General

The hydraulic speed control check normally couples with a pneumatic cylinder to provide uniform speed control. It is well known that a pneumatic cylinder by its nature cannot assure a constant speed during a cycle or a consistent repetition of speed during successive cycles. In the hydraulic speed control check takes advantage of the incompressibility of oil which, going from the front chamber to the rear one (or viceversa) through a flow regulator, absorbes and neutralizes the speed variation of the air cylinder. Such variations are proportional to the applicable loading. For example in the case of a cylinder that moves a milling mandril on a wooden board, the speed in the initial phase (at almost zero load) would be very high and consequently have a violent impact on the piece of wood. The successive phase would be slower and inconsistent, resulting in sloppy work. The hydraulic speed control check cylinder permits to separate the different phases of the working process by approaching speed working phases to slow ones and eventually accelerated phases (with by pass valves called skip valves. It can be equipped with stopvalves which allow the blockage of the element to which it is connected. The skip and stop valves are actually 2 way poppet valves pneumatically actuated. Both are normally open and therefore must be activated in order to have the skip excluded and the stop inserted. The skip valve has a supplementary regulator for maximum speed control. The rods of all regulators have female 10x1,5 threaded for anchoring. To mount the speed regulator to the cylinder or to the machine it is possible to use the mountings of the 1303 cylinder series which have a 1-5/8" diameter bore. All speed control regulators have a supplemental reserve tank that compensates for the difference in volume between the two chambers due to the presence of the rod in the rear chamber. This supplementary tank compensates for any fluid leakage, even if small, that might occur between the rod and its seal. This reserve tank contains a spring loaded piston which assures a slight over-pressure of the system. A level indicator is included.
The following types of speed regulation are available:

Construction characteristics

Covers	black anodized aluminium
Barrels	cold-drawn steel
Rod	C43 chromed steel
Tie rods	plated zinc steel
Piston	aluminium
Waterproof seals	NBR rubber
Piston seal	VITON®
Rod seal	polyurethane
Regulators group	brass
Skip and stop valves	black anodized aluminium
Circuit oil	hydraulic with viscosity 2,9° E at 50°C (viscosity index minimum 118)
Bore	40 mm and 63 mm diameter

Technical characteristics

Max connecting load	600 kg (Ø40)	-	1200 Kg (Ø63)
Min. and max. speed	60 ÷ 10000 mm/min.		
Working temperature	-5°C ÷ +70°C		
Minimum pressure for the actuation of skip and stop valves	4 bar		

"Attention: Dry air must be used for application below 0°C"

Standard strokes

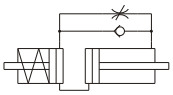
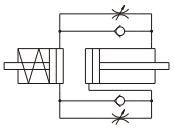
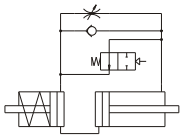
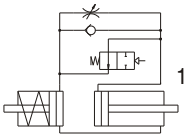
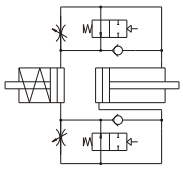
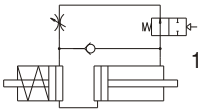
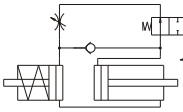
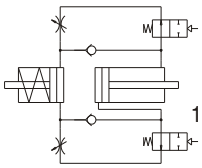
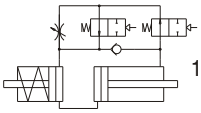
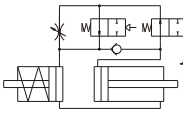
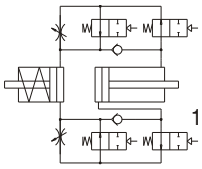
50 - 100 - 150 - 200 - 250 - 300 - 350 - 400 - 450 - 500 mm
minimum stroke for type1400.stroke.03.05. e 1400.stroke.03.06, 150 mm.

Important: For heavier load we have available the hydraulic speed control check cylinders of 63 mm diameter suitable to stand load up to 1200 kg. For more information please contact our technical department.

Maintenance

The speed control check is a closed system and there are no external factors that can adversely affect its function. Care however, has to be exercised not to allow the hydraulic fluid level to drop below the minimum indicated on the auxiliary tank. Should this occur, cavitation, or worse, an air pocket would result causing erratic control. Additional fluid should be put in exclusively through a unidirectional valve by means of an appropriate syringe (such as our code number 1400.99.01). Excess fluid will be expelled through a vent into an appropriate container. It is necessary to completely disassemble the regulator and be sure to bleed the system to eliminate air pockets. We suggest that you create a vacuum before beginning to refill. This can be done with a small unidirectional valve turned up and repeatedly loaded with a syringe. The rod must be manually actuated successively releasing air througt the valve using a small and pointed instrument.

Functional schematics

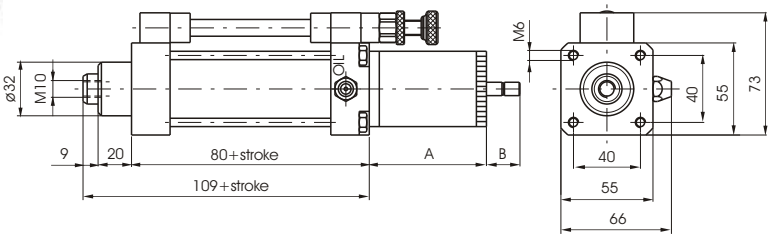
Extraction	Compression	Double regulation
 1400.Ø.stroke.01.2 1400.40.stroke.01.1	 1400.Ø.stroke.02.2	 1400.Ø.stroke.03.2
 1400.Ø.stroke.01.04	 1400.Ø.stroke.02.04	 1400.Ø.stroke.03.04
 1400.Ø.stroke.01.05	 1400.Ø.stroke.02.05	 1400.Ø.stroke.03.05
 1400.Ø.stroke.01.06	 1400.Ø.stroke.02.06	 1400.Ø.stroke.03.06

