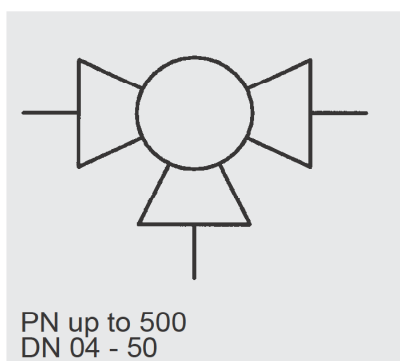


HYDAC INTERNATIONAL

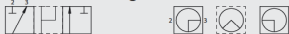
Change over ball valves KHB3K



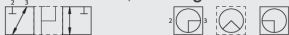
Function diagram

3/2-way change over ball valves

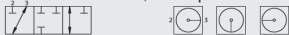
L-bore, 90° neg.



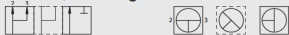
L-bore SO560, 90° neg.



L-bore SO560.1, 180° pos.



T-bore, 90° neg.



T-bore, 180° neg.



= undefined switching position

Model code

(also order example)

KHB3K G 1/2 L 1112 01 X A ...

Designation

KHB3K = change over ball valve

Type of connection

G = Whitworth female thread ISO 228
LR = threaded connection - light range DIN 2353
SR = threaded connection - heavy range DIN 2353
NPT = female thread ANSI B 1.20.1
SAE = female thread SAE J 514 UN/UNF

Ball bore

L
T

Materials

Housing, connection adapters

1 = steel
3 = stainless steel

Ball, control spindle

1 = steel
3 = stainless steel

Ball seal

1 = POM
3 = PTFE (max. operating pressure 100 bar)
8 = PEEK

Control spindle seal

2 = NBR (Perbunan)
3 = PTFE (max. operating pressure 100 bar)
4 = FKM (Viton)

Handle

01 = aluminium clamped handle, straight
02 = aluminium clamped handle, cranked
03 = zinc die-cast clamped handle, straight
04 = zinc die-cast bolt-on handle, cranked
06 = steel bolt-on handle, cranked
09 = without handle

Series

(determined by manufacturer)

Surface protection

A = zinc-plated, chrome (VI)-free (standard)
ZN = zinc-nickel, chrome (VI)-free

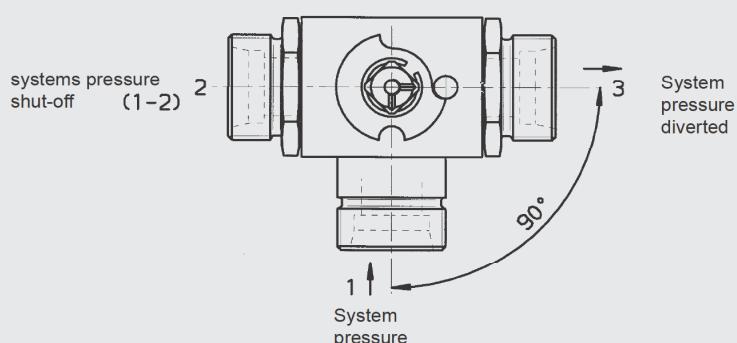
Option

SO560 = sealing on inlet side, negative switching overlap, switch 90°
SO560.1 = sealing on inlet side, positive switching overlap, switch 180°
TT = O-rings for low temperature, application range -40 °C to +80 °C
SO 940 = ball valve with 4 fixing holes (e.g. for switch panel installation)
SO 1073 = ball valve with 2 through-bores

Technical specifications

Types of connection:	Light and heavy threaded connection to DIN 2353 Whitworth internal thread to ISO 228 NPT SAE
Mounting position:	No orientation restrictions
Ambient temperature:	-10 °C to +80 °C
Nominal pressure:	up to PN 500
Operating fluids:	Mineral oil to DIN 51524 part 1 and part 2 (other fluids on request)
Temperature of operating fluid:	-10 °C to +80 °C
Spare parts:	Seal kits available on request

