



Diaphragm Valve

SISTO-16S

PN 16
DN 15 - 200

Type Series Booklet



Legal information/Copyright

Type Series Booklet SISTO-16S

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Diaphragm Valves

Diaphragm Valves – No Dead Volume, Soft-seated, Glandless

SISTO-16S



Main applications

- Chemical industry
- Homogenisation
- Industrial recirculation systems
- Air-conditioning systems
- Paint shops
- Seawater desalination/reverse osmosis
- Paper industry / pulp industry
- Petrochemical industry
- Refinery
- Flue gas desulphurisation
- Shipbuilding
- Process engineering
- Heat recovery systems
- Hot-water heating systems
- Water treatment

Fluids handled

- Waste water without faeces
- Aggressive fluids
- Inorganic fluids
- Service water
- Steam
- River water, lake water and groundwater
- Gas

- Fluids posing a health hazard
- Toxic fluids
- Hot water
- Highly aggressive fluids
- Condensate
- Corrosive fluids
- Fuels
- Cooling water
- Volatile fluids
- Solvents
- Seawater
- Fluids containing mineral oils
- Organic fluids
- Cleaning agents
- Brine
- Drinking water
- Other fluids on request.

Operating data

Table 1: Operating properties

Characteristic	Value
Nominal pressure	PN 16
Nominal size	DN 15 - 200
Max. permissible pressure [bar]	16
Min. permissible temperature [°C] ¹⁾	≥ -20 (-30 ²⁾)
Max. permissible temperature [°C] ¹⁾	≤ +160

Control pressure of piston actuators

Max. permissible temperature (actuator/control fluid): 80 °C

Table 2: Permissible control pressure

Type	Piston diameter [mm]	Actuator flange DIN ISO 5210 / DIN 3358	Permissible control pressure P _{ctr. perm.} [bar]
SISTO-LAP	80 - 250	F10	5,5 - 10
	250	F14	5,5 - 10
	300	F10	5,5 - 7
	300	F14	5,5 - 10
	D250 ³⁾	F14	5,5 - 10
	D300 ³⁾	F14	5,5 - 7
SISTO-LAP.520/ DLAP.230	40 - 200	-	5,5 - 7

i Pneumatic actuators from SISTO are suitable for compressed air of purity class 5:4:4 in accordance with ISO 8573-1. If there is a risk of frost, purity class 5:3:4 must be applied to prevent damage caused by icing.

¹ The temperatures indicated are for orientation only; they are not valid for all operating conditions.

² For limited operating conditions on request.

³ Double drum

Valve body materials

Table 3: Overview of available materials

Material	Material number	Temperature limit
EN-GJS-400-18-LT	5.3103	-20 °C to +160 °C
GP240GH	1.0619	-20 °C to +160 °C

Design details

Design

- Soft-seated weir-type shut-off valve in straight-way pattern
- Rising handwheel
- Shut-off and sealing to atmosphere by spiral-supported, completely enclosed diaphragm
- Position indicator with integrated stem protection
- Manufactured and tested to EN 13397
- Marked in accordance with DIN EN 19 (ISO 5209)
- TA-Luft-compliant design to VDI 2440

Variants

- Actuator (electric or pneumatic)
- Limit switches
- Locking device
- Body lined with IIR (butyl), temperature limit: +120 °C
- Body lined with NRH (hard rubber), temperature limit: +100 °C
- Body lined with PFA (DN 15 only), temperature limit: +160 °C

Variant overview

Table 4: Overview of SISTO-16S variants

DN	Material number		Lining				Coating	
	Body	Bonnet	None	PTFE/TFM	IIR	NRH	PA (Rilsan)	ECTFE (Halar)
15	1.0619	1.0619	-	PFA only	-	-	-	-
20-200	5.3103	5.3103	x	x	x	x	x	x

Actuators

Directly mounted piston actuator

- SISTO-LAP.520 for DN 15
- SISTO-DLAP.230 for DN 20 - 125
- Compact mounting without lantern
- Leakage detection hole
- Standard interface for accessories

Actuator function

- Actuator type DLAP.230/LAP.520 AZ
 - Air-to-open
 - Air-to-close
- Actuator type DLAP.230/LAP.520 OF
 - Spring-to-open
 - Air-to-close
 - Actuator type DLAP.230/LAP.520 SF
 - Air-to-open
 - Spring-to-close

SISTO-LAP piston actuator

- Double-acting piston, piston rod extending from one end only, with or without spring
- Piston rod sealed by U-ring and scraper ring
- Piston with double cup seal and vulcanised metal disc
- Mechanical travel stops in the actuator for closed position and open position
- Flanges to DIN ISO 5210/DIN 3358
- Piston diameters 80 to 300 = F10
- Piston diameters 250 to 300 = F14
- Leakage detection hole from MD 65 with screw (can be plugged)

Actuator function

- Actuator type LAP-AZ
 - Air-to-open
 - Air-to-close
- Actuator type LAP-OF
 - Spring-to-open

- Air-to-close
- Actuator type LAP-SF
 - Air-to-open
 - Spring-to-close

Electric actuator

- Multi-turn actuator
- Linear actuator

Product benefits

- **Reliable sealing to atmosphere and absolutely tight shut-off**
The diaphragm provides absolutely tight shut-off as well as hermetic sealing to atmosphere and of all operating elements.
- **Maximum service life and pressure limit**
Maximised diaphragm life and pressure limit thanks to completely enclosed, spiral-supported diaphragm.
- **Excellent functional reliability**
Increased functional reliability of the diaphragm thanks to balanced diaphragm suspension.
- **Excellent resistance to corrosion and abrasion**
High-quality body materials and linings offer reliability and a long service life.
- **Smooth actuation**
The thrust bearing minimises the closing torques.
- **Optimised long-term operation**
The stem protection integrated in the position indicator prevents ingress of contaminants.
- **Fluid purity**
Valve hydraulics without dead volume ensure optimum conditions for high-purity fluids and protection against deposits.
- **Quick identification of valve position**
The valve's position can be easily identified via a clear visual indicator, also visible from a distance.
- **Reliable operation**
The stem and all internal operating elements are **not** in contact with the fluid.

Product information

Product information as per Regulation No. 1907/2006 (REACH)

For information as per European chemicals regulation (EC) No. 1907/2006 (REACH) see <https://www.ksb.com/en-global/company/corporate-responsibility/reach>.

Product information as per European Pressure Equipment Directive 2014/68/EU (PED)

The valves satisfy the safety requirements of Annex I of the European Pressure Equipment Directive 2014/68/EU (PED) for fluids in Groups 1 and 2.

Product information as per Directive 2014/34/EU (ATEX)

Valves without electrical components do not have a potential internal source of ignition and can be used in potentially explosive atmospheres, Group II, category 1 (zones 0+20), category 2 (zones

1+21) and category 3 (zones 2+22) to ATEX 2014/34/EU. Components such as electric actuators, position switches, block terminals, solenoid valves, etc. may in certain circumstances be covered by Article 1 of Directive 2014/34/EU. They must be subjected to a conformity assessment procedure and separate evidence of compliance must be provided (e.g. EC Declaration of Conformity or manufacturer's declaration).

Related documents

Table 5: Information/documents

Document	Reference number
Operating manual	0570.821
Type series booklet SISTO-LAP (piston actuator)	9210.1
Type series booklet SISTO-SK-i	8676.5.

