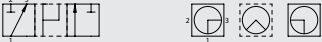


PN up to 500  
DN up to 50

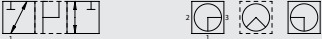
### Function diagram

3/2-way change over ball valves

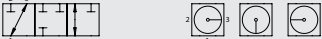
L-bore, 90° neg.



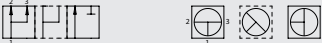
L-bore SO560, 90° neg.



L-bore SO560.1, 180° pos.



T-bore, 90° neg.



T-bore, 180° neg.



= undefined switching position

## 3/2 Way Ball Valves KHB3K

### Model code

(also order example)

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

### Designation

KHB3K = 3/2 way ball valve

### Type of connection

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

### Ball bore

### Materials

*Housing, connection adapters*

- 1 = Steel
- 3 = Stainless steel

*Ball, control spindle*

- 1 = Steel
- 3 = Stainless steel

*Ball seals*

- 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
- ZN = Zinc-nickel, chrome (VI)-free

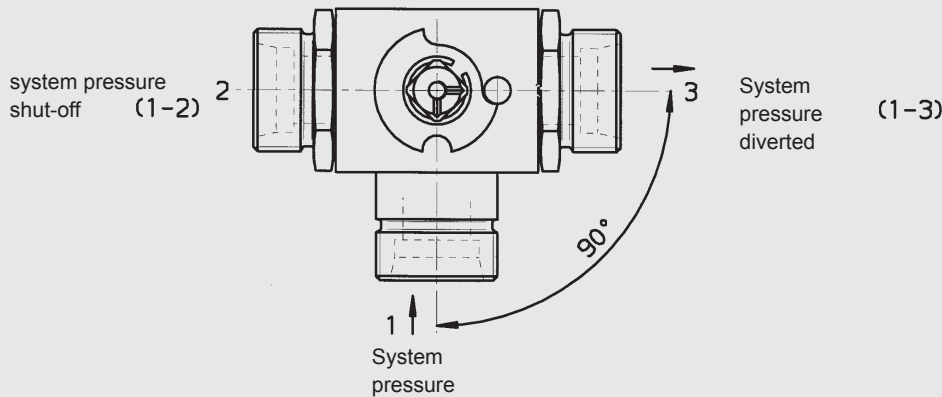
### Option

- SO560 = Seals on inlet side, negative switching overlap, switch 90°
- SO560.1 = Seals on inlet side, positive switching overlap, switch 180°
- TT = O-rings for low temperature, temperature range -40 °C to +80 °C
- SO 940 = Ball valve with 4 fixing holes (for example, panel mounting)
- SO 1073 = Ball Valve with 2 through holes

## Technical specifications

Types of connection:	Light and heavy threaded pipe fitting to DIN 2353 Whitworth female thread to ISO 228 NPT SAE
Mounting position:	Optional
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



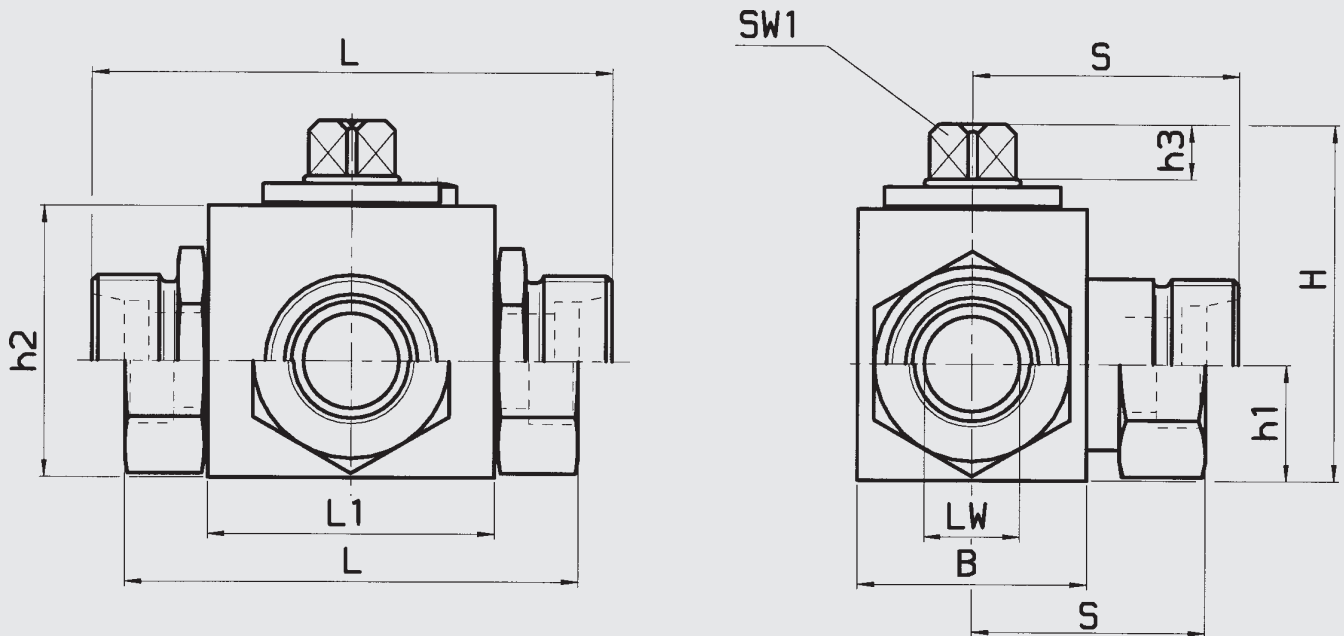
By turning the control spindle the flow is diverted, according to the ball bore, and the opposite side is shut off leakage-free.

