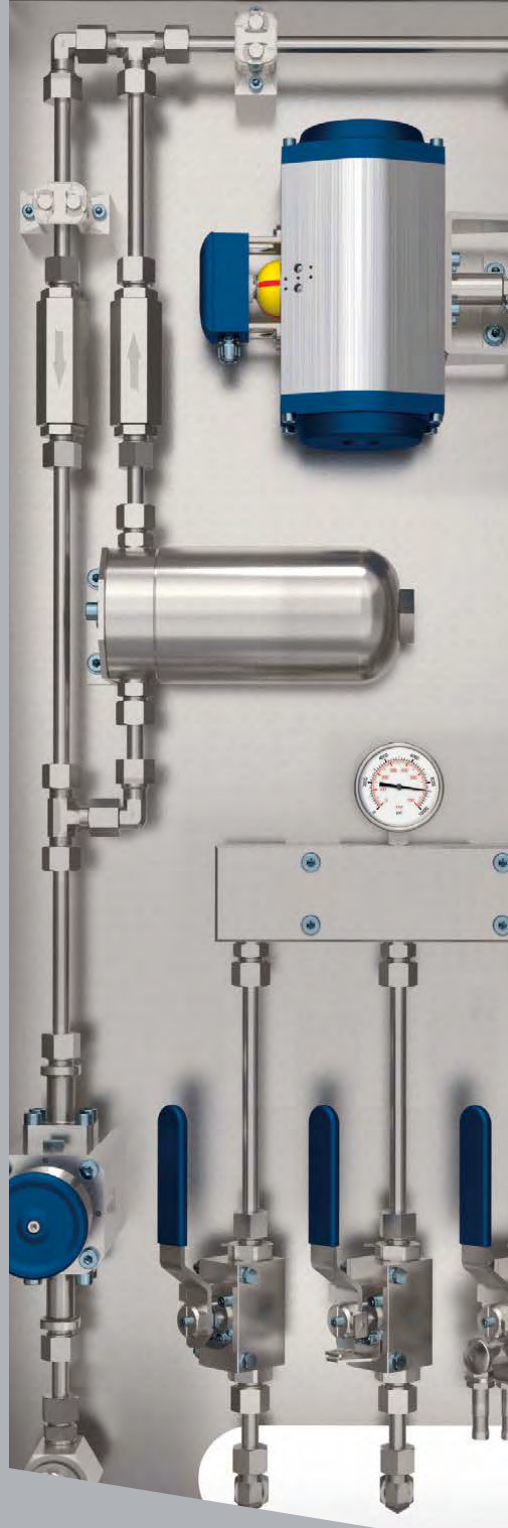


H_2 Ready



HYDROGEN VALVE



Hydrogen Valve



H₂ Ready

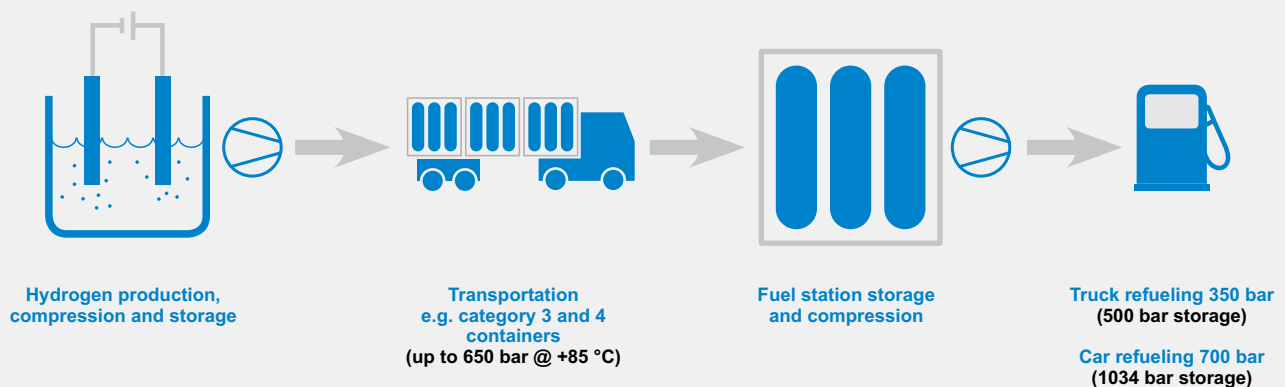
In the future, hydrogen will make a significant contribution to sustainability and environmental protection. For example, in e-mobility as an alternative fuel in fuel cells or in the production of green steel.

With years of experience in the gas sector, **MHA ZENTGRAF** has developed ball valves and flow control solutions for the complete hydrogen process chain: Hydrogen generation, transport and mobile pipelines as well as compression and dispenser stations. Pressure ratings up to 1000 bar are realized





Flow control solutions across the H₂ process chain



Our products can be used in the complete hydrogen process chain - hydrogen generation, transport and mobile pipelines as well as compression and refueling stations. We also pay attention to your specific application conditions to offer you the technically and economically best solution.

MHA valves - Design features ...



Size reduction

Ball valves have a significant advantage compared to other types of valves:
Full flow cross section in open position! A DN13 (½") ball valve has a Cv value of 22 gal/min. This Cv value can only be reached with sizes of approx. DN32 (1 ¼") at other valve types, e.g. globe or needle valves. In addition, ball valves can be used to achieve a high degree of leakage free closure.



Temperature range

- Materials suitable for temperatures from -40 °C up to +140 °C
- Temperature range acc. ISO 19880-3 is specified as -40 °C / +85 °C



Leakage

Internal and external leakage acc. DIN EN 12266 leakage rate A and the TPED standard for ball valves, ISO 23826.
Low emission according to DIN EN ISO 15848-1.



Lubricants and cleaning

- Oil and grease free products through ultrasonic cleaning
- Assembly of valves without additional lubrication at all wetted surfaces



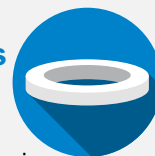
Metallic materials

- Due to its high resistance against hydrogen embrittlement, 316-Series stainless steels (1.4404, 1.4571) are used whenever possible.
- If higher material strength is required, e.g. for stems, balls or trunnions, high strength austenitic stainless steels with particular resistance to strain-induced phase transformations, such as A286 (1.4980) and Nitronic-50®, are used. Duplex or martensitic grades are avoided.



Pressure testing

- Pressure testing acc. DIN EN 12266-1 and DIN EN 14246 with test gas (nitrogen + helium)
- Static and Cyclic high pressure gas testing with air (≤ 550 bar) or nitrogen (up to 1000 bar) in the temperature range from -40 °C to +85 °C
- Valve endurance tests acc. to ISO 19880-3 and ISO 23826 (actuation at full ΔP , -40 °C $\leq T \leq$ +85 °C) carried out inhouse during development and on customer request