Purchase order specifications

Please specify the following information in all enquiries or purchase orders:

Valve

1. Type
2. Nominal pressure
3. Nominal size
4. Operating pressure
5. Differential pressure
6. Operating temperature
7. Fluid handled
8. Pipe connection
9. Variants
10. Number of type series booklet
11. Certificate

Actuator

1. Type
2. Control pressure P_{ctr}
3. Accessories

Flow coefficients

Table 6: Flow coefficients for unlined valves

DN	MD	Kvs value [m³/h]
15	40	4,0
20	65	11,5
25	65	14,0
40	92	43,0
50	115	72,0
65	115	72,0
80	168	195,0
100	202	304,0
125	202	298,0
150	280	601,0
200	280	478,0

Pressure/temperature ratings

Table 7: Permissible operating pressure [bar]

PN	Material		[°C]							
	Designation	Number	-20 to +50	+100	+110	+120	+130	+140	+150	+ 160
16	EN-GJS-400-18-LT	5.3103	16,0	16,0	16,0	16,0	15,8	15,6	14,0	12,0
	GP240GH	1.0619	16,0	14,8	14,6	14,4	14,3	14,1	14,0	12,0

Materials

Materials of SISTO-16S manually operated valve

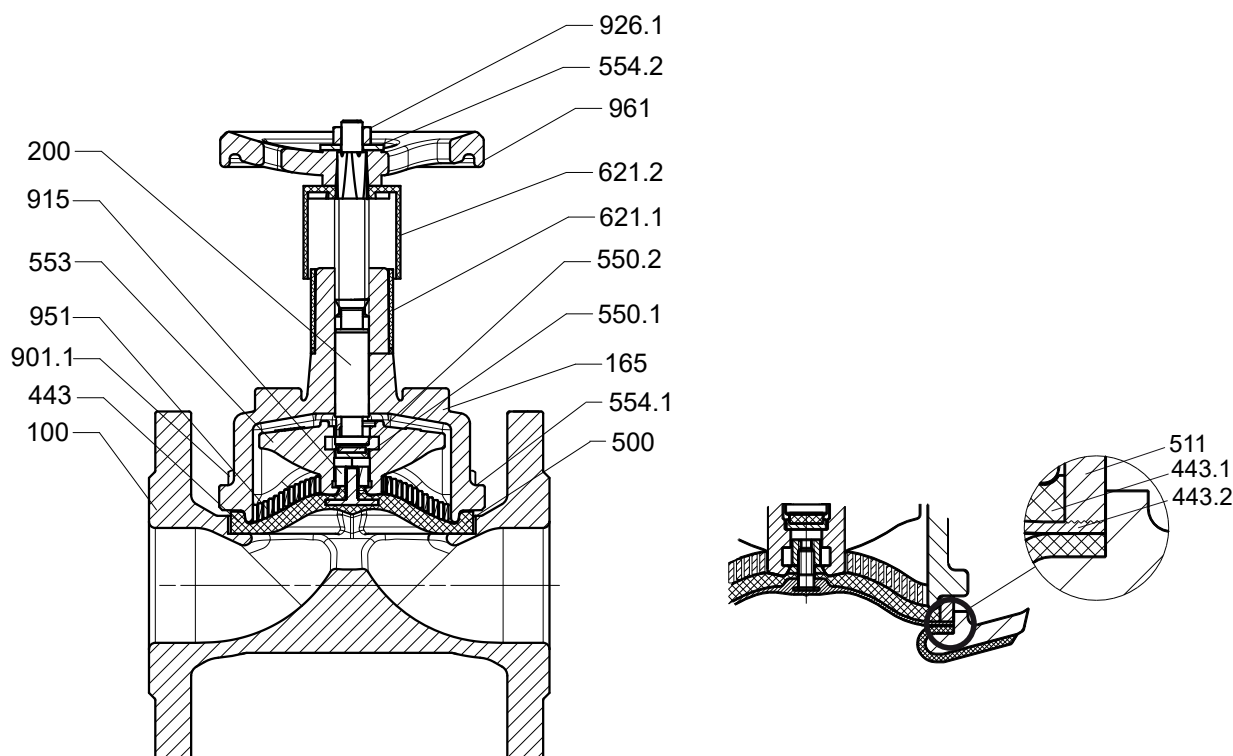


Fig. 1: SISTO-16S manually operated valve / variant with 2-piece diaphragm

Table 8: Parts list

Part No.	Description	Material		Note
		Designation	Number	
100	Body	EN-GJS-400-18-LT	5.3103	DN 15 = 1.0619 with PFA lining
165	Bonnet	EN-GJS-400-18-LT	5.3103	DN 15 = 1.0619
200	Stem	X14CrMoS17	1.4104	-
443 ⁴⁾	Diaphragm	EPDM	-	Standard
443.1 ⁴⁾	Backing diaphragm	EPDM	-	-
443.2 ⁴⁾	Diaphragm	TFM	-	-
500	Ring	St 37/A2E	-	-
511	Backing ring	St 37/A2E	-	-
550.1	Bearing disc	11SMnPb30	1.0718	For DN 40-200
550.2	PTFE disc	PTFE/graphite	-	For DN 15; DN 40-200
553	Compressor	EN-GJS-400-15	5.3106	DN 15-25 = 1.0619
554.1	Washer	A2	-	For bodies with PA or ECTFE coating
554.2	Washer	A2	-	-
621.1	Position indicator, lower part	ASA Luran	-	-
621.2	Position indicator, upper part	ASA Luran	-	-
901.1	Hexagon head bolt	A2-70	-	For PTFE lining with TFM diaphragm: material 8.8 A2E
915	Floating nut	11SMnPb30	1.0718	-
926.1	Prevailing torque nut	A2-70	-	-
951	Support spiral	St 2K BK	-	From MD 65
961	Handwheel	EN-GJL-200	5.1300	DN 15 = PC

