AX29 SERIES

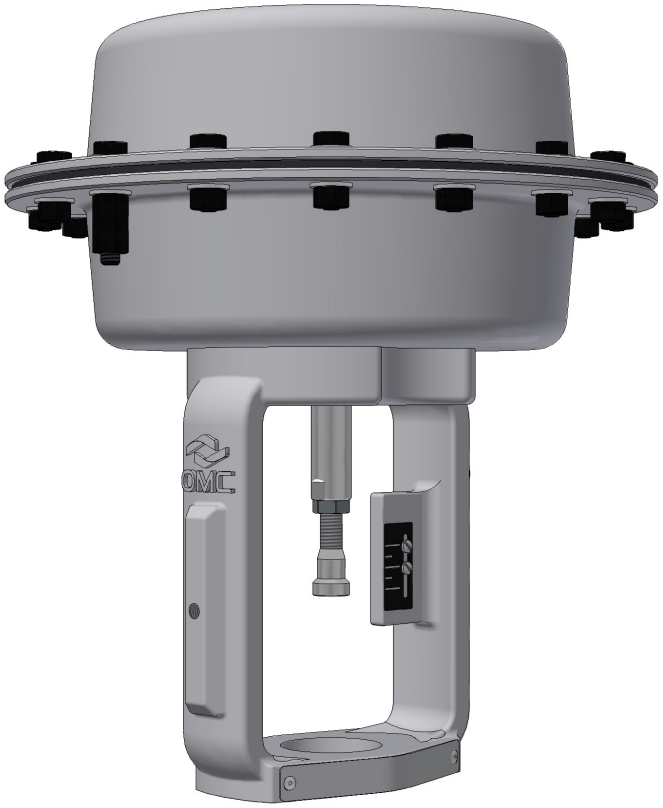
Pneumatic actuators from 0,49 to 2,95 kN

DESCRIPTION

Linear multispring diaphragm actuators able to satisfy a wide range of applications for throttling and on/off operations. Fitted with a mechanical travel indicator, the integral yoke is in compliance with standard **CEI EN 60534-6-1** and is designed for the mounting of various accessories, such as positioners, limit switches, ect...

The AX29 actuators can be provided with:

- Top handwheel for emergency manual override (TX)
- Side handwheel for emergency manual override (LX)
- Mechanical travel stop in both directions(a)



(a) the mechanical travel stop cannot be combined with the top handwheel

MAIN FEATURES

- Reversible on the field, without auxiliary components (b)
- Wide range of available thrusts
- Compact design
- Yoke according to CEI EN 60534-6-1 (Namur)
- Mechanical travel adjustment
- Construction with integral yoke made of carbon steel or stainless steel
- Full stainless steel construction on request
- Strong operating force by admissible pressure supply up to 6 bar
- Smoothly sliding stems to guarantee an extremely low hysteresis
- Versatile pairing between stem and valve, composed of a female thread M10 + removable OMC clamp attachment (see Fig.3 and Fig.4 Pag.5 SEC: B-B)

(b) except for top handwheel construction

TYPE

TYPE	Multispring Diaghragm
ACTION	Direct Action (Springs retract stem) - REVERSIBLE ON SITE Reverse Action (Springs extend stem) - REVERSIBLE ON SITE
MAXIMUM ALLOWABLE PRESSURE	87 psi (6 bar)
PNEUMATIC CONNECTIONS	1/4” NPT-F

PROTECTIVE COATINGS

STANDARD	Electrostatic painting with epoxy powder RAL 7047 matte (standard)
ON DEMAND	Special paintings (Es. ISO12944-2 C4 / C5 Etc…) ,galvanizing, ect..

MATERIALS (*RECOMMENDED SPARE PARTS)

COMPONENT	STANDARD	ON DEMAND
1 - HOUSING	Painted Steel 1.0332 / 1.0335 (T.amb ≥-50°C / -58°F)	Stainless Steel AISI 316 (T.amb ≥-268°C / -450°F)
2 - DIAPHRAGM (*)	NBR (T.amb -35÷90°C / -31÷194°F)	EPDM (T.amb -50÷120°C / -58÷248°F) PVMQ (T.amb -60÷90°C / -76÷194°F)
3 - YOKE	Painted ASTM A216 WCB (T.amb ≥-29°C / -20°F)	Steel ASTM A351 CF8M (T.amb ≥-268°C / -450°F)
4 - STEM	Stainless Steel ASTM 182 F316 (T.amb ≥-268°C / -450°F)	OTHER
5 - SPRINGS (*)	Painted EN 10270-1 SH (T.amb ≥-30°C / -22°F)	EN 10270-3 1.4310 (AISI 301) EN 10270-3 1.4401(AISI 316) (T.amb ≥-268°C / -450°F)
6 - INTERNAL PARTS	Painted Steel 1.0332 / 1.0335 (T.amb ≥-50°C)	Stainless Steel AISI 316 (T.amb ≥-268°C / -450°F)
7 - ADJUSTABLE OMC VALVE CLAMP CON-	Stainless Steel 17.4-PH H900 (T.amb ≥-268°C / -450°F)	OTHER
8 - TRAVEL INDICATOR	ANODIZED ALLUMINIUM	///
9 - BOLTS AND NUTS	A193 8M - A194 8M (St. St. A4-80) (T.amb ≥-268°C / -58°F)	OTHER

