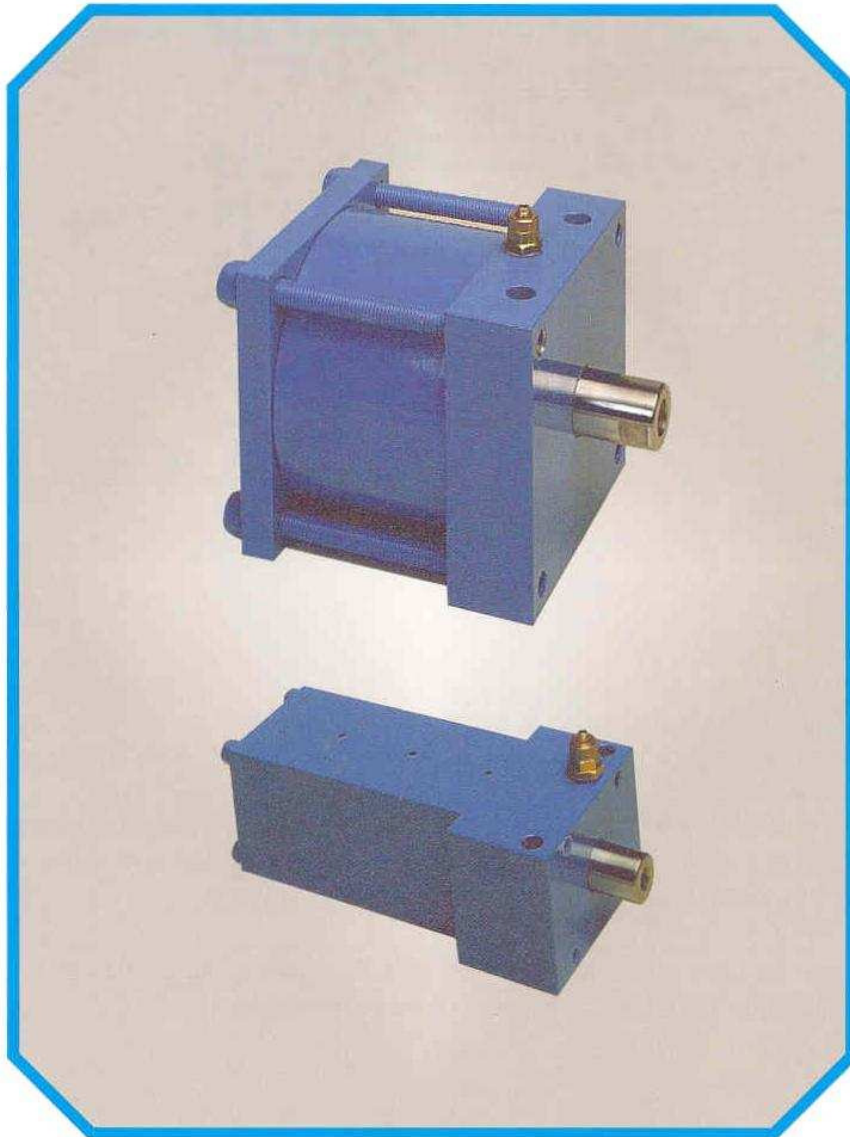




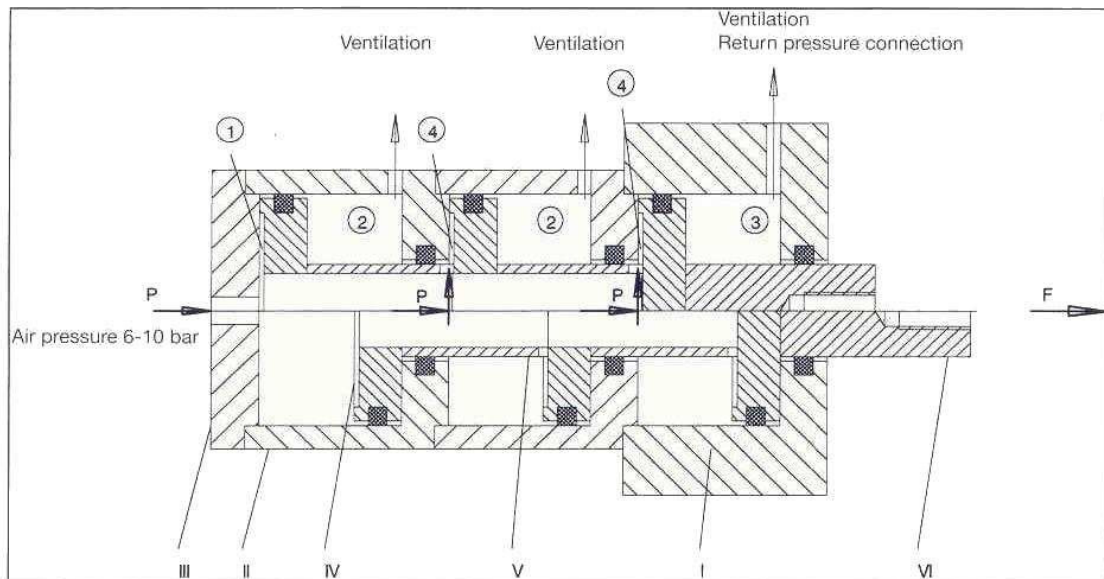
HAGEN & GOEBEL



HG - Multi-Cylinder **Power Pack**

The compact Pneumatic Cylinder
with the power of a Hydraulic Cylinder.

Construction and function of the HG - Multi - Cylinder



Construction

The *HG - Multi - Cylinder* consists of 2 or more in line cylinders. Fundamentally there are one or more extension cells (II) mounted on a base cell (I).

The last extension cell is closed by an end cover (III). In each cylinder is a piston (IV) with a piston rod. The piston rods of the extension cells (V) are provided with air channels. The piston rod in the base cell (VI) is solid with a tapered bore in the nose.

The pistons, cylinder and the end cover are of stable Alu - alloy. The piston rods are of chromed steel. Contamination resistant pneumatic seals are provided.

Functions

Through the pressure connection in the end cover, pressure is supplied into the chamber (1) between the end cover (III) and the last piston (IV). Via the air channels in the piston rod (V) to the extension cells, the same pressure is provided to the chamber (4) between the Cylinder bores and the pistons in all the other