⁴ Recommended spare parts

Materials of directly mounted SISTO-LAP.520 and SISTO-DLAP.230 piston actuators

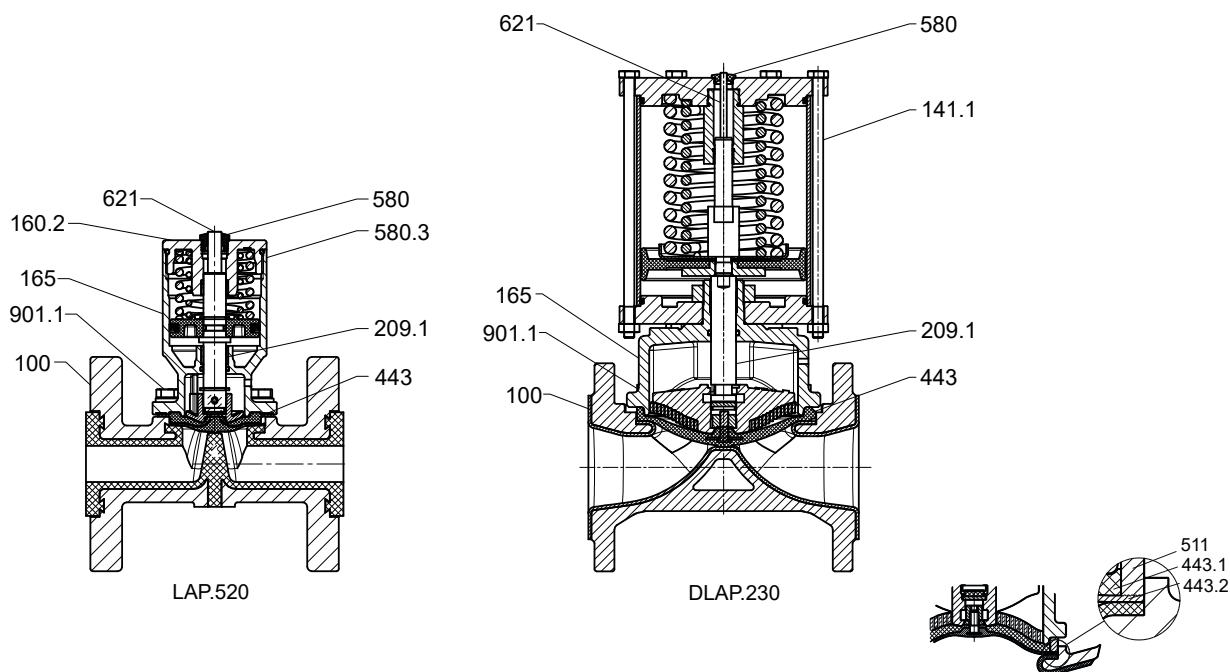


Fig. 2: Directly mounted SISTO-LAP.520 and SISTO-DLAP.230 piston actuators

Variant with 2-piece diaphragm, DN 15 - 125

Table 9: Parts list

Part No.	Description	MD	Material		Note
			Designation	Number	
100	Body	40	GP240GH	1.0619	With PFA lining
		65 - 202	EN-GJS-400-18-LT	5.3103	-
141.1	Cylinder	65 - 202	AlMgSi	3.3206	-
		65 - 202	AlCu4PbMgMn	3.1645	-
160.2	Top end cap	40	GX2CrNiMo19-11-2	1.4409	-
		65 - 202	AlCu4PbMgMn	3.1645	-
165	Bonnet	40	GX2CrNiMo19-11-2	1.4409	-
		65 - 202	EN-GJS-400-18-LT	5.3103	-
209.1	Piston rod	40	X8CrNiS18-9	1.4305	-
		65 - 202	X14CrMoS17	1.4104	-
443 ⁵⁾	Diaphragm	40 - 202	EPDM	-	Standard
443.1 ⁵⁾	Backing diaphragm	40 - 202	EPDM	-	-
443.2 ⁵⁾	Diaphragm	40 - 202	TFM	-	-
511	Backing ring	40 - 202	Steel	-	-
580	Cap	40 - 202	Plastic	-	M12 x 1 / M18 x 1 interface
580.3	Cap	40 - 202	Plastic	-	Air supply connection M5 / G $\frac{1}{8}$ inch
621	Position indicator	40 - 202	Plastic	-	-
901.1	Hexagon head bolt	40 - 202	A2	-	For PTFE lining with TFM diaphragm: material 8.8 A2E

⁵ Recommended spare parts

Materials of SISTO-LAP piston actuator

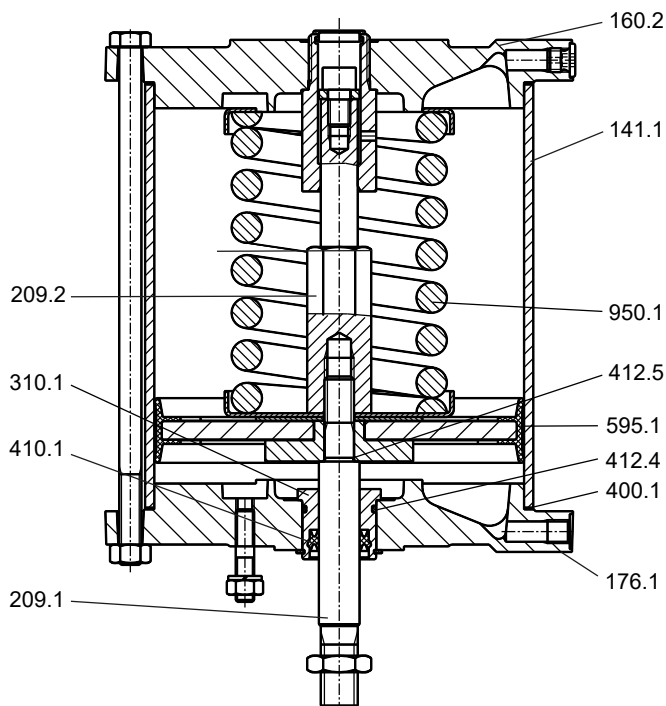


Fig. 3: SISTO-LAP-SF piston actuator

Table 10: Parts list

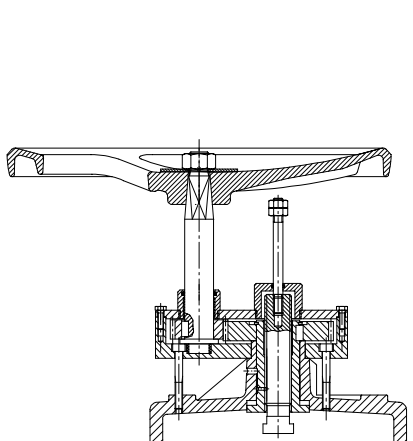
Part No.	Description	Material		Piston diameter [mm]
		Designation	Number	
141.1	Cylinder	AlMgSi	3.3206	80 - 300
160.2	Top end cap	AlCu4PbMgMn	3.1645	80 - 160
		AlSi7Mg0.3	3.2371	200 - 300
176.1	Bottom end cap	AlCu4PbMgMn	3.1645	80 - 160
		AlSi7Mg0.3	3.2371	200 - 300
209.1	Lower piston rod	X14CrMoS17	1.4104	80 - 300
209.2	Upper piston rod	X14CrMoS17	1.4104	80 - 300
310.1 ^{6) 7)}	Plain bearing	Plastic – POM	-	80 - 300
400.1 ^{6) 7)}	Gasket	Plastic – AFM 30	-	80 - 300
410.1 ^{6) 7)}	Seal/wiper set	Plastic – L96-SFR/NBR	-	80 - 300
412.4 ^{6) 7)}	O-ring	NBR	-	80 - 300
412.5 ^{6) 7)}	O-ring	NBR	-	80 - 300
595.1 ^{6) 7)}	Piston assembly	Steel/acrylonitrile butadiene rubber – St/NBR	-	80 - 300
950.1	Spring	Spring steel	-	80 - 300

⁶⁾ Recommended spare parts (= complete set of sealing elements)

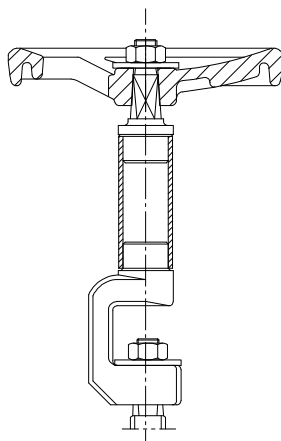
⁷⁾ We recommend having these parts replaced in our factory.

Variants and accessories

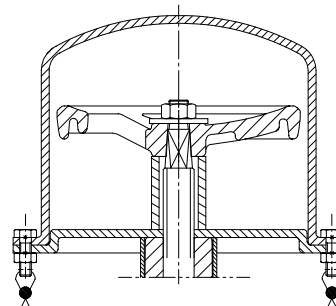
Variants and accessories of SISTO-16S manually operated valve



