



1945 - 2020



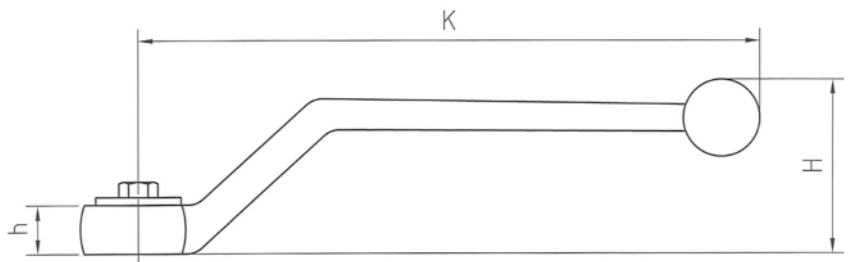
MHA ZENTGRAF
FlowControlTechnology



CATALOG

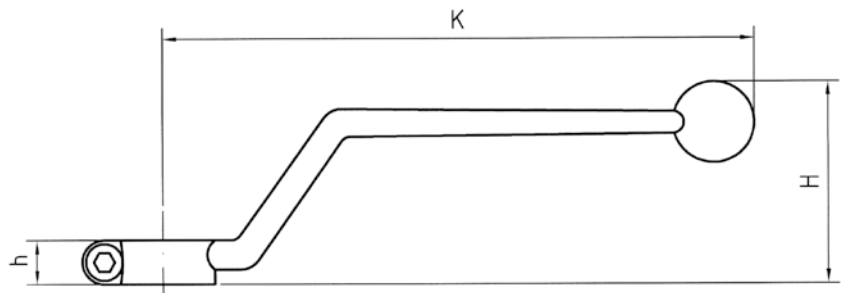
Bent levers

Steel / Stainless Steel / Zinc / Aluminum



DIMENSIONS				ORDER CODE PER MATERIAL					
SW	K	h	H	Weight [Kg]	Steel	Weight [Kg]	Stainless Steel	Weight [Kg]	Zinc
7	80	6,5	30	0,05	013 00196*				
7	76	6	27					0,03	013 12603*
7	60	6,5	22			0,04	013 26305*		
9	115	8,7	45					0,09	013 15533 ⁽¹⁾
9	115	9	47	0,10	013 00063 ⁽¹⁾	0,10	013 14689 ⁽¹⁾		
14	171	12	64	0,25	013 08618 ⁽¹⁾				
14	160	12	48			0,20	013 49334 ⁽¹⁾		
17	306	16	89	0,70	013 14083*				
17	227,5	15	90			0,40	013 32962*		

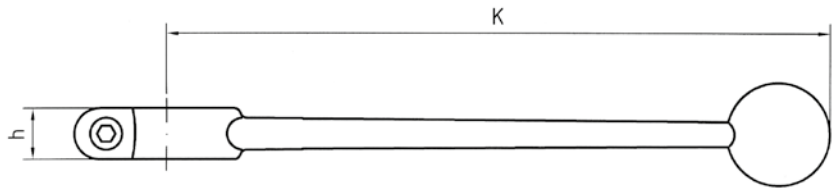
⁽¹⁾ Article numbers include flow indicator for 2-way valves.
Article numbers for multiway valves on request



DIMENSIONS				ORDER CODE PER MATERIAL	
SW	K	h	H	Weight [Kg]	Aluminum
12	160	12	55	0,07	013 01741*

*Article usually in stock.

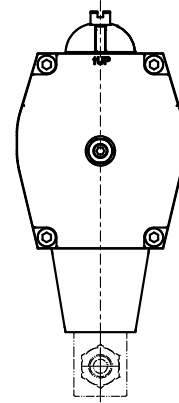
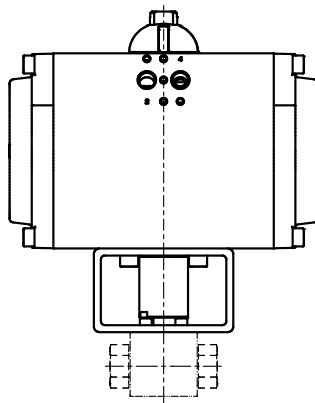
Straight levers Aluminum / Zinc



DIMENSIONS			ORDER CODE PER MATERIAL			
SW	K	h	Weight [Kg]	Aluminum	Weight [Kg]	Zinc
9	155	10			0,09	013 03722*
9	150	11	0,06	013 00052*		
14	200	12	0,11	013 06745*		
14	200	13			0,22	013 02729*
17	320	16	0,26	013 01799*		

*Article usually in stock.