ACTUATOR INTERNAL PARTS

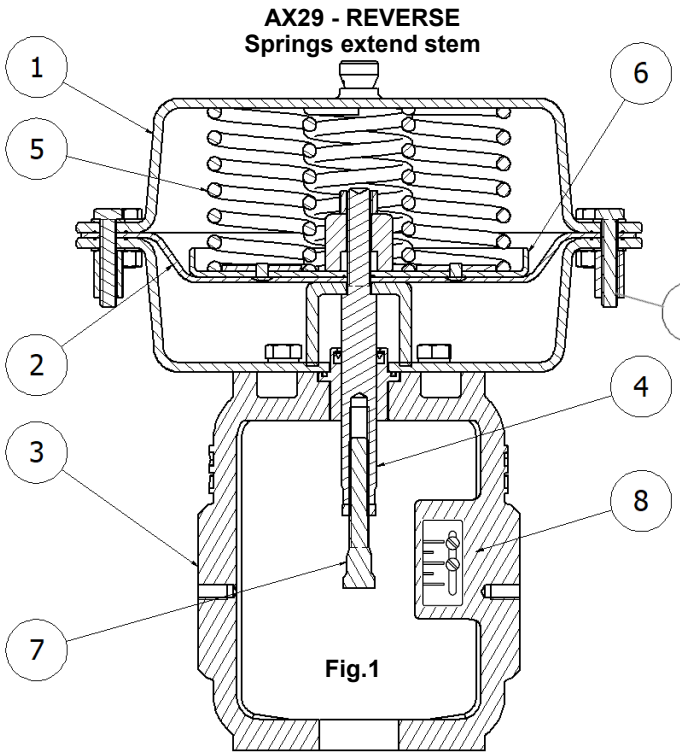


Fig.1

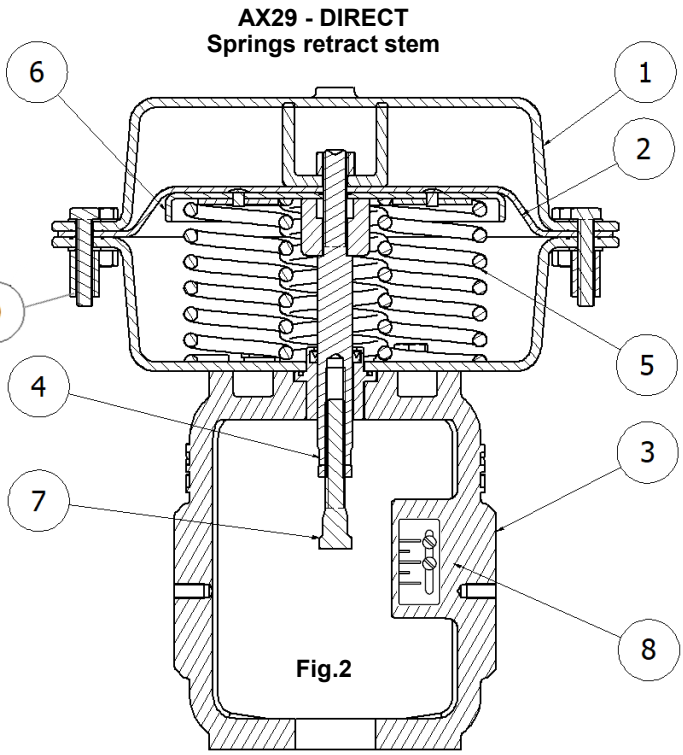


Fig.2

TECHNICAL DATA

Nr. Of springs	MAX TRAVEL	NOMINAL TRAVEL	THRUST AREA	TRAVEL VOLUME	SPRING RANGE	kN (c) (d) (e)	THRUST AT 1 psi
2	42mm 1,65 inch	20mm 0,787 inch	298 cm² 46,19 inch²	596 cm³ 36,37 inch³	3÷15 psi	0,6	0,20 kN
2					6÷18 psi	1,2	
4					6÷30 psi	1,2	
4					12÷36 psi	2,4	
8	30mm 1,18 inch				18÷50 psi	3,6	

c - for reverse actuators, generated thrust by extended springs at signal = 0 psi

d - for direct actuators, generated thrust by retracted springs at signal = 0 psi

e - generated thrust at minimum spring range value

Example: with nominal actuator signal 6÷30 PSI; to achieve 1,20 kN the actuator signal must be 0÷36 psi

DIFFERENTIAL PRESSURES CHARTS IN bar ON TWO WAY OMC VALVES UNBALANCED TRIM - FLOW TO OPEN

REVERSE ACTION - SPRINGS TO CLOSE - N.C. ⇩ — LEAKAGE CLASS cl. IV

ANSI FCI 70.2 - IEC 60534-4

SPRING RANGE (psi)	SPRING RANGE CODE	ACTUATOR SIGNALE (psi) (g)	TRAVEL (mm)	MAX DIFFERENTIAL PRESSURES IN bar on SEAT DIAMETER in mm													
				3mm 0,118"	4mm 0,157"	5mm 0,196"	6mm 0,236"	7mm 0,275"	8mm 0,314"	9mm 0,354"	10mm 0,393"	20mm 0,787"	25mm 0,984"	30mm 0,984"	38mm 1,496"	49mm 1,929"	kN (g)
3÷15	1	0÷15	20mm 0,787"	653,1	367,4	235,1	163,3	120,0	91,8	72,6	58,8	14,7	9,4	6,5	4,1	2,4	0,6
6÷18	2	0÷18		1306,2	734,7	470,2	326,5	239,9	183,7	145,1	117,6	29,4	18,8	13,1	8,1	4,9	1,2
6÷30	3	0÷30		1306,2	734,7	470,2	326,5	239,9	183,7	145,1	117,6	29,4	18,8	13,1	8,1	4,9	1,2
12÷36	4	0÷36		2612,4	1469,5	940,5	653,1	479,8	367,4	290,3	235,1	58,8	37,6	26,1	16,3	9,8	2,4
18÷50	5	0÷52		3918,6	2204,2	1410,7	979,6	719,7	551,0	435,4	352,7	88,2	56,4	39,2	24,4	14,7	3,6