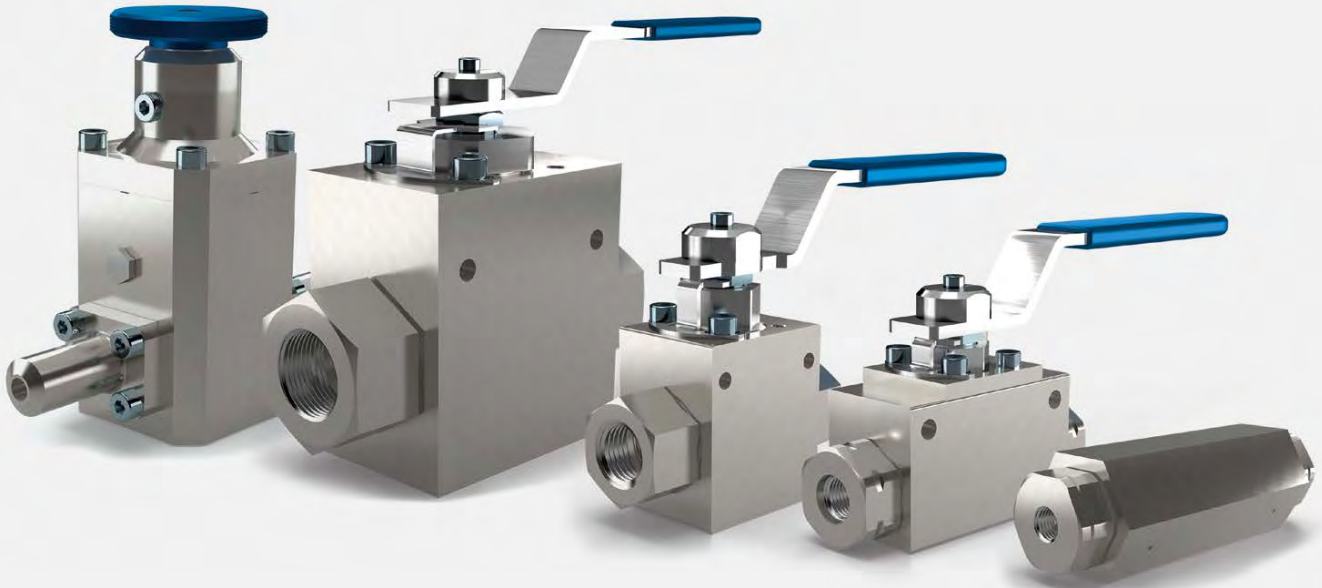


Sealing materials

- All sealing materials chosen to prevent damages through explosive decompression (e.g. NORSOK M-710)
- Sealing materials acc. DIN EN ISO 11114-2 for hydrogen usage
- Special attention is paid to low temperature seal performance



... and certified performance



TPED

- Ball Valve HFKH650 certified according ISO 23826 (BAM)
- Spindle Valve HFSV600 certified according ISO 10297 (TÜV)



Functional Safety (SIL)

Automatically actuated valves suitable for use in SIL 2 safety instrumented systems (IEC 61508 / ISO 13849-1)



ATEX

Compliant for category IIC, Ex-zone 1, 2G



Fire-safe

Approved according DIN EN ISO 10497



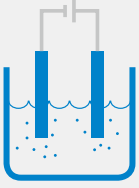
Low emission & technical leak tightness

- Readjustable packing
- High pressure gas test for internal and external leakage
- Shaft sealing design is certified according to DIN EN ISO 15848-1

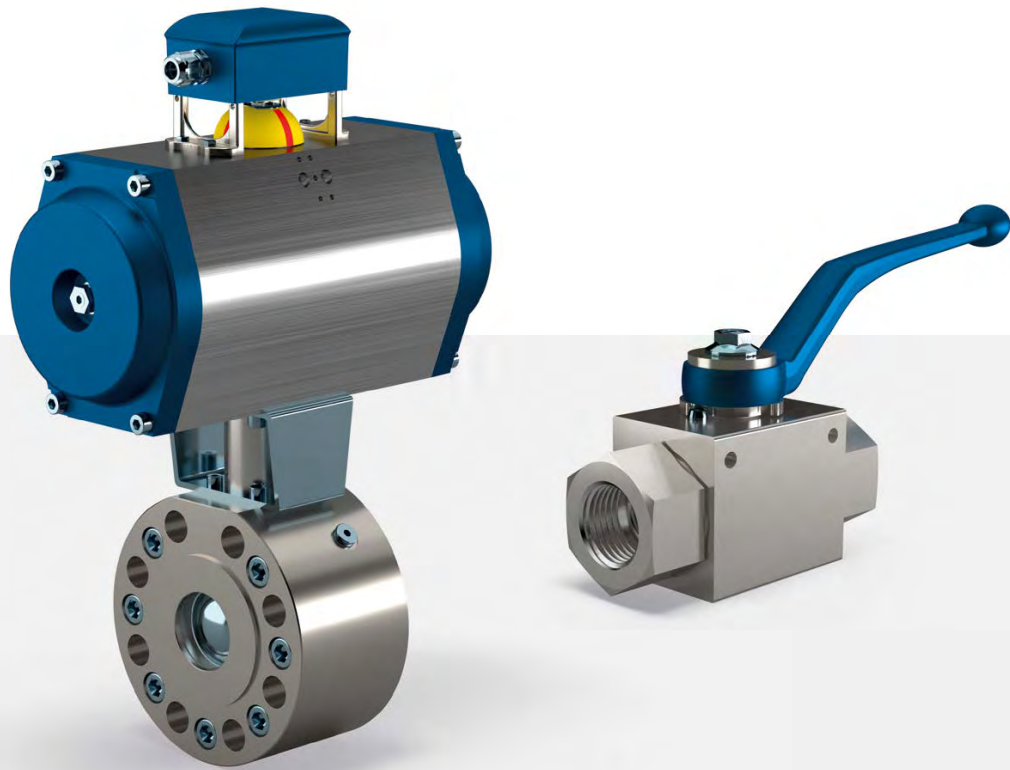


Materials for hydrogen safety

- All materials are resistant to hydrogen embrittlement (acc. ISO 11114-1/2)
- All sealing materials are selected for explosive decompression resistance (AED)
- EN 10204 3.1 material certificate for all pressurized parts



Hydrogen production



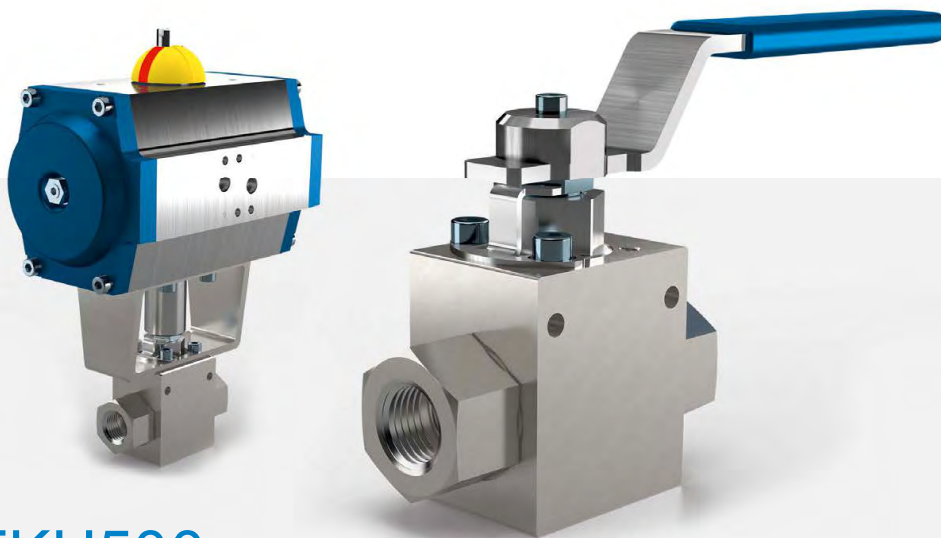
H₂ production

This application includes systems e.g. for electrolysis or power-to-gas systems. Of course, ball valves from **MHA ZENTGRAF** can also be used at these lower pressure applications.

Larger nominal widths of up to 4" can also be offered to ensure maximum flow capacity. A leakage rate A according to DIN EN 12266 is guaranteed even at larger nominal diameters.

Our valves are available with either threaded or flange connection according your specification. On request accessories like limit switches, locking devices or fully automated valves are available.

Transport, storage & refueling systems



HFKH500

Hydrogen applications up to 500 bar

Gas transport and refueling applications set higher requirements for ball valves. At 350 bar refueling, system pressures up to 500 bar occur during compression and storage. Considering the temperature influence, a Type 3 Technology Cylinder for example is designed for system pressures of approximately 480 bar. During transport, vibrations and weather influences can put heavy strain on the system equipment. Additionally, valves for such kind of applications are actuated more frequently because filling and drain processes are carried out regularly.

For use as a maintenance valve, with occasional operations, we recommend our proven ball valves with gas seat system using hydrogen-compatible materials according to the guideline ISO 11114.