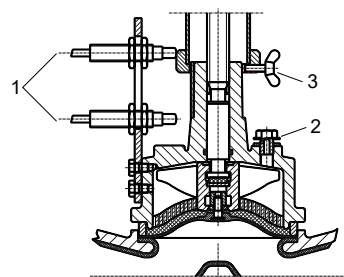
Gearbox



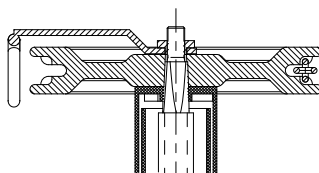
Stem extension



Lead-sealable cap

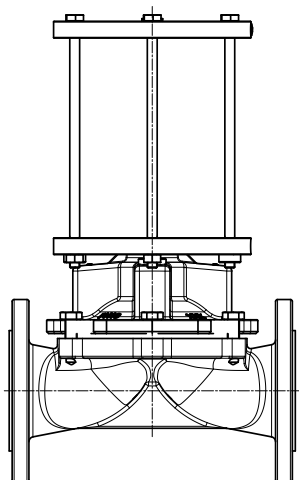


- 1 Limit switch
- 2 Leakage detection hole
- 3 Locking device

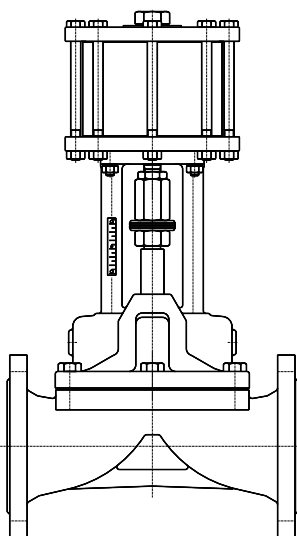


Chain wheel

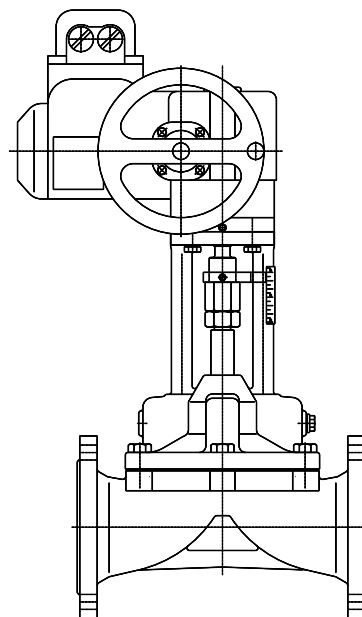
Variants of SISTO-16S with actuator



With directly mounted pneumatic piston actuator

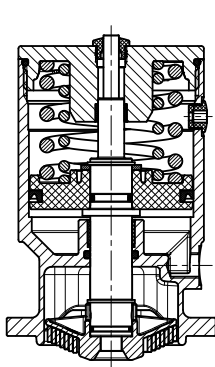


With mounted pneumatic piston actuator

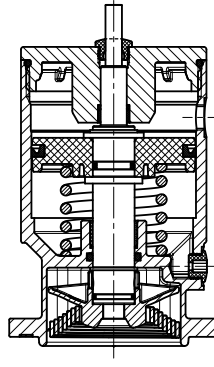


With electric actuator

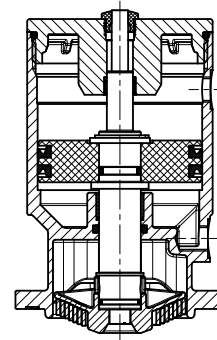
Variants and accessories of directly mounted SISTO-LAP.520 and SISTO-DLAP.230 piston actuators



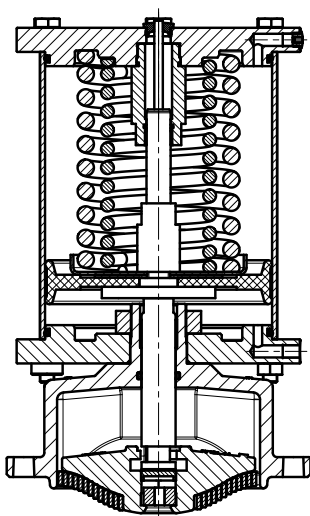
LAP.520-SF



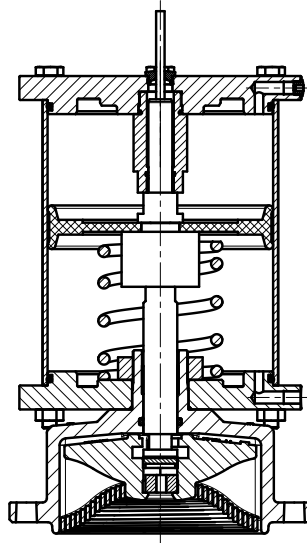
LAP.520-OF



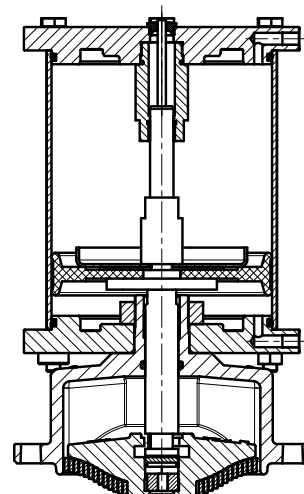
LAP.520-AZ



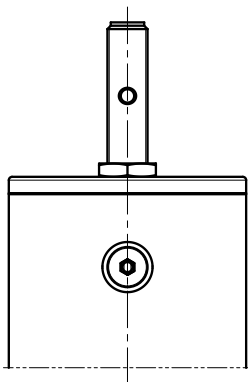
DLAP.230-SF



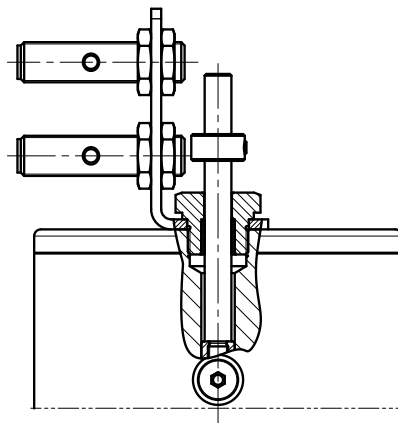
DLAP.230-OF



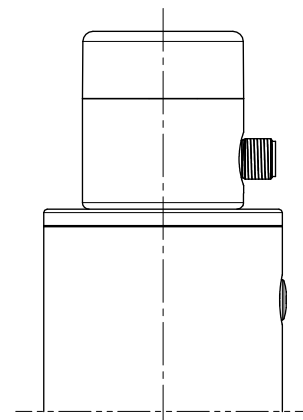
DLAP.230-AZ



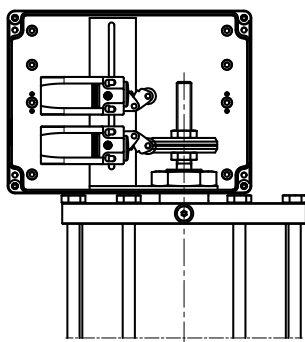
Directly mounted proximity switch
for open position



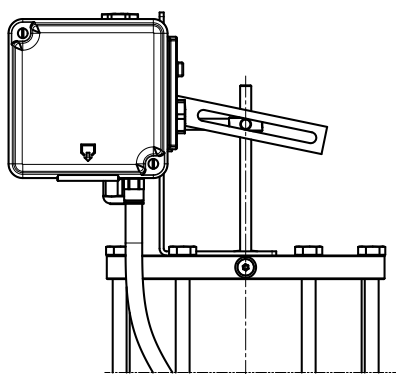
Inductive limit switches



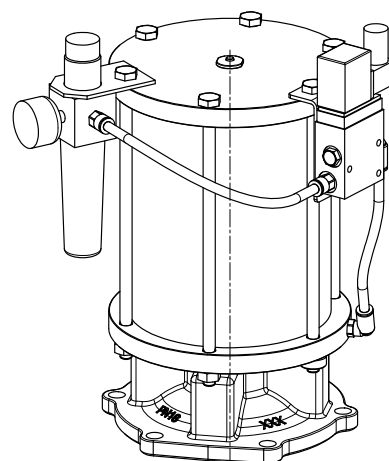
Intelligent actual-position feedback
unit
SK-i.310



Mechanical limit switches

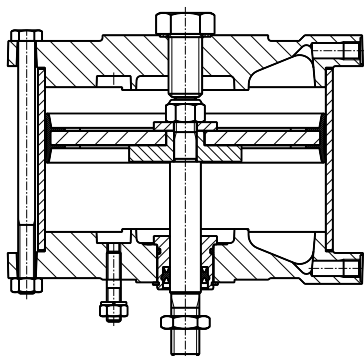


Positioner

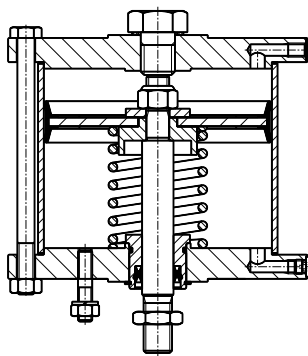


Solenoid valve and
 filter/pressure reducer

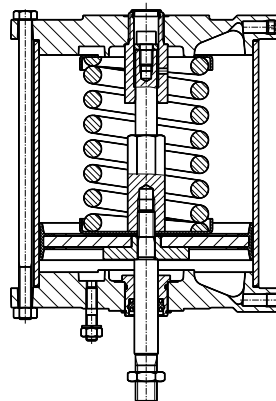
Variants and accessories of the SISTO-LAP piston actuator



