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1 Pneumatic-hydraulic elements

1.1 Pneumatic-hydraulic forward stroke units

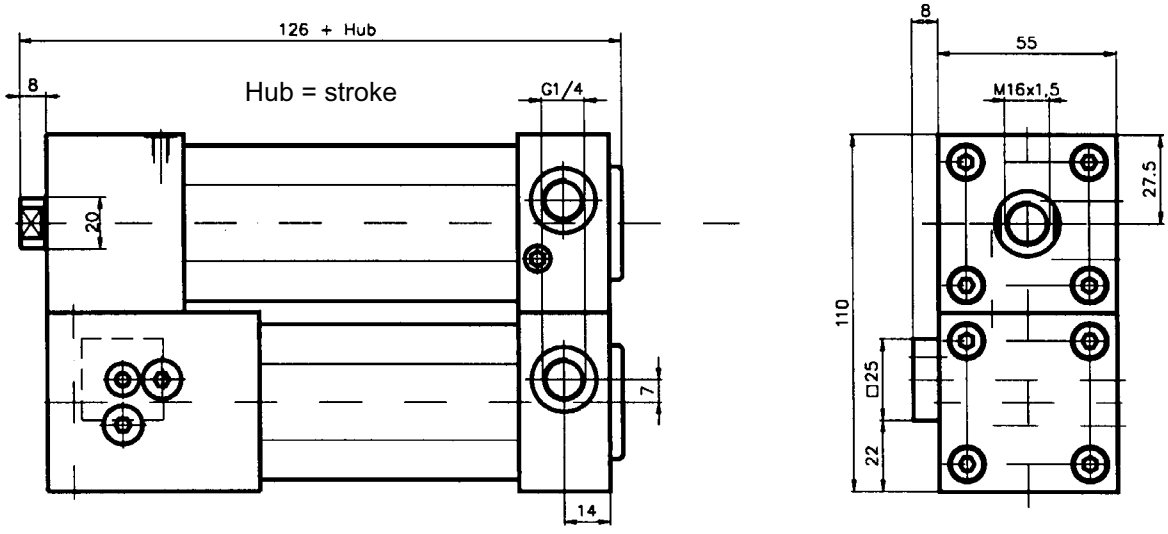
1.1.1 Forward stroke units ∅ 40 mm

Technical description:

Piston diameter	40 mm
Function	Double-acting, with integrated velocity control and safety valve
Stroke lengths	up to 1000 mm
Temperature range	-20°C to +80°C
Medium	Filtered compressed air, oil-bearing, or not oil-bearing
Operating pressure	1 bar to 10 bar

Functional description:

The benefits of hydraulic equipment are combined with those of pneumatic equipment by adding an oil head to the pneumatic forward stroke unit.
The speeds of the forward and reverse strokes are adjustable separately by velocity control valves.
In the event of a pressure drop, the forward stroke can be stopped at any position by an integrated safety valve that is blocked in its pressureless state.



