X20Cr13+QT, 1.4021+QT
3.2	Guiding band *	PTFE + 25%C
3.3	O-ring (stem) *	NBR
3.4	O-ring (guiding) *	NBR
3.5	Scraper *	NBR
4	Retaining ring	FSt - A3B
5	Spring plate	FSt / ZN12
7	Lower diaphragm casing	DD13+QT, 1.0335+QT (powder coated)
8	Bushing	X20Cr13+QT, 1.4021+QT
9	Diaphragm flange	DD13+QT, 1.0335+QT (Fe/Zn12C) or X20Cr13+QT, 1.4021+QT
10	Rolling diaphragm *	NBR + webbing
11	Diaphragm plate	DD13+QT, 1.0335+QT (Fe/Zn12C)
12	O-ring	NBR
13	Bushing	X20Cr13+QT, 1.4021+QT
14	Flange nut	8 - A4G
15	Compression spring *	FDSiCr
16	Spring centring	DC01, 1.0330 (Fe/Zn12C)
18	Upper diaphragm casing	DD13+QT, 1.0335+QT (powder coated)
19	Screw cap	Polythene
20	Hexagon nut	8 - A4G
21	Hexagon screw	8.8 - A4G
22	Washer	St - A4G
23	Hexagon screw	8.8 - A4G
24	Eye nut	C15, 1.0401 - A4G
27	Usit-ring	St / NBR
28	Stem extension	X20Cr13+QT, 1.4021+QT
29	Slotted nut	St
30.1	Stem guiding *	X20Cr13+QT, 1.4021+QT
30.2	Guiding band *	PTFE 25%C
30.3	O-ring *	NBR
30.4	O-ring *	NBR
30.5	Scraper *	NBR

Pos.	Description	Material, Material-No.
31	Intermediate housing	DD13+QT, 1.0335+QT (pulverbeschichtet)
33	Hexagon nut	8-A4G
34	Stem extension	X20Cr13+QT, 1.4021+QT
36.1	Stem guide *	X14CrMoS17+QT, 1.4104+QT
36.2	Guiding band *	PTFE +25%C
36.3	O-ring *	NBR
36.4	O-ring *	NBR
36.5	Scraper *	NBR
37	Bushing	X20Cr13+QT, 1.4021+QT
38	Hexagon screw	8.8 - A4G
39	Washer	St - A4G
40	Nut	X20Cr13+QT, 1.4021+QT
42	Torsion lock	S235JR, 1.0037
43	Cylinder screw	8.8 - A4G
44	Distance column	11SMnPb30+C, 1.0718+C (Fe/Zn12C)
47	Stem	X20Cr13+QT, 1.4021+QT
48	Traverse	GGG-40.3, 0.7043 (Fe/Zn12C)
50	Axial-washer	St
51	Axial-dial ring	St
52	Threaded bushing	CuZn35Ni3Mn2AlPb-R490, CW710R-R490
53	Catch pin	St, Cu
54	Lubricating nipple	
55	Covering for traverse	S235JR, 1.0037 (Fe/Zn12C)
58	Handwheel	Fe P01, 1.0330 (epoxy coating)
59	Safety cap	11SMnPb30+C, 1.0718+C (epoxy coating)
64	Worm gear	
		* Spare parts

Application

The single acting pneumatic actuators series DP are designed to be mounted directly on control valves and stop valves. They supply large forces for the valve operation with short (1-10 seconds) lifting times on air supply or on air failure. Please contact the supplier or manufacturer if there are any questions.

