

HP2 – high-performance insulating flanges

For all gaseous and liquid media

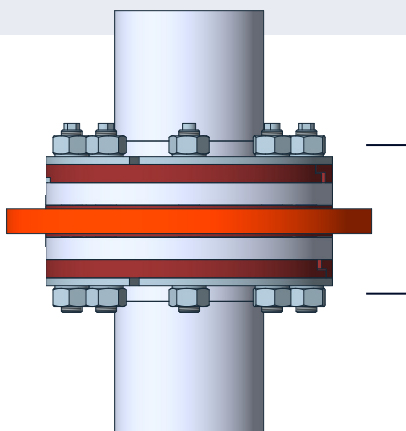


Where critical connections become a reliable solution

Whether for hydrogen or CO₂, process gases, fuels, high-temperature applications, aggressive liquids or drinking water, HP2 provides electrical isolation wherever pipelines are critical, access is restricted and requirements are demanding – from transmission pipelines to drinking water systems.

The patented HP2 block flange connection accommodates all sealing face configurations with maximum operational reliability while reducing inspection and maintenance requirements to a minimum. It is the only insulating flange on the market that has been tested and verified as 100% compliant with the relevant regulations. It is available in a standard length of 19 mm; custom lengths are available for all variants.

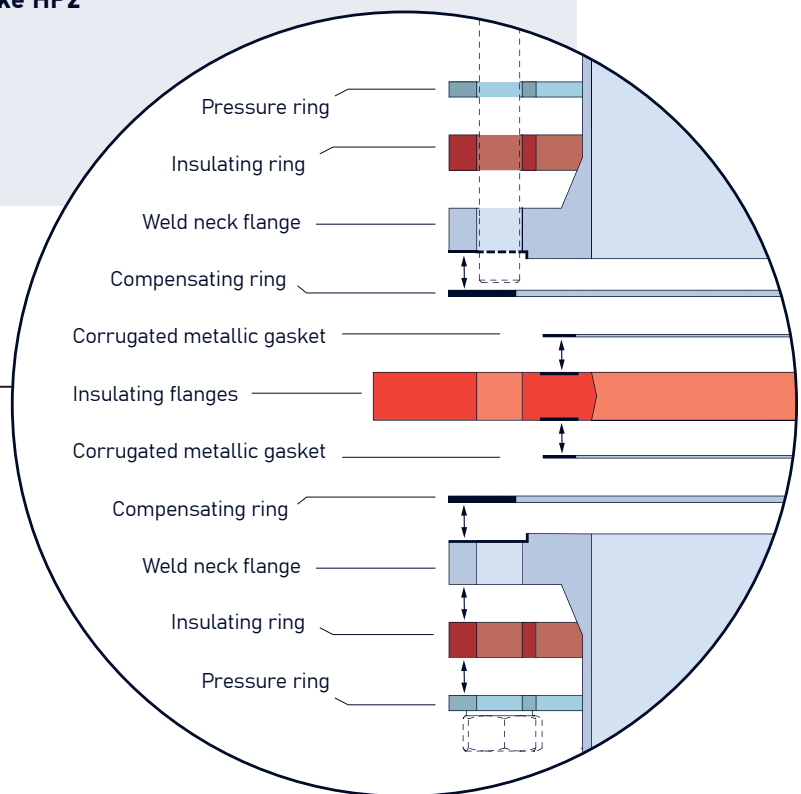
The key lies in three design features that make HP2 more than an insulating flange.