Ball valves with pneumatic actuator

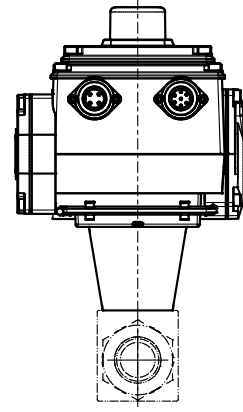
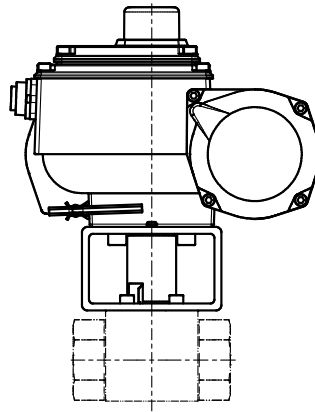


The dimensioning of the actuators is based on the extensive experience of **MHA ZENTGRAF**. When making a request, it is absolutely necessary to specify the working pressure, service medium and operating temperature, to enable us to configure the actuators for your application. Furthermore the following product code defines all used components for the actuator configuration:

ORDER EXAMPLE

order text (ball valve design: see data sheets)	article no.	mode of operation	control pressure [bar]	limit switch box	solenoid valve	version																				
BKH - DN4 - G1/8 - 112A	20639	PA																								
		<table border="1"> <tr><td>DW</td><td>double acting</td></tr> <tr><td>EW</td><td>single acting</td></tr> </table>	DW	double acting	EW	single acting		<table border="1"> <tr><td>M</td><td>mechanical</td></tr> <tr><td>I</td><td>inductive</td></tr> <tr><td>O</td><td>without</td></tr> </table>	M	mechanical	I	inductive	O	without	<table border="1"> <tr><td>DC</td><td>24V DC</td></tr> <tr><td>AC</td><td>230V AC</td></tr> <tr><td>O</td><td>without</td></tr> </table>	DC	24V DC	AC	230V AC	O	without	<table border="1"> <tr><td>ST</td><td>standard</td></tr> <tr><td>EX</td><td>EX-version: please specify required EX-zone (EX-level)</td></tr> </table>	ST	standard	EX	EX-version: please specify required EX-zone (EX-level)
DW	double acting																									
EW	single acting																									
M	mechanical																									
I	inductive																									
O	without																									
DC	24V DC																									
AC	230V AC																									
O	without																									
ST	standard																									
EX	EX-version: please specify required EX-zone (EX-level)																									

Ball valves with electric actuator

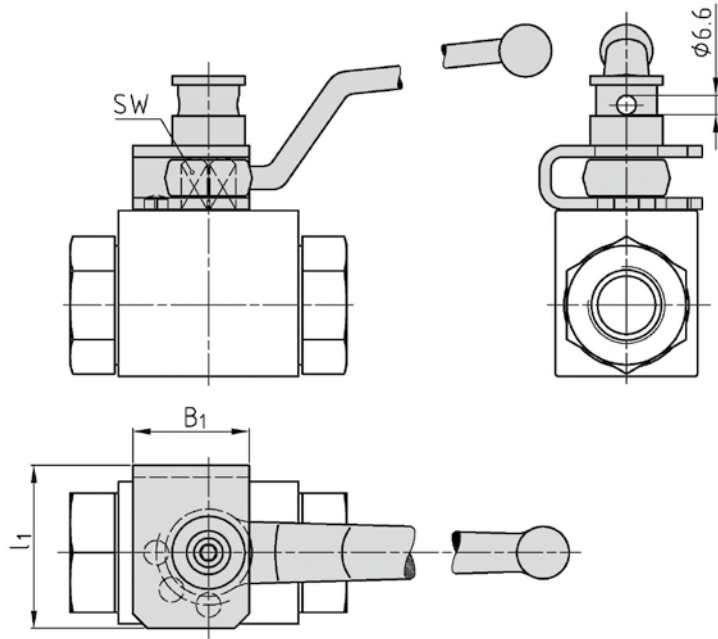


The dimensioning of the actuators is based on the extensive experience of **MHA ZENTGRAF**. When making a request, it is absolutely necessary to specify the working pressure, service medium and operating temperature, to enable us to configure the actuators for your application. Furthermore the following product code defines all used components for the actuator configuration:

ORDER EXAMPLE

order text (ball valve design: see data sheets)	article no.		voltage	version					
BKH - DN4 - G1/8 - 112A	20639	- EA -							
			<table border="1"> <tr><td>24V DC</td></tr> <tr><td>230V AC</td></tr> <tr><td>S special: please specify separately with the inquiry</td></tr> </table>	24V DC	230V AC	S special: please specify separately with the inquiry	<table border="1"> <tr><td>ST standard</td></tr> <tr><td>EX -version: please specify required EX-zone (EX-level)</td></tr> </table>	ST standard	EX -version: please specify required EX-zone (EX-level)
24V DC									
230V AC									
S special: please specify separately with the inquiry									
ST standard									
EX -version: please specify required EX-zone (EX-level)									

Locking device type 1 Steel



- Universal locking device
- Suitable as retrofit
- Cannot be dismantled when locked
- High security against tampering disassembly
- Bent lever is part of delivery

DIMENSIONS				ORDER CODE PER MATERIAL**		
DN	SW	B ₁	l ₁	Steel	Stainless Steel	*Article usually in stock. **Valid for flow through ball valves
4-13	9	25	33	052 18230*	on request	
16	12	40	50	052 18231*	on request	
20-25	14	40	56	052 18232*	on request	
32-50	17	50	64	052 18233*	on request	