Set up and operation mode

The pneumatic actuators series DP converts pneumatic pressure into a linear travel at the actuator stem. Depending on the air supply pressure and different control signals the actuator is producing appropriate forces at the stem. The spring-opposed actuator can be reserved with common tools from direct-acting to reverse acting or vice-versa; thus following operatin modes can be achieved:

**Extended stem (on air failure) or
Retracted stem (on air failure)**

Technical data

Type of actuator	Diaphragm area (cm ²)	max. travel (mm)	Available control signals / Filling volume (bar) / (l)			Nominal travel (mm)
DP 32	250	37,5	0,2-1,0 / 1	0,8-2,4 / 1,1	2,0-3,3 / 1,2	20
			0,4-1,2 / 1,1	1,5-2,5 / 1,0		
DP 33	400	37,5	0,2-1,0 / 1,2	0,8-2,4 / 1,4		30
			0,4-1,2 / 1,4			
DP 33	400	37,5	0,2-1,0 / 1,7	0,8-2,4 / 1,9	2,3-3,7 / 2,0	20
			0,4-1,2 / 1,9	1,7-2,7 / 2,0		
DP 34	800	65	0,2-1,0 / 2,1	0,8-2,4 / 2,4	2,0-4,0 / 2,2	30
			0,4-1,2 / 2,4	1,5-3,0 / 2,2		
DP 34	800	65	0,2-1,0 / 3,8	0,8-2,4 / 4,4	2,4-3,6 / 6,1	30
			0,4-1,2 / 4,4	2,1-3,0 / 6,9		
			0,2-1,0 / 5,5	0,8-2,4 / 6,6	2,0-4,0 / 6,9	50
DP 34 Tandem	2 x 800 = 1600	65	0,4-1,2 / 6,6	1,5-3,0 / 6,9		
			0,2-1,0 / 6,9	1,0-2,0 / 6,8		65
			0,4-1,2 / 8,2	2,0-4,0 / 6,8		
DP 34 Tandem	2 x 800 = 1600	65	0,2-1,0 / 7,6	0,8-2,4 / 8,8	2,4-3,6 / 12,2	30
			0,4-1,2 / 8,8	2,1-3,0 / 13,8		
			0,2-1,0 / 11	0,8-2,4 / 13,2	2,0-4,0 / 13,8	50
DP 34 Tandem	2 x 800 = 1600	65	0,4-1,2 / 13,2	1,5-3,0 / 13,8		
			0,2-1,0 / 13,8	1,0-2,0 / 13,6		65
DP 34 Tandem	2 x 800 = 1600	65	0,4-1,2 / 16,4	2,0-4,0 / 13,6		

max. air supply pressure 6 bar

max. operative ambient temperature -40°C up to +100°C

Attention: Note the max. permissible ambient temperatures for accessories

Accessories

• Valve positioner	The valve travel is aligned according to the signal from the controllers or PLC.. - electro-pneumatic - pneumatic (see on page 10)
• Limit switch	For signalling the end-positions of the valve. - electric: electric limit switches (see on page 10) - inductive: proximity sensors
• Proximity sensors in housing	For signalling the end-positions of travel.
• Potentiometer in housing	For analogue travel indication. The resistance of the potentiometer is adjusted in proportion to the mechanical positioning of the actuator resp. the valve plug.
• Position indicator in housing	For analogue control indication. Supplies a continuous output signal, which is in proportion to the mechanical positioning of the actuator resp. of the valve plug.
• 3/2-way solenoid valve	Upon loss of electrical power 3/2-way solenoid valves are switching off the air supply to pneumatic actuators whilst at the same function they are venting the air-pressure from the actuator to the atmosphere; thus a single acting pneumatic actuator drives the valve into the fail-safe position. 3/2-way solenoid valves for the reverse function are available on request. (see on page 10)
• Lock-up valve	Locks valve in position on air failure until air supply is restored. (see on page 10)
• Air set including gauge	For conditioning the compressed air. (see on page 10)
• Mechanical travel limiter	On request.



Smart electro-pneumatic positioner, directly mounted to the actuator



Electro-pneumatic positioner column mounted acc. to DIN IEC 60534 part 6



Electric limit switches



3/2-way-solenoid valve



Lock-up valve



Air set including gauge



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