

HYDRAULIC SPEED CONTROL CHECK CYLINDERS Series 1400



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, absorbs 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:

Codes:

- | | |
|---|--|
| 1400.stroke.01.1 and 01.2 extraction regulation | 1400.stroke.02.04 compression regulation + skip |
| 1400.stroke.02.2 compression regulation | 1400.stroke.02.05 compression regulation + stop |
| 1400.stroke.03.2 double regulation (extr. and compr.) | 1400.stroke.02.06 compres. regul. + skip |
| 1400.stroke.01.04 extraction regulation + skip | 1400.stroke.03.04 double regulation + skip+ stop |
| 1400.stroke.01.05 extraction regulation + stop | 1400.stroke.03.05 double regulation + stop |
| 1400.stroke.01.06 extraction regulation + skip + stop | 1400.stroke.03.06 double regulation + skip + stop |

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 diameter

Technical characteristics

Max connecting load	600 kg.
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

Standard strokes

50 - 100 - 150 - 200 - 250 - 300 - 350 - 400 - 450 - 500 mm
 minimum stroke for type 1400.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.



Variant of rod Ø 10 mm.

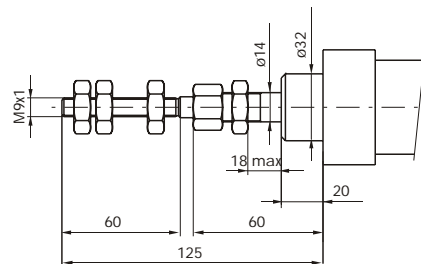
All types of speed regulators can be ordered with a 10 mm. rod and with a 14 mm. guide bushing (as indicated in drawing).

In this case the ordering code changes from 1400 -- to 1401 -- example:

1400.200.01.2 (rod Ø 18)

1401.200.01.2 (rod Ø 10)

The threaded protruding bushing is equipped with a lock nut allowing to anchor a flanged regulator with a Ø 14 mm hole.



Maintenance

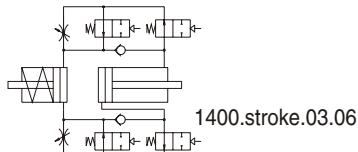
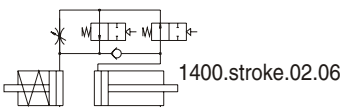
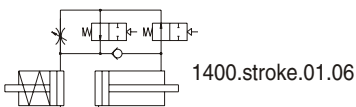
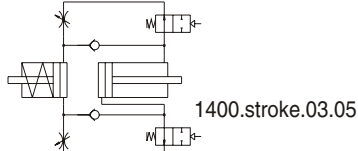
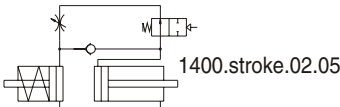
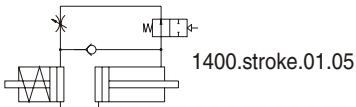
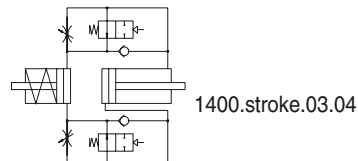
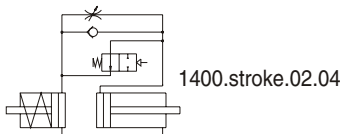
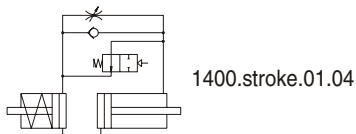
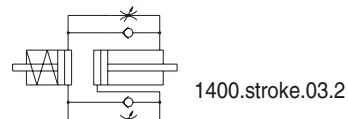
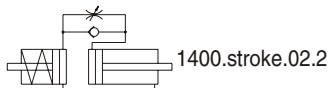
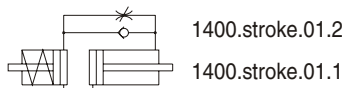
The speed control check is a closed system and there are no external factors that can adversely affect its function. Care however, has to be exercised not to allow the hydraulic fluid level to drop below the minimum indicated on the auxiliary tank. Should this occur, cavitation, or worse, an air pocket 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 through the valve using a small and pointed instrument.