ORDER EXAMPLE

Mounting set consisting of shackle, sliding sleeve, link with screw and steel lever:

order text	article no.
Locking device type 1 for ball valve DN 4-13	052 18230

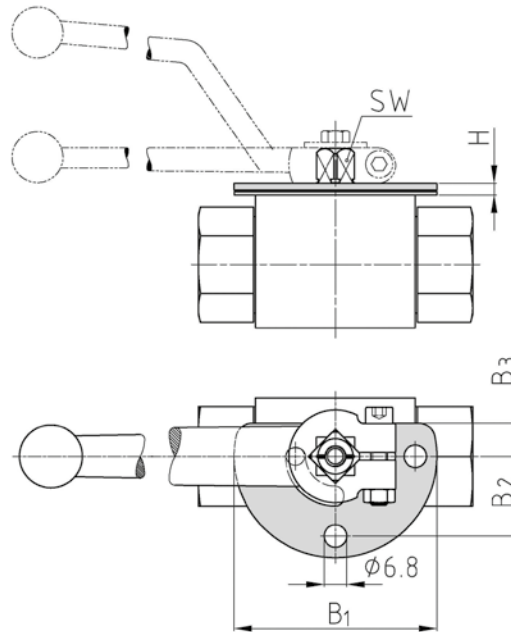
Assembled with ball valves:

ball valve type (ball valve design: see data sheets)	article no.	description
BKH - DN13 - G1/2 - 112A	17253	with locking device type 1

MOUNTING SETS ARE VALID FOR

Type	BKH / BKHP500	MKHP420 Steel	BKH-AS	MKHP-AS Steel	BKH / BKHP-SAEFS	MKHP-SAEFS Steel	BKH / BKHP-SAE	MKHP-SAE Steel	BK3 / BK3-S	3KH	PKH	BKHP800	MKHP800
Page	16 - 23	24 - 26	36	37	40 - 43	44 - 45	48 - 51	52 - 53	94 - 104	110 - 116	126 - 129	142 - 143	144 - 145

Locking device type 2 Steel



- Suitable as retrofit
- Economical solution
- Can be dismantled after disassembly of lever

DIMENSIONS						ORDER CODE PER MATERIAL		
DN	SW	H	B ₁	B ₂	B ₃	Steel	Stainless Steel	*Article usually in stock.
4-8	9	3,5	61	24	10	052 35082*	on request	
10-13	9	3,5	61	24	10	052 30594*	on request	
16	12	4,5	64	25,5	12	052 30595*	on request	
20-25	14	4,5	84	35,5	14	052 30596*	on request	
32-50	17	4,5	136	61,5	15	052 30597*	on request	

ORDER EXAMPLE

Mounting set consisting of locking plate, stopping disk and ring:

order text	article no.
Locking device type 2 for ball valve DN 4-8	052 35082

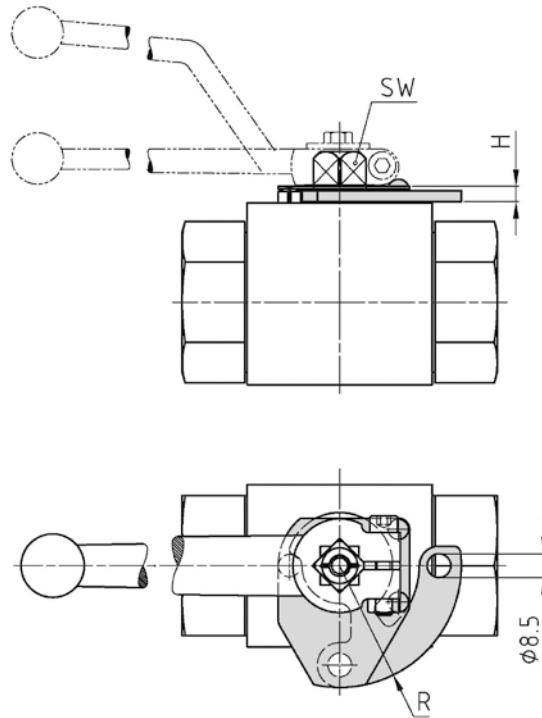
Assembled with ball valves:

ball valve type (ball valve design: see data sheets)	article no.	description
BKH - DN13 - G1/2 - 112A	17253	with locking device type 2

MOUNTING SETS ARE VALID FOR

Type	BKH	BKH-AS	MKHP420 Steel	MKHP-AS Steel	BKH / BKH-SAE	MKHP-SAE Steel	BKH / BKHP- SAEFS	MKHP-SAEFS Steel	BK3 ≤ DN25
Page	16 - 23	36	24 - 26	37	48 - 51	52 - 53	40 - 43	44 - 45	94 - 97

Locking device type 3 Stainless steel



- Not suitable as retrofit
- Economical solution
- Cannot be dismantled
- High security against tampering disassembly

DIMENSIONS				ORDER CODE PER MATERIAL	
DN	SW	H	R	Stainless Steel	
4-13	9	4	37	052 34095	
16	12	4,3	40	052 34279	
20-25	14	5,5	43,5	052 33499	
32-50	17	6	69,5	052 33506	

ORDER EXAMPLE

Available only mounted with ball valve:

ball valve type
(ball valve design: see data sheets)

article no.