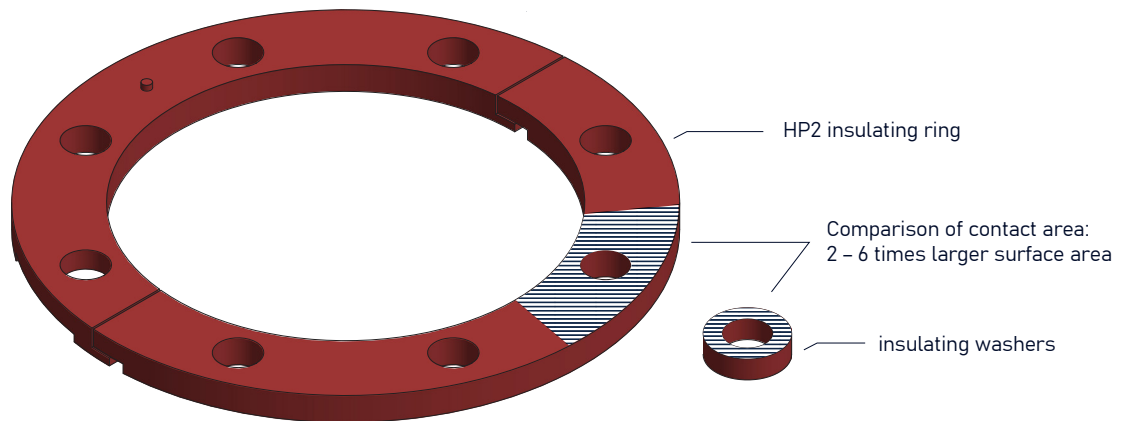
01 Maximum tightness and durability

BLOCK FLANGE CONNECTION

HP2 is a heavy-duty block flange connection compensating rings and gaskets are located in precise grooves, forming a cavity-free assembly capable of withstanding higher pressure, shear, bending and torsional loads than conventional insulating flange connections – providing a permanently technically tight, mechanically maintenance-free insulating point.



The corrugated metallic gasket is permanently fitted into a groove and fully compressed during assembly. It therefore operates in a secondary load path principle the load is transmitted through the flange, not through the gasket material – the gasket does not deform and the preload on the unit is maintained throughout its entire service life.



02 Maximum safety

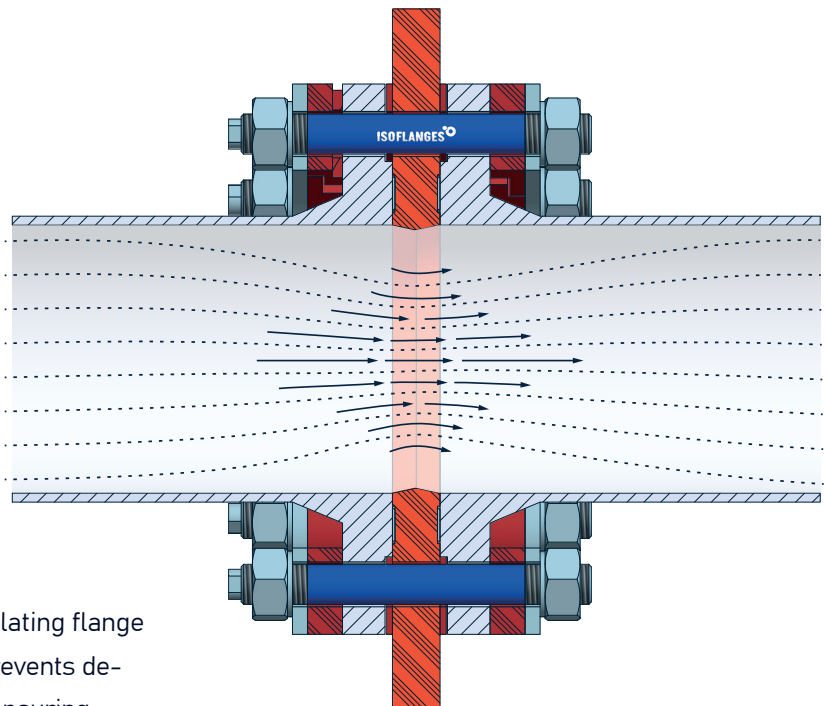
FULL-SURFACE BOLT CONTACT AREA

Instead of using point-loading insulating washers, HP2 uses insulating rings with a continuous bearing surface covering the entire flange diameter. This distributes the bolt tightening torque on the maximum area – allowing higher tightening torques, a deformation-free connection and up to 100% bolt utilisation.

03 Deposit-free

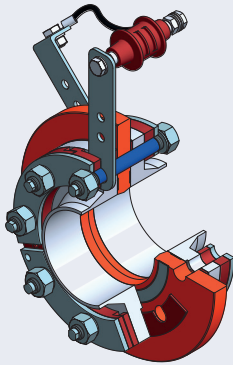
CONICAL REDUCTION

A taper on the inner diameter of the insulating flange increases the flow velocity and reliably prevents deposits, thereby preventing flashover and ensuring that the insulating separation point remains safe and functional in the long term. On every insulating flange, a tapered flange bore reduces the flow cross-section: flow velocity increases, deposits are reliably prevented and the insulating point remains serviceable for longer.