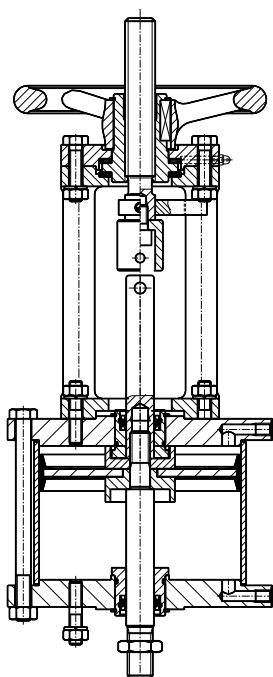
LAP-AZ type



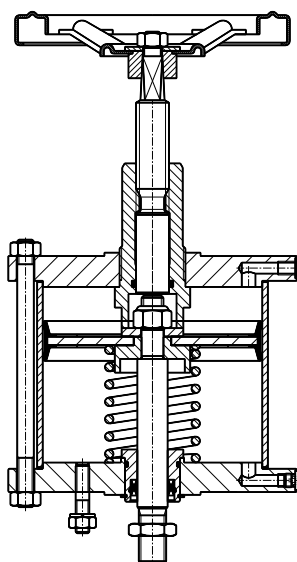
LAP-OF type



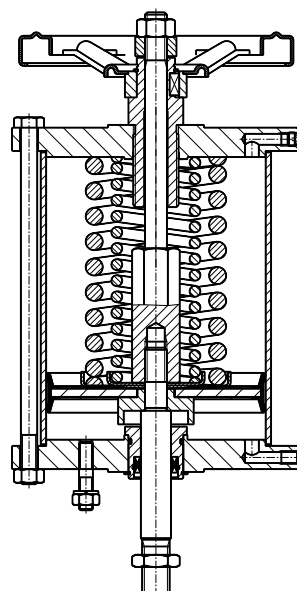
LAP-SF type



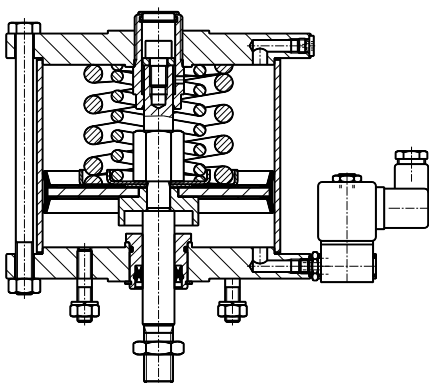
LAP-AZ type with emergency handwheel



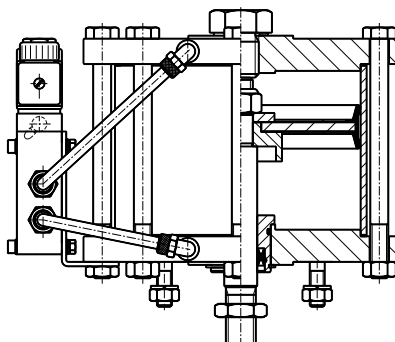
LAP-OF type with emergency handwheel



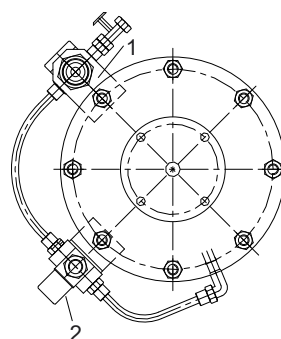
LAP-SF type with emergency handwheel



LAP-SF type with 3/2 directional control valve

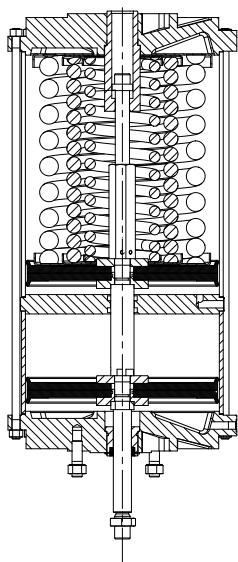


LAP-AZ type with 5/2 directional control valve

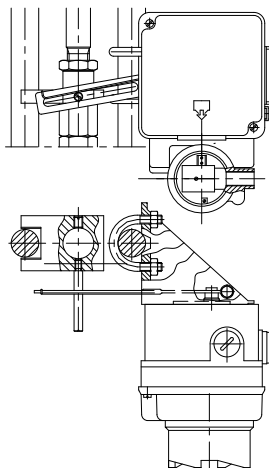


1 Filter/pressure reducer

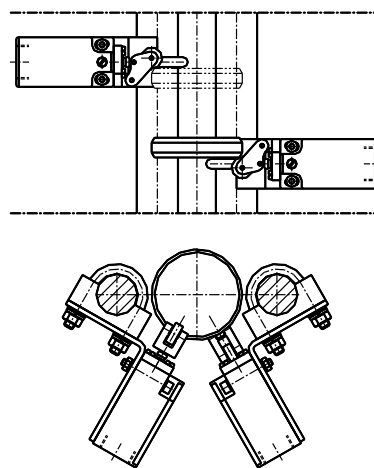
2 Solenoid valve



LAP-SF type with double piston

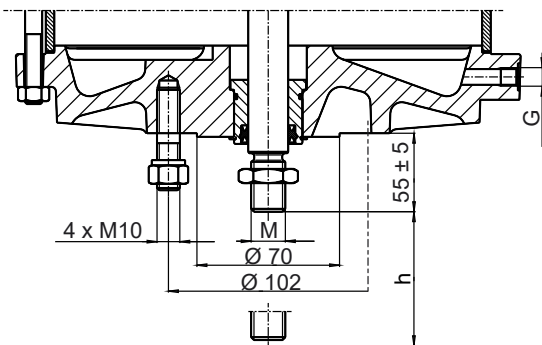


Configuration with positioner

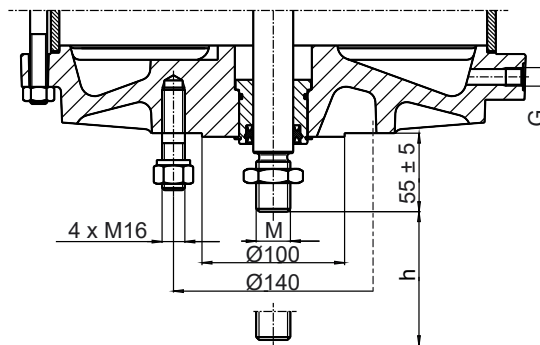


Configuration with mechanical limit switches

Interface



Flange connection F10



Flange connection F14

Table 11: Symbols key

Symbol	Description
G	G $\frac{1}{8}$ in. for piston diameters 80/125/160 G $\frac{1}{4}$ in. for piston diameters 200/250/300
M	M12 for piston diameters 80/125 M20 for piston diameters 160 to 300 M24 for piston diameters D300/F14 optional

Mating dimensions as per standard

Flange connection: DIN ISO 5210 / DIN 3358
 Pipe connection: DIN ISO 228 G $\frac{1}{8}$ in. and G $\frac{1}{4}$ in.