cells. The area (2) of the extension between the piston and the cylinder is ventilated by bores in the cylinder wall. The area (3) between the piston and the cylinder of the basic cell is ventilated through a second pressure connection

The power at the end of the piston rod (VI) results from the piston power of the basic cell and the sum of the piston powers of the extension cells.

The application of the *HG - Multi - Cylinder*, as described here, is laid out as a pressure cylinder. The return stroke force, which is carried out by the retraction of the piston rod, results from the applied pressure to the basic cell piston face area on the piston rod side.

Where more than 5 extensions cells are required, we recommend the addition of a second basic cell, because otherwise the seal ring friction loss becomes too great and only a fraction of the applied pressure is available during the return stroke.

Applied pressure [N]:

Basic cell	M40	M50	M63	M75	M90	M125
6 bar	650	1100	1650	2400	3500	7000
10 bar	1150	1850	2900	4150	6000	11900
Extension cells						
6 bar	600	950	1550	2300	3400	6700
10 bar	1050	1650	2750	4000	5850	11400

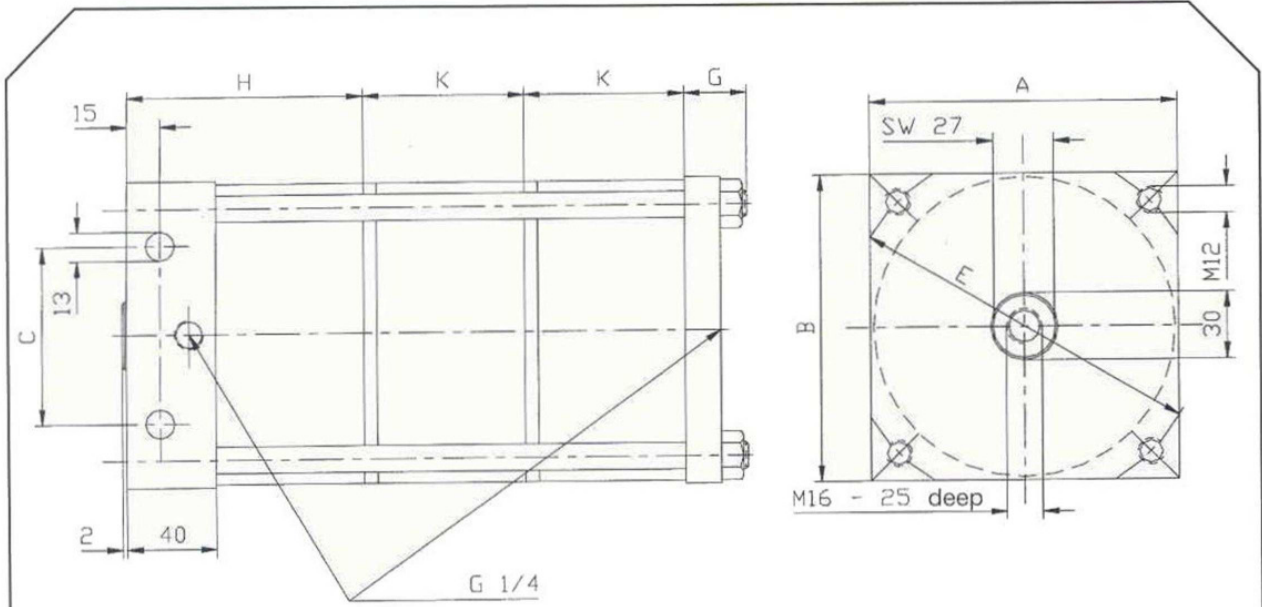
Options:

Special sizes and strokes
 2. Basic cells
 Guide for piston rod
 Through piston rod

Special piston rods
 Extension cells with captive expended air
 Piston rod with drive key
 Switch bar with cams

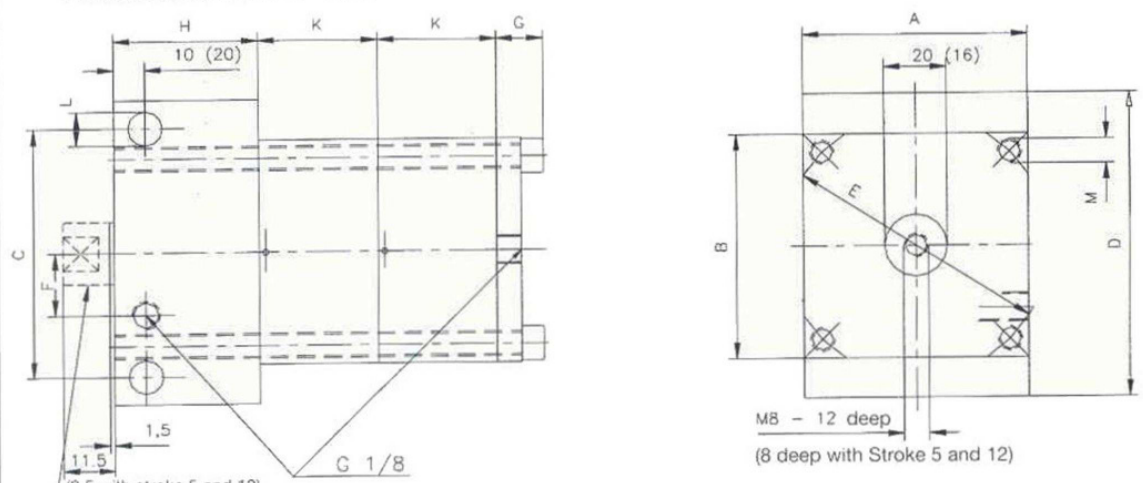
Size	M40	M50	M63	M75	M90	M125
Piston rod	16 mm	20 mm	20 mm	20 mm	20 mm	30 mm
Piston	40 mm	50 mm	63 mm	75 mm	90 mm	125 mm
Stroke	5 mm	x	x	o	x	x
	12 mm	x	x	x	x	x
	20 mm	x	x	x	x	x
	30 mm	x	x	x	x	x
	40 mm	o	o	x	x	o
	50 mm	x	x	x	x	x
	60 mm	-	o	o	o	o
	70 mm	-	-	o	o	o

Ex stock delivery x
 Delivery date on request o



Type	A	B	C	D	E	F	G	Stroke	H	K
M125	138	138	80	-	160	-	28	5	88	47
								12	88	47
								20	96	55
								30	106	65
								50	126	85

Dimensions-Series M 40 - M 90



(9.5 with stroke 5 and 12)
Option: Extended piston rod with
Key width SW 17 (SW 14)

Type	A	B	C	D	E	F	G	L	M	Stroke	H	K
M40	50	50	58	70	55	(*)	14	6,8	M6	5	(34) 38	(29) 30
M50	60	60	70	85	70	15	14	9	M6	12	(34) 38	(29) 30
M63	72	72	80	98	85	20	16	11	M6	20	(42) 46	(37) 38
M75	84	84	90	110	100	25	16	11	M8	30	(52) 56	(47) 48
M90	99	99	105	125	110	28	16	11	M8	50	(72) 76	(67) 68