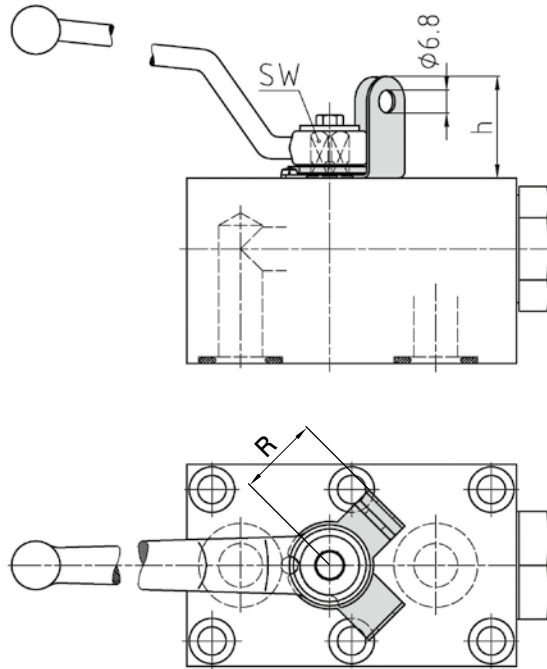
description

BKH - DN13 - G1/2 - 112A - on request - with locking device type 3

MOUNTING SETS ARE VALID FOR

Type	BKH	BKH-AS	MKHP420 Steel	MKHP-AS Steel	BK3 ≤ DN25
Page	16 - 23	36	24 - 26	37	94 - 97

Locking device type 4 Stainless steel



- Universal locking device
- Only suitable as retrofit for ball valves with bent lever
- Economical solution
- Can be dismantled after disassembly of lever
- Bent lever is not part of delivery
- Not rotatable - this option is available on request only

DIMENSIONS			ORDER CODE PER MATERIAL	
SW	h	R	Stainless Steel	
7	24	16	052 40570	
9	28	24	052 36682	
12	34,5	31,5	052 52896	
14	34,5	31,5	052 36683	
17	44	35,5	052 36684	

ORDER EXAMPLE

Mounting set consisting of locking plate, stopping disk and ring:

order text	article no.
Locking device type 4 for ball valve DN 10-13	052 36682

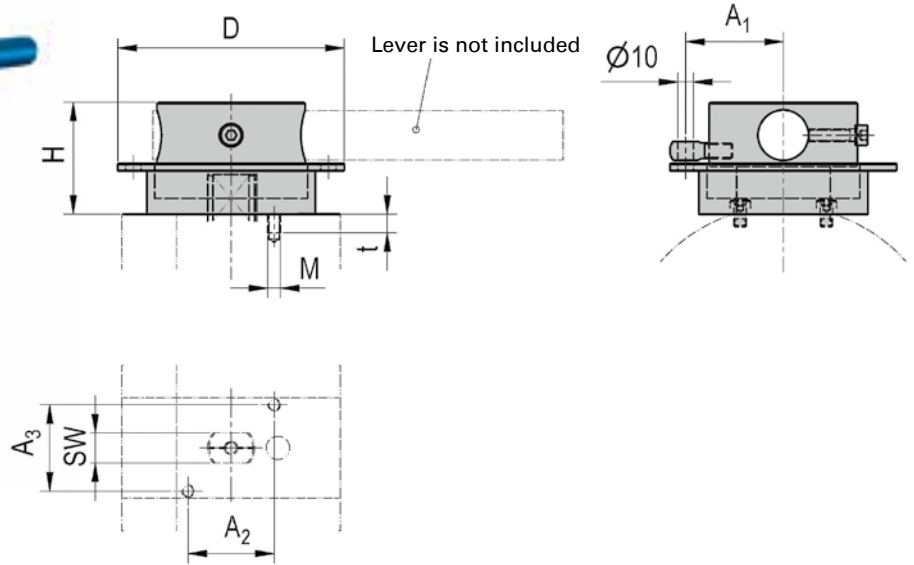
Assembled with ball valves:

ball valve type (ball valve design: see data sheets)	article no.	description
PKH - DN13 - 112A	29571	with locking device type 4

MOUNTING SETS ARE VALID FOR

Type	BKH / BKHP500	MKHP420 Steel	MKHP-SAEFS	MKHP-SAE	KHZ-SAE	BK3 / BK3-S	3KH	4KH	PKH	PK3	MPKH3/4
Page	16 - 23	24 - 26	44 - 47 60 - 63	52 - 55	70 - 73	94 - 104	110 - 116	118 - 124	126 - 129	130 - 133	138 - 141

Locking device for KH series \geq DN65 Steel



- Attention: Locking device requires modification at valve body
- Not suitable as retrofit

DIMENSIONS									ORDER CODE PER MATERIAL	
Type	SW	D	H	A ₁	A ₂	A ₃	M	t	Steel	
KH-DN65	16	145	71,5	62,5	55,15	55,15	M6	10	29509	
KH-DN80	19	145	71,5	62,5	55,15	55,15	M8	12	14590	
KH-DN100	24	155	74,5	67,5	62,23	62,23	M8	12	17665	
KH-DN125	36	165	104,5	72,5	69,3	69,3	M8	12	54677	

