

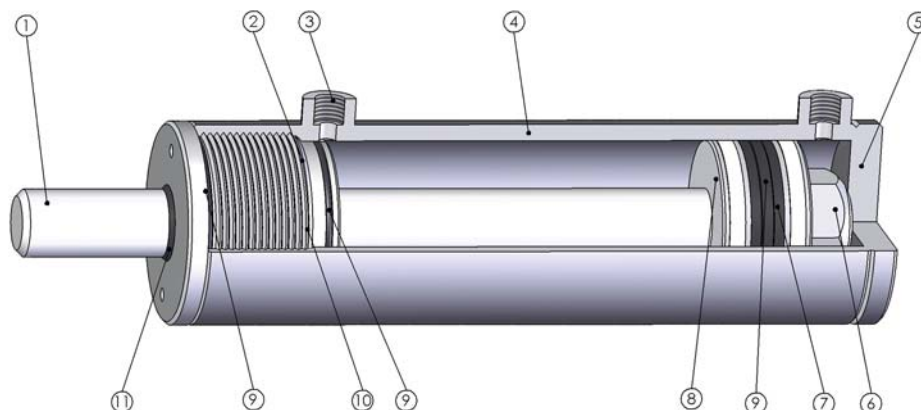
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Standard hydraulic cylinders

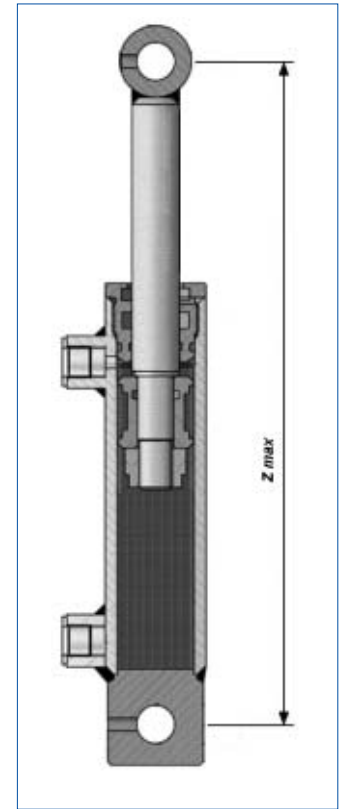
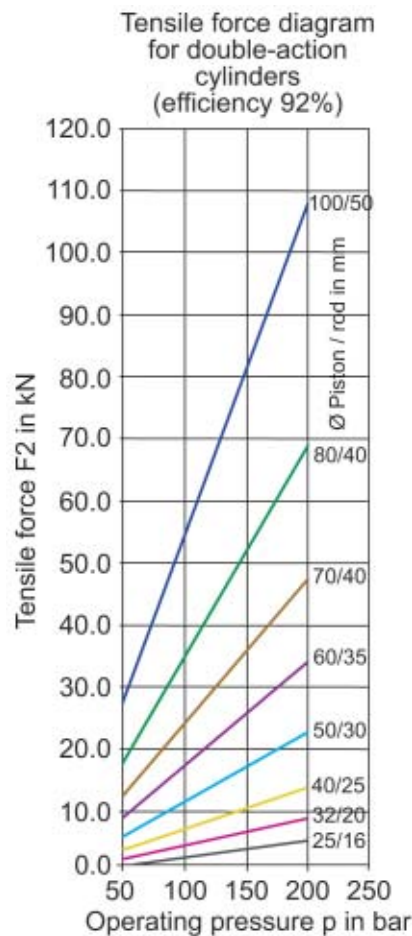
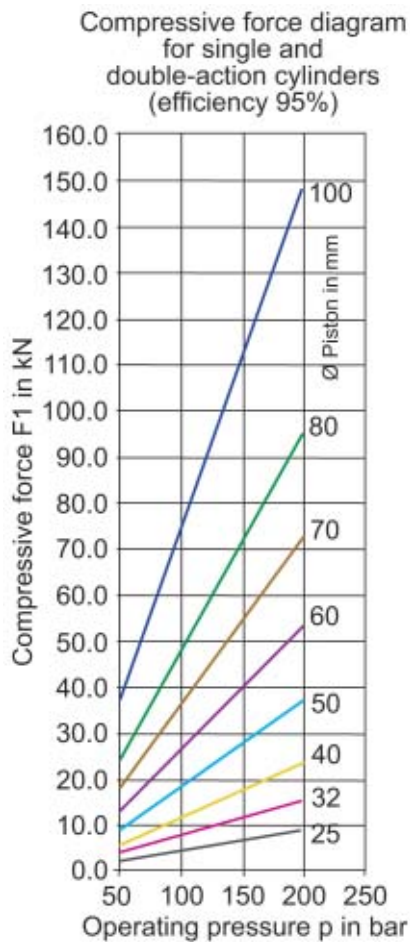
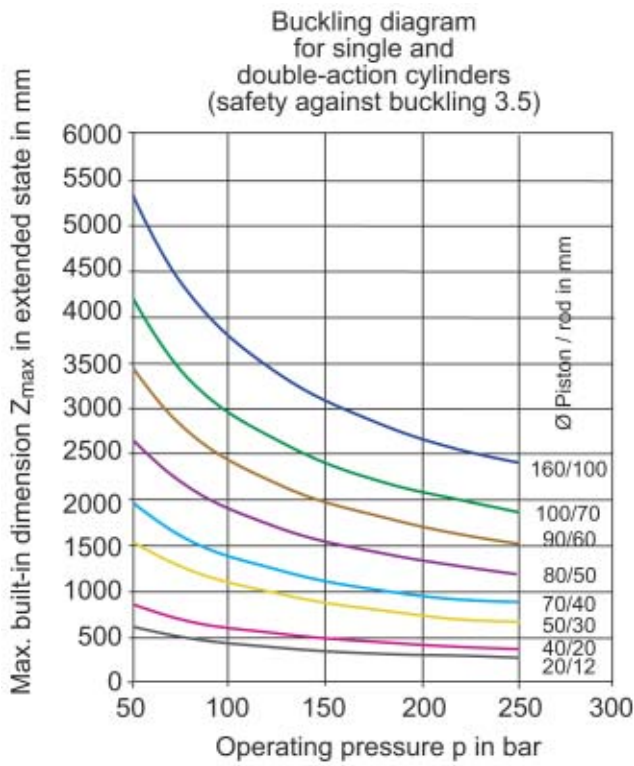
Basic version up to 200 bar



Technical characteristics:

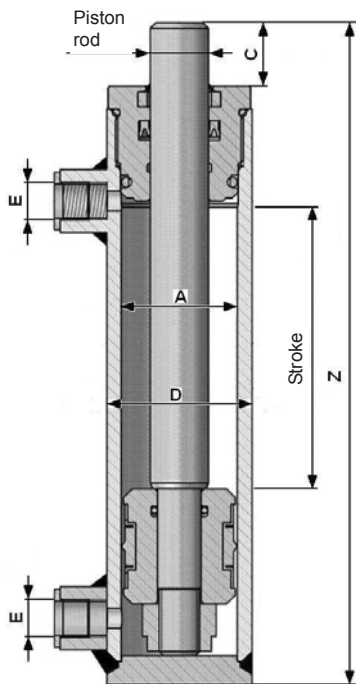
1	Piston rod	Steel UNI C45-SAE 1045 chrome 25 microns ± 5
2	Piston rod guide	Hydraulic casting UNI 5007 G25
3	Oil connecting branch	Steel 9SMn28
4	Polished cylinder barrel	St 52.3 DIN 2393-ISO H9
5	Cylinder cap	FE 510-A105
6	Nut	Steel 8UNI EN20898/2
7	Seal TPM	NBR
8	Piston	Steel 9SMn28
9	Seal OR	NBR Fluorosil Viton
10	Seal TSE-TTS-TTI/L	NBR + fabric / polyurethane
11	Seal GHM-GHK	NBR / polyurethane

Piston speed with reference to standard seal	maximum 25 m/min - 0.42 m/sec
Piston speed into the limit positions	max. 6 m/min - 0.10 m/sec
Temperature range	-25 °C to +80 °C
Operating pressure	max. 200 bar
Medium	HLP fluids



Standard double-action cylinders – basic version

The following standard cylinders in the basic version can, upon customer request, be complemented with the components shown on pages 9 - 12. Intermediate strokes can be supplied by stroke limitation or by special design. Other special cylinders on request.



Code	Piston ø A	Stroke	Z	C	ø D	E	Piston rod	
							ø 20 Total weight kg	ø 25 Total weight kg
HK HM01 ** 0100	40	100	230	22	50	1/4"	2.27	2.75
HK HM01 ** 0150		150	280				2.67	2.95
HK HM01 ** 0200		200	330				3.05	3.39
HK HM01 ** 0250		250	380				3.45	3.85
HK HM01 ** 0300		300	430				3.85	4.32
HK HM01 ** 0350		350	480				4.27	4.79
HK HM01 ** 0400		400	530				4.65	5.26
HK HM01 ** 0450		450	580				5.08	5.72
HK HM01 ** 0500		500	630				5.49	6.20
HK HM01 25 0550		550	680				-	6.60
HK HM01 25 0600		600	730				-	7.13

** Piston rod

Code	Piston ø A	Stroke	Z	C	ø D	E	Piston rod	
							ø 25 Total weight kg	ø 30 Total weight kg
HK HM02 ** 0100	50	100	240	22	60	3/8"	3.29	-
HK HM02 ** 0150		150	290				3.83	4.11
HK HM02 ** 0200		200	340				4.34	4.74
HK HM02 ** 0250		250	390				4.85	5.35
HK HM02 ** 0300		300	440				5.35	5.97
HK HM02 ** 0350		350	490				5.94	6.55
HK HM02 ** 0400		400	540				6.4	7.20
HK HM02 ** 0450		450	590				7.3	7.80
HK HM02 ** 0500		500	640				7.43	8.42
HK HM02 ** 0550		550	690				8.06	9.04
HK HM02 ** 0600		600	740				8.46	9.64
HK HM02 ** 0800		800	940				10.71	12.10
HK HM02 ** 1000		1000	1140				12.87	14.57

** Piston rod



HK HM03 35 0200

Code	Piston ø A	Stroke	Z	C	ø D	E	Piston rod		
							ø 30 Total weight kg	ø 35 Total weight kg	ø 40 Total weight kg
HK HM03 ** 0100	60	100	260	23	70	3/8"	4.82	5.07	-
HK HM03 ** 0150		150	310				5.55	5.85	-
HK HM03 ** 0200		200	360				6.20	6.60	7.25
HK HM03 ** 0250		250	410				6.87	7.40	8.14
HK HM03 ** 0300		300	460				7.55	8.15	9.03
HK HM03 ** 0350		350	510				8.20	8.94	9.90
HK HM03 ** 0400		400	560				8.90	9.72	10.79
HK HM03 ** 0450		450	610				9.53	10.47	11.64
HK HM03 ** 0500		500	660				10.25	11.25	12.52
HK HM03 ** 0550		550	710				10.86	12.00	13.45
HK HM03 ** 0600		600	760				11.60	12.81	14.30
HK HM03 ** 0800		800	960				14.26	15.87	17.82
HK HM03 ** 1000	1000	1160	17.00	18.93	21.40				

** Piston rod

Material: see page 5

Standard double-action cylinders – basic version

Code	Piston ø A	Stroke	Z	C	ø D	E	Piston rod ø 35	Piston rod ø 40
							Total weight kg	Total weight kg
HK HM04 ** 0100	70	100	260	23	80	3/8"	6.09	6.35
HK HM04 ** 0150		150	310				6.95	-
HK HM04 ** 0200		200	360				7.74	8.30
HK HM04 ** 0250		250	410				8.60	9.26
HK HM04 ** 0300		300	460				9.40	10.24
HK HM04 ** 0350		350	510				10.26	11.20
HK HM04 ** 0400		400	560				11.00	12.80
HK HM04 ** 0450		450	610				11.88	13.11
HK HM04 ** 0500		500	660				12.60	14.01
HK HM04 ** 0550		550	710				13.66	15.10
HK HM04 ** 0600		600	760				14.20	15.99
HK HM04 ** 0800		800	960				17.56	19.73
HK HM04 ** 1000		1000	1160				21.26	23.51

** Piston rod

Code	Piston ø A	Stroke	Z	C	ø D	E	Piston rod ø 40	Piston rod ø 50
							Total weight kg	Total weight kg
HK HM05 ** 0200	80	200	380	25	92	1/2"	11.08	12.35
HK HM05 ** 0250		250	430				12.22	13.73
HK HM05 ** 0300		300	480				13.90	15.15
HK HM05 ** 0400		400	580				15.56	17.50
HK HM05 ** 0500		500	680				17.77	20.71
HK HM05 ** 0600		600	780				21.50	25.10
HK HM05 ** 0800		800	980				24.50	29.50
HK HM05 ** 1000		1000	1180				30.20	35.00

** Piston rod

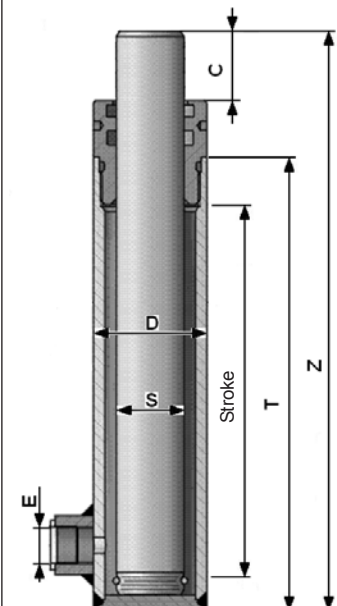
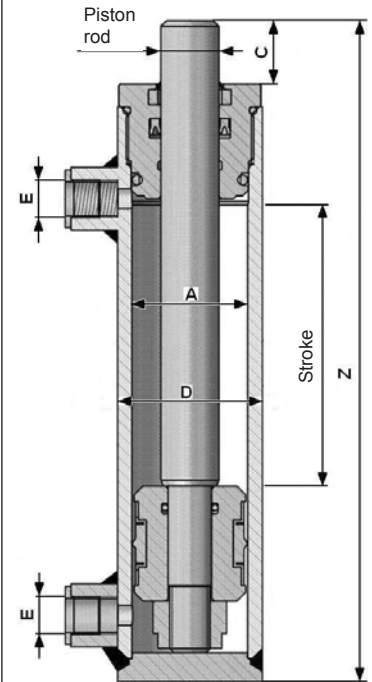
Code	Piston ø A	Stroke	Z	C	ø D	E	Piston rod ø 50	Piston rod ø 60
							Total weight kg	Total weight kg
HK HM06 ** 0200	100	200	410	25	115	1/2"	19.50	-
HK HM06 ** 0250		250	460				21.50	-
HK HM06 ** 0300		300	510				23.00	25.50
HK HM06 ** 0400		400	610				26.50	29.50
HK HM06 ** 0500		500	710				30.00	33.50
HK HM06 ** 0600		600	810				33.50	37.50
HK HM06 ** 0800		800	1010				40.50	46.00
HK HM06 ** 1000		1000	1210				47.50	54.50

** Piston rod

Material: see page 5

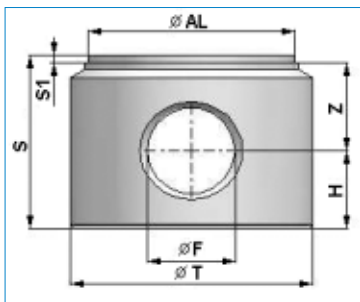
Standard single-action cylinders – basic version

Code	ø S	Stroke	Z	C	T	ø D	E	kg
HK HT02 30 0200	30	200	326	40	256	50	3/8"	3.64
HK HT02 30 0250		250	376		303			4.19
HK HT02 30 0300		300	426		353			4.75
HK HT02 30 0350		350	476		403			5.31
HK HT02 30 0400		400	526		453			5.86
HK HT02 30 0500		500	626		553			6.96
HK HT03 40 0200	40	200	338	45	258	60	3/8"	5.64
HK HT03 40 0300		300	438		358			7.29
HK HT03 40 0400		400	538		458			8.98
HK HT03 40 0500		500	638		558			10.61
HK HT03 40 0600	600	738	658	12.28				
HK HT04 50 0300	50	300	450	50	365	70	3/8"	10.47
HK HT04 50 0400		400	550		465			12.86
HK HT04 50 0500		500	650		565			15.14
HK HT04 50 0600		600	750		665			17.50



Standard cylinder components for welding on

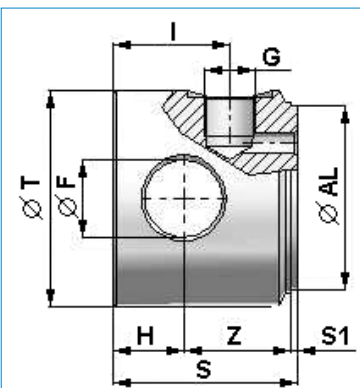
Cylinder cap with borehole



Code	$\varnothing AL$	$\varnothing T$	S	S1	$\varnothing F$	H	Z	kg
HK CF 040 050 16	40	50	33	2	16.20	15	18	0.42
HK CF 050 060 20	50	60	43	2	20.25	20	23	0.80
HK CF 060 070 25	60	70	48	2	25.25	22.5	25.5	1.20
HK CF 070 080 25	70	80	48	2	25.25	22.5	25.5	1.60
HK CF 080 095 30	80	95	58	2	30.25	25	33	2.70
HK CF 100 115 35	100	115	68	2	35.25	30	38	4.70

Material: FE 510-A105

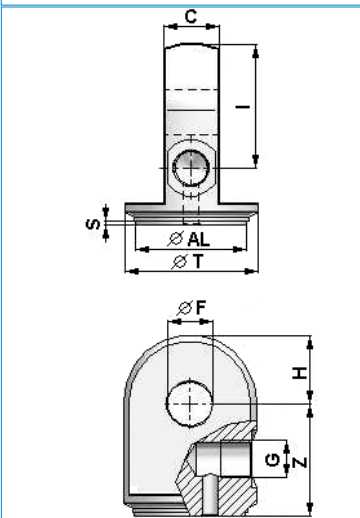
Cylinder cap with borehole and oil inlet



Code	$\varnothing AL$	$\varnothing T$	S	S1	$\varnothing F$	H	Z	G	I	kg
HK CFE 040 050 4	40	50	48	2	16.20	15	33	1/4	30	0.60
HK CFE 050 060 6	50	60	58	2	20.25	20	38	3/8	38	1.10
HK CFE 060 070 6	60	70	58	2	25.25	23	35	3/8	38	1.40
HK CFE 070 080 6	70	80	58	2	25.25	23	35	3/8	38	1.95
HK CFE 080 095 8	80	95	73	2	30.25	25	48	1/2	47	2.50
HK CFE 100 115 8	100	115	73	2	35.25	30	43	1/2	47	4.50

Material: FE 510-A105

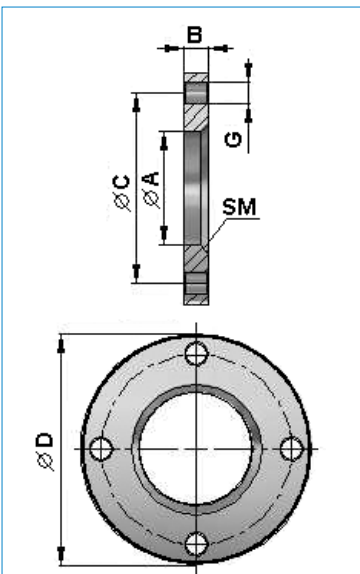
Hinged cylinder cap with oil inlet



Code	$\varnothing AL$	$\varnothing T$	C	S	$\varnothing F$	H	Z	G	I	kg
HK CFB 040 050 4	40	50	24.80	2	16.20	19	44	1/4	39	0.56
HK CFB 050 060 6	50	60	24.80	2	20.25	31	49	3/8	56	0.84
HK CFB 060 070 6	60	70	24.80	2	25.25	33	55	3/8	63	1.15
HK CFB 070 080 6	70	80	39.50	2	25.25	42	63	3/8	82	2.70
HK CFB 061 071 6	60	70	25.00	2	25.25	29.5	45	3/8	48	0.81

Material: FE 510

Flange



Code	$\varnothing A$	$\varnothing D$	B	$\varnothing C$	G	SM	kg
HK CFL0 050 109	50	109	12.5	87	4 x $\varnothing 11$	4 x 45°	0.66
HK CFL0 060 128	60	128	14.5	105	4 x $\varnothing 13$	4 x 45°	1.09
HK CFL0 070 142	70	142	16.5	117	4 x $\varnothing 13$	5 x 45°	1.5
HK CFL0 080 162	80	162	16.5	127	4 x $\varnothing 15$	5 x 45°	1.94
HK CFL0 095 181	95	181	18.5	149	6 x $\varnothing 17$	7 x 45°	2.53
HK CFL0 115 194	115	194	24.5	162	6 x $\varnothing 17$	8 x 45°	3.47

Tolerance: $\varnothing A +0.2, +0.3$

Material: FE 510C

Central trunnion cardanic suspension

Code	A	B	C	∅ D	∅ E	F	G	∅ I	kg
HK CPB0 10 0000	70	20	110	20	50	65	30	30	0.52
HK CPB0 20 0000	80	25	130	25	60	75	35	35	0.79
HK CPB0 30 0000	100	30	160	30	70	90	45	45	1.57
HK CPB0 40 0000	110	35	180	35	80	100	50	50	2.35
HK SZ 80	132	40	212	40	95	133	50	-	3.80
HK SZ 100	160	50	260	50	115	159	61	-	5.10

Tolerance: ∅ E +0.2, +0.3

Material: FE 510C (HK CPB0) / St52 (HK SZ)

Bushed rocker pivot

Code	∅ D	∅ F	H	kg
HK CB 16 035 030	35	16.2	30	0.18
HK CB 16 035 060	35	16.2	60	0.36
HK CB 20 040 040	40	20.3	40	0.29
HK CB 20 040 070	40	20.3	70	0.50
HK CB 25 050 050	50	25.3	50	0.56
HK CB 25 050 080	50	25.3	80	0.89
HK CB 25 050 090	50	25.3	90	1.02
HK CB 30 060 060	60	30.3	60	0.97
HK CB 30 060 110	60	30.3	110	1.79
HK CB 40 070 070	70	40.3	70	1.60
HK CB 40 070 130	70	40.3	130	2.65

Material: steel 9SMn28

Fixed eye rocker pivot

Code	∅ F	S	P	U	T	kg
HK COF 16 00000	16.2	20	35	42	25	0.18
HK COF 20 00000	20.25	25	45	50	30	0.35
HK COF 25 00000	25.25	30	50	60	35	0.56

Material: FE 37

Swinging end

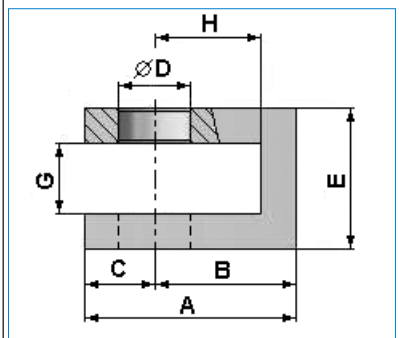
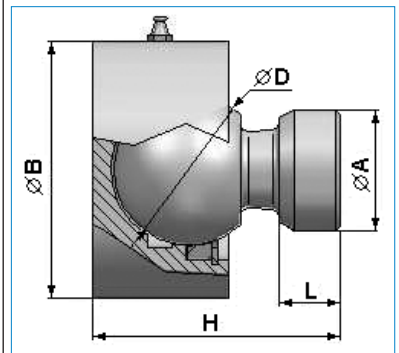
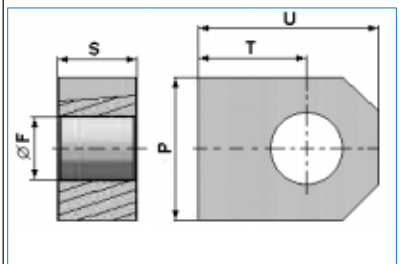
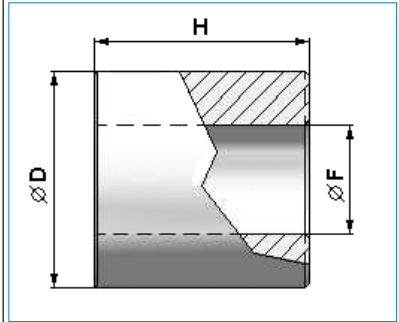
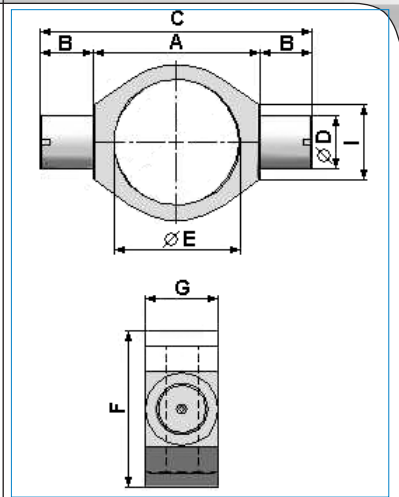
Code	∅ D	∅ A	∅ B	H	L	kg
HK CSB 05 00000	50	40	85	82	20	2.2
HK CSB 06 00000	60	50	98	100	25	3.4
HK CSB 07 00000	70	60	105	115	30	4.8

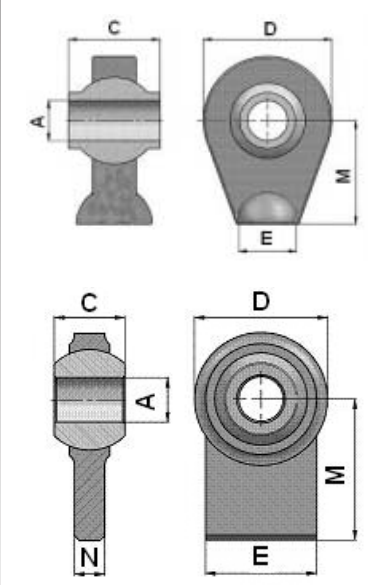
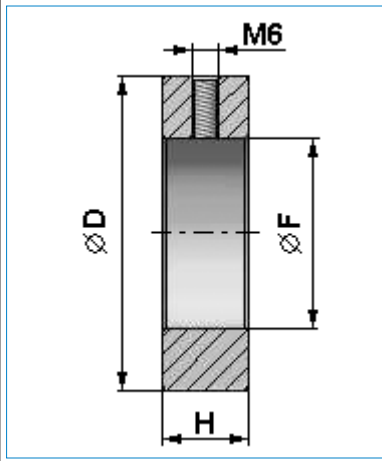
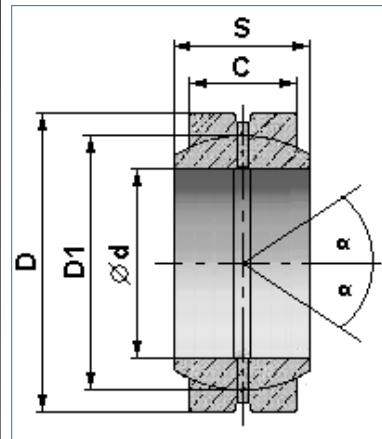
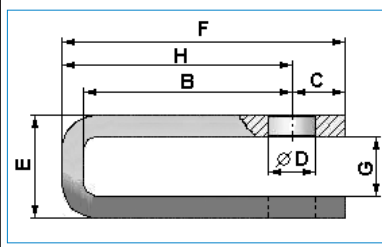
Material: steel C46

Fork, short

Code	∅ D	A	H	B	C	E	G	Width	kg
HK CFS 00000 16	16.20	50	34	24	16	35	16	35	0.27
HK CFS 00000 20	20.25	60	40	30	20	40	20	40	0.38
HK CFS 00000 25	25.25	70	45	30	25	50	25	50	0.71
HK CFS 00000 30	30.25	80	50	35	30	60	30	60	1.10
HK CFS 00000 35	35.25	90	55	40	35	70	35	70	1.60

Material: FE 52





Fork, long

Code	∅ D	F	H	B	C	E	G	Profile	kg
HK CFP 4010 125	20.25	125	105	95	20	40.5	20.5	40 x 10	0.50
HK CFP 4510 067	20.25	67	40	30	27	43	23	45 x 10	1.00
HK CFP 4510 132	22.25	132	107	97	25	48	28	45 x 10	1.00
HK CFP 5015 135	26.25	135	110	95	25	52	22	50 x 15	1.30
HK CFP 5015 140	26.25	140	110	95	30	63	33	50 x 15	1.50
HK CFP 6020 175	26.25	175	145	125	30	75	35	60 x 20	3.00
HK CFP 6020 180	26.25	180	150	130	30	80	40	60 x 20	3.50

Material: FE 37

Radial ball joint „GE“

Code	∅ d	D	S	C	D1	α°	kg
HK CGE 015 0000	15	26	12	9	22	8	0.03
HK CGE 020 0000	20	35	16	12	29	9	0.06
HK CGE 025 0000	25	42	20	16	35.5	7	0.11
HK CGE 030 0000	30	47	22	18	40.7	6	0.14
HK CGE 035 0000	35	55	25	20	47	6	0.22
HK CGE 040 0000	40	62	28	22	53	7	0.30
HK CGE 045 0000	45	68	32	25	60	7	0.40
HK CGE 050 0000	50	75	35	28	66	6	0.55
HK CGE 060 0000	60	90	44	36	80	6	1.00

Standard DIN 648, series E - ISO 6124/1
Material: steel

Ring for spherical plain bearing „GE“

Code	∅ D	∅ F	H	kg
HK CAGE 040 026	40	26	11	0.06
HK CAGE 050 035	50	35	14	0.11
HK CAGE 069 042	69	42	19	0.34
HK CAGE 075 047	75	47	20	0.41
HK CAGE 080 055	80	55	22	0.45
HK CAGE 094 062	94	62	26	0.79

Material: FE 510-A105

Ball joints (agricultural machines)

Code	A	C	M	D	E		kg
HK CSR 00 107 08	19.3	44	58	62	∅ 34	Faced	0.6
HK CSR 00 107 20	20.2	44	58	62	∅ 34		0.6
HK CSR 00 107 25	22.2	35	50	62	∅ 26	Rough	0.55
HK CSR 00 107 40	25.4	51	65	75	∅ 38	Faced	1.10
HK CSR 00 108 10	30.2	55	65	83	∅ 50		1.40
HK CSR 00 108 12	35.2	35	65	83	∅ 50		1.20
HK CSR 00 108 20	40.2	75	85	108	∅ 60		3.35
HK CSR 00 108 40	45.2	75	85	108	∅ 60		3.15
HK CSR 00 108 60	50.2	75	85	108	∅ 60		2.90

Material: steel

Code	A (A 13)	E	D	M	C (-0.2)	N	kg
HK CSR 00 104 95	16.2	30	46	60	20	11	0.26

Material: steel

Ball joints with relubricatable bearings (industrial)

STANDARD DIN 648, SERIES E. TYPE N

Code	d	S	l	d1	d2	S1	L	kg
HK CSTS 020 N 00	20	16	38	50	24	19	63	0.35
HK CSTS 025 N 00	25	20	45	55	29	23	72.5	0.53
HK CSTS 030 N 00	30	22	51	65	34	28	83.5	0.85
HK CSTS 035 N 00	35	25	61	83	39.5	30	102.5	1.50
HK CSTS 040 N 00	40	28	69	100	45	35	119	2.48
HK CSTS 045 N 00	45	32	77	110	50.5	40	132	3.45
HK CSTS 050 N 00	50	35	88	123	56	40	149.5	4.45
HK CSTS 060 N 00	60	44	100	140	66.5	50	170	7.10

Material: steel ST 52.3

STANDARD DIN 648, SERIES E. TYPE C

Code	d	S	l	d1	d2	d3	d4	S1	L	L1	L2	kg
HK CSTS 020 C 00	20	15	38	53	27.5	24	4	13	64.5	23	3	0.25
HK CSTS 025 C 00	25	20	45	64	33.5	29	4	17	77	27	4	0.45
HK CSTS 030 C 00	30	22	51	73	40	34	4	19	87.5	30	4	0.67
HK CSTS 035 C 00	35	25	61	82	47	40	4	21	102	37	4	0.98
HK CSTS 040 C 00	40	28	69	92	52	45	4	23	115	44	5	1.35
HK CSTS 045 C 00	45	32	77	102	58	51	6	27	128	48	5	1.93
HK CSTS 050 C 00	50	35	88	112	62	56	6	30	144	58	6	2.65
HK CSTS 060 C 00	60	44	100	135	70	67	6	38	167.5	68	8	4.60

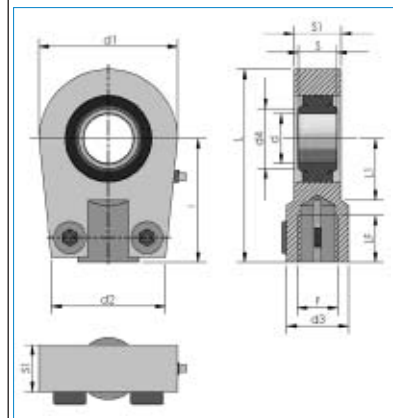
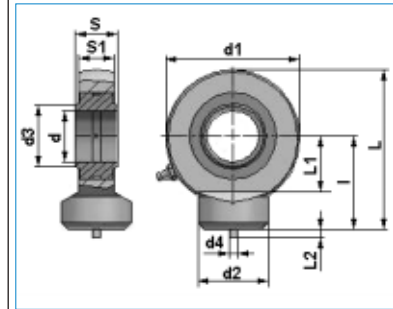
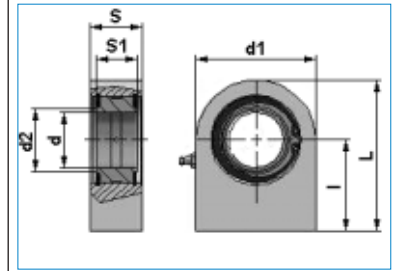
Material: steel ST 52.3

Ball joints with relubricatable bearings, clampable

Code	d	i	S	LF	d1	d2	d3	d4	S1	S2	L	L1	F	kg
HK WAPR 020 U	20	50	16	17	56	46	25	24	19	17	80	25	M16 x 1.5	0.44
HK WAPR 025 U	25	50	20	17	56	46	25	29	23	21	80	28	M16 x 1.5	0.47
HK WAPR 030 U	30	60	22	23	64	50	32	34	28	26	94	30	M22 x 1.5	0.77
HK WAPR 035 U	35	70	25	29	78	66	40	40	30	28	112	38	M28 x 1.5	1.24
HK WAPR 040 U	40	85	28	36	94	76	49	45	35	33	135	45	M35 x 1.5	2.12
HK WAPR 050 U	50	105	35	46	116	90	61	56	40	37	168	55	M45 x 1.5	3.74
HK WAPR 060 U	60	130	44	59	130	120	75	67	50	46	200	65	M58 x 1.5	6.49

Material: steel ST 52.3

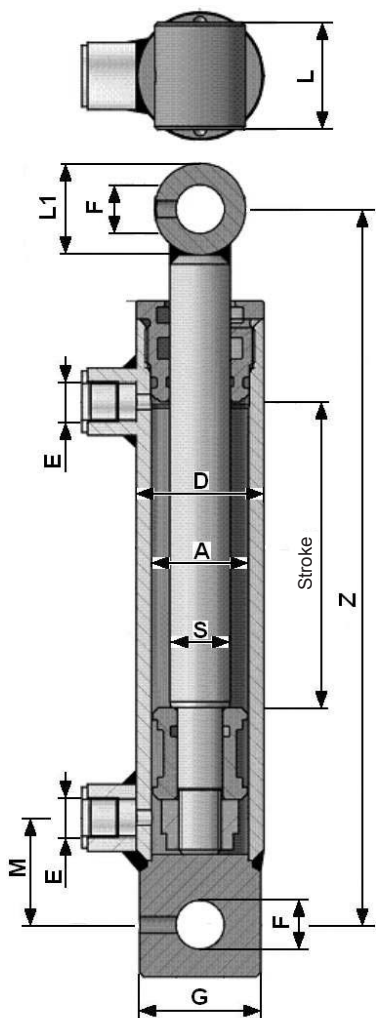
Other sizes and types of spherical plain bearings available on request.



Complete cylinder ranges – series HK HFR

Double-action cylinders

The complete cylinders HK HFR (double-action) and HK HFRT (single action) are kept in stock as preferred series.
A stroke limitation can be fitted at short notice for intermediate strokes.



HK HFR2 30 0200

Code	Ø D	Ø A	Ø S	Stroke	Z	Ø E	M	L	L1	Ø F	G	kg									
HK HFR0 16 0050	35	25	16	50	160	1/4"	22	25	25	12.1	35	0.95									
HK HFR0 16 0100				100	210							1.25									
HK HFR0 16 0150				150	260							1.49									
HK HFR0 16 0200				200	310							1.77									
HK HFR0 20 0050	42	32	20	50	205	1/4"	35	35	30	16.2	40	1.70									
HK HFR0 20 0100				100	255							2.10									
HK HFR0 20 0150				150	305							2.40									
HK HFR0 20 0200				200	355							2.77									
HK HFR0 20 0250				250	405							3.11									
HK HFR0 20 0300				300	455							3.48									
HK HFR0 20 0400	400	555	4.18																		
HK HFR0 20 0500	500	655	4.88																		
HK HFR1 25 0100	50	40	25	100	270	3/8"	45	40	40	20.5	50	3.23									
HK HFR1 25 0150				150	320							3.71									
HK HFR1 25 0200				200	370							4.16									
HK HFR1 25 0250				250	420							4.66									
HK HFR1 25 0300				300	470							5.12									
HK HFR1 25 0400				400	570							6.05									
HK HFR1 25 0500				500	670							6.99									
HK HFR1 25 0600				600	770							7.95									
HK HFR1 25 0700	700	870	8.87																		
HK HFR1 25 0800	800	970	9.82																		
HK HFR2 30 0100	60	50	30	100	300	3/8"	58	45	50	25.5	60	5.11									
HK HFR2 30 0150				150	350							5.74									
HK HFR2 30 0200				200	400							6.33									
HK HFR2 30 0250				250	450							6.97									
HK HFR2 30 0300				300	500							7.60									
HK HFR2 30 0400				400	600							8.83									
HK HFR2 30 0500				500	700							10.05									
HK HFR2 30 0600				600	800							11.27									
HK HFR2 30 0700				700	900							12.50									
HK HFR2 30 0800				800	1000							13.73									
HK HFR3 30 0100	70	60	30	100	300	3/8"	58	45	50	25.5	70	6.30									
HK HFR3 30 0150				150	350							6.97									
HK HFR3 30 0200				200	400							7.67									
HK HFR3 30 0250				250	450							8.31									
HK HFR3 30 0300				300	500							8.97									
HK HFR3 30 0350				350	550							9.66									
HK HFR3 30 0400				400	600							10.36									
HK HFR3 30 0450				450	650							10.99									
HK HFR3 30 0500				500	700							11.71									
HK HFR3 30 0600				600	800							13.10									
HK HFR3 30 0700				700	900							14.35									
HK HFR3 35 0200				70	60							35	200	400	3/8"	58	55	50	25.5	70	8.00
HK HFR3 35 0300													300	500							9.55
HK HFR3 35 0400													400	600							11.10
HK HFR3 35 0500	500	700	12.65																		
HK HFR3 35 0600	600	800	14.20																		
HK HFR3 35 0700	700	900	15.75																		

More sizes on the next page
Material: see page 5

Code	Ø D	Ø A	Ø S	Stroke	Z	Ø E	M	L	L1	Ø F	G	kg	Piston	Piston rod									
HK HFR4 40 0200	80	70	40	200	410	3/8"	58	55	50	30.5	80	10.45											
HK HFR4 40 0250				250	460							11.37											
HK HFR4 40 0300				300	510							12.31											
HK HFR4 40 0350				350	560							13.30											
HK HFR4 40 0400				400	610							14.22											
HK HFR4 40 0450				450	660							15.20											
HK HFR4 40 0500				500	710							16.11											
HK HFR4 40 0600				600	810							18.12											
HK HFR4 40 0700				700	910							19.94											
HK HFR5 40 0200				92	80							40	200	410	3/8"	58	55	50	30.5	92	13.26		
HK HFR5 40 0250	250	460	14.46																				
HK HFR5 40 0300	300	510	15.54																				
HK HFR5 40 0350	350	560	16.72																				
HK HFR5 40 0400	400	610	18.00																				
HK HFR5 40 0500	500	710	20.00																				
HK HFR5 40 0600	600	810	22.00																				
HK HFR5 40 0700	700	910	24.00																				
HK HFR6 50 0200	115	100	50			200	425	3/8"	50	70	65		30.5	115							26.00		
HK HFR6 50 0300						300	525														30.00		
HK HFR6 50 0400				400	625	34.00																	
HK HFR6 50 0500				500	725	38.00																	
HK HFR6 50 0700				700	925	46.00																	

Material: see page 5

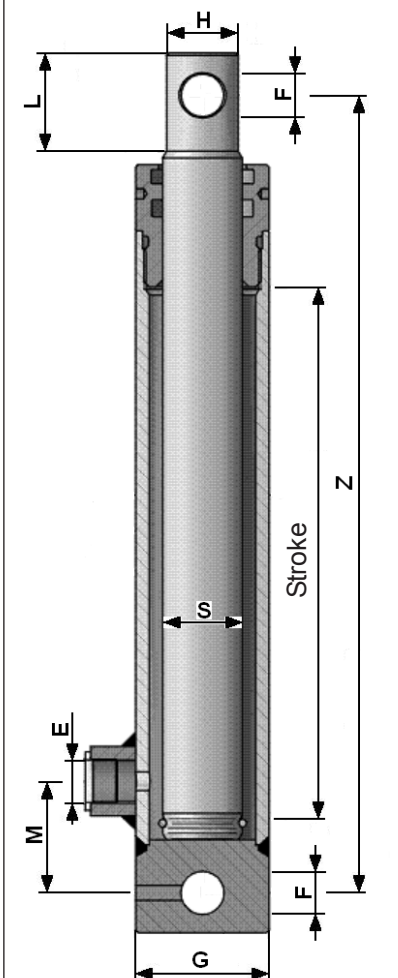
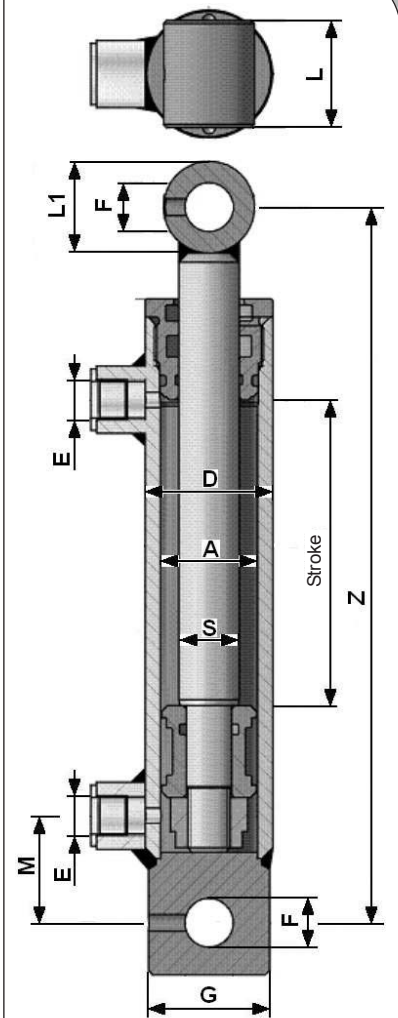
Complete cylinder ranges – series HK HFRT

Single action cylinders / plunger cylinders

Code	Ø S	Stroke	Z	Ø E	M	Ø H	L	Ø F	Ø G	kg
HK HFRT1 25 100	25	100	190	3/8"	40	22	35	14	40	1.63
HK HFRT1 25 150		150	240							2.04
HK HFRT1 25 200		200	290							2.44
HK HFRT1 25 250		250	340							2.85
HK HFRT1 25 300		300	390							3.26
HK HFRT2 30 200	30	200	300	3/8"	42	27	37	16	50	3.61
HK HFRT2 30 250		250	350							4.16
HK HFRT2 30 300		300	400							4.72
HK HFRT2 30 350		350	450							5.27
HK HFRT2 30 400		400	500							5.82
HK HFRT2 30 550		550	650							7.30
HK HFRT3 40 200	40	200	330	3/8"	47	37	49	23	60	6.00
HK HFRT3 40 250		250	380							6.84
HK HFRT3 40 300		300	430							7.67
HK HFRT3 40 350		350	480							8.49
HK HFRT3 40 400		400	530							9.32
HK HFRT3 40 550		550	680							11.70
HK HFRT3 40 700		700	830							14.10
HK HFRT4 50 300	50	300	460	3/8"	50	47	65	26	70	11.80
HK HFRT4 50 400		400	560							14.00
HK HFRT4 50 550		550	710							17.50
HK HFRT4 50 700		700	860							21.00

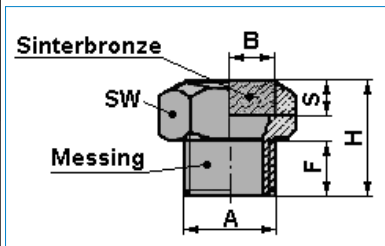
Material: see page 5

Other types of cylinder available on request.



Standard cylinder components Accessories and spare parts

Venting plug



Code	A	B	SW	F	S	H	kg
HK ASEP 03 0000	1/8"	11	13	6	4	13	0.01
HK ASEP 04 0000	1/4"	14	16	8		16	0.01
HK ASEP 06 0000	3/8"	17	19	9		18	0.02
HK ASEP 08 0000	1/2"	22	24	11		20	0.02
HK ASEP 12 0000	3/4"	28	30	13		24	0.04
HK ASEP 16 0000	1"	34	36	15		27	0.06

Cylinder tubes and piston rods – by the meter

Piston rod, chromed		
Code	Diameter	kg/m
HK FAC 012 L000	12	0.91
HK FAC 016 L000	16	1.58
HK FAC 018 L000	18	2.00
HK FAC 020 L000	20	2.47
HK FAC 022 L000	22	2.98
HK FAC 025 L000	25	3.95
HK FAC 028 L000	28	4.83
HK FAC 030 L000	30	5.55
HK FAC 032 L000	32	6.31
HK FAC 035 L000	35	7.55
HK FAC 036 L000	36	7.99
HK FAC 040 L000	40	9.86
HK FAC 042 L000	42	11.10
HK FAC 045 L000	45	12.50
HK FAC 050 L000	50	15.40
HK FAC 055 L000	55	18.70
HK FAC 056 L000	56	19.30
HK FAC 060 L000	60	22.30
HK FAC 063 L000	63	24.46
HK FAC 070 L000	70	30.20
HK FAC 080 L000	80	39.50
HK FAC 090 L000	90	49.91
HK FAC 100 L000	100	61.62

Cylinder tubes, polished		
Code	External/internal diameters	kg/m
HK FT 030 020 00	30-20	3.08
HK FT 035 025 00	35-25	3.70
HK FT 040 030 00	40-30	4.32
HK FT 042 032 00	42-32	4.56
HK FT 045 035 00	45-35	4.93
HK FT 050 040 00	50-40	5.55
HK FT 055 045 00	55-45	6.17
HK FT 060 050 00	60-50	6.78
HK FT 062 050 00	62-50	8.29
HK FT 065 050 00	65-50	10.63
HK FT 065 055 00	65-55	7.40
HK FT 070 055 00	70-55	11.56
HK FT 070 060 00	70-60	8.01
HK FT 073 063 00	73-63	8.38
HK FT 075 060 00	75-60	12.48
HK FT 075 063 00	75-63	10.21
HK FT 075 065 00	75-65	8.63
HK FT 080 065 00	80-65	13.41
HK FT 080 070 00	80-70	9.25
HK FT 082 070 00	82-70	10.25
HK FT 085 070 00	85-70	14.33

Cylinder tubes, polished

Code	External/internal diameters	kg/m
HK FT 090 075 00	90-75	15.26
HK FT 090 080 00	90-80	10.48
HK FT 092 080 00	92-80	12.72
HK FT 095 080 00	95-80	16.18
HK FT 095 085 00	95-85	13.50
HK FT 100 085 00	100-85	17.11
HK FT 100 090 00	100-90	11.71
HK FT 102 090 00	102-90	14.21
HK FT 105 090 00	105-90	18.03
HK FT 115 100 00	115-100	19.88
HK FT 125 110 00	125-110	21.73
HK FT 130 115 00	130-115	22.67
HK FT 140 120 00	140-120	32.06
HK FT 145 125 00	145-125	33.29
HK FT 160 140 00	160-140	36.99
HK FT 170 150 00	170-150	39.46
HK FT 180 160 00	180-160	41.92

Material: see page 5, other sizes on request

Complete sets of seals for HANSA-FLEX cylinders

Sets of seals for single-action cylinders			
Code	Diameter	Code	Diameter
HK GKG 020 030	PLUNGER Ø 20	HK GKG 050 060	PLUNGER Ø 50
HK GKG 025 035	PLUNGER Ø 25	HK GKG 060 070	PLUNGER Ø 60
HK GKG 030 040	PLUNGER Ø 30	HK GKG 070 000	PLUNGER Ø 70
HK GKG 035 045	PLUNGER Ø 35	HK GKG 080 000	PLUNGER Ø 80
HK GKG 040 050	PLUNGER Ø 40	HK GKG 100 000	PLUNGER Ø 100
HK GKG 045 055	PLUNGER Ø 45		

Sets of seals for double-action cylinders			
Code	Piston/rod diameters	Code	Piston/rod diameters
HK GKG 0 030 016	30/16	HK GKG 0 075 045	75/45
HK GKG 0 032 020	32/20	HK GKG 0 080 030	80/30
HK GKG 0 035 020	35/20	HK GKG 0 080 035	80/35
HK GKG 0 035 022	35/22	HK GKG 0 080 040	80/40
HK GKG 0 040 020	40/20	HK GKG 0 080 045	80/45
HK GKG 0 040 022	40/22	HK GKG 0 080 050	80/50
HK GKG 0 040 025	40/25	HK GKG 0 080 055	80/55
HK GKG 0 045 022	45/22	HK GKG 0 080 060	80/60
HK GKG 0 045 025	45/25	HK GKG 0 085 035	85/35
HK GKG 0 050 020	50/20	HK GKG 0 085 040	85/40
HK GKG 0 050 025	50/25	HK GKG 0 085 050	85/50
HK GKG 0 050 030	50/30	HK GKG 0 090 040	90/40
HK GKG 0 050 035	50/35	HK GKG 0 090 045	90/45
HK GKG 0 055 025	55/25	HK GKG 0 090 050	90/50
HK GKG 0 055 030	55/30	HK GKG 0 090 060	90/60
HK GKG 0 055 035	55/35	HK GKG 0 100 040	100/40
HK GKG 0 060 025	60/25	HK GKG 0 100 045	100/45
HK GKG 0 060 030	60/30	HK GKG 0 100 050	100/50
HK GKG 0 060 035	60/35	HK GKG 0 100 055	100/55
HK GKG 0 060 040	60/40	HK GKG 0 100 060	100/60
HK GKG 0 063 030	63/30	HK GKG 0 100 070	100/70
HK GKG 0 063 035	63/35	HK GKG 0 110 045	110/45
HK GKG 0 063 040	63/40	HK GKG 0 110 050	110/50
HK GKG 0 065 030	65/30	HK GKG 0 110 060	110/60
HK GKG 0 065 035	65/35	HK GKG 0 110 070	110/70
HK GKG 0 065 040	65/40	HK GKG 0 120 050	120/50
HK GKG 0 065 045	65/45	HK GKG 0 120 060	120/60
HK GKG 0 070 025	70/25	HK GKG 0 120 070	120/70
HK GKG 0 070 030	70/30	HK GKG 0 125 060	125/60
HK GKG 0 070 035	70/35	HK GKG 0 125 070	125/70
HK GKG 0 070 040	70/40	HK GKG 0 140 070	140/70
HK GKG 0 070 045	70/45	HK GKG 0 140 080	140/80
HK GKG 0 070 050	70/50	HK GKG 0 150 070	150/70
HK GKG 0 075 030	75/30	HK GKG 0 150 080	150/80
HK GKG 0 075 035	75/35	HK GKG 0 160 080	160/80
HK GKG 0 075 040	75/40	HK GKG 0 160 090	160/90



Set of seals



HK PAM 014 2000

Standard variant



HK PAM 014 4000

Standard variant



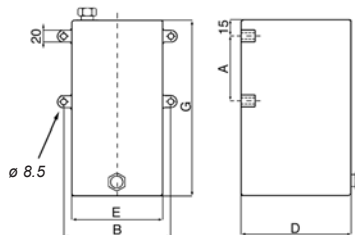
HK PAM 014 2501

Standard variant



HK PAM 015 1200

Standard variant



Hand pumps

Attention: Order hand lever as well!

Hand pumps, pipe fitting with manual drain – option with pressure relief valve

Code	Thread	Pumping volume cm ³ **	p _{max} bar	Example bar**	kg
HK PAM 014 2000	1/2"-3/8" IG	20	350	130	2.75
HK PAM 014 4000	1/2"-3/8" IG	40	280	90	3.65
Option – with pressure relief valve without manual drain (draining must go via a separate valve!)					
HK PAM 014 2004	1/2"-3/8" IG	20	350	130	2.90
HK PAM 014 4004	1/2"-3/8" IG	40	280	90	3.80

Hand pumps for tank fitting with manual drain – option with pressure relief valve

Code	Thread	Pumping volume cm ³ *	p _{max} bar	Example bar**	kg
HK PAM 014 1200	1x 3/8" AG	12	380	160	2.85
HK PAM 014 2500	1x 3/8" AG	25	350	100	2.95
HK PAM 014 4500	1x 3/8" AG	45	280	80	3.15
Option – with pressure relief valve					
HK PAM 014 1201	1x 3/8" AG	12	380	160	3.00
HK PAM 014 2501	1x 3/8" AG	25	350	100	3.10
HK PAM 014 4501	1x 3/8" AG	45	280	80	3.30

The pressure relief valves must be set for the application case.

Hand pumps for tank fitting with 4/3 directional valve – option with pressure relief valve

Code	Thread	Pumping volume cm ³ *	p _{max} bar	Example bar**	kg
HK PAM 015 1200	2 x 3/8" AG	12	380	160	2.85
HK PAM 015 2500	2 x 3/8" AG	25	350	100	2.95
HK PAM 015 4500	2 x 3/8" AG	45	280	80	3.15
Option – with pressure relief valve					
HK PAM 015 1202	2 x 3/8" AG	12	380	160	3.00
HK PAM 015 2502	2 x 3/8" AG	25	350	100	3.10
HK PAM 015 4502	2 x 3/8" AG	45	280	80	3.30

The pressure relief valves must be set for the application case.

* per double stroke

** Pressure with manual force 30 daN with standard lever

Lever for hand pumps

Code	Dimensions	kg
HK PAM 029 0000	20 x 30 x 600	0.86

Tank for hand pumps

Code	Content, liters	Dimensions (mm)					kg
		A	B	D	E	G	
HK PM0 022 0001	1.0	90	120	150	100	120	2.00
HK PM0 022 0002	2.0					180	2.20
HK PM0 022 0003	3.0					247	2.50
HK PM0 022 0005	5.0	90	195	175	175	200	4.50
HK PM0 022 0007	7.0					269	5.40
HK PM0 022 0010	10.0					376	6.80

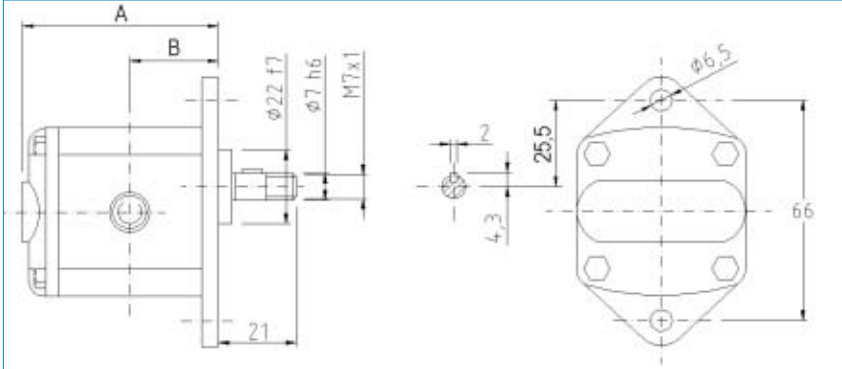
Material: steel, painted black

Gear pumps

Hydraulic gear pumps size 0

Code anticlockwise	Code clockwise	cm ³ /rev	Max. pressure bar			Speed max./min.	Dimension A	Dimension B	Thread suction port	Thread pressure port	Weight kg
			p ₁	p ₂	p ₃						
HK 0P01 01 ABBA	HK 0P01 02 ABBA	0.16	220	240	260	9000 / 700	56.0	26.2	1/4"	1/4"	0.40
HK 0P02 01 ABBA	HK 0P02 02 ABBA	0.24	220	240	260	9000 / 700	56.5	26.5	1/4"	1/4"	0.41
HK 0P04 01 ABBA	HK 0P04 02 ABBA	0.45	220	240	260	9000 / 700	58.0	27.3	1/4"	1/4"	0.42
HK 0P05 01 ABBA	HK 0P05 02 ABBA	0.56	220	240	260	9000 / 700	59.0	27.8	1/4"	1/4"	0.43
HK 0P06 01 ABBA	HK 0P06 02 ABBA	0.75	220	240	260	9000 / 700	60.5	28.5	1/4"	1/4"	0.44
HK 0P07 01 ABBA	HK 0P07 02 ABBA	0.92	220	240	260	6000 / 700	62.0	29.3	1/4"	1/4"	0.46

p₁ – max. continuous pressure; p₂ – max. operating pressure; p₃ – highest max. pressure
 Other pump versions available on request.

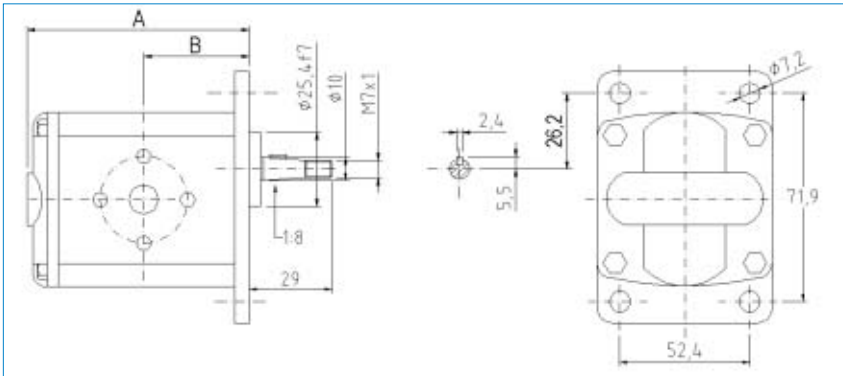


European standard pump – hole pattern 66 – Ø 22 – cylinder Ø 7 – threaded end fitting

Hydraulic gear pumps size 1

Code anticlockwise	Code clockwise	cm ³ /rev	Max. pressure bar			Speed max./min.	Dimension A	Dimension B	Hole circle suction port	Hole circle pressure port	Weight kg
			p ₁	p ₂	p ₃						
HK 1P16 01 FIIA	HK 1P16 02 FIIA	0.91	240	260	280	6000 / 700	77.1	37.3	30 / M6	30 / M6	0.95
HK 1P17 01 FIIA	HK 1P17 02 FIIA	1.17	250	270	290	6000 / 700	78.0	37.8	30 / M6	30 / M6	0.97
HK 1P18 01 FIIA	HK 1P18 02 FIIA	1.56	250	270	290	6000 / 700	79.5	38.5	30 / M6	30 / M6	1.01
HK 1P20 01 FIIA	HK 1P20 02 FIIA	2.08	250	270	290	6000 / 700	81.5	39.5	30 / M6	30 / M6	1.03
HK 1P21 01 FIIA	HK 1P21 02 FIIA	2.60	250	280	300	6000 / 700	83.5	40.5	30 / M6	30 / M6	1.06
HK 1P23 01 FIIA	HK 1P23 02 FIIA	3.12	250	280	300	6000 / 700	85.5	41.5	30 / M6	30 / M6	1.09
HK 1P25 01 FIIA	HK 1P25 02 FIIA	3.64	250	280	300	6000 / 700	87.5	42.5	30 / M6	30 / M6	1.12
HK 1P27 01 FIIA	HK 1P27 02 FIIA	4.16	250	280	300	6000 / 700	89.5	43.5	30 / M6	30 / M6	1.17
HK 1P29 01 FIIA	HK 1P29 02 FIIA	4.94	250	280	300	6000 / 700	92.5	45.0	30 / M6	30 / M6	1.20
HK 1P31 01 FIIA	HK 1P31 02 FIIA	5.85	250	280	300	5000 / 700	96.0	46.8	30 / M6	30 / M6	1.26
HK 1P32 01 FIIA	HK 1P32 02 FIIA	6.50	250	280	300	5000 / 700	98.5	48.0	30 / M6	30 / M6	1.30
HK 1P34 01 FIIA	HK 1P34 02 FIIA	7.54	220	240	260	5000 / 700	102.5	50.0	30 / M6	30 / M6	1.36
HK 1P36 01 FIIA	HK 1P36 02 FIIA	9.88	190	210	230	4000 / 700	111.5	54.5	30 / M6	30 / M6	1.50

p₁ – max. continuous pressure; p₂ – max. operating pressure; p₃ – highest max. pressure
 Other pump versions available on request.



European standard pump – hole pattern 71.9 x 52.4 – Ø 25.4 – cone 1:8 – flange connection



HK 0P04 02 ABBA



HK 1P21 02 FIIA

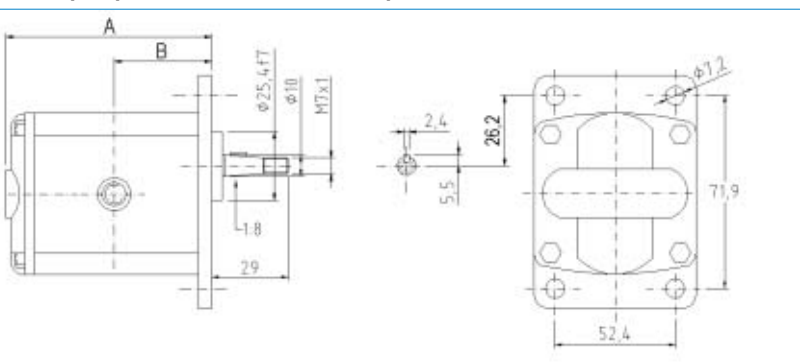
Hydraulic gear pumps size 1



HK 1P21 02 FBBA

Code anticlockwise	Code clockwise	cm ³ /rev	Max. pressure bar			Speed max./min.	Dimension A	Dimension B	Thread suction port	Thread pressure port	Weight kg
			p ₁	p ₂	p ₃						
HK 1P16 01 FBBA	HK 1P16 02 FBBA	0.91	240	260	280	6000 / 700	77.1	37.3	3/8"	3/8"	0.95
HK 1P17 01 FBBA	HK 1P17 02 FBBA	1.17	250	270	290	6000 / 700	78.0	37.3	3/8"	3/8"	0.97
HK 1P18 01 FBBA	HK 1P18 02 FBBA	1.56	250	270	290	6000 / 700	79.5	38.5	3/8"	3/8"	1.01
HK 1P20 01 FBBA	HK 1P20 02 FBBA	2.08	250	270	290	6000 / 700	81.5	39.5	3/8"	3/8"	1.03
HK 1P21 01 FBBA	HK 1P21 02 FBBA	2.60	250	280	300	6000 / 700	83.5	40.5	3/8"	3/8"	1.06
HK 1P23 01 FBBA	HK 1P23 02 FBBA	3.12	250	280	300	6000 / 700	85.5	41.5	3/8"	3/8"	1.09
HK 1P25 01 FBBA	HK 1P25 02 FBBA	3.64	250	280	300	6000 / 700	87.5	42.5	3/8"	3/8"	1.12
HK 1P27 01 FBBA	HK 1P27 02 FBBA	4.16	250	280	300	6000 / 700	89.5	43.5	3/8"	3/8"	1.17
HK 1P29 01 FBBA	HK 1P29 02 FBBA	4.94	250	280	300	6000 / 700	92.5	45.0	3/8"	3/8"	1.20
HK 1P31 01 FBBA	HK 1P31 02 FBBA	5.85	250	280	300	5000 / 700	96.0	46.8	3/8"	3/8"	1.26
HK 1P32 01 FBBA	HK 1P32 02 FBBA	6.50	250	280	300	5000 / 700	98.5	48.0	3/8"	3/8"	1.30
HK 1P34 01 FBBA	HK 1P34 02 FBBA	7.54	220	240	260	5000 / 700	102.5	50.0	3/8"	3/8"	1.36
HK 1P36 01 FBBA	HK 1P36 02 FBBA	9.88	190	210	230	4000 / 700	111.5	54.5	3/8"	3/8"	1.50

p₁ – max. continuous pressure; p₂ – max. operating pressure; p₃ – highest max. pressure
Other pump versions available on request.



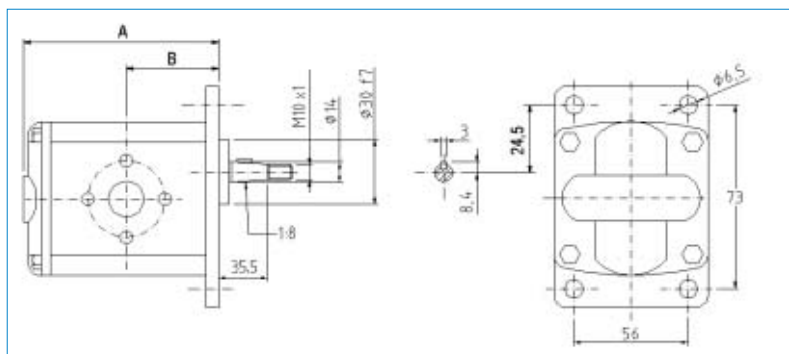
European standard pump – hole pattern 71.9 x 52.4 – Ø 25.4 – cone 1:8 – threaded end fitting



HK 1P27 12 GIIA

Code anticlockwise	Code clockwise	cm ³ /rev	Max. pressure bar			Speed max./min.	Dimension A	Dimension B	Hole circle suction port	Hole circle pressure port	Weight kg
			p ₁	p ₂	p ₃						
HK 1P16 11 GIIA	HK 1P16 12 GIIA	0.91	240	260	280	6000 / 700	77.1	37.3	30 / M6	30 / M6	0.95
HK 1P17 11 GIIA	HK 1P17 12 GIIA	1.17	250	270	290	6000 / 700	78.0	37.8	30 / M6	30 / M6	0.97
HK 1P18 11 GIIA	HK 1P18 12 GIIA	1.56	250	270	290	6000 / 700	79.5	38.5	30 / M6	30 / M6	1.01
HK 1P20 11 GIIA	HK 1P20 12 GIIA	2.08	250	270	290	6000 / 700	81.5	39.5	30 / M6	30 / M6	1.03
HK 1P21 11 GIIA	HK 1P21 12 GIIA	2.60	250	280	300	6000 / 700	83.5	40.5	30 / M6	30 / M6	1.06
HK 1P23 11 GIIA	HK 1P23 12 GIIA	3.12	250	280	300	6000 / 700	85.5	41.5	30 / M6	30 / M6	1.09
HK 1P25 11 GIIA	HK 1P25 12 GIIA	3.64	250	280	300	6000 / 700	87.5	42.5	30 / M6	30 / M6	1.12
HK 1P27 11 GIIA	HK 1P27 12 GIIA	4.16	250	280	300	6000 / 700	89.5	43.5	30 / M6	30 / M6	1.17
HK 1P29 11 GIIA	HK 1P29 12 GIIA	4.94	250	280	300	6000 / 700	92.5	45.0	30 / M6	30 / M6	1.20
HK 1P31 11 GIIA	HK 1P31 12 GIIA	5.85	250	280	300	5000 / 700	96.0	46.8	30 / M6	30 / M6	1.26
HK 1P32 11 GIIA	HK 1P32 12 GIIA	6.50	250	280	300	5000 / 700	98.5	48.0	30 / M6	30 / M6	1.30
HK 1P34 11 GIIA	HK 1P34 12 GIIA	7.54	220	240	260	5000 / 700	102.5	50.0	30 / M6	30 / M6	1.36
HK 1P36 11 GIIA	HK 1P36 12 GIIA	9.88	190	210	230	4000 / 700	111.5	54.5	30 / M6	30 / M6	1.50

p₁ – max. continuous pressure; p₂ – max. operating pressure; p₃ – highest max. pressure
Other pump versions available on request.

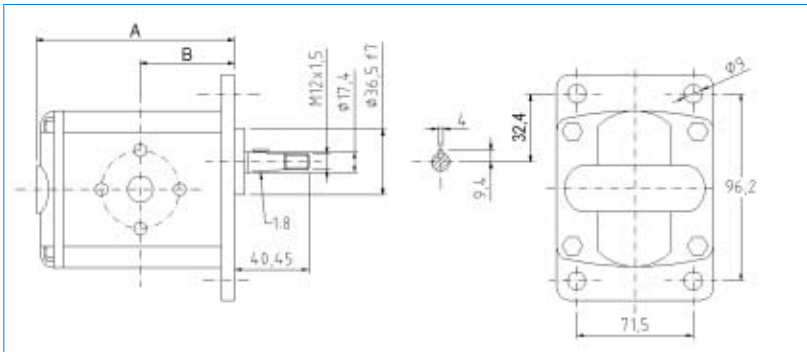


European standard pump – hole pattern 73 x 56 – Ø 30 – cone 1:8 – flange connection

Hydraulic gear pumps size 2

Code anticlockwise	Code clockwise	cm ³ /rev	Max. pressure bar			Speed max./min.	Dimension A	Dimension B	Hole circle suction port	Hole circle pressure port	Weight kg
			p ₁	p ₂	p ₃						
HK 2P41 01 EOOA	HK 2P41 02 EOOA	4.20	260	280	300	3500 / 700	87.2	41.7	30 / M6	30 / M6	2.20
HK 2P43 01 EOOA	HK 2P43 02 EOOA	6.00	260	280	300	3500 / 700	90.2	43.2	30 / M6	30 / M6	2.30
HK 2P45 01 EOOA	HK 2P45 02 EOOA	8.40	260	280	300	3500 / 700	94.2	45.2	30 / M6	30 / M6	2.40
HK 2P47 01 EOOA	HK 2P47 02 EOOA	10.80	260	280	300	3500 / 700	98.2	47.2	30 / M6	30 / M6	2.50
HK 2P49 01 EPOA	HK 2P49 02 EPOA	14.40	250	270	290	3500 / 700	104.2	50.2	40 / M8	30 / M6	2.70
HK 2P51 01 EPOA	HK 2P51 02 EPOA	16.80	230	250	270	3500 / 700	108.2	52.2	40 / M8	30 / M6	2.80
HK 2P53 01 EPOA	HK 2P53 02 EPOA	19.20	210	230	250	3000 / 700	112.2	54.2	40 / M8	30 / M6	2.90
HK 2P55 01 EPOA	HK 2P55 02 EPOA	22.80	200	220	240	3000 / 700	118.2	57.2	40 / M8	30 / M6	3.05
HK 2P57 01 EQPA	HK 2P57 02 EQPA	26.20	120	140	160	3000 / 700	122.2	59.2	40 / M8	40 / M8	3.15
HK 2P59 01 EQPA	HK 2P59 02 EQPA	30.00	110	130	150	2500 / 700	130.2	63.2	40 / M8	40 / M8	3.40
HK 2P61 01 EQPA	HK 2P61 02 EQPA	34.20	100	120	140	2500 / 700	137.2	66.7	40 / M8	40 / M8	3.60
HK 2P63 01 EQPA	HK 2P63 02 EQPA	39.60	90	110	130	2000 / 700	146.2	71.2	40 / M8	40 / M8	3.80

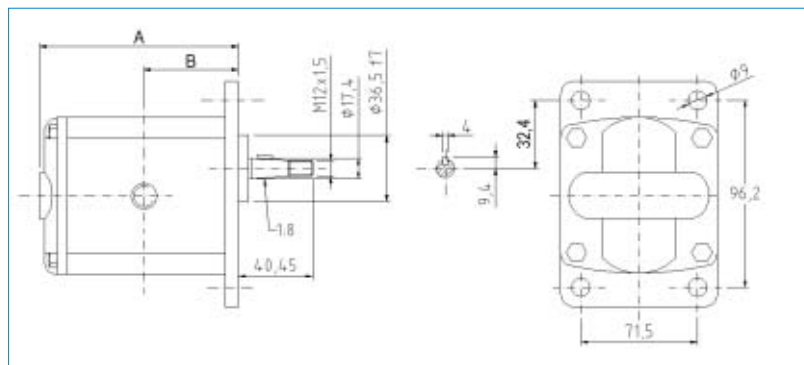
p₁ – max. continuous pressure; p₂ – max. operating pressure; p₃ – highest max. pressure
Other pump versions available on request.



European standard pump – hole pattern 96.2 x 71.5 – Ø 36.5 – cone 1:8 – flange connection

Code anticlockwise	Code clockwise	cm ³ /rev	Max. pressure bar			Speed max./min.	Dimension A	Dimension B	Thread suction port	Thread pressure port	Weight kg
			p ₁	p ₂	p ₃						
HK 2P41 01 EBBA	HK 2P41 02 EBBA	4.20	260	280	300	3500 / 700	87.2	41.7	1/2"	1/2"	2.20
HK 2P43 01 EBBA	HK 2P43 02 EBBA	6.00	260	280	300	3500 / 700	90.2	43.2	1/2"	1/2"	2.30
HK 2P45 01 EBBA	HK 2P45 02 EBBA	8.40	260	280	300	3500 / 700	94.2	45.2	1/2"	1/2"	2.40
HK 2P47 01 EBBA	HK 2P47 02 EBBA	10.80	260	280	300	3500 / 700	98.2	47.2	1/2"	1/2"	2.50
HK 2P49 01 ECBA	HK 2P49 02 ECBA	14.40	250	270	290	3500 / 700	104.2	50.2	3/4"	1/2"	2.70
HK 2P51 01 ECBA	HK 2P51 02 ECBA	16.80	230	250	270	3500 / 700	108.2	52.2	3/4"	1/2"	2.80
HK 2P53 01 ECBA	HK 2P53 02 ECBA	19.20	210	230	250	3000 / 700	112.2	54.2	3/4"	1/2"	2.90
HK 2P55 01 ECBA	HK 2P55 02 ECBA	22.80	200	220	240	3000 / 700	118.2	57.2	3/4"	1/2"	3.05

p₁ – max. continuous pressure; p₂ – max. operating pressure; p₃ – highest max. pressure
Other pump versions available on request.



European standard pump – hole pattern 96.2 x 71.5 – Ø 36.5 – cone 1:8 – threaded end fitting



HK 2P47 01 EOOA



HK 2P43 01 EBBA

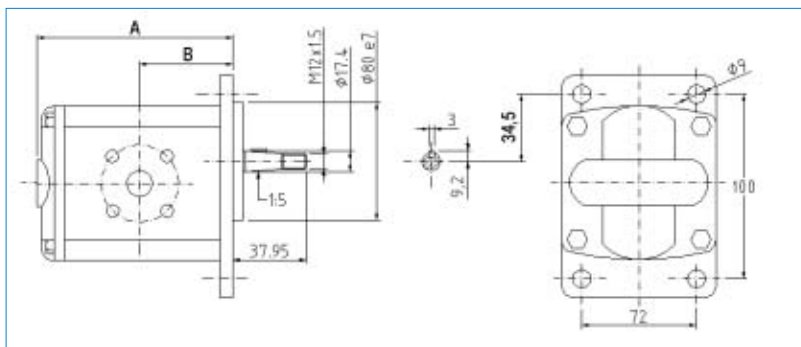
Hydraulic gear pumps size 2



HK 2P47 41 FSRA

Code anticlockwise	Code clockwise	cm/rev	Max. pressure bar			Speed max./min.	Dimension A	Dimension B	Hole circle suction port	Hole circle pressure port	Weight kg
			p ₁	p ₂	p ₃						
HK 2P41 41 FSRA	HK 2P41 42 FSRA	4.20	260	280	300	3500 / 700	87.2	41.1	40 / M6	35 / M6	2.20
HK 2P43 41 FSRA	HK 2P43 42 FSRA	6.00	260	280	300	3500 / 700	90.2	41.1	40 / M6	35 / M6	2.30
HK 2P45 41 FSRA	HK 2P45 42 FSRA	8.40	260	280	300	3500 / 700	94.2	43.1	40 / M6	35 / M6	2.40
HK 2P47 41 FSRA	HK 2P47 42 FSRA	10.80	260	280	300	3500 / 700	98.2	47.5	40 / M6	35 / M6	2.50
HK 2P49 41 FSRA	HK 2P49 42 FSRA	14.40	250	270	290	3500 / 700	104.2	47.5	40 / M6	35 / M6	2.70
HK 2P51 41 FSRA	HK 2P51 42 FSRA	16.80	230	250	270	3500 / 700	108.2	47.5	40 / M6	35 / M6	2.80
HK 2P53 41 FSRA	HK 2P53 42 FSRA	19.20	210	230	250	3000 / 700	112.2	47.5	40 / M6	35 / M6	2.90
HK 2P55 41 FSRA	HK 2P55 42 FSRA	22.80	200	220	240	3000 / 700	118.2	55.0	40 / M6	35 / M6	3.05
HK 2P57 41 FSRA	HK 2P57 42 FSRA	26.20	170	190	210	3000 / 700	124.7	55.0	40 / M6	35 / M6	3.14

p₁ – max. continuous pressure; p₂ – max. operating pressure; p₃ – highest max. pressure
Other pump versions available on request.



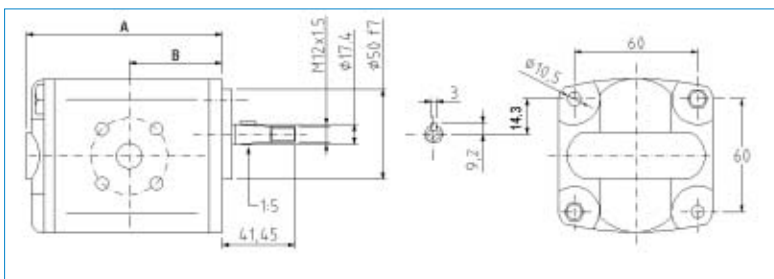
German standard pump – hole pattern 100 x 72 – Ø 80 – cone 1:5 – flange connection



HK 2P47 12 FSRA

Code anticlockwise	Code clockwise	cm/rev	Max. pressure bar			Speed max./min.	Dimension A	Dimension B	Hole circle suction port	Hole circle pressure port	Weight kg
			p ₁	p ₂	p ₃						
HK 2P41 11 FSRA	HK 2P41 12 FSRA	4.20	260	280	300	3500 / 700	87.2	38.6	40 / M6	35 / M6	2.10
HK 2P43 11 FSRA	HK 2P43 12 FSRA	6.00	260	280	300	3500 / 700	90.2	38.6	40 / M6	35 / M6	2.20
HK 2P45 11 FSRA	HK 2P45 12 FSRA	8.40	260	280	300	3500 / 700	94.2	40.6	40 / M6	35 / M6	2.30
HK 2P47 11 FSRA	HK 2P47 12 FSRA	10.80	260	280	300	3500 / 700	98.2	45.0	40 / M6	35 / M6	2.40
HK 2P49 11 FSRA	HK 2P49 12 FSRA	14.40	250	270	290	3500 / 700	104.2	45.0	40 / M6	35 / M6	2.60
HK 2P51 11 FSRA	HK 2P51 12 FSRA	16.80	230	250	270	3500 / 700	108.2	45.0	40 / M6	35 / M6	2.70
HK 2P53 11 FSRA	HK 2P53 12 FSRA	19.20	210	230	250	3000 / 700	112.2	45.0	40 / M6	35 / M6	2.80
HK 2P55 11 FSRA	HK 2P55 12 FSRA	22.80	200	220	240	3000 / 700	118.2	52.5	40 / M6	35 / M6	2.95

p₁ – max. continuous pressure; p₂ – max. operating pressure; p₃ – highest max. pressure
Other pump versions available on request.

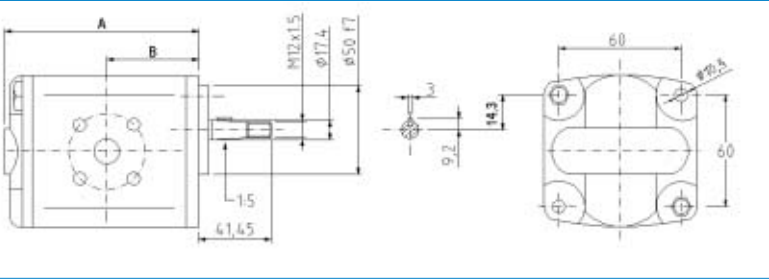


German standard pump – hole pattern 60 x 60 – Ø 50 – cone 1:5 – flange connection

Hydraulic gear pumps size 2

Code anticlockwise	Code clockwise	cm ³ /rev	Max. pressure bar			Speed max./min.	Dimension A	Dimension B	Hole circle suction port	Hole circle pressure port	Weight kg
			p ₁	p ₂	p ₃						
HK 2P41 21 FSRA	HK 2P41 22 FSRA	4.20	260	280	300	3500 / 700	87.2	38.6	40 / M6	35 / M6	2.10
HK 2P43 21 FSRA	HK 2P43 22 FSRA	6.00	260	280	300	3500 / 700	90.2	38.6	40 / M6	35 / M6	2.20
HK 2P45 21 FSRA	HK 2P45 22 FSRA	8.40	260	280	300	3500 / 700	94.2	40.6	40 / M6	35 / M6	2.30
HK 2P47 21 FSRA	HK 2P47 22 FSRA	10.80	260	280	300	3500 / 700	98.2	45.0	40 / M6	35 / M6	2.40
HK 2P49 21 FSRA	HK 2P49 22 FSRA	14.40	250	270	290	3500 / 700	104.2	45.0	40 / M6	35 / M6	2.60
HK 2P51 21 FSRA	HK 2P51 22 FSRA	16.80	230	250	270	3500 / 700	108.2	45.0	40 / M6	35 / M6	2.70
HK 2P53 21 FSRA	HK 2P53 22 FSRA	19.20	210	230	250	3000 / 700	112.2	45.0	40 / M6	35 / M6	2.80
HK 2P55 21 FSRA	HK 2P55 22 FSRA	22.80	200	220	240	3000 / 700	118.2	52.5	40 / M6	35 / M6	2.95

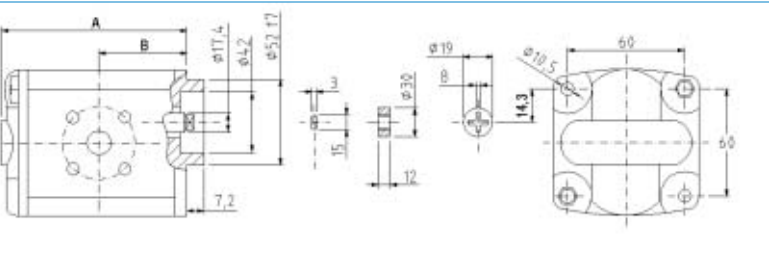
p₁ – max. continuous pressure; p₂ – max. operating pressure; p₃ – highest max. pressure
Other pump versions available on request.



German standard pump – hole pattern 60 x 60 – Ø 50 – cone 1:5 – flange connection

Code anticlockwise	Code clockwise	cm ³ /rev	Max. pressure bar			Speed max./min.	Dimension A	Dimension B	Hole circle suction port	Hole circle pressure port	Weight kg
			p ₁	p ₂	p ₃						
HK 2P41 31 CSRA	HK 2P41 32 CSRA	4.20	260	280	300	3500 / 700	87.2	38.6	40 / M6	35 / M6	2.10
HK 2P43 31 CSRA	HK 2P43 32 CSRA	6.00	260	280	300	3500 / 700	90.2	38.6	40 / M6	35 / M6	2.20
HK 2P45 31 CSRA	HK 2P45 32 CSRA	8.40	260	280	300	3500 / 700	94.2	40.6	40 / M6	35 / M6	2.30
HK 2P47 31 CSRA	HK 2P47 32 CSRA	10.80	260	280	300	3500 / 700	98.2	45.0	40 / M6	35 / M6	2.40
HK 2P49 31 CSRA	HK 2P49 32 CSRA	14.40	250	270	290	3500 / 700	104.2	45.0	40 / M6	35 / M6	2.60
HK 2P51 31 CSRA	HK 2P51 32 CSRA	16.80	230	250	270	3500 / 700	108.2	45.0	40 / M6	35 / M6	2.70
HK 2P53 31 CSRA	HK 2P53 32 CSRA	19.20	210	230	250	3000 / 700	112.2	45.0	40 / M6	35 / M6	2.80
HK 2P55 31 CSRA	HK 2P55 32 CSRA	22.80	200	220	240	3000 / 700	118.2	52.5	40 / M6	35 / M6	2.95

p₁ – max. continuous pressure; p₂ – max. operating pressure; p₃ – highest max. pressure
Other pump versions available on request.



German standard pump – hole pattern 60 x 60 – Ø 52 – dog 17.4 x 8 – flange connection



HK 2P47 22 FSRA



HK 2P47 32 CSRA

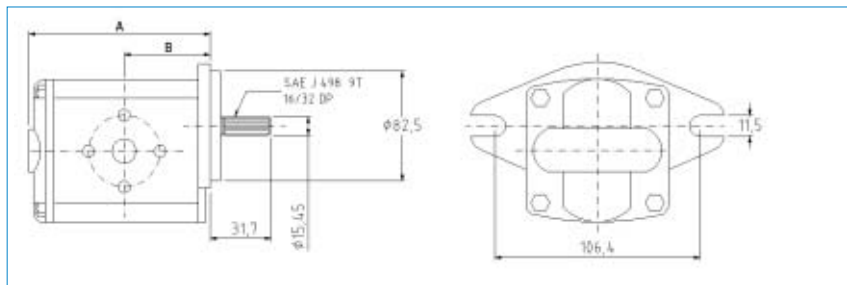


HK 2P47 52 ISRA

Hydraulic gear pumps size 2

Code anticlockwise	Code clockwise	cm ³ /rev	Max. pressure bar			Speed max./min.	Dimension A	Dimension B	Hole circle suction port	Hole circle pressure port	Weight kg
			p ₁	p ₂	p ₃						
HK 2P41 51 ISRA	HK 2P41 52 ISRA	4.20	260	280	300	3500 / 700	88.0	39.4	40 / M6	35 / M6	2.28
HK 2P43 51 ISRA	HK 2P43 52 ISRA	6.00	260	280	300	3500 / 700	91.0	39.4	40 / M6	35 / M6	2.38
HK 2P45 51 ISRA	HK 2P45 52 ISRA	8.40	260	280	300	3500 / 700	95.0	41.4	40 / M6	35 / M6	2.48
HK 2P47 51 ISRA	HK 2P47 52 ISRA	10.80	260	280	300	3500 / 700	99.0	45.8	40 / M6	35 / M6	2.58
HK 2P49 51 ISRA	HK 2P49 52 ISRA	14.40	250	270	290	3500 / 700	105.0	45.8	40 / M6	35 / M6	2.78
HK 2P51 51 ISRA	HK 2P51 52 ISRA	16.80	230	250	270	3500 / 700	109.0	45.8	40 / M6	35 / M6	2.88
HK 2P53 51 ISRA	HK 2P53 52 ISRA	19.20	210	230	250	3000 / 700	113.0	45.8	40 / M6	35 / M6	2.98
HK 2P55 51 ISRA	HK 2P55 52 ISRA	22.80	200	220	240	3000 / 700	119.0	53.3	40 / M6	35 / M6	3.13

p₁ – max. continuous pressure; p₂ – max. operating pressure; p₃ – highest max. pressure
Other pump versions available on request.



SAE A pump – hole pattern 106.4 – Ø 82.5 – toothed shaft SAE J 498 – flange connection

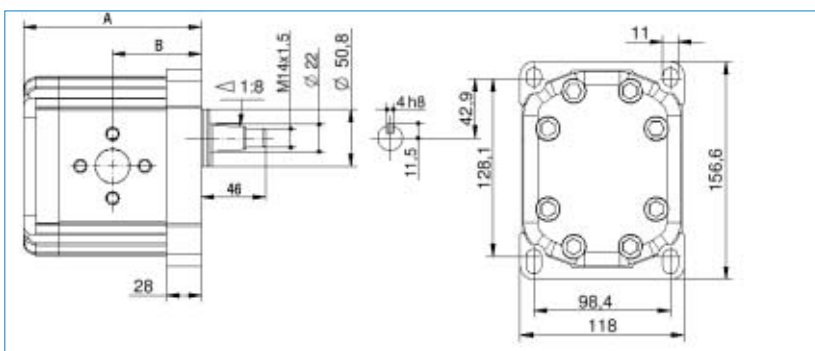
Hydraulic gear pumps size 3



HK X3P 72 02 AAAA

Code anticlockwise	Code clockwise	cm ³ /rev	Max. pressure bar		Speed max./min.	Dimension A	Dimension B	Hole circle suction port	Hole circle pressure port	Weight kg
			p ₂	p ₃						
HK X3P 70 01 AAAA	HK X3P 70 02 AAAA	21.10	250	270	3000/700	127	63.5	40 / M8	40 / M8	7.15
HK X3P 72 01 AAAA	HK X3P 72 02 AAAA	26.06	250	270	3000/700	131	65.5	40 / M8	40 / M8	7.25
HK X3P 74 01 ABBA	HK X3P 74 02 ABBA	32.27	250	270	3000/700	136	68.0	51 / M10	51 / M10	7.39
HK X3P 78 01 ABBA	HK X3P 78 02 ABBA	38.47	250	270	2800/700	141	70.5	51 / M10	51 / M10	7.52
HK X3P 79 01 ABBA	HK X3P 79 02 ABBA	43.44	250	270	2800/700	145	72.5	51 / M10	51 / M10	7.63
HK X3P 81 01 ABBA	HK X3P 81 02 ABBA	51.88	230	250	2800/700	151	75.5	51 / M10	51 / M10	7.79
HK X3P 83 01 ACCA	HK X3P 83 02 ACCA	60.81	230	250	2300/700	159	79.5	62 / M10	62 / M10	8.01
HK X3P 87 01 ACCA	HK X3P 87 02 ACCA	74.46	180	200	2300/700	170	85.0	62 / M10	62 / M10	8.30

p₂ – max. operating pressure; p₃ – highest max. pressure
Other pump versions available on request.



European standard pump – hole pattern 128 x 98 – Ø 50.8 – cone 1:8 – flange connection

Also available on request:

- Geared multiple pumps in various sizes
- Gear pumps with additional front bearing in various sizes
- Gear pumps with integrated pressure control valve, in various sizes
- Geared motors in various sizes

Vane-cell pumps

- Fixed displacement pumps with 12 vanes in the rotor insert
- Hydraulic axial backlash compensation for high pressure operation
- Low noise level
- p_{max} 210 bar

Code clockwise	Pumping volume cm ³ /rev	Speed min./max	Max. pressure bar	Q _{max} at 7 bar l/min.	Q _{max} at 210 bar l/min.	Shaft diameter mm	Suction connector SAE	Pressure connector SAE	A mm	D mm	L mm	M mm	Q mm	Weight kg
HK PFE 41 045 1 DT	45.0	800/2500	210	64	57	22.22	1 1/2"	1"	160.0	101.6	146.0	107.0	14.3	14.0
HK PFE 41 056 1 DT	55.8	800/2500	210	80	72									
HK PFE 41 070 1 DT	69.9	800/2500	210	101	91									
HK PFE 41 085 1 DT	85.3	800/2000	210	124	114									
HK PFE 52 090 3 DT	90.0	1000/2000	250	128	111	25.38	2"	1 1/4"	189.0	127.0	181.0	143.5	17.5	32.1
HK PFE 52 110 3 DT	109.6	1000/2200	250	157	138									
HK PFE 52 129 3 DT	129.2	1000/2200	250	186	163									

Performance data at 1500 rpm with hydraulic oil with a viscosity of 24 mm²/s at 40°C

Axial piston pumps

- Pumps with an adjustable pumping volume
- Low noise level
- Manually settable pressure regulator
- Shaft with feather key (7/8" for 29 cm³; 1" for 45 cm³; 1 1/4" for 73 cm³ and 90 cm³)
- Also available with control pressure relief (venting)

Code clockwise	Pumping volume cm ³ /rev	Max. pressure bar		Speed max./min.	Suction connector SAE 3000	Suction connector SAE 6000	Dimension A mm	Dimension B mm	Weight kg
		P ₂	P ₃						
HK PVPC C 3029 1D	29	280	350	3000 / 600	1 1/4"	3/4"	216	101.6	18.0
HK PVPC C 4046 1D	46	280	350	2600 / 600	1 1/2"	1"	248	101.6	24.0
HK PVPC C 5073 1D	73	280	350	2200 / 600	2"	1 1/4"	276	127.0	33.0
HK PVPC C 5090 1D	90	250	315	2200 / 600	2"	1 1/4"	276	127.0	35.0

p₂ - max. operating pressure; p₃ - highest max. pressure

Damping rings

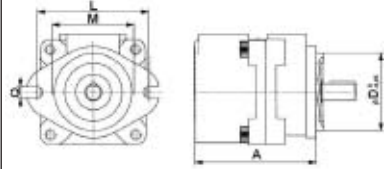
Code	IEC motor size	D mm	D1 mm	D2 mm	G	I mm	L mm	Weight kg
HK DRV1 250	100L / 112M	250	215	191	4 x M12	22	45	1.7
HK DRV1 300	132S / 132M	300	265	235	4 x M12	22	50	2.5
HK DRV1 350	160M / 160L 180M / 180L	350	300	261	4 x M12	22	60	5.0
HK DRV1 400	200L	400	350	301	4 x M12	29	50	7.2

Damping bars

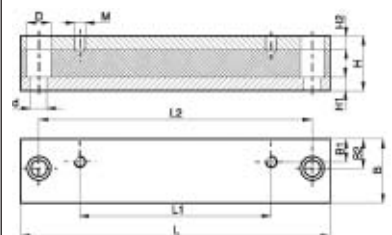
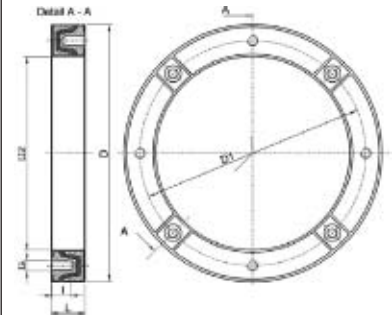
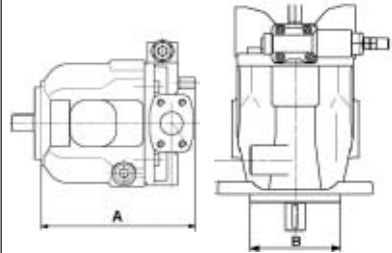
Code	IEC motor size	L mm	L1 mm	L2 mm	H mm	H1 mm	H2 mm	B mm	B1 mm	B2 mm	d mm	D mm	M	Weight kg
HK DL MDL 100L	100L	240	140	205	40	8	12	50	24	25	14	20	M10	2.3
HK DL MDL 112M	112M	240	140	205	40	8	12	50	20	25	14	20	M10	2.3
HK DL MDL 132S	132S	285	140	245	45	8	12	50	20	25	14	20	M10	2.4
HK DL MDL 132M	132M	285	178	245	45	8	12	50	20	25	14	20	M10	2.4
HK DL MDL 160M	160M	340	210	300	60	15	15	70	28	35	18	26	M12	7.5
HK DL MDL 160L	160L	416	254	370	60	15	15	70	28	35	18	26	M12	7.5
HK DL MDL 180M	180M	416	241	370	60	15	15	70	35	35	18	26	M12	8.0
HK DL MDL 180L	180L	446	279	400	60	15	15	70	35	35	18	26	M12	8.0
HK DL MDL 200L	200L	496	305	430	60	15	15	70	35	35	22	32	M16	8.6



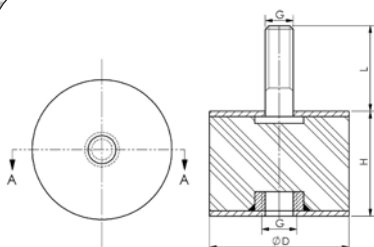
HK PFE 41 045 1 DT



HK PVPC C 3029 1D



Rubber-metal buffers



Code	Dimension D	Dimension H	Dimension L	Thread G	Weight kg
HK GP 4030 M10 B	40	30	24	M10	0.30
HK GP 7540 M12 B	75	40	37	M12	0.50
HK GP 10040 M16 B	100	40	46	M16	0.80

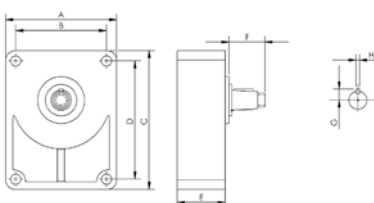
Other sizes and versions available on request

Additional front bearings

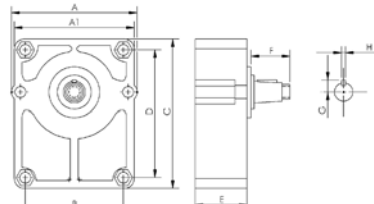


Additional front bearings are used on gear pumps which, for example, are belt or chain driven and so subject to higher radial loads. A suitable clutch hub is needed to connect the pump to the additional front bearing. (Please order separately!) Grease conforming to DIN 51502 is recommended for lubrication. Connection only for European standard pump.

HK SU 2D



für Baugröße 2



für Baugröße 3

Code	For pump	Shaft	Dimension										Requires clutch hub	Weight kg
			A	A1	B	C	D	E	F	G	H			
HK SU 2C	Size 2	Cylindrical Ø 18	88.5	--	71.4	113.0	96.0	49.0	40.0	9.5	3.2	HK BF 2T	1.4	
HK SU 2D	Size 2	Conical shaft 1:8	88.5	--	71.4	113.0	96.0	49.0	35.5	9.5	3.2	HK BF 2T	1.4	
HK SUR 2C	Size 2	Cylindrical Ø 22	94.0	--	71.4	120.0	96.0	52.0	46.0	9.5	4.0	HKBF2TZ15	1.8	
HK SUR 2D	Size 2	Conical shaft 1:8	94.0	--	71.4	120.0	96.0	52.0	36.0	9.5	4.0	HKBF2TZ15	1.8	
HK SU 3C	Size 3	Cylindrical Ø 24	124.5	120.0	98.2	150.0	128.0	52.0	48.0	12.0	4.0	HK BF 3	2.2	
HK SU 3D	Size 3	Conical shaft 1:8	124.5	120.0	98.2	150.0	128.0	52.0	43.0	12.0	4.0	HK BF 3	2.2	

Power take-off shaft gear

For european standard pump size 2

A clutch hub BF2T is needed to connect the pump to the gear.



HK ML32 11

Code	Max. input speed n1	Max. input moment M1	Max. output speed n2	Max. output moment M2	n2/n1	Drive side connection	Weight kg
HK ML32 11 3.8	540	159	2052	42	3.8	Male shaft - 1.3/8" - DIN 9611	4.0
HK ML32 21 3.8	540	159	2052	42	3.8	Female shaft - 1.3/8" - DIN 9611	4.3
HK ML32 31 3.8	540	159	2052	42	3.8	Female shaft with circlip - 1.3/8" - DIN 9611	4.3

For european standard pump size 3

A clutch hub BF3 is needed to connect the pump to the gear.



HK ML52 21

Code	Max. input speed n1	Max. input moment M1	Max. output speed n2	Max. output moment M2	n2/n1	Drive side connection	Weight kg
HK ML52 11 3.8	540	437	2057	115	3.8	Male shaft - 1.3/8" - DIN 9611	7.5
HK ML52 21 3.8	540	437	2057	115	3.8	Female shaft - 1.3/8" - DIN 9611	7.8
HK ML52 31 3.8	540	437	2057	115	3.8	Female shaft with circlip - 1.3/8" - DIN 9611	7.8

Clutch hubs



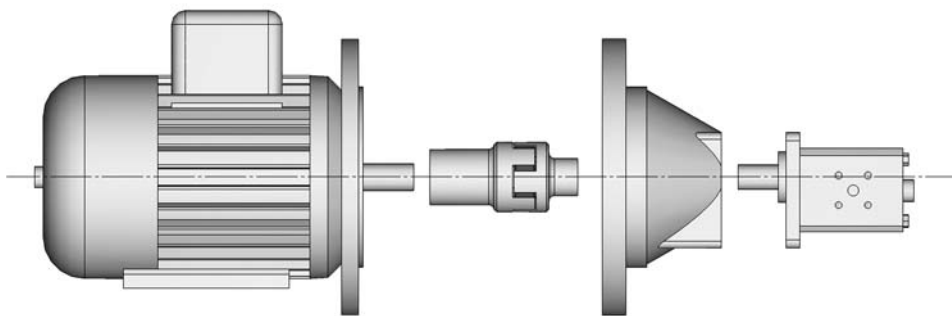
HK BF 2T

Code	Type	For pump	Number of teeth	Dimensions	Cone	Weight kg
HK BF 2T	BF 2 T	Size 2 - European standard pump	14	25 x 22	1:8	0.05
HK BF 2TZ15	BF 2 T Z15	Size 2 - European standard pump	15	28 x 25	1:8	0.06
HK BF 3	BF 3	Size 3 - European standard pump	18	35 x 31	1:8	0.1

Motor pump combinations

Electric motor 400 V 1450 rpm; B3/B5	P in kW	Rated speed at 50 Hz in rpm	Power factor cos(φ) at 50 Hz	Motor size	Hole circle	Shaft Ø	Weight kg	Pump	Pump holder, rigid (aluminum)	Clutch damped (aluminum)	
HK 71 A4 B35 2-4 A	0.25	1410	0.67	71	130	14	6.1	0-ABBA European standard	HK HL1	HK HE 21	
HK 71 B4 B35 2-4 A	0.37	1380	0.72				6.7		HK HL1	HK HE 21	
HK 80 A4 B35 2-4 A	0.55	1380	0.74	80	165	19	8.9		HK HL4L	HK HE 22	
HK 80 B4 B35 2-4 A	0.75	1370	0.76				9.6		HK HL4L	HK HE 22	
HK 71 A4 B35 2-4 A	0.25	1410	0.67	71	130	14	6.1		European standard size 1 Hole pattern 71.9 x 52.4 Centering diam. 25.4 Conical shaft 1:8	HK HL2	HK HE2
HK 71 B4 B35 2-4 A	0.37	1380	0.72				6.7			80	19
HK 80 A4 B35 2-4 A	0.55	1380	0.74	9.6	90	24	12.5				
HK 80 B4 B35 2-4 A	0.75	1370	0.76	15.0						100	28
HK 90 S4 B35 2-4 A	1.1	1360	0.79	22.5							
HK 90 L4 B35 2-4 A	1.5	1365	0.78	30.0							
HK 100 LA4 B35 2-4 A	2.2	1405	0.79	100	215	28	22.5	HK HL9L		HK HE20	
HK 100 LB4 B35 2-4 A	3	1400	0.84								30.0
HK 112 M4 B35 4-6 A	4	1435	0.82	112	European standard size 2 Hole pattern 96.2 x 71.5 Centering diam. 36.5 Conical shaft 1:8	80	19	8.9		HK HL7SL	HK HE47
HK 80 B4 B35 2-4 A	0.75	1370	0.76	9.6							90
HK 90 S4 B35 2-4 A	1.1	1360	0.79	15.0		100	28	19.0	HK HL 12	HK HE 29	
HK 90 L4 B35 2-4 A	1.5	1365	0.78	50.0							
HK 100 LA4 B35 2-4 A	2.2	1405	0.79	53.5		132	265	38	50.0	HK PL3000102	HK R28 38 N2A (made of steel)
HK 100 LB4 B35 2-4 A	3	1400	0.84	53.5							
HK 112 M4 B35 4-6 A	4	1435	0.82	160		300	42	118.0	HK HL 15 (Not suitable for tank fitting)	HK HE 33	
HK 132 SB4 B35 4-6 A	5.5	1440	0.84								132.0
HK 132 M4 B35 4-6 A	7.5	1445	0.82	160		300	42	118.0	HK PL350 0105	HK R38 42 N2A (made of steel)	
HK 132 SB4 B35 4-6 A	5.5	1440	0.84								132.0
HK 132 M4 B35 4-6 A	7.5	1445	0.82	100	215	28	19.0	HK HL11	HK HE48		
HK 160 MA4 B35 4-6	11	1460	0.85							22.5	
HK 160 L4 B35 4-6	15	1470	0.85	112	265	38	39.3	HK HL13	HK HE30		
HK 160 MA4 B35 4-6	11	1460	0.85							50.0	
HK 160 L4 B35 4-6	15	1470	0.85	132	265	38	50.0	HK PL3000110	HK R28 38 N3 (made of steel)		
HK 180 M4 B35 4-6	18.5	1470	0.89							53.5	
HK 180 L4 B35 4-6	22	1480	0.88	160	300	42	118.0	HK HL16 (Not suitable for tank fitting)	HK HE34		
HK 100 LA4 B35 2-4 A	2.2	1405	0.79							132.0	
HK 100 LB4 B35 2-4 A	3	1400	0.84	160	300	42	118.0	HK PL3500106	HK R 38 42 N3 (made of steel)		
HK 112 M4 B35 4-6 A	4	1435	0.82							132.0	
HK 132 SB4 B35 4-6 A	5.5	1440	0.84	180	48	164.0	182.0	HK R 42 48 N3 (made of steel)			
HK 132 M4 B35 4-6 A	7.5	1445	0.82						182.0		

Use a combination with a steel clutch for especially high torques.



Gear wheel flow dividers

Hydraulic flow divider size 1



HK 9D 02 18

- These flow dividers are used to feed two or more independent hydraulic circuits from a single pump.
- They divide the oil flow to the consumers and collect it back into the tank.
- Under compliance with the technical parameters, the dividing error is significantly less than with piston flow dividers.
- In order to avoid a summation of dividing errors, there are flow dividers with phase correction valves for a dead-center position correction.
- These flow dividers can be combined with a motor section for use in conjunction with plunger cylinders.
- Dividing error approx 3 %

Double flow dividers with and without phase correction valves



HK 9V 02 23 02

Code without correction	Code with correction	cm ³ /rev per section	Flow rate per element l/min				Pressure bar			E/A thread	Weight kg without A	Weight kg with A
			At least	Recomm.	maximum		P ₁	P ₂	Δp			
HK 9D 02 18	HK 9V 02 18 02	1.56	2.04	2.81	4.59	220	270	40	3/8" – 3/8"	2.10	2.30	
HK 9D 02 20	HK 9V 02 20 02	2.08	2.64	3.74	5.94	220	270	40	3/8" – 3/8"	2.20	2.40	
HK 9D 02 21	HK 9V 02 21 02	2.60	3.12	4.68	7.02	220	270	40	3/8" – 3/8"	2.25	2.45	
HK 9D 02 23	HK 9V 02 23 02	3.12	3.84	5.61	8.64	220	270	40	3/8" – 3/8"	2.30	2.50	
HK 9D 02 25	HK 9V 02 25 02	3.64	4.56	6.55	10.26	220	270	40	3/8" – 3/8"	2.40	2.60	

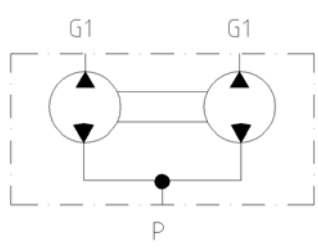


Fig. without valves

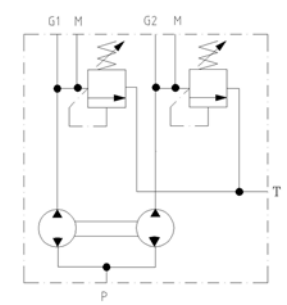


Fig. with valves

Quadruple flow dividers with and without phase correction valves



HK 9D 04 23

Code without correction	Code with correction	cm ³ /rev per section	Flow rate per element l/min				Pressure bar			E/A thread	Weight kg without A	Weight kg with A
			At least	Recomm.	maximum		P ₁	P ₂	Δp			
HK 9D 04 18	HK 9V 04 18 02	1.56	2.04	2.81	4.59	220	270	40	3/8" – 3/8"	4.00	4.40	
HK 9D 04 20	HK 9V 04 20 02	2.08	2.64	3.74	5.94	220	270	40	3/8" – 3/8"	4.30	4.70	
HK 9D 04 21	HK 9V 04 21 02	2.60	3.12	4.68	7.02	220	270	40	1/2" – 3/8"	4.40	4.80	
HK 9D 04 23	HK 9V 04 23 02	3.12	3.84	5.61	8.64	220	270	40	1/2" – 3/8"	4.50	4.90	
HK 9D 04 25	HK 9V 04 25 02	3.64	4.56	6.55	10.26	220	270	40	1/2" – 3/8"	4.70	5.10	

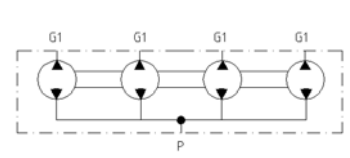


Fig. without valves

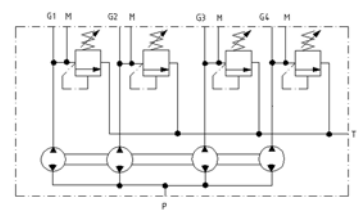


Fig. with valves



HK 9V 04 23 02

- Applies to double flow dividers and quadruple flow dividers:**
- Valves can be set from 70-210 bar, other setting ranges on request
 - p₁ - max. operating pressure, p₂ - max. peak pressure, Δp - max. pressure difference between the sections
 - Speed rpm - min. 1200, max. 2700, recommended 1800-2000

Other sizes and versions available on request

Hydraulic flow divider size 2

- These flow dividers are used to feed two or more independent hydraulic circuits from a single pump.
- They divide the oil flow to the consumers and collect it back into the tank.
- Under compliance with the technical parameters, the dividing error is significantly less than with piston flow dividers.
- In order to avoid a summation of dividing errors, there are flow dividers with phase correction valves for a dead-center position correction.
- These flow dividers can be combined with a motor section for use in conjunction with plunger cylinders.
- Dividing error approx 3 %

Double flow dividers with and without phase correction valves

Code without correction	Code with correction	cm ³ /rev per section	Flow rate per element l/min			Pressure bar			E/A thread	Weight kg without A	Weight kg with A
			At least	Recomm.	maximum	p1	p2	Δp			
HK 9D 02 41	HK 9V 02 41 02	4.20	4.80	7.60	10.00	210	260	50	1/2" - 1/2"	4.50	4.80
HK 9D 02 43	HK 9V 02 43 02	6.00	7.20	10.80	15.00	210	260	50	1/2" - 1/2"	4.60	4.90
HK 9D 02 45	HK 9V 02 45 02	8.40	10.80	15.10	22.50	210	260	50	3/4" - 1/2"	4.70	5.00
HK 9D 02 47	HK 9V 02 47 02	10.80	13.20	19.40	27.50	210	260	50	3/4" - 1/2"	4.80	5.10
HK 9D 02 49	HK 9V 02 49 02	14.40	16.80	25.90	35.00	210	260	50	3/4" - 1/2"	5.00	5.30

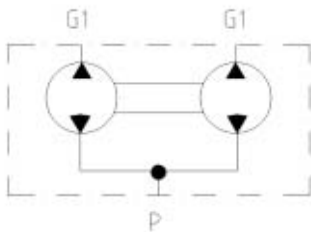


Fig. without valves

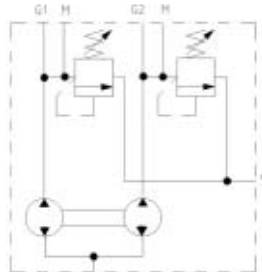


Fig. with valves

Quadruple flow dividers with and without phase correction valves

Code without correction	Code with correction	cm ³ /rev per section	Flow rate per element l/min			Pressure bar			E/A thread	Weight kg without A	Weight kg with A
			At least	Recomm.	maximum	p1	p2	Δp			
HK 9D 04 41	HK 9V 04 41 02	4.20	4.80	7.60	10.00	210	260	50	3/4" - 1/2"	9.40	9.90
HK 9D 04 43	HK 9V 04 43 02	6.00	7.20	10.80	15.00	210	260	50	3/4" - 1/2"	9.50	10.00
HK 9D 04 45	HK 9V 04 45 02	8.40	10.80	15.10	22.50	210	260	50	3/4" - 1/2"	9.60	10.10
HK 9D 04 47	HK 9V 04 47 02	10.80	13.20	19.40	27.50	210	260	50	3/4" - 1/2"	9.70	10.20
HK 9D 04 49	HK 9V 04 49 02	14.40	16.80	25.90	35.00	210	260	50	3/4" - 1/2"	9.90	10.40

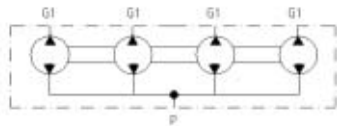


Fig. without valves

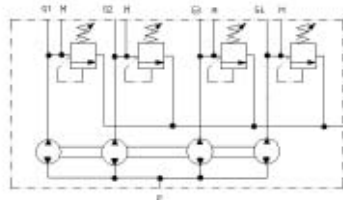


Fig. with valves

Applies to double flow dividers and quadruple flow dividers:

- Valves can be set from 70-210 bar, other setting ranges on request
- p_1 - max. operating pressure, p_2 - max. peak pressure, Δp - max. pressure difference between the sections
- Speed rpm - min. 1200, max. 2500, recommended 1800-2000

Other sizes and versions available on request



HK 9D 02 41



HK 9V 02 43 02



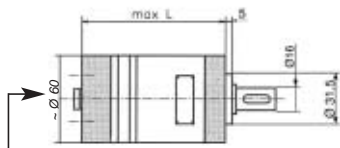
HK 9D 04 41



HK 9V 04 47 02

Hydraulic gerotor motors

HK-EPMM

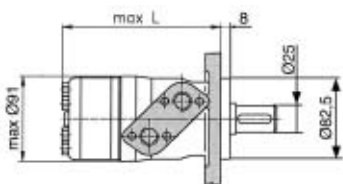


Oil connectors at back
A+B – 3/8", leak oil – 1/4"
Standard variant

Code	Displacement cm ³ /rev.	Max. speed rpm	Max. torque daNm	Max. flow rate l/min	Max. pressure gradient bar	Shaft diameter mm	Dimension L mm	Weight kg
HK EPMM 008 C	8.2	1950	1.1	16	100	16	104	1.90
HK EPMM 012 C	12.9	1550	1.6	20	100	16	106	2.00
HK EPMM 020 C	20.0	1000	2.5	20	100	16	109	2.10
HK EPMM 032 C	31.8	630	4.0	20	100	16	114	2.20
HK EPMM 040 C	40.0	500	4.1	20	80	16	118	2.30
HK EPMM 050 C	50.0	400	4.5	20	70	16	122	2.40
HK EPMM F	Flange for EPMM motors				Pitch 80	Borehole 2x9	0.18 kg	

As a rule, connect oil overflow line to „C“ motors!

HK-EPM



Oil connectors – A+B 1/2"
Leak oil – 1/4"
Standard variant

Two-holed flange
Hole circle 106.4

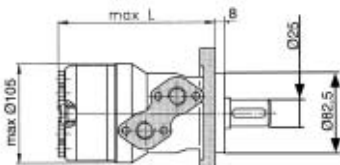
Code	Displacement cm ³ /rev.	Max. speed rpm	Max. torque daNm	Max. flow rate l/min	Max. pressure gradient bar	Shaft diameter mm	Dimension L mm	Weight kg
HK EPM 025 C D	25.0	1600	3.3	40	100	25	133	5.60
HK EPM 032 C D	32.0	1560	4.3	50	100	25	135	5.60
HK EPM 040 C D	39.7	1510	6.4	60	120	25	135	5.80
HK EPM 050 C (*)	49.5	1210	7.9	60	140	25	136	5.80
HK EPM 080 C (*)	79.2	755	13.2	60	140	25	140	5.90
HK EPM 100 C (*)	99.0	605	16.4	60	140	25	141	6.10
HK EPM 125 C (*)	123.8	486	20.5	60	140	25	145	6.20
HK EPM 160 C (*)	158.4	378	26.4	60	140	25	150	6.40
HK EPM 200 C (*)	198.0	303	26.5	60	140	25	155	6.60
HK EPM 250 C (*)	247.5	242	27.6	60	110	25	162	6.80
HK EPM 315 C (*)	316.8	190	28.5	60	90	25	171	7.10
HK EPM 400 C (*)	396.0	150	29.0	60	70	25	182	7.60
HK EPM 500 C (*)	495.0	120	32.5	60	60	25	195	9.00
HK EPM 630 C (*)	623.0	95	36.0	60	55	25	213	9.50

* These motors are also available from stock with high pressure seal „D“.

As a rule, connect oil overflow line to „C“ motors!

Hydraulic geroller motors

HK-EPRM



Oil connectors – A+B 1/2"
Leak oil at back – 1/4"
Standard variant

Two-holed flange
Hole circle 106.4

Code	Displacement cm ³ /rev.	Max. speed rpm	Max. torque daNm	Max. flow rate l/min	Max. pressure gradient bar	Shaft diameter mm	Dimension L mm	Weight kg
HK EPRM 050 C (*)	51.5	775	10.1	60	140	25	138	6.80
HK EPRM 080 C (*)	80.3	750	19.5	60	175	25	143	6.90
HK EPRM 100 C (*)	99.8	600	24.0	60	175	25	147	7.20
HK EPRM 125 C (*)	125.7	475	30.0	60	175	25	151	7.30
HK EPRM 160 C (*)	159.6	375	39.0	60	175	25	157	7.50
HK EPRM 200 C (*)	199.8	300	38.5	60	140	25	164	8.00
HK EPRM 250 C (*)	250.1	240	39.0	60	110	25	173	8.40
HK EPRM 315 C (*)	315.7	190	39.0	60	90	25	184	9.10
HK EPRM 400 C (*)	397.0	150	38.0	60	70	25	198	9.80

* These motors are also available from stock with high pressure seal „D“.

As a rule, connect oil overflow line to „C“ motors!

HK-EPMS

Code	Displacement cm ³ /rev.	Max. speed rpm	Max. torque daNm	Max. flow rate l/min	Max. pressure gradient bar	Shaft diameter mm	Dimension mm L	Weight kg
HK EPMS 080 C	80.5	810	20.0	65	175	32	166	9.80
HK EPMS 100 C	100.0	750	25.0	75	175	32	169	10.00
HK EPMS 125 C	125.7	600	32.0	75	175	32	174	10.30
HK EPMS 160 C	159.7	470	34.0	75	150	32	180	10.70
HK EPMS 200 C	200.0	375	40.0	75	140	32	187	11.10
HK EPMS 250 C	250.0	300	45.0	75	125	32	195	11.60
HK EPMS 315 C	314.9	240	54.0	75	120	32	207	12.30
HK EPMS 400 C	397.0	185	58.0	75	100	32	221	13.20

As a rule, connect oil overflow line to „C“ motors!

HK-EPMT

Code	Displacement cm ³ /rev.	Max. speed rpm	Max. torque daNm	Max. flow rate l/min	Max. pressure gradient bar	Shaft diameter mm	Dimension mm L	Weight kg
HK EPMT 160 C	161.1	625	47.0	100	200	40	190	20.00
HK EPMT 200 C	201.4	625	59.0	125	200	40	195	21.00
HK EPMT 250 C	251.8	500	73.0	125	200	40	201	21.50
HK EPMT 315 C	326.3	380	95.0	125	200	40	211	22.00
HK EPMT 400 C	410.9	305	108.0	125	180	40	221	23.00
HK EPMT 500 C	523.6	240	122.0	125	160	40	235	24.00

As a rule, connect oil overflow line to „C“ motors!

Detailed technical documentation, characteristic curves etc. on request.

Shock valves for hydraulics motors for direct flange-mounting

Code	For motor	Max. l/min	Connections	Weight kg
HK V0590 0500	HK EPM + HK EPRM	60	1/2" IG	1.30
HK V0590 0490	HK EPMS	60	1/2" IG	1.25
HK V0590 0505	HK EPMT	100	3/4" IG	1.85

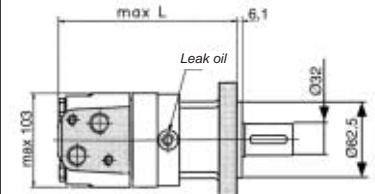
Casing: galvanized steel, steel internal parts

Springs for shock valves HK V0590

Code	Spring setting ranges bar
	40 - 180 standard
HK VML 100 0050	05 - 50
HK VML 102 0100	20 - 100
HK VML 105 0250	50 - 250
HK VML 108 0300	80 - 300

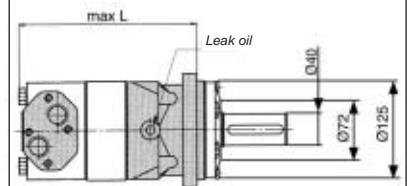
These valves are flange-mounted directly onto the motors (O-ring seal).
These valves must be set for the application case.

Further motors sizes, types and variants, hydraulic brakes and special mounted valves available on request.



Oil connectors – A+B 1/2"
Leak oil – 1/4"
Standard variant

Four-hole flange
Hole circle 106.4

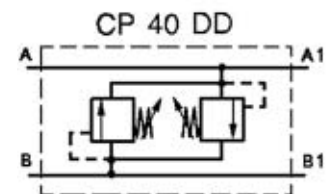


Oil connectors – A+B 3/4"
Leak oil – 1/4"
Standard variant

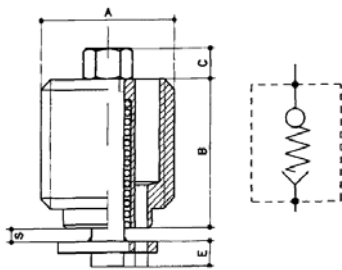
Four-hole flange
Hole circle 160



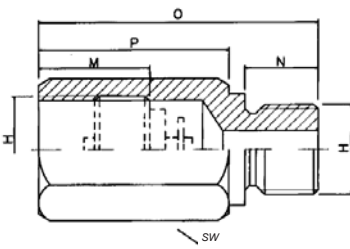
HK V0590 0500



Hydraulic pipe valves – steel casing



Material: steel



Casing: steel, galvanized

Line break safety valve without casing

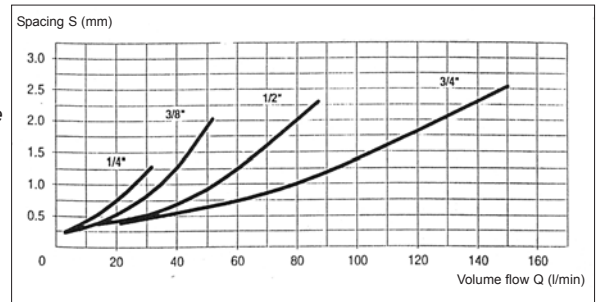
Code	Q _{max} l/min	A	B	C	E	Weight kg
HK V1 601 0400	30	1/4" GAS	8	4	4	0.001
HK V1 601 0600	50	3/8" GAS	11	4	6	0.015
HK V1 601 0800	90	1/2" GAS	11	4	6	0.020
HK V1 601 1200	140	3/4" GAS	16.5	5	6	0.045

Valve casing for line break safety valve

Code	H	M	N	O	P	SW	Weight kg
HK RV 063 0400	1/4"	28	12	51	40	19	0.07
HK RV 063 0600	3/8"	30	12	52	40	22	0.10
HK RV 063 0800	1/2"	35	14	60	45	27	0.17
HK RV 063 1200	3/4"	38	16	78	61	32	0.20

Setting diagram for line break safety valve

The setting value „S“ must be 1.5 times the required volume flow for manually switched valves and double for electrically switched valves. Please also note the volume flow ratio for double-action cylinders!

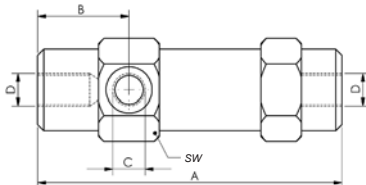
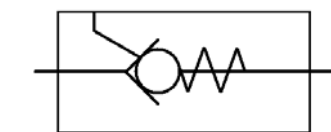


Attention: Line break safety valves are safety valves and must be set for the application case.

Pilot operated check valve – single-action

Code	Q _{max} l/min	P _{max} bar	Opening pressure bar	Pilot open ratio	A	B	C	D	SW	Weight kg
HK V1 710 0004	15	320	0.5	1:9	103	31	1/4"	1/4"	36	0.70
HK V1 710 0006	35	320	0.5	1:6	112	35	1/4"	3/8"	40	0.92
HK V1 710 0008	45	320	0.5	1:4	120	38	1/4"	1/2"	42	1.06
HK V1 710 0012	80	320	0.5	1:4	151	45	1/4"	3/4"	55	2.30

Casing: steel, galvanized; internal parts made of hardened steel

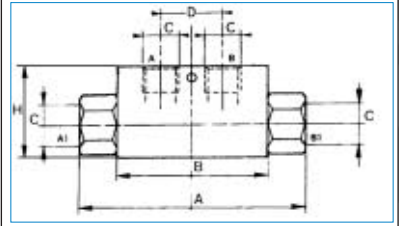
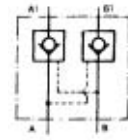


HK V1 710 0008

Pilot operated check valve - double-action

Code	Q_{max} l/min	P_{max} bar	Opening pressure bar	Pilot open ratio	A	B	C	D	H	Weight kg
HK V1 865 0400	12	350	0.5	1:4.5	126	63	1/4" BSPP	30	40	0.66
HK V1 865 06NT	30	350	0.5	1:4.5	126	63	3/8" BSPP	38	40	0.69
HK V1 865 0800	45	350	0.5	1:4	174	90	1/2" BSPP	40	50	1.76

Casing: steel, galvanized; internal parts made of hardened steel, cone closing

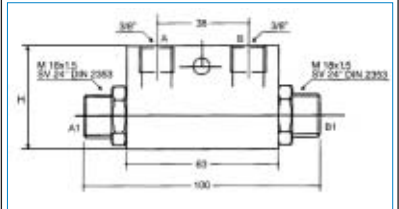


HK V1 865 06NT

Code	Q_{max} l/min	P_{max} bar	Opening pressure bar	Pilot open ratio	Dimension H	Weight kg
HK V1 866 0600	20	350	0.5	1:4.5	40	0.54

Valve with direct pipe connection

Casing: steel, galvanized; internal parts made of hardened steel, cone closing

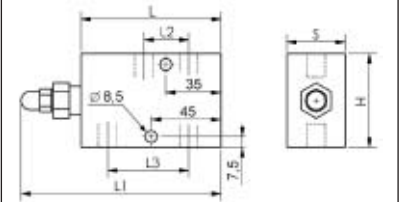
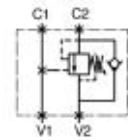


Load-lowering valves - single action

Code	Thread	Q_{max} l/min	P_{max} bar	L	L1	L2	L3	H	S	Weight kg
HK V2 190 A600	3/8"	40	250	100	148	30	60	60	30	1.21
HK V2 190 A800	1/2"	60	250	100	148	35	65	60	30	1.15

Casing: galvanized steel, steel internal parts.

Hydraulic servo ratio: 1:4



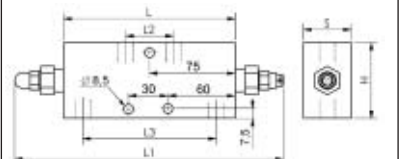
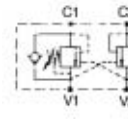
Load-lowering valves

Load-lowering valves - double-action

Code	Thread	Q_{max} l/min	P_{max} bar	L	L1	L2	L3	H	S	Weight kg
HK V2 290 A600	3/8"	40	250	150	246	50	110	60	30	1.74
HK V2 290 A800	1/2"	60	250	150	246	50	110	60	30	1.70

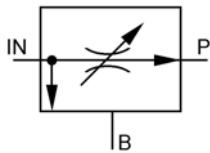
Casing: galvanized steel, steel internal parts.

Hydraulic servo ratio: 1:4

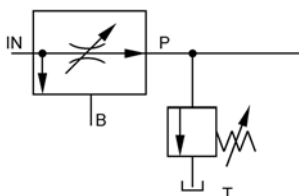


These load-lowering valves must be set for the application case.

When using valve type 190 with a plunger cylinder, an additional pressure relief valve must be fitted into the V1 line, which must be matched to the load pressure of the cylinder. This pressure relief valve must relieve the tank.



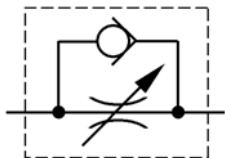
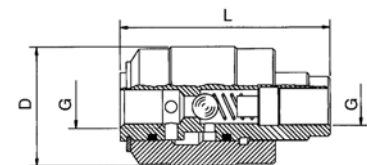
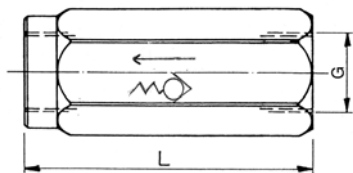
HK V6 215 0322



With additional secondary pressure relief valve



HK V6 215 0323



3-way flow control valves – pressure-compensated

Code	IN/B thread	P thread	Max. inflow l/min	Max. pressure bar	Max. height	Max. length	Max. width	Weight kg
HK V6 215 0320	1/2"	3/8"	40	250	98	87	65	1.26
HK V6 215 0322	3/4"	1/2"	70	250	101	106	80	1.75

Casing: cast; steel internal parts

3-way flow control valves – pressure-compensated With additional secondary pressure relief valve

Code	IN/B thread	P thread	Max. inflow l/min	Max. pressure bar	Max. height	Max. length	Max. width	Weight kg
HK V6 215 0321	1/2"	3/8"	40	250	110	87	65	1.40
HK V6 215 0323	3/4"	1/2"	70	250	125	106	80	1.84

Casing: cast; steel internal parts

These 3-way flow control valves hold the preferred oil flow (P) irrespective of the oil inflow (IN). The residual oil flow (B) can be led to the tank or used for an ancillary consumer.

Division: max. 75% of the quantity from IN to P
min. 2 l/min to P

These valves must be set for the application case.

Check valves

Code	Q _{max} l/min	P _{max} bar	Opening pressure bar	Internal thread G	Dimension L mm	Jaw width mm	Weight kg
HK V 1501 0004	20	400	0.5	1/4"	62	19	0.12
HK V 1501 0006	40	400	0.5	3/8"	68	24	0.15
HK V 1501 0008	60	350	0.5	1/2"	77	30	0.20
HK V 1501 0012	100	300	0.5	3/4"	88	36	0.28
HK V 1501 0016	150	300	0.5	1"	105	41	0.35
HK V 1501 0020	200	250	0.5	1 1/4"	123	55	0.40

Casing: steel, galvanized, steel internal parts,
cone closing

One-way restrictors

Code	Q _{max} l/min	P _{max} bar	L	D	G	Weight kg
HK V2 765 Z400	12	320	62	36	1/4" BSPP	0.33
HK V2 765 Z600	30	320	72	42	3/8" BSPP	0.45
HK V2 765 Z800	45	320	86	48	1/2" BSPP	0.76

Casing: galvanized steel, steel internal parts,
ball closing

These valves must be set for the application case.

Pressure relief valves - type HK V0

Code	Q _{max} l/min	Setting range bar	Connection T/P	Dimension L mm	Dimension L1 mm	Dimension S/H mm	Weight kg
HK V0 12 050 03	25	15-50	1/4"	52	97	40/30	0.53
HK V0 12 100 03	25	20-100	1/4"	52	97	40/30	0.53
HK V0 12 180 03	25	40-180	1/4"	52	97	40/30	0.53
HK V0 12 250 03	25	50-250	1/4"	52	97	40/30	0.53
HK V0 12 300 03	25	80-300	1/4"	52	97	40/30	0.53
HK V0 12 050 06	40	15-50	3/8"	72	141	40	0.86
HK V0 12 100 06	40	20-100	3/8"	72	141	40	0.86
HK V0 12 180 06	40	40-180	3/8"	72	141	40	0.86
HK V0 12 250 06	40	50-250	3/8"	72	141	40	0.86
HK V0 12 300 06	40	80-300	3/8"	72	141	40	0.86
HK V0 12 050 08	55	15-50	1/2"	77	146	45	1.10
HK V0 12 100 08	55	20-100	1/2"	77	146	45	1.10
HK V0 12 180 08	55	40-180	1/2"	77	146	45	1.10
HK V0 12 250 08	55	50-250	1/2"	77	146	45	1.10
HK V0 12 300 08	55	80-300	1/2"	77	146	45	1.10
HK V0 12 050 12	90	15-50	3/4"	92	161	50	1.30
HK V0 12 100 12	90	20-100	3/4"	92	161	50	1.30
HK V0 12 180 12	90	40-180	3/4"	92	161	50	1.30
HK V0 12 250 12	90	50-250	3/4"	92	161	50	1.30
HK V0 12 300 12	90	80-300	3/4"	92	161	50	1.30

A measuring connector is not provided for 1/4" valves.

Casing: galvanized steel, steel internal parts.

These valves must be set for the application case.

Pressure relief valves - type HK VMP BL / HK VMPP BL

Code	Material	Setting	Con- nection T + P	Setting range bar	Q _{max} l/min	A mm	B mm	Width mm	D mm	E mm	F mm	G mm	Z mm	Weight kg
HK VMP BL 03 14 V	Aluminum	Hand wheel	1/4"	50-220	10	60	60	30	48	14	30	32	6.5	0.42
HK VMP BL 05 38 V	Aluminum	Hand wheel	3/8"	50-220	35	60	70	35	35	18	48	34	6.5	0.48
HK VMP BL 10 12 V	Aluminum	Hand wheel	1/2"	50-220	60	70	78	35	39	20	58	40	6.5	0.52
HK VMP BL 20 34 V	Aluminum	Hand wheel	3/4"	50-220	100	70	100	50	50	22	54	57	8.5	0.67
HK VMP BL 20 100 V	Aluminum	Hand wheel	1"	50-220	100	85	120	60	63	30	65	65	8.5	0.95
HK VMP BL 05 38 SV	Steel	Hand wheel	3/8"	180-350	35	60	70	35	35	18	48	34	6.5	0.60
HK VMP BL 10 12 SV	Steel	Hand wheel	1/2"	180-350	60	70	78	35	39	20	58	40	6.5	0.80
HK VMP BL 20 34 SV	Steel	Hand wheel	3/4"	180-350	100	70	100	50	50	22	54	57	8.5	0.90
HK VMP BL 20 100 SV	Steel	Hand wheel	1"	180-350	100	85	120	60	63	30	65	65	8.5	1.00
HK VMPP BL 20 100	Aluminum	Screw	1"	50-220	100	85	120	60	63	30	65	65	8.5	0.86
HK VMPP BL 20 100 S	Steel	Screw	1"	180-350	100	85	120	60	63	30	65	65	8.5	0.90
Pressure relief valves, pilot-operated														
HK VMPP BL 45 114	Aluminum	Screw	1 1/4"	50-220	250	100	135	70	70	35	80	68	10.5	2.4
HK VMPP BL 45 114 V	Aluminum	Hand wheel	1 1/4"	50-220	250	100	135	70	70	35	80	68	10.5	2.8
HK VMPP BL 45 114 S	Steel	Screw	1 1/4"	180-350	250	100	135	70	70	35	80	68	10.5	5.8
HK VMPP BL 45 114 SV	Steel	Hand wheel	1 1/4"	180-350	250	100	135	70	70	35	80	68	10.5	6.5

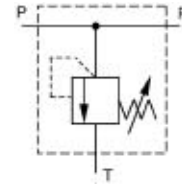
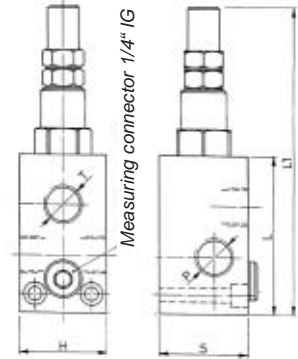
These valves must be set for the application case.

Springs for pressure relief valves, type HK VMP BL

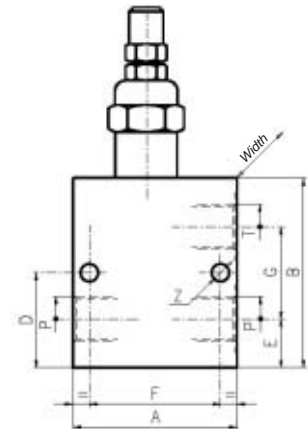
Code	Setting range bar	For valve with port size T+P	Weight kg
HK VMP BL 14 050	50-50	1/4"	0.015
HK VMP BL 14 220	50-220	1/4"	0.015
HK VMP BL 14 350	180-350	1/4" (only for steel casing)	0.015
HK VMP BL 38 040	4-40	3/8"	0.015
HK VMP BL 38 080	20-80	3/8"	0.015
HK VMP BL 38 220	50-220	3/8"	0.015
HK VMP BL 38 350	180-350	3/8" (only for steel casing)	0.015
HK VMP BL 12 040	4-40	1/2"	0.015
HK VMP BL 12 080	20-80	1/2"	0.015
HK VMP BL 12 220	50-220	1/2"	0.015
HK VMP BL 12 350	180-350	1/2" (only for steel casing)	0.015
HK VMP BL 34 20 040	4-40	3/4" and 1"	0.015
HK VMP BL 34 20 080	20-80	3/4" and 1"	0.015
HK VMP BL 34 20 220	50-220	3/4" and 1"	0.015
HK VMP BL 34 20 350	180-350	3/4" and 1" (only for steel casing)	0.015



HK V0 12 050 06



HK VMP BL 05 38 S V





HK V257 2-1/2"



Flow control valve up to 400 bar – made of steel with precision valve spindle

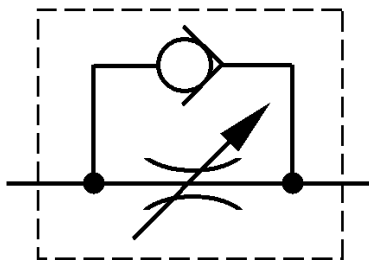
- Precise volume flow control and closing in both directions
- Metallic sealing without leakage, linear aperture cross-section
- Precise throttling over a wide flow range
- The setting is controlled on a decimal scale 0-9 on the underside of the setting knob and a reference scale A to C from 0 to 4 on the valve stem for precisely repeatable settings.
- The Allen screw in the setting knob locks it in place
- An additional lock nut is available for mounting on a control panel

Code	BSF thread	Operating pressure bar	Max. flow rate l/min	Length height shank	Weight kg
HK V257 2-1/8	1/8"	400	7	38 x 64 x 16	0.11
HK V257 2-1/4	1/4"	400	13	49 x 78 x 20	0.20
HK V257 2-3/8	3/8"	400	38	59 x 93 x 25	0.38
HK V257 2-1/2	1/2"	400	54	68 x 107 x 30	0.60
HK V257 2-3/4	3/4"	400	80	86 x 132 x 40	1.25
HK V257 2-1	1"	320	190	105 x 167 x 50	2.55
HK V257 2-1 1/4	1 1/4"	320	198	120 x 172 x 55	3.00
HK V257 2-1 1/2	1 1/2"	320	200	134 x 181 x 65	4.22
HK V257 2-2	2"	320	200	150 x 202 x 75	7.30

These valves must be set for the application case.



HK V257 5-1/2"



One-way restrictor up to 400 bar – made of steel with precision valve spindle

- Precise volume flow control and closing in one direction, free flow in the other direction.
- Metallic sealing without leakage, linear aperture cross-section
- Precise throttling over a wide flow range
- Opening pressure of the check valve 0.35 bar
- The setting is made in the same way as for the flow control valve.
- The Allen screw in the setting knob locks it in place
- An additional lock nut is available for mounting on a control panel

Code	BSF thread	Operating pressure bar	Max. flow rate l/min	Length height shank	Weight kg
HK V257 5-1/8	1/8"	400	6	50 x 64 x 16	0.13
HK V257 5-1/4	1/4"	400	14	66 x 78 x 20	0.25
HK V257 5-3/8	3/8"	400	32	79 x 93 x 25	0.50
HK V257 5-1/2	1/2"	400	47	95 x 107 x 30	0.75
HK V257 5-3/4	3/4"	400	84	115 x 132 x 40	1.60
HK V257 5-1	1"	320	198	139 x 167 x 50	3.05
HK V257 5-1 1/4	1 1/4"	320	200	157 x 172 x 55	3.75
HK V257 5-1 1/2	1 1/2"	320	200	190 x 181 x 65	5.76
HK V257 5-2	2"	320	200	228 x 202 x 75	10.00

These valves must be set for the application case.

See the following page for lock nuts for mounting on a control panel.

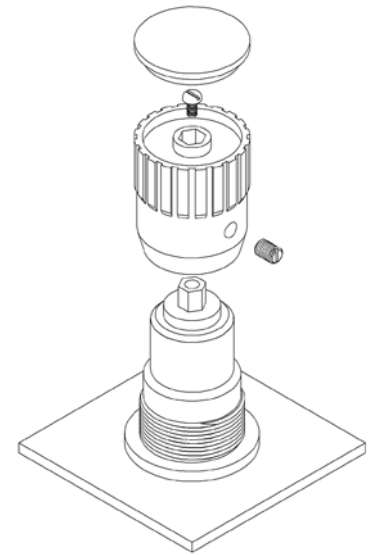
Lock nuts for mounting on a control panel

Assembly:

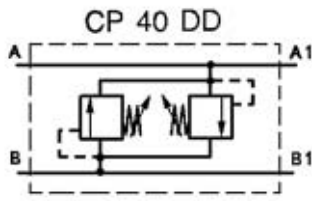
- Release the handwheel catch
- Loosen the slotted screw underneath the PVC cap
- Remove the handwheel
- Mount the valve with the lock nut

Code	For valve size	Thread
HK KM 202-1/8	1/8"	M17 x 1
HK KM 202-1/4	1/4"	M20 x 1
HK KM 202-3/8	3/8"	M20 x 1.5
HK KM 202-1/2	1/2"	M30 x 1.5
HK KM 202-3/4	3/4"	M40 x 1.5
HK KM 202-1	1"	M50 x 1.5
HK KM 202-1 1/4	1 1/4"	M50 x 1.5
HK KM 202-1 1/2	1 1/2"	M55 x 2
HK KM 202-2	2"	M65 x 2

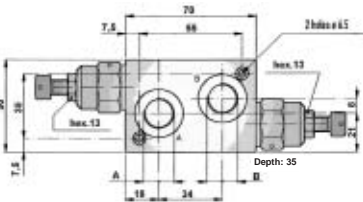
Nuts fitting check valves and one-way restrictors HK V257



Hydraulic pipe valves – aluminum casing

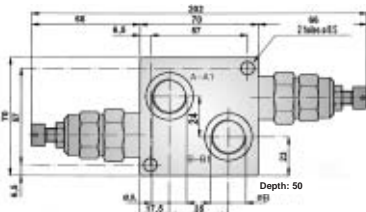


Double-action pressure relief valves (shock valves)



Code	Max. volume flow l/min	Max. pressure bar	Setting range bar	Weight kg
HK VA E 06 EN 1LG	40	315	25-70	0.50
HK VA E 06 EN 2LG	40	315	35-170	0.50
HK VA E 06 EN 3LG	40	315	70-315	0.50

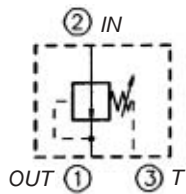
Valve including casing, connector thread: 3/8"



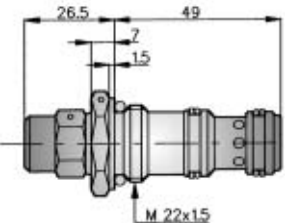
Code	Max. volume flow l/min	Max. pressure bar	Setting range bar	Weight kg
HK VA VD 06 EN 1 LP 12	80	350	25-140	0.98
HK VA VD 06 EN 2 LP 12	80	350	70-210	0.98
HK VA VD 06 EN 3 LP 12	80	350	105-350	0.98

Valve including casing, connector thread: 1/2"

These valves must be set for the application case.



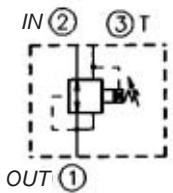
Pressure reducing valves – with directly actuated spool – size 6 (cartridge valve)



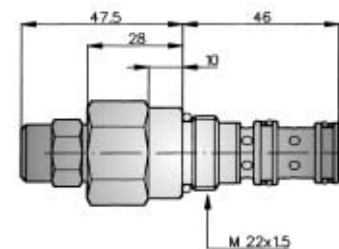
Code	Max. volume flow l/min	Max. pressure bar	Setting range bar	Outlet pressure bar	Max. leak oil l/min	Weight kg
HK PRC 06 E05	40	315	05-10	80	0.6	0.13
HK PRC 06 E10	40	315	10-25	80	0.6	0.13
HK PRC 06 E20	40	315	25-80	80	0.6	0.13

The above code only includes the valve!
For corresponding screw-in casing see table 1

These valves must be set for the application case.



3-way pressure reducing valves – pilot-operated – size 6 (cartridge valve)



Code	Max. volume flow l/min	Max. pressure bar	Setting range bar	Outlet pressure bar	Max. leak oil l/min	Weight kg
HK PRMP 06 E10	40	315	10-70	210	0.6	0.20
HK PRMP 06 E20	40	315	30-140	210	0.6	0.20
HK PRMP 06 E30	40	315	70-210	210	0.6	0.20

The above code only includes the valve!
For corresponding screw-in casing see table 1

These valves must be set for the application case.

Table 1 Screw-in casing for pressure control valves size 6

Option code	Thread	A	B	C	D	E	F	G	H	I	Weight kg
HK 008 13	3/8"	30	60	70	50	7.5	45	6.5	16	34	0.26
HK 007 13	1/2"	35	70	70	50	12.5	45	6.5	16	34	0.37

Material aluminum
Other types of casing on request.

Example of order for mounted pressure control valves

HK-PRC 06 E05 - 00813

Valve Casing

Hydraulic cartridge valves with aluminum casing

2-way flow control valves with pressure compensation size 6/12 (cartridge valve)

Code	Max. volume flow l/min	Max. pressure bar	Setting range l/min	Max. deviation percent	Size	Weight kg
HK VR 06 E12	30	315	01-04	10	6	0.18
HK VR 06 E20	30	315	03-10	10	6	0.18
HK VR 06 E30	30	315	06-20	10	6	0.18
HK VR 06 E35	30	315	10-30	10	6	0.18

The above code only includes the valve!
For corresponding screw-in casing see table 2

Code	Max. volume flow l/min	Max. pressure bar	Setting range l/min	Max. deviation percent	Size	Weight kg
HK VR 12 E15	60	315	03-07	10	12	0.42
HK VR 12 E25	60	315	06-16	10	12	0.42
HK VR 12 E40	60	15	16-40	10	12	0.42
HK VR 12 E50	60	315	25-60	10	12	0.42

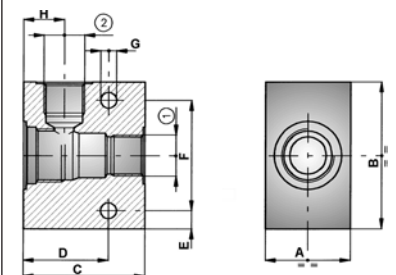
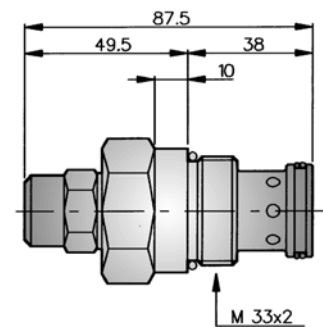
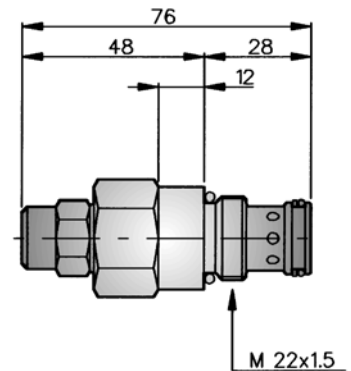
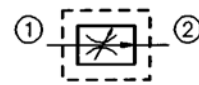
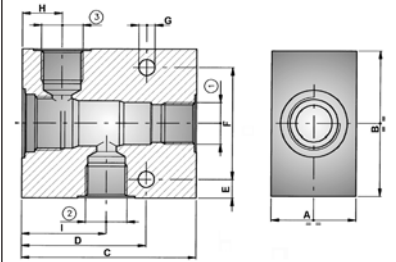
The above code only includes the valve!
For corresponding screw-in casing see table 3

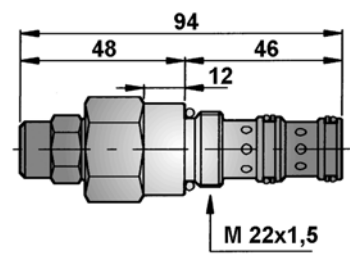
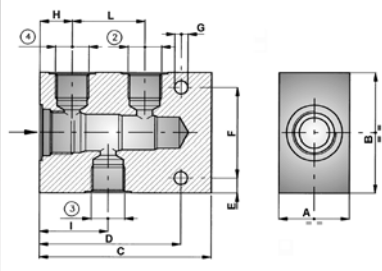
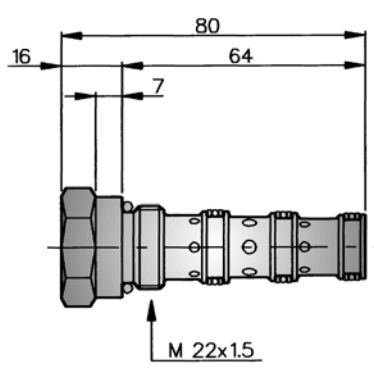
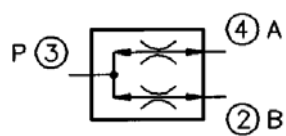
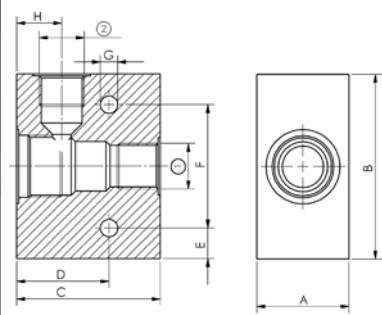
These valves must be set for the application case.

Table 2 Screw-in casing for 2-way flow control valve size 6

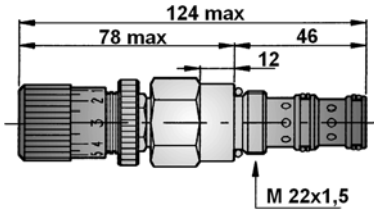
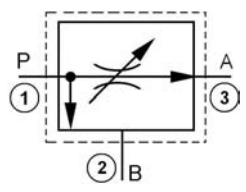
Option code	Thread	A	B	C	D	E	F	G	H	Weight kg
HK 006 13	3/8"	30	60	50	35	7.5	45	6.5	16	0.20
HK 005 13	1/2"	35	70	50	35	12.5	45	6.5	16	0.27

Material aluminum
Other types of casing on request.





Size 06 - Screw setting



Size 06 - Handwheel setting

Table 3 Screw-in casing for 2-way flow control valve size 12

Option code	Thread	A	B	C	D	E	F	G	H	Weight kg
HK 024 13	1/2"	45	90	70	45	15	60	8.5	22	0.64
HK 023 13	3/4"	45	90	70	45	15	60	8.5	22	0.62
HK 052 13	1"	45	90	70	50	10	60	8.5	22	0.60

Material aluminum
Other types of casing on request.

Example of order for mounted 2-way flow control valves

HK-VR 06 E12 - 00613

Valve Casing

1:1 flow divider with pressure compensation size 6 (cartridge valve)

Code	Max. volume flow l/min	Max. pressure bar	Inflow volume l/min	Max. deviation percent	Weight kg
HK VDF 06 03	45	210	03-07	10	0.15
HK VDF 06 06	45	210	06-13	10	0.15
HK VDF 06 10	45	210	10-25	10	0.15
HK VDF 06 25	45	210	22-45	10	0.15

The above code only includes the valve!
For corresponding screw-in casing see table 4

Selection examples for 1:1 flow dividers with pressure compensation

Given inflow volume 12 l/min 23 l/min	Selection of flow dividers HK VDF 06 06 (range 6 - 13 l/min) HK VDF 06 10 (range 10 - 25 l/min)
---	---

When making a selection, please ensure that the upper volume flow range of the selected flow divider is used as this gives a more accurate division.

Table 4 Screw-in casing for flow dividers size 6

Option code	Thread	A	B	C	D	E	F	G	H	I	L	Weight kg
HK 060 13	3/8"	30	60	85	70	7.5	45	6.5	16	34	36	0.32
HK 061 13	1/2"	35	70	85	70	12.5	45	6.5	16	34	36	0.45

Material aluminum
Other types of casing on request.

Example of order for mounted 1:1 flow dividers

HK-VDF 0603- 06013

Valve Casing

3-way flow control valves with pressure compensation size 6/12 (cartridge valve) – residual oil flow is pressurizable

Code	Max. volume flow l/min	Max. pressure bar	Setting range l/min	Max. deviation percent	Size	Setting	Weight kg
HK VRC 06 E12	50	315	01-04	10	06	Screw	0.20
HK VRC 06 E20	50	315	03-10	10	06	Screw	0.20
HK VRC 06 M20	50	315	03-10	10	06	Hand wheel	0.23
HK VRC 06 E30	50	315	06-20	10	06	Screw	0.20
HK VRC 06 M30	50	315	06-20	10	06	Hand wheel	0.23
HK VRC 06 E35	50	315	10-30	10	06	Screw	0.20
HK VRC 06 M35	50	315	10-30	10	06	Hand wheel	0.23

The above code only includes the valve!
For corresponding screw-in casing see table 5

Code	Max. volume flow l/min	Max. pressure bar	Setting range l/min	Max. deviation %	Size	Setting	Weight kg
HK VRC 12 E15	100	315	03-07	10	12	Screw	0.47
HK VRC 12 E25	100	315	06-16	10	12	Screw	0.47
HK VRC 12 E35	100	315	09-32	10	12	Screw	0.47
HK VRC 12 E40	100	315	16-40	10	12	Screw	0.47
HK VRC 12 M40	100	315	16-40	10	12	Hand wheel	0.55
HK VRC 12 E50	100	315	25-60	10	12	Screw	0.47
HK VRC 12 M50	100	315	25-60	10	12	Hand wheel	0.55
HK VRC 12 E57	100	315	30-73	10	12	Screw	0.47
HK VRC 12 M57	100	315	30-73	10	12	Hand wheel	0.55

The above code only includes the valve!
For corresponding screw-in casing see table 6

These valves must be set for the application case.

Table 5 Screw-in casing for 3-way flow control valve size 6

Option code	Thread	A	B	C	D	E	F	G	H	I	Weight kg
HK 008 13	3/8"	30	60	70	50	7.5	45	6.5	16	34	0.26
HK 007 13	1/2"	35	70	70	50	12.5	45	6.5	16	34	0.37

Material aluminum
Other types of casing on request.

Table 6 Screw-in casing for 3-way flow control valve size 12

Option code	Thread	A	B	C	D	E	F	G	H	I	Weight kg
HK 017 12	1/2"	45	90	95	70	15	60	8.5	22	47	0.85
HK 018 12	3/4"	45	90	95	70	15	60	8.5	22	47	0.82

Material aluminum
Other types of casing on request.

Example of order for mounted 3-way flow control valves

HK-VRC 06 E12 - 00813

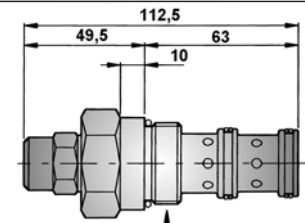
Valve Casing

2/2-way seated solenoid valves size 6/12 (cartridge valves)

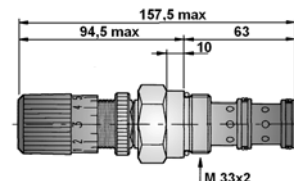
Code	Switch symbol	Max. volume flow l/min	Max. pressure bar	Emergency manual operation	Weight with coil kg	Control
HK EVH 06 A3		50	250	yes	0.43	Pilot-operated
HK EVH 06 C3		50	250	no	0.43	Pilot-operated
HK EVH 06 E C3		50	250	yes	0.43	Pilot-operated
HK EVH 06 A5		40	250	yes	0.43	Directly controlled
HK EVH 06 C5		25	250	no	0.43	Directly controlled
HK EVH 12 A3		150	250	yes	0.54	Pilot-operated
HK EVH 12 C3		150	250	no	0.54	Pilot-operated

The above code only includes the valve;
For corresponding screw-in casing see tables 7 + 8 on page 41;
For corresponding coils see table 9 on page 41; corresponding plug see table 10 on page 41;
Other valve versions on request.

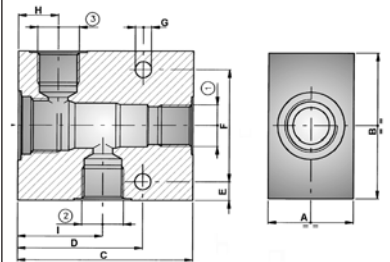
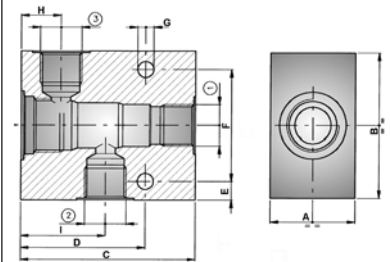
For corresponding casings, coils and plugs, see next page.



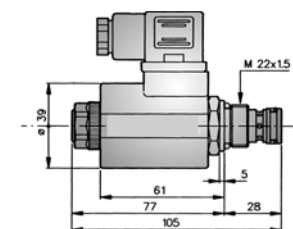
Size 12 - Screw setting



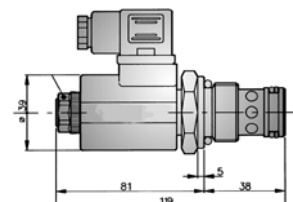
Size 12 - Handwheel setting



HK EVH 06 A3



2/2-way seated solenoid valve size 6



2/2-way seated solenoid valve size 12

Accessories for 2/2-way seated solenoid valves size 6/12

Table 7 Screw-in casing for 2-way seated solenoid valves size 6

Option code	Thread	A	B	C	D	E	F	G	H	Weight kg
HK 006 13	3/8"	30	60	50	35	7.5	45	6.5	16	0.20
HK 005 13	1/2"	35	70	50	35	12.5	45	6.5	16	0.27

Material: aluminum
Other types of casing on request.

Table 8 Screw-in casing for 2-way seated solenoid valves size 12

Option code	Thread	A	B	C	D	E	F	G	H	Weight kg
HK 024 13	1/2"	45	90	70	15	60	60	8.5	22	0.64
HK 023 13	3/4"	45	90	70	15	60	60	8.5	22	0.62
HK 052 13	1"	45	90	70	10	60	60	8.5	22	0.60

Material: aluminum
Other types of casing on request.

Table 9 Coils for 2-way seated valves

Code	Rated voltage/ current type	Corresponding plugs	Power consumption	Current consumption
HK C 12 VDC	12 V DC	Type 664, 666, 667, 668	26 W	1.29 – 2.16 A
HK C 24 VDC	24 V DC	Type 664, 666, 667, 668	26 W	0.64 – 1.08 A
HK C 220 RAC	220 V AC	Type 669 (rectifier)	26 W	0.07 – 0.13 A

Other types of coil on request.

Table 10 Plugs for coils

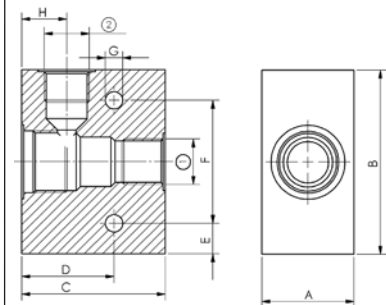
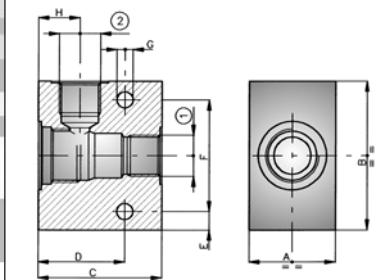
Code	Color	Design	Weight kg
HK SP 664	black	Standard 4-pole	0.07
HK SP 664 A	grey	Standard 4-pole	0.07
HK SP 666	black	Standard 3-pole	0.07
HK SP 666 A	grey	Standard 3-pole	0.07
HK SP 667 24	transparent	With LED for 12/24 V DC	0.07
HK SP 667 110	transparent	With LED for 110 V AC	0.07
HK SP 667 220	transparent	With LED for 230 V AC	0.07
HK SP 668 24	black	With LED 12/24 V and protection circuit	0.07
HK SP 668 24 A	grey	With LED 12/24 V and protection circuit	0.07
HK SP 669	black	With rectifier	0.07
HK SP 669 A	grey	With rectifier	0.07

DIN 43650; other plugs on request

Example of order for mounted 2-way seated solenoid valves

HK-EVH 06 A3-006 13 - C12VDC – SP 666

Valve Casing Coil Plug



HK C 12 VDC



HK SP 669

Directly controlled manual and solenoid valves size 6 type HK DH

ISO/Cetop 03 – for plate mounting

- These valves are dimensionally interchangeable with Cetop standard valves of other manufacturers.
- The solenoids and all moving parts switch internally in oil.
- Solenoid version: With emergency manual operation as standard
- **Max. volume flow 60 l/min. (see characteristic curves)**
- Max. pressure 350 bar

Table 11 Manual directional valves size 6 type HK DH

Code	Circuit diagram	Type	Design	Overlapping positive/negative	Spool type	Weight kg
HK DH01 20		4/2	Spring return	N	0	1.60
HK DH01 21		4/2	Spring return	P	1	1.60
HK DH01 50		4/2	2 catches	N	0	1.60
HK DH01 51		4/2	2 catches	P	1	1.60
HK DH01 10		4/3	Spring return to 0	N	0	1.60
HK DH01 11		4/3	Spring return to 0	P	1	1.60
HK DH01 13		4/3	Spring return to 0	P	3	1.60
HK DH01 14		4/3	Spring return to 0	N	4	1.60
HK DH01 40		4/3	3 catches	N	0	1.60
HK DH01 41		4/3	3 catches	P	1	1.60
HK DH01 43		4/3	3 catches	P	3	1.60
HK DH01 44		4/3	3 catches	N	4	1.60

See table A and diagram B for maximum volume flow
Further circuits and versions on request

Spool type	Direction of flow				
	P → A	P → B	A → T	B → T	P → T
0	C	C	C	C	
0/2, 1, 1/2	A	A	A	A	
2, 3	A	A	C	C	
2/2, 4, 5, 9	D	D	D	D	A
6	A	A	C	A	

Table A

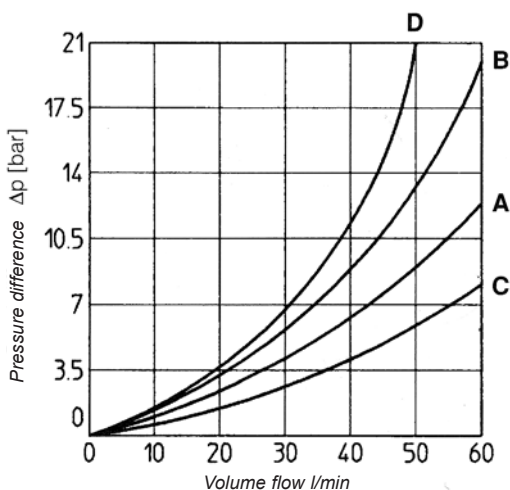
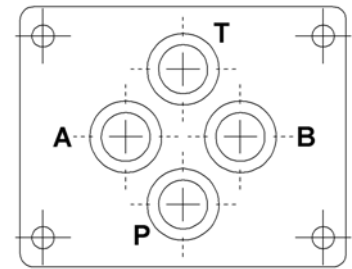


Diagram B



ISO/CETOP 03 – Size 6



HK DH0 141

**Table 12 Solenoid valves size 6 type HK DH;
(without coils and plugs)**



HK DH10 71

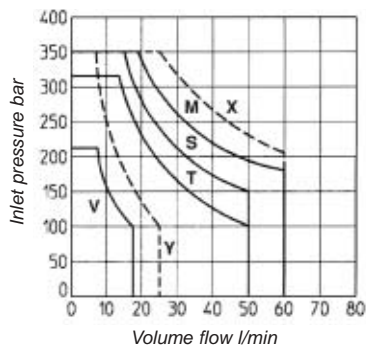


Diagramm C

Code	Circuit diagram	Type	Design	Overlapping positive/negative	Spool type	Diagr. C	Weight kg
HK DH1 0631 2 ***		4/2	Spring return	P	1	M	1.10
HK DH1 0630 2 ***		4/2	Spring return	N	0	S	1.10
HK DH1 0631 2 A ***		4/2	Spring return	P	1	M	1.10
HK DH1 0610 ***		4/2	Spring return	N	0	M	1.10
HK DH1 0611 ***		4/2	Spring return	P	1	M	1.10
HK DH1 0613 ***		4/2	Spring return	P	3	S	1.10
HK DH1 0614 ***		4/2	Spring return	N	4	T	1.10
HK DH1 0632 2 ***		4/2	Spring return	P	2	Y	1.10
HK DH1 0710 ***		4/3	Spring return to 0	N	0	M	1.20
HK DH1 0711 ***		4/3	Spring return to 0	P	1	M	1.20
HK DH1 0713 ***		4/3	Spring return to 0	P	3	S	1.20
HK DH1 0714 ***		4/3	Spring return to 0	N	4	T	1.20
HK DH1 0716 ***		4/3	Spring return to 0	P	6	S	1.20
HK DH1 07190 ***		4/3	Spring return to 0	N	90	V	1.20
HK DH1 07119 ***		4/3	Spring return to 0	P	19	V	1.20
HK DH1 07512 ***		4/2	2 catches	P	1	T	1.20
*** 12 DC	12 V DC	See table A and diagram B on page 42 for maximum volume flow, see diagram C for switching capacity limits. Further circuits and versions, and volume flows and switching capacity limits on request. Accessories tables 14 - 17, pages 43 - 45					
*** 24 DC	24 V DC						
*** 28 DC	28 V DC						
*** 110 AC	110 V AC						
*** 230 AC	230 V AC						
*** 230 RC	230 V RC						

Accessories for valves size 6 type HK DH

Table 13 Coils for solenoid valves size 6 type HK DH



HK SP COU 24DC

Code	Rated voltage/current type	Corresponding plugs	Average power consumption	Average current consumption	Weight kg
HK SP COU 12 DC	12 V / DC	Type 664, 666, 667, 668	33 W	2.8 A	0.25
HK SP COU 24 DC	24 V / DC	Type 664, 666, 667, 668	33 W	1.4 A	0.25
HK SP COU 28 DC	28 V / DC for mobile applications	Type 664, 666, 667, 668	35 W	1.24 A	0.25
HK SP COI 110 AC	110/50/60 V AC	Type 664, 666, 667, 668	60 W	0.5 A	0.25
HK SP COI 230 AC	230/50/60 V AC	Type 664, 666, 667, 668	60 W	0.25 A	0.25
HK SP COU 230 RC	230/50/60 V RC	Type 669 (rectifier)	40 W	0.25 A	0.25

Other types of coil on request.

Table 14 Plugs for coils

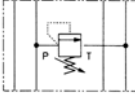
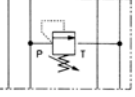
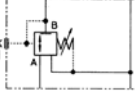
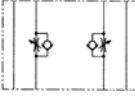
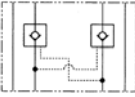



HK SP 666

Code	Color	Design	Weight kg
HK SP 664	black	Standard 4-pole	0.07
HK SP 664 A	grey	Standard 4-pole	0.07
HK SP 666	black	Standard 3-pole	0.07
HK SP 666 A	grey	Standard 3-pole	0.07
HK SP 667 24	transparent	With LED for 12/24 V DC	0.07
HK SP 667 110	transparent	With LED for 110 V AC	0.07
HK SP 667 220	transparent	With LED for 230 V AC	0.07
HK SP 668 24	black	With LED 12/24 V and protection circuit	0.07
HK SP 668 24 A	grey	With LED 12/24 V and protection circuit	0.07
HK SP 669	black	With rectifier	0.07
HK SP 669 A	grey	With rectifier	0.07

DIN 43650; other plugs on request

Table 15 Modular valves size 6

Code	Symbol	Design	Acts in port	Pressure setting range bar	max. volume flow l/min	Weight kg	
Pressure relief valves							
HK HMP 011 100		* Directly controlled	P	03-100	35	1.40	
HK HMP 011 210		* Directly controlled	P	10-210	35	1.40	
HK HMP 011 350		* Directly controlled	P	03-350	35	1.40	
HK HMP 012 100		* Directly controlled	A+B	03-100	35	1.40	
HK HMP 012 210		* Directly controlled	A+B	10-210	35	1.40	
HK HMP 012 350		* Directly controlled	A+B	15-350	35	1.40	
HK HMP 013 100		* Directly controlled	A	03-100	35	1.40	
HK HMP 013 210		* Directly controlled	A	10-210	35	1.40	
HK HMP 013 350		* Directly controlled	A	15-350	35	1.40	
Pressure relief valves							
HK HM 011 100		* Pilot-operated	P	05-100	50	1.40	
HK HM 011 210		* Pilot-operated	P	05-210	50	1.40	
HK HM 011 350		* Pilot-operated	P	05-350	50	1.40	
HK HM 012 100		* Pilot-operated	A+B	05-100	50	1.40	
HK HM 012 210		* Pilot-operated	A+B	05-210	50	1.40	
HK HM 012 350		* Pilot-operated	A+B	05-350	50	1.40	
HK HM 013 100		* Pilot-operated	A	05-100	50	1.40	
HK HM 013 210		* Pilot-operated	A	05-210	50	1.40	
HK HM 013 350		* Pilot-operated	A	05-350	50	1.40	
HK HM 014 100		* Pilot-operated	B	05-100	50	1.40	
HK HM 014 210		* Pilot-operated	B	05-210	50	1.40	
HK HM 014 350		* Pilot-operated	B	05-350	50	1.40	
Pressure reduction valves							
HK HG 031 032			* Directly controlled	P	03-32	40	1.40
HK HG 031 100			* Directly controlled	P	20-100	40	1.40
HK HG 031 210	* Directly controlled		P	50-210	40	1.40	
HK HG 033 032	* Directly controlled		A	03-32	40	1.40	
HK HG 033 100	* Directly controlled		A	20-100	40	1.40	
HK HG 033 210	* Directly controlled		A	50-210	40	1.40	
HK HG 034 032	* Directly controlled		B	03-32	40	1.40	
HK HG 034 100	* Directly controlled		B	20-100	40	1.40	
HK HG 034 210	* Directly controlled		B	50-210	40	1.40	
One-way restrictors							
HK HQ 012		* Outflow control	A+B		50	1.40	
HK HQ 013		* Outflow control	A		50	1.40	
HK HQ 014		* Outflow control	B		50	1.40	
HK HQ 022		* Inflow control	A+B		50	1.40	
HK HQ 023		* Inflow control	A		50	1.40	
HK HQ 024		* Inflow control	B		50	1.40	
Check valves							
HK HR 011			P		50	1.40	
HK HR 012		Piloted	A+B		50	1.40	
HK HR 013		Piloted	A		50	1.40	
HK HR 014		Piloted	B		50	1.40	
2-way pressure-maintaining valve							
HK HC 011 30		*	P	05-32	50	1.40	

Other types of modular valves on request.

* These valves must be set for the application case.



HK HM 011 210



HK HQ 022



HK MRSL 33



HK BA 214 6

Table 16 Base plates and blank plates size 6

Code	Stations	Connections		Dimensions H/B/L	Weight kg
		A + B	P + T		
HK BA 202	Single connection	3/8" bottom	3/8" bottom	31/72/102	1.20
HK MRSL 3 38	Single connection	3/8" side	3/8" side	35/80/80	1.10
HK BA 214 2	Series connection, double	3/8" side	1/2" frontal	71/71/120	3.70
HK BA 214 3	Series connection, triple	3/8" side	1/2" frontal	71/71/170	5.30
HK BA 214 4	Series connection, quadruple	3/8" side	1/2" frontal	71/71/220	6.90
HK BA 214 5	Series connection, quintuple	3/8" side	1/2" frontal	71/71/270	8.50
HK BA 214 6	Series connection, sixfold	3/8" side	1/2" frontal	71/71/320	10.10
HK BA 214 7	Series connection, sevenfold	3/8" side	1/2" frontal	71/71/370	11.70
HK BA 214 8	Series connection, eightfold	3/8" side	1/2" frontal	71/71/420	13.30
HK BA 214 9	Series connection, ninefold	3/8" side	1/2" frontal	71/71/470	14.90
HK BA 214 10	Series connection, tenfold	3/8" side	1/2" frontal	71/71/520	16.50
HK SP6 BA 40251	Blank plate			22/45/66	0.50

Material: steel (350 bar) – other base plates on request

Table 17 Sets of screws for size 6 valves

Code	Dimensions	For mounting	Weight kg
HK M5 50	M5 x 50	1 directional valve	0.05
HK M5 90	M5 x 90	1 directional valve + 1 separator plate valve	0.09
HK M5 130	M5 x 130	1 directional valve + 2 separator plate valves	0.10
HK M5 170	M5 x 170	1 directional valve + 3 separator plate valves	0.12

1 set = 4 screws

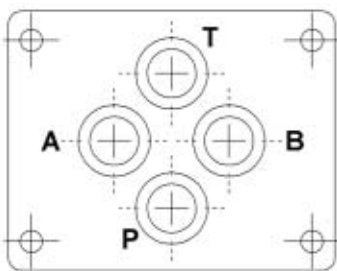
DIN 912-10.9, other screw lengths on request

Directly controlled solenoid valves size 6 type HK DH, leak oil reduced

ISO/Cetop 03 – for plate mounting

- These valves are interchangeable with Cetop standard valves of other manufacturers
- The solenoids and all moving parts switch internally in oil.
- Solenoid version: With emergency manual operation as standard
- **Max. volume flow 60 l/min. (see characteristic curves)**
- Max. pressure 350 bar

Table 18 Solenoid valves size 6, leak oil reduced (without coils and plugs)



ISO/CETOP 03 – size 6

Code	Circuit diagram	Type	Design	Overlapping positive/negative	Spool type	Diagr. C	Weight kg
HK DH10 713 P ***		4/3	Federrückstellung	P	3	S	1.80
HK DH10 711 P ***		4/3	Federrückstellung	P	1	M	1.80
HK DH10 631 2 P ***		4/2	Federrückstellung	P	1	M	1.80
*** 12 DC	12 V DC	Attention! When using leak oil reduced valves, increased pressure drops must be expected when the rate of flow exceeds 70 % of the rated values.					
*** 24 DC	24 V DC						
*** 28 DC	28 V DC						
*** 110 AC	110 V AC						
*** 230 AC	230 V AC						
*** 230 RC	230 V RC						

See table A and diagram B on page 42 for maximum volume flow

Switching capacity limits, see diagram C on page 43

Further circuits and versions, and volume flows and switching capacity limits on request.

Accessories tables 14 - 17, pages 43 - 45

Directly controlled manual and solenoid valves size 6 type HK 41

ISO/Cetop 03 – for plate mounting

- These valves are dimensionally interchangeable with Cetop standard valves of other manufacturers.
- The solenoids and all moving parts switch internally in oil.
- Solenoid version: With emergency manual operation as standard
- **Max. volume flow 80 l/min. (see characteristic curves)**
- Max. pressure 350 bar

Table 19 Manual directional valves size 6 type HK 41

Code	Circuit diagram	Type	Design	Overlapping positive/negative	Spool type	Weight kg
HK 41 3411 0204 1		4/2	Spring return	N	11	1.60
HK 41 3451 0204 1		4/2	Spring return	P	51	1.60
HK 41 3411 0905 1		4/2	2 catches	N	11	1.60
HK 41 3451 0905 1		4/2	2 catches	P	51	1.60
HK 41 3401 0304 1		4/3	Spring return to 0	N	01	1.60
HK 41 3403 0304 1		4/3	Spring return to 0	P	03	1.60
HK 41 3408 0304 1		4/3	Spring return to 0	P	08	1.60
HK 41 3407 0304 1		4/3	Spring return to 0	N	07	1.60
HK 41 3401 0705 1		4/3	3 catches	N	01	1.60
HK 41 3403 0705 1		4/3	3 catches	P	03	1.60
HK 41 3408 0705 1		4/3	3 catches	P	08	1.60
HK 41 3407 0705 1		4/3	3 catches	N	07	1.60

See table A and diagram A for maximum volume flow
Further circuits and versions on request

Spool type	Direction of flow				
	P → A	P → B	A → T	B → T	P → T
01	A	A	C	C	B
03	D	D	D	D	
07	L	L	L	L	I
08	D	D	A	B	
11	C	C	D	D	
51	E	E	G	G	
52	F	F			

Table A

Based on a viscosity of 40 mm²/s at 50 °C

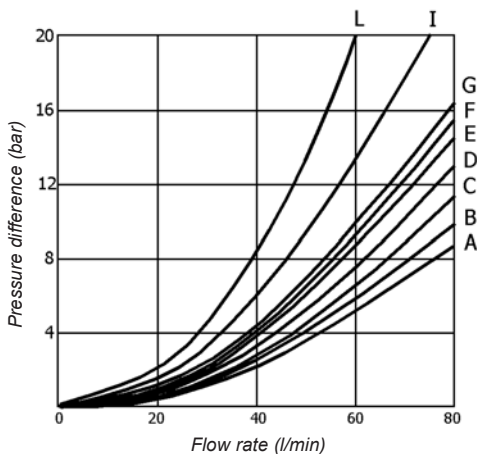


Diagram A



HK 41 3411 0204 1



HK 41 3203 0302 17

Spool type	DC characteristic curve	AC characteristic curve
01	4	2
03	1	2
07	5	3
08	7	2
11	2 (1)	2(1)
51	2(1)	2(1)
52	6(8)	5(9)

Table B

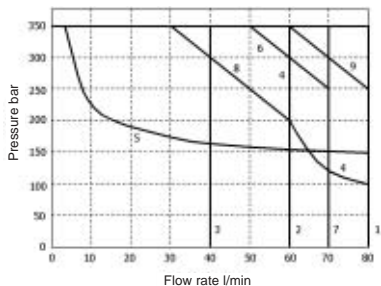


Diagram B1 - switching capacity limits with DC solenoid

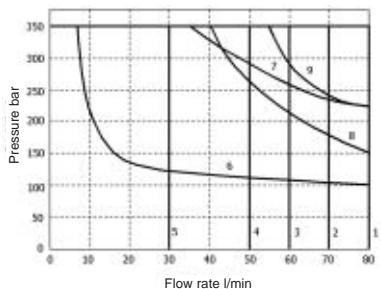


Diagram B2 - switching capacity limits with AC solenoid



HK 121 008 088

Table 20 Solenoid valves size 6 type HK 41 (including coils, without plugs)

Code	Circuit diagram	Type	Design	Overlapping positive/negative	Spool type	Weight kg
HK 41 3151 0101 **		4/2	Spring return	P	51	1.10
HK 41 3111 0101 **		4/2	Spring return	N	11	1.10
HK 41 3151 0201 **		4/2	Spring return	P	51	1.10
HK 41 3101 0601 **		4/2	Spring return	N	01	1.10
HK 41 3103 0601 **		4/2	Spring return	P	03	1.10
HK 41 3108 0601 **		4/2	Spring return	P	08	1.10
HK 41 3107 0601 **		4/2	Spring return	N	07	1.10
HK 41 3152 0101 **		4/2	Spring return	P	52	1.10
HK 41 3201 0302 **		4/3	Spring return to 0	N	01	1.20
HK 41 3203 0302 **		4/3	Spring return to 0	P	03	1.20
HK 41 3208 0302 **		4/3	Spring return to 0	P	08	1.20
HK 41 3207 0302 **		4/3	Spring return to 0	N	07	1.20
HK 41 3751 0902 **		4/2	2 catches	P	51	1.20
** = 1 R	12 V DC	Example: HK 41 3151 0101 1 R Corresponds to 4/2 directional valve size 6 12 V DC				
** = 1 Q	24 V DC					
** = 1 G	205 V DC					
** = 1 7	230 V AC 50 Hz					

See table A and diagram A on page 46 for maximum volume flow
 Switching capacity limits, see table B and diagram B1 or B2
 Further circuits and versions, and volume flows and switching capacity limits on request.

Table 21 Coils for solenoid valves size 6 type HK 41

Code	Rated voltage/current type	Corresponding plugs	Average power consumption	Average current consumption	Weight kg
HK 121 008 008	12 V / DC	Type 664, 666, 667, 668	31 W	2.58 A	0.4
HK 121 008 018	24 V / DC	Type 664, 666, 667, 668	31 W	1.29 A	0.4
HK 121 008 088	205 V / DC	Type 664, 666, 667, 669	78 W	0.44 A	0.4
HK 121 004 018	230 V / 50 Hz / AC	Type 664, 666, 667, 668	78 W	0.34 A	0.4
HK 121 004 028	115 V / 50 Hz / AC	Type 664, 666, 667, 668	78 W	0.68 A	0.4

Other types of coil on request.

Table 22 Plugs for coils

Code	Color	Design	Weight kg
HK SP 664	black	Standard 4-pole	0.07
HK SP 664 A	grey	Standard 4-pole	0.07
HK SP 666	black	Standard 3-pole	0.07
HK SP 666 A	grey	Standard 3-pole	0.07
HK SP 667 24	transparent	With LED for 12/24 V DC	0.07
HK SP 667 110	transparent	With LED for 110 V AC	0.07
HK SP 667 220	transparent	With LED for 230 V AC	0.07
HK SP 668 24	black	With LED 12/24 V and protection circuit	0.07
HK SP 668 24 A	grey	With LED 12/24 V and protection circuit	0.07
HK SP 669	black	With rectifier	0.07
HK SP 669 A	grey	With rectifier	0.07

DIN 43650; other plugs on request

Code	Designation
HK DSZ 4D01 32	Set of seals for HK41/size 6 electrical
HK DSZ 4D01 34 B1	Set of seals for HK41/size 6 hand operated

Table 23 Modular valves size 6

Code	Symbol	Design	Acts in port	Pressure range bar	max. volume flow l/min	Weight kg
Pressure relief valves						
HK ZDV P01 1 S0 D1		* Pilot-operated	P	07-70	80	1.40
HK ZDV P01 5 S0 D1		* Pilot-operated	P	07-350	80	1.40
HK ZDV AB01 1 S0 D1		* Pilot-operated	A+B	07-70	80	1.40
HK ZDV AB01 5 S0 D1		* Pilot-operated	A+B	07-315	80	1.40
HK ZDV A01 1 S0 D1		* Pilot-operated	A	07-70	80	1.40
HK ZDV A01 5 S0 D1		* Pilot-operated	A	07-350	80	1.40
Pressure reduction valves						
HK ZDR P01 1 S0 D1		* Pilot-operated	P	07-70	80	1.40
HK ZDR P01 5 S0 D1		* Pilot-operated	P	07-350	80	1.40
HK ZDR AR01 1 S0 D1		* Pilot-operated, with check valve	A	07-70	80	1.40
HK ZDR AR01 5 S0 D1		* Pilot-operated, with check valve	A	07-315	80	1.40
HK ZDR BR01 1 S0 D1		* Pilot-operated, with check valve	B	07-70	80	1.40
HK ZDR BR01 5 S0 D1		* Pilot-operated, with check valve	B	07-315	80	1.40
One-way restrictors						
HK ZRD ABA01 S0 D1		* Outflow control	A+B		80	1.40
HK ZRD AA01 S0 D1		* Outflow control	A		80	1.40
HK ZRD BA01 S0 D1		* Outflow control	B		80	1.40
HK ZRD ABZ01 S0 D1		* Inflow control	A+B		80	1.40
HK ZRD AZ01 S0 D1		* Inflow control	A		80	1.40
HK ZRD BZ01 S0 D1		* Inflow control	B		80	1.40
Check valves						
HK ZRV P01		Directly controlled	P		40	1.40
HK ZRE AB01 D1		Piloted	A+B		60	1.40
HK ZRE A01 D1		Piloted	A		60	1.40
HK ZRE B01 D1		Piloted	B		60	1.40
Load-lowering valves						
HK ZNS A01 2 S0 D1		Pilot open ratio 4.5 : 1	A	70-175	60	1.40
HK ZNS A01 5 S0 D1			A	140-350	60	1.40
HK ZNS B01 2 S0 D1			B	70-175	60	1.40
HK ZNS B01 5 S0 D1			B	140-350	60	1.40
HK ZNS AB01 2 S0 D1			A+B	70-175	60	1.40
HK ZNS AB01 5 S0 D1			A+B	140-350	60	1.40

Other types of modular valves on request.

* These valves must be set for the application case.

Table 24 Sets of screws for valves size 6 type HK 41

Code	Dimensions	For mounting	Weight kg
HK M5 30	M5 x 30	1 directional valve	0.03
HK M5 60	M5 x 60	1 directional valve + 1 separator plate valve (ZRV)	0.05
HK M5 70	M5 x 70	1 directional valve + 1 separator plate valve	0.06
HK M5 80	M5 x 80	1 directional valve + 1 separator plate valve (ZRV-AB)	0.07
HK M5 100	M5 x 100	1 directional valve + 2 separator plate valves (with 1 x ZRV)	0.08
HK M5 110	M5 x 110	1 directional valve + 2 separator plate valves	0.085
HK M5 120	M5 x 120	1 directional valve + 2 separator plate valves (with 1 x ZRV-AB)	0.09
HK M5 140	M5 x 140	1 directional valve + 3 separator plate valves (with 1 x ZRV)	0.10
HK M5 150	M5 x 150	1 directional valve + 3 separator plate valves	0.11
HK M5 160	M5 x 160	1 directional valve + 3 separator plate valves (with 1 x ZRV-AB)	0.12

1 set = 4 screws

Other screw lengths on request.

DIN 912-10.9

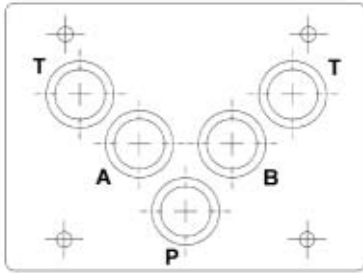


HK ZDV P01 1 S0 D1

Directly controlled solenoid valves size 10 type HK DHI

ISO/Cetop 05 – for plate mounting

- These valves are dimensionally interchangeable with Cetop standard valves of other manufacturers.
- The solenoids and all moving parts switch internally in oil.
- Solenoid version with emergency manual operation as standard
- **Max. volume flow 100 l/min. (see characteristic curves)**
- Max. pressure 315 bar



ISO/CETOP 05 – size 10



HK DKI 1 710

Direction of flow Spool type	P→A	P→B	A→T	B→T	P→T
	0, 2, 3	B	B	B	B
0/2, 1, 8	B	B	A	A	
1/2, 2/2	C	C	B	B	
4, 5, 9*	D	D	D	D	C

Basis: viscosity 43 mm²/s at 40°C

Table A

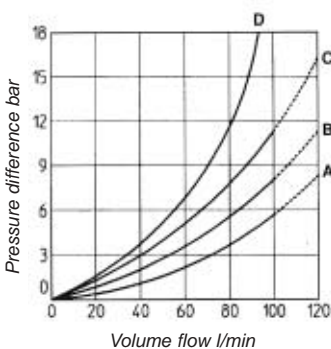


Diagram B

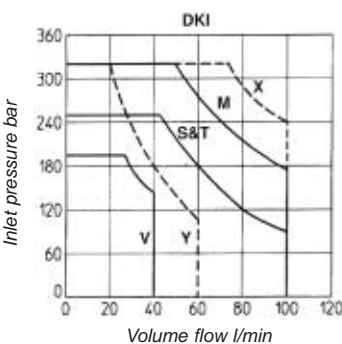


Diagram C

Table 25 Solenoid valves size 10 type HK DKI (without coils and plugs)

Code	Circuit diagram	Type	Design	Overlapping positive/negative	Spool type	Diagr. C	Weight kg
HK DKI 1 631 2 ***		4/2	Spring return	P	1	M	3.40
HK DKI 1 631 2 A ***		4/2	Spring return	P	1	M	3.40
HK DKI 1 610 ***		4/2	Spring return	N	0	M	3.40
HK DKI 1 611 ***		4/2	Spring return	P	1	M	3.40
HK DKI 1 613 ***		4/2	Spring return	P	3	S	3.40
HK DKI 1 632 2 ***		4/2	Spring return	P	2	Y	3.40
HK DKI 1 710 ***		4/3	Spring return to 0	N	0	M	3.60
HK DKI 1 711 ***		4/3	Spring return to 0	P	1	M	3.60
HK DKI 1 713 ***		4/3	Spring return to 0	P	3	S	3.60
HK DKI 1 714 ***		4/3	Spring return to 0	N	4	T	3.60
HK DKI 1 751 2 ***		4/2	2 catches	P	1	T	3.60
*** 12 DC	12 V DC	See table A and diagram B for maximum volume flow, see diagram C for switching capacity limits. Other circuits and versions, and volume flows and switching capacity limits on request.					
*** 24 DC	24 V DC						
*** 28 DC	28 V DC						
*** 110 AC	110 V AC						
*** 230 AC	230 V AC						
*** 230 RC	230 V RC						

Table 26 Coils for solenoid valves size 10 type HK DKI

Code	Rated voltage/current type	Corresponding plugs	Average power consumption	Average current consumption	Weight kg
HK SP CAU 12 DC	12 V DC	Type 664, 666, 667, 668	52.7 W	4.3 A	0.50
HK SP CAU 24 DC	24 V DC	Type 664, 666, 667, 668	49 W	2.0 A	0.50
HK SP CAU 28 DC	28 V DC for mobile applications	Type 664, 666, 667, 668	53 W	1.89 A	0.50
HK SP CAI 110 AC	110/50/60 V AC	Type 664, 666, 667, 668	117 W	1.0 A	0.50
HK SP CAI 230 AC	230/50/60 V AC	Type 664, 666, 667, 668	120 W	0.5 A	0.50
HK SP CAU 230 RC	230/50/60 V AC	Type 669 (rectifier)	60 W	0.5 A	0.50

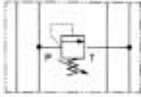


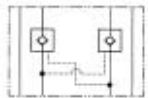
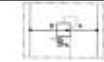
Other types of coil on request.

Table 27 Plugs for coils

Code	Color	Design	Weight kg
HK SP 664	black	Standard 4-pole	0.07
HK SP 664 A	grey	Standard 4-pole	0.07
HK SP 666	black	Standard 3-pole	0.07
HK SP 666 A	grey	Standard 3-pole	0.07
HK SP 667 24	transparent	with LED for 12/24 V DC	0.07
HK SP 667 110	transparent	with LED for 110 V AC	0.07
HK SP 667 220	transparent	with LED for 230 V AC	0.07
HK SP 668 24	black	with LED 12/24 V and protection circuit	0.07
HK SP 668 24 A	grey	with LED 12/24 V and protection circuit	0.07
HK SP 669	black	with rectifier	0.07
HK SP 669 A	grey	with rectifier	0.07

DIN 43650; other plugs on request

Table 28 Modular valves size 10

Code	Symbol	Design	Acts in port	Pressure setting range bar	max. volume flow l/min	Weight kg	
Pressure relief valves							
HK KM 011 100		* Pilot-operated	P	05-100	100	2.80	
HK KM 011 210		* Pilot-operated	P	05-210	100	2.80	
HK KM 011 350		* Pilot-operated	P	05-350	100	2.80	
HK KM 012 100		* Pilot-operated	A+B	05-100	100	2.80	
HK KM 012 210		* Pilot-operated	A+B	05-210	100	2.80	
HK KM 012 350		* Pilot-operated	A+B	05-350	100	2.80	
HK KM 013 100		* Pilot-operated	A	05-100	100	2.80	
HK KM 013 210		* Pilot-operated	A	05-210	100	2.80	
HK KM 013 350		* Pilot-operated	A	05-350	100	2.80	
HK KM 014 100		* Pilot-operated	B	05-100	100	2.80	
HK KM 014 210		* Pilot-operated	B	05-210	100	2.80	
HK KM 014 350		* Pilot-operated	B	05-350	100	2.80	
Pressure reduction valves							
HK KG 031 100			* Pilot-operated	P	07-100	80	2.80
HK KG 031 210		* Pilot-operated	P	08-210	80	2.80	
One-way restrictors							
HK KQ 012		* Outflow control	A+B		100	2.80	
HK KQ 013		* Outflow control	A		100	2.80	
HK KQ 014		* Outflow control	B		100	2.80	
HK KQ 022		* Inflow control	A+B		100	2.80	
HK KQ 023		* Inflow control	A		100	2.80	
HK KQ 024		* Inflow control	B		100	2.80	
Check valves							
HK KR 011			P		100	2.80	
HK KR 012		Piloted	A+B		100	2.80	
HK KR 013		Piloted	A		100	2.80	
HK KR 014		Piloted	B		100	2.80	
2-way pressure-maintaining valve							
HK KC 011 30		*	P	05-35	100	2.80	

Other types of modular valves on request.

* These valves must be set for the application case.

Table 29 Base plates and blank plates size 10

Code	Stations	Connections		Dimensions H/B/L	Weight kg
		A + B	P + T		
HK BA 308	Single connection	1/2"-bottom	1/2"-bottom	45/103/126	2.50
HK BA 428	Single connection	3/4"-bottom	3/4"-bottom	60/122/150	5.5
HK BA 314 2	Series connection, double	1/2"-side	P: 3/4"-frontal / T: 1"-frontal	75/75/160	11.00
HK BA 314 3	Series connection, triple	3/4"-side	P: 3/4"-frontal / T: 1"-frontal	75/75/240	15.00
HK BA 314 4	Series connection, quadruple	3/4"-side	P: 3/4"-frontal / T: 1"-frontal	75/75/320	19.00
HK BA 314 5	Series connection, quintuple	3/4"-side	P: 3/4"-frontal / T: 1"-frontal	75/75/400	23.00
HK SP10 BA 10851	Cover plate			26/65/73	1.00

Material: steel (350 bar) - other base plates on request

Table 30 Sets of screws for valves size 10 type HK DKI

Code	Dimensions	For mounting	Weight kg
HK M6 40	M6 x 40	1 directional valve	0.06
HK M6 90	M6 x 90	1 directional valve + 1 separator plate valve	0.10
HK M6 140	M6 x 140	1 directional valve + 2 separator plate valves	0.12
HK M6 190	M6 x 190	1 directional valve + 3 separator plate valves	0.20

1 set = 4 screws

DIN 912-10.9; other screw lengths on request



HK KM 011 210



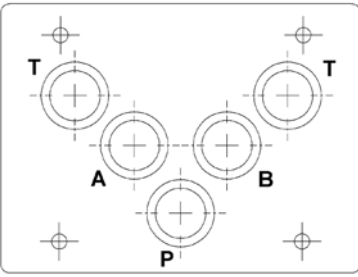
HK KR 012



HK BA 308



HK BA 314 5



ISO/CETOP 05 - size 10

Spool type	Direction of flow					
	P→A	P→B	A→T	B→T	P→T	
0, 2, 3	B	B	B	B		
0/2, 1, 8	B	B	A	A		
1/2, 2/2	C	C	B	B		
4, 5, 9*	D	D	D	D	C	
6	B	B	A	B		
7	B	B	B	A		

Basis: viscosity 43 mm²/s at 40°C

Table A

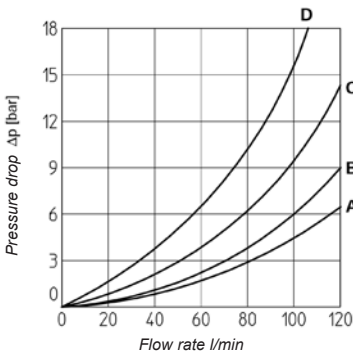


Diagram B

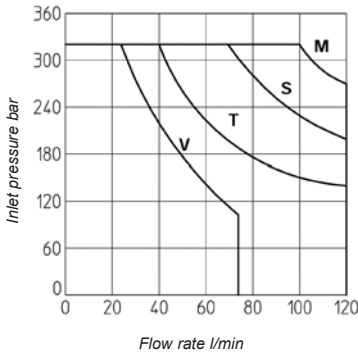


Diagram C



HK DKOR 1631 2 12DC

Directly controlled solenoid valves size 10 type HK DKOR

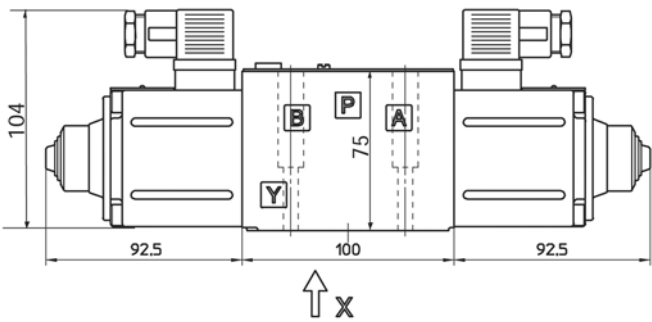
ISO/Cetop 05 – for plate mounting- high-performance valve

- These valves are dimensionally interchangeable with Cetop standard valves of other manufacturers.
- The solenoids and all moving parts switch internally in oil.
- Solenoid version: with emergency manual operation as standard
- **Max. volume flow 120 l/min - max. pressure 350 bar (see characteristic curves)**
- Volume flow (Table A und Diagram B)
- Switching capacity limits (diagram C)
- The coils are integrated in these valves, all other parts, such as separator plates, plungers etc. are identical to those of DKI valves.

Code	Circuit diagram	Type	Design	Switching voltage	Over-lapping	Spool type	Diagr. C	Weight kg
HK DKOR 1631 2 12DC		4/2	Spring return	12 VDC	Positive	1	M	4.88
HK DKOR 1631 2 24DC		4/2	Spring return	24 VDC	Positive	1	M	4.88
HK DKOR 1610 12DC		4/2	Spring return	12 VDC	Negative	0	M	4.88
HK DKOR 1610 24DC		4/2	Spring return	24 VDC	Negative	0	M	4.88
HK DKOR 1611 12DC		4/2	Spring return	12 VDC	Positive	1	M	4.88
HK DKOR 1611 24DC		4/2	Spring return	24 VDC	Positive	1	M	4.88
HK DKOR 1710 12DC		4/3	Spring return to 0	12 VDC	Negative	0	M	6.06
HK DKOR 1710 24DC		4/3	Spring return to 0	24 VDC	Negative	0	M	6.06
HK DKOR 1711 12DC		4/3	Spring return to 0	12 VDC	Positive	1	M	6.06
HK DKOR 1711 24DC		4/3	Spring return to 0	24 VDC	Positive	1	M	6.06
HK DKOR 1713 12DC		4/3	Spring return to 0	12 VDC	Positive	3	S	6.06
HK DKOR 1713 24DC		4/3	Spring return to 0	24 VDC	Positive	3	S	6.06
HK DKOR 1714 12DC		4/3	Spring return to 0	12 VDC	Negative	4	T	6.06
HK DKOR 1714 24DC		4/3	Spring return to 0	24 VDC	Negative	4	T	6.06

Available on request:

Other switching voltage
Other pistons and versions



Directly controlled solenoid valves size 10 type HK 42

ISO/Cetop 05 – for plate mounting

- These valves are dimensionally interchangeable with Cetop standard valves of other manufacturers.
- The solenoids and all moving parts switch internally in oil.
- Solenoid version with emergency manual operation as standard
- **Max. volume flow 140 l/min (see characteristic curves)**
- **Max. pressure 315 bar**

Table 31 Solenoid valves size 10 type HK 42 (including coils, without plugs)

Code	Circuit diagram	Type	Design	Overlapping positive/negative	Spool type	Weight kg
HK 42 3151 0101 **		4/2	Spring return	P	51	3.4
HK 42 3111 0101 **		4/2	Spring return	N	11	3.4
HK 42 3151 0201 **		4/2	Spring return	P	51	3.4
HK 42 3101 0601 **		4/2	Spring return	N	01	3.4
HK 42 3103 0601 **		4/2	Spring return	P	03	3.4
HK 42 3108 0601 **		4/2	Spring return	P	08	3.4
HK 42 M107 0601 **		4/2	Spring return	N	07	3.4
HK 42 M172 0101 **		4/2	Spring return	P	72	3.4
HK 42 3201 0302 **		4/3	Spring return to 0	N	01	3.6
HK 42 3203 0302 **		4/3	Spring return to 0	P	03	3.6
HK 42 3208 0302 **		4/3	Spring return to 0	P	08	3.6
HK 42 M207 0302 **		4/3	Spring return to 0	N	07	3.6
HK 42 3751 0902 **		4/2	2 catches	P	51	3.6
** = 1 R	12 V DC	Example: HK 42 3151 0101 1 R Corresponds to 4/2 directional valve size 10 12 V DC				
** = 1 Q	24 V DC					
** = 1 G	205 V DC					
** = 1 7	230 V AC 50 Hz					

See table A and diagram A for maximum volume flow
 Switching capacity limits, see diagram B1 or B2
 Further circuits and versions, and volume flows and switching capacity limits on request.

Spool type	Direction of flow				0 position		
	P → A	P → B	A → T	B → T	P → T	A → T	B → T
01	1	1	4	10	14		
03	3	3	5	8			
07	12	12	7	13	13		
08	3	3	3	6		17	18
51/11	5	5	10	11			
72	4	6					

Table A
 Based on a viscosity of 40 mm²/s at 50 °C



HK 42 3201 03021Q

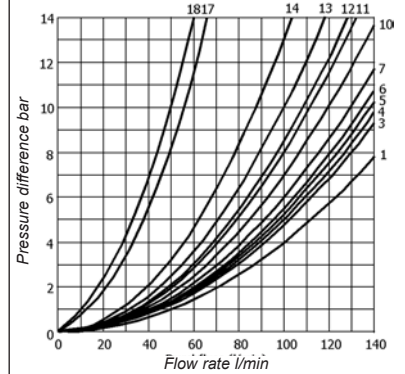


Diagram A

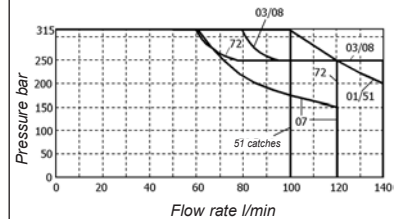


Diagram B1 - switching capacity limits with DC solenoid

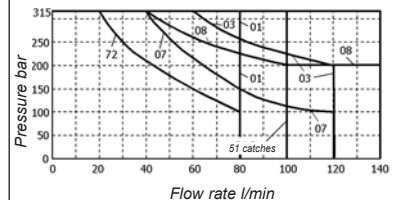


Diagram B2 - switching capacity limits with DC solenoid



HK 121 008 208

Table 32 Coils for solenoid valves size 10 type HK 42

Code	Rated voltage/ current type	Corresponding plugs	Average power consumption	Average current consumption	Weight kg
HK 121 008 198	12 V / DC	Type 664, 666, 667, 668	48 W	4 A	1.1
HK 121 008 208	24 V / DC	Type 664, 666, 667, 668	48 W	2 A	1.1
HK 121 008 278	205 V / DC	Type 664, 666, 667, 669	102 W	0.7 A	1.1
HK 121 008 418	230 V / 50 Hz / AC	Type 664, 666, 667, 668	102 W	0.44 A	0.52
HK 121 008 388	115 V / 50 Hz / AC	Type 664, 666, 667, 668	102 W	0.89 A	0.52

Other types of coil on request.


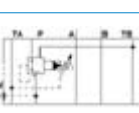
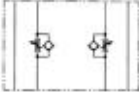
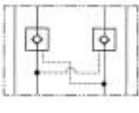
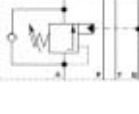
Table 33 Plugs for coils

Code	Color	Design	Weight kg
HK SP 664	black	Standard 4-pole	0.07
HK SP 664 A	grey	Standard 4-pole	0.07
HK SP 666	black	Standard 3-pole	0.07
HK SP 666 A	grey	Standard 3-pole	0.07
HK SP 667 24	transparent	With LED for 12/24 V DC	0.07
HK SP 667 110	transparent	With LED for 110 V AC	0.07
HK SP 667 220	transparent	With LED for 230 V AC	0.07
HK SP 668 24	black	With LED 12/24 V and protection circuit	0.07
HK SP 668 24 A	grey	With LED 12/24 V and protection circuit	0.07
HK SP 669	black	With rectifier	0.07
HK SP 669 A	grey	With rectifier	0.07

DIN 43650; other plugs on request

Code	Designation
HK DSZ 4D02 32	Set of seals for HK42/size 10 electrical

Table 34 Modular valves size 10

Code	Symbol	Design	Acts in port	Pressure range bar	Max. volume flow l/min	Weight kg
Pressure relief valves						
HK ZDV P02 1 S0 D1		* Pilot-operated	P	07-70	140	2.8
HK ZDV P02 5 S0 D1		* Pilot-operated	P	07-350	140	2.8
HK ZDV AB02 1 S0 D1		* Pilot-operated	A+B	07-70	140	2.8
HK ZDV AB02 5 S0 D1		* Pilot-operated	A+B	07-315	140	2.8
HK ZDV A02 1 S0 D1		* Pilot-operated	A	07-70	140	2.8
HK ZDV A02 5 S0 D1		* Pilot-operated	A	05-350	140	2.8
Pressure reduction valves						
HK ZDR P02 1 S0 D1		* Pilot-operated	P	07-70	120	2.8
HK ZDR P02 5 S0 D1		* Pilot-operated	P	07-350	120	2.8
HK ZDR AR02 1 S0 D1		* Pilot-operated, with check valve	A	07-70	120	2.8
HK ZDR AR02 5 S0 D1		* Pilot-operated, with check valve	A	07-315	120	2.8
One-way restrictors						
HK ZRD ABA02 S0 D1		* Outflow control	A+B		160	2.8
HK ZRD AA02 S0 D1		* Outflow control	A		160	2.8
HK ZRD BA02 S0 D1		* Outflow control	B		160	2.8
HK ZRD ABZ02 S0 D1		* Inflow control	A+B		160	2.8
HK ZRD AZ02 S0 D1		* Inflow control	A		160	2.8
HK ZRD BZ02 S0 D1		* Inflow control	B		160	2.8
Check valves						
HK ZRV P02		Directly controlled	P		100	2.8
HK ZRE AB02 E1		Piloted	A+B		120	2.8
HK ZRE A02 E1		Piloted	A		120	2.8
HK ZRE B02 E1		Piloted	B		120	2.8
Load-lowering valves						
HK ZNS A02 2 S0 D1		Pilot open ratio 4.5 : 1	A	70-175	120	2.8
HK ZNS A02 5 S0 D1			A	140-315	120	2.8
HK ZNS B02 2 S0 D1			B	70-175	120	2.8
HK ZNS B02 5 S0 D1			B	140-315	120	2.8
HK ZNS AB02 2 S0 D1			A+B	70-175	120	2.8
HK ZNS AB02 5 S0 D1			A+B	140-315	120	2.8

Other types of modular valves on request.

* These valves must be set for the application case.

Table 35 Sets of screws for valves size 10 type HK 42

Code	Dimensions	For mounting	Weight kg
HK M6 40	M6 x 40	1 directional valve	0.03
HK M6 75	M6 x 75	1 directional valve + 1 separator plate valve (ZRV)	0.08
HK M6 90	M6 x 90	1 directional valve + 1 separator plate valve	0.10
HK M6 125	M6 x 125	1 directional valve + 2 separator plate valves (with 1 x ZRV)	0.11
HK M6 140	M6 x 140	1 directional valve + 2 separator plate valves	0.12
HK M6 175	M6 x 175	1 directional valve + 3 separator plate valves (with 1 x ZRV)	0.16
HK M6 190	M6 x 190	1 directional valve + 3 separator plate valves	0.20

1 set = 4 screws

Other screw lengths on request.

DIN 912-10.9

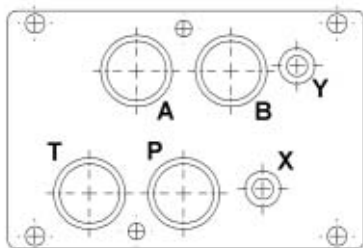


HK ZDV P02 5 S0 D1

Pilot-operated solenoid valves size 16

ISO/Cetop 07 – for plate mounting

- These valves are dimensionally interchangeable with Cetop standard valves of other manufacturers.
- The solenoids and all moving parts switch internally in oil.
- Solenoid version with emergency manual operation as standard
- **Max. volume flow 300 l/min. (see characteristic curves)**
- Max. pressure 350 bar
- Internal piloting / can be converted to external



ISO/CETOP 07 - size 16

Spool type	Direction of flow				
	P-A	P-B	A-T	B-T	P-T
4	-	-	-	-	1
Others	2	2	2	2	-

Table A

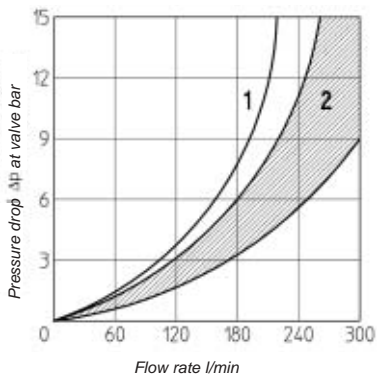


Diagram B



HK DPH 2714 DR SPIL

Table 36 Basic valve size 16 (without pilot valve)

Code	Circuit diagram	Type	Design	Overlapping positive/negative	Spool type	Weight kg
HK DPH 2710 DR SPIL		4/3	Spring return, control pressure generator	N	0	7.5
HK DPH 2711 D SPIL		4/3	Spring return	P	1	7.5
HK DPH 2713 D SPIL		4/3	Spring return	P	3	7.5
HK DPH 2714 DR SPIL		4/3	Spring return, control pressure generator	N	4	7.5

Table 37 Solenoid valves (pilot valve) size 6, leak oil reduced

Code	Circuit diagram	Type	Design	Overlapping positive/negative	Spool type	Gew. kg
HK DH10 631 2 P ***		4/2	Spring return	P	1	1.80
HK DH10 713 P ***		4/3	Spring return	P	3	1.80
*** 12 DC	12 V DC	See table A and diagram B for maximum volume flow Further circuits and versions, and volume flows and switching capacity limits on request.				
*** 24 DC	24 V DC					
*** 28 DC	28 V DC					
*** 110 AC	110 V AC					
*** 230 AC	230 V AC					
*** 230 RC	230 V RC					

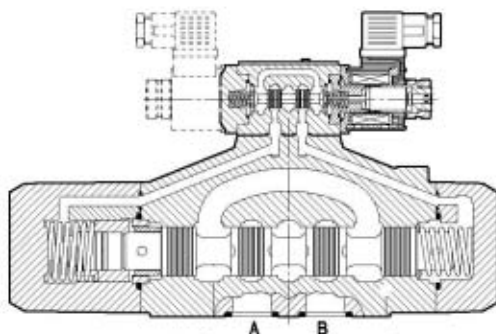
Example of order for complete valve

HK DPH 2710 DR SPIL - DH10 713 P 24 DC - SP 666

Valve size 16

Pilot valve size 6 with coils 24 DC

Plug



Pilot valve

Basic valve

Table 38 Coils for solenoid valves size 6 (pilot valve)

Code	Rated voltage/ current type	Corresponding plugs	Average power consumption	Average current consumption	Weight kg
HK SP COU 12 DC	12 V / DC	Type 664, 666, 667, 668	33 W	2.8 A	0.25
HK SP COU 24 DC	24 V / DC	Type 664, 666, 667, 668	33 W	1.4 A	0.25
HK SP COU 28 DC	28 V / DC for mobile applications	Type 664, 666, 667, 668	35 W	1.24 A	0.25
HK SP COI 110 AC	110/50/60 V AC	Type 664, 666, 667, 668	60 W	0.5 A	0.25
HK SP COI 230 AC	230/50/60 V AC	Type 664, 666, 667, 668	60 W	0.25 A	0.25
HK SP COU 230 RC	230/50/60 V AC	Type 669 (rectifier)	40 W	0.25 A	0.25

Other types of coil on request.

Table 39 Plugs for coils

Code	Color	Design	Weight kg
HK SP 664	black	Standard 4-pole	0.07
HK SP 664 A	grey	Standard 4-pole	0.07
HK SP 666	black	Standard 3-pole	0.07
HK SP 666 A	grey	Standard 3-pole	0.07
HK SP 667 24	transparent	With LED for 12/24 V DC	0.07
HK SP 667 110	transparent	With LED for 110 V AC	0.07
HK SP 667 220	transparent	With LED for 230 V AC	0.07
HK SP 668 24	black	With LED 12/24 V and protection circuit	0.07
HK SP 668 24 A	grey	With LED 12/24 V and protection circuit	0.07
HK SP 669	black	With rectifier	0.07
HK SP 669 A	grey	With rectifier	0.07

DIN 43650; other plugs on request

Table 40 Base plates for valves size 16

Code	Stations	Connections		Dimensions H/B/L	Weight kg
		A + B	P + T		
HK BA 418	Single connection	3/4"-bottom	3/4"-bottom	45/115/179	3.50
HK BA 518	Single connection	1"-bottom	1"-bottom	65/120/179	8.00

Consignment includes sets of screws (4 pcs. M10 x 50 and 2 pcs. M6 x 40)

Material: steel (350 bar); other base plates on request

Table 41 Sets of screws size 16

Code	Dimensions	Number (screws)	For mounting	Weight kg
HK M5 50	M5 x 50	4 pcs.	1 pilot valve size 6 on directional valve	0.05
HK M6 40	M6 x 40	2 pcs.	1 directional valve size 16	0.06
HK M10 50	M10 x 50	4 pcs.	1 directional valve size 16	0.15

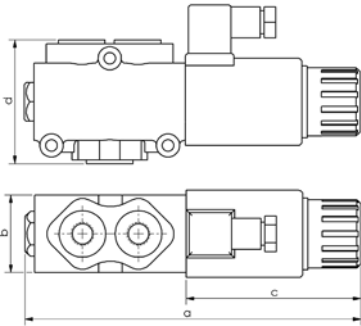
DIN 912-10.9; other screw lengths on request



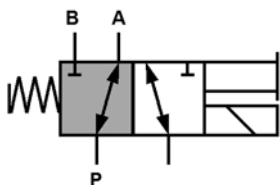
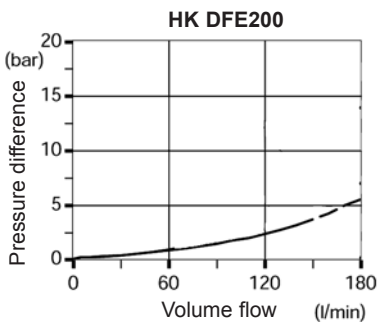
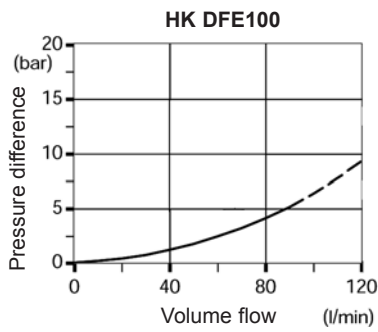
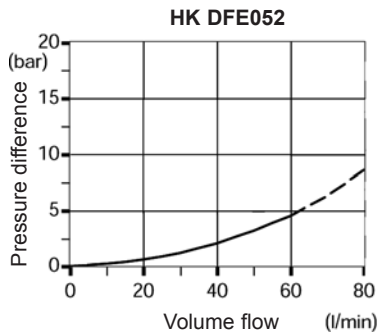
HK BA 418



HK DFE052 3AW



Pressure losses Δp 3/2-way solenoid valves



Solenoid valves for pipe fitting

3/2-solenoid valves

- These directional valves are used to switchover an oil flow
- With emergency manual operation as standard
- NBR seals
- Complete with plug

Code	Q/max. l/min	Max. pressure (bar) without leak oil connection	Max. pressure (bar) with leak oil connection	Control voltage	Connection A-B-P	Leak oil connection
HK DFE052 3AW 12DC	60	200		12 VDC	3/8"	
HK DFE052 3AW 24DC	60	200		24 VDC	3/8"	
HK DFE052 3AY 12DC	60		315	12 VDC	3/8"	1/4"
HK DFE052 3AY 24DC	60		315	24 VDC	3/8"	1/4"
HK DFE100 3AW 12DC	90	200		12 VDC	1/2"	
HK DFE100 3AW 24DC	90	200		24 VDC	1/2"	
HK DFE100 3AY 12DC	90		315	12 VDC	1/2"	1/4"
HK DFE100 3AY 24DC	90		315	24 VDC	1/2"	1/4"
HK DFE200 3AW 12DC	140	200		12 VDC	3/4"	
HK DFE200 3AW 24DC	140	200		24 VDC	3/4"	
HK DFE200 3AY 12DC	140		315	12 VDC	3/4"	1/4"
HK DFE200 3AY 24DC	140		315	24 VDC	3/4"	1/4"

Available on request: Other control voltage, 2/2-solenoid valves

Dimensions

Type	Dimension a	Dimension b	Dimension c	Dimension d
HK DFE052	166	42	80	68
HK DFE100	213.5	46.5	121	74
HK DFE200	226	65	107	85

Replacement coils for 3/2- and 6/2-solenoid valves (without plugs)

Code	Rated voltage / current type	Suitable for valve type	Weight kg
HK DFE052 12 V DC	12 V / DC	DFE 052	0.38
HK DFE052 24 V DC	24 V / DC	DFE 052	0.38
HK DFE100 12 V DC	12 V / DC	DFE 100	1.08
HK DFE100 24 V DC	24 V / DC	DFE 100	1.08
HK DFE100 192 V DC *	192 V / DC	DFE 100	1.08
HK DFE200 12 V DC	12 V / DC	DFE 200	1.08
HK DFE200 20 V DC	20 V / DC	DFE 200	1.08
HK DFE200 24 V DC	24 V / DC	DFE 200	1.08
HK DFE200 192 V DC *	192 V / DC	DFE 200	1.08

The valves should be switched in an unpressurized state.

* Use with rectifier plug HK SP 669 / 669A

Solenoid valves for pipe fitting

6/2-solenoid valves

- These directional valves (switch valves) are used to selectively supply two hydraulic systems from one oil source.
- With emergency manual operation as standard
- NBR seals
- Complete with plug

Code	Q/max. l/min	Max. pressure (bar) without leak oil connection	Max. pressure (bar) with leak oil connection	Control voltage	Connection A-B-C-D-E-F	Leak oil connection
HK DFE052 6AW 12DC	60	200		12 VDC	3/8"	
HK DFE052 6AW 24DC	60	200		24 VDC	3/8"	
HK DFE052 6AY 12DC	60		315	12 VDC	3/8"	1/4"
HK DFE052 6AY 24DC	60		315	24 VDC	3/8"	1/4"
HK DFE100 6AW 12DC	90	200		12 VDC	1/2"	
HK DFE100 6AW 24DC	90	200		24 VDC	1/2"	
HK DFE100 6AY 12DC	90		315	12 VDC	1/2"	1/4"
HK DFE100 6AY 24DC	90		315	24 VDC	1/2"	1/4"
HK DFE200 6AW 12DC	140	200		12 VDC	3/4"	
HK DFE200 6AW 24DC	140	200		24 VDC	3/4"	
HK DFE200 6AY 12DC	140		315	12 VDC	3/4"	1/4"
HK DFE200 6AY 24DC	140		315	24 VDC	3/4"	1/4"

Available on request: Other control voltage, 8/3-solenoid valves

Dimensions

Type	Dimension a	Dimension b	Dimension c	Dimension d
HK DFE052	181	76	80	55
HK DFE100	241	89	121	62
HK DFE200	262	105	107	75

Replacement coils for 3/2- and 6/2-solenoid valves (without plugs)

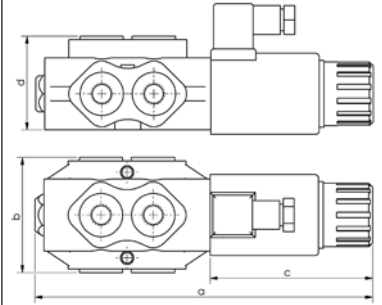
Code	Rated voltage / current type	Suitable for valve type	Weight kg
HK DFE052 12 V DC	12 V / DC	DFE 052	0.38
HK DFE052 24 V DC	24 V / DC	DFE 052	0.38
HK DFE100 12 V DC	12 V / DC	DFE 100	1.08
HK DFE100 24 V DC	24 V / DC	DFE 100	1.08
HK DFE100 192 V DC *	192 V / DC	DFE 100	1.08
HK DFE200 12 V DC	12 V / DC	DFE 200	1.08
HK DFE200 20 V DC	20 V / DC	DFE 200	1.08
HK DFE200 24 V DC	24 V / DC	DFE 200	1.08
HK DFE200 192 V DC *	192 V / DC	DFE 200	1.08

The valves should be switched in an unpressurized state.

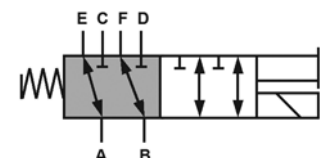
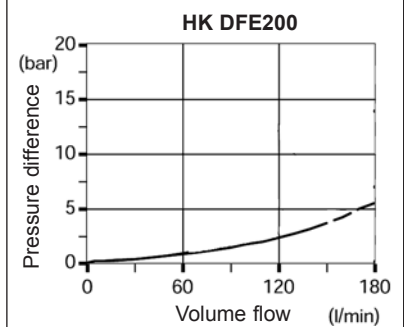
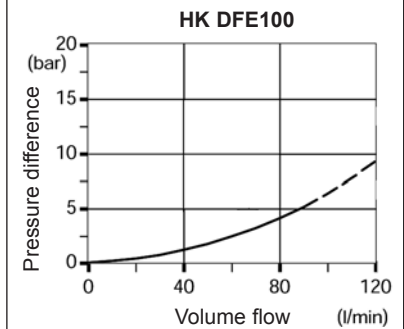
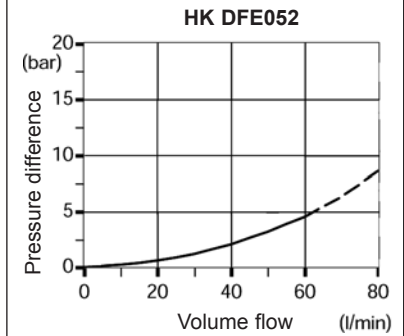
* Use with rectifier plug HK SP 669 / 669A



HK DFE052 6AW

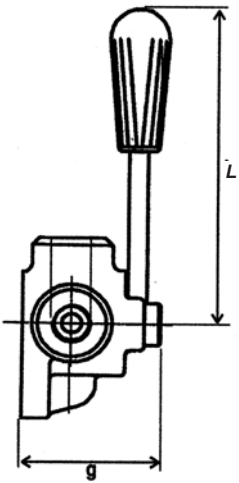
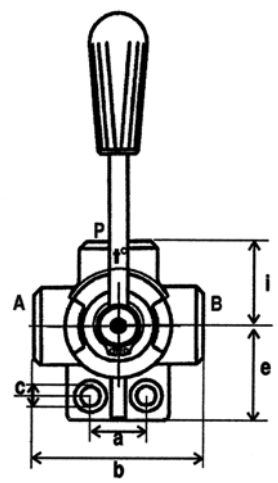


Pressure losses Δp 6/2-way solenoid valves



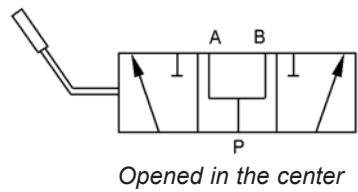
Rotary gate switchover valves

3/3-directional valves

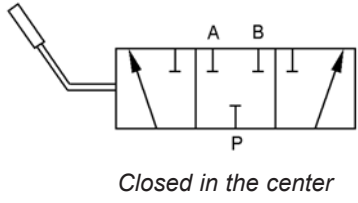


Type A code	Max. l/min	Max. pressure bar	Connections	Dimension								Weight kg	Type C code
				a mm	b mm	c mm	e mm	g mm	i mm	L mm			
HK V7 367 A06	40	300	3/8"	24	73	8.5	42	62	36	110	0.92	HK V7 367 C06	
HK V7 367 A08	60	250	1/2"	30	85	11	53	70	43	120	1.46	HK V7 367 C08	
HK V7 367 A12	120	220	3/4"	32	91	11	54	80	47	125	1.86	HK V7 367 C12	
HK V7 367 A16	180	220	1"	32	98	11	64	90	51	130	2.56	HK V7 367 C16	

Casing: cast, steel internal parts
 Rotary spool valves are pressurizable from all sides
 Rotary spool valves have a low internal leakage on account of their design

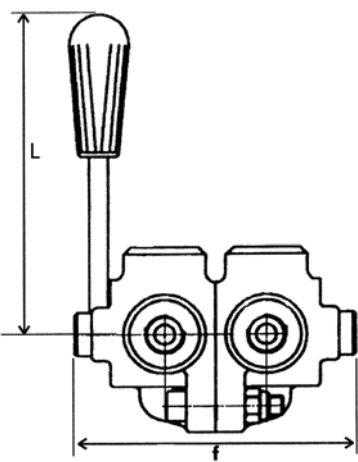
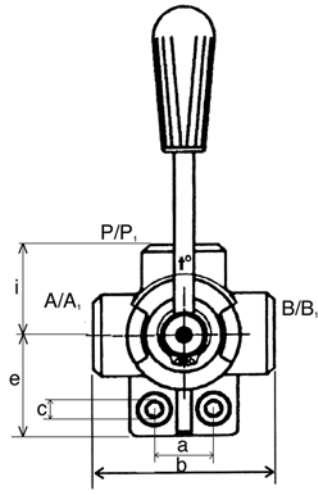


Type A



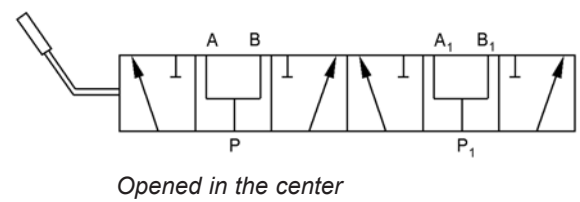
Type C

6/3-directional valves

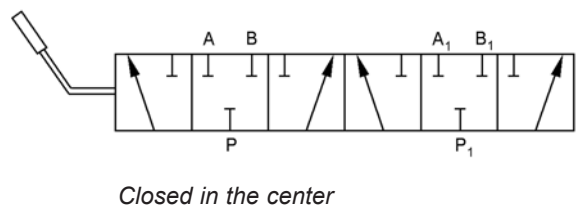


Type A code	Max. l/min	Max. pressure bar	Connections	Dimension								Weight kg	Type C code
				a mm	b mm	c mm	e mm	i mm	f mm	L mm			
HK V7 667 A06	40	300	3/8"	24	73	8.5	42	36	124	110	1.70	HK V7 667 C06	
HK V7 667 A08	60	250	1/2"	30	85	11	53	43	140	120	2.90	HK V7 667 C08	
HK V7 667 A12	120	220	3/4"	32	91	11	54	47	160	125	3.70	HK V7 667 C12	
HK V7 667 A16	180	220	1"	32	98	11	64	51	180	130	5.20	HK V7 667 C16	

Casing: cast, steel internal parts
 Rotary spool valves are pressurizable from all sides
 Rotary spool valves have a low internal leakage on account of their design



Type A



Type C

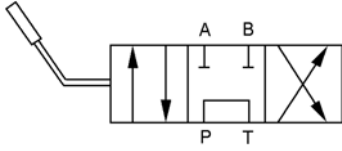
4/3-directional valves

Type A code	Max. l/min	Max. pressure bar	Connections	Dimension							Weight kg	Type C code
				a mm	b mm	c mm	e mm	g mm	i mm	L mm		
HK V7 467 A06	35	250	3/8"	54	77	8.5	38.5	71	38.5	110	1.28	HK V7 467 C06
HK V7 467 A08	50	250	1/2"	68	90	8.5	45	80	45	120	1.90	HK V7 467 C08
HK V7 467 A12	90	220	3/4"	74	95	8.5	47.5	90	47.5	125	2.60	HK V7 467 C12

Casing: cast, steel internal parts

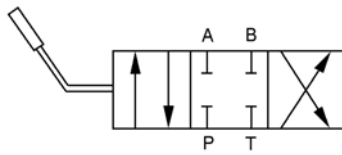
Rotary spool valves are pressurizable from all sides

Rotary spool valves have a low internal leakage on account of their design



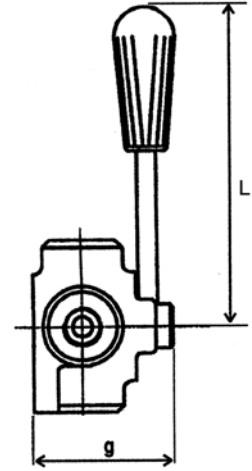
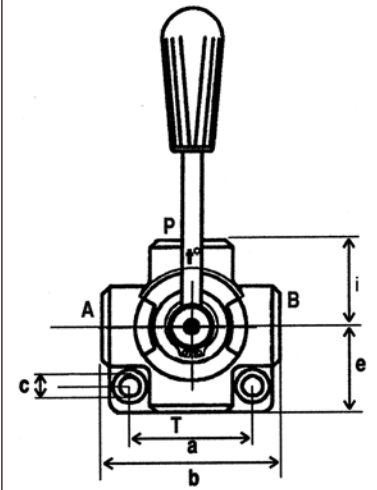
Type A

Opened in the center



Type C

Closed in the center



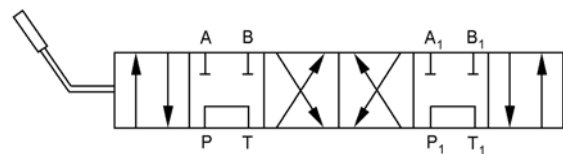
8/3-directional valves

Type A code	Max. l/min	Max. pressure bar	Connections	Dimension							Weight kg	Type C code
				a mm	b mm	c mm	e mm	i mm	f mm	L mm		
HK V7 867 A06	35	250	3/8"	54	77	8.5	38.5	38.5	142	110	2.50	HK V7 867 C06
HK V7 867 A08	50	250	1/2"	68	90	8.5	45	45	160	120	3.80	HK V7 867 C08
HK V7 867 A12	90	220	3/4"	74	95	8.5	47.5	47.5	180	125	5.20	HK V7 867 C12

Casing: cast, steel internal parts

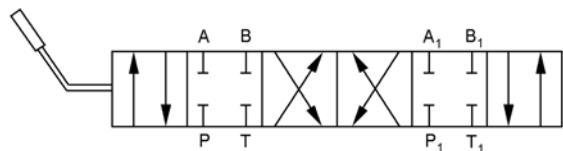
Rotary spool valves are pressurizable from all sides

Rotary spool valves have a low internal leakage on account of their design



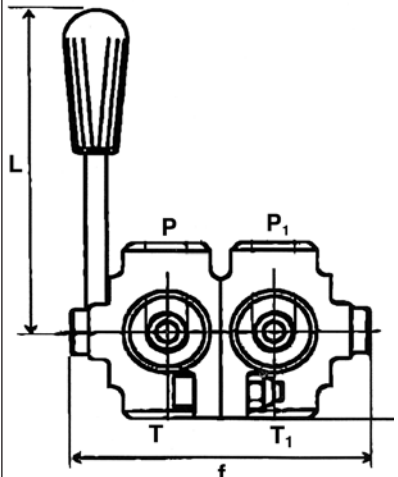
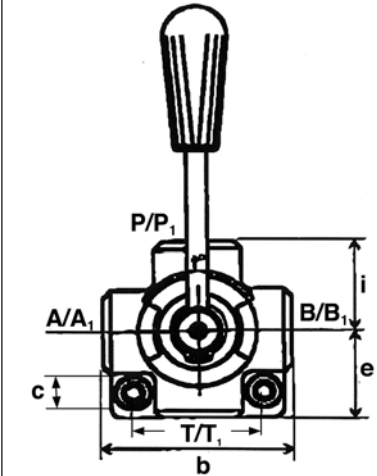
Type A

Opened in the center



Type C

Closed in the center



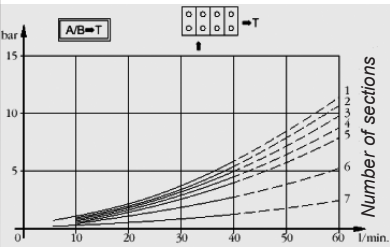
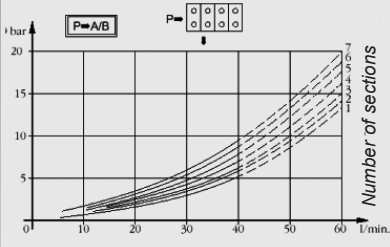
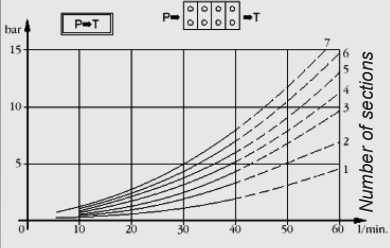
Monoblock directional valves



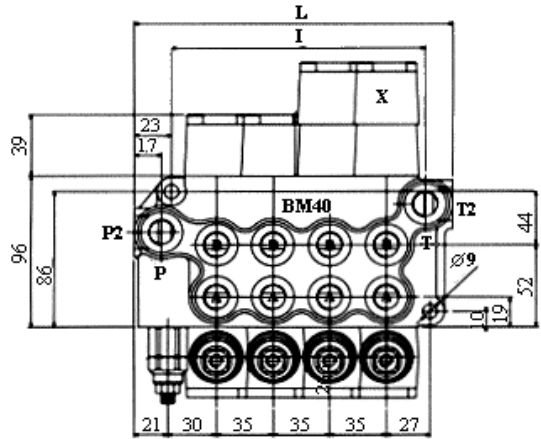
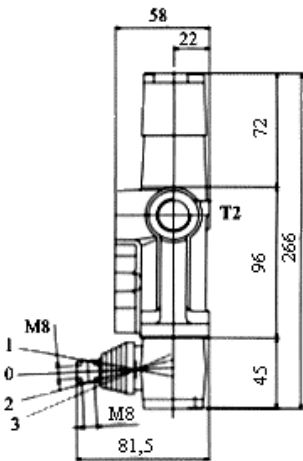
HK BM 40 A1x7

Type HK BM 40

- Monoblock valve, compact design for pipe fitting
- Max. flow rate: approx. 40 l/min. (see diagrams)
- Max. pressure: 220 bar
- Max. pressure in tank line: 80 bar
- Integrated pressure relief valve (valve has to be set)
- Spool with control notches for sensitive actuation
- Threaded connectors: P+T 3/8" - P2+T2 1/2" - A+B 3/8"
- Up to 7 sections possible



Flow rates for ISO VG 46 at 50 °C (30 mm²/s)

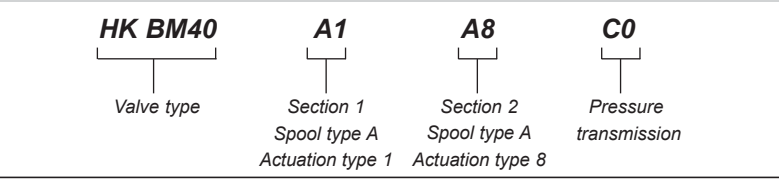


x = actuation type 2-3-16

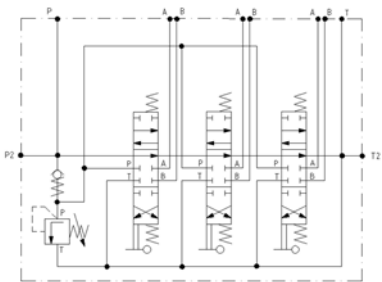
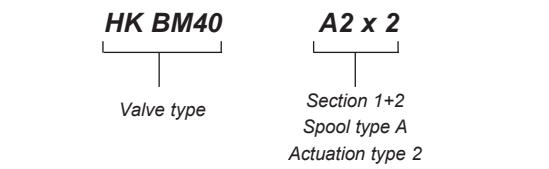
Dimensions

HK BM 40	Dimension L	Dimension I	Weight kg
1 Section	90	55	2.50
2 Sections	125	90	3.70
3 Sections	160	125	5.00
4 Sections	195	160	6.20
5 Sections	230	195	7.40
6 Sections	265	230	8.60
7 Sections	300	265	9.80

Example of order for HK BM 40 with 2 different sections and pressure transmission



Example of order for HK BM 40 with 2 similar sections

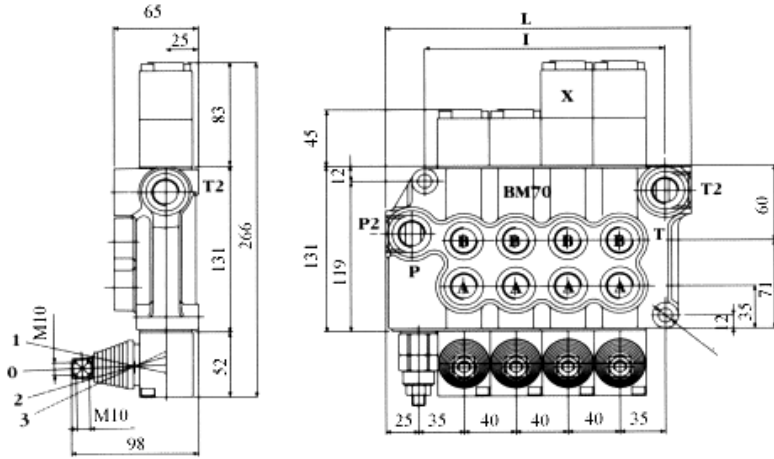


Standard version example with 3 sections (3 x A1)

Please find the corresponding spool types and actuation types on page 64.

Type HK BM 70

- Monoblock valve, compact design for pipe fitting
- Max. flow rate: approx. 70 l/min. (see diagrams)
- Max. pressure: 220 bar
- Max. pressure in tank line: 80 bar
- Integrated pressure relief valve (valve has to be set)
- Spool with control notches for sensitive actuation
- Threaded connectors: P+T 1/2" - P2+T2 3/4" - A+B 1/2"
- Up to 6 sections possible

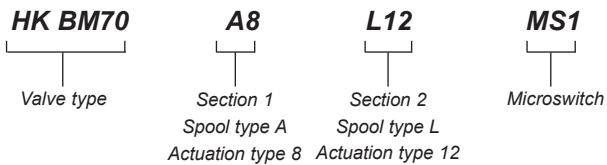


x = actuation type 2-3-12

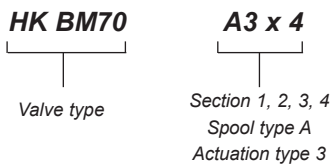
Dimensions

HK BM 70	Dimension L	Dimension I	Weight kg
1 Section	117	66	4.60
2 Sections	157	106	7.00
3 Sections	197	145	9.20
4 Sections	237	186	11.50
5 Sections	277	226	13.70
6 Sections	317	266	16.00

Example of order for HK BM 70 with 2 different sections and Microswitch



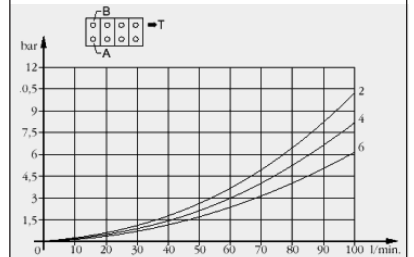
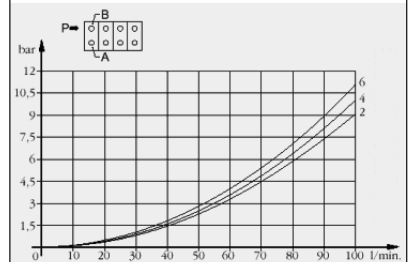
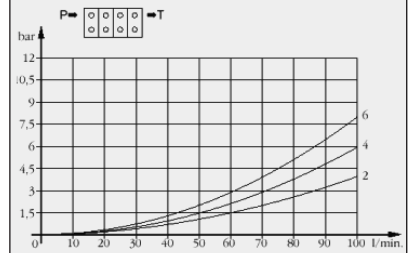
Example of order for HK BM 70 with 4 similar sections



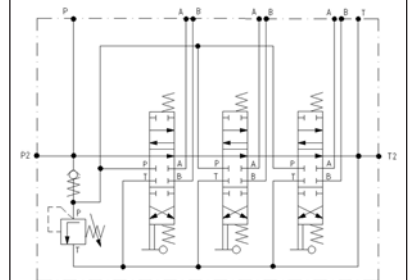
Please find the corresponding spool types and actuation types on page 64.



HK BM 70 A1x6



Flow rates for ISO VG 46 at 50 °C (30 mm²/s)



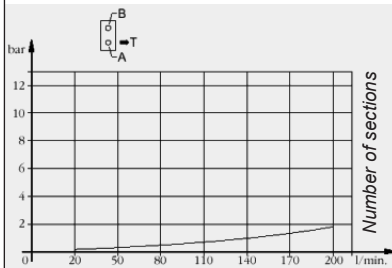
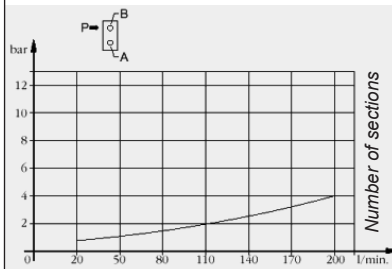
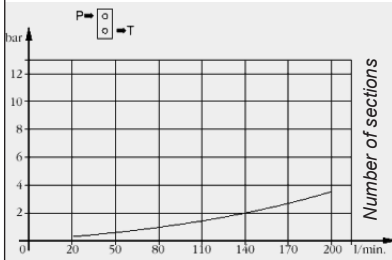
Standard version example with 3 sections (3 x A1)



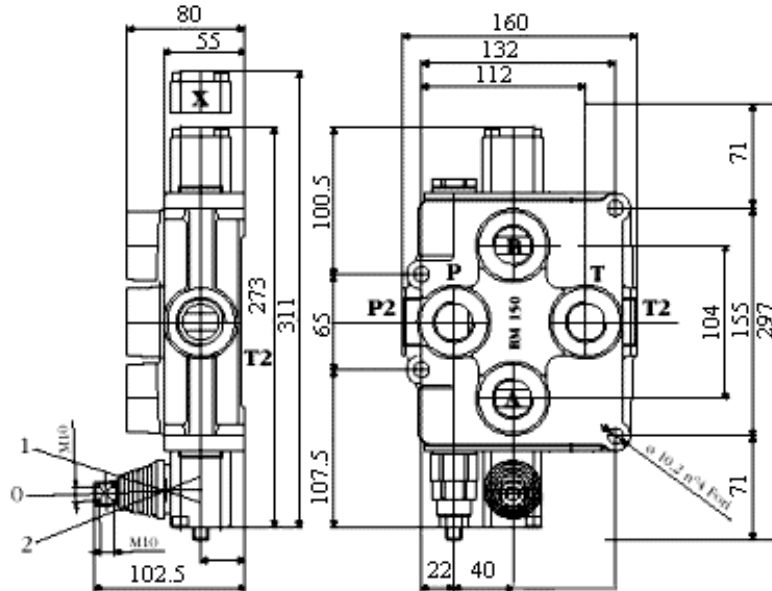
HK BM 150 A1

Type HK BM 150

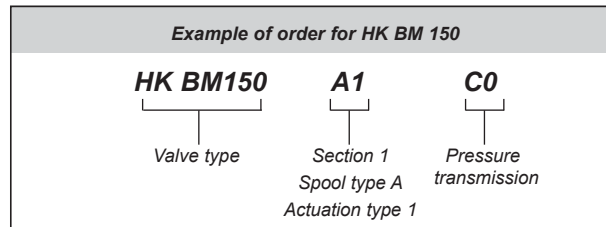
- Monoblock valve, compact design for pipe fitting
- Max. flow rate: approx. 150 l/min. (see diagrams)
- Max. pressure: 220 bar
- Max. pressure in tank line: 80 bar
- Integrated pressure relief valve (valve has to be set)
- Spool with control notches for sensitive actuation
- Threaded connectors: P+T 3/4" - P2+T2 1" - A+B 3/4"
- Weight: 8.2 kg
- Only possible with one section



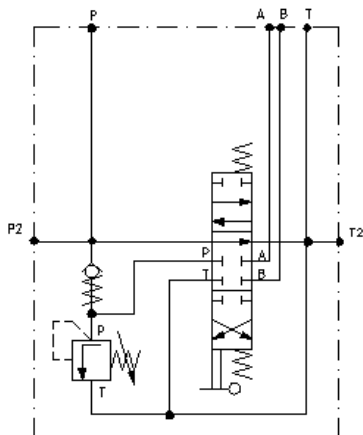
Flow rates for ISO VG 46 at 50 °C (30 mm²/s)



x = actuation type 2-3

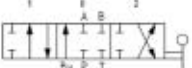


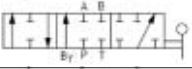

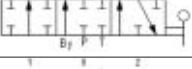


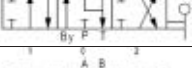

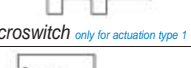
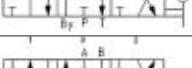
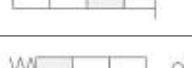
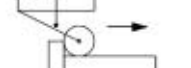
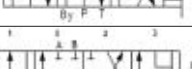

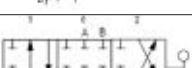






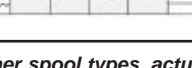
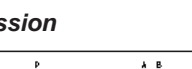


Please find the corresponding spool types and actuation types on page 64.



Standard version (A1)

Spool types - actuation types - special accessories for manual directional valves types BM 40 to 150

Spool type	Valve type			Actuation type	Valve type			Accessories	Valve type					
	40	70	150		40	70	150		40	70	150			
	A	X	X	X		1	X	X	X		C0	X	X	X
	B	X	X	X		2	X	X	X	Pressure transmission				
	C		X	X		3	X	X	X		MS0	X	X	X
	D	X	X	X		4	X	X	X		MS1	X	X	X
	E	X				5	X	X			MS2	X	X	X
	F	X	X			6	X	X	X	Microswitch <small>only for actuation type 1</small>				
	L	X	X			7	X	X		Microswitch <small>only for actuation type 1</small>				
	M	X	X			8	X	X	X	Microswitch <small>only for actuation type 1</small>				
						9	X	X	X					
						10	X	X	X					
						11	X	X						
						12	X	X						
						13	X	X						

X = standard variants, on request: other spool types, actuation types and accessories

Example with pressure transmission

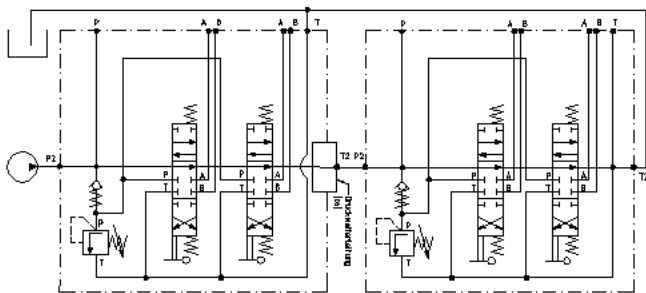
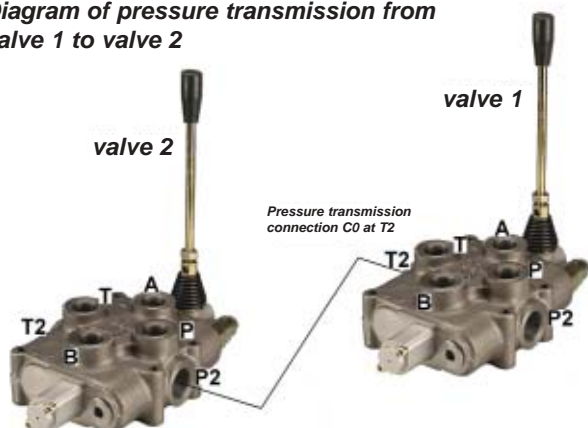


Diagram of pressure transmission from valve 1 to valve 2

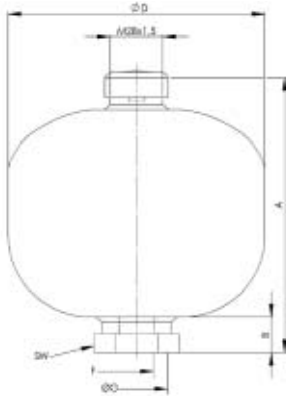


Hydraulic accumulators

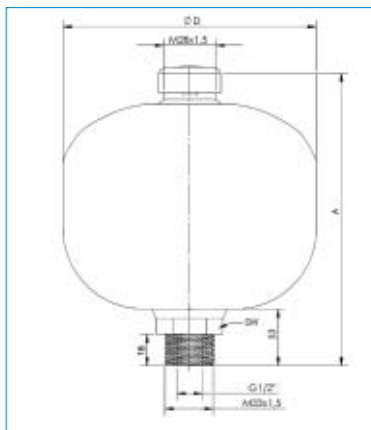
Diaphragm type accumulators



HK OLM 0.75 210 C



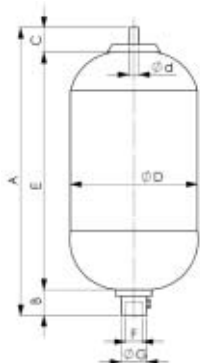
Connector A



Connector C



HK IHV 1.0



Code	Connection	Gas volume l	p_{max} bar	$p_{max} : p_0$	$p_{max} - p_{min}$ bar	A	B	D	F	G	SW	Weight kg
HK OLM 0.075 250 A	A	0.075	250	8:1	210	111	20	64	1/2" G	29	32	0.7
HK OLM 0.16 250 A	A	0.16	250	8:1	210	120	20	75	1/2" G	29	32	1
HK OLM 0.32 210 A	A	0.32	210	8:1	175	140	20	95	1/2" G	29	32	1.7
HK OLM 0.5 210 A	A	0.5	210	8:1	175	152	22	106	1/2" G	34	41	2
HK OLM 0.5 210 C	C	0.5	210	8:1	175	163	33	106	1/2" G	-	41	2
HK OLM 0.75 210 A	A	0.75	210	8:1	175	169	22	124	1/2" G	34	41	2.9
HK OLM 0.75 210 C	C	0.75	210	8:1	175	180	33	124	1/2" G	-	41	2.9
HK OLM 0.75 350 A	A	0.75	330	8:1	150	169	18	131	1/2" G	34	41	3.5
HK OLM 1.0 200 A	A	1.0	200	8:1	170	180	22	136	1/2" G	34	41	3.5
HK OLM 1.0 200 C	C	1.0	200	8:1	170	191	33	136	1/2" G	-	41	3.5
HK OLM 1.4 140 A	A	1.4	140	8:1	120	191	22	147	1/2" G	34	41	4.2
HK OLM 1.4 140 C	C	1.4	140	8:1	120	202	33	147	1/2" G	-	41	4.2
HK OLM 1.4 210 A	A	1.4	210	8:1	120	191	22	148	1/2" G	34	41	4.2
HK OLM 1.4 210 C	C	1.4	210	8:1	120	202	33	148	1/2" G	-	41	4.2
HK OLM 2.0 100 A	A	2.0	100	6:1	80	240	22	144	1/2" G	34	41	3.5
HK OLM 2.0 250 A	A	2.0	250	6:1	80	251	22	155	3/4" G	33	41	7.5
HK OLM 2.8 250 A	A	2.8	250	4:1	140	268	21	174	3/4" G	32	41	9
HK OLM 3.5 250 A	A	3.5	250	4:1	140	307	22	174	3/4" G	32	41	11

Attention! Also order lock nut for connector „C“ (see page 66)

Operating pressure 100 to 330 bar
 Temperature range standard version -10 °C to +80 °C
 Diaphragm: NBR standard version
 p_0 – gas filling pressure

Bladder accumulators

Code	Gas volume l	p_{max} bar	A	B	C	D	d	E	F	G	Weight kg
HK IHV 1.0 350 3/4	1	350	312	52	57	114	22	203	G 3/4"	36	5
HK IHV 2.5 350 1 1/4	2.4	350	532	66	57	114	22	409	G 1 1/4"	53	10
HK IHV 4.0 350 1 1/4	3.7	350	407	66	57	168	22	284	G 1 1/4"	53	16
HK IHV 5.0 350 1 1/4	5	350	881	66	57	114	22	758	G 1 1/4"	53	17
HK IHV 6.0 350 1 1/4	6	350	518	66	57	168	22	395	G 1 1/4"	53	20
HK IHV 10.0 350 1 1/4	10	350	807	66	57	168	22	684	G 1 1/4"	53	28
HK IHV 10.0 330 K2	9.2	330	565	101	57	221	22	407	G 2"	76	32
HK IHV 12.0 330 2	11.2	330	664	101	57	221	22	506	G 2"	76	35
HK IHV 20.0 330 2	18.1	330	874	101	57	221	22	716	G 2"	76	53

Operating pressure - 330 to 350 bar
 Gas filling pressure p_0 – between 0.9 p_1 and 0.25 p_2 (p_1 = min. system pressure, p_2 = max. system pressure)
 Temperature range – standard version -15 °C to +80 °C
 Still: NBR standard version

Accessories for hydraulic accumulators

Safety and shut-off blocks with manual balancing

- With certificate, NBR seals, **safety valve**
- $p_{max} = 400 \text{ bar}$
- The viscosity of fluids must lie within the following limits:
Minimum $10 \text{ mm}^2/\text{s}$, max. $380 \text{ mm}^2/\text{s}$

Code	p_{max} bar (*)	S	P	T	M	M1	M2	Weight kg
HK DI 10 M 100 B	100	Accumulator connection M 33x2 (**)	1/2"	1/2"	1/4"	-	-	2.9
HK DI 10 M 140 B	140							
HK DI 10 M 200 B	200							
HK DI 10 M 210 B	210							
HK DI 10 M 250 B	250							
HK DI 10 M 330 B	330							
HK DI 20 M 330 B	330	1"	3/4"	-	1/2"	1/4"	7.2	

(*) **Safety valve is locked, please select the corresponding accumulator considering to the maximum pressure!**
 (**) **Attention!** Please order the adapter for corresponding accumulator!

Accumulator adapter for safety and shut-off block

Code	Description
HK AS 10 3/4	for IHV with 3/4" (0.5 - 1.6 l)
HK AS 12 1 1/4	for IHV with 1 1/4" (2.5 - 10 l)
HK AS 13 2	for IHV with 2" (10 - 50 l)
HK AS 31 3/4	for OLM with G3/4" (2.0 - 3.5 l)
HK AS 32 1/2	for OLM with G1/2" (0.075 - 2.0 l)

Accumulator bracket

Code	Design	D	H	A	B	C	E
HK CB 75	B	75	50	110	85	110	-
HK CB 92	B	92	46	125	90	132	-
HK CB 108	B	108	65	138	100	150	-
HK CB 114	B	114	73	138	100	159	-
HK CB 121	B	121	73	138	100	164	-
HK CD 130	D	130	77	172	136	147	198
HK CC 136	C	136	76	199	136	160	-
HK CB 146	B	146	80	171	136	190	-
HK CB 150	B	150	80	171	136	190	-
HK CC 168	C	168	92	188	148	181	230
HK CB 177	B	177	98	196	148	217	-
HK CD 226	D	226	123	270	216	241	295

Attention! Take the diameter of the accumulator and use the next size.
 Example: When the diameter of the accumulator is 96 mm select a bracket of 108 mm.

Lock nut for diaphragm type accumulator

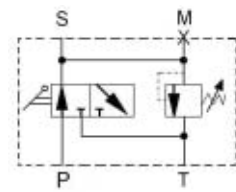
Code	Design
HK MS M33-15	Lock nut for diaphragm type accumulator

Charging and gauging device VGU

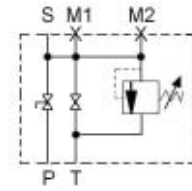
The pilot pressure of hydraulic accumulators can be checked, reduced and increased.
 Fits all IHV bladder accumulators, OLM diaphragm type accumulators and all commercially available accumulators with an M28 x 1.5 filling connector.

Attention! Always fill with technical nitrogen, never use oxygen or air! Risk of explosion!

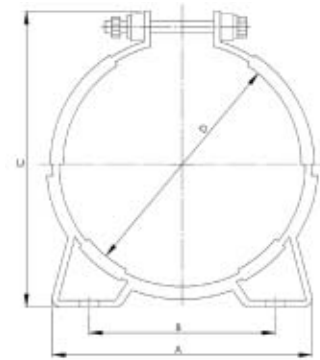
Code	Design
HK VGU 250 7 TS3 3	Charging and gauging device with manometer to 250 bar, and protective case



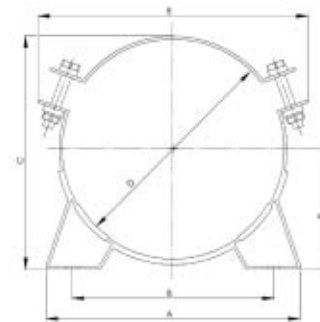
HK DI 10 M 330 B



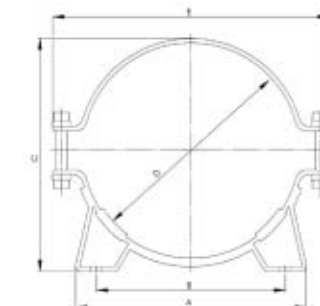
HK DI 20 M 330 B



Design B



Design D



Design C

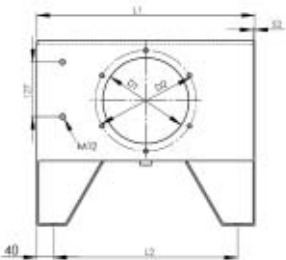
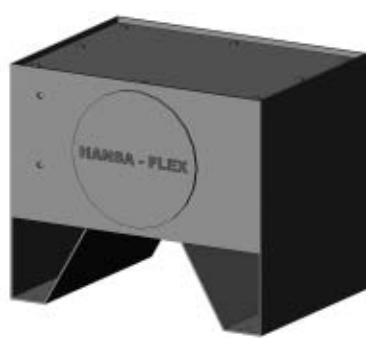
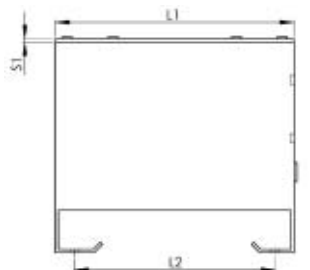
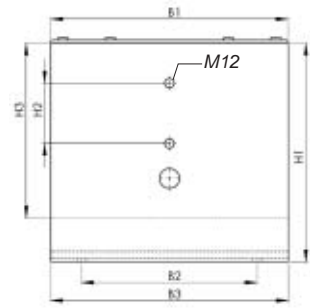
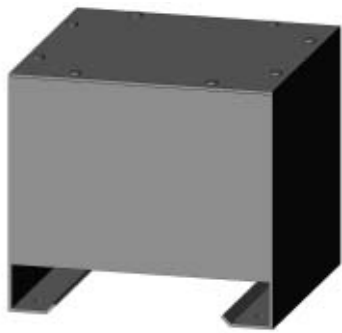


HK VGU 250 7 TS3 3

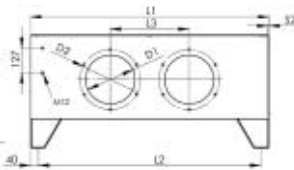
Hydraulic tanks - steel

Hydraulic tanks BEK (without cleaning aperture)

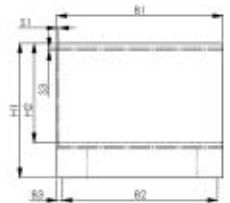
Tank made of quality steel, sand-blasted inside and out, primed with high quality zinc dust paint that is resistant to mineral oil based hydraulic oils. All tanks are subjected to a 100% leak test.



up to size 200



from size 250



Code	Designation	Usable volume V [l]	L1	L2	B1	B2	B3	H1	H2	H3	S1	Weight kg
HK BEK 12	Steel tank size 12	16	310	260	298	220	310	275	76	220	4	17
HK BEK 20	Steel tank size 20	26	400	350	298	220	310	325	76	270	4	23
HK BEK 35	Steel tank size 35	40	470	420	298	220	310	400	76	345	5	30
HK BEK 50	Steel tank size 50	58	500	450	388	310	400	420	76	365	5	39
HK BEK 60	Steel tank size 60	69	550	500	388	310	400	445	76	390	5	43
HK BEK 75	Steel tank size 75	85	550	500	388	310	400	530	127	475	5	46
HK BEK 100	Steel tank size 100	109	700	650	388	310	400	530	127	475	6	57
HK BEK 150	Steel tank size 150	175	750	700	488	410	500	620	127	565	6	77
HK BEK 225	Steel tank size 225	267	900	850	588	510	600	650	127	595	8	110
HK BEK 300	Steel tank size 300	339	900	850	688	610	700	700	127	645	8	127

Hydraulic tanks BSK (with cleaning aperture)

Tank made of quality steel, sand-blasted inside and out, primed with high quality zinc dust paint that is resistant to mineral oil based hydraulic oils. All tanks are subjected to a 100% leak test.

Code	Designation	Usable volume V [l]	L1	L2	L3	B1	B2	B3	H1	H2	D1	D2	S1	S2	S3	Weight kg
HK BSK 40	Steel tank size 40	38	508	428	-	375	315	30	430	280	200	250	3	3	6	33
HK BSK 63	Steel tank size 63	59	508	428	-	375	315	30	560	410	248	324	3	3	6	38
HK BSK 100	Steel tank size 100	92	633	553	-	474	414	30	560	407	248	324	4	4	6	63
HK BSK 160	Steel tank size 160	152	810	730	-	604	544	30	560	410	248	324	4	4	6	88
HK BSK 200	Steel tank size 200	184	900	820	-	654	594	30	560	410	248	324	4	4	6	101
HK BSK 250	Steel tank size 250	235	1010	930	410	704	644	30	580	430	248	324	4	4	7	123
HK BSK 300	Steel tank size 300	272	1208	1128	410	714	654	30	580	412	248	324	4	4	7	141
HK BSK 400	Steel tank size 400	375	1514	1434	750	749	689	30	580	430	248	324	4	7	7	201

Hydraulic tanks – aluminum

Hydraulic tanks BAK

- Stable cast aluminum body
- All-round groove for O-ring seal for the lid or flat seal
- Low weight
- High coefficient of thermal conductivity gives good heat transfer
- Base design sloping down on all sides to the oil drain (according to VDI Guideline 3230)

Attention: A complete tank consists of tank, steel lid and seal.

Code	Designation	Usable volume V [l]	Cooling capacity* P [kW] ($\Delta t = 40 \text{ K}$)	A	B	C	D	E	F	Weight (without lid) kg
HK BAK RA 03	Alu tank 3.5	3 l	0.160	220	150	165	G 1/4"	160	105	1.4
HK BAK RA 06	Alu tank 6.5	6 l	0.360	260	180	200	R 3/8"	220	160	1.7
HK BAK RA 12	Alu tank 12	10 l	0.600	310	215	225	R 3/8"	240	155	2.3
HK BAK RA 20	Alu tank 20	17 l	0.720	366	245	270	R 1/2"	288	192	4.3
HK BAK RA 30	Alu tank 30	27 l	0.920	490	275	326	R 1/2"	340	176	5
HK BAK RA 44	Alu tank 44	40 l	1.040	515	305	341	R 1/2"	415	241	7
HK BAK RA 70	Alu tank 70	63 l	1.160	605	355	422.5	R 1/2"	465	282.5	10

* Dependent on environmental conditions

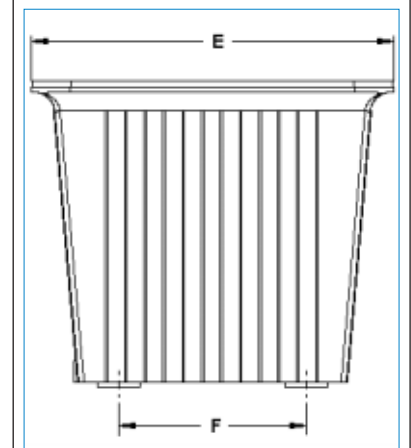
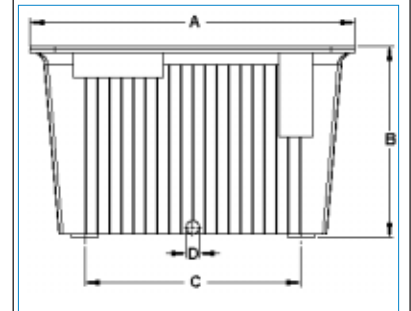
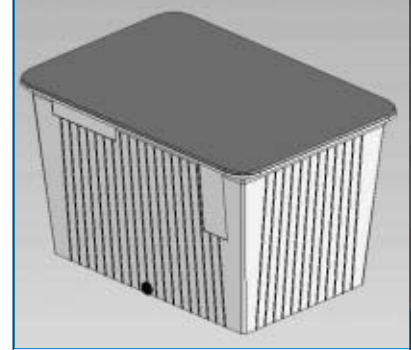
Attention: Tank without steel lid and seal, please order these separately.

Steel lid for tank BAK

Code	Designation	Recommended screw set (out of scope of delivery)	Weight kg
HK ST BAK RA 03	Steel lid for HK BAK RA 03	10 pcs. M5 x 20	1.2
HK ST BAK RA 06	Steel lid for HK BAK RA 06	8 pcs. M5 x 15	1.4
HK ST BAK RA 12	Steel lid for HK BAK RA 12	10 pcs. M5 x 15	2.5
HK ST BAK RA 20	Steel lid for HK BAK RA 20	8 pcs. M6 x 20	3.6
HK ST BAK RA 30	Steel lid for HK BAK RA 30	8 pcs. M6 x 25	6.4
HK ST BAK RA 44	Steel lid for HK BAK RA 44	8 pcs. M6 x 25	8.5
HK ST BAK RA 70	Steel lid for HK BAK RA 70	8 pcs. M6 x 25	10.5

O-ring seal for tank BAK

Code	Designation	Weight kg
HK RS BAK RA 03	OR seal for HK BAK RA 03	0.1
HK RS BAK RA 06	OR seal for HK BAK RA 06	0.1
HK RS BAK RA 12	OR seal for HK BAK RA 12	0.1
HK RS BAK RA 20	OR seal for HK BAK RA 20	0.1
HK RS BAK RA 30	OR seal for HK BAK RA 30	0.11
HK RS BAK RA 44	OR seal for HK BAK RA 44	0.11
HK RS BAK RA 70	OR seal for HK BAK RA 70	0.12



Hydraulic tank accessories

Tank air filters and filling filters

- Design: For screwing in or flange mounting on the tank, with inlet filter
- Material: steel, chromed, cork seal



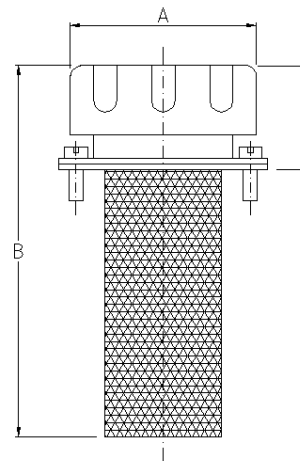
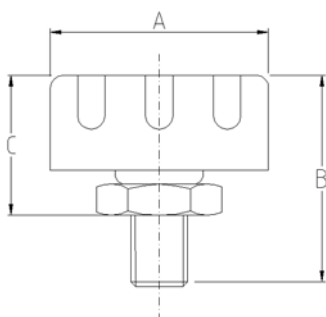
HK TA80 G 03

Code	Dimension A	Dimension B	Dimension C	Hole circle	Tank borehole	Fixation	Degree of filtration	Weight kg
HK TA 46 B 03	46	111	48	41	30	3 x M5	3 µm	0.20
HK TA 46 B 10	46	111	48	41	30	3 x M5	10 µm	0.20
HK TA 80 G 03	80	68	52		G 3/4"	G 3/4"	3 µm	0.22
HK TA 80 G 10	80	68	52		G 3/4"	G 3/4"	10 µm	0.22
HK TA 80 B 03 1	80	134	56	73	51	6 x M5	3 µm	0.28
HK TA 80 B 10 1	80	134	56	73	51	6 x M5	10 µm	0.28
HK TA 80 B 03 2	80	204	56	73	51	6 x M5	3 µm	0.32
HK TA 80 B 10 2	80	204	56	73	51	6 x M5	10 µm	0.32

Available on request: Filler cap with locking clip and/or pre-load valve, other sizes and designs



HK TA 80 B 10 2



Filling nozzles / dipsticks

- Filler caps with and without dipstick
- Including venting filter 90 µ steel
- With standard Buna-N seal



HK TSD G20 RNAA 120

Code	Thread	External diameter mm	Length of dipstick mm	Labeling	Weight kg
HK TSD G16 RNAA 120	3/8"	35	120	none	0.06
HK TSD G16 RNAAS	3/8"	35	without	none	0.06
HK TSD G16 ROAAA	3/8"	35	200	OIL	0.06
HK TSD G20 RNAA 120	1/2"	39	120	none	0.08
HK TSD G20 RNAA 160	1/2"	39	160	none	0.08
HK TSD G20 RNAA 200	1/2"	39	200	none	0.08
HK TSD G20 RNAAS	1/2"	39	without	none	0.06
HK TSD G20 ROAAS	1/2"	39	without	OIL	0.06
HK TSD G26 RNAA 160	3/4"	45	160	none	0.09
HK TSD G26 ROAAA	3/4"	45	200	OIL	0.09
HK TSD G26 ROAAS	3/4"	45	without	OIL	0.09
HK TSD G33 RNAAS	1"	51	without	none	0.09
HK TSD G33 ROAAS	1"	51	without	OIL	0.09

Tank aeration filter

- Plugs for oil filler hole and vent
- Spherical bronze filter
- Also suitable for dusty environments

Code	Thread	Thread height mm	Height of head mm	Head diameter mm	Jaw width	Weight kg
HK TSF 1 G14	1/4"	8	17	17	17	0.012
HK TSF 2 G38	3/8"	10	19	22	22	0.026
HK TSF 3 G12	1/2"	12	21	26	27	0.038
HK TSF 4 G34	3/4"	14	24	30	32	0.060
HK TSF 5 G1	1"	16	29	38.0	40	0.080
HK TSF 6 G114	1 1/4"	16	33	50.0	50	0.100
HK TSF 7 G112	1 1/2"	16	35	55.0	55	0.120
HK TSF 8 G2	2"	16	40	70.0	70	0.140
HK TSF 1 M1415	14 x 1.5	8	17	17.0	17	0.012
HK TSF 2 M1615	16 x 1.5	10	19	22.0	22	0.026
HK TSF 3 M1815	18 x 1.5	10	19	22.0	22	0.038
HK TSF 4 M2015	20 x 1.5	12	21	24.0	24	0.060
HK TSF 5 M2215	22 x 1.5	12	21	26.0	27	0.080
HK TSF 6 M2420	24 x 2	12	24	30.0	30	0.100
HK TSF 7 M3020	30 x 2	14	25	30.0	36	0.120
HK TSF 8 M3320	33 x 2	16	29	38.0	40	0.140

Optical fluid level gauge (for mineral oil only)

- Max. operating pressure: 1 bar
- Max. temperature: 80 °C
- Max. torque: 8 Nm
- Design: Aluminum protective casing, Trogamide inspection glass
- With / without thermometer

Code	Thermometer design	Hole-center distance mm	Mounting thread	Weight kg
HK LVA10 S M10	without	76	2 x M10	0.12
HK LVA10 T M10	with	76	2 x M10	0.12
HK LVA10 S M12	without	76	2 x M12	0.12
HK LVA10 T M12	with	76	2 x M12	0.12
HK LVA20 S M10	without	127	2 x M10	0.16
HK LVA20 S M12	without	127	2 x M12	0.16
HK LVA20 T M12	with	127	2 x M12	0.16
HK LVA30 S M10	without	254	2 x M10	0.22
HK LVA30 T M10	with	254	2 x M10	0.22
HK LVA30 S M12	without	254	2 x M12	0.22
HK LVA30 T M12	with	254	2 x M12	0.22

Available on request: Screw-in inspection glasses, solid plastic or aluminum casing

Aluminum oil-level glasses (for mineral oil only)

Code	Thread	Thread height mm	Jaw width	Diameter of viewing window mm	Weight kg
HK TLA 1 G14	1/4"	8	17	10	0.005
HK TLA 2 G38	3/8"	9	22	13	0.008
HK TLA 3 G12	1/2"	10	27	16	0.014
HK TLA 4 G34	3/4"	11	32	21	0.019
HK TLA 5 G1	1"	14	40.0	27	0.034
HK TLA 6 G114	1 1/4"	15	50.0	37	0.046
HK TLA 7 G112	1 1/2"	15	55.0	40	0.057
HK TLA 8 G2	2"	17	70.0	50	0.111
HK TLA 1 M1415	14 x 1.5	8	17.0	10	0.005
HK TLA 2 M1615	16 x 1.5	9	22.0	13	0.008
HK TLA 3 M1815	18 x 1.5	9	22.0	13	0.014
HK TLA 4 M2015	20 x 1.5	10	24.0	16	0.019
HK TLA 5 M2215	22 x 1.5	10	27.0	16	0.019
HK TLA 6 M2415	24 x 1.5	11	30.0	16	0.025
HK TLA 7 M2420	24 x 2	11	30.0	16	0.025
HK TLA 8 M2515	25 x 1.5	11	32.0	21	0.025
HK TLA 9 M2715	27 x 1.5	11	32.0	21	0.032
HK TLA 10 M3015	30 x 1.5	11	36.0	21	0.046
HK TLA 11 M3020	30 x 2	11	36.0	21	0.046
HK TLA 12 M3315	33 x 1.5	14	40.0	27	0.057
HK TLA 13 M3320	33 x 2	14	40.0	27	0.057



HK TSF 8 G2



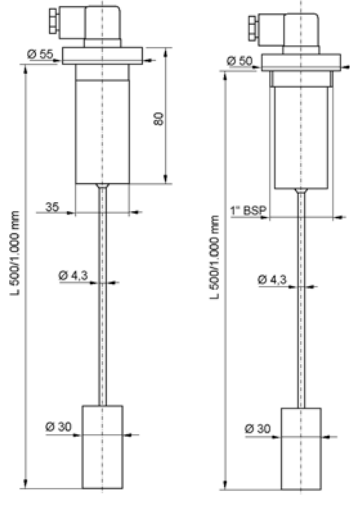
HK LVA20 T M12



HK TLA 8 G2

Float switches, series RL-1

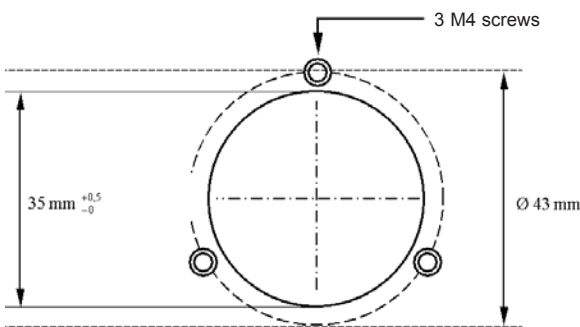
- Freely selectable switching point
- With flange or threaded connector
- Optionally single or change-over contacts
- Electrical connection according to DIN 43650
- Type of protection IP 65
- The control rod can be shortened to the required length
- Version with a float, tank attachment 1" BSP or flange



RL-1-F

RL-1-1

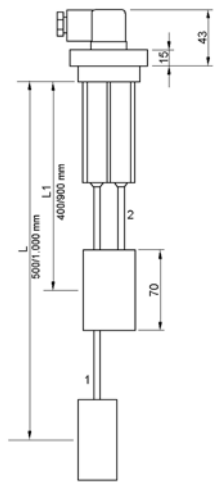
Code	Connection	Type	Weight kg
HK RL 1 1 S1 500	Thread 1"	Normally-open contact	0.1
HK RL 1 1 S1A 500	Thread 1"	Normally closed contact	0.1
HK RL 1 1 S2 500	Thread 1"	Change-over contact	0.1
HK RL 1 F S1 500	Flange	Normally-open contact	0.1
HK RL 1 F S1A 500	Flange	Normally closed contact	0.1
HK RL 1 F S2 500	Flange	Change-over contact	0.1



Flange connection

Float switches, series RL-2

- The control rod can be shortened to the required length
- Version with two floats and two control rods
- Electrical connection with plug according to DIN 43650 (except S2-S2)
- Each rod activates a separate contact



RL-2

Code	Connection	Type	Weight kg
HK RL 2 1 S1 S1 500	Thread 1 1/4"	Normally-open contact	0.2
HK RL 2 1 S1A S1A 500	Thread 1 1/4"	Normally closed contact	0.2
HK RL 2 1 S2 S2 500	Thread 1 1/4"	Change-over contact	0.2
HK RL 2 F S1 S1 500	Flange	Normally-open contact	0.2
HK RL 2 F S1A S1A 500	Flange	Normally closed contact	0.2
HK RL 2 F S2 S2 500	Flange	Change-over contact	0.2

Hydraulic filters

Suction filter elements

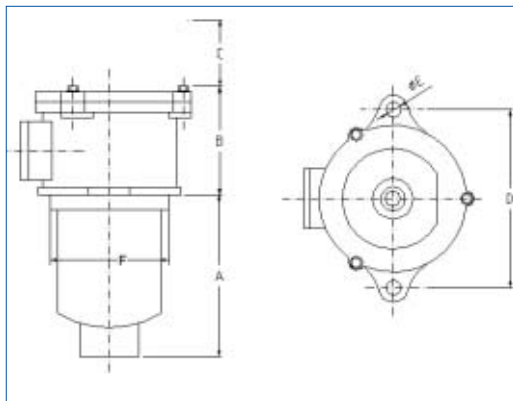
- These elements protect hydraulic pumps against coarse contaminants from the tank, they are mounted submerged in the tank.
- Filter unit: 90 µm nominal - wire cloth
- Design: Without bypass valve
- Designed for medium ISO VG 46 up to 50 °C (30 mm²/s) at Δp: 0.08 bar

Code	BSF thread	Dimension H	Dimension H1	Dimension B	SW	Filter surface cm ²	Max. flow rate l/min	Weight kg
HK STR050 1 S M90	3/8"	78	10	52	30	290	20	0.16
HK STR050 2 S M90	1/2"	78	10	52	30	290	28	0.16
HK STR070 1 S M90	1/2"	95	10	70	42	470	28	0.22
HK STR070 2 S M90	3/4"	95	10	70	42	470	66	0.22
HK STR070 3 S M90	3/4"	140	10	70	42	720	66	0.30
HK STR070 4 S M90	1"	140	10	70	42	720	130	0.30
HK STR100 1 S M90	1 1/4"	135	15	99	69	1046	170	0.47
HK STR100 2 S M90	1 1/4"	225	15	99	69	1850	170	0.68
HK STR100 3 S M90	1 1/2"	225	15	99	69	1850	250	0.68
HK STR100 4 S M90	2"	225	15	99	69	1850	470	0.68
HK STR100 5 S M90	1 1/2"	135	15	99	69	1046	250	0.47
HK STR140 1 S M90	1 1/2"	160	15	130	70	2000	250	0.84
HK STR140 2 S M90	2"	160	15	130	70	2000	470	0.84
HK STR140 3 S M90	2"	262	15	130	70	3550	470	1.25
HK STR140 4 S M90	2 1/2"	270	20	130	101	3550	840	1.25
HK STR140 5 S M90	3"	270	20	130	101	3620	980	1.25
HK STR140 6 S M90	3"	330	20	130	101	4160	980	1.30

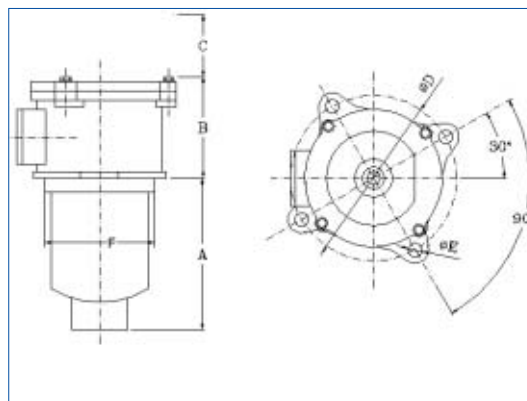
Available on request: Other degrees of filtration (60/250 µm), other thread (NPT)
filter with bypass or magnet

Return filters - tank fitting

- Degree of filtration: 10 µm
- Operating pressure: max. 3 bar
- Differential pressure: P - filter element max. 3 bar
A - filter element max. 10 bar
- Design: With bypass valve 1.75 bar, without contamination indicator
- Designed (Q_{max}) for medium ISO VG 46 at 50 °C 30 mm²/s) at Δp_{total}: 0.40 bar
- We shall be pleased to advise you about other filter materials, types of oil, viscosities and temperatures.



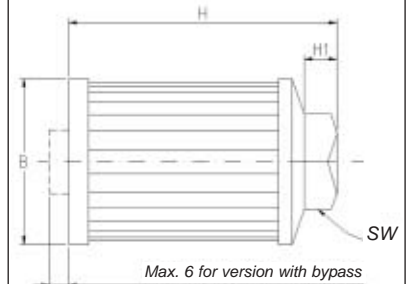
Dimensioned sketch 1



Dimensioned sketch 2



HK STR070 2 S M90





HK MPF100 2 G2
with HK VA V1

Return filter casings complete with filter element

Code	Pipe connection BSP/SAE flange	P10 - filter element		A10 - filter element		Design dimensioned sketch	A	B	C	D	E	F	Weight kg
		Filter surface cm ²	Q max l/min	Filter surface cm ²	Q max l/min								
HK MPF030 1 G1 ***	1/2"	410	34	335	21	1	86	56	100	90	7	66	0.36
HK MPF100 1 G1 ***	1/2"	1020	56	630	35	1	100	75	120	115	8.5	88	0.74
HK MPF100 1 G2 ***	3/4"	1020	56	630	35	1	100	75	120	115	8.5	88	0.74
HK MPF100 1 G3 ***	1"	1020	59	630	35	1	100	75	120	115	8.5	88	0.74
HK MPF100 2 G2 ***	3/4"	1660	88	1000	45	1	150	75	170	115	8.5	88	0.76
HK MPF100 2 G3 ***	1"	1660	96	1000	45	1	150	75	170	115	8.5	88	0.76
HK MPF100 3 G2 ***	3/4"	1900	95	1730	70	1	225	75	250	115	8.5	88	0.88
HK MPF100 3 G3 ***	1"	1900	125	1730	70	1	225	75	250	115	8.5	88	0.88
HK MPF180 1 G1 ***	1 1/4"	4000	190	4300	160	3-hole	231	89	250	175	10.7	129	1.86
HK MPF400 1 G1 ***	1 1/4"	4480	232	4740	170	2	178	98.5	200	220	11.5	173.5	3.42
HK MPF400 1 G2 ***	1 1/2"	4480	232	4740	170	2	178	98.5	200	220	11.5	173.5	3.42
HK MPF400 1 G3 ***	2"	4480	250	4740	170	2	178	98.5	200	220	11.5	173.5	3.42
HK MPF400 2 G2 ***	1 1/2"	6550	300	6930	240	2	238	98.5	250	220	11.5	173.5	3.48
HK MPF400 2 G3 ***	2"	6550	328	6930	240	2	238	98.5	250	220	11.5	173.5	3.48
HK MPF400 3 G2 ***	1 1/2"	8280	372	8760	300	2	288	98.5	310	220	11.5	173.5	3.68
HK MPF400 3 G3 ***	2"	8280	416	8760	300	2	288	98.5	310	220	11.5	173.5	3.68
HK MPF750 1 G1 ***	2"	13450	446	11400	375	2	430	105	450	220	11.5	173.5	5.68
HK MPF750 1 F1 ***	2" SAE 3000 PSI/IM	13450	446	11400	375	2	430	105	450	220	11.5	173.5	5.68

*** = P10 Paper filter (10 µm), nominal filtering
 *** = A10 With inorganic filter (10 µm), absolute filtering
 without *** Without filter, that is filter casing only
 Dimension „C“ needed space for filter change

Replacement filter elements for return filters

Code	For pot length
HK MF030 1 ***	1
HK MF100 1 ***	1
HK MF100 2 ***	2
HK MF100 3 ***	3
HK MF180 1 ***	1
HK MF400 1 ***	1
HK MF400 2 ***	2
HK MF400 3 ***	3
HK MF750 1 ***	1

*** = P10 Paper filter (10 µm), nominal filtering
 *** = A10 With inorganic filter (10 µm), absolute filtering
 Pot length: see dimension A

Example of order for filter with paper filter element

HK MPF 1001 G2 P10
 (Filter size 100 complete with paper filter P10)

Example of order for replacement inorganic filter element

HK MF 1002 A10
 (inorganic filter element, size 100, pot length 1)

Available on request: Other sizes, degrees of filtration and materials
 Other thread, connections and seals (e.g. Viton seals)
 Other series of filters, also with lower pressures

Contamination indicators

Code	Type	Switching point bar	Design	Dimensions	Weight kg
HK VA V1	Manometer		Green/red scale	Diameter 40	0.04
HK VA ER	Electric switch	1.3	Change-over contact	Höhe 56	0.06
HK VA EC	Electric switch	1.3	Normally closed contact	Höhe 56	0.06

Spin-on filters – pipe fitting

- Degree of filtration: 10 µm
- Operating pressure: max. 12 bar
- Differential pressure: P - filter element max. 4 bar
A - filter element max. 4 bar
- Design: With bypass valve 1.75 bar, without contamination indicator
- Designed ($Q_{max.}$) for medium ISO VG 46 at 50 °C (30 mm²/s) at Δp_{total} : 0.4 bar
- We shall be pleased to advise you about other filter materials, types of oil, viscosities and temperatures.

Spin-on filters complete with filter element as return filter (*)

Code	Pipe connection BSF/SAE flange	P10 - filter element		A10 - filter element		Design dimensioned sketch	A	B	C	D	E	Weight kg
		Filter surface cm ²	Q max l/min	Filter surface cm ²	Q max l/min							
HK MPS050 RG1 ***	3/4"	2240	56	1900	48	1	180	22	200	95	96	1.0
HK MPS070 RG1 ***	3/4"	4140	65	3160	53	1	248	22	268	95	96	1.3
HK MPS100 RG1 ***	1 1/4"	4300	149	3950	110	1	241	30	286	133	129	2.2
HK MPS150 RG1 ***	1 1/4"	5760	156	5390	115	1	286	30	311	133	129	2.3
HK MPS200 RG1 ***	1 1/2"	2 x 4300	282	2 x 3160	220	2	216		241	140	129	4.0
HK MPS250 RG1 ***	1 1/2"	2 x 5760	293	2 x 5390	250	2	261		286	140	129	4.2
HK MPS300 RF1 ***	1 1/2" SAE 3000 PSI/M	2 x 4300	282	2 x 3950	220	3	265	47	290	130	129	5.4
HK MPS300 RG1 ***	1 1/2"	2 x 4300	282	2 x 3950	220	3	265	47	290	130	129	5.4
HK MPS350 RF1 ***	1 1/2" SAE 3000 PSI/M	2 x 5760	293	2 x 5390	250	3	310	47	335	130	129	5.6
HK MPS350 RG1 ***	1 1/2"	2 x 5760	293	2 x 5390	250	3	310	47	335	130	129	5.6

*** = P10 Paper filter (10 µm), nominal filtering

*** = A10 With inorganic filter (10 µm), absolute filtering

(*) Order as suction filter, see example of order page 75

Spin-on filter heads for return and suction filters

Code	Pipe connection BSF/SAE flange	For return filter	For suction filter	Suitable for filter type MPS
HK MPS050070 RG1	3/4"	X		050-070
HK MPS100150 RG1	1 1/4"	X		100-150
HK MPS200250 RG1	1 1/2"	X		200-250
HK MPS300350 RG1	1 1/2"	X		300-350
HK MPS300350 RF1	1 1/2" SAE 3000 PSI/M	X		300-350
HK MPS050070 SG1	3/4"		X	050-070
HK MPS100150 SG1	1 1/4"		X	100-150
HK MPS200250 SG1	1 1/2"		X	200-250
HK MPS300350 SG1	1 1/2"		X	300-350
HK MPS300350 SF1	1 1/2" SAE 3000 PSI/M		X	300-350

Replacement filter elements for spin-on filters

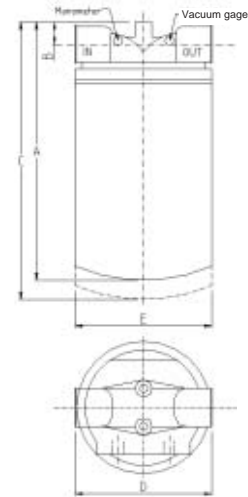
Code	Number of elements required per filter type
HK CS050 ***	1 element for MPS 050
HK CS070 ***	1 element for MPS 070
HK CS100 ***	1 element for MPS 100
	2 elements for MPS 200 2 elements for MPS 300
HK CS150 ***	1 element for MPS 150
	2 elements for MPS 250
	2 elements for MPS 350

*** = P10 Paper filter (10 µm), nominal filtering

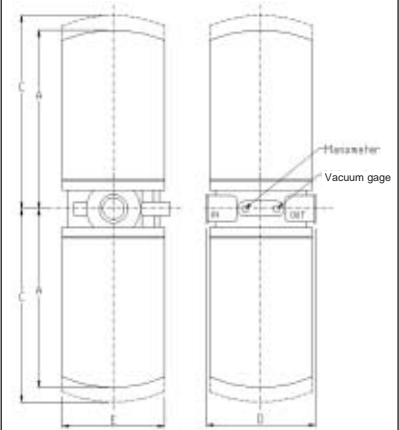
*** = A10 With inorganic filter (10 µm), absolute filtering



HK MPS050 RG1 mit HK VA VR

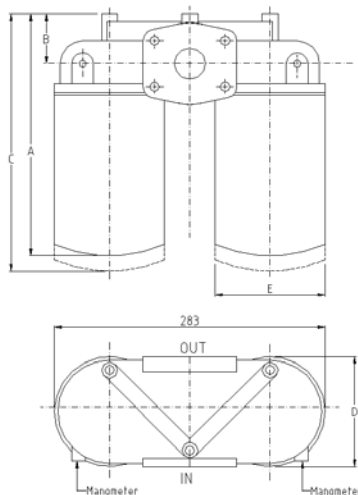


Dimensioned sketch 1



Dimensioned sketch 2

Dimensioned sketch 3, see page 75



Dimensioned sketch 3

Example of order for return filter with paper filter element

HK MPS 050 RG1 P10
(Filter size 050 complete with paper filter P10)

Example of order for suction filter with paper filter element

HK MPS 050070 SG1 + HK CS 050 P10
(Filter head size 50/70 plus paper filter element P10)

Example of order for replacement filter element, inorganic

HK CS 100 A10
(inorganic filter element, size 100)

Available on request: Other sizes, degrees of filtration and materials
Other thread, connections and seals (e.g. Viton seals)
Other series of filters, also with lower pressures

Contamination indicators

Code	Type	Switching point bar	Design	Dimensions	Weight kg
HK VA VR	Manometer		Green/red scale	Diameter 40	0.04
HK VA ER	Electric switch	1.3	Change-over contact	Height 56	0.06
HK VA EC	Electric switch	1.3	Normally closed contact	Height 56	0.06
HK VA VS	Underpressure manometer for suction filter		Green/red scale	Diameter 40	0.04

Pressure filters – pipe fitting 420 bar

- Degree of filtration: 6/10 µm absolute
- Operating pressure: max. 420 bar
- Differential pressure: A**H - filter element max. 210 bar
- Design: Without bypass valve, without contamination indicator
- Designed (Q_{max}) for medium ISO VG 46 at 50 °C (30 mm²/s) at Δp_{total} : 1.25 bar
- We shall be pleased to advise you about other filter materials, types of oil, viscosities and temperatures.

Pressure filter casings complete with filter element

Code	Pipe connection BSP/SAE flange	A06H - filter element		A10H - filter element		A	B	C	D	E	Weight kg
		Filter surface cm ²	Q max l/min	Filter surface cm ²	Q max l/min						
HK FHP065 1 SG1 ****	1/2"	386	20	386	40	192	100	23	85	66	3.9
HK FHP065 2 SG2 ****	3/4"	544	35	544	45	221	100	23	85	66	4.2
HK FHP065 3 SG2 ****	3/4"	1094	60	1094	70	323	100	23	85	66	5.7
HK FHP135 2 SG2 ***	1"	1655	110	1655	110	367	125	36	109.5	80	9.4
HK FHP320 2 SF5 ***	1 1/4" SAE 6000 PSI/M	3258	250	3258	225	411	150	40	140	105	16.5

**** = A06H With inorganic filter (6 µm), absolute filtering

**** = A10H With inorganic filter (10 µm), absolute filtering

without **** Without filter, that is filter casing only

Replacement filter elements for pressure filter

Code	For pot length
HK HP065 1 ****	1
HK HP065 2 ****	2
HK HP065 3 ****	3
HK HP135 2 ****	2
HK HP320 2 ****	2

**** = A06H With inorganic filter (6 µm), absolute filtering

**** = A10H With inorganic filter (10 µm), absolute filtering

Pot length: see dimension A

Example of order for filter with inorganic filter element

HK FHP065 1 SG1 A06H

(Filter size 065 complete with inorganic filter A06H)

Example of order for replacement filter element, inorganic

HK HP065 1 A06H

(inorganic filter element, size 065, pot length 1)

Available on request:

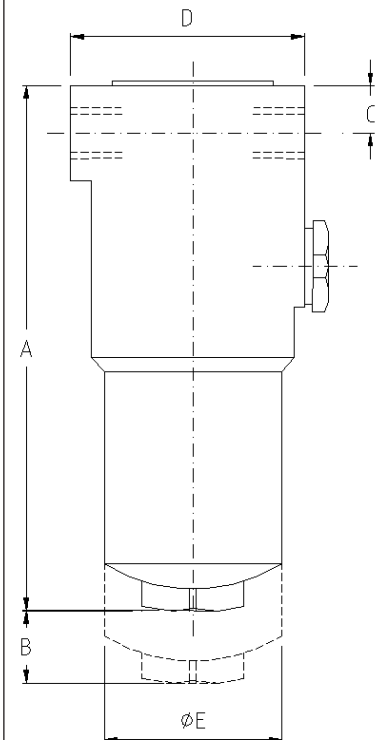
Other sizes, degrees of filtration and materials
Other thread, connections and seals (e.g. Viton seals)
Other series of filters, also with lower pressures

Contamination indicators

Code	Type	Switching point bar	Design	Dimensions	Weight kg
HK VA V8	Optical	7	Green/red field	Height 42	0.14
HK VA N8	Electric switch	7	Change-over contact	Height 65	0.16



HK FHP065 1 G2
with HK VA V8



Hydraulic pressure switches

Pressure switches MAP

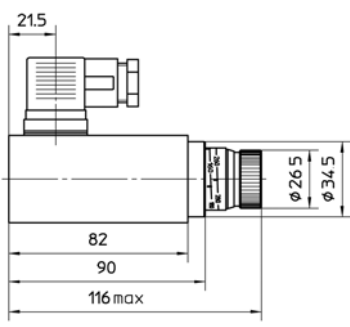
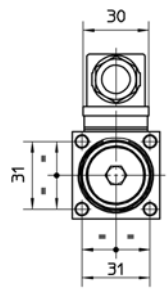


MAP 320

- Max. pressure resistance of all models 630 bar
- Repeating accuracy less than or equal to 1 % of set value
- Switching hysteresis approx. 2.5 to 10 % depending on pressure range
- Switching frequency electrical, at least 1 million switching cycles
- Design as toggle switch
- Setting on scale
- Universal connection options
- The scope of supply includes 4 fixing screws
- Including plug

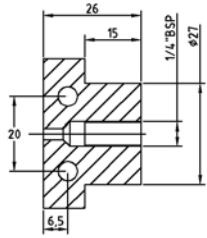
Order adapters and connection plates separately!

Code	Pressure range bar	Weight kg
HK MAP 040	3 - 40	0.50
HK MAP 080	4 - 80	0.50
HK MAP 160	8 - 160	0.50
HK MAP 320	16 - 320	0.50
HK MAP 630	32 - 630	0.50

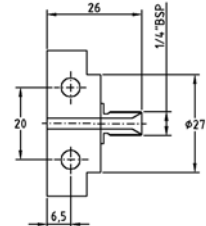
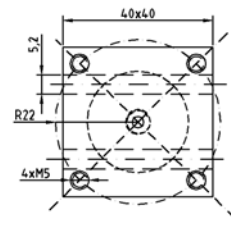


Adapter and connection plates for pressure switch MAP

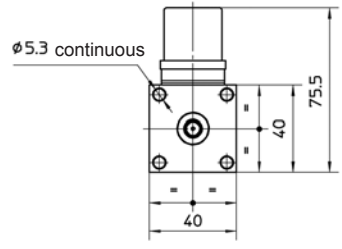
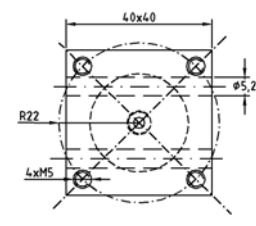
Code	Design	Weight kg
HK BHF IG14	Internal thread 1/4"	0.35
HK BHF AG14	External thread 1/4"	0.35



HK BHF IG14

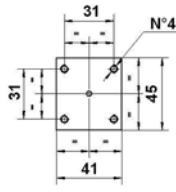


HK BHF AG14

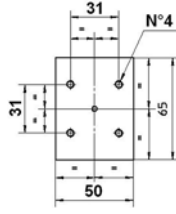
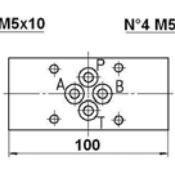


MAP pressure switch without adapter

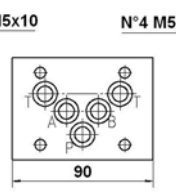
Code	Design	Measuring channel	Weight kg
HK BHM 03 P	Intermediate plate size 6	P	1.20
HK BKM 05 P	Intermediate plate size 10	P	2.00
HK BHM 03 A+B	Intermediate plate size 6	A+B	1.20
HK BKM 05 A+B	Intermediate plate size 10	A+B	2.00
HK BHM 03 A	Intermediate plate size 6	A	1.20
HK BKM 05 A	Intermediate plate size 10	A	2.00
HK BHM 03 B	Intermediate plate size 6	B	1.20
HK BKM 05 B	Intermediate plate size 10	B	2.00



HK BHM 03



HK BKM 05



Example of order for pre-mounted pressure switch

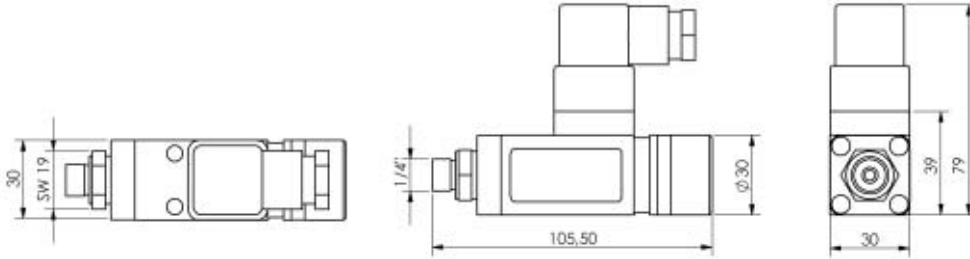
HK-MAP 160-BHF IG1/4

└───┬───┘
└───┬───┘
 Pressure switch Adapter plate

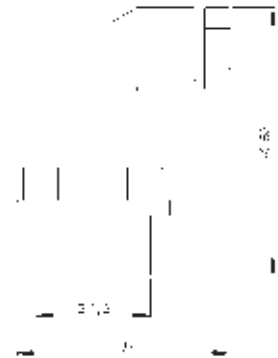
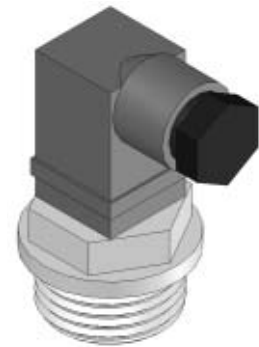
Pressure switches HDS

- Degree of protection IP 65, 1 A at 250 V / 50 Hz
- Pressure resistance of all models 350 bar, max. 80 °C
- Connection 1/4" AG with copper ring, *rotatable*
- Switch back difference 6-12 bar
- Switching hysteresis 3 %
- Design as toggle switch
- Including plug and connection plate

Code	Pressure range bar	Weight kg
HK HDS 1 120 <i>K71</i>	10 - 120	0.3
HK HDS 1 200 <i>K71</i>	10 - 200	0.3
HK HDS 1 320 <i>K71</i>	20 - 320	0.3



HK HDS 1 120 K31



Thermal circuit breakers with plug

- Made of aluminum with sealing ring
- Switching hysteresis 10K ± 5K
- 1 A at 250 V / 50 Hz

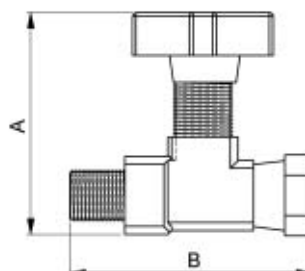
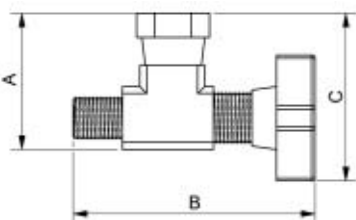
Code	Switching temperature	Connection	Type
HK TS 50 NC-12	50 °C	1/2"	Normally-open contact
HK TS 60 NC-12	60 °C	1/2"	Normally-open contact
HK TS 70 NC-12	70 °C	1/2"	Normally-open contact
HK TS 80 NC-12	80 °C	1/2"	Normally-open contact
HK TS 50 NO-12	50 °C	1/2"	Normally closed contact
HK TS 60 NO-12	60 °C	1/2"	Normally closed contact
HK TS 70 NO-12	70 °C	1/2"	Normally closed contact
HK TS 80 NO-12	80 °C	1/2"	Normally closed contact

Gauge isolator needle valves

Code	Design	Connection	Dimension A mm	Dimension B mm	Dimension C mm	Weight kg
HK FT290-14	Straight	1/4" AG / IG	57	62	-	0,13
HK FT290-12	Straight	1/2" AG / IG	75	82	-	0,40
HK FT291-14	Right-angled	1/4" AG / IG	39	69	48	0,10

$p_{max} = 400 \text{ bar}$

Made of steel with plastic wheel



Vacuum pump equipment

The complete solution for clean and environmentally acceptable work on hydraulic systems.

Potential applications

- Used for leak testing when commissioning hydraulic systems, connected to the tank venting port.
- Reducing hydraulic oil leakages during repairs to hydraulic systems by underpressure in the system (near the tank, always use blind plugs after disassembly).
- Used when changing suction filter elements located below the oil level (suction filter with bottom valve).
- Used to prevent leaks in cases of line breaks while machines and plant are in use.
- Changing hoses or pipe below the oil level of the tank; no oil needs to be drained.

Vacuum pump set in plastic case

- Underpressure to -780 mb
- Volume flow 9 l/min
- 1.5 m electrical helix cable, can be pulled out to 6 m, battery terminals and plug
- 1 m air intake hose with coupling for tank
- In practical carrying case
- Pump available for 12 V DC or 24 V DC



HK VS 1 24

Vacuum pump set in aluminum case

- Underpressure to -780 mb
- Volume flow 9 l/min
- 1.5 m electrical helix cable, can be pulled out to 6 m, with coupling
- With ON/OFF switch
- Battery terminals and plug
- 1 m air intake hose with coupling to tank
- Pump for 12 V DC or 24 V DC



HK VS 2 24

Options:

- Power supply 220 V AC + 12 V DC or 220 V AC + 24 V DC
- With underpressure manometer

Vacuum set selection table

Code	Power supply Volt	Electrical connection	Power consumption Ampere	Vacuum mbar	Under-pressure manometer	Case	Weight kg
HK VS 1 12	12	Battery terminals and plug	0.8	700	no	Plastic	2.90
HK VS 1 24	24		0.4	780	no	Plastic	2.90
HK VS 2 12	12		0.8	700	no	Aluminum	3.10
HK VS 2 24	24		0.4	780	no	Aluminum	3.10
HK VS 2 12 M	12		0.8	700	yes	Aluminum	3.25
HK VS 224 M	24		0.4	780	yes	Aluminum	3.25
HK VS 3 12 220	12/220	Power pack 220 V	0.8	700	no	Aluminum	3.20
HK VS 3 24 220	24/220		0.4	780	no	Aluminum	3.20
HK VS 3 12 220 M	12/220		0.8	700	yes	Aluminum	3.35
HK VS 3 24 220 M	24/220		0.4	780	yes	Aluminum	3.35

Tank-mounting adapter

* with coupling for connection to vacuum pump

Code	Connection	Sealing	Weight kg
HK VSA M52-20	M52 x 2	O-Rings 50.00 x 3.00	0.53
HK VSA M42-20	M42 x 2	O-Rings 39.35 x 2.62	0.37
HK VSA M22-15	M22 x 1.5	O-Rings 19.00 x 2.50	0.15
HK VSA M18-15	M18 x 1.5	O-Rings 16.90 x 2.70	0.1
HK VSA G34	G3/4"	Seal ring 34K	0.2
HK VSA BJ	Bayonet 6 boreholes, pitch circle 73 mm	-	0.04

The bayonet adapter can only be used in conjunction with [HKVSAM52-20](#).



HK VSA BJ + M52 x 2



HK VSA M42-2



HK VP 001



HK VPB 016



HK VPB 070

Vacuum suction pump, pneumatic

Pneumatic vacuum pumps can be used in a wide range of applications in fluid technology and fluid management. These pumps have no moving parts and operate almost without wear through the use of venturi nozzle systems. The structural design prevents fluid contacting the pump part, although the fluid is fed through the pump casing.

Sample applications:

- Useful technical addition when using filter devices and during oil changes
- Extracting emulsions in metal working

The vacuum pump equipment is suitable for mounting on the portable 16 l plastic container, the mobile 70 l metal container or commercially available 200 l barrels with a G2" bunghole. Ensure that all other apertures in the barrel are closed. The underpressure must not exceed -0.15 bar on 70 and 200 l containers, or -0.30 bar on the 16 l container.

This equipment may only be used to extract hardly inflammable fluids. It must not be used to extract fuels or solvents. The fluids may contain contaminants up to a grain size of 5 mm.

Vacuum pump

Code	Technical data	Weight kg
HK VP 001	Extraction rate up to 60 l/min, protection against overfilling, compressed air connection required, approx. 7.0 bar and 200 l/min, including 2.2 m suction hose and G2" barrel adapter.	2.0

Tank

Code	Content l	Length mm	Width mm	Height mm	Wheels	Material	Pump adapter	Weight kg
HK VPB 016	16.0	380.0	150.0	470.0	-	Plastic	G2"	2.3
HK VPB 070	70.0	395.0	550.0	925.0	4 pcs.	Steel plate	G2"	22.0

Hydraulic flow meters (stainless steel)



HK 602 S 005

Flow measurement

- Independent of position, directly readable
- Linear indicator scale in l/min
- Robust and resistant to shock and vibration.
- Accuracy $\pm 2\%$ of set value, max. pressure 420 bar

Code	BSP thread	Measurement range l/min	Total length mm	Weight kg
HK 602 S 005	G 1/2"	2 - 20	168	0.90
HK 602 S 010	G 1/2"	4 - 37	168	0.90
HK 602 S 015	G 1/2"	5 - 55	168	0.90
HK 702 S 020	G 3/4"	10 - 75	183	1.75
HK 702 S 030	G 3/4"	10 - 115	183	1.75
HK 762 S 040	G 1"	10 - 150	183	1.75
HK 762 S 050	G 1"	20 - 190	183	1.75
HK 802 S 075	G 1 1/4"	40 - 280	310	8.00
HK 802 S 100	G 1 1/4"	50 - 370	310	8.00
HK 802 S 150	G 1 1/4"	50 - 560	310	8.00

With thermometer up to 120 °C and pressure measurement coupling M16 x 2



HK 702 S 030 TK

- Independent of position, directly readable
- Linear indicator scale in l/min
- Robust and resistant to shock and vibration
- Accuracy $\pm 2\%$ of set value, max. pressure 420 bar

Code	BSP thread	Measurement range l/min	Total length mm	Weight kg
HK 702 S 020 TK	G 3/4"	10 - 75	226	1.90
HK 702 S 030 TK	G 3/4"	10 - 115	226	1.90
HK 762 S 040 TK	G 1"	15 - 150	226	1.90
HK 762 S 050 TK	G 1"	19 - 190	226	1.90

Flow rate, pressure and temperature, with pressure rise valve, internal overload protection and protective case

- Independent of position, directly readable
- Linear indicator scale in l/min
- Robust and resistant to shock and vibration
- Ideal for service tests on hydraulic pumps, units and drives in mobile and stationary hydraulic systems
- Accuracy $\pm 2\%$ of set value
- The max. operating pressure is 350 bar, with overrange display
- Overload protection is integrated into the pressure rise valve to protect the device, overload break at 420 bar
- The new concept guarantees that no oil escapes by relief break of the overload protection

Code	Connection BSP	Measurement range l/min	Total length mm	Weight kg
HK 702 S 020 TKV	G 3/4"	10 - 75	303	7.40
HK 702 S 030 TKV	G 3/4"	10 - 115	303	7.40
HK 762 S 040 TKV	G 1"	15 - 150	303	7.90
HK 762 S 050 TKV	G 1"	19 - 190	303	7.90
HK 802 S 075 TKV	G 1 1/4"	40 - 280	560	13.60
HK 802 S 100 TKV	G 1 1/4"	50 - 370	560	13.60
HK 802 S 150 TKV	G 1 1/4"	50 - 560	560	13.60

Hydraulics testing devices

Digital hand-held measuring device type HK 3300 for pressure, differential pressure, temperature, volume flow and speed

Hand-held measuring device with only four buttons for simplest use

- Oil-resistant membrane keypad
- Battery operation - including power supply 230 V - 50 Hz
- Two-line matrix display, illuminable
- RS 232 data interface
- Including PC connecting cable (Sub-D) and Windows software
- Integrated sensor detection, autodiagnosis and battery control
- Peak measured value memory 1000 measurements/sec
- 5 channel measuring instrument for simultaneous measurement of pressure, differential pressure, volume flow and temperature

Pressure transmitter – stainless steel – various measuring ranges

- Resistant to pressure peaks, extremely resistant to shocks and vibrations.
- Output signal 4 ... 20 mA
- Various measuring ranges up to 600 bar
- Measuring accuracy $\pm 0.5\%$ of end value
- Connection AG 1/4"

Temperature sensor – stainless steel

- Measurement range -50 to +200 °C
- Measuring accuracy ± 0.2 °C
- Connection AG 1/4"

More parts and selection table on the next double page.



HK 702 S 020 TKV



HK 3300



HK PTA 200



HK TS TP 140



HK 6224 150

Measuring turbine for volume flow with connections for pressure and temperature sensors

- Aluminum casing, anodized
- Independent of position, one measuring direction
- Various measuring ranges up to 600 l/min
- Measuring accuracy $\pm 2\%$ of instantaneous value
- Connections, inch - IG
- Pressure up to 400 bar



HK PQT 03 SS

Combi-cable for pressure, volume flow and temperature sensors

- Practical coiling cable for easy handling
- Length 3 m



HK PML 03 SS

Measuring cable, single

- For pressure sensor
- Length 3 m



HFM MMD 1/4

Adapter screw connection

- Connection from pressure transmitter to measuring turbine
- M16 x 2 \ddot{U} M on 1/4" IG



HK DS 100

Speed sensor

- Optoelectronic - 500 to 9999 rpm
- Including measurement line L=3 m + 60 items Reflex marks



HK KS 3300

Protective case

- Plastic with padding

Measuring instruments, sensors and accessories

Code	Designation	Measuring range	Max. pressure bar	Max. overload pressure bar	Connections	Length mm	Weight kg
HK 3300	Hand-held measuring device						0.40
HK PTA 101	Pressure transmitter *	-1 to 10 bar	10	20	1/4" - AG		0.10
HK PTA 060	Pressure transmitter *	0 to 60 bar	60	120	1/4" - AG		0.10
HK PTA 200	Pressure transmitter *	0 to 200 bar	200	400	1/4" - AG		0.10
HK PTA 400	Pressure transmitter *	0 to 400 bar	400	600	1/4" - AG		0.10
HK PTA 600	Pressure transmitter *	0 to 600 bar	600	800	1/4" - AG		0.10
HK TS TP 140	Temperature sensor	-50 to +200 °C	400	420	1/4" - AG		0.10
HK 6222 025	Measuring turbine	1 to 25 l/min.	400	420	1/4" - IG	120	0.45
HK 6224 150	Measuring turbine	7.5 to 150 l/min.	400	420	3/4" - IG	129	0.70
HK 6226 300	Measuring turbine	15 to 300 l/min.	400	420	1" - IG	150	0.90
HK 6228 600	Measuring turbine	30 to 600 l/min.	400	420	1 1/4" - IG	173	1.70
HK PQT 03 SS	Combi-cable					3000	0.20
HK PML 03 SS	Single cable / pressure					3000	0.10
HFM MMD 1/4	Adapter screw connection				M 16x2 - 1/4"IG		0.12
HK DS 100	Speed sensor	500 to 9999 rpm					0.18
HK KS 3300	Plastic case						0.17

* Including adapter HFM MMD 1/4

Further accessories and measuring instruments with additional options available on request.



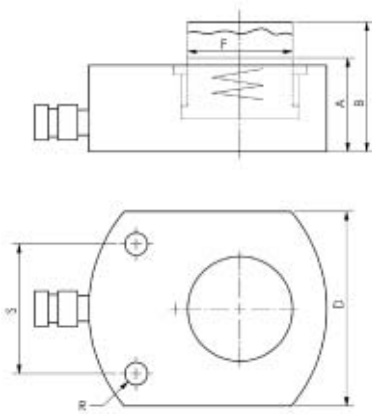
Example of a set in a case

High-pressure hydraulics 700 bar

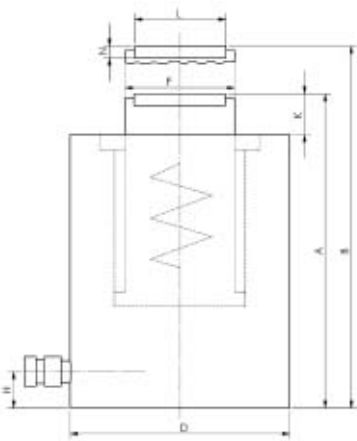
Low high cylinders – single action with spring return

Low high cylinders combine a compact design with maximum stroke. Ideal for restricted spaces. Ensure that no lateral forces are transmitted to the guide rings.

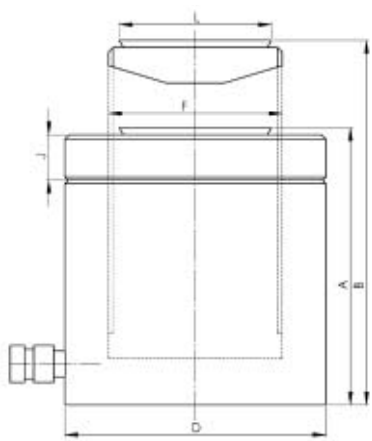
- Flat compact design
- High-strength materials
- Hardened cylinder head
- Chrome-hardened pistons
- With quick coupling 3/8"-18NPT
- Retaining holes for stationary use



Type HK SMX



Type HK SMP



Code	Capacity t / kN	Stroke mm	Area cm ²	A mm	B mm	D mm	F mm	S mm	R mm	H mm	K mm	L mm	N mm	Weight kg	Volume cm ³
HK SMX 00406	4/43.8	6.0	6.4	32.5	38.5	41.0	25.0	28.0	5.5					0.9	4.0
HK SMX 00416	4/43.8	16.0	6.4	42.5	58.5	41.0	25.0	28.0	5.5					1.2	11.0
HK SMX 01011	10/99.7	11.0	14.5	43.0	54.0	56.0	38.0	37.0	6.5					1.6	16.0
HK SMX 02211	22/227.8	11.0	33.2	52.0	63.0	80.0	57.0	50.0	9.0					2.8	37.0
HK SMX 03013	30/287.3	13.0	41.8	59.0	72.0	95.0	60.0	52.0	11.0					4.1	55.0
HK SMX 05016	50/486.5	16.0	70.9	68.0	84.0	114.0	78.0	67.0	13.0					6.6	114.0
HK SMX 07516	75/712.9	16.0	103.8	79.0	95.0	140.0	95.0	75.0	13.0					12.5	167.0
HK SMX 10016	100/953.6	16.0	138.9	87.0	103.0	158.0	108.0	76.0	13.0					15.0	223.0
HK SMX 15016	150/1450.0	16.0	211.2	100.0	116.0	194.0	134.0	117.0	13.0					25.0	338.0
HK SMP 01004	10/109.0	40.0	15.9	89.0	129.0	66.0	36.0			14.0	2.0			2.3	64.0
HK SMP 02004	20/214.0	40.0	31.2	101.0	141.0	90.0	56.0			14.0	2.0			4.7	125.0
HK SMP 03006	30/303.0	40.0	44.2	121.0	161.0	102.0	60.0			14.0	2.0	45.5	9.0	7.0	177.0
HK SMP 05006	50/486.0	60.0	70.8	125.0	185.0	127.0	80.0			16.0	2.0	61.5	11.5	11.0	425.0
HK SMP 10006	100/911.0	60.0	132.7	141.0	201.0	175.0	110.0			26.0	2.0	88.0	12.0	23.9	796.0
HK SMP 10015	100/911.0	150.0	132.7	254.0	404.0	175.0	110.0			26.0	5.0	88.0	11.0	40.2	1990.0

Moveable pressure pieces are available on request for the HK SMP models from 30 to 100 t.

Low high cylinders – single action with locking nut

Low high cylinders combine a compact design with maximum stroke. Ideal for restricted spaces. Ensure that no lateral forces are transmitted to the guide rings.

- Flat compact design
- High-strength materials
- Hardened cylinder head
- Chrome-hardened pistons
- Piston oil scraper rings to prevent contamination
- With quick coupling 3/8"-18NPT
- Load return
- Locking nuts to hold loads mechanically

All models have moveable pressure pieces and a special coating to improve the rust resistance.

Code	Capacity t / kN	Stroke mm	Area cm ²	A mm	B mm	D mm	F mm	J mm	L mm	Weight kg	Volume cm ³
HK STX 05005	50/486	50.0	70.8	125.0	175.0	120.0	Tr 95x4	21.0	92.0	11.0	355.0
HK STX 14004	140/1380	45.0	200.9	148.0	193.0	205.0	Tr 160x6	38.0	147.5	39.0	905.0

Hollow piston cylinders – single action with spring return

Tubular piston cylinders are used for push and pull operations.

- Easily attached by screw thread to the cylinder casing
- High-strength materials
- Hardened cylinder head
- Chrome-hardened pistons
- Piston oil scraper rings to prevent contamination
- With quick coupling 3/8"-18NPT
- Exchangeable mounting head

Code	Capacity t / kN	Stroke mm	Area cm ²	A mm	B mm	C mm	D mm	E mm	F mm	H mm	I	J mm
HK SH 01208	12/121	76.0	17.6	176.0	252.0	19.5	75.0	55.0	40.0	19.0	2 3/4"-16	30.0
HK SH 03005	30/301.8	50.0	44.0	180.0	230.0	33.4	120.0	90.0	68.0	27.0	1 13/16"-16	42.0
HK SH 06008	60/578.2	76.0	84.2	253.0	329.0	54.0	165.0	125.0	95.0	31.0	6 1/4"-12	48.0

Code	K mm	L mm	M	N mm	R	S mm	T mm	Weight kg	Volume cm ³
HK SH 01208	2.5	34.0	M28 x 1.5	18.0	5/16"-18	50.8	12.0	4.8	134.0
HK SH 03005	4.0	55.0	1 13/16"-16	22.0	3/8"-16	92.2	17.0	14.2	220.0
HK SH 06008	4.0	80.0	2 3/4"-16	22.0	1/2"-13	130.3	14.0	32.3	640.0

Multipurpose cylinders – single action with spring return

The universal cylinder for a multitude of uses.

Ensure that no lateral forces are transmitted to the guide rings.

- Compact design
- High-strength materials
- Hardened cylinder head
- Chrome-hardened pistons
- Piston oil scraper rings to prevent contamination
- With quick coupling 3/8"-18NPT
- Retaining holes for stationary use

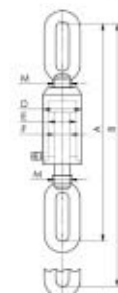
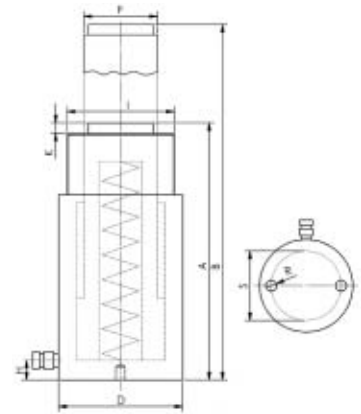
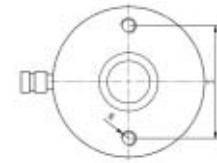
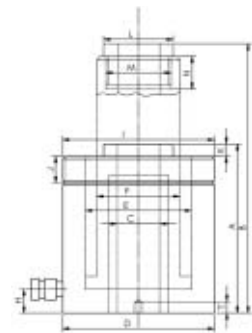
Code	Capacity t / kN	Stroke mm	Area cm ²	A mm	B mm	D mm	F mm	I	K mm	S mm	R	Weight kg	Volume cm ³
HK SM 00513	5/48.5	127.0	7.1	219.0	346.0	40.0	25.0	1 1/2"-16	6.0	25.0	1/4"-20	1.9	90.0
HK SM 01010	10/109.2	105.0	15.9	172.0	277.0	60.0	36.0	2 1/4"-14	6.0	39.0	5/16"-18	3.0	167.0
HK SM 01015	10/109.2	155.0	15.9	247.0	402.0	60.0	36.0	2 1/4"-14	6.0	39.0	5/16"-18	4.3	247.0
HK SM 01025	10/109.2	257.0	15.9	352.0	609.0	60.0	36.0	2 1/4"-14	6.0	39.0	5/16"-18	6.0	409.0
HK SM 01510	15/163.0	105.0	23.8	205.0	310.0	75.0	45.0	2 3/4"-16	8.0	47.0	3/8"-16	5.8	250.0
HK SM 01515	15/163.0	155.0	23.8	275.0	430.0	75.0	45.0	2 3/4"-16	8.0	47.0	3/8"-16	7.5	369.0
HK SM 01525	15/163.0	257.0	23.8	379.0	636.0	75.0	45.0	2 3/4"-16	8.0	47.0	3/8"-16	9.8	611.0
HK SM 02305	23/227.8	51.0	33.2	166.0	217.0	85.0	56.0	3 5/16"-12	10.0	58.0	1/2"-13	6.2	170.0
HK SM 02310	23/227.8	102.0	33.2	217.0	319.0	85.0	56.0	3 5/16"-12	10.0	58.0	1/2"-13	7.8	339.0
HK SM 02321	23/227.8	210.0	33.2	327.0	537.0	85.0	56.0	3 5/16"-12	10.0	58.0	1/2"-13	11.4	697.0
HK SM 03015	30/303.2	150.0	44.2	270.0	420.0	100.0	60.0	3 7/8"-12	10.0	74.0	1/2"-13	13.1	663.0

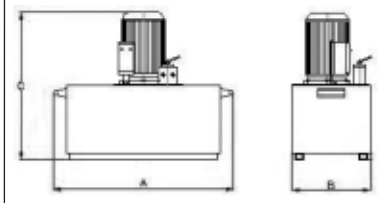
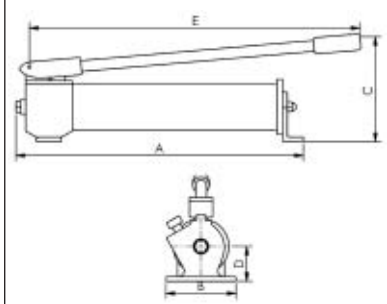
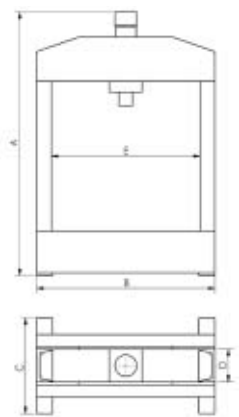
Tension cylinders

For implementing applications that require pulling power.

- High-strength materials
- Chrome-hardened pistons
- Optional metal protective bellow (stroke 30 mm shorter)
- Piston oil scraper rings to prevent contamination
- With quick coupling 3/8"-18NPT

Code	Capacity t / kN	Stroke mm	Area cm ²	A mm	B mm	D mm	E mm	F mm	M mm	Weight kg	Volume cm ³
HK TE 01015	10/93.2	150.0	13.5	576.0	726.0	86.0	55.0	36.0	M30 x 2	14.9	204.0
HK TE 03015	30/301.8	150.0	43.9	723.0	873.0	125.0	90.0	50.0	M40 x 2	32.0	660.0





Hydraulic presses

- High-strength, welded frame
- Contains a manometer to be fitted by the user
- Equipped with V-blocks for adapting to the bench, which make it easier to position pipes, rods etc.
- Delivery includes hand pump

Code	Capacity t / kN	Stroke mm	A mm	B mm	C mm	D mm	E mm	H max. mm	Weight kg	Volume cm ³	Pump
HK ECM 01113	10/93.2	130.0	720.0	440.0	220.0	80.0	350.0	352.0	40.0	163.0	HKW00607

Hand pumps

- „W” hand pumps for actuating single action cylinders, one connection
- „X” hand pumps with control valve for actuating double-action cylinders, two connections

Two-stage pumps are recommended for use with cylinders with a large volume of oil. All pumps with safety valve and 3/8" NPT connector thread.

Code	Usable oil volume cm ³	Stages	Volume Stage 1 cm ³	Volume Stage 2 cm ³	Max. pressure Stage 1 bar	Max. pressure Stage 2 bar	A mm	B mm	C mm	D mm	E mm	Weight kg
HK W 00607	660.0	1	-	2.6	-	700.0	500.0	100.0	150.0	40.0	560.0	5.5
HK W 20607	660.0	2	8.1	2.0	20.0	700.0	500.0	100.0	150.0	40.0	560.0	5.5
HK W 01407	1200.0	1	-	2.6	-	700.0	545.0	100.0	175.0	40.0	560.0	6.5
HK W 21407	1200.0	2	8.1	2.0	20.0	700.0	545.0	100.0	175.0	40.0	560.0	6.5
HK W 02407	2200.0	2	13.2	2.2	20.0	700.0	560.0	106.0	210.0	55.0	560.0	12.0
HK X 02407	2200.0	2	13.2	2.2	20.0	700.0	625.0	106.0	210.0	55.0	560.0	14.0
HK X 07707	7500.0	2	70.5	2.6	20.0	700.0	632.0	255.0	370.0	215.0	680.0	32.0

Electrohydraulic pumps

- Electrohydraulic pumps for supplying medium and heavy-load cylinders, and multicylinder circuits
- Internal safety valve, in addition to externally settable pressure relief valve
- Solenoid valves with cable remote control
- Aluminum tank

Code	Pumping volume l/min	Stages	Tank volume l	Valve actuation	Valve type*	Motor	A mm	B mm	C mm	Weight kg
HK HE 5542	1.3	1	20.0 Steel tank	electr.		220 V / 50 Hz	450.0	325.0	667.0	50.0
HK HE 6444	3.0 / 0.56	2	10.0 Alu tank	electr.		380 V / 50 Hz	420.0	250.0	496.0	50.0

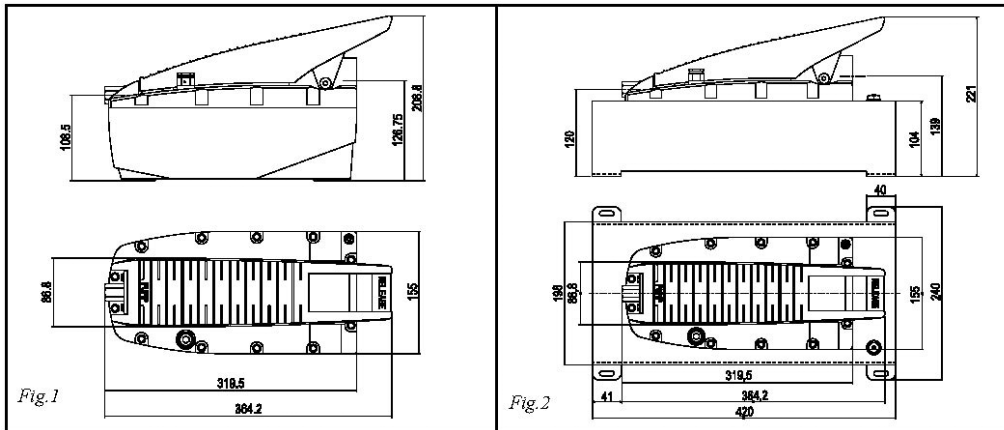
Available on request: - Further pumps and motor types, tank capacities, valve types
- Accessories such as hoop guards, transport castors, heat exchangers

(*) 4/3-valves can only be used with double-action cylinder, other valve combinations on request

Pneumohydraulic pumps

- Pneumohydraulic pumps develop an oil pressure of 700 bar with an air pressure of only 7 bar
- Double-action pumps with control valve for actuating double-action cylinders
- Pump retains the pressure in neutral position
- Actuation of the pedal by foot or hand
- Plastic material for low weight and lower noise level
- All pumps with safety valve and 3/8" NPT connector thread

Code	Usable oil volume cm ³	Type	Max. pressure bar	Weight kg
HK Z 12107	2100.0	Single-action	700.0	4.6
HK Z 22107	2100.0	Double-action	700.0	4.6



Single-action

Double-action

Safety instructions for working with 700 bar equipment

- Follow the operating instructions!
- Only use the capacity of the equipment up to 80 % for safety reasons.
- Wear protective working clothes.
- Only use the equipment on a flat, stable base.
- Secure raised loads mechanically.
Do not stand or walk under suspended loads.
- Place the equipment centrally under the load.
- Protect the equipment from heating above 65 °C.
- Avoid overloading the equipment.
Use a manometer.
- Do not actuate the hand lever with tools or extensions.
- Clean and pack the equipment away properly after use.
- Clean quick couplings before connecting.
- Protect hose lines from sharp edges, kinking and other damage.





Hose line 700 bar



Quick coupling 700 bar



HK HV2 R



HK EV 24



HK NV 24



HK HV2 RK

Hoses and couplings

Code	Length mm	Screw thread on both ends
PNY2106X1000-HN10-GKS08	1000	3/8" NPT - AG
PNY2106X1800-HN10-GKS08	1800	3/8" NPT - AG
PNY2106X3000-HN10-GKS08	3000	3/8" NPT - AG
PNY2106X6000-HN10-GKS08	6000	3/8" NPT - AG
PNY2106X9000-HN10-GKS08	9000	3/8" NPT - AG

All hoses with hand guard, **without coupling**, other hoses on request.

Code	Description	Thread
SKL 10 HN SP	Coupling, free half (sleeve)	3/8" NPT - AG
SKF 10 IN SP	Coupling, fixed half (connector)	3/8" NPT - IG
SKL ZUBS SP 06	Dust guard for free half	
SKF ZUBS SP 06	Dust guard for fixed half	

Valves

Manual directional valve

Code	Actuation	Q _{max} l/min	Thread	Symbol	Weight kg
HK HV1 R	Manual	4	3/8" NPT		2.5
HK HV2 R	Manual	20	3/8" NPT		4.3

Solenoid valves

Code	Actuation	Q _{max} l/min	Thread	Symbol	Weight kg
HK EV 24	Solenoid	20	3/8" NPT		8.3
HK EV 230	Solenoid	20	3/8" NPT		8.3


Needle valve distributor block

Code	Inputs, outputs	Q _{max} l/min	Thread	Dimensions L x W x H	Weight kg
HK NV 12	1E - 2A	20	3/8" NPT	130 x 65 x 125	3.7
HK NV 14	1E - 4A	20	3/8" NPT	260 x 65 x 125	7.4
HK NV 24	2E - 4A	20	3/8" NPT	260 x 65 x 125	7.4

Ball valve

Code	SW	Dimensions mm	Q _{max} l/min	Thread	Weight kg
HK HV1 RK	27	35 x 70 long	27	1/4" NPT	0.55
HK HV2 RK	27	35 x 70 long	27	3/8" NPT	0.55

One-way restrictor

Code	Length	Q _{max} l/min	Thread	Symbol	Weight kg
HK DRV 38 R	80 x 60 long	20	3/8" NPT		0.6


Other types of valves on request.

Valves (with BSP thread)

Check valve

Code	SW	Q _{max} l/min	Length	Thread	
				Depth	BSP
HK RV 14 R	19	24	45	12	G 1/4"
HK RV 38 R	22	45	48	12	G 3/8"
HK RV 12 R	27	70	58	14	G 1/2"

Relief valve (p = 700 bar)

Code	Q _{max} l/min	Thread	Symbol	Weight kg
HK DBV4 R	12	G 3/8"		0.3
HK DBV5 R	20	G 1/2"		0.4
HK DBV6 R	40	G 3/4"		0.7

Gauges and gauge adapters

Code	Pressure bar	Force t	Diameter mm	NPT thread
HK MD 7100	0 - 700		100	1/2"
HK MD 7063	0 - 700		63	1/4"
HK MDK 7005	0 - 700	0 - 5	100	1/2"
HK MDK 7010	0 - 700	0 - 10	100	1/2"
HK MDK 7015	0 - 700	0 - 15	100	1/2"
HK MDK 7025	0 - 700	0 - 25	100	1/2"
HK MDK 7030	0 - 700	0 - 30	100	1/2"
HK MDK 7050	0 - 700	0 - 50	100	1/2"
HK MDK 7100	0 - 700	0 - 100	100	1/2"

All manometers glycerin-filled, with external thread, **without accessories**.

Other gauges on request.

Code	A	B	C	ø D	ø E	ø F
				NPTF		
HK MA 1	71	32		3/8"	3/8"	1/2"
HK MA 3	117	40	□32	3/8"	3/8"	1/4"
HK MA 4	155	35		3/8"	3/8"	1/2"
HK MA 5	71	31		3/8"	3/8"	1/4"

Other adapters on request.



HK DRV 38 R



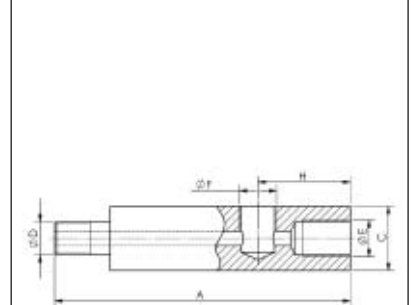
HK RV 38 R



HK DBV6 R



Gauges and gauge adapters





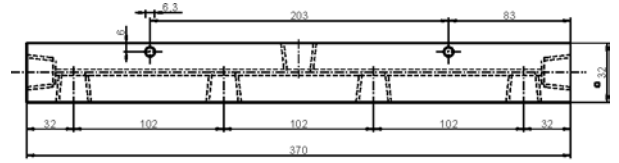
HK AL 77

Distributors and screw connectors

Distributor bar - 7 connections

Code
HK AL 77

Including caps



All threaded connectors 3/8" NPT

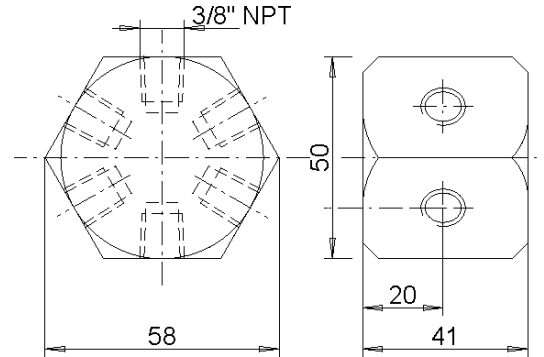
Hexagonal distributor - 6 connections

Code
HK AR 76

Including caps

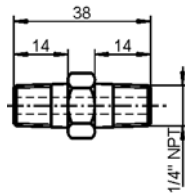


HK AR 76



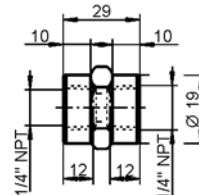
Connector

Code
HK HV NAA 1414



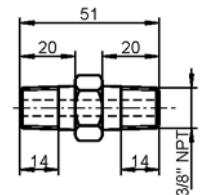
Connector

Code
HK HV ZII 1414



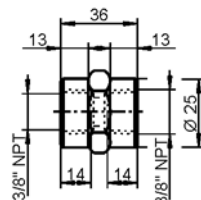
Connector

Code
HK HV NAA 3838



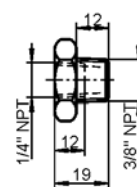
Connector

Code
HK HV ZII 3838



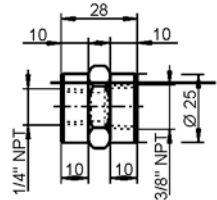
Reduction

Code
HK HV RAI 3814



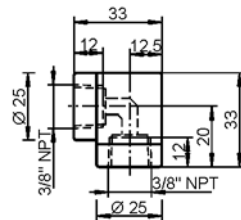
Reduction

Code
HK HV RII 3814



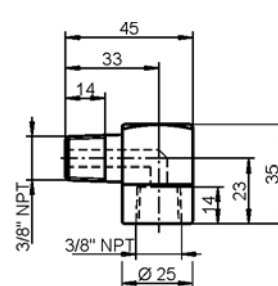
Angle

Code
HK HV WII 3838



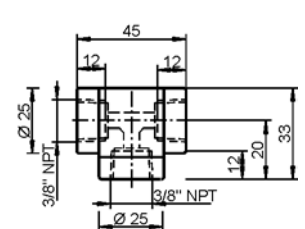
Angle

Code
HK HV WAI 3838



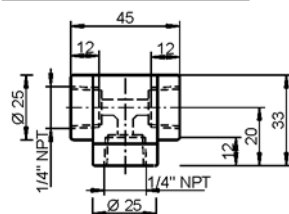
Angle

Code
HK HV TIII 383838



T piece

Code
HK HV TIII 141414



Other screw connectors on request.

Units and cylinders – design and construction

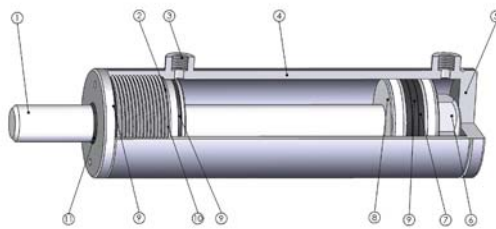
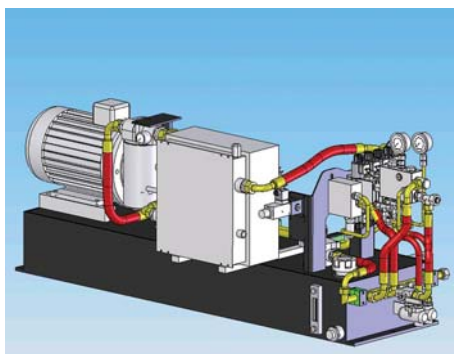
Compact and small units
12 V, 24 V, 48 V, 230/400 V



Hydraulic units, various models (also in special constructions)



3D construction of units and cylinders



Cylinders in standard dimensions, or custom manufacture on request



Compact hydraulic units

Motors	Central flange	Pumps	Tanks	Valve assemblies and accessories
12 V DC 0.8 kW	2/2-manual directional valve, zero position, open	1.1 ccm	Flange only	Spacer blocks and angle blocks
12 V DC 1.5 kW		1.6 ccm		Block for connecting valve size 6
12 V DC 1.5 kW with fan	2/2-solenoid valve, zero position, closed	2.1 ccm	Horizontal + vertical	
12 V DC 1.6 kW	As before with emergency discharge	2.6 ccm		Directional valve
12 V DC 2.4 kW	2/2-solenoid valve, zero position, open	3.2 ccm	1 liter	
		3.7 ccm	1.8 liters	Modular double piloted valve for valve size 6
24 V DC 1.2 kW	Drain restrictor 1 l/min	4.2 ccm	2.5 liters	Modular single piloted valve in A for valve size 6
24 V DC 2.0 kW	Drain restrictor 2 l/min	4.8 ccm	5 liters	Modular single piloted valve in B for valve size 6
24 V DC 2.0 kW with fan	Drain restrictor 3 l/min	5.8 ccm	6 liters	
24 V DC 2.2 kW	Drain restrictor 4 l/min	7.9 ccm	7 liters	Flow divider 50/50 with connection diagram for valve size 6
24 V DC 3.0 kW with fan	Drain restrictor 5 l/min	9.8 ccm	8 liters	
	Drain restrictor 6 l/min		12 liters	Modular plates pressure relief valve in A and B for valve size 6
400 V AC 0.18 kW 1450 rpm	Drain restrictor 7 l/min	Reversible	18 liters	Modular plate pressure relief valve in A for valve size 6
400 V AC 0.25 kW	Drain restrictor 8 l/min	1.2 ccm		Modular plates pressure relief valve in B for valve size 6
400 V AC 0.37 kW	Drain restrictor 9 l/min	1.6 ccm	Vertical only	
400 V AC 0.55 kW	Drain restrictor 10 l/min	2.1 ccm	20 liters	3-way flow control valve
400 V AC 0.75 kW		2.6 ccm	30 liters	VMS module (switches on pump current itself)
400 V AC 1.1 kW	Check valve in P standard	3.1 ccm	45 liters	
400 V AC 1.5 kW		3.7 ccm	60 liters	Manual pump module
400 V AC 1.8 kW		4.2 ccm		
400 V AC 2.2 kW	Additional pressure feed	4.9 ccm		
400 V AC 3.0 kW	Additional tank inlet			
400 V AC 4.0 kW	Relief valve	5.8 ccm		
	5 - 50			
230 V AC 0.18 kW 1450 rpm	30 - 120			
230 V AC 0.25 kW	80 - 250 standard			
230 V AC 0.37 kW				
230 V AC 0.75 kW	Mounting holder for central flange			
230 V AC 1.1 kW				
230 V AC 1.5 kW				
230 V AC 1.8 kW				
230 V AC 2.2 kW				

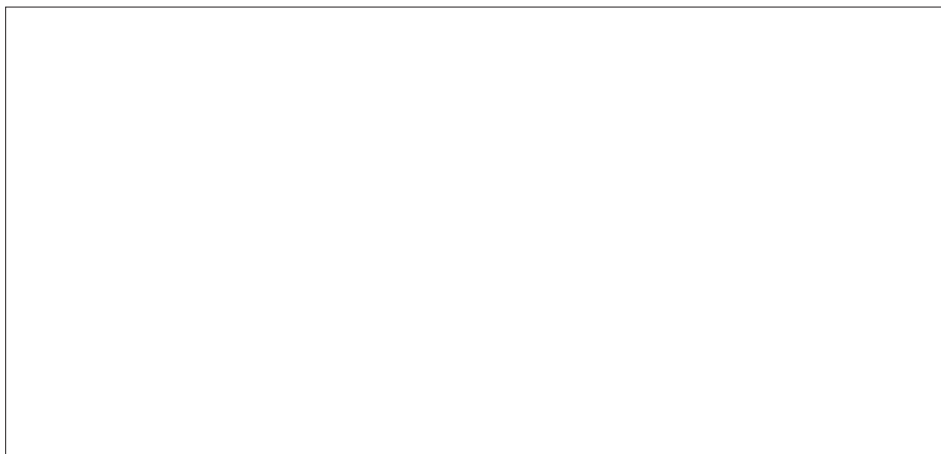


Fig. Assembly example

Other sizes and variants available on request. Detailed technical documentation on request.

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