(*) Return connection on the side; Bracketed dimensions for M 40

Stand 01.08.96 Konstruktionsänderungen vorbehalten

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Axial force sheet

pneumatic cylinders type „Multizylinder“

force – air consumption

Type	M40/1	M40/2	M40/3	M40/4	M40/5	M40/6	M40/7	M40/8
Force forward [N] at 6 bar	650	1250	1850	2450	3050	3650	4250	4850
Force retract [N] at 6 bar	630	525	420	315	210	105	630	525
Force forward [N] at 10 bar	1150	2200	3250	4300	5350	6400	7450	8500
Force retract [N] at 10 bar	1050	945	840	735	630	525	1570	1465
Air consumption forward [NL]*	0,080	0,144	0,208	0,272	0,336	0,400	0,464	0,528
Air consumption retract [NL]*	0,064	0,064	0,064	0,064	0,064	0,064	0,128	0,128

*Data at pressure 6 bar and for stroke of 10mm

Type	M50/1	M50/2	M50/3	M50/4	M50/5	M50/6	M50/7	M50/8
Force forward [N] at 6 bar	1100	2050	3000	3950	4900	5850	6800	7750
Force retract [N] at 6 bar	950	800	650	500	350	200	1000	850
Force forward [N] at 10 bar	1850	3500	5150	6800	8450	10100	11750	13400
Force retract [N] at 10 bar	1650	1450	1250	1050	850	650	2100	1900
Air consumption forward [NL]*	0,120	0,220	0,320	0,420	0,520	0,620	0,720	0,820
Air consumption retract [NL]*	0,1	0,1	0,1	0,1	0,1	0,1	0,2	0,2

*Data at pressure 6 bar and for stroke of 10mm

Type	M63/1	M63/2	M63/3	M63/4	M63/5	M63/6	M63/7	M63/8
Force forward [N] at 6 bar	1650	3200	4750	6300	7850	9400	10950	12500
Force retract [N] at 6 bar	1550	1300	1050	800	550	300	1650	1400
Force forward [N] at 10 bar	2900	5650	8400	11150	13900	16650	19400	22150
Force retract [N] at 10 bar	2750	2450	2150	1850	1550	1250	3700	3400
Air consumption forward [NL]*	0,200	0,370	0,540	0,710	0,880	1,050	1,220	1,390
Air consumption retract [NL]*	0,17	0,17	0,17	0,17	0,17	0,17	0,34	0,34

*Data at pressure 6 bar and for stroke of 10mm

Type	M75/1	M75/2	M75/3	M75/4	M75/5	M75/6	M75/7	M75/8
Force forward [N] at 6 bar	2400	4700	7000	9300	11600	13900	16200	18500
Force retract [N] at 6 bar	2300	2000	1700	1400	1100	800	2800	2500
Force forward [N] at 10 bar	4150	8150	12150	16150	20150	24150	28150	32150
Force retract [N] at 10 bar	4000	3650	3300	2950	2600	2250	5900	5550
Air consumption forward [NL]*	0,270	0,520	0,770	1,020	1,270	1,520	1,770	2,020
Air consumption retract [NL]*	0,25	0,25	0,25	0,25	0,25	0,25	0,5	0,5

*Data at pressure 6 bar and for stroke of 10mm

Type	M90/1	M90/2	M90/3	M90/4	M90/5	M90/6	M90/7	M90/8
Force forward [N] at 6 bar	3500	6900	10300	13700	17100	20500	23900	27300
Force retract [N] at 6 bar	3400	2950	2600	2250	1900	1550	4500	4150
Force forward [N] at 10 bar	6000	11850	17700	23550	29400	35250	41100	46950
Force retract [N] at 10 bar	5850	5350	4950	4550	4150	3750	9100	8700
Air consumption forward [NL]*	0,390	0,760	1,130	1,500	1,870	2,240	2,610	2,980
Air consumption retract [NL]*	0,37	0,37	0,37	0,37	0,37	0,37	0,74	0,74

*Data at pressure 6 bar and for stroke of 10mm

Type	M125/1	M125/2	M125/3	M125/4	M125/5	M125/6	M125/7	M125/8
Force forward [N] at 6 bar	7000	13700	20400	27100	33800	40500	47200	53900
Force retract [N] at 6 bar	6700	6300	5900	5500	5100	4700	11000	10600
Force forward [N] at 10 bar	11900	23300	34700	46100	57500	68900	80300	91700
Force retract [N] at 10 bar	11400	10900	10400	9900	9400	8900	19800	19300
Air consumption forward [NL]*	0,750	1,450	2,150	2,850	3,550	4,250	4,950	5,650
Air consumption retract [NL]*	0,7	0,7	0,7	0,7	0,7	0,7	1,4	1,4

*Data at pressure 6 bar and for stroke of 10mm

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