ORDER EXAMPLE

Mounting set consisting of adapter, bushing, fixing screws and eye bolt:

order text	article no.
Locking device for ball valve DN 65	29509

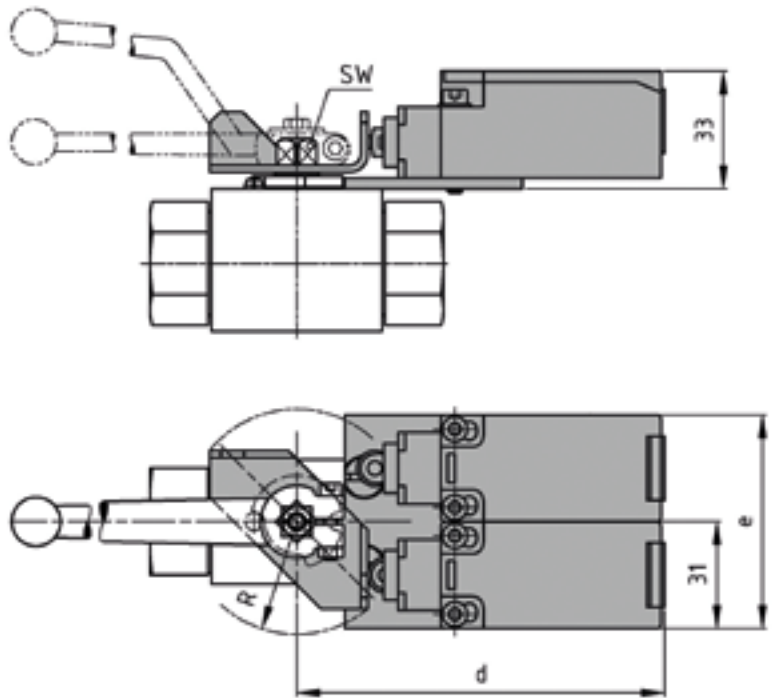
Assembled with ball valves:

ball valve type (ball valve design: see data sheets)	article no.	description
KH-DN65-SAE210-282A	- 32104 -	with locking device

MOUNTING SETS ARE VALID FOR

Type	KH-SAE	KH-ISO	KH-CETOP	KH-AS
Page	64 - 69	76 - 83	84 - 85	86 - 87

Assembling set with mechanical limit switches



Mechanical limit switch properties

- Body material: thermoplastic, glass fiber reinforced
- Protection type: IP66/IP67 as per EN 60529
- NC/NO contact
- Utilization category AC-15, Ue/Ie 240V/3A (DC usage also possible)
- Cable entry: 1 x M20x1,5
- Ambient air temp.: -30°C / +75°C

DIMENSIONS					ORDER CODE PER MATERIAL	
DN	SW	d	e	R	Steel	
4-8	9	102	60	32	048 21648	
10	9	102	60	32	048 21649	
13	9	102	60	32	048 21650	
16	12	108	73	40	048 21651	
20	14	106	70	37,5	048 21652	
25	14	106	70	37,5	048 21653	
32-50	17	114	85	49	048 21654	

ORDER EXAMPLE

Mounting set consisting of switch cam, fixing plate with screws and limit switch(es) with screws and washers:

order text	article no.
Limit switch assembling set for ball valve DN 4-8	048 21648

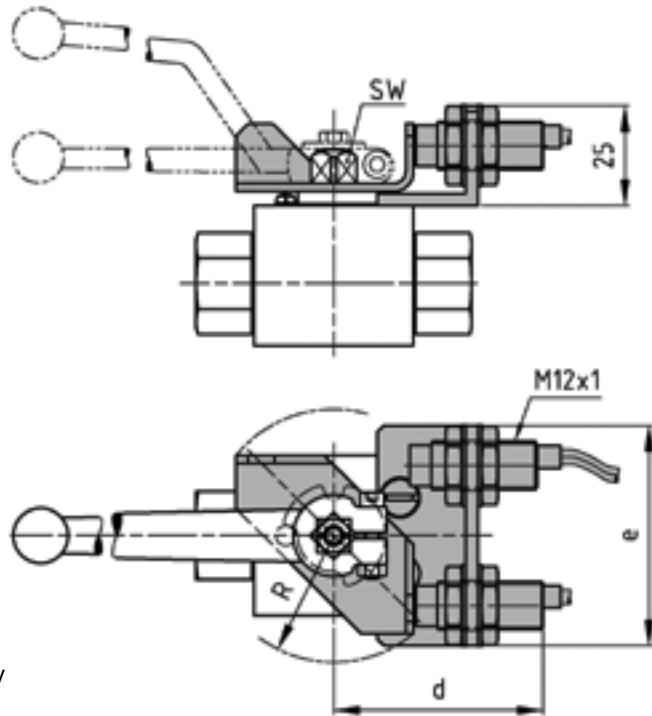
Assembled with ball valves:

ball valve type (ball valve design: see data sheets)	article no.	description
BKH - DN13 - G1/2 - 112A	17253	with limit switch assembling set