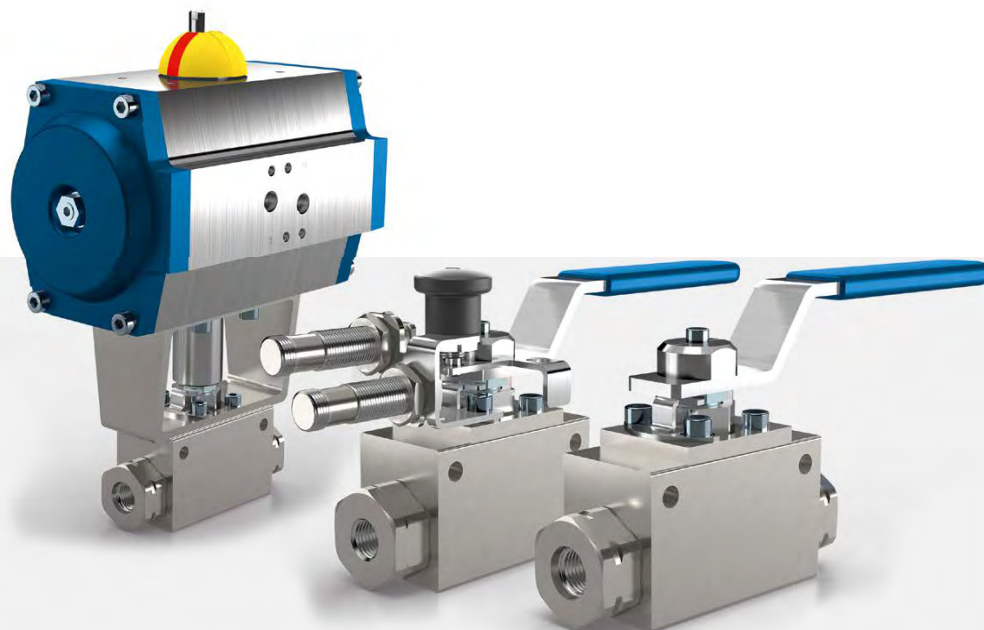
For higher operating frequencies up to 500 bar, we offer our new HFKH500. These ball valves are designed for switching under full differential pressure and, on request, can be supplied as complete units with assembled and tested actuators, making them suitable for use in SIL 2 applications.

Our HFKH500 ball valves already meet the endurance requirements of the new ISO 23826, are ATEX IIC (H₂), Ex Zone 1, 2G compliant, and are certified according to DIN EN ISO 15848-1 (low emission).





Transport, storage & refueling systems



TPED, Fire-safe, SIL,
ATEX, Low emission

HFKH650

Hydrogen applications up to 650 bar

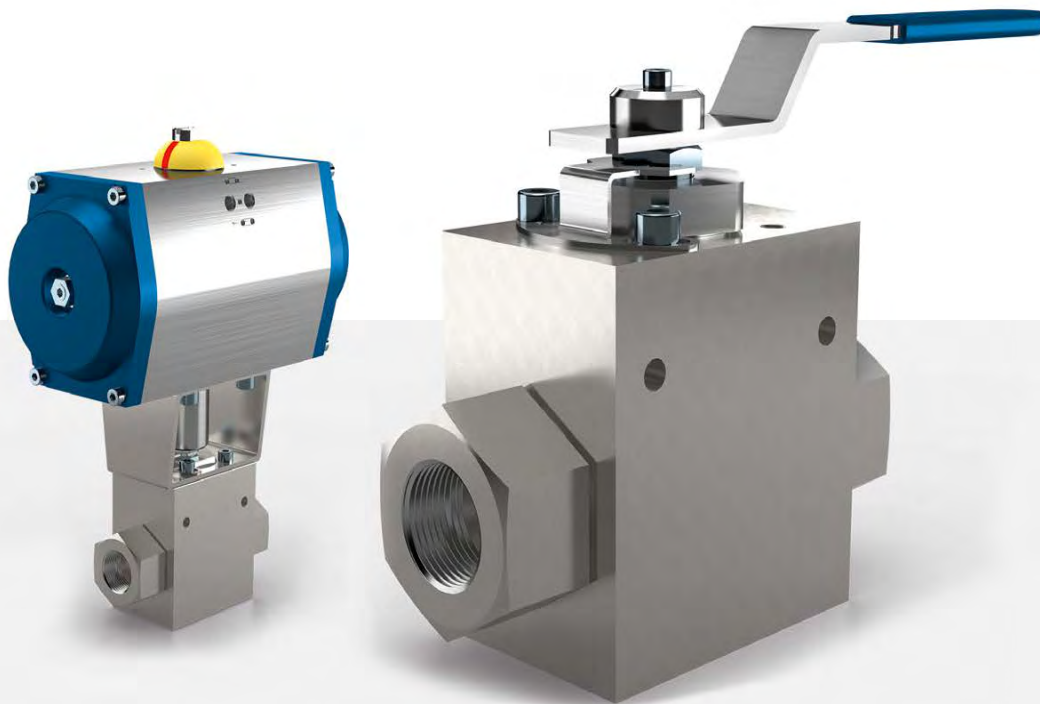
Higher compression of hydrogen during transport and storage improves the efficiency of the systems, saves installation space and, last but not least, reduces costs. Considering the temperature influence, state of the art Type 4 Technology Cylinders are designed for pressures up to 650 bar.

With the new HFKH650 ball valve, **MHA** provides a reliable solution for these demanding applications. Its torque-optimized design ensures smooth manual operation, even under full differential pressure.

The HFKH650 series is certified according to TPED (ISO 23826), ATEX IIC (H₂) Ex Zone 1, 2G, Fire-safe DIN EN ISO 10497, and DIN EN ISO 15848-1 (low emission). In combination with suitable pneumatic actuators, these valves are also qualified for use in SIL 2 applications.



Hydrogen dispenser stations



HFKH1000

H₂ refueling at pressures up to 1034 bar

At 700 bar refueling of passenger cars, hydrogen is compressed and stored at pressures up to 1034 bar. Latest developments reveal a tendency to 700 bar technology also for commercial vehicles such as trucks and busses.

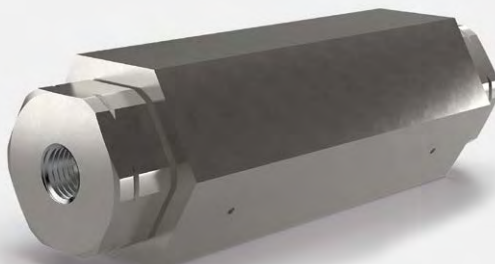
ISO 19880-3 Standard (Gaseous Hydrogen – Refueling Stations – Part 3: Valves) differs between valves for maintenance (Class B) and operation (Class A) purpose. While Class B Valves are only meant to withstand 100 cycles of operation at room temperature, Class A Valves shall withstand 102000 cycles (100000 at RT, 1000 at -40 °C and another 1000 at +85 °C) without losing integrity of the seal system. **MHA** aims to qualify its HFKH1000 valve acc. to ISO 19880-3, Class A. Additionally, the shaft sealing design is certified according to DIN EN ISO 15848-1 (low emission).

To enable up to 102000 actuations under full differential pressure, the HFKH1000 trunnion valve was designed with special attention to reduced wear and friction. This ensures a maximal level of reliability and sustainability even under harshest conditions. This ball valve can be used for ATEX-relevant applications as it is approved for ATEX IIC (H₂) Ex-zone 1, 2G. Combined with our actuators, the HFKH1000 is suitable for use in SIL 2 applications.





Check valves for hydrogen transport, storage & refueling



RVH2

H₂ transport, storage and refueling up to 1034 bar

Hydrogen transport, storage and refueling applications set high requirements for check valves. At 700 bar refueling of passenger cars, hydrogen is compressed and stored at pressures up to 1000 bar and temperatures as low as -40°C.

The check valve RVH2 is specifically designed to fulfil all requirements for hydrogen applications. We offer different cracking pressures to customize the best possible product for your application.

The RVH2 is also available with a 0.6 mm bleed hole for safe residual pressure measurement.

The new check valve series already meets the endurance requirements of the new ISO 23826 and ATEX IIC (H₂), Ex-zone 1, 2G.

Spindle valves for hydrogen transport, storage & refueling



NEW: HFDV600
Flow control spindle valve
with metallic seals

HFSV600

Hydrogen applications up to 600 bar

The spindle valve is the ideal solution for demanding industrial hydrogen applications up to 600 bar, where safety and reliability are paramount.