Functional schematics

Extraction

Compression

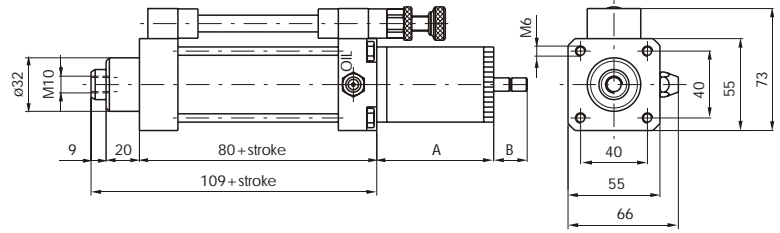
Double regulation



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

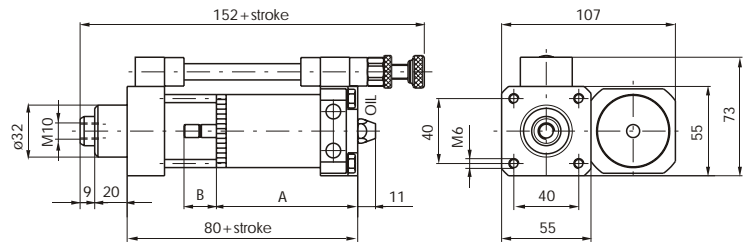


Weight gr.1450 + gr. 300 every 50 mm. stroke

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

Ordering code	
1400.stroke.01.1	

Extraction regulation - lateral tank

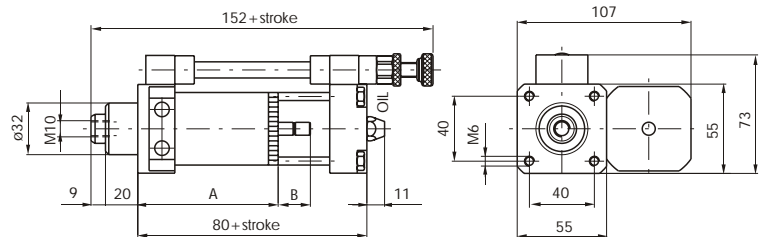


Weight gr. 1530 + gr. 300 every 50 mm. stroke

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

Ordering code	
1400.stroke.01.2	

Compression regulation



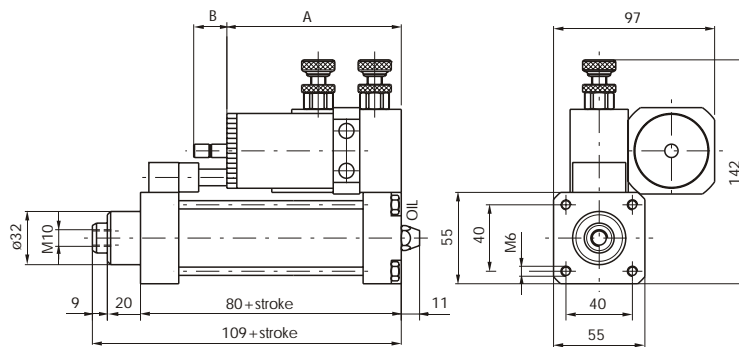
Weight gr. 1530 + gr. 300 every 50 mm. stroke

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

Ordering code	
1400.stroke.02.2	



Double regulation
(extraction and compression)



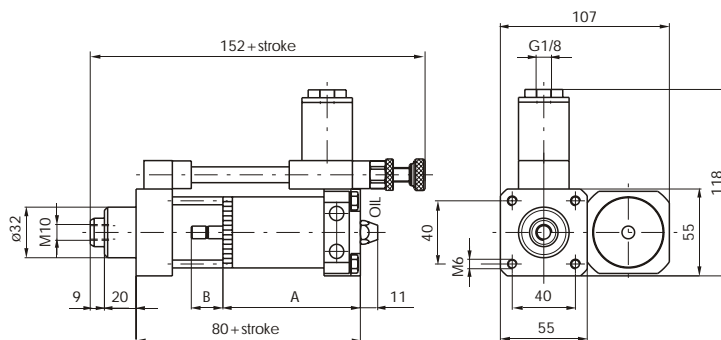
Attenzione: per accoppiamenti in linea o parallelo con cilindri ø80 e ø100 serie 1319-1320-1321, corsa minima 150mm.

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

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

Ordering code
1400.stroke.03.2

Extraction control with skip
(acceleration valve)

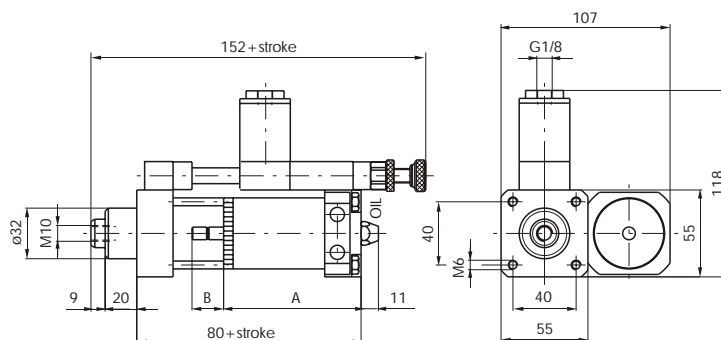


Weight gr. 1670 + gr. 300 every 50 mm. stroke

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

Ordering code
1400.stroke.01.04

Extraction control with stop
(stop valve)