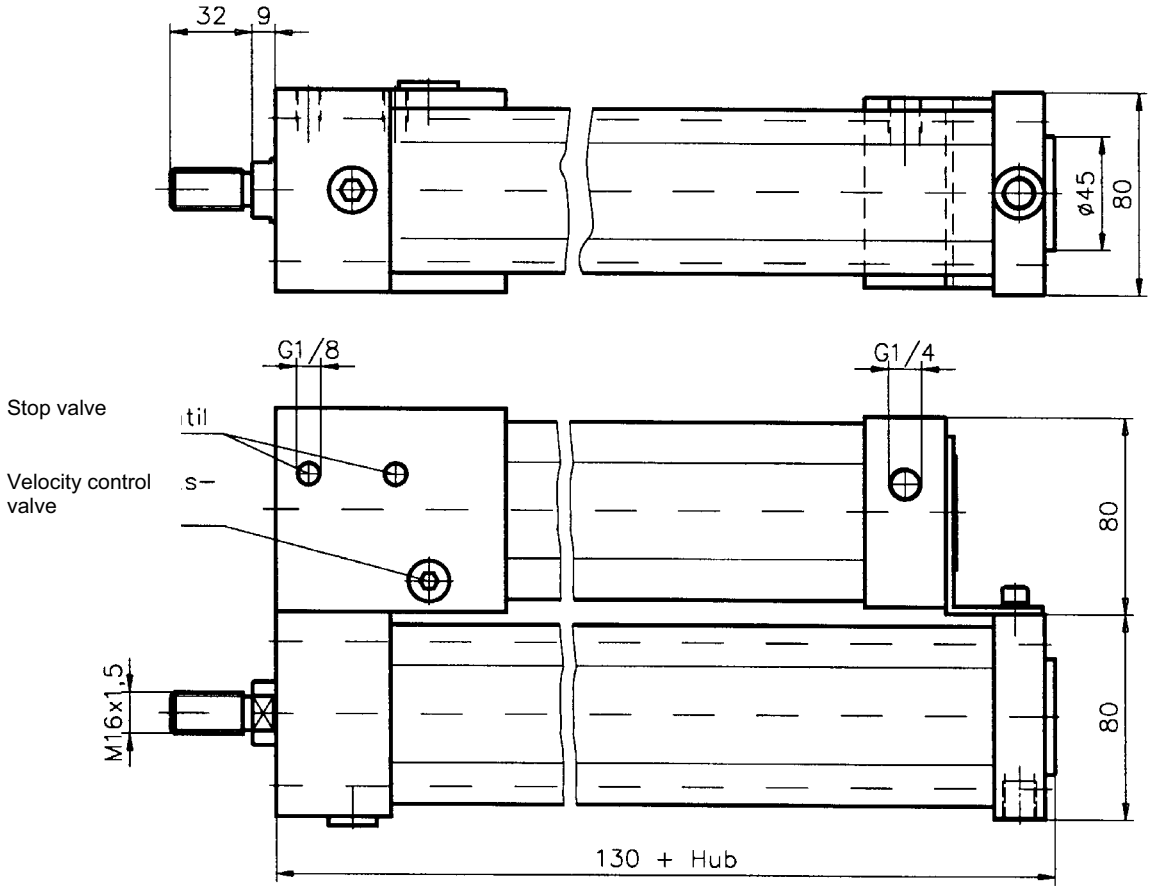
1.1.2 Forward stroke units ∅ 63 mm

Technical description:

Piston diameter	63 mm
Function	Double-acting, with integrated velocity control and stop valve
Stroke lengths	up to 1000 mm
Temperature range	-20°C to +80°C
Medium	Filtered compressed air, oil-bearing, or not oil-bearing
Operating pressure	1 bar to 10 bar

Functional description:

The benefits of hydraulic equipment are combined with those of pneumatic equipment by adding an oil head to the air-operated forward stroke unit.
An integrated velocity control valve allows precise adjustment of the forward stroke. The reverse stroke is unrestricted and in rapid motion.
An integrated stop valve allows precise stopping of the piston at any position. The stop valve pulses can be triggered by the magnetic piston via a proximity switch, or if a safety valve is fitted, by external pulses.