Attention:

Extraction control: it happens when the pneumatic cylinder (connected to speed control) is moving out speed control piston rod

Compression control: it happens when the pneumatic cylinder (connected to speed control) is moving in speed control piston rod

Extraction regulation- tank in line

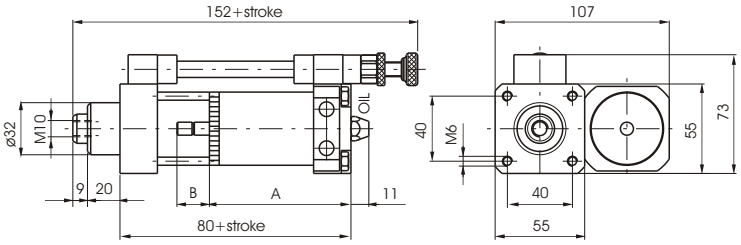


Weight gr.1450 + gr. 300 every 50 mm. stroke

Ordering code
1400.40.stroke.01.1

Strokes	A	B. max
< 75	78	30
75 ÷ < 150	102	45
150 ÷ < 250	127	60
250 ÷ < 350	187	90
350 ÷ < 500	202	120

Extraction regulation - lateral tank

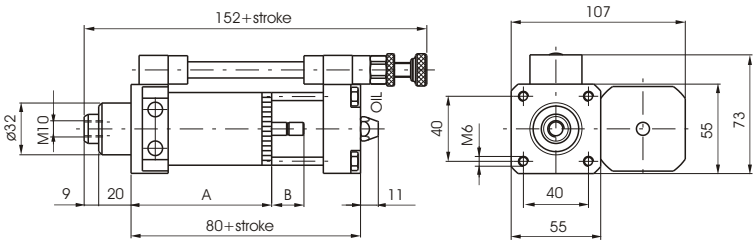


Weight gr. 1530 + gr. 300 every 50 mm. stroke

Ordering code
1400.40.stroke.01.2

Strokes	A	B. max
< 75	93	30
75 ÷ < 150	118	45
150 ÷ < 250	143	60
250 ÷ < 350	183	90
350 ÷ < 500	218	120

Compression regulation

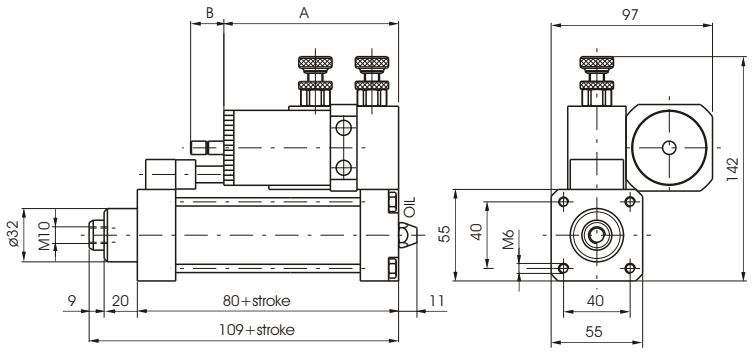


Weight gr. 1530 + gr. 300 every 50 mm. stroke

Ordering code
1400.40.stroke.02.2

Strokes	A	B. max
< 75	93	30
75 ÷ < 150	118	45
150 ÷ < 250	143	60
250 ÷ < 350	183	90
350 ÷ < 500	218	120

Double regulation
(extraction and compression)



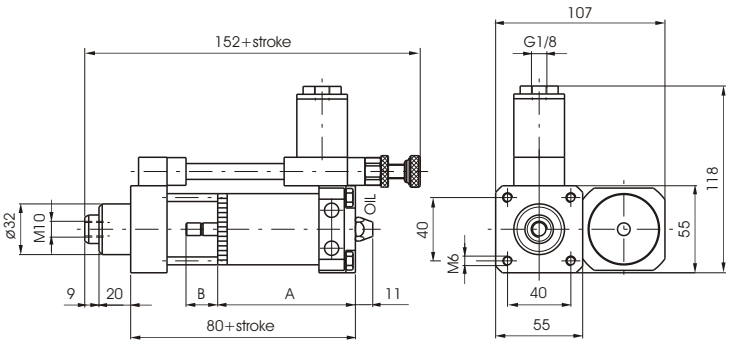
Weight gr. 1870 + gr. 300 every 50 mm. stroke

Ordering code
1400.40.stroke.03.2

Attention : Minimum stroke when fitted in tandem (parallel or in-line) with 80mm or 100mm diameter 1319-1320-1321 series cylinders: 1319-1320-1321 series

Strokes	A	B. max
< 75	110	30
75 ÷ < 150	135	45
150 ÷ < 250	160	60
250 ÷ < 350	200	90
350 ÷ < 500	235	120

Extraction control with skip
(acceleration valve)