The spindle mechanism allows for slow opening, minimizing pressure surges and ensuring smooth system operation. The adjustable double-layer stem sealing system with high-quality seals and optimized flange connections provide maximum safety and leak free operation even under extreme conditions (-40°C / +85°C).

The HFSV600 is certified according to TPED ISO 10297, making it suitable for use in hydrogen MEGCs. It is also ATEX II C (H₂) certified for Ex-zone 1, 2G and designed for low-emission operation.

With metallic sealing, it can also be configured as a flow control valve (HFDV) to precisely regulate and limit gas flow.



The right product for your hydrogen application

HFSV600 – Spindle Valve



- DN11
- PN: 600 bar
- Bi-directional
- ATEX, TPED, Low emission design

HFKH500 – Ball Valve



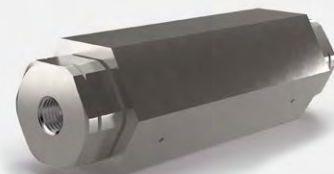
- DN8 (3/8"), DN13 (1/2"), DN25 (1")
- Floating ball
- PN: 500 bar
- ATEX, SIL, Low emission

H2F1-1000 – Filter



- DN8 (3/8")
- PN: 1000 bar
- Volume: 0,15 dm³
- Micron rating: 20 µm (others on request)

RVH2 – Check Valve

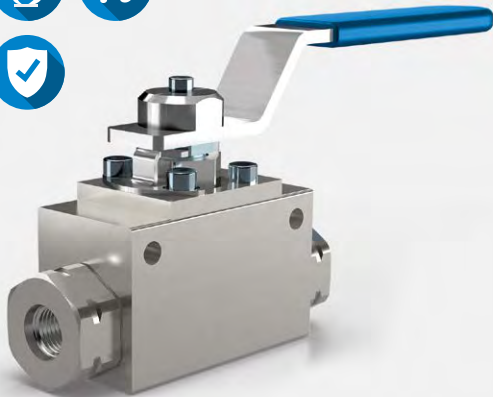


- DN8 (3/8"), DN13 (1/2")
- Check valve
- PN: 1034 bar
- ATEX

HYDROGEN VALVE

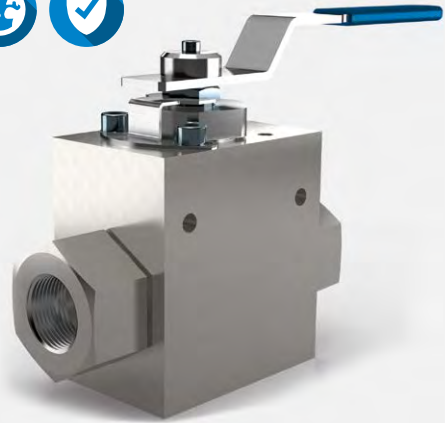
All valves designed for high frequent actuation at -40°C to +85°C

HFKH650 – Ball Valve



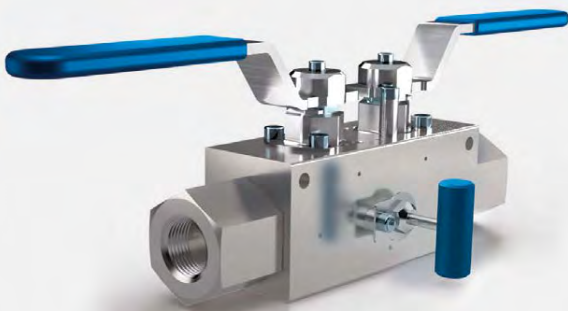
- DN8 (3/8"), DN13 (1/2"), DN25 (1")
- Floating ball
- PN: 650 bar
- ATEX, SIL, Fire-safe, TPED (Dn8), Low emission

HFKH1000 – Ball Valve



- DN8 (3/8"), DN13 (1/2")
- Trunnion ball
- PN: 1034 bar
- ATEX, SIL, Low emission

DSB-HFKH650 – Double Safety and Bleed Valve



- DN8 (3/8"), DN13 (1/2"), DN25 (1")
- Floating ball
- PN: 650 bar
- ATEX, SIL, Fire-safe design, Low emission

DSB-HFKH1000 – Double Safety and Bleed Valve



- DN8 (3/8"), DN13 (1/2")
- Trunnion ball
- PN: 1034 bar
- ATEX, SIL, Low emission

Unique double layer stem sealing cartridge design

Primary seal

- Special sealing ring for TPED type approval acc. DIN EN ISO 23826
- PEEK bearing to avoid metal-to-metal contact
- Avoids fretting
- Alignment of seals enhances life time and seal performance
- Designed and tested for high-frequent actuation at -40°C/+85°C

Locking plate

To fix the position of the pressure nut

Cartridge

For easy replacement of the complete shaft sealing system

Pressure nut

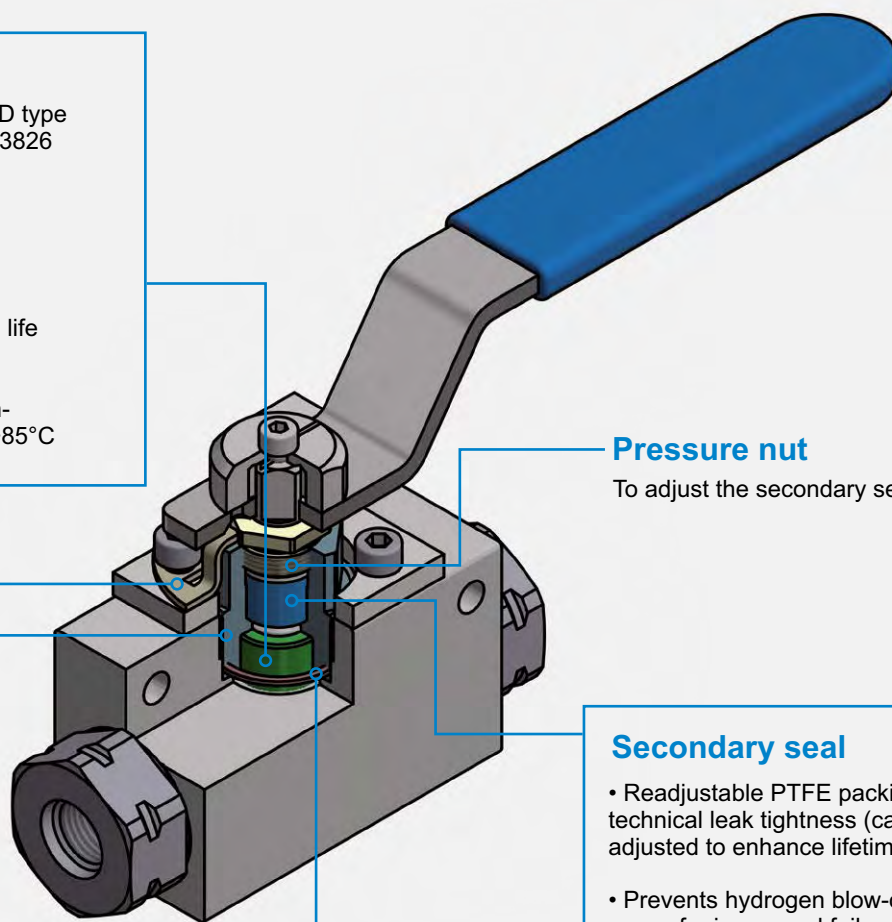
To adjust the secondary seal

Secondary seal

- Readjustable PTFE packing for technical leak tightness (can be adjusted to enhance lifetime)
- Prevents hydrogen blow-out in case of primary seal failure
- Low emission design with double layer stem sealing
- Additional conductive bearings for ATEX compliance (IIC, Ex-zone 1, 2)

Graphite ring

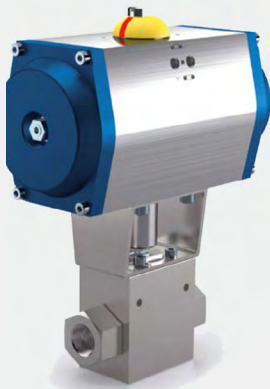
Seals in case of fire,
Fire-safe DIN EN ISO
10497 certified