Dimensions and weights

Dimensions and weights of SISTO-16S manually operated valve

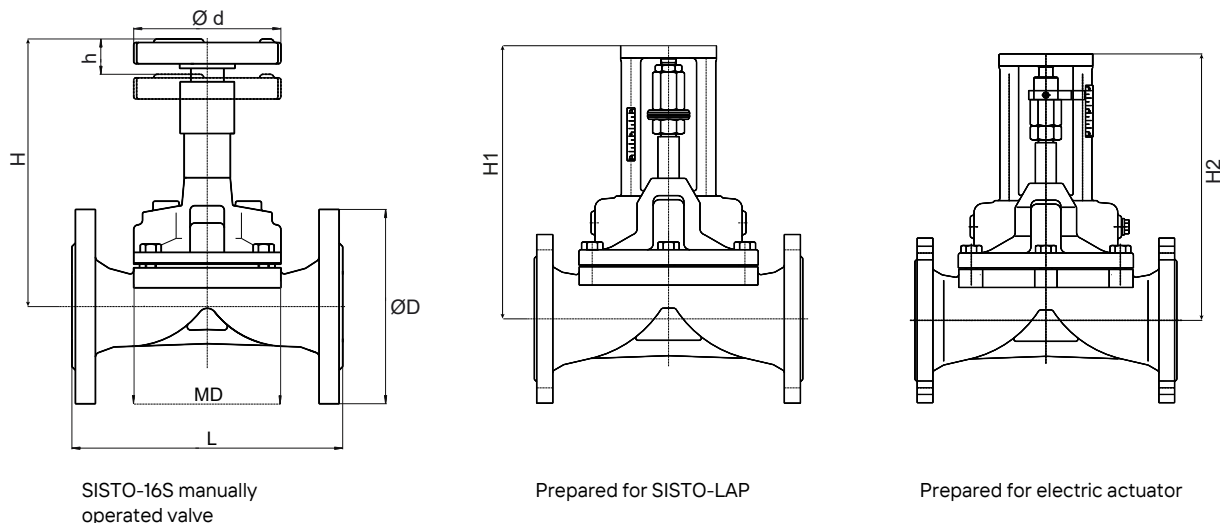


Fig. 4: SISTO-16S

Table 12: Dimensions and weights

DN	MD [mm]	L ⁸⁾ [mm]	Ø D [mm]	h [mm]	Manually operated valve				Prepared for actuator		
					H ⁹⁾ [mm]	Ø d [mm]	Handwheel turns approx.	[kg]	Centre-to-top height SISTO-LAP H1 ⁹⁾ [mm]	Centre-to-top height Electric actuator H2 ⁹⁾	
										F07/F10 [mm]	F14 [mm]
15 ¹⁰⁾	40	108	95	7	104	60	3	2,5	On request	On request	-
20	65	117	105	13	150	100	4	3,4	210	210	-
25	65	127	115	13	150	100	4	3,8	210	210	-
40	92	159	150	22	192	100	7	7,0	230	230	-
50	115	190	165	30	225	125	8	10,5	250	250	-
65	115	216	185	30	231	125	8	12,5	250	250	-
80	168	254	200	45	307	200 (250) ¹¹⁾	9	21,5	305	320	-
100	202	305	220	60	388	250 (315) ¹¹⁾	12	35,0	355	370	-
125	202	356	250	60	388	250 (315) ¹¹⁾	12	40,0	355	370	-
150	280	406	285	80	512	400 (500) ¹¹⁾	13	72,0	435	460	480
200	280	521	340	80	512	400 (500) ¹¹⁾	13	90,0	435	460	480

Mating dimensions as per standard

Face-to-face length: EN 558 R7
 Flanges: DIN EN 1092-2¹²⁾
 Flange facing: DIN EN 1092-2, type B

⁸ Add 6 mm to face-to-face length for rubber-lined and PTFE/TFM-lined valves.

⁹ Add 5 mm to centre-to-top height for rubber-lined valves.

¹⁰ With PFA lining only

¹¹ Optionally with a larger handwheel diameter for operating pressures > 10 bar, from DN 100, a gearbox can be used as an alternative.

¹² Optionally with bolt hole pattern to ASME B 16.5 - 2013 Cl. 150

Dimensions and weights of SISTO-16S with directly mounted DLAP.230 piston actuators

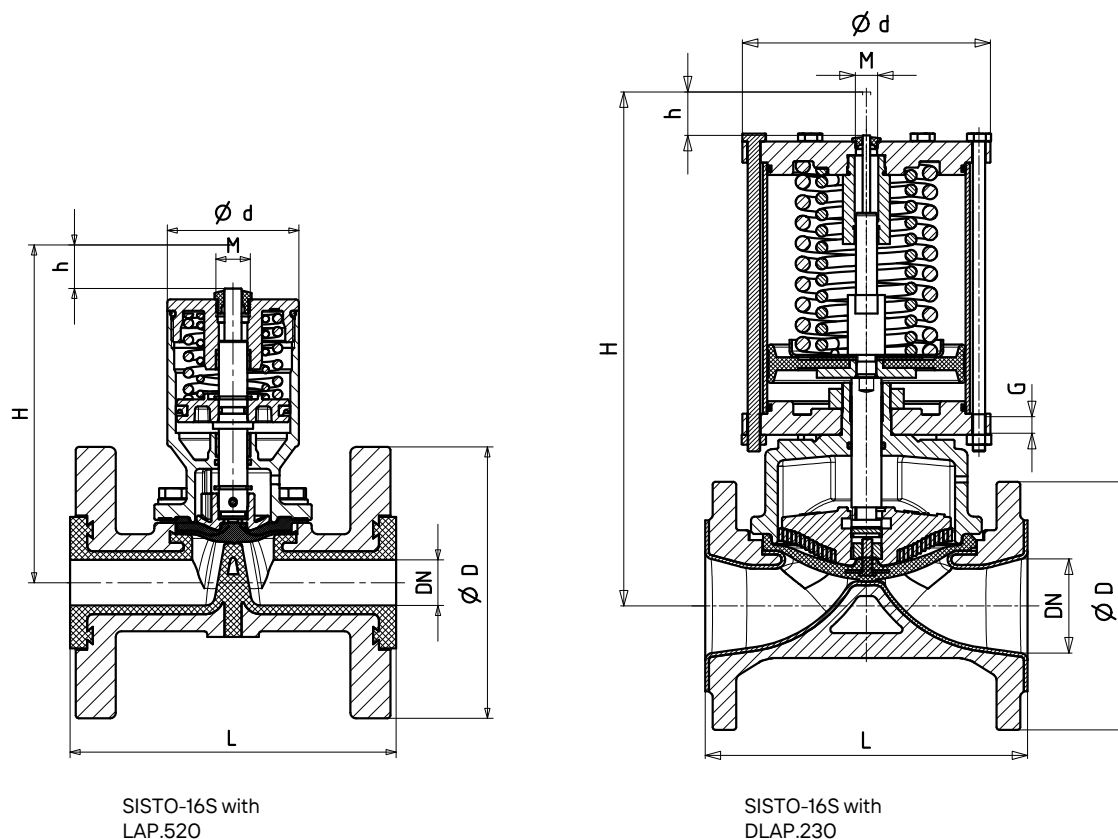


Fig. 5: SISTO-16S with directly mounted piston actuators

Table 13: Dimensions and weights

DN	MD [mm]	Type	Piston [mm]	L [mm]	Ø D [mm]	h [mm]	H [mm]	Ø d [mm]	[kg]
15	40	LAP.520	40	108	95	7	113	46	2,5
			50				137	58	3,0
20	65	DLAP.230	125	117	105	13	313	165	11,3
25			125	127	115	13	318	165	12,1
40	92	DLAP.230	125	159	150	21	344	165	15,6
50	115	DLAP.230	125	190	165	24	352	165	19,5
			160				369	200	24,0
65		DLAP.230	125	216	185		356	165	21,5
			160				373	200	26,0
80	168	DLAP.230	160	254	200	40	426	200	34,5
			200				470	250	46,0
100	202	DLAP.230	200	305	220	55	520	250	55,0
125	202	DLAP.230	200	356	250	55	520	250	62,0

Table 14: Connections

	≤ Piston 63 mm	≥ Piston 80 mm
Control air	M5	G ¹ / ₈ in
Interface for accessories	M12 x 1	M18 x 1