g - thrust on seat by actuator signal

REVERSE ACTION - SPRINGS TO CLOSE - N.C. ⇩ — LEAKAGE CLASS cl. V

ANSI FCI 70.2 - IEC 60534-4

SPRING RANGE (psi)	SPRING RANGE CODE	ACTUATOR SIGNAL (psi) (g)	TRAVEL (mm)	MAX DIFFERENTIAL PRESSURES IN bar on SEAT DIAMETER in mm													
				3mm 0,118"	4mm 0,157"	5mm 0,196"	6mm 0,236"	7mm 0,275"	8mm 0,314"	9mm 0,354"	10mm 0,393"	20mm 0,787"	25mm 0,984"	30mm 0,984"	38mm 1,496"	49mm 1,929"	kN (g)
3÷15	1	0÷15	20mm 0,787"	585,5	329,4	210,8	146,4	107,5	82,3	65,1	52,7	13,2	8,4	5,9	3,6	2,2	0,6
6÷18	2	0÷18		1171,1	658,7	421,6	292,8	215,1	164,7	130,1	105,4	26,3	16,9	11,7	7,3	4,4	1,2
6÷30	3	0÷30		1171,1	658,7	421,6	292,8	215,1	164,7	130,1	105,4	26,3	16,9	11,7	7,3	4,4	1,2
12÷36	4	0÷36		2342,1	1317,4	843,2	585,5	430,2	329,4	260,2	210,8	52,7	33,7	23,4	14,6	8,8	2,4
18÷50	5	0÷50		3513,2	1976,2	1264,7	878,3	645,3	494,0	390,4	316,2	79,0	50,6	35,1	21,9	13,2	3,6

g - thrust on seat by actuator signal

REVERSE ACTION - SPRINGS TO CLOSE - N.C. ⇩ — LEAKAGE CLASS cl. VI

ANSI FCI 70.2 - IEC 60534-4

SPRING RANGE (psi)	SPRING RANGE CODE	ACTUATOR SIGNAL (psi) (g)	TRAVEL (mm)	MAX DIFFERENTIAL PRESSURES IN bar on SEAT DIAMETER in mm													
				3mm 0,118"	4mm 0,157"	5mm 0,196"	6mm 0,236"	7mm 0,275"	8mm 0,314"	9mm 0,354"	10mm 0,393"	20mm 0,787"	25mm 0,984"	30mm 0,984"	38mm 1,496"	49mm 1,929"	kN (g)
3÷15	1	0÷15	20mm 0,787"	707,5	398,0	254,7	176,9	130,0	99,5	78,6	63,7	15,9	10,2	7,1	4,4	2,7	0,6
6÷18	2	0÷18		1415,0	796,0	509,4	353,8	259,9	199,0	157,2	127,4	31,8	20,4	14,2	8,8	5,3	1,2
6÷30	3	0÷30		1415,0	796,0	509,4	353,8	259,9	199,0	157,2	127,4	31,8	20,4	14,2	8,8	5,3	1,2
12÷36	4	0÷36		2830,1	1591,9	1018,8	707,5	519,8	398,0	314,5	254,7	63,7	40,8	28,3	17,6	10,6	2,4
18÷50	5	0÷50		4245,1	2387,9	1528,2	1061,3	779,7	597,0	471,7	382,1	95,5	61,1	42,5	26,5	15,9	3,6

g - thrust on seat by actuator signal

DIRECT ACTION - SPRINGS TO OPEN - N.O.

LEAKAGE CLASS ANSI FCI 70.2 - IEC 60534-4 **cl. IV**

SPRINGS RANGE (psi)	SPRING RANGE CODE	ACTUATOR SIGNAL (psi) (g)	TRAVEL (mm)	MAX DIFFERENTIAL PRESSURES IN bar on SEAT DIAMETER in mm													
				3mm 0,118"	4mm 0,157"	5mm 0,196"	6mm 0,236"	7mm 0,275"	8mm 0,314"	9mm 0,354"	10mm 0,393"	20mm 0,787"	25mm 0,984"	30mm 0,984"	38mm 1,496"	49mm 1,929"	kN (g)
3÷15	1	3÷18	20mm 0,787"	653,1	367,4	235,1	163,3	120,0	91,8	72,6	58,8	14,7	9,4	6,5	4,1	2,4	0,6
	1	3÷21		1306,2	734,7	470,2	326,5	239,9	183,7	145,1	117,6	29,4	18,8	13,1	8,1	4,9	1,2
	1	3÷27		2342,1	1317,4	843,2	585,5	430,2	329,4	260,2	210,8	52,7	33,7	23,4	14,6	8,8	2,4
	1	3÷33		3513,2	1976,2	1264,7	878,3	645,3	494,0	390,4	316,2	79,0	50,6	35,1	21,9	13,2	3,6

g - thrust on seat by actuator signal

DIRECT ACTION - SPRINGS TO OPEN - N.O.