Function



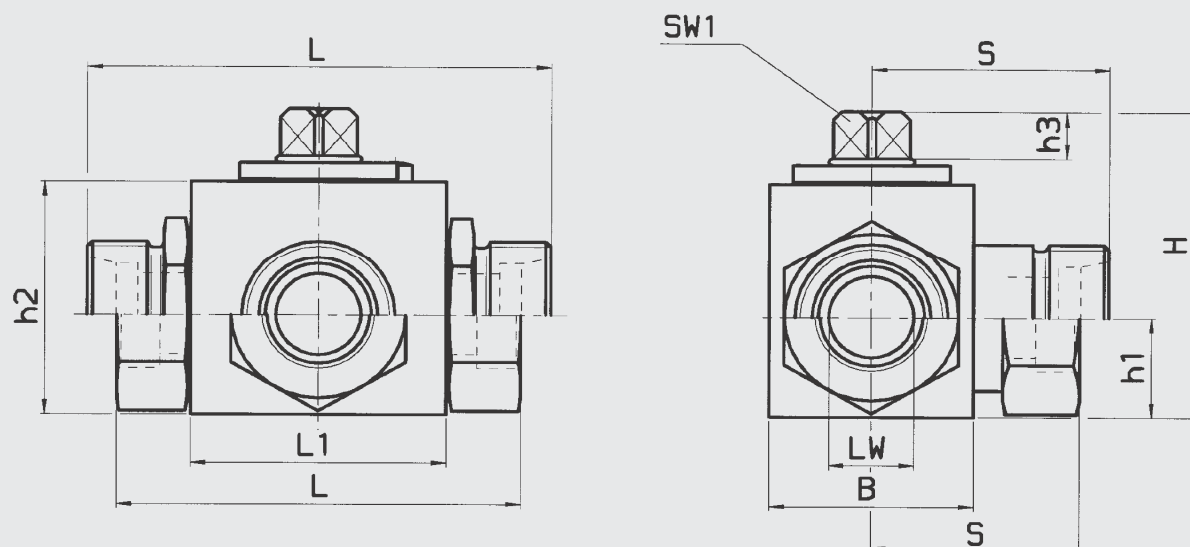
By turning the control spindle the flow is diverted, according to the ball bore, and the opposite side is shut off leakage-free.

The system pressure pushes the ball against the non-pressurised side of the closed-off sealing cup. The ball shuts off the flow from port 1 to port 2 or 3 leakage-free.

When the direction of flow is from 2 or 3 to 1, some leakage can be expected, depending on the pressure. During change-over all three ports are linked (negative switching overlap).

Dimensions

3/2-way ball valve

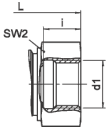
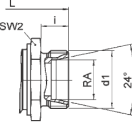
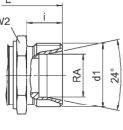


Steel

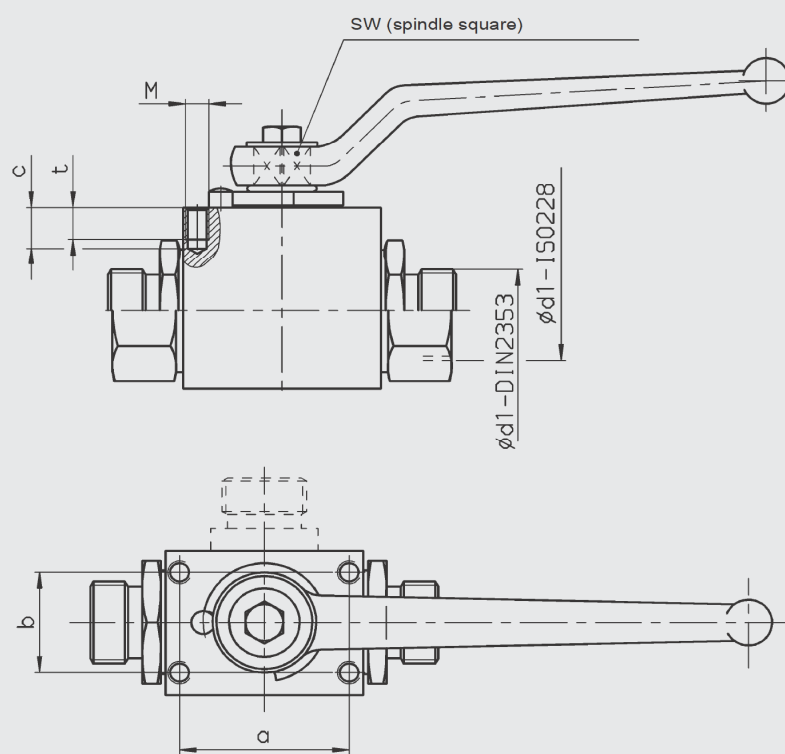
Type of connection	Type	DN	LW	RA	d1	I	L	L1	B	H	h1	h2	h3	S	SW1	SW2	Weight	Nom. pressure PN
		[mm]	[mm]	[mm]		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]	[bar]
DIN ISO 228 Female thread	KHB3K-G1/8	4	8	—	G1/8	10	69	37	28	44.7	14	33	7	34.5	9	22	0.35	500
	KHB3K-G1/4	6	8	—	G1/4	14	69	37	28	44.7	14	33	7	34.5	9	22	0.36	500
	KHB3K-G3/8	10	10	—	G3/8	14	71.9	42	33	53.2	17.2	40	8.5	36	9	27	0.56	500
	KHB3K-G1/2	13	12	—	G1/2	15	84	47	35	53.2	17.2	40	8.5	41.5	9	30	0.71	500
	KHB3K-G1/2	16	15	—	G1/2	16	83	47	40	63.2	20	46	11	41.5	12	32	0.83	420
	KHB3K-G3/4	20	20	—	G3/4	18	94.9	60	49	77.8	27.5	60	11.6	47.5	14	41	1.67	420
	KHB3K-G1	25	25	—	G1	20.5	113.1	65	58	82.6	29.5	65	11.6	56.5	14	50	2.40	420
	KHB3K-G1 1/4	32	30	—	G1 1/4	22	110	76	110.5	108.5	43.3	90	12	70.5	17	65	5.62	350
	KHB3K-G1 1/2	40	35	—	G1 1/2	24	120	85	115.5	114.7	43.5	96.2	12	72	17	75	7.04	350
	KHB3K-G2	50	44	—	G2	28	150	120	135	138.5	59.8	120	12	75	17	80	13.48	350
DIN 2353 Light range	KHB3K-06LR	4	4	6	M12x1.5	7	67	37	28	44.7	14	33	7	33.5	9	22	0.30	500
	KHB3K-08LR	6	6	8	M14x1.5	7	67	37	28	44.7	14	33	7	33.5	9	22	0.30	500
	KHB3K-10LR	8	8	10	M16x1.5	11	73.9	42	33	53.2	17.2	40	8.5	37	9	27	0.48	500
	KHB3K-12LR	10	10	12	M18x1.5	11	73.9	42	33	53.2	17.2	40	8.5	37	9	27	0.48	500
	KHB3K-15LR	13	12	15	M22x1.5	12	82	47	35	53.2	17.2	40	8.5	41	9	30	0.71	500
	KHB3K-18LR	13	12	18	M26x1.5	12	82	47	35	53.2	17.2	40	8.5	41	9	30	0.66	500
	KHB3K-18LR	16	15	18	M26x1.5	12	82	47	40	63.2	20	46	11	41	12	32	0.76	420
	KHB3K-22LR	20	19	22	M30x2	14	100.9	60	49	77.8	27.5	60	11.6	50.5	14	41	1.54	420
	KHB3K-28LR	25	24	28	M36x2	14	107.9	65	58	82.6	29.5	65	11.6	54	14	50	2.00	420
	KHB3K-35LR	32	30	35.3	M45x2	16	128	76	80	108.5	43.3	90	12	69	17	65	4.48	350
DIN 2353 Heavy range	KHB3K-08SR	4	5	8	M16x1.5	7	73	37	28	44.7	14	33	7	36.5	9	22	0.31	500
	KHB3K-10SR	6	7	10	M18x1.5	7.5	73	37	28	44.7	14	33	7	36.5	9	22	0.34	500
	KHB3K-12SR	8	8	12	M20x1.5	12	75.9	42	33	53.2	17.2	40	8.5	38	9	27	0.50	500
	KHB3K-14SR	10	10	14	M22x1.5	14	79.9	42	33	53.2	17.2	40	8.5	40	9	27	0.53	500
	KHB3K-16SR	13	12	16	M24x1.5	14	85.9	47	35	53.2	17.2	40	8.5	43	9	30	0.80	500
	KHB3K-20SR	13	12	20	M30x2	16	90	47	35	53.2	17.2	40	8.5	45	9	30	0.73	500
	KHB3K-20SR	16	15	20	M30x2	16	90	47	40	63.2	20	46	11	45	12	32	0.82	420
	KHB3K-25SR	20	20	25	M36x2	18	108.9	60	49	77.8	27.5	60	11.6	54.5	14	41	1.66	420
	KHB3K-30SR	25	25	30	M42x2	20	119.9	65	58	82.6	29.5	65	11.6	60	14	50	2.17	420
	KHB3K-38SR	32	30	38.3	M52x2	22	140	76	80	108.5	43.3	90	12	74	17	65	2.48	350
ANSI B1.20.1 NPT female thread	KHB3K-06NPT	6	8	—	1/4-18 NPT	10.21	69	37	28	44.7	14	33	7	34.5	9	22	0.60	500
	KHB3K-10NPT	10	10	—	3/8-18 NPT	10.36	71.9	42	33	53.2	17.2	40	8.5	36	9	27	0.74	500
	KHB3K-16NPT	13	12	—	1/2-14 NPT	13.56	84	47	35	53.2	17.2	40	8.5	41.5	9	30	0.71	500
	KHB3K-16NPT	16	15	—	1/2-14 NPT	13.56	83	47	40	63.2	20	46	11	41.5	12	32	0.85	420
	KHB3K-20NPT	20	20	—	3/4-14 NPT	13.86	94.9	60	49	77.8	27.5	60	11.6	47.5	14	41	1.61	420
	KHB3K-25NPT	25	25	—	1-11 1/2 NPT	17.34	113	65	58	82.6	29.5	65	11.6	56.5	14	50	2.39	420
	KHB3K-32NPT	32	30	—	1 1/4-11 1/2 NPT	17.95	115	76	110	108.5	43.3	90	12	70	17	65	5.78	350
	KHB3K-40NPT	40	35	—	1 1/2-11 1/2 NPT	18.38	135	85	118.5	114.7	43.5	96.2	12	75	17	75	7.60	350
	KHB3K-50NPT	50	44	—	2 - 11 1/2 NPT	19.22	150	120	145	138.5	59.8	120	12	85	17	80	14.50	350
SAE J 514 UN/UNF Female thread	KHB3K-06SAE	6	8	—	7/16-20 UNF	12	69	37	28	44.7	14	33	7	34.5	9	22	0.36	500
	KHB3K-10SAE	10	10	—	9/16-18 UNF	13	71.9	42	33	53.2	17.2	40	8.5	36	9	27	0.74	500
	KHB3K-16SAE	16	15	—	3/4-16 UNF	15	83	47	40	63.2	20	46	11	41.5	12	32	0.85	420
	KHB3K-20SAE	20	20	—	1 1/16-12 UN	20	94.9	60	49	77.8	27.5	60	11.6	47.5	14	41	1.54	420
	KHB3K-25SAE	25	25	—	1 5/16-12 UN	20	113	65	58	82.6	29.5	65	11.6	56.5	14	50	2.30	420
	KHB3K-32SAE	32	30	—	1 5/8-12 UN	20	110	76	110.5	108.5	43.3	90	12	70.5	17	65	5.60	350
	KHB3K-40SAE	40	35	—	1 7/8-12 UN	20	120	85	119	114.7	43.5	96.2	12	75.5	17	75	7.08	350
	KHB3K-50SAE	50	44	—	2 1/2-12 UN	20	150	120	145.5	138.5	59.8	120	12	85.5	17	80	14.32	350

EN 5.504.19/10.19

Stainless steel

Type of connection	Type	DN	LW	RA	d1	I	L	L1	B	H	h1	h2	h3	S	SW1	SW2	Weight	Nom. pressure PN
		[mm]	[mm]	[mm]		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]	[bar]
DIN ISO 228 Female thread 	KHB3K-G1/8	4	8	–	G1/8	10	69	37	29	45.2	14.5	33.5	7	34.5	9	22	0.41	500
	KHB3K-G1/4	6	8	–	G1/4	14	69	37	29	45.2	14.5	33.5	7	34.5	9	22	0.49	500
	KHB3K-G3/8	10	10	–	G3/8	14	72	42	35	53.2	17.2	40	8.5	36	9	27	0.62	500
	KHB3K-G1/2	13	10	–	G1/2	16	84	42	35	53.2	17.2	40	8.5	41.5	9	30	0.80	500
	KHB3K-G1/2	16	15	–	G1/2	16	82.8	47	41	63.7	20.5	46.5	11	41.5	12	32	1.00	400
	KHB3K-G3/4	20	20	–	G3/4	18	95	60	49	77.8	27.5	60	11.6	47.5	14	41	1.90	350
	KHB3K-G1	25	25	–	G1	20.5	113.1	65	58	82.6	29.5	65	11.6	56.5	14	50	2.40	350
DIN 2353 Light range 	KHB3K-08LR	4	4	6	M12x1.5	10	67	37	29	45.2	14.5	33.5	7	33.5	9	22	0.36	500
	KHB3K-08LR	6	6	8	M14x1.5	10	67	37	29	45.2	14.5	33.5	7	33.5	9	22	0.36	500
	KHB3K-10LR	8	8	10	M16x1.5	11	73.9	42	35	53.2	17.2	40	8.5	37	9	27	0.72	500
	KHB3K-12LR	10	10	12	M18x1.5	11	73.9	42	35	53.2	17.2	40	8.5	37	9	27	0.73	500
	KHB3K-15LR	13	10	15	M22x1.5	12	77	42	35	53.2	17.2	40	8.5	41.5	9	30	0.90	500
	KHB3K-18LR	13	10	18	M26x1.5	12	82	42	35	53.2	17.2	40	8.5	41	9	30	0.92	500
	KHB3K-18LR	16	15	18	M26x1.5	12	81.8	47	41	63.7	20.5	46.5	11	41	12	32	0.95	400
	KHB3K-22LR	20	19	22	M30x2	14	100.7	60	49	77.8	27.5	60	11.6	50.5	14	41	2.02	350
	KHB3K-28LR	25	24	28	M36x2	14	107.9	65	58	82.6	29.5	65	11.6	54	14	50	2.13	350
DIN 2353 Heavy range 	KHB3K-08SR	4	5	8	M16x1.5	12	73	37	29	45.2	14.5	33.5	7	36.5	9	22	0.39	500
	KHB3K-10SR	6	7	10	M18x1.5	12	73	37	29	45.2	14.5	33.5	7	36.5	9	22	0.39	500
	KHB3K-12SR	8	8	12	M20x1.5	12	75.9	42	35	53.2	17.2	40	8.5	38	9	27	0.74	500
	KHB3K-14SR	10	10	14	M22x1.5	14	79.9	42	35	53.2	17.2	40	8.5	40	9	27	0.77	500
	KHB3K-16SR	13	10	16	M24x1.5	14	80.9	42	35	53.2	17.2	40	8.5	40.5	9	30	0.92	500
	KHB3K-20SR	13	10	20	M30x2	16	85	42	35	53.2	17.2	40	8.5	42.5	9	32	1.02	500
	KHB3K-20SR	16	15	20	M30x2	16	89.8	47	41	63.7	20.5	46.5	11	45	12	32	1.60	400
	KHB3K-25SR	20	20	25	M36x2	18	109	60	49	77.8	27.5	60	11.6	54.5	14	41	2.20	350
	KHB3K-30SR	25	25	30	M42x2	20	119.9	65	58	82.6	29.5	65	11.6	60	14	50	2.40	350

Fixing hole dimensions (SO 940)



DIN ISO 228

Ød1	DN	SW	a	b	M	t	c
G 1/8	4	9	31	20	M4	6	8
G 1/4	6	9	31	20	M4	6	8
G 3/8	10	9	36	22	M5	7	9
G 1/2*	13	9	36	22	M5	7	9
G 1/2	16	12	39	26	M5	7	9
G 3/4	20	14	45	28	M6	9	11
G 1	25	14	45	28	M6	9	11

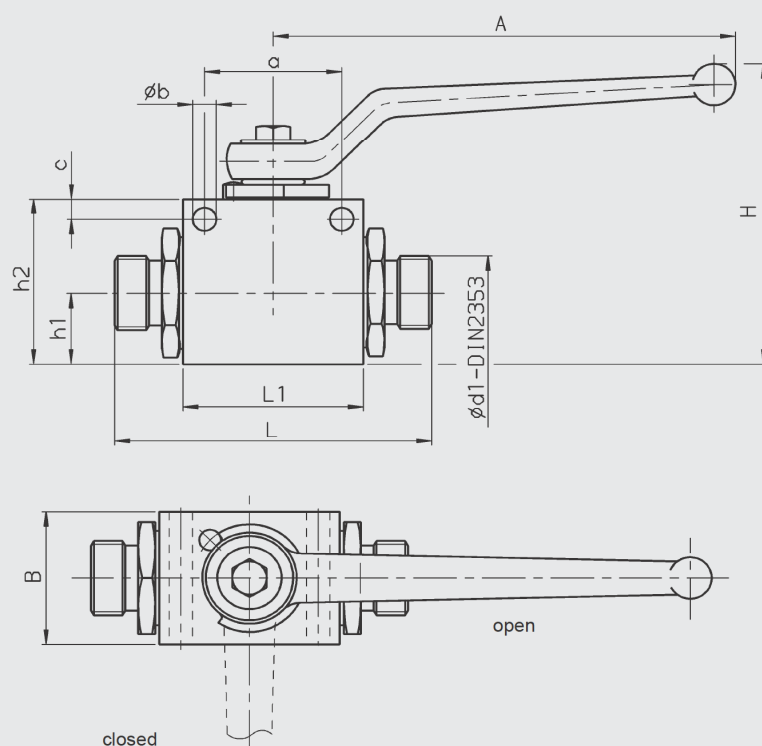
DIN 2353 Light Range

Ød1	DN	SW	a	b	M	t	c
06LR	4	9	31	20	M4	6	8
08LR	6	9	31	20	M4	6	8
10LR	8	9	36	22	M5	7	9
12LR	10	9	36	22	M5	7	9
15LR*	13	9	36	22	M5	7	9
18LR*	13	9	36	22	M5	7	9
18LR	16	12	39	26	M5	7	9
22LR	20	14	45	28	M6	9	11
28LR	25	14	45	28	M6	9	11

DIN 2353 Heavy Range

Ød1	DN	SW	a	b	M	t	c
08SR	4	9	31	20	M4	6	8
10SR	6	9	31	20	M4	6	8
12SR	8	9	36	22	M5	7	9
14SR	10	9	36	22	M5	7	9
16SR*	13	9	36	22	M5	7	9
20SR*	13	9	36	22	M5	7	9
20SR	16	12	39	26	M5	7	9
25SR	20	14	45	28	M6	9	11
30SR	25	14	45	28	M6	9	11

Dimensions of through bore (SO 1073)



DIN ISO 228

Ød1	DN	L	L1	B	H	h1	h2	a	Øb	c	A
G 1/8	4	69	37	28	65.7	14	33	28	5.5	4.5	108
G 1/4	6	69	37	28	65.7	14	33	28	5.5	4.5	108
G 3/8	10	71.9	42	33	72.7	17.2	40	32	5.5	5	108
G 1/2*	13	84	47	35	72.7	17.2	40	32	5.5	5	108
G 1/2	16	83	47	40	111	20	46	38	5.5	5	169
G 3/4	20	94.9	60	49	125	27.5	60	46	6.6	6	169
G 1	25	113.1	65	58	130	29.5	65	46	6.6	6	169

DIN 2353 Light Range

Ød1	DN	L	L1	B	H	h1	h2	a	Øb	c	A
08LR	6	67	37	28	65.7	14	33	28	5.5	4.5	108
10LR	8	73.9	42	33	72.7	17.2	40	32	5.5	5	108
12LR	10	73.9	42	33	72.7	17.2	40	32	5.5	5	108
15LR*	13	82	47	35	72.7	17.2	40	32	5.5	5	108
18LR	16	82	47	40	111	20	46	38	5.5	5	169
22LR	20	100.9	60	49	125	27.5	60	46	6.6	6	169
28LR	25	107.9	65	58	130	29.5	65	46	6.6	6	169

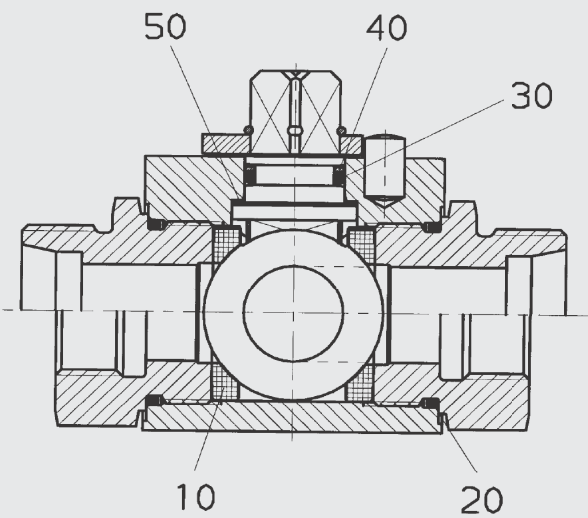
DIN 2353 Heavy Range

Ød1	DN	L	L1	B	H	h1	h2	a	Øb	c	A
08SR	4	73	37	28	65.7	14	33	28	5.5	4.5	108
10SR	6	73	37	28	65.7	14	33	28	5.5	4.5	108
12SR	8	75.9	42	33	72.7	17.2	40	32	5.5	5	108
14SR	10	79.9	42	33	72.7	17.2	40	32	5.5	5	108
16SR*	13	85.9	47	35	72.7	17.2	40	32	5.5	5	108
20SR*	13	90	47	35	72.7	17.2	40	32	5.5	5	108
20SR	16	90	47	40	111	20	46	38	5.5	5	169
25SR	20	108.9	60	49	125	27.5	60	46	6.6	6	169
30SR	25	119.9	65	58	130	29.5	65	46	6.6	6	169

* reduced nominal values

EN 5.504.19/10.19

SPARE PARTS (SEAL KIT)



NOTE

The information in this brochure relates to the operating conditions and applications described. For applications and operating conditions not described, please contact the relevant technical department.

The operator is always responsible for determining the product suitability for the specific application. Quantified values for product characteristics are average values for a new product that undergo a time deterioration process.

Subject to technical modifications and errors.

Seal kit	Order no. = part no.
DN 04/06	703 048
DN 08/10	703 014
DN 13	703 046
DN 12/16	703 010
DN 20	703 005
DN 25	703 004

The parts indicated by numbers in the above drawing are contained in the seal kit.