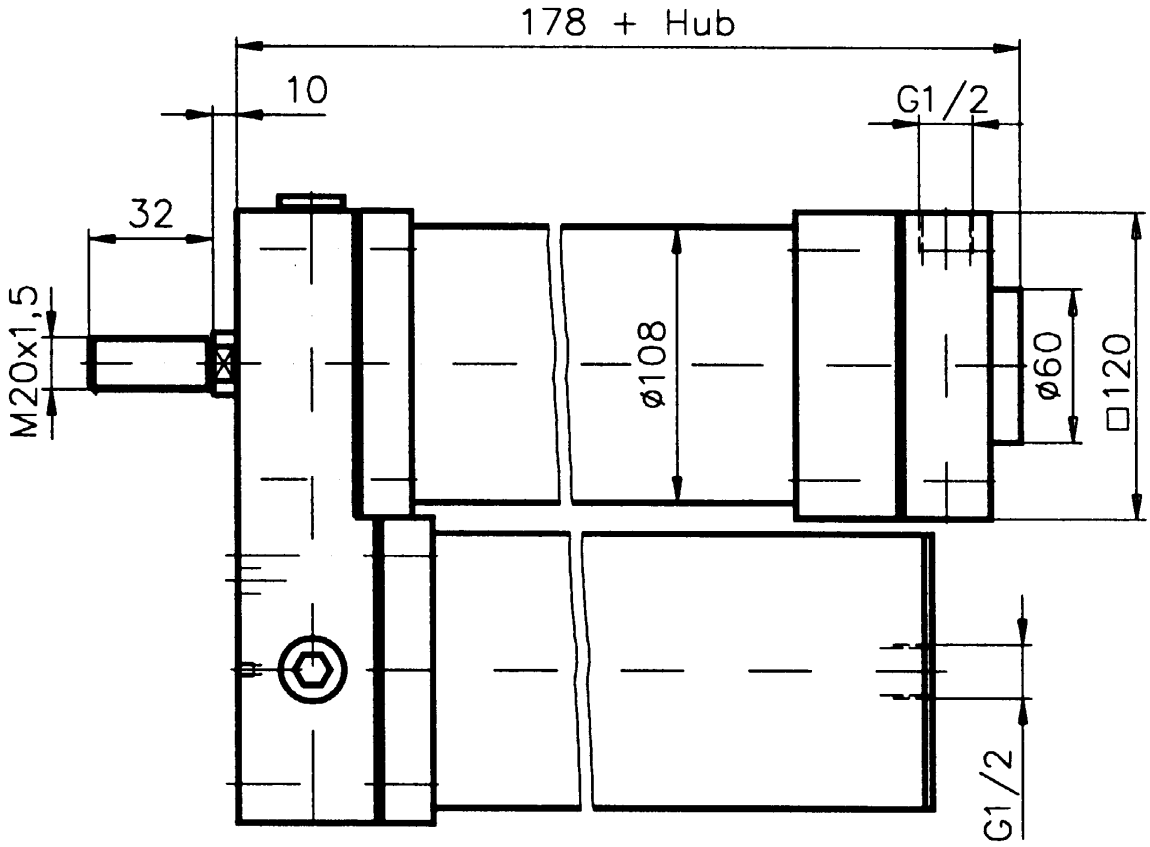
1.1.3 Forward stroke units ∅ 100 mm

Technical description:

Piston diameter	100 mm
Function	Double-acting, with integrated velocity control and
Stroke lengths	Safety valve
Temperature range	-20°C to +80°C
Medium	Filtered compressed air, oil-bearing, or not oil-bearing
Operating pressure	1 bar to 10 bar

Functional description:

The benefits of hydraulic equipment are combined with those of pneumatic equipment by adding an oil head to the air-operated forward stroke unit.
The speeds of the forward and reverse strokes are adjustable separately by velocity control valves.
In the event of a pressure drop, the forward stroke can be stopped at any position by an integrated safety valve that is blocked in its pressureless state.



1.2 Pneumatic-hydraulic power converter

Technical description:

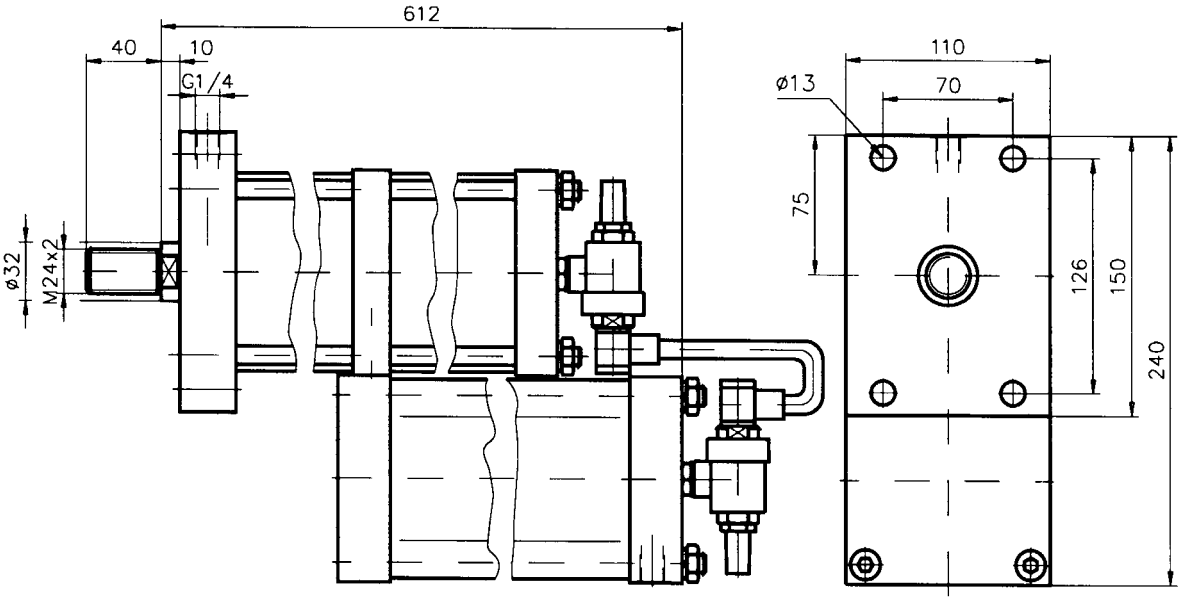
Piston diameter	100 mm
Function	Double-acting
Compressive force of working stroke at 6 bar	40,000 N
Stroke lengths	Working stroke: 12 mm; adjustment stroke: 188 mm
Temperature range	-20°C to +80°C
Medium	Filtered compressed air, oil-bearing, or not oil-bearing
Operating pressure	7 bar to 11 bar

Functional description:

The pneumatic power converter first performs an adjustment stroke at low power and high velocity. At the end of the adjustment stroke, the working stroke starts at high power.

Applications:

Presses, punching and stamping machines with long adjustment strokes.



1.3 Air-oil actuator

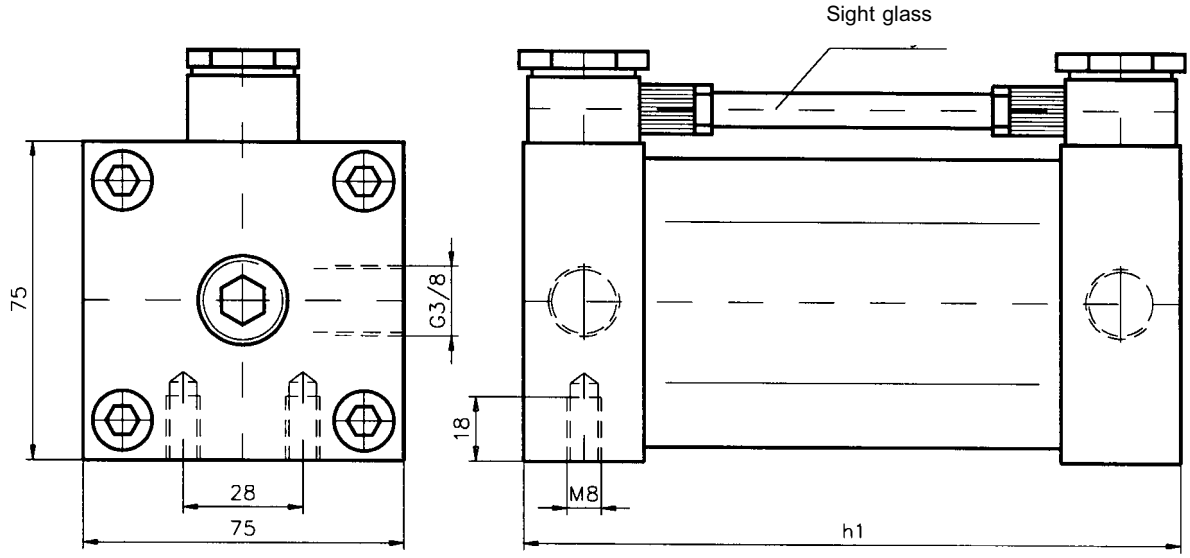
Technical description:

Piston diameter	63 mm
Temperature range	-20°C to +80°C
Materials	Cylinder: aluminium section; front and end pieces: aluminium
Medium	Filtered compressed air, oil-bearing, or not oil-bearing
Operating pressure	1 bar to 10 bar

Functional description:

Air-oil actuators are used as the connecting element between hydro-pneumatic drives between compressed air and hydraulic systems. The energy of the compressed air is converted by the air-oil actuator into
hydraulic energy.

Volumes in litres	h_1
0.5	240
0.75	320
1	400

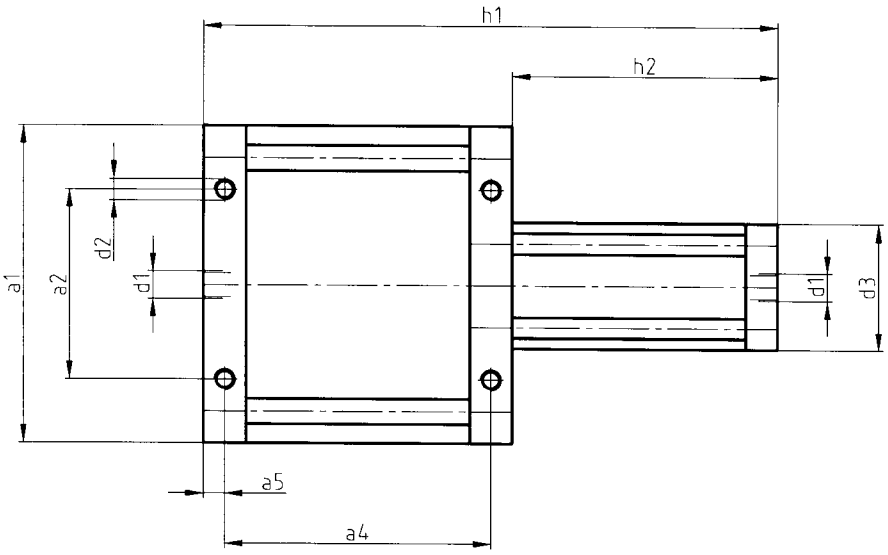


1.4 Series 90, Booster

Technical features

Function Pneumatic-hydraulic
Design
We keep sets of seals for you in store.
Seals
Materials Cylinder: steel;
front, intermediate and end pieces: aluminium

Any fitting position
Temperature -20°C to +80°C
Medium Filtered, oil-bearing or oil-free compressed air
Operating pressure 1 to 10 bar
Customized solutions on request



Part No.	Transfer ratio	Volume V in dm3	Piston∅	d_1	d_2	d_3	h_1	h_2	a_1	a_2	a_3	a_4	a_5
00012-50	1:5	0.1	100/45	G1/4	M10	60	270	125	110	50	60	120	12.5
00012-51	1:10	0.1	140/45	G1/4	M10	60	270	125	150	80	60	120	12.5
00017-22	1:10	0.2	140/45	G1/4	M10	60	396	188	150	80	60	183	12.5
00012-62	1:15	0.04	125/32	G1/4	M8	50	160	65	135	60	50	70	12.5
00012-52	1:16	0.1	180/45	G1/4	M10	60	270	125	190	100	60	120	12.5
00014-65	1:20	0.02	110/25	G1/8	M8	40	176	76	120	60	40	84	8
00012-53	1:20	0.1	200/45	G1/4	M10	60	270	125	210	120	60	120	12.5
00019-92	1:25	0.05	160/32	G1/4	M10	50	285	133	170	100	50	127	12.5
00020-90	1:30	0.02	140/25	G1/8	M8	40	178	77	150	60	40	84	8