LEAKAGE CLASS ANSI FCI 70.2 - IEC 60534-4 **cl. V**

SPRING RANGE (psi)	SPRING RANGE CODE	ACTUATOR SIGNAL (psi) (g)	TRAVEL (mm)	MAX DIFFERENTIAL PRESSURES IN bar on SEAT DIAMETER in mm													
				3mm 0,118"	4mm 0,157"	5mm 0,196"	6mm 0,236"	7mm 0,275"	8mm 0,314"	9mm 0,354"	10mm 0,393"	20mm 0,787"	25mm 0,984"	30mm 0,984"	38mm 1,496"	49mm 1,929"	kN (g)
3÷15	1	3÷18	20mm 0,787"	585,5	329,4	210,8	146,4	107,5	82,3	65,1	52,7	13,2	8,4	5,9	3,6	2,2	0,6
	1	3÷21		1171,1	658,7	421,6	292,8	215,1	164,7	130,1	105,4	26,3	16,9	11,7	7,3	4,4	1,2
	1	3÷27		1920,7	1080,4	691,5	480,2	352,8	270,1	213,4	172,9	43,2	27,7	19,2	12,0	7,2	2,4
	1	3÷33		2878,9	1619,4	1036,4	719,7	528,8	404,8	319,9	259,1	64,8	41,5	28,8	17,9	10,8	3,6

g - thrust on seat by actuator signal

DIRECT ACTION - SPRINGS TO OPEN - N.O.

LEAKAGE CLASS ANSI FCI 70.2 - IEC 60534-4 **cl. VI**

SPRING RANGE (psi)	SPRING RANGE CODE	ACTUATOR SIGNAL (psi) (g)	TRAVEL (mm)	MAX DIFFERENTIAL PRESSURES IN bar on SEAT DIAMETER in mm													
				3mm 0,118"	4mm 0,157"	5mm 0,196"	6mm 0,236"	7mm 0,275"	8mm 0,314"	9mm 0,354"	10mm 0,393"	20mm 0,787"	25mm 0,984"	30mm 0,984"	38mm 1,496"	49mm 1,929"	kN (g)
3÷15	1	3÷18	20mm 0,787"	707,5	398,0	254,7	176,9	130,0	99,5	78,6	63,7	15,9	10,2	7,1	4,4	2,7	0,6
	1	3÷21		1415,0	796,0	509,4	353,8	259,9	199,0	157,2	127,4	31,8	20,4	14,2	8,8	5,3	1,2
	1	3÷27		2830,1	1591,9	1018,8	707,5	519,8	398,0	314,5	254,7	63,7	40,8	28,3	17,6	10,6	2,4
	1	3÷33		4245,1	2387,9	1528,2	1061,3	779,7	597,0	471,7	382,1	95,5	61,1	42,5	26,5	15,9	3,6

g - thrust on seat by actuator signal

DIFFERENTIAL PRESSURES CHARTS bar ON THREE WAY OMC VALVES

UNBALANCED TRIM

DIRECT OR REVERSE ACTION

LEAKAGE CLASS ANSI FCI 70.2 - IEC 60534-4 **cl. IV**

SPRING RANGE (psi)	SPRING RANGE CODE	ACTUATOR SIGNAL (psi) (g)	TRAVEL (mm)	MAX DIFFERENTIAL PRESSURES IN bar on SEAT DIAMETER in mm													
				3mm 0,118"	4mm 0,157"	5mm 0,196"	6mm 0,236"	7mm 0,275"	8mm 0,314"	9mm 0,354"	10mm 0,393"	20mm 0,787"	25mm 0,984"	30mm 0,984"	38mm 1,496"	49mm 1,929"	kN (g)
3÷15	1	0÷18	20mm 0,787"	653,1	367,4	235,1	163,3	120,0	91,8	72,6	58,8	14,7	9,4	6,5	4,1	2,4	0,6
6÷18	2	0÷24		1306,2	734,7	470,2	326,5	239,9	183,7	145,1	117,6	29,4	18,8	13,1	8,1	4,9	1,2
6÷30	3	0÷36		1306,2	734,7	470,2	326,5	239,9	183,7	145,1	117,6	29,4	18,8	13,1	8,1	4,9	1,2
12÷36	4	0÷48		2612,4	1469,5	940,5	653,1	479,8	367,4	290,3	235,1	58,8	37,6	26,1	16,3	9,8	2,4
18÷50	5	0÷68		3918,6	2204,2	1410,7	979,6	719,7	551,0	435,4	352,7	88,2	56,4	39,2	24,4	14,7	3,6

g - thrust on seat by actuator signal

DIRECT OR REVERSE ACTION

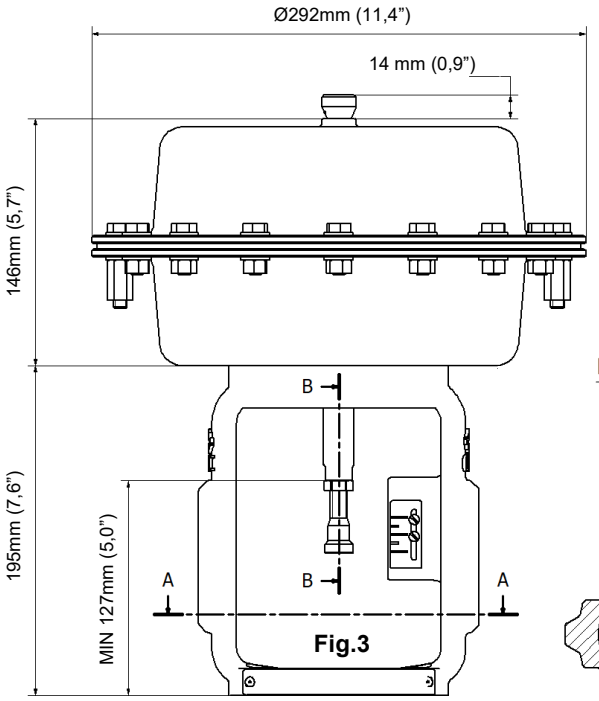
LEAKAGE CLASS ANSI FCI 70.2 - IEC 60534-4 **cl. VI**