Wide range of standard and customized accessories and adaptations

Pneumatic actuators

- Single/double acting
- ATEX
- SIL 3



Manifolds & DSBs

- Standard and customised manifold designs
- Double layer stem cartridge
- Needle or ball valve bleed



Position switches & locking devices

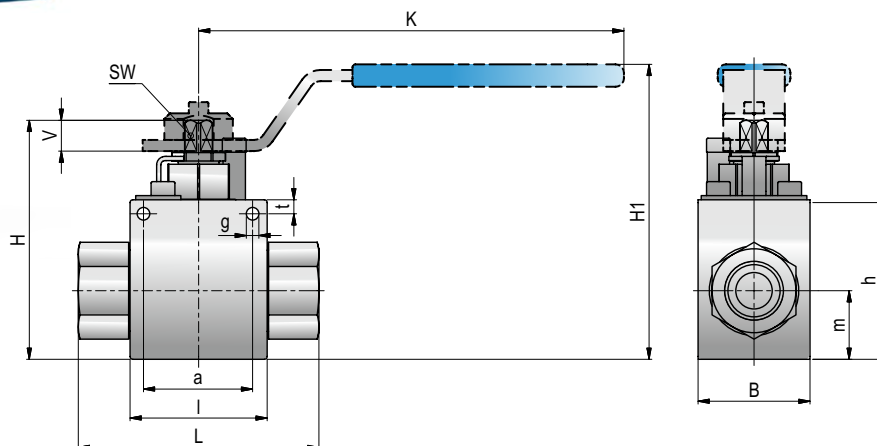
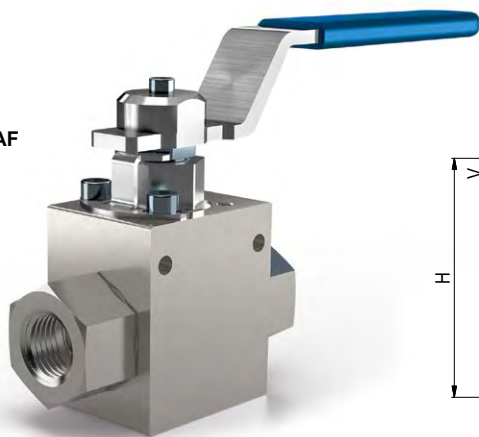
- Mechanical and inductive position indication
- Detent for two hand operation
- Locking devices



Panel mounting

- Simple modification for panel installation





Available

DN8 (3/8"), DN13 (1/2"), DN25 (1")

Connections

DIN ISO 228 Female thread, ANSI B1.20.1 NPT Female thread, SAE J514/ISO/DIS11926-1 Female thread, DIN 2353 / ISO 8434-1 Heavy series, others on request

Accessories on request

- Locking devices
- Actuators
- Mounting holes
- Position switches
- Combinations
- Detent

Material code description

Materials	44g8
Body	1.4571
Ball	1.4571 / Nitronic-50®
Stem	Nitronic-50®
Ball seats	Peek
Body and stem sealing	FKM / PTFE*
Tmin / Tmax	-40°C / +85°C*

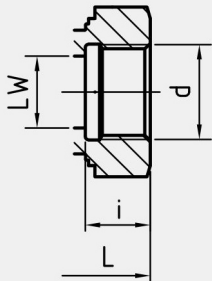
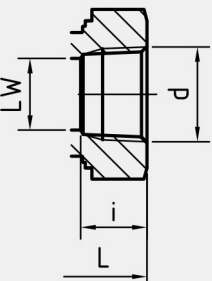
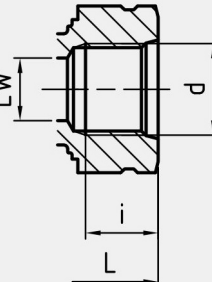
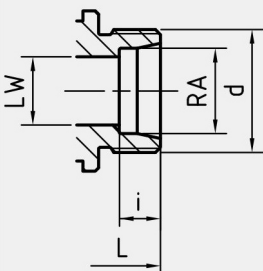
*Others on request.

Certification

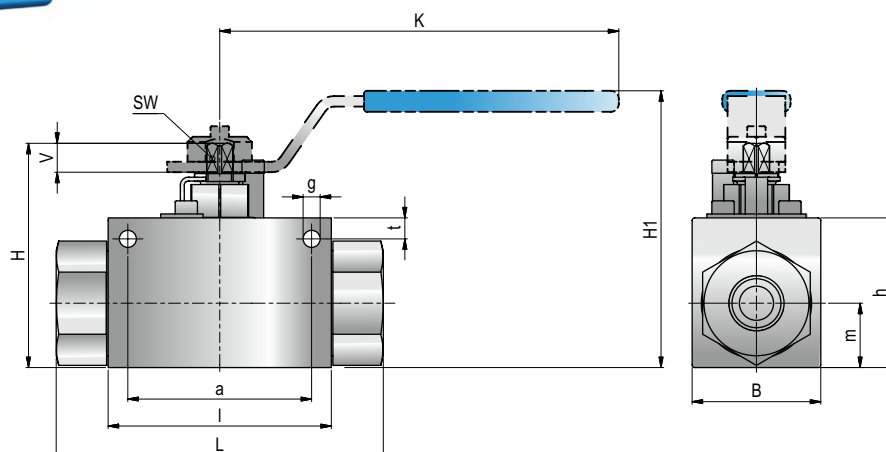
- ATEX IIC (H₂), Ex-zone 1, 2G
- DIN EN ISO 15848-1 (low emission)
- SIL 2 (IEC 61508 / ISO 13849-1)

General dimensions

Type	l	B	H	h	m	Vmin	SW	a	g	t	K	H1	Lever
HFKH500-DN8	42	38	74,5	46	16,5	11	8	35	Ø4,5	11	152	94,5	St
HFKH500-DN13	49	40	85,5	57	24,5	11	8	39	Ø4,5	5	152	105,5	St
HFKH500-DN25	83,5	70	124	93	35	13,5	12	67,5	Ø9	17	202	146,5	St

Connection type	Dimensions						Order code per Material combination	
DIN ISO 228 Female thread	Type	LW	L	i	d	Weight [Kg]	PN [bar]	44g8
	HFKH500-DN8-G 1/4	8	69,6	14	G 1/4	0,67	500	76970
	HFKH500-DN13-G 1/2	13	86	16,3	G 1/2	1,15	500	76971
	HFKH500-DN25-G 1	25	130,7	20	G 1	5,16	500	76972
ANSI B1.20.1 NPT Female thread	Type	LW	L	i	d	Weight [Kg]	PN [bar]	44g8
	HFKH500-DN8/6-1/4" NPT	8	71,6	13,7	1/4" NPT	0,67	500	80226
	HFKH500-DN13-1/2" NPT	13	86	17	1/2" NPT	1,16	500	80313
	HFKH500-DN25-1" NPT	25	130,7	21,6	1" NPT	5,18	500	on request
SAE J514/ISO/DIS11926-1 Female thread	Type	LW	L	i	d	Weight [Kg]	PN [bar]	44g8
	HFKH500-DN8-9/16" UNF	8	75,6	13	9/16"-18 UNF	0,73	500	on request
	HFKH500-DN13-3/4" UNF	13	86	15	3/4"-16 UNF	1,16	500	on request
	HFKH500-DN25-1 5/16" UN	25	130,7	20	1 5/16"-12 UN	5,13	500	on request
DIN 2353 / ISO 8434-1 Heavy series	Type	LW	RA	L	i	d	PN [bar]	44g8
	HFKH500-DN8-12S	8	12	78,6	7,5	M 20x1,5	500	on request
	HFKH500-DN13/10-14S	10	14	86	8	M 22x1,5	500	80675
	HFKH500-DN13-16S	13	16	89,6	8,5	M 30x2	500	on request
	HFKH500-DN13-20S	13	20	90	10,5	M 30x2	500	80975
	HFKH500-DN25-30S	25	30	137,9	13,5	M 42x2	500	on request

Please note the pressure ratings of the tube connections!