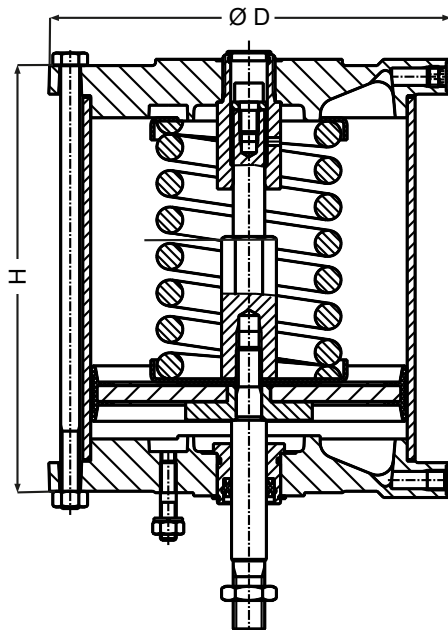
Dimensions and weights of SISTO-LAP piston actuator

Fig. 6: SISTO-LAP

Table 15: Dimensions and weights for actuator function: **type LAP-AZ (air-to-open/air-to-close)**

Type	Stroke [mm]	Ø D [mm]	H [mm]	[kg]
LAP-AZ-80-F10	15	130	111	4
LAP-AZ-80-F10	30	130	131	5
LAP-AZ-125-F10	15	170	131	6
LAP-AZ-125-F10	30	170	131	7
LAP-AZ-125-F10	45	170	151	8
LAP-AZ-125-F10	60	170	151	9
LAP-AZ-160-F10	30	210	168	11
LAP-AZ-160-F10	45	210	168	11
LAP-AZ-160-F10	60	210	188	12
LAP-AZ-200-F10	30	255	170	17
LAP-AZ-200-F10	45	255	190	17
LAP-AZ-200-F10	60	255	210	18
LAP-AZ-200-F10	80	255	230	20
LAP-AZ-250-F10	60	305	240	25
LAP-AZ-250-F10	80	305	260	28
LAP-AZ-250-F14	60	305	260	28
LAP-AZ-250-F14	80	305	260	28
LAP-AZ-300-F10	60	355	254	32
LAP-AZ-300-F10	80	355	274	35
LAP-AZ-300-F14	60	355	254	32
LAP-AZ-300-F14	80	355	274	35
LAP-AZ-D250-F14	80	355	424	47
LAP-AZ-D300-F14	80	355	432	61

Table 16: Dimensions and weights for actuator function: **type LAP-OF (spring-to-open/air-to-close)**

Type	Stroke [mm]	Ø D [mm]	H [mm]	[kg]
LAP-OF-80.101-F10	15	130	151	5
LAP-OF-80.101-F10	30	130	151	6
LAP-OF-125.101-F10	15	170	151	7
LAP-OF-125.101-F10	30	170	151	8
LAP-OF-160.102-F10	30	210	188	12
LAP-OF-160.102-F10	45	210	208	13
LAP-OF-200.102-F10	30	255	210	19
LAP-OF-200.102-F10	45	255	210	19
LAP-OF-200.001-F10	45	255	310	22
LAP-OF-200.001-F10	60	255	330	23
LAP-OF-250.002-F10	60	305	380	32
LAP-OF-250.002-F10	80	305	400	35
LAP-OF-250.002-F14	60	305	400	32
LAP-OF-250.002-F14	80	305	400	35
LAP-OF-300.002-F10	60	355	414	51
LAP-OF-300.012-F14	80	355	434	53
LAP-OF-D250.012-F14	80	305	504	54
LAP-OF-D300.012-F14	80	355	572	74

Table 17: Dimensions and weights for actuator function: **type LAP-SF (air-to-open/spring-to-close)**

Type	Stroke [mm]	Ø D [mm]	H [mm]	[kg]
LAP-SF-80.001.5-F10	15	130	171	6
LAP-SF-80.001-F10	30	130	271	7
LAP-SF-125.002.5-F10	15	170	212	10
LAP-SF-125.002-F10	30	170	271	12
LAP-SF-160.012-F10	30	210	274	18
LAP-SF-160.012-F10	45	210	310	19
LAP-SF-200.003.5-F10	30	255	290	28
LAP-SF-200.003.7-F10	45	255	350	32
LAP-SF-200.003-F10	60	255	450	35
LAP-SF-200.003-F10	80	255	470	37
LAP-SF-250.004.7-F10	45	305	380	42
LAP-SF-250.004-F10	60	305	480	45
LAP-SF-250.004-F10	80	305	500	48
LAP-SF-250.004-F14	60	305	380	42
LAP-SF-250.004-F14	80	305	500	49
LAP-SF-300.034-F10	60	355	514	67
LAP-SF-300.034-F14	80	355	535	75
LAP-SF-D300.005-F14	80	355	732	99
LAP-SF-D300.034-F10	80	355	693	81
LAP-SF-D300.345-F14	80	355	732	122

Technical data

Actuator sizes of directly mounted SISTO- LAP.520 and SISTO-DLAP.230 piston actuators

Selection table for maximum permissible operating pressure in bar for SISTO-16S

Minimum required control pressure: 5.5 bar
Maximum permissible control pressure 7 bar

Operating pressure for pressure applied on one side in accordance with EN12266-1.
Information on operating pressures applied on both sides is available on request.

Combination of diaphragm seats (MD) and nominal sizes (DN) (⇒ Page 16)

Table 18: Operating pressure [bar] for actuator function: **type AZ (air-to-open/air-to-close)**

MD [mm]	Type	Piston [mm]	Elastomer diaphragm [bar]	TFM diaphragm [bar]
40	LAP.520	40	10	-
		50	16	16
65	DLAP.230	125	16	16
92	DLAP.230	125	16	13
115	DLAP.230	125	14	8
		160	16	16
168	DLAP.230	160	9	6
		200	15	10
202	DLAP.230	200	10	7

Table 19: Operating pressure [bar] for actuator function: **type OF (spring-to-open/air-to-close)**

MD [mm]	Type	Piston [mm]	Elastomer diaphragm [bar]	TFM diaphragm [bar]
40	LAP.520	40	10	-
		50	16	16
65	DLAP.230	125	16	16
92	DLAP.230	125	16	15
115	DLAP.230	125	14	8
		160	16	16
168	DLAP.230	160	9	6
		200	15	10
202	DLAP.230	200	10	7

Table 20: Operating pressure [bar] for actuator function: **type SF (air-to-open/spring-to-close)**

MD [mm]	Type	Piston [mm]	Elastomer diaphragm [bar]	TFM diaphragm [bar]
40	LAP.520	40	9	-
		50	16	13
65	DLAP.230	63	16	16
92	DLAP.230	80	16	16
115	DLAP.230	125	12	6
		160	16	14
168	DLAP.230	160	7	4
		200	13	9
202	DLAP.230	200	8	5

Other selection options on request.

Actuator size of SISTO-LAP piston actuator**Selection table for maximum permissible operating pressure in bar for SISTO-16S valve with elastomer diaphragm**

Minimum required control pressure: 5.5 bar

Maximum permissible pressure 10 bar

Operating pressure for pressure applied on one side in accordance with EN12266-1.

Information on operating pressures applied on both sides is available on request.

Table 21: Symbols key

Symbol	Description
↑	Select smaller actuator.
↓	Select larger actuator.