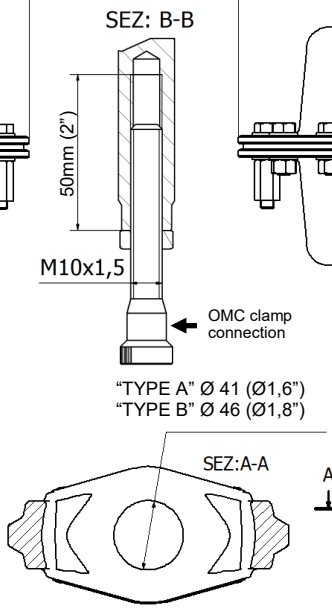
SPRING RANGE (psi)	SPRING RANGE CODE	ACTUATOR SIGNAL (psi) (g)	TRAVEL (mm)	MAX DIFFERENTIAL PRESSURES IN bar on SEAT DIAMETER in mm													
				3mm 0,118"	4mm 0,157"	5mm 0,196"	6mm 0,236"	7mm 0,275"	8mm 0,314"	9mm 0,354"	10mm 0,393"	20mm 0,787"	25mm 0,984"	30mm 0,984"	38mm 1,496"	49mm 1,929"	kN (g)
3÷15	1	0÷18	20mm 0,787"	707,5	398,0	254,7	176,9	130,0	99,5	78,6	63,7	15,9	10,2	7,1	4,4	2,7	0,6
6÷18	2	0÷24		1415,0	796,0	509,4	353,8	259,9	199,0	157,2	127,4	31,8	20,4	14,2	8,8	5,3	1,2
6÷30	3	0÷36		1415,0	796,0	509,4	353,8	259,9	199,0	157,2	127,4	31,8	20,4	14,2	8,8	5,3	1,2
12÷36	4	0÷48		2830,1	1591,9	1018,8	707,5	519,8	398,0	314,5	254,7	63,7	40,8	28,3	17,6	10,6	2,4
18÷50	5	0÷68		4245,1	2387,9	1528,2	1061,3	779,7	597,0	471,7	382,1	95,5	61,1	42,5	26,5	15,9	3,6

g - thrust on seat by actuator signal

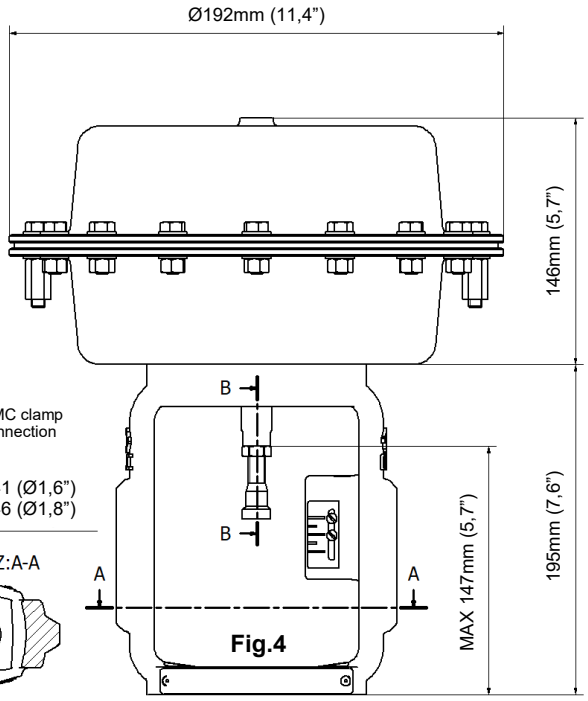
ACTUATOR DIMENSIONS

AX29 - REVERSE
YOKE TYPE “A” / “B”