Available sizes

DN8 (3/8"), DN13 (1/2"), DN25 (1")

Connections

DIN ISO 228 Female thread, ANSI B1.20.1 NPT Female thread, SAE J514/ISO/DIS11926-1 Female thread, DIN 2353 / ISO 8434-1 Heavy series, C&T Medium Pressure, UNEF Male (double ferrule), others on request

Accessories on request

- Locking devices
- Actuators
- Mounting holes
- Position switches
- Combinations
- Detent

Material code description

Materials	44g8
Body	1.4571
Ball	1.4571 / Nitronic-50®
Stem	Nitronic-50®
Ball seats	Peek
Body and stem sealing	FKM / PTFE*
Tmin / Tmax	-40°C / +85°C*

*Others on request.

Certification

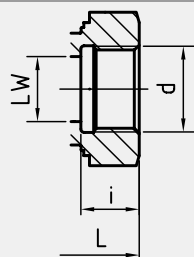
ATEX IIC (H ₂), Ex-zone 1, 2G	
Fire-safe DIN EN ISO 10497	
TPED ISO 23826 (for DN8 only)	
DIN EN ISO 15848-1 (low emission)	
SIL 2 (IEC 61508 / ISO 13849-1)	

General dimensions

Type	l	B	H	h	m	Vmin	SW	a	g	t	K	H1	Lever
HFKH650-DN8	75,5	38	74,5	46	16,5	11	8	60	Ø6,5	8	152	94,5	St
HFKH650-DN13	85	49	85,5	57	24,5	11	8	70	Ø6,5	8	152	105,5	St
HFKH650-DN25	120	78	128,5	97	39	13,5	12	104	Ø9	17	202	151,1	St

Connection type

DIN ISO 228
Female thread

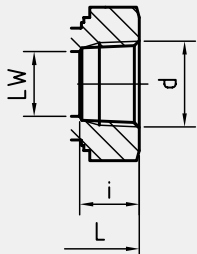
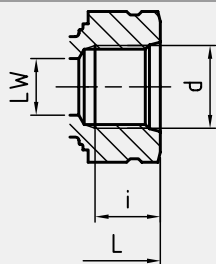
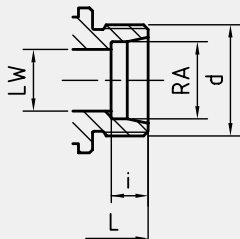
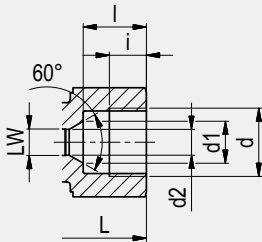
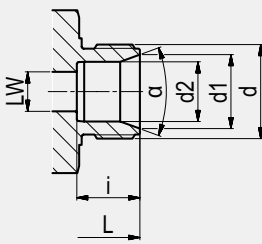


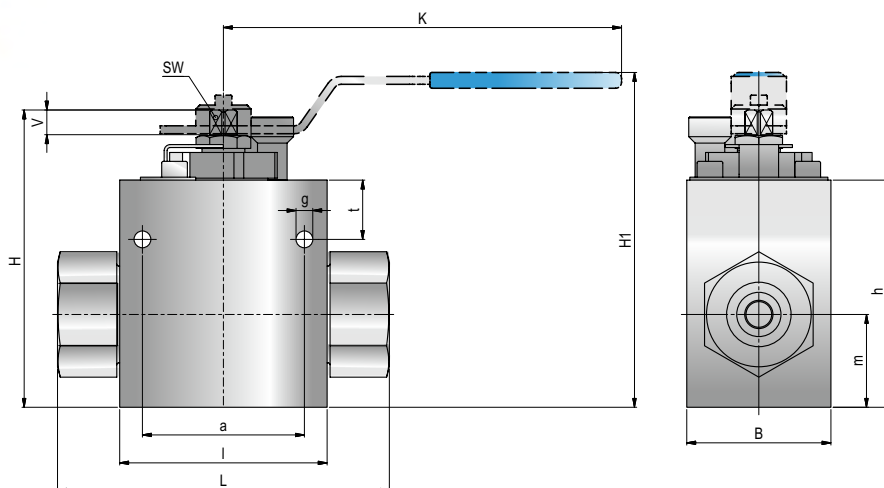
Dimensions

Type	LW	L	i	d	Weight [Kg]
HFKH650-DN8-G 1/4	8	105,1	14	G 1/4	1,34
HFKH650-DN13-G 1/2	13	124,6	16,3	G 1/2	2,35
HFKH650-DN25-G 1	25	159,6	20	G 1	7,83

Order code per Material combination

PN [bar]	44g8
650	on request
650	on request
650	on request

Connection type	Dimensions						Order code per Material combination					
ANSI B1.20.1 NPT Female thread 	Type	LW	L	i	d	Weight [Kg]	PN [bar]	44g8				
	HFKH650-DN8-1/4" NPT	8	105,1	13,7	1/4" NPT	1,34	650	76973				
	HFKH650-DN13-1/2" NPT	13	124,6	17	1/2" NPT	2,36	650	76974				
	HFKH650-DN25-1" NPT	25	159,6	21,6	1" NPT	7,85	650	76975				
SAE J514/ISO/DIS11926-1 Female thread 	Type	LW	L	i	d	Weight [Kg]	PN [bar]	44g8				
	HFKH650-DN8-9/16" UNF	8	105,1	13	9/16"-18 UNF	1,33	650	on request				
	HFKH650-DN13-3/4" UNF	13	124,6	15	3/4"-16 UNF	2,36	650	on request				
	HFKH650-DN25-1 5/16" UN	25	159,6	20	1 5/16"-12 UN	7,81	650	on request				
DIN 2353 / ISO 8434-1 Heavy series 	Type	LW	RA	L	i	d	Weight [Kg]	PN [bar]	44g8			
	HFKH650-DN8-12S	8	12	113,1	7,5	M 20x1,5	1,29	650	on request			
	HFKH650-DN13-16S	13	16	128,6	8,5	M 30x2	2,19	650	on request			
	HFKH650-DN13/15-20S	15	20	133	10,5	M 30x2	2,25	650	80746			
C&T Medium pressure 	Type	LW	L	i	d	d1	d2	l	Weight [Kg]	PN [bar]	44g8	
	HFKH650-DN8-9/16" C&T	8	121,1	11,2	13/16-16UN	12,7	7,8	19,1	1,37	650	80304	
	HFKH650-DN13-3/4" C&T	13	154,6	12,7	3/4-14NPSM	15,7	11,1	23,9	2,61	650	80306	
	HFKH650-DN13-1" C&T	13	164,6	20,6	1 3/8-12UNF	22,4	14,3	33,3	2,65	650	on request	
UNEF male (Double Ferrule) 	Type	LW	L	i	d	d1	d2	a	Weight [Kg]	PN [bar]	44g8	
	HFKH650-DN8-3/4-20 UNEF	8	113,7	12,8	3/4-20 UNEF	15	12,1 (metric) 12,7 (imperial)	40°	1,40	650	on request	



Available sizes

DN8 (3/8"), DN13 (1/2")

Connections

C&T Medium Pressure, others on request

Accessories on request

- Locking devices
- Actuators
- Mounting holes
- Position switches
- Combinations
- Detent

Material code descripton

Materials	44g8
Body	1.4571
Trunnion	Nitronic-50®
Ball seats	Peek
Body and stem sealing	FKM / PTFE*
Tmin / Tmax	-40°C / +85°C*

*Others on request.