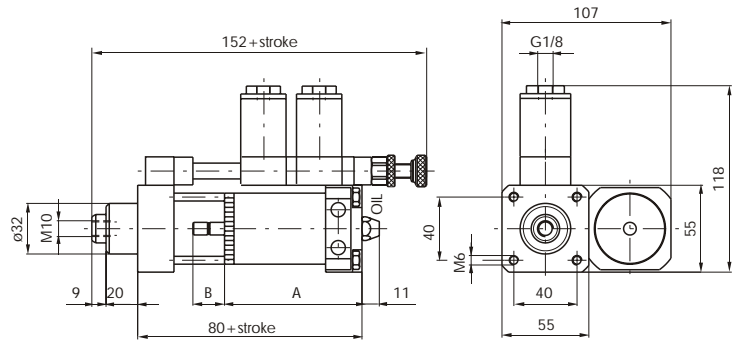


Weight gr. 1710 + gr. 300 every 50 mm. stroke

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

Ordering code
1400.stroke.01.05

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

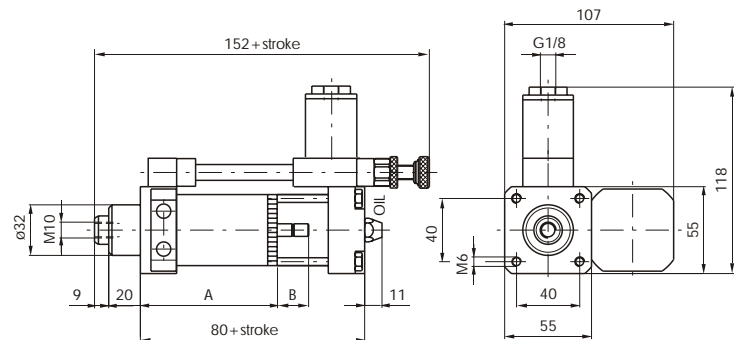


Strokes	A	B max.
< 75	93	30
75 ÷ < 150	118	45
150 ÷ < 250	143	60
250 ÷ < 350	183	90
350 ÷ < 500	218	120

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

Ordering code
1400.stroke.01.06

Compression control with skip
(acceleration valve)

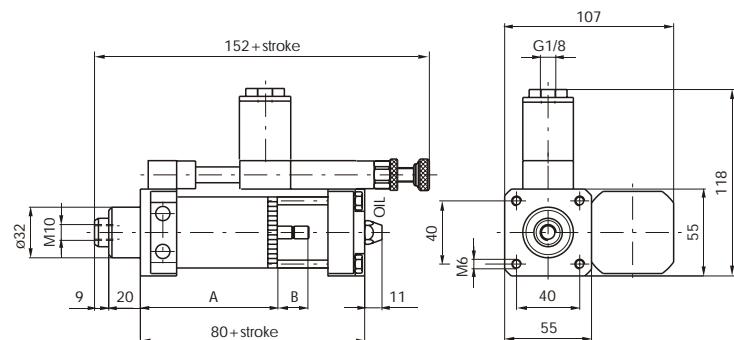


Strokes	A	B max.
< 75	93	30
75 ÷ < 150	118	45
150 ÷ < 250	143	60
250 ÷ < 350	183	90
350 ÷ < 500	218	120

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

Ordering code
1400.stroke.02.04

Compression control with stop
(stop valve)



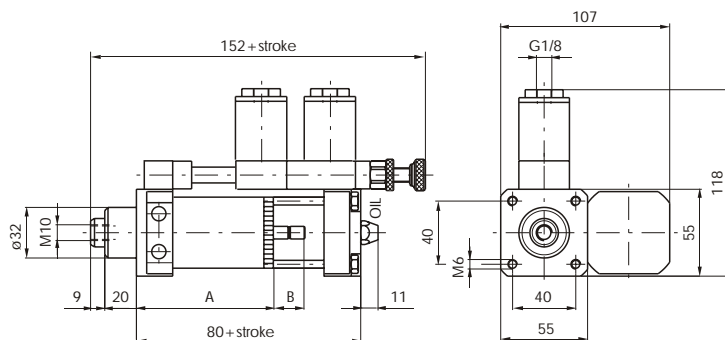
Strokes	A	B max.
< 75	93	30
75 ÷ < 150	118	45
150 ÷ < 250	143	60
250 ÷ < 350	183	90
350 ÷ < 500	218	120