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.

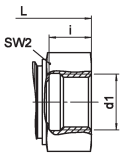
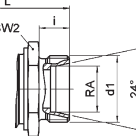
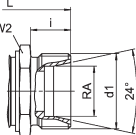
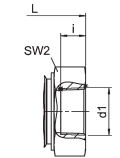
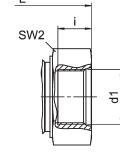
When the direction of flow is from 2 or 3 to 1, some leakage can be expected, depending on the pressure. During change-over all three ports are linked (negative switching overlap).

## Dimensions

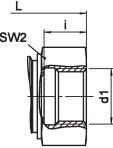
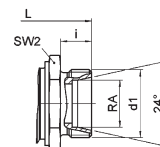
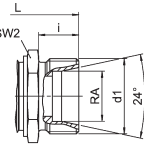
3/2 way ball valve



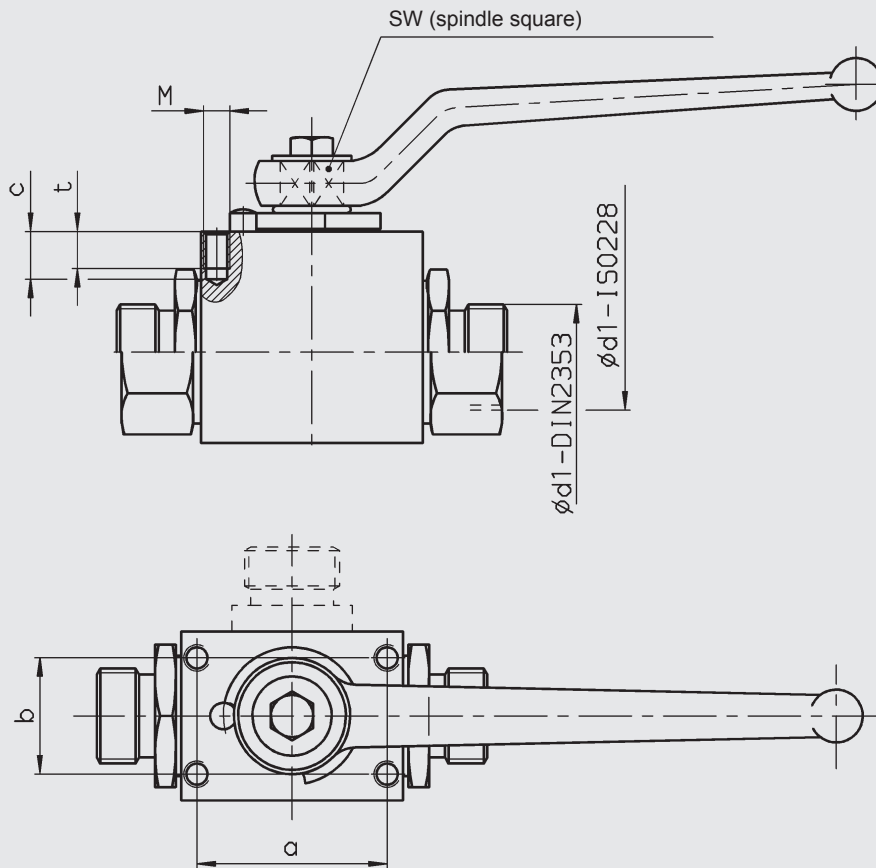
# Steel

Connection type	Type	DN	Int. Ø	RA	d1	i	L	L1	B	H	h1	h2	h3	S	SW1	SW2	Weight	Nom. pressure
		[mm]	[mm]	[mm]		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
<b>DIN ISO 228</b> 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-G11/4	32	30	–	G11/4	22	110	76	110,5	108,5	43,3	90	12	70,5	17	65	5,62	350
	KHB3K-G11/2	40	35	–	G11/2	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
<b>DIN 2353</b> 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
KHB3K-42LR	40	35	42,3	M52x2	16	149	85	87	114,7	43,5	96,2	12	74,5	17	75	6,10	350	
<b>DIN 2353</b> 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
<b>ANSI B1.20.1</b> 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
<b>SAE J 514 UN/UNF</b> 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