1.5 Pneumatic-hydraulic cylinders

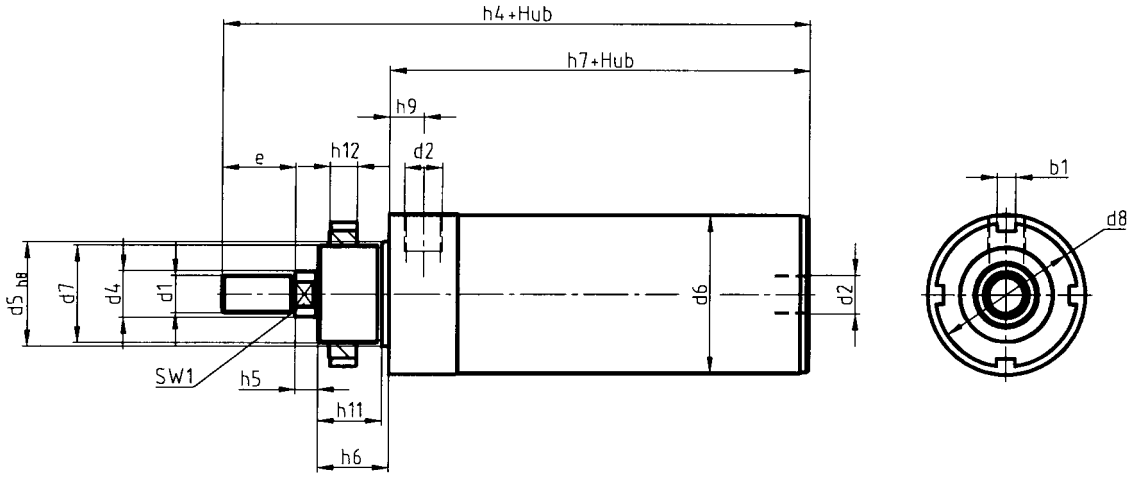
1.5.1 Attachment 53 With front thread ∅ 32-100 mm double-acting

Technical features

Function Double-acting
Design Compact round cylinder, front and end pieces bolted to cylinder, therefore these cylinders are repairable.
We keep sets of seals for you in store.
Materials Piston rod: stainless steel; cylinder: hard-coated aluminium; front and end pieces: aluminium

Pistons∅ 32, 40, 50, 63, 80, 100 mm
Connections 32= G1/8”, 40 / 50= G1/4”, 63= G3/8”, 80= G3/8”, 100= G1/2”
Any fitting position
Temperature -20°C to +80°C
Medium Filtered, oil-bearing or oil-free compressed air and hydraulic oils
Freely selectable action
Operating pressure 1 to 10 bar

Customized solutions on request



Piston ∅	b_1	d_1	d_2	d_4 ∅	d_5 ∅ h8	d_6 ∅	d_7 ∅	d_8 ∅	h_4	h_5	h_6	h_7	h_9	h_{11}	h_{12}	e	WF_1
32	6	M10	G1/8	12	32	38	M30x1.5	42	116	8	20	68	10	18	8	20	10
40	7	M12	G1/4	16	40	45	M38x1.5	50	127	9	23	71	11	20	10	24	13
50	8	M16x1.5	G1/4	20	45	55	M42x1.5	62	150	10	31	77	11	28	12	32	17
63	8	M16x1.5	G3/8	20	45	68	M42x1.5	62	161	10	31	88	15	28	12	32	17
80	10	M20x1.5	G3/8	25	60	86	M58x1.5	90	197	10	40	107	15	36	13	40	21
100	10	M20x1.5	G1/2	25	60	107	M58x1.5	90	206	10	45	111	17	40	13	40	21

Fitting punch >Window-making industry<

Pneumatic-hydraulic drive with integrated booster and fitted punching tool.
30,000 N compressive force at 6 bar

⇒ Punching of fittings for the window-making industry

Hydraulic cylinder unit >Electrical engineering industry<

Compact pneumatic-hydraulic booster with attachment flange
15,000 N compressive force at 6 bar

Crimping crimp connectors and cable line