MOUNTING SETS ARE VALID FOR

Type	BKH / BKHP 420	BKH-AS	MKHP420	MKHP-AS	BK3 / BK3-S
Page	16 - 23	36	24 - 30	37	94 - 104

Assembling set with inductive proximity switches



Proximity switch properties

- Body material: brass, nickel-plated
- Active surface material: PA 6.6
- Mounting: non-flush
- Proximity sensor as per NAMUR (DIN EN 60947-5-6)
- Rated operation distance: 4mm
(switching point 1,5 mA @ $U_n = 8V$ and $R_i = 1 k\Omega$)
- Protection type: IP67
- Rated voltage: DC 8 V / Rated operational voltage: DC 5 ... 25 V
- Ambient air temp.: -25°C / +70°C

DIMENSIONS					↗	ORDER CODE PER MATERIAL	
DN	SW	d	e	R		Steel	
4-8	9	54	55	32		048 21921	
10	9	54	55	32		048 21922	
13	9	54	55	32		048 21923	
16	12	60	68	40		048 21924	
20	14	58	64	37,5		048 21925	
25	14	58	64	37,5		048 21926	
32-50	17	66	80	49		048 21927	

ORDER EXAMPLE

Mounting set consisting of switch cam, shackle with screws and limit switch(es):

order text	article no.
Proximity switch assembling set for ball valve DN 4-8	048 21921

Assembled with ball valves:

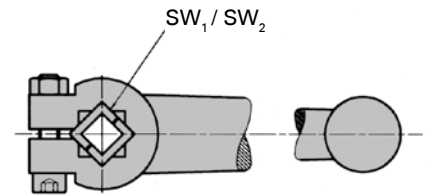
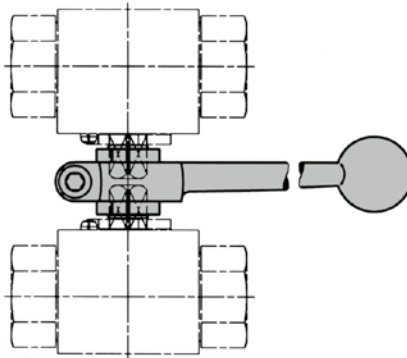
ball valve type (ball valve design: see data sheets)	article no.	description
BKH - DN13 - G1/2 - 112A	17253	with proximity switch assembling set

MOUNTING SETS ARE VALID FOR

Type	BKH / BKHP 420	BKH-AS	MKHP420	MKHP-AS	BK3 / BK3-S
Page	16 - 23	36	24 - 30	37	94 - 104

Assembling sets for ball valve combinations

Steel / Stainless Steel



MATERIAL CODE DESCRIPTION



SW₁: Wrench size of stem
SW₂: Wrench size of lever

Materials	1	4
Square coupling	Steel	Stainless Steel

DIMENSIONS



ORDER CODE PER MATERIAL

Type	SW ₁	SW ₂	Lever	1	4
SW9/14	9	14	Zn	032 39250*	032 39251*
SW12/17	12	17	Al	032 39252*	032 39253*
SW14/17	14	17	Al	032 39254*	032 39255*
SW17/19	17	19	Al	032 39256*	032 39257*

*Article usually in stock.

ORDER EXAMPLE

Mounting set consisting of lever and square coupling:

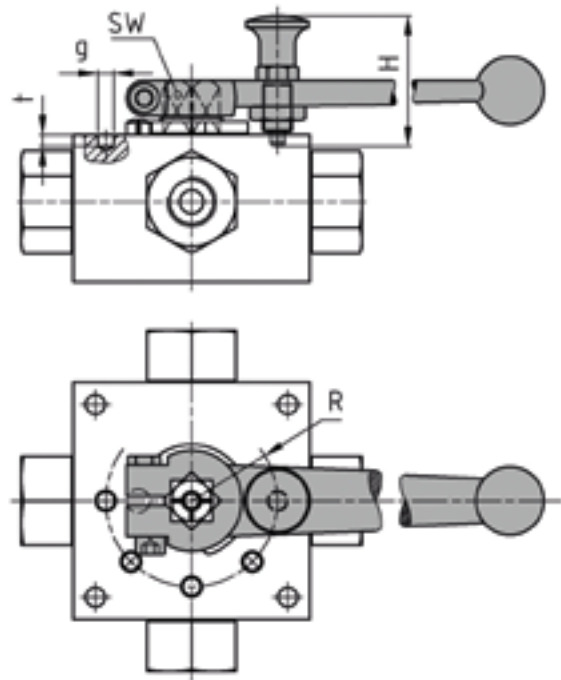
order text	article no.
Assembling set for ball valve combination SW 9/14-Steel	032 39250

Assembled with ball valves:

ball valve type (ball valve design: see data sheets)	article no.	description
BKH - DN13 - G1/2 - 112A	17253	with assembling set for ball valve combination

MOUNTING SETS ARE VALID FOR

Type	BKH / BKHP500	MKHP420	BKH-AS	MKHP-AS	BK3 / BK3-S	BKH / BKHP-SAEFS	MKHP-SAEFS	BKH / BKHP-SAE	MKHP-SAE	BKH-DIN	MKHP-DIN
Page	16 - 23	24 - 30	36	37	94 - 104	40 - 43	44 - 47	48 - 51	52 - 55	88 - 89	90 - 91