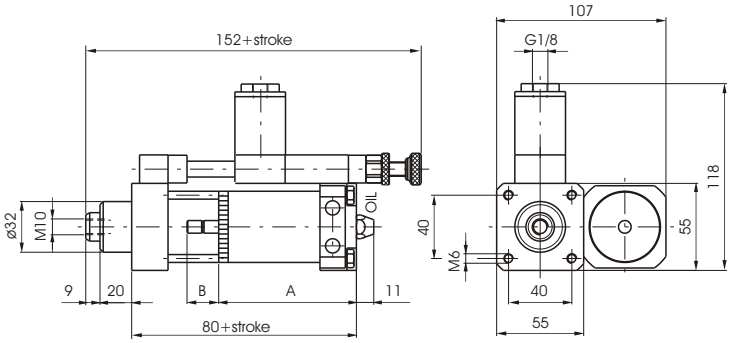


Weight gr. 1670 + gr. 300 every 50 mm. stroke

Ordering code
1400.40.stroke.01.04

Strokes	A	B. max
< 75	93	30
75 ÷ < 150	118	45
150 ÷ < 250	143	60
250 ÷ < 350	183	90
350 ÷ < 500	218	120

Extraction control with stop
(stop valve)



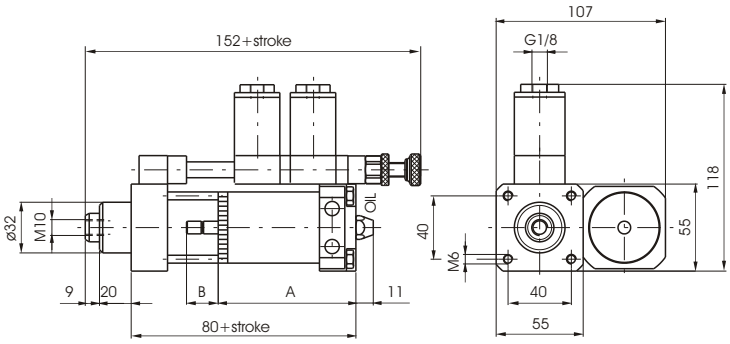
Weight gr. 1710 + gr. 300 every 50 mm. stroke

Ordering code
1400.40.stroke.01.05

Strokes	A	B. max
< 75	93	30
75 ÷ < 150	118	45
150 ÷ < 250	143	60
250 ÷ < 350	183	90
350 ÷ < 500	218	120

4

Extraction control with skip and stop
(acceleration and stop valves)

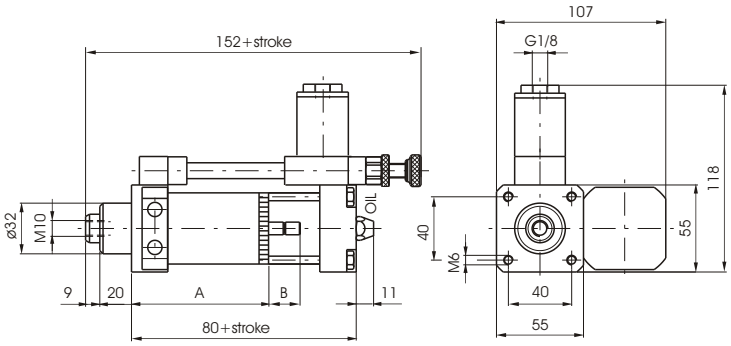


Weight gr. 1830 + gr. 300 every 50 mm. stroke

Ordering code
1400.40.stroke.01.06

Strokes	A	B. max
< 75	93	30
75 ÷ < 150	118	45
150 ÷ < 250	143	60
250 ÷ < 350	183	90
350 ÷ < 500	218	120

Compression control with skip
(acceleration valve)

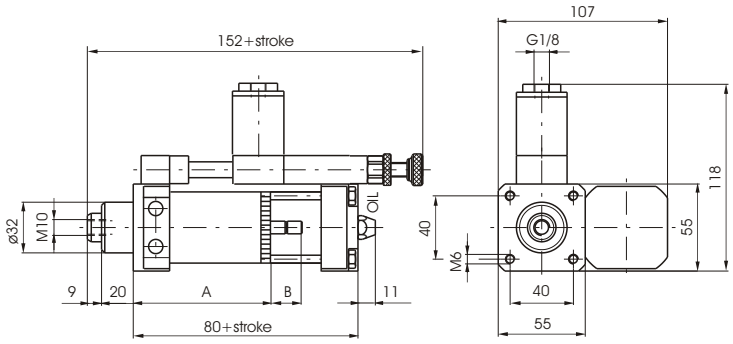


Weight gr.1670 + gr. 300 every 50 mm. stroke

Ordering code
1400.40.stroke.02.04

Strokes	A	B. max
< 75	93	30
75 ÷ < 150	118	45
150 ÷ < 250	143	60
250 ÷ < 350	183	90
350 ÷ < 500	218	120

Compression control with stop
(stop valve)

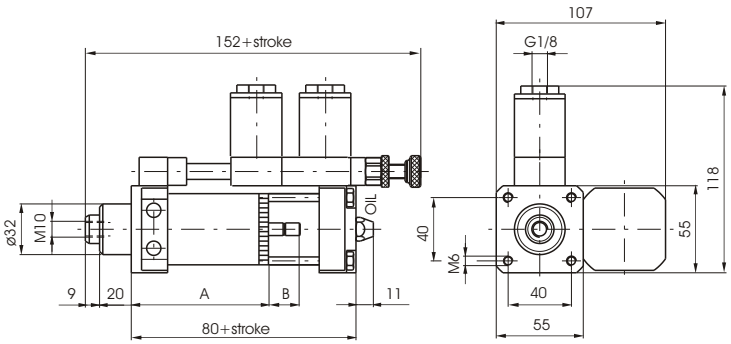


Weight gr. 1710 + gr. 300 every 50 mm. stroke

Ordering code
1400.40.stroke.02.05

Strokes	A	B. max
< 75	93	30
75 ÷ < 150	118	45
150 ÷ < 250	143	60
250 ÷ < 350	183	90
350 ÷ < 500	218	120