Certification

ATEX IIC (H₂), Ex-zone 1, 2G
 DIN EN ISO 15848-1 (low emission)
 SIL 2 (IEC 61508 / ISO 13849-1)

General dimensions

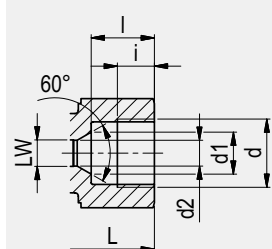
Type	I	B	H	h	m	Vmin	SW	a	g	t	K	H1	Lever
HFKH1000-DN8	88	65	148	110	45	12,5	9	65	Ø9	30	202	167	St
HFKH1000-DN13	105	73	150,5	115	47	12,5	11	82	Ø9	30	202	169,5	St

Connection type

Dimensions

Order code per material combination

C&T Medium pressure



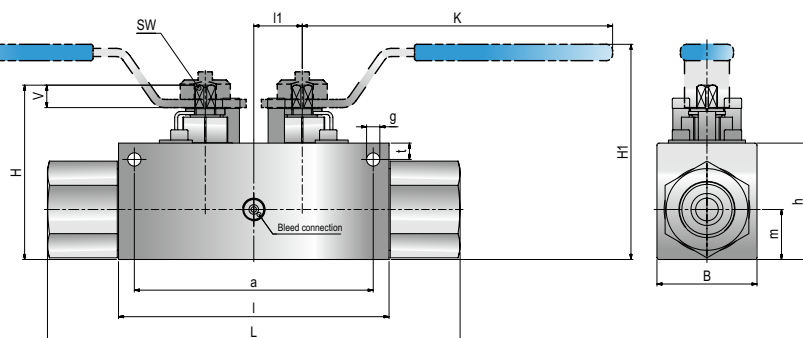
Type	LW	L	i	d	d1	d2	I	Weight [Kg]
HFKH1000-DN8-3/8" C&T	8	121	9,6	9/16-18UNF	7,7	5,1	15,7	5,88
HFKH1000-DN8-9/16" C&T	8	131	11,2	13/16-16UN	7,8	12,7	19,1	6,08
HFKH1000-DN13-1" C&T	13	168	20,6	1 3/8-12UNF	14,3	22,4	33,3	8,37

PN [bar]	44m8
1034	79801
1034	79611
1034	on request

Please note the pressure ratings of the tube connections!



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Flow Control Technology



Available sizes

DN8 (3/8"), DN13 (1/2"), DN25 (1")

Connections

C&T Medium Pressure, others on request

Accessories on request

- Locking devices
- Actuators
- Mounting holes
- Position switches
- Detent
- **Needle or ball valve bleed**

Material code description

Materials	44g8
Body	1.4571
Ball	1.4571 / Nitronic-50®
Stem	Nitronic-50®
Ball seats	Peek
Body and stem sealing	FKM / PTFE*
Tmin / Tmax	-40°C / +85°C*

*Others on request.

Certification

ATEX IIC (H₂), Ex-zone 1, 2G
DIN EN ISO 15848-1 (low emission)
SIL 2 (IEC 61508 / ISO 13849-1)

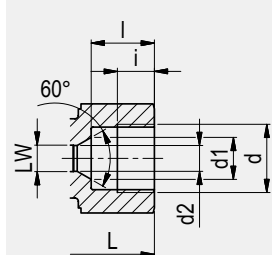
General dimensions

Type	I	B	H	h	m	Vmin	SW	a	g	t	I1	K	H1	Lever
DSB-HFKH650-DN8	131	49	85,5	57	24,5	11	8	115	Ø6,5	8	27,75	152	105	St
DSB-HFKH650-DN13	132,5	49	85,5	57	24,5	11	8	117	Ø6,5	8	23,75	152	105	St
DSB-HFKH650-DN25	190	78	126,5	97	39	11	12	160	Ø9	17	35	202	151,5	St

Connection type

Dimensions

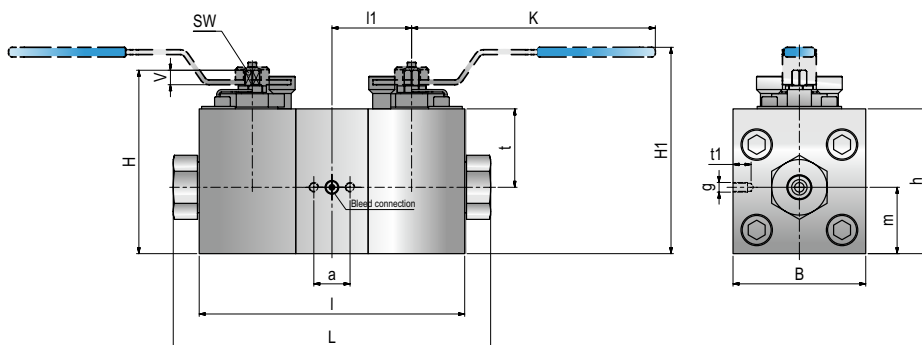
Order code per material combination



Type	LW	L	i	d	d1	d2	I	Weight [Kg]	PN [bar]	44g8
DSB-HFKH650-DN8-9/16" C&T	8	176,6	11,2	13/16-16UN	12,7	7,8	19,1	3,5	650	on request
DSB-HFKH650-DN13-1" C&T	13	222,5	20,6	1 3/8-12UNF	22,4	14,3	33,3	4,6	650	on request
DSB-HFKH650-DN25-1 1/2" C&T	25	289,6	25,4	1 7/8-12UNF	35	23,8	40,5	13,5	650	on request



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Flow Control Technology



Available sizes

DN8 (3/8")

Connections

C&T Medium Pressure, others on request

Accessories on request

- Locking devices
- Actuators
- Mounting holes
- Position switches
- Detent
- **Needle or ball valve bleed**

Material code description

Materials	44g8
Body	1.4571
Ball	1.4571 / Nitronic-50®
Stem	Nitronic-50®
Ball seats	Peek
Body and stem sealing	FKM / PTFE*
Tmin / Tmax	-40°C / +85°C*

*Others on request.

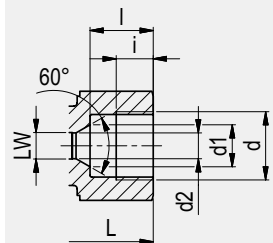
Certification

ATEX IIC (H₂), Ex-zone 1, 2G
DIN EN ISO 15848-1 (low emission)
SIL 2 (IEC 61508 / ISO 13849-1)

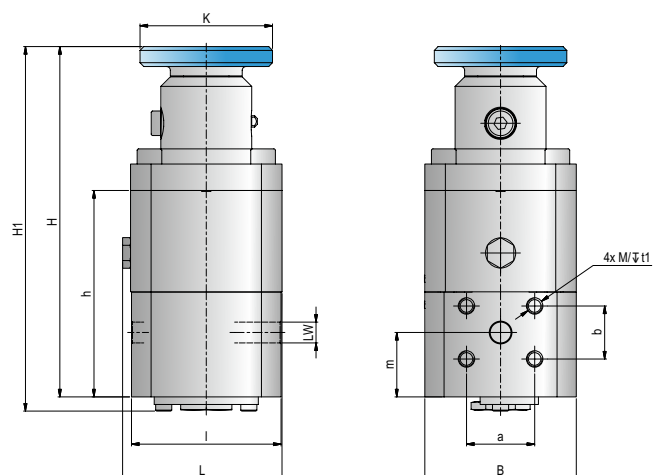
General dimensions

Type	I	B	H	h	m	Vmin	SW	a	g	t1	t	I1	K	H1	Lever
DSB-HFKH1000-DN8	220	110	152	120	55	12	9	30	M8	15	65	66	202	171	St

C&T Medium pressure



Type	LW	L	i	d	d1	d2	I	Weight [Kg]	PN [bar]	44m8
DSB-HFKH1000-DN8-9/16" C&T	8	263	11,2	13/16-16UN	12,7	7,8	19,1	24,3	1034	on request



Available sizes

DN11

Connections

Flange Connection: 36x28 - 4 x M8

Accessories on request

- Different flange adaptors and mounting sets
- Handwheel available in stainless steel or aluminium

Material code description

Materials	44gB
Body	1.4571
Spindle	Nitronic-50
Spindle sealing (internal)	PEEK
Body/ Spindle sealing (external)	EPDM + PTFE + PE
Tmin / Tmax	-40°C / +85°C*

Certification

ATEX IIC (H₂), Ex-zone 1, 2G
TPED ISO 10297

*Others on request.