DIMENSIONS

Type	DN	SW	K	H	R	g	t
3/4KH	4-6	12	175	45	20	6	7
3/4KH	8-10	14	200	45	29	6	4
3/4KH	13-16	14	200	45	29	6	4
3/4KH	20	17	240	45	28	6	4
3/4KH	25	17	240	45	28	6	4

ORDER CODE PER MATERIAL

on request	
on request	
on request	
on request	
on request	

ORDER EXAMPLE

Mounting set consisting of lever and detent bolt:

order text	article no.
Assembling set for ball valve with detent for 4KH-DN13-16-SW14	on request

Assembled with ball valves:

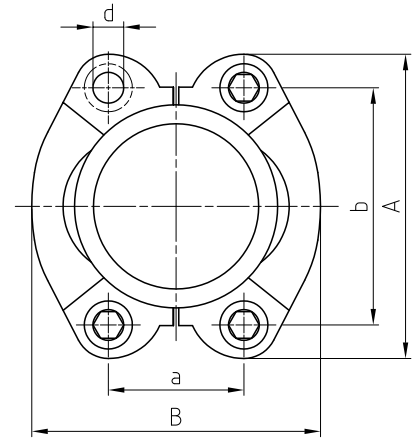
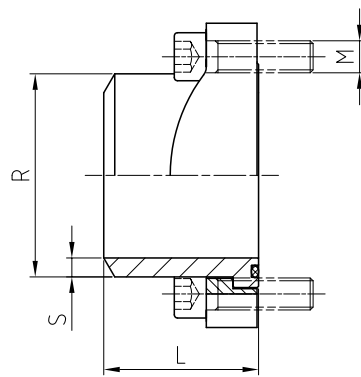
ball valve type (ball valve design: see data sheets)	article no.	description
4KH - DN13 - G1/2 - 112A - SB13	20450	with detent bolt

MOUNTING SETS ARE VALID FOR

Type	3KH	4KH
Page	110 - 116	118 - 124

Accessories

Connection flanges ISO6162 (SAE) - metric



ISO 6162-1 (SAE210)

Design size	Tube dimensions ⁽¹⁾ R x S			a	b	d	L	A	B	Screws ⁽²⁾	Pressure [bar] ⁽⁴⁾		Weight [kg]
											Screws property class		
											8.8	10.9	
1/2"	16,0x2,0 21,3x3,8	20,0x2,5 21,3x4,7	21,3x2,9	17,5	38,1	8,5	41	54	45,6	M8x25	350	350	0,08
3/4"	25,0x3,0	26,9x3,6	26,9x3,9	22,2	47,6	10,5	50	65	51,8	M10x30	350	350	0,16
1"	25,0x3,0 30,0x4,0 38,0x5,0	28,0x3,0 33,7x4,5	30,0x3,0 38,0x4,0	26,2	52,4	10,5	50	70	58,4	M10x30	250	315	0,23
1 1/4"	25,0x3,0 38,0x4,0 42,4x4,5	30,0x3,0 38,0x5,0 42,4x6,3	38,0x3,0 42,4x3,6	30,2	58,7	12,5 11	55	79	72,6	M12x40 ⁽³⁾ M10x30	200	250	0,30
1 1/2"	38,0x4,0 45,0x5,0 48,3x5,0 50,0x6,0	42,0x3,0 48,3x2,6 48,3x6,3	42,0x5,0 48,3x3,6 48,3x7,1	35,7	69,9	13,5	57	94	82,2	M12x35	200	200	0,40
2"	48,3x5,0 60,3x3,9 60,3x8,0	55,0x5,0 60,3x5,5	60,3x2,9 60,3x6,3	42,9	77,8	13,5	57	102	96,4	M12x35	160	200	0,50
2 1/2"	65,0x6,0 76,1x7,1	70,0x7,5	88,9x3,9	50,8	88,9	13,5	58	114	108,2	M12x40	100	160	0,80
3"	80,0x6,0 88,9x7	88,9x3,2 88,9x8	88,9x3,9	61,9	106,4	16,75	58	135	130,6	M16x45	100	160	1,10
3 1/2"	100,0x6,0	88,9x3,6	88,9x8,0	69,9	120,7	17	60	152	139	M16x45	35	35	1,40
4"	110,0x6,0 114,3x8,8	114,3x3,6	114,3x6,02	77,8	130,2	17	60	162	152	M16x50	35	35	1,75
5"	133,0x6,5	139,7x4	139,7x10,0	92,1	152,4	17	60	184	180	M16x50	35	35	2,62

ISO 6162-2 (SAE420)