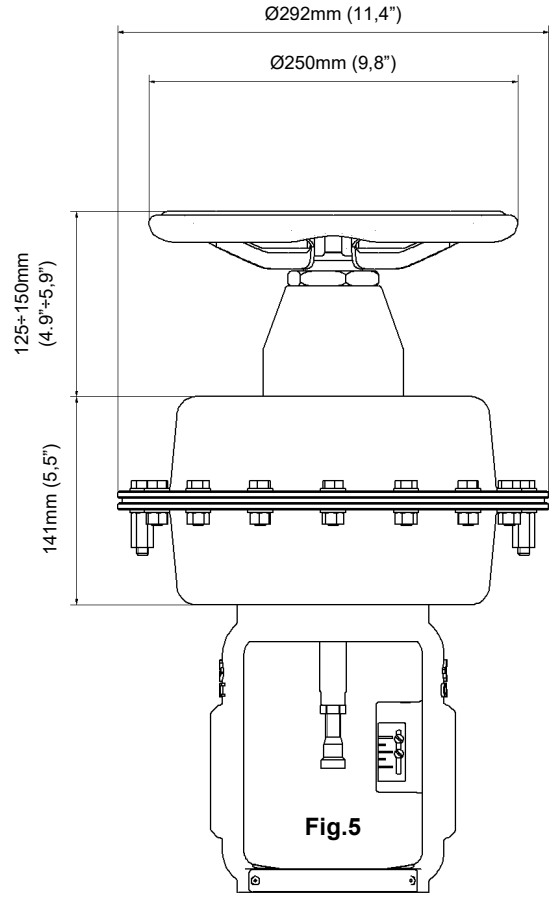




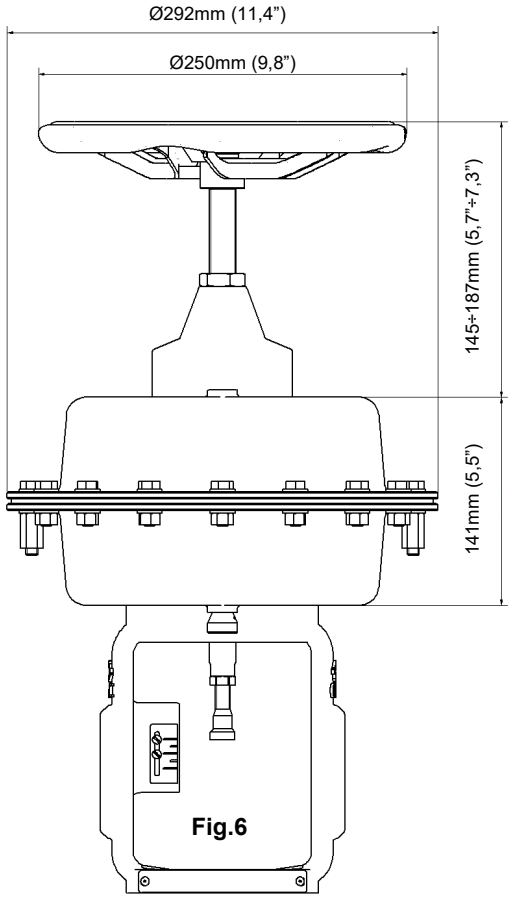
AX29 - DIRECT
YOKE TYPE “A” / “B”



AX29 - REVERSE WITH TOP HANDWHEEL
YOKE TYPE “A” / “B”



AX29 - DIRECT WITH TOP HANDWHEEL
YOKE TYPE “A” / “B”



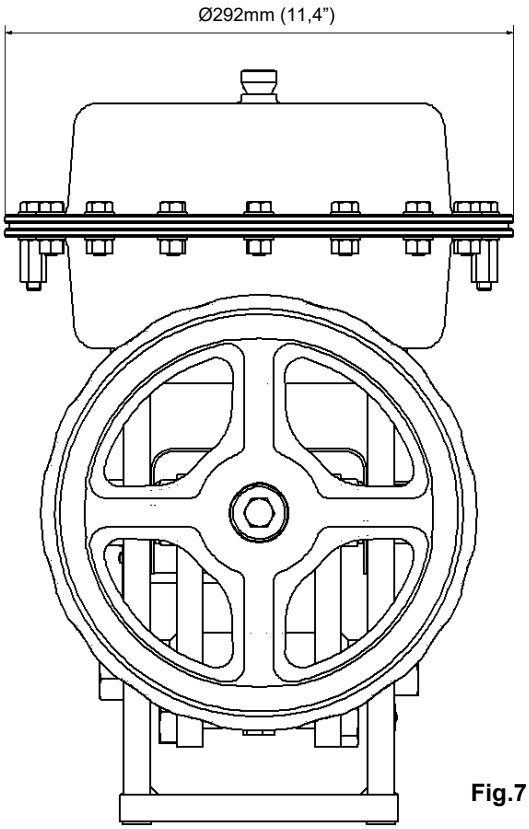
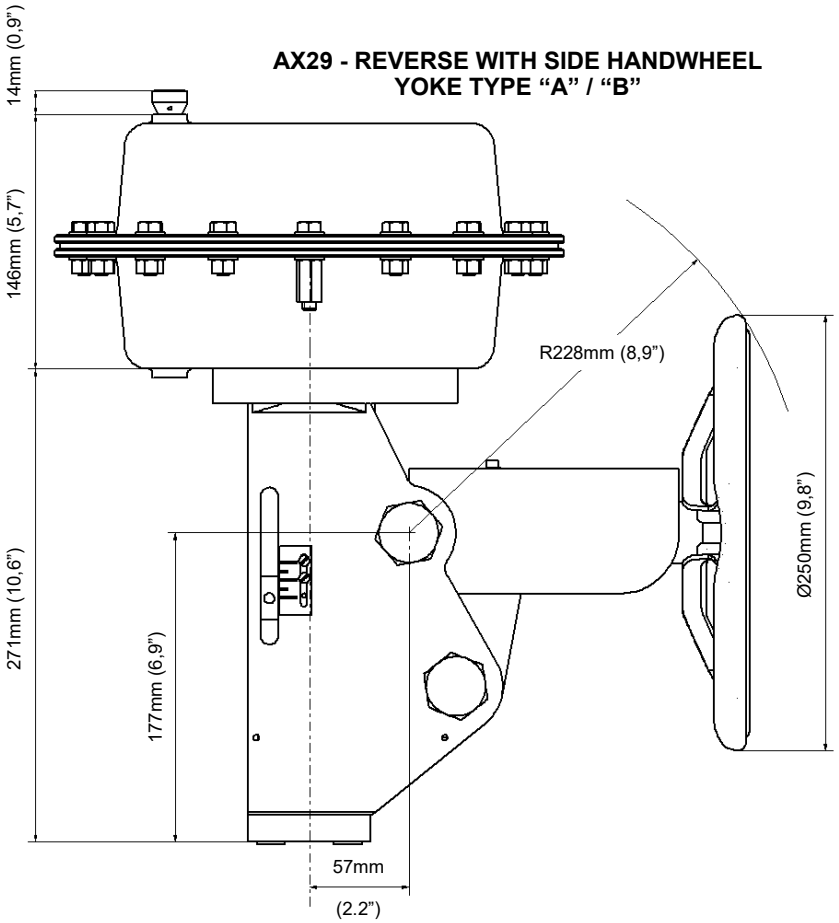