General dimensions

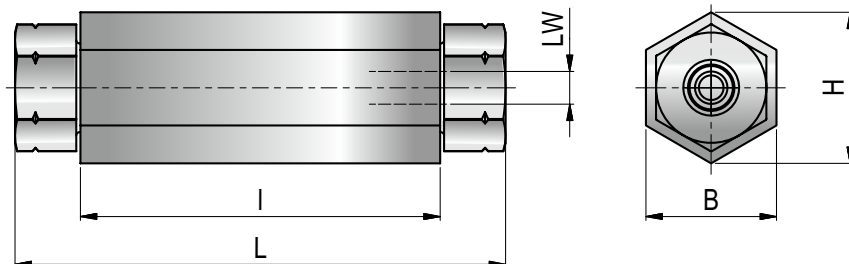
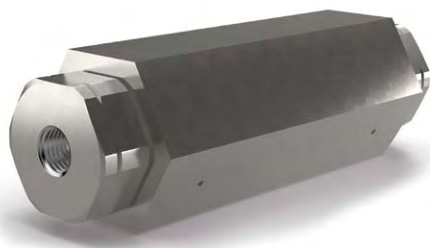
Type	LW	L	I	H1	H	h	B	m	M	t1	a	b	K
HFSV600-DN11	11	84,2	79	192	185	109	80	34	M8	13,5	36	28	Ø70



NEW: HFDV600
Flow control spindle valve
with metallic seals



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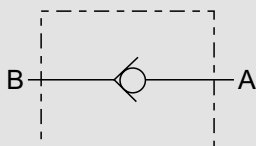
Available sizes

DN8 (3/8"), DN13 (1/2")*

Connections

DIN ISO 228 Female thread, ANSI B1.20.1 NPT Female thread, SAE J514/ISO/DIS11926-1 Female thread, DIN 2353 / ISO 8434-1 Heavy series, C&T Medium Pressure, others on request

Porting pattern



Material

Materials	44g
Body	1.4571
Seats	PEEK
Tmin / Tmax	-40°C / +85°C
Cracking pressure	0,5 bar*

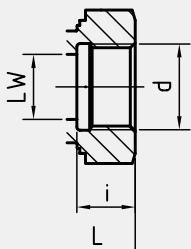
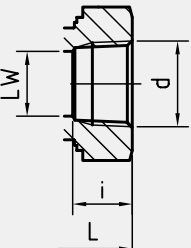
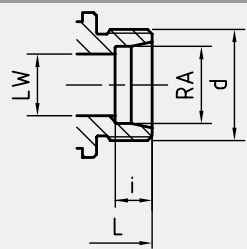
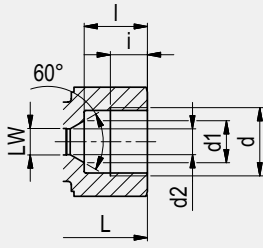
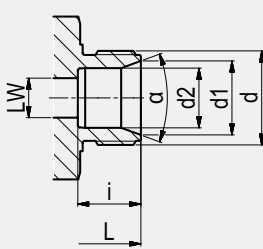
*Others on request.

Certification

ATEX IIC (H2), Ex-zone 1, 2G

General dimensions

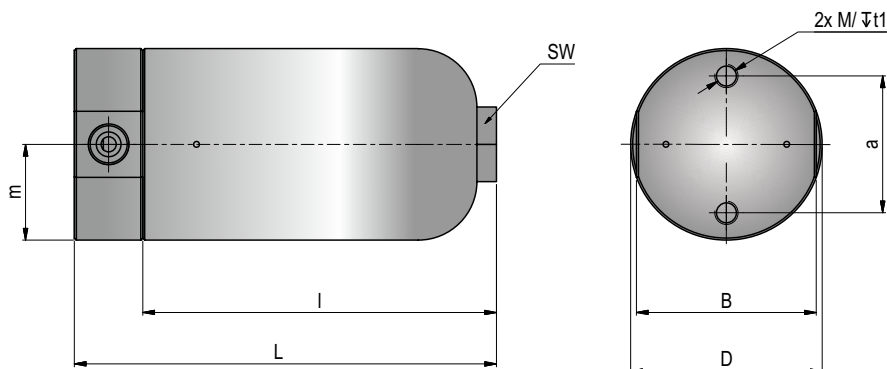
Type	LW	I	B	H
RVH2-DN8	8	88	32	37
RVH2-DN13	13	97	46	53

Connection type	Dimensions					Order code per Material combination				
DIN ISO 228 Female thread	Type	L	i	d	Weight [Kg]	PN [bar]	44g			
	RVH2-DN8-G1/4	120	14	G 1/4	0,7	650	on request			
	RVH2-DN13-G1/2	136	16,3	G 1/2	1,6	650	on request			
ANSI B1.20.1 NPT Female thread	Type	L	i	d	Weight [Kg]	PN [bar]	44g			
	RVH2-DN8-1/4"NPT	120	13,7	1/4" NPT	0,7	650	79488			
	RVH2-DN13-1/2"NPT	136	17	1/2" NPT	1,6	650	79504			
DIN 2353 / ISO 8434-1 Heavy series	Type	LW	RA	L	i	d	Weight [Kg]	PN [bar]	44g	
	RVH2-DN8-12S	8	12	128	7,5	M20x1,5	0,65	650	on request	
	RVH2-DN13/10-14S	10	14	144	8	M22x1,5	1,5	650	81140	
	RVH2-DN13/15-20S	15	20	152	10,5	M30x2	1,6	650	81507	
C&T Medium pressure	Type	L	i	d	d1	d2	l	Weight [Kg]	PN [bar]	44g
	RVH2-DN8-9/16" C&T	134	11,2	13/16-16UN	12,7	7,8	19,1	0,8	1034	on request
	RVH2-DN13-3/4" C&T	172	12,7	3/4-14NPSM	15,7	11,1	23,9	1,9	1034	79497
UNEF Male (Double ferrule)	Type	L	i	d	d1	d2	a	Weight [Kg]	PN [bar]	44g
	RVH2-DN8-3/4-20UNEF	128,6	12,8	3/4-20 UNEF	15	12,1 (metric) 12,7 (imperial)	40°	0,7	650	79481

Please note the pressure ratings of the tube connections!



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Flow Control Technology



Available sizes

DN8 (3/8")

Connections

9/16" C&T Medium Pressure*

Technical data

Design Code	PED
Category (PED)	III
Volume	0,15 dm ³
Micron Rating	20 µm*

*Others on request.

Material code description

Materials	48
Body	1.4571
Filter	1.4404
Sealing	FKM or EPDM
Tmin / Tmax	-40°C / +85°C*

Certification

ATEX IIC (H₂), Ex-zone 1, 2G

General dimensions

Type	L	I	B	D	m	SW	a	M	t1
H2F1-1000	216	181	92	98	49	27	70	M12	22

Connection type

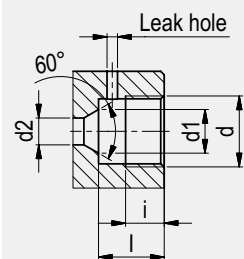
C&T Medium pressure

Dimensions

Type	i	d	d1	d2	l	Weight [Kg]
H2F1-1000-DN8-9/16" C&T	11,2	13/16-16UN	12,7	7,8	19,1	12

Order code per Material combination

PN [bar]	48
1000	on request



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Sustainability not only needs innovative products but also a sustainable partner. You can rely on **MHA ZENTGRAF** as your reliable supplier to build up a sustainable partnership. What makes **MHA** a sustainable partner?



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- ISO14001 certified
- RoHS und REACH compliant products
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- Lead free carbon steel
- Raw materials from certified european sources

Our ball valves are used in renewable energy and innovative systems like:

- Wind turbines
- Hydropower plants
- CO₂ extraction systems



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- 4 branch offices worldwide
- Customer support in all time zones



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- Private owned company
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Certified quality

- ISO 9001 certified
- DNV/GL type approval
- ABS design assessment
- VdS certified



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- Supplier for customized solutions
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 Avenida do Trabalhador, 1.680
ZIP Code 18552-100 - Boituva - SP
Brazil

Head Office & Operations Center

 Av. Antônio Ângelo Amadio 681
ZIP Code 18552-112 - Boituva - SP
Brazil

Branch Office – Belo Horizonte, MG – Brazil - Regional sales operations
for Minas Gerais and Brazil's Central-West Region

 + 55 31 3327-4459

 gepef-bh@gepef.com.br

 www.gepef.com.br

 Avenida Professor Mário Werneck, 300
(10th Floor – Room 1004 – Tower 2) – Estoril District
ZIP Code 30455-610 - Belo Horizonte - MG
Brazil