Compression control with skip and stop
(acceleration and stop valves)

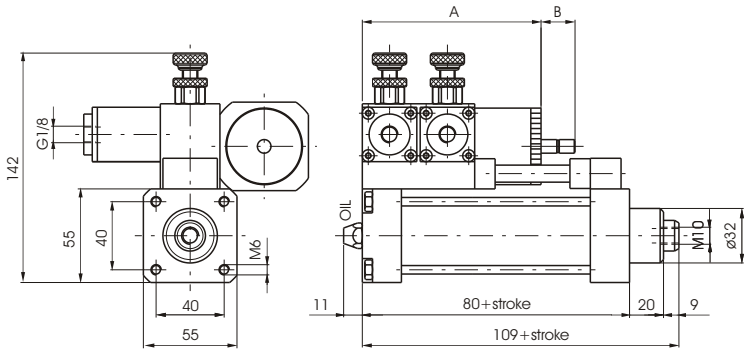


Weight gr. 1830 + gr. 300 every 50 mm. stroke

Ordering code
1400.40.stroke.02.06

Strokes	A	B. max
< 75	93	30
75 ÷ < 150	118	45
150 ÷ < 250	143	60
250 ÷ < 350	183	90
350 ÷ < 500	218	120

Double control with skip
(acceleration valves in two directions)



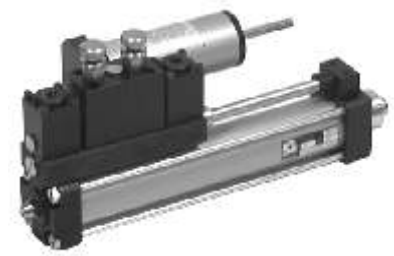
Weight gr. 2110 + gr. 300 every 50 mm. stroke

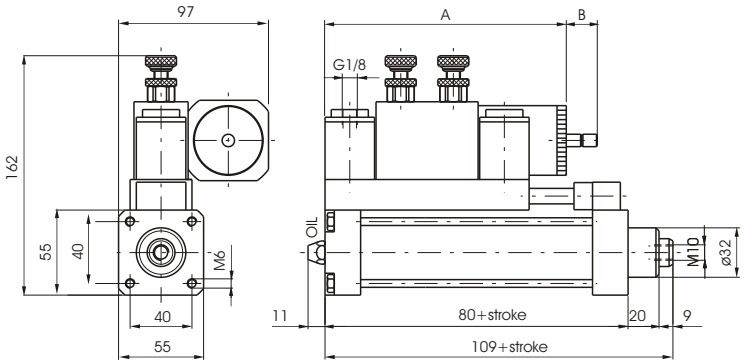
Ordering code
1400.40.stroke.03.04

Attention : Minimum stroke when fitted in tandem (parallel or in-line) with 80mm or 100mm diameter 1319-1320-1321 series cylinders: 1319-1320-1321 series

Strokes	A	B. max
< 75	110	30
75 ÷ < 150	135	45
150 ÷ < 250	160	60
250 ÷ < 350	200	90
350 ÷ < 500	235	120

Double control with stop
(stop valves in two directions)





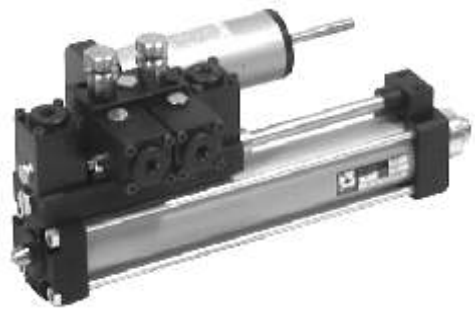
Min. stroke 150 mm
Weight gr. 2390 + gr. 300 every 50 mm. stroke

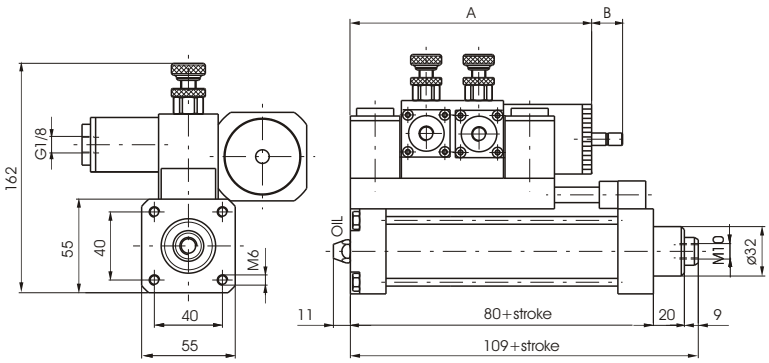
Ordering code
1400.40.stroke.03.05

Strokes	A	B. max
150 ÷ < 250	197	60
250 ÷ < 350	237	90
350 ÷ < 500	272	120

4

Double control with skip and stop
(acceleration and stop valves in two directions)





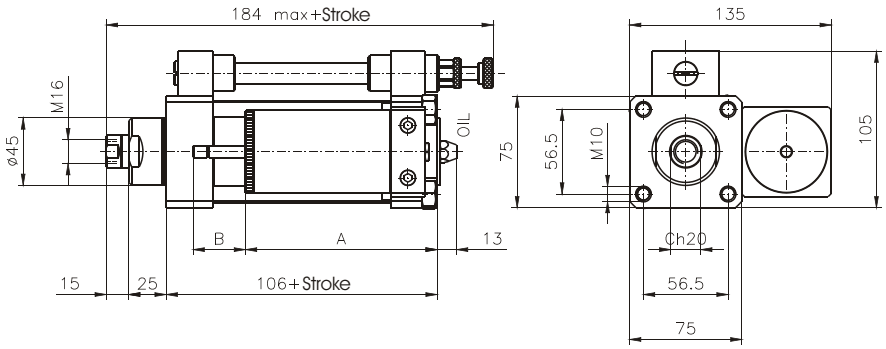
Min. stroke 150 mm
Weight gr. 2630 + gr. 300 every 50 mm. stroke