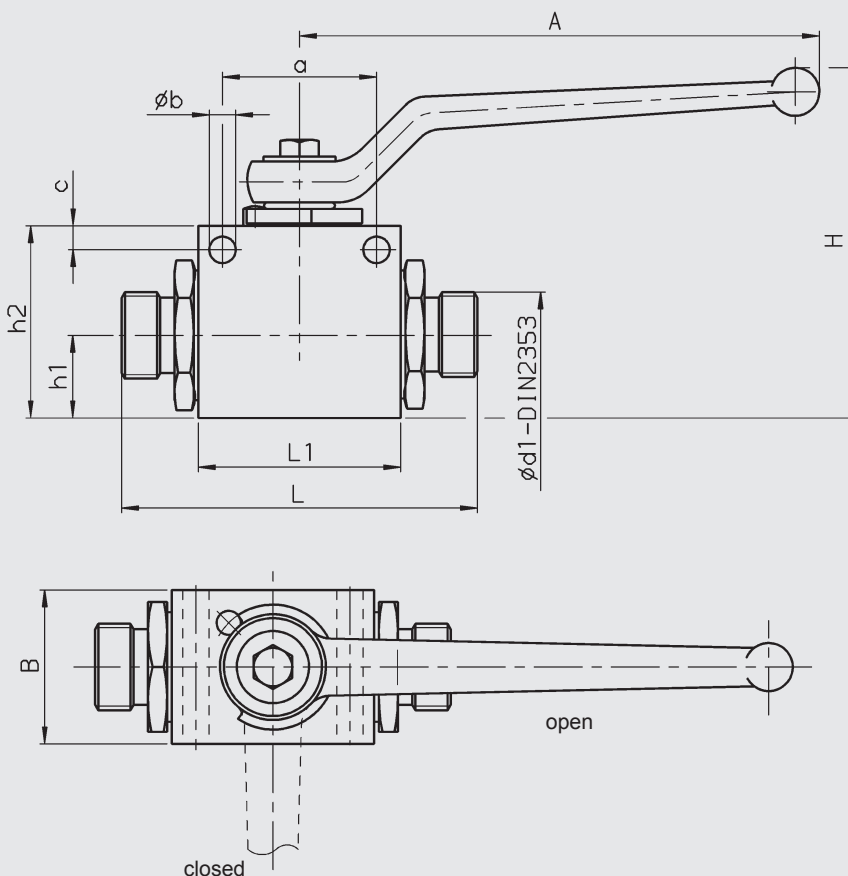
## Stainless steel

Connection type	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]	[mm]	[kg]
<b>DIN ISO 228</b> 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
<b>DIN 2353</b> Light range 	KHB3K-06LR	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
<b>DIN 2353</b> 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)



## Through hole dimensions (SO 1073)



## DIN ISO 228

$\phi d1$	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
G1	25	14	45	28	M6	9	11

## DIN 2353 Light Range

$\phi d1$	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

$\phi d1$	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

## DIN ISO 228

$\phi d1$	DN	L	L1	B	H	h1	h2	a	$\phi b$	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
G1	25	113,1	65	58	130	29,5	65	46	6,6	6	169

## DIN 2353 Light Range

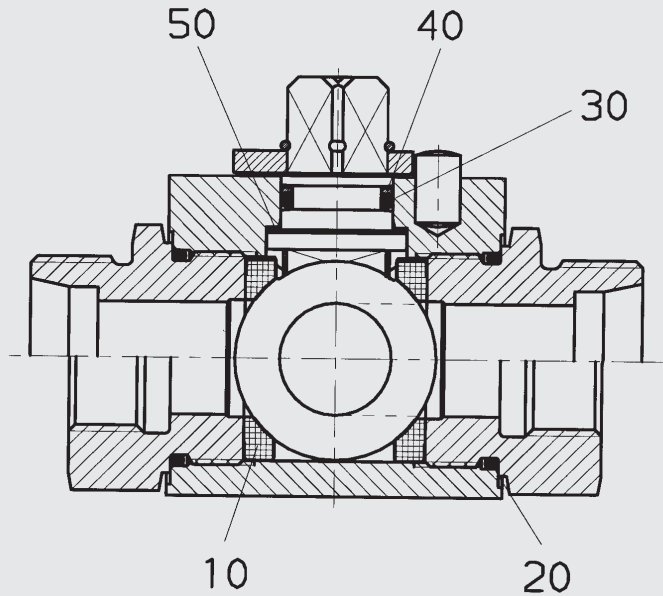
$\phi d1$	DN	L	L1	B	H	h1	h2	a	$\phi b$	c	A
08LR	6	67	37	28	65,7	14	33	28	5,5	4,5	108
10LR	8	73,9	42	33	72,7	17,2	40	28	5,5	4,5	108
12LR	10	73,9	42	33	72,7	17,2	40	32	5,5	5	108
15LR*	13	82	47	35	72,7	17,2	40	32	5,5	5	108
18LR	16	82	47	40	111	20	46	38	5,5	5	169
22LR	20	100,9	60	49	125	27,5	60	46	6,6	6	169
28LR	25	107,9	65	58	130	29,5	65	46	6,6	6	169

## DIN 2353 Heavy Range

$\phi d1$	DN	L	L1	B	H	h1	h2	a	$\phi b$	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 bore

## SPARE PARTS (SEAL KIT)



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.

## 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.

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