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

Ordering code
1400.stroke.02.05



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

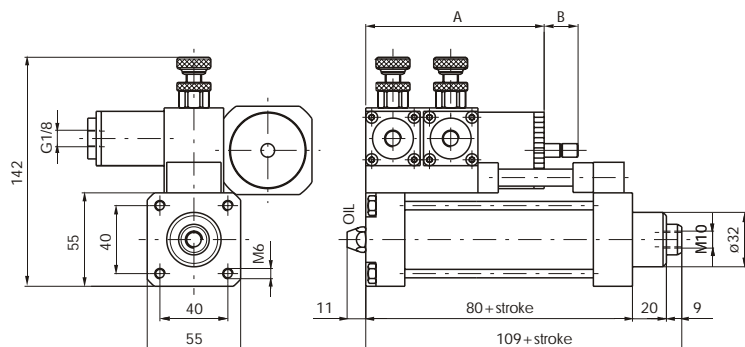


Strokes	A	B max.
< 75	93	30
75 ÷ < 150	118	45
150 ÷ < 250	143	60
250 ÷ < 350	183	90
350 ÷ < 500	218	120

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

Ordering code	1400.stroke.02.06
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Double control with skip
(acceleration valves in two directions)

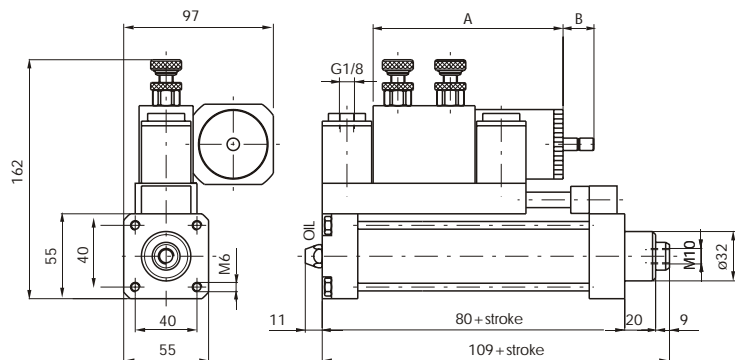
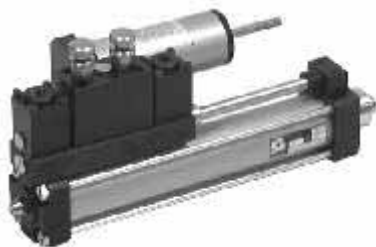


Strokes	A	B max.
< 75	110	30
75 ÷ < 150	135	45
150 ÷ < 250	160	60
250 ÷ < 350	200	90
350 ÷ < 500	235	120

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

Ordering code	1400.stroke.03.04
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Double control with stop
(stop valves in two directions)

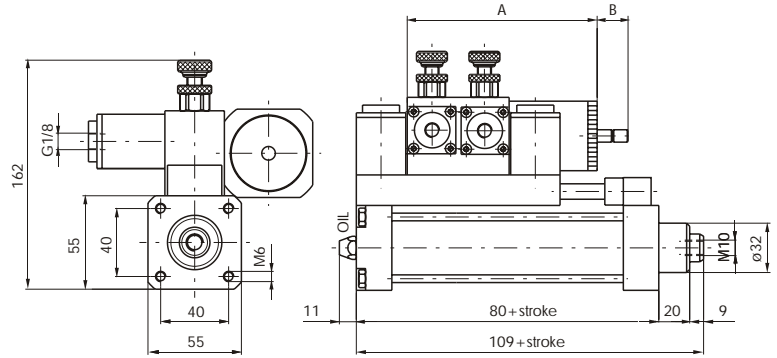
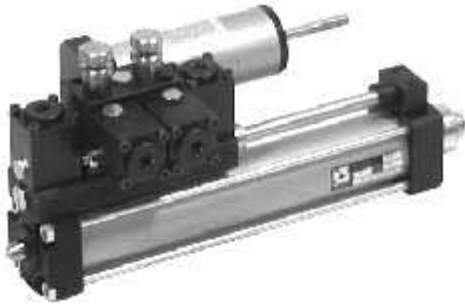


Strokes	A	B max.
150 ÷ < 250	197	60
250 ÷ < 350	237	90
350 ÷ < 500	272	120

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

Ordering code	1400.stroke.03.05
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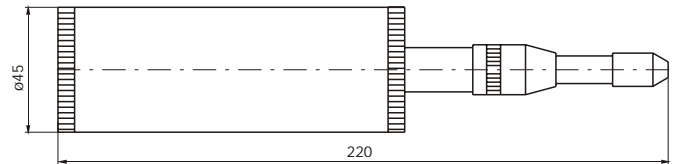
Double control with skip and stop
(acceleration and stop valves in two directions)



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

Ordering code	Strokes	A	B max.
1400.stroke.03.06	150 ÷ < 250	197	60
	250 ÷ < 350	237	90
	350 ÷ < 500	272	120

Hydraulic fluid refill syringe



Weight gr. 630

Ordering code
1400.stroke.99.01

Oil for hydraulic and pneumatic circuits

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

Ordering code
PNEUMOIL 01

(1 litre cans)