Ordering code
1400.40.stroke.03.06

Strokes	A	B. max
150 ÷ < 250	197	60
250 ÷ < 350	237	90
350 ÷ < 500	272	120

4

Extraction regulation - lateral tank

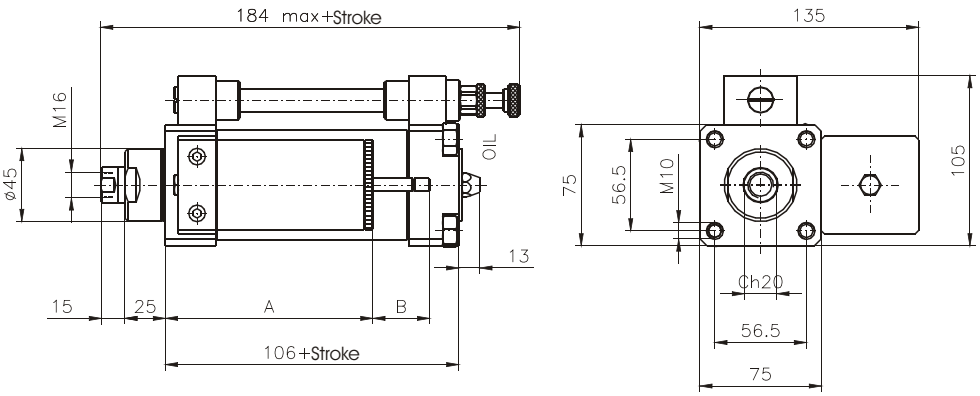


Ordering code
1400.63.stroke.01.2

Min. stroke 75 mm
Weight gr. 2950 + gr. 850 every 50 mm. stroke

Strokes	A	B max
≥75 ÷ <150	128	50
≥150 ÷ <250	188	80
≥250 ÷ <350	238	100
≥350 ÷ <450	298	130
≥450 ÷ ≤500	358	160

Compression regulation

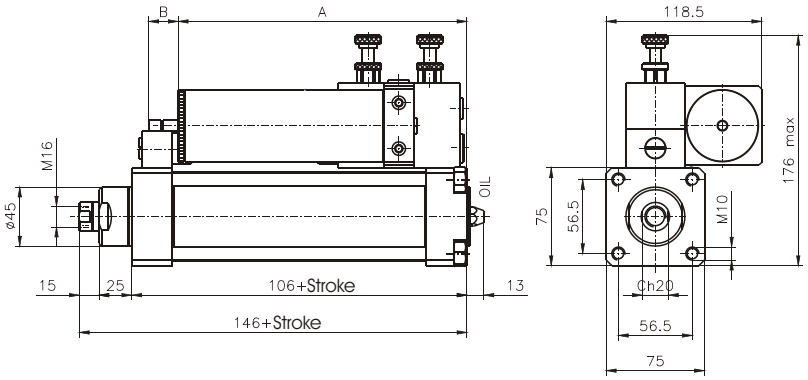


Ordering code
1400.63.stroke.02.2

Min. Stroke 75 mm
Weight gr. 2950 + gr. 850 every 50 mm. stroke

Strokes	A	B max
≥75 ÷ <150	128	50
≥150 ÷ <250	188	80
≥250 ÷ <350	238	100
≥350 ÷ <450	298	130
≥450 ÷ ≤500	358	160

Double regulation
(extraction and compression)



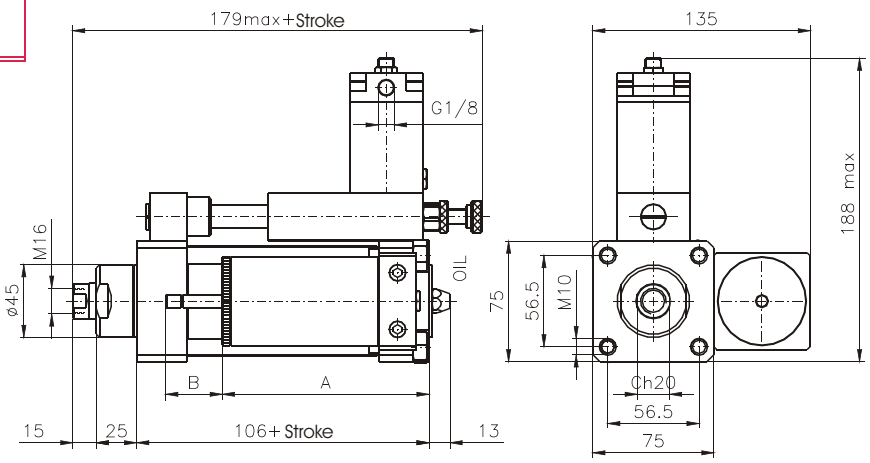
Ordering code
1400.63.stroke.03.2

Min. stroke 100 mm
Weight gr. 3600 + gr. 850 every 50 mm. stroke

Strokes	A	B max
≥100 ÷ <150	128	50
≥150 ÷ <250	188	80
≥250 ÷ <350	238	100
≥350 ÷ <450	298	130
≥450 ÷ <500	358	160