Fig.7

AX29 - REVERSE WITH SIDE HANDWHEEL
YOKE TYPE "A" / "B"



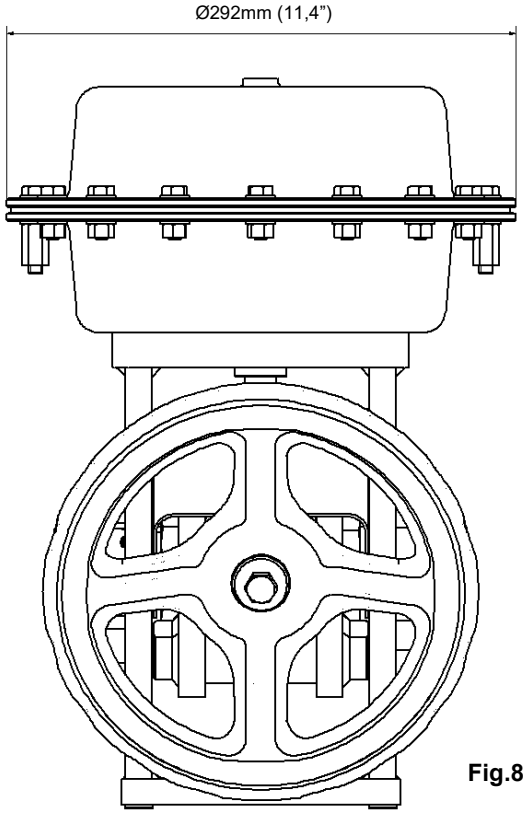
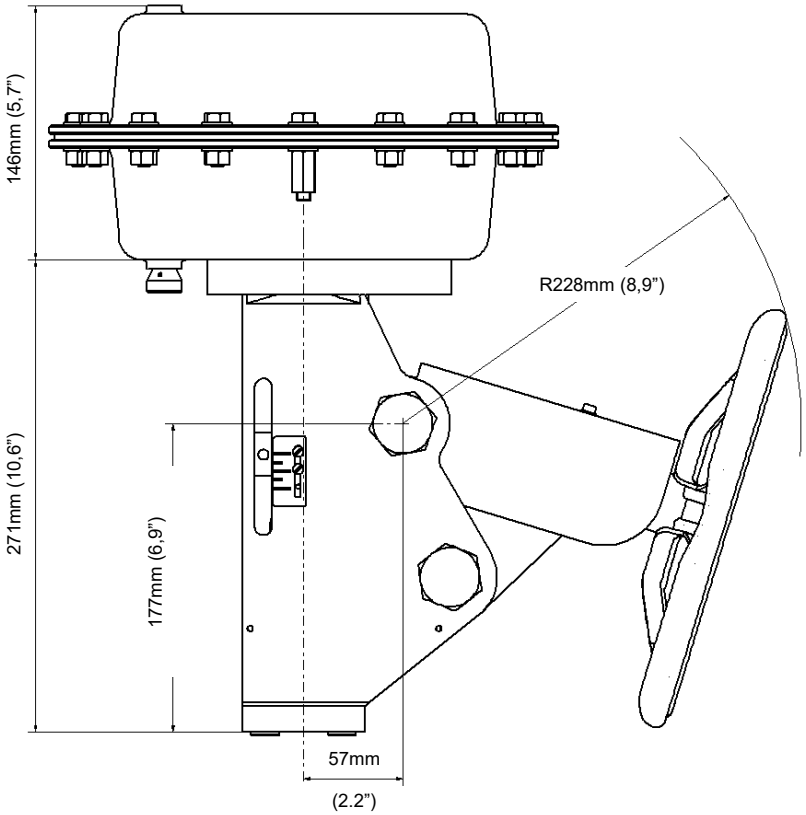


Fig.8

AX29 - DIRECT WITH SIDE HANDWHEEL
YOKE TYPE "A" / "B"



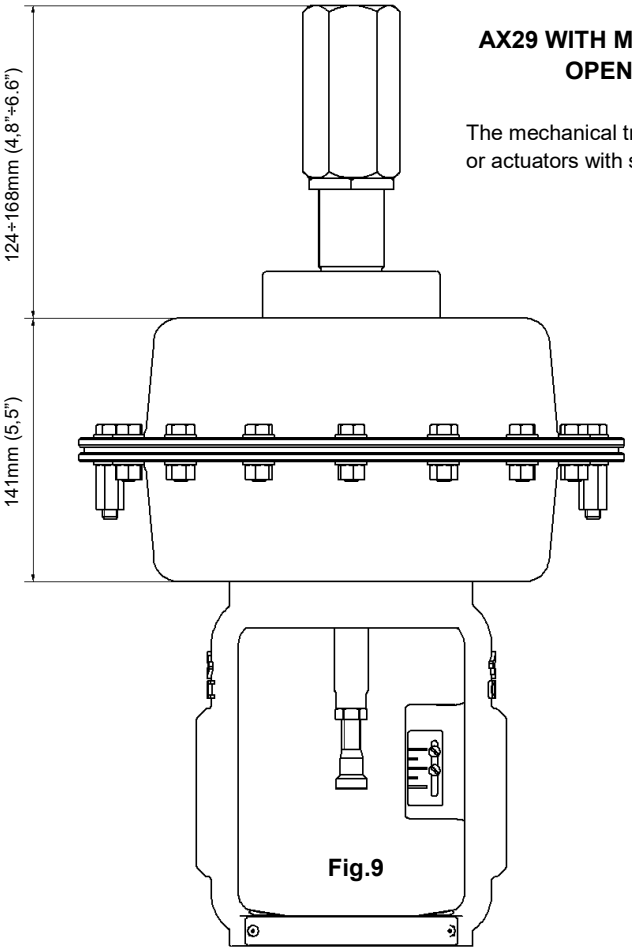


Fig.9

AX29 WITH MECHANICAL TRAVEL STOP IN OPENING AND/OR CLOSING

The mechanical travel stops can be mounted on standard actuators or actuators with side handwheel.