Design size	Tube dimensions ⁽¹⁾ R x S			a	b	d	L	A	B	Screws ⁽²⁾	Pressure [bar] ⁽⁴⁾		Weight [kg]
											Screws property class		
											8.8	10.9	
1/2"	16,0x2,0	20,0x2,5	21,3x4,5	18,2	40,5	8,5	34	56	47,2	M8x30	350	400	0,08
3/4"	16,0x2,0 25,0x3,5	20,0x2,5 25,0x4,0	25,0x3,0 26,9x5,6	23,8	50,8	10,5	38	71	60	M10x35	350	400	0,17
1"	25,0x3,0 33,7x6,3 38,0x5,0	30,0x3,0 33,7x7,1	30,0x4,0 38,0x4,0	27,8	57,2	13,5	40	81	69,6	M12x45	350	400	0,25
1 1/4"	25,0x3,0 38,0x5,0	30,0x4,0 38,0x5,5	38,0x4,0 42,4x6,3	31,8	66,7	14,5 13	45	95	77,2	M14x50 ⁽³⁾ M12x45	350	400	0,30
1 1/2"	38,0x5,0 48,3x6,3 48,3x8,8	45,0x6,5 48,3x7,1 50,0x6,0	48,3x5,0 48,3x8,0	36,5	79,4	16,75	50	113	95	M16x55	350	400	0,53
2"	48,3x6,3 60,3x8,0 60,3x13,4	60,3x6,3 60,3x8,75	60,3x7,5 60,3x10,0	44,5	96,8	21	58	133	113,8	M20x65	350	400	0,90
2 1/2"	76,1x8,0 88,9x11,1	76,1x10,0 88,9x14,2	88,9x10,0	58,8	123,8	26	75	180	150,2	M24x75	350	400	2,40
3"	88,9x10,0 114,3x11,0	88,9x11,1 114,3x17,5	88,9x14,2	71,6	152,4	31	80	215	198,2	M30x90	350	400	3,60

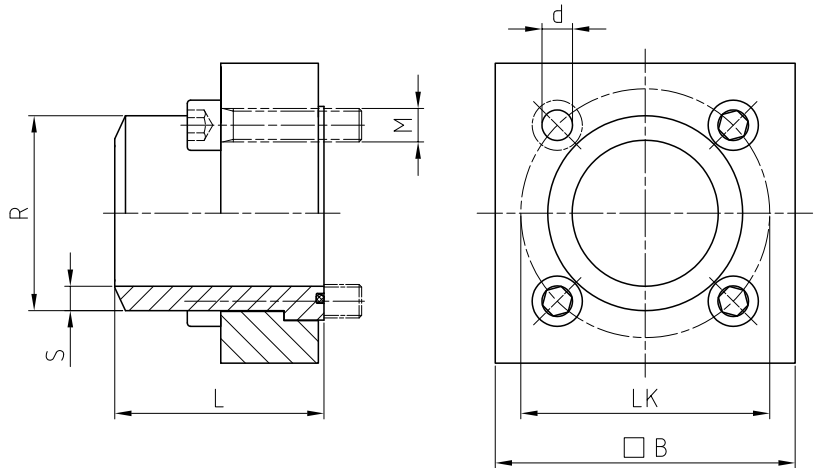
⁽¹⁾ Other tube dimensions on request.

⁽²⁾ Please advise thread dimension with order. UNC screws on request.

⁽³⁾ This thread is not to be used for new designs.

⁽⁴⁾ The max. recommended working pressure is based on the flange. The working pressure of the system is determined by the thickness and the material of the tube.

Connection flanges ISO6164 - metric



ISO 6164-1

DN	Tube dimensions ⁽¹⁾ RxS	LK	d	L	B	Screws ⁽¹⁾ Property class 8,8	Pressure ⁽²⁾ [bar]	Weight [kg]
13	21,6x4,3	42	9	50	45	M8x35	350	0,22
19	27,2x4,1	50	9	60	50	M8x35	350	0,32
25	34,5x4,75	62	11	70	65	M10x40	315	0,63
32	43,0x6,0	73	13,5	80	75	M12x50	250	0,92
38	48,6x5,3	85	17,5	90	90	M16x60	250	1,34
51	61,0x5,5	98	17,5	100	100	M16x70	250	2,30
56	76,6x6,8	118	22	110	120	M20x80	250	4,00
63	89,0x9,5	145	22	120	140	M20x90	250	6,03

ISO 6164-2

DN	Tube dimensions ⁽¹⁾ RxS	LK	d	L	B	Screws ⁽¹⁾ Property class 8,8	Pressure ⁽²⁾ [bar]	Weight [kg]
13	21,6x4,3	42	9	50	45	M8x35	400	0,31
19	27,2x4,6	50	9	60	50	M8x35	400	0,45
25	34,5x6,25	62	11	70	65	M10x40	400	0,83
32	43,0x7,5	73	13,5	90	75	M12x50	400	1,19
38	48,6x8,3	85	17,5	90	90	M16x60	400	1,80
51	61,0x10,0	98	17,5	100	100	M16x70	400	3,08
56	76,6x13,3	118	22	110	120	M20x80	400	5,14
63	89,0x15,5	145	26	120	150	M24x90	400	7,34
70	102,0x19,5	160	26	130	160	M24x100	315	8,09
80	114,0x20,0	175	33	140	180	M30x120	315	12,75

⁽¹⁾ UNC screws on request.

⁽²⁾ The max. recommended working pressure is based on the flange. The working pressure of the system is determined by the thickness and the material of the tube.