4

Extraction control with skip
(acceleration valve)

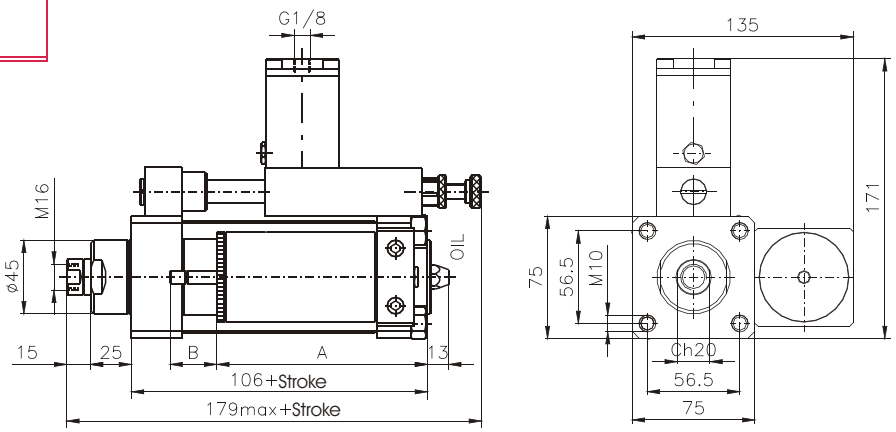


Ordering code
1400.63.stroke.01.04

Min. stroke 75 mm
Weight gr. 3450 + gr. 850 every 50 mm. stroke

Strokes	A	B max
≥75 ÷ <150	128	50
≥150 ÷ <250	188	80
≥250 ÷ <350	238	100
≥350 ÷ <450	298	130
≥450 ÷ ≤500	358	160

Extraction control with stop
(stop valve)

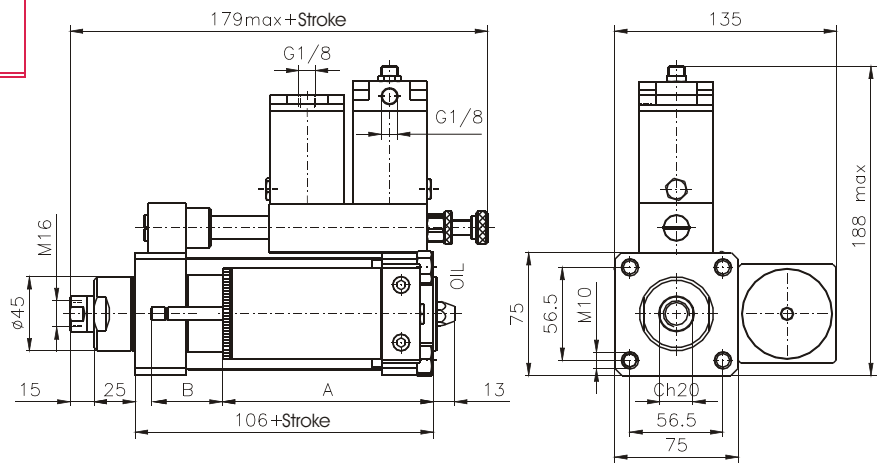


Ordering code
1400.63.stroke.01.05

Min. Stroke 75 mm
Weight gr. 3450 + gr. 850 every 50 mm. stroke

Strokes	A	B max
≥75 ÷ <150	128	50
≥150 ÷ <250	188	80
≥250 ÷ <350	238	100
≥350 ÷ <450	298	130
≥450 ÷ ≤500	358	160

Extraction control with skip and stop
(acceleration and stop valves)

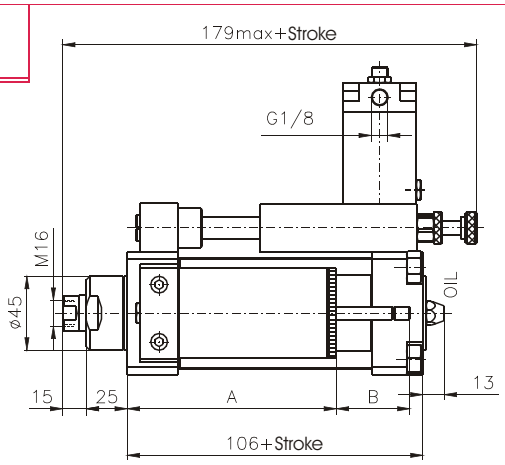


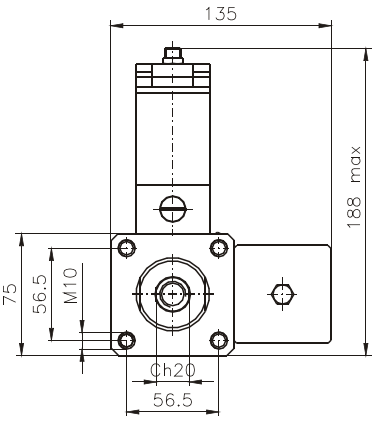
Ordering code
1400.63.stroke.01.06

Min. stroke 75 mm
Weight gr. 3700 + gr. 850 every 50 mm. stroke

Strokes	A	B max
≥75 ÷ <150	128	50
≥150 ÷ <250	188	80
≥250 ÷ <350	238	100
≥350 ÷ <450	298	130
>450 ÷ <500	358	160

Compression control with skip
(accelleration valve)