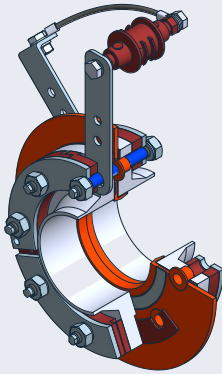
FOR YOUR INDIVIDUAL
SOLUTION, PLEASE
CONTACT US DIRECTLY

Overview of available versions



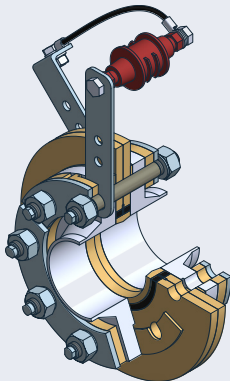
HP2 – gases, including H₂ and CO₂ and liquids

For liquid and gaseous media – from natural gas to 100% hydrogen and CO₂ – HP2 provides maintenance-free, reliable electrical isolation, high pressure resistance and full corrosion protection.



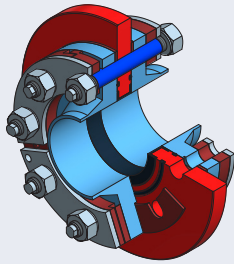
HP2 5 KKS – retrofit system

The retrofit system converts existing ASME and DIN flange connections into a standards-compliant, 100% CCP-effective insulating point with an installation length of only 5 mm – in accordance with all relevant regulations without modification of the piping.



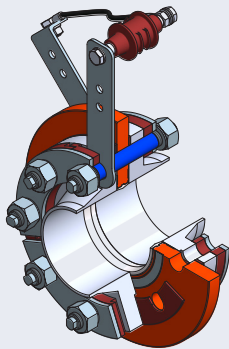
HP2 – HTG (high temperature)

HP2 HTG is designed for high-temperature applications and maintains a reliable seal even under continuous thermal loading – ideal for applications where standard solutions reach their limits.



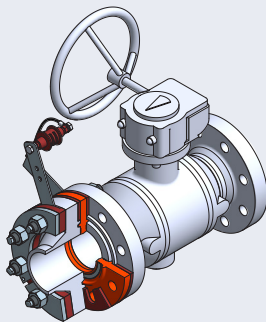
HP2 – drinking water

The medium-contact component of the HP2 version for drinking water is specifically designed for drinking water applications. This ensures that installations remain technically tight, hygienically safe and compliant with applicable standards.



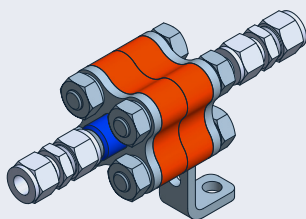
HP2 – aggressive and critical media

For aggressive or critical liquids, HP2 is available with precisely matched liners tailored to the medium. They protect the flange and the sealing surface from the medium, thereby ensuring a robust and technically tight connection over the long term.



HP2 B – Version for restricted installation space (e.g. valves)

The version HP2-B is optimised for minimum installation length through the use of an insulating ring/pressure ring combination on one side only, enabling reliable, fully functional insulating points directly adjacent to valves and in severely restricted installation spaces.



ISO-KonneX

ISO-KonneX transfers HP2 technology to compression fitting systems, enabling galvanic and electrical isolation that meets all cathodic corrosion protection (CCP) requirements to be applied to compression and cutting ring fittings.

HP2 DIN

technical dimensions

ALL AVAILABLE RANGES

SizesDN20 – DN2200

Pressure classesDIN PN10 – PN250

Temperatures-60 °C / +100 °C

TABLE: STANDARD DIMENSIONS

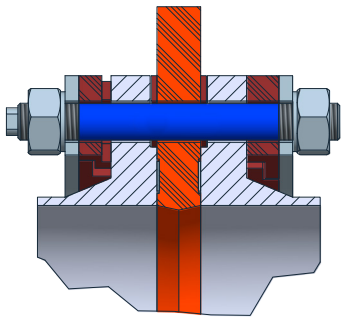
- In accordance with DIN EN 1092-1
- Dimensions for additional pressure classes, nominal diameters and corresponding STEP files are available on request

DN	PN	Bolts	Sizes bolts	Across flats	Outer diameter dimension		Length cable lug
					D	Dplus	
25	10 – 40	4	M12	22	115	155	122
50	10 – 40	4	M16	27	165	205	133
80	10 – 16	8	M16	27	200	260	133
	25 – 40	8	M16	27	200	260	133
100	10 – 16	8	M16	27	220	280	133
	25 – 40	8	M20	32	235	295	153
150	10 – 16	8	M20	32	285	345	153
	25 – 40	8	M24	36	300	360	155
200	10	8	M24	36	340	400	153
	16	12	M20	32	340	400	153
	25	12	M24	36	360	420	155
	40	12	M27	41	375	435	170
250	10	12	M20	32	395	495	153
	16	12	M24	36	405	505	155
	25	12	M27	41	425	525	164
	40	12	M30	46	450	550	159