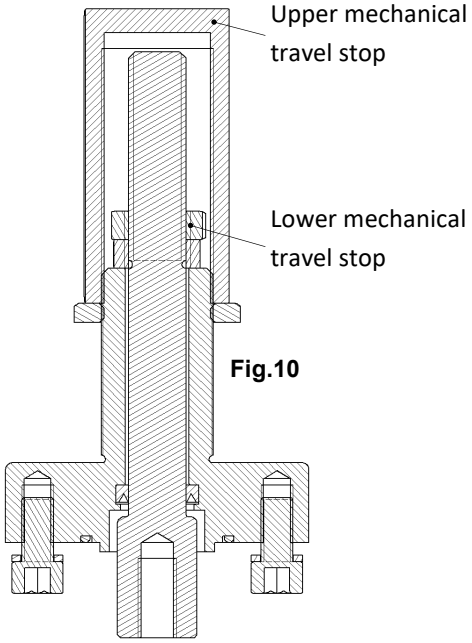


Fig.10

MINIMUM CLEARANCE REQUIRED TO REMOVE THE ACTUATOR ON OMC VALVES

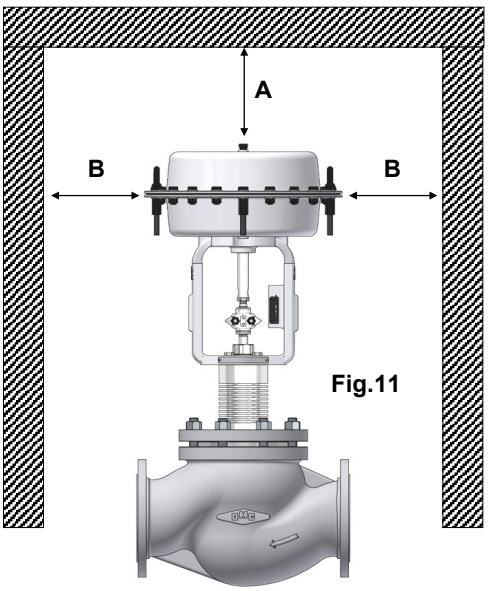


Fig.11

A = 140mm (5,5") + required distance for the use of lifting equipment

B = 200mm (7,9") + required distance for the use of lifting equipment

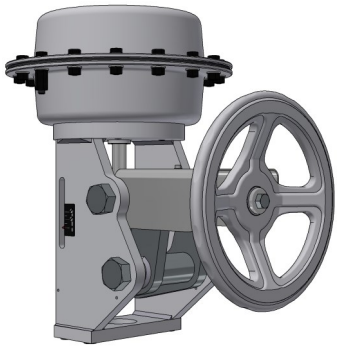
Note: necessary space must be verified by the customer

PNEUMATIC ACTUATOR WEIGHT

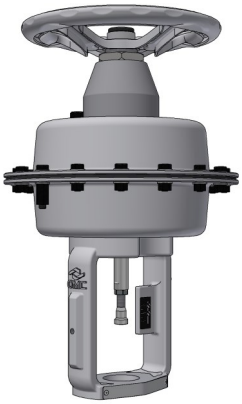
STANDARD	WITH TOP HANDHWEEL	WITH SIDE HANDWHEEL	WITH TRAVEL STOP
~ 15kg (33lb)	~ 19kg (42lb)	~ 30kg (66lb)	~ 18kg (40lb)

AVAILABLE SPARE PARTS

DIAPHRAGM; SPRINGS; STEM SEALING V-RING; BUG-SCREEN



AX29 WITH SIDE HANDWHEEL



AX29 WITH TOP HANDWHEEL

AX29 WITH TRAVEL STOP

HOW TO ORDER

Actuator type:

AX = Standard (WCB version)

TX = With top handwheel (WCB version)

LX = With side handwheel (WCB version)

AS = Standard (Stainless Steel version)

TS = With top handwheel (Stainless steel version)

LS = With side handwheel (Stainless Steel version)

Actuator type:

29 = Diameter 292

Yoke connection:

A = Type A - bore Ø41mm - for OMC valves:
- DN15÷50 PN16÷100
- ½" ÷ 2" ANSI 150÷600

B = Type B - bore Ø46mm - for OMC valves:
- DN15÷50 PN160÷250
- ½" ÷ 2" ANSI 900÷1500

Spring range:

1 = 3÷15 psi

2 = 6÷18 psi

3 = 6÷30 psi

4 = 12÷36 psi

5 = 18÷50 psi

Action:

D = Diretta / Molle ritraggono lo stelo

R = Inversa / Molle estendono lo stello

Travel:

A = 20mm (0,787")

OMC S.p.A.
Tel.: (+39) 02.95.28.468 - Fax: (+39) 02.95.21.495 - info@omcvalves.com - www.omcvalves.com