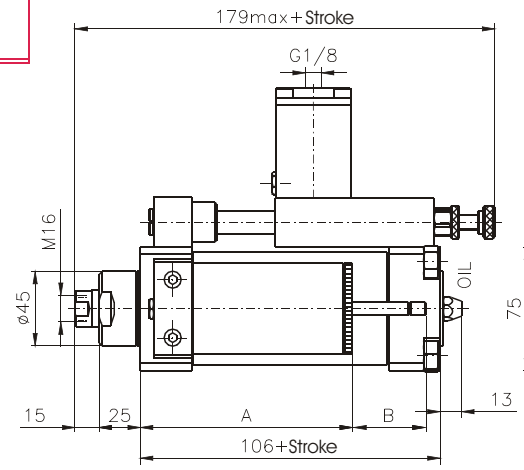


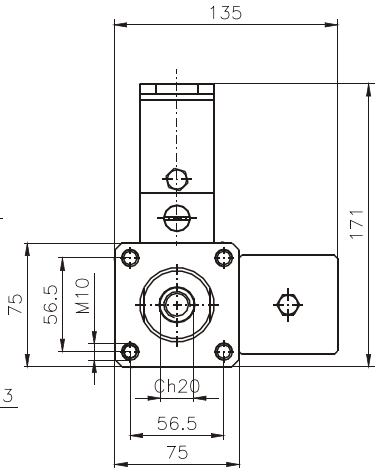
Ordering code
1400.63.stroke.02.04

Min. stroke 75 mm
Weight gr. 3450 + gr. 850 every 50 mm. stroke

Strokes	A	B max
≥75 ÷ <150	128	50
≥150 ÷ <250	188	80
≥250 ÷ <350	238	100
≥350 ÷ <450	298	130
≥450 ÷ ≤500	358	160

Compression control with stop
(stop valve)



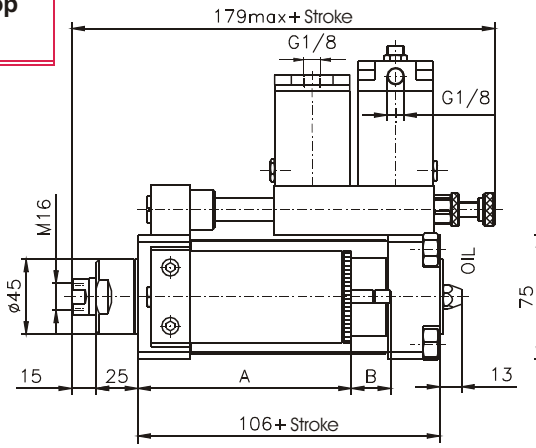


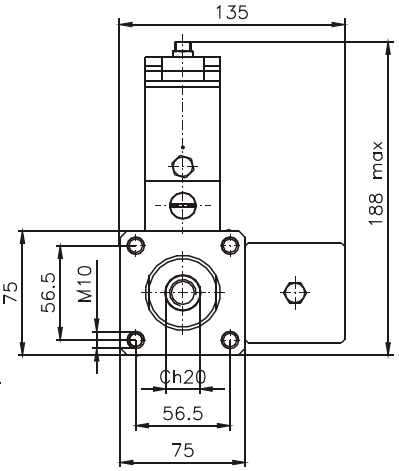
Ordering code
1400.63.stroke.02.05

Min. stroke 75 mm
Weight gr. 3450 + gr. 850 every 50 mm. stroke

Strokes	A	B max
≥75 ÷ <150	128	50
≥150 ÷ <250	188	80
≥250 ÷ <350	238	100
≥350 ÷ <450	298	130
≥450 ÷ ≤500	358	160

Compression control with skip and stop
(acceleration and stop valves)



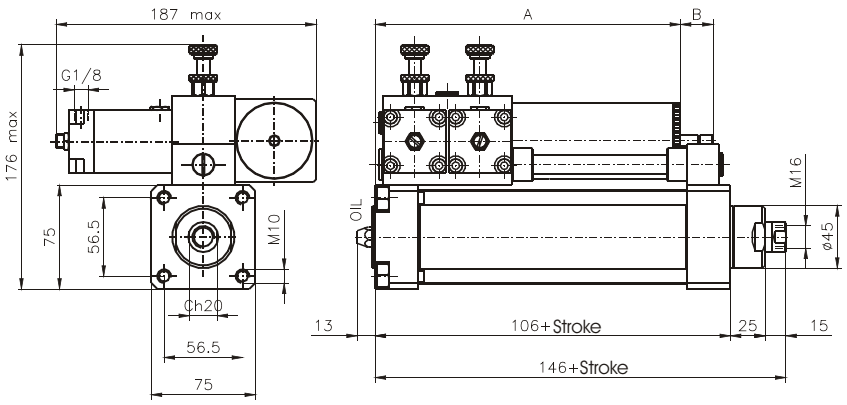


Ordering code
1400.63.stroke.02.06

Min. stroke 75 mm
Weight gr. 3700 + gr. 850 every 50 mm. stroke

Strokes	A	B max
≥75 ÷ <150	128	50
≥150 ÷ <250	188	80
≥250 ÷ <350	238	100
≥350 ÷ <450	298	130
>450 ÷ <500	358	160

Double control with skip
(acceleration valves in two directions)