Table 22: Operating pressure [bar] for actuator function: **type LAP-AZ (air-to-open/air-to-close)**

Actuator size	Stroke [mm]	MD 65	MD 92	MD 115	MD 168	MD 202	MD 280
LAP-AZ-80-F10	15/30	16	9	5	↓	↓	↓
LAP-AZ-125-F10	15/30	↑	16	16	↓	↓	↓
LAP-AZ-125-F10	45/60	↑	↑	↑	5	↓	↓
LAP-AZ-160-F10	30	↑	↑	↑	↓	↓	↓
LAP-AZ-160-F10	45/60	↑	↑	↑	10	6	↓
LAP-AZ-200-F10	30/45	↑	↑	↑	16	↓	↓
LAP-AZ-200-F10	60/80	↑	↑	↑	↑	10	3
LAP-AZ-250-F10/F14	60/80	↑	↑	↑	↑	16	7
LAP-AZ-300-F10/F14	60/80	↑	↑	↑	↑	↑	11
LAP-AZ-D250-F14	80	↑	↑	↑	↑	↑	16
LAP-AZ-D300-F14 ¹³⁾	80	↑	↑	↑	↑	↑	↑

Table 23: Operating pressure [bar] for actuator function: **type LAP-OF (spring-to-open/air-to-close)**

Actuator size	Stroke [mm]	MD 65	MD 92	MD 115	MD 168	MD 202	MD 280
LAP-OF-80.101-F10	15/30	16	5	3	↓	↓	↓
LAP-OF-125.101-F10	15/30	↑	16	16	↓	↓	↓
LAP-OF-160.102-F10	30/45	↑	↑	↑	9	↓	↓
LAP-OF-200.102-F10	30/45	↑	↑	↑	15	↓	↓
LAP-OF-200.001-F10	45/60	↑	↑	↑	↑	9	↓
LAP-OF-250.002-F10/F14	60/80	↑	↑	↑	16	16	4
LAP-OF-300.002-F10 ¹³⁾	60	↑	↑	↑	↑	↑	↓
LAP-OF-300.012-F14	80	↑	↑	↑	↑	↑	10
LAP-OF-D250.012-F14	80	↑	↑	↑	↑	↑	14
LAP-OF-D300.012-F14 ¹³⁾	80	↑	↑	↑	↑	↑	16

Table 24: Operating pressure [bar] for actuator function: **type LAP-SF (air-to-open/spring-to-close)**

Actuator size	Stroke [mm]	MD 65	MD 92	MD 115	MD 168	MD 202	MD 280
LAP-SF-80.001.5-F10	15	13	↓	↓	↓	↓	↓
LAP-SF-80.001-F10	30	16	7	3	↓	↓	↓
LAP-SF-125.002.5-F10	15	↑	↓	↓	↓	↓	↓
LAP-SF-125.002-F10	30	↑	16	10	↓	↓	↓
LAP-SF-160.012-F10	30/45	↑	↑	15	4	↓	↓
LAP-SF-200.003.5-F10	30	↑	↑	16	↓	↓	↓
LAP-SF-200.003.7-F10	45	↑	↑	↑	9	↓	↓
LAP-SF-200.003-F10	60/80	↑	↑	↑	↓	6	↓
LAP-SF-250.004.7-F10	45	↑	↑	↑	14	↓	↓
LAP-SF-250.004F10/F14	60/80	↑	↑	↑	↓	9	3
LAP-SF-300.034-F10	60	↑	↑	↑	16	15	↓
LAP-SF-300.034-F14	80	↑	↑	↑	↑	↑	5
LAP-SF-D300.005-F14	80	↑	↑	↑	↑	16	10
LAP-SF-D300.345-F14	80	↑	↑	↑	↑	↑	16

Other selection options on request.

¹³ Max. control pressure: 7 bar

Actuator size of SISTO-LAP piston actuator

Selection table for maximum permissible operating pressure in bar for SISTO-16S valve with TFM diaphragm

Minimum required control pressure: 5.5 bar

Maximum permissible pressure 10 bar

Operating pressure for pressure applied on one side in accordance with EN12266-1.

Information on operating pressures applied on both sides is available on request.

Table 25: Symbols key

Symbol	Description
↑	Select smaller actuator.
↓	Select larger actuator.

Table 26: Operating pressure [bar] for actuator function: **type LAP-AZ (air-to-open/air-to-close)**

Actuator size	Stroke [mm]	MD 65	MD 92	MD 115	MD 168	MD 202	MD 280
LAP-AZ-80-F10	15/30	13	4	↓	↓	↓	↓
LAP-AZ-125-F10	15/30	16	16	8	↓	↓	↓
LAP-AZ-160-F10	30	↑	↑	16	↓	↓	↓
LAP-AZ-160-F10	45/60	↑	↑	↑	6	↓	↓
LAP-AZ-200-F10	30/45	↑	↑	↑	11	↓	↓
LAP-AZ-200-F10	60/80	↑	↑	↑	↓	7	↓
LAP-AZ-250-F10/F14	60/80	↑	↑	↑	16	13	↓
LAP-AZ-300-F10/F14	60/80	↑	↑	↑	↑	16	5
LAP-AZ-D250-F14	80	↑	↑	↑	↑	↑	10
LAP-AZ-D300-F14 ¹⁴⁾	80	↑	↑	↑	↑	↑	16

Table 27: Operating pressure [bar] for actuator function: **type LAP-OF (spring-to-open/air-to-close)**

Actuator size	Stroke [mm]	MD 65	MD 92	MD 115	MD 168	MD 202	MD 280
LAP-OF-80.101-F10	15/30	8	↓	↓	↓	↓	↓
LAP-OF-125.101-F10	15/30	16	↓	↓	↓	↓	↓
LAP-OF-160.102-F10	30/45	↑	16	14	↓	↓	↓
LAP-OF-200.102-F10	30/45	↑	↑	16	↓	↓	↓
LAP-OF-200.001-F10	45/60	↑	↑	↑	8	↓	↓
LAP-OF-250.002-F10/F14	60/80	↑	↑	↑	14	9	↓
LAP-OF-300.002-F10 ¹⁴⁾	60	↑	↑	↑	16	16	↓
LAP-OF-300.012-F14	80	↑	↑	↑	↑	↑	2
LAP-OF-D250.012-F14	80	↑	↑	↑	↑	↑	8
LAP-OF-D300.012-F14 ¹⁴⁾	80	↑	↑	↑	↑	↑	16

Table 28: Operating pressure [bar] for actuator function: **type LAP-SF (air-to-open/spring-to-close)**

Actuator size	Stroke [mm]	MD 65	MD 92	MD 115	MD 168	MD 202	MD 280
LAP-SF-80.001.5-F10	15	7	↓	↓	↓	↓	↓
LAP-SF-125.002.5-F10	15	16	↓	↓	↓	↓	↓
LAP-SF-125.002-F10	30	↑	12	4	↓	↓	↓
LAP-SF-160.012-F10	30/45	↑	16	8	↓	↓	↓
LAP-SF-200.003.5-F10	30	↑	↑	10	↓	↓	↓
LAP-SF-200.003.7-F10	45	↑	↑	16	5	↓	↓
LAP-SF-250.004.7-F10	45	↑	↑	↑	10	↓	↓
LAP-SF-250.004-F10	60	↑	↑	↑	↑	6	↑
LAP-SF-300.034-F10	60	↑	↑	↑	16	12	↓
LAP-SF-D300.034-F10 ¹⁴⁾	60	↑	↑	↑	↑	↑	↓
LAP-SF-D300.005-F14	80	↑	↑	↑	↑	16	4
LAP-SF-D300.345-F14	80	↑	↑	↑	↑	↑	10

Other selection options on request.

¹⁴ Max. control pressure: 7 bar

Glossary

ATEX 2014/34/EU

The acronym ATEX is the French abbreviation for explosive atmospheres: "Atmosphère explosible". The ATEX product directive 2014/34/EU lays down rules to be met by equipment and protective systems intended for use in potentially explosive atmospheres in the European Union (EU).

DN

Nominal size; numeric designation of size of the components in a piping system

LAP-AZ

LAP-AZ = OPEN/CLOSE = double-acting piston actuator (air-to-open / air-to-close)

LAP-OF

LAP-OF = opening spring = pneumatic piston actuator, fail-open (spring-to-open / air-to-close)

LAP-SF

LAP-SF = closing spring = pneumatic piston actuator, fail-close (air-to-open / spring-to-close)

MD

Diaphragm diameter, numeric designation of the diaphragm size

Pressure Equipment Directive 2014/68/EU (PED)

The 2014/68/EU Directive sets out the requirements to be met by pressure equipment intended to be placed on the market in the European economic area.



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