GENERAL FEATURES

- For gases in accordance with G260, including the 5th gas family (up to 100% H₂), CO₂ and liquids with low conductivity
- Technically maintenance-free
- Gaskets can be replaced; the complete insulated flange connection is reusable
- Corrugated metallic gaskets operating on the secondary load path principle; the gasket material does not deform
- Adaptable to installation space and pipework
- Piggable, flow-optimised design

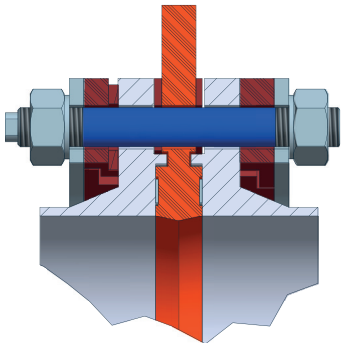
HP2 DIN B1



Application

- Insulating points for e.g., transmission and distribution networks and industrial plants

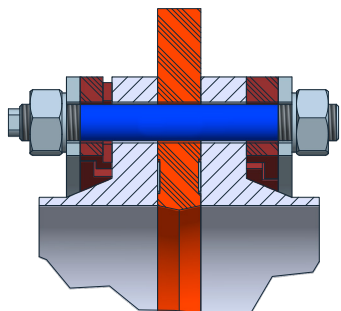
HP2 DIN FF



Application

- Retrofit solution for insulating rings in recessed flange connections, including for conversion to hydrogen service or compliance with the EU Methane Regulation

HP2 DIN A



Specific features

- Version without compensating ring
- Fewer components, easy-to-install solution

Application

- Compact HP2 solution for insulating points e.g. in new pipelines

HP2 DIN 5 KKS

technical dimensions

ALL AVAILABLE RANGES

SizesDN32 - DN800

Pressure classesDIN PN10 - PN40

Temperatures-60 °C / +100 °C

TABLE: STANDARD DIMENSIONS

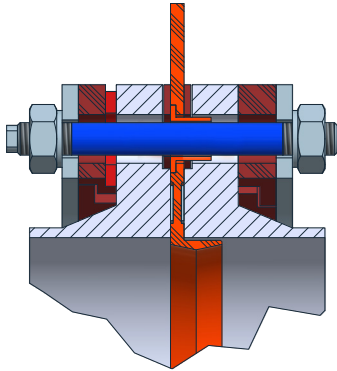
- In accordance with DIN EN 1092-1
- Dimensions for additional pressure classes, nominal diameters and corresponding STEP files are available on request

DN	PN	Bolts	Sizes bolts	Across flats	Outer diameter dimension		Length cable lug
					D	Dplus	
50	10 - 40	4	M12	22	165	205	133
80	10 - 16	8	M12	22	200	260	133
	25 - 40	8	M12	22	200	260	133
100	10 - 16	8	M12	22	220	280	133
	25 - 40	8	M16	27	235	295	153
150	10 - 16	8	M16	27	285	345	153
	25 - 40	8	M20	32	300	360	155
200	10	8	M20	32	340	400	153
	16	12	M16	27	340	400	153
	25	12	M20	32	360	420	155
	40	12	M24	36	375	435	170
250	10	12	M16	27	395	495	153
	16	12	M20	32	405	505	155
	25	12	M24	36	425	525	164
	40	12	M27	41	450	550	159

GENERAL FEATURES

- For gases in accordance with G260, including the 5th gas family (up to 100% H₂), CO₂ and liquids with low conductivity
- Technically maintenance-free
- Gaskets can be replaced; the complete insulated flange connection is reusable
- Corrugated metallic gaskets operating on the secondary load path; the gasket material does not deform
- Adaptable to installation space and pipework

HP2 DIN 5 KKS B1

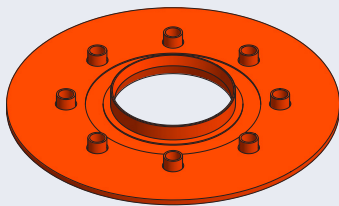


Specific features

- Standard length of 5 mm with full KKS protection
- Installation without welding or modification of pipe fittings
- Features a socket projecting into the pipe cross-section to ensure reliable electrical isolation while preventing deposits and electrical bridging.

Application

- CCP isolation point retrofit system for existing DIN