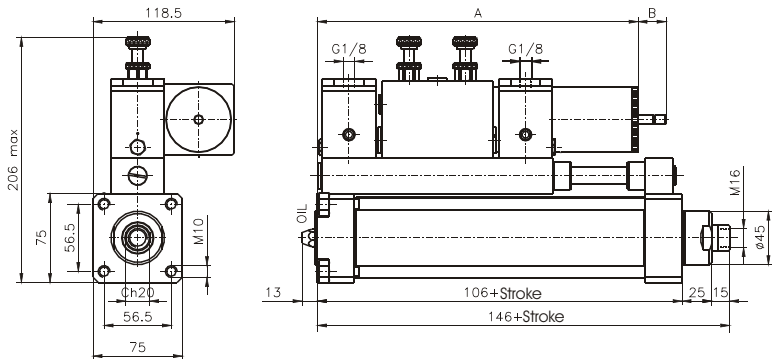


Ordering code
1400.63.stroke.03.04

Min. stroke 100 mm
Weight gr. 4100 + gr. 850 every 50 mm. stroke

Stroke	A	B max
≥100 ÷ <150	160	50
≥150 ÷ <250	220	80
≥250 ÷ <350	270	100
≥350 ÷ <450	330	130
≥450 ÷ ≤500	390	160

Double control with stop
(stop valves in two directions)

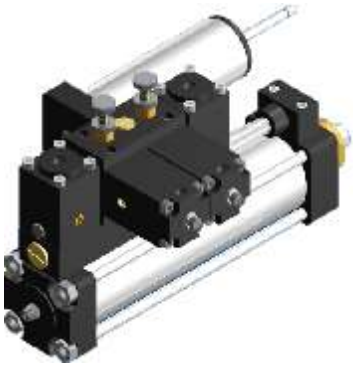


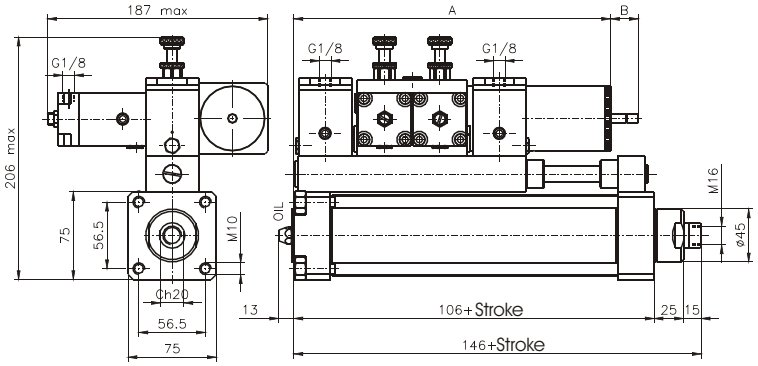
Ordering code
1400.63.stroke.03.05

Min. stroke 200 mm
Weight gr. 4850 + gr. 850 every 50 mm. stroke

Strokes	A	B max
≥200 ÷ <250	269	80
≥250 ÷ <350	319	100
≥350 ÷ <450	379	130
≥450 ÷ ≤500	439	160

Double control with skip and stop
(acceleration and stop valves in two directions)



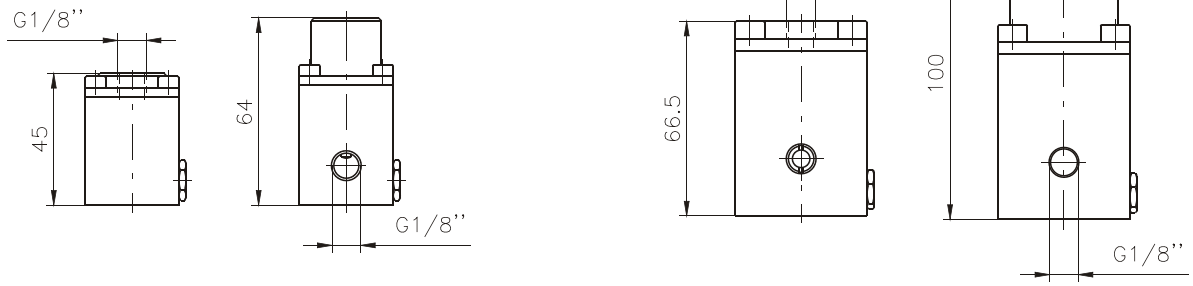


Ordering code
1400.63.stroke.03.06

Min. stroke 200 mm
Weight gr. 5400 + gr. 850 every 50 mm. stroke

Strokes	A	B max
≥75 ÷ <150	128	50
≥150 ÷ <250	188	80
≥250 ÷ <350	238	100
≥350 ÷ <450	298	130
≥450 ÷ <500	358	160

Dimensional releases and powersupply positions with N.C. stop valves

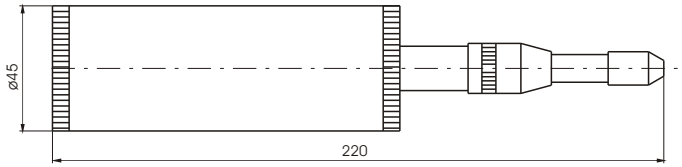


STOP N.A. Ø40 | STOP N.C. Ø40 | STOP N.A. Ø63 | STOP N.C. Ø63

Ordering code with STOP Normally Close (N.C.)

1400.Ø.stroke.01.07 extraction regulation + stop N.C.
1400.Ø.stroke.01.08 extraction regulation + skip + stop N.C.
1400.Ø.stroke.02.08 compression regulation +skip and stop n.c.
1400.Ø.stroke.02.07 compression regulation + stop N.C.
1400.Ø.stroke.03.07 Double regulation + stop N.C.
1400.Ø.stroke.03.08 Double regulation + skip + stop N.C.

Hydraulic fluid refil syringe



Weight gr. 630

Ordering code
1400.99.01

Oil for hydraulic and pneumatic circuits

This oil is suitable to lubricate pneumatic circuits and also to refil hydraulic speed control tanks. It is completely compatible with our seals.

Weight gr. 1710 + gr. 300 every 50 mm. of stroke

Ordering code
PNEUMOIL 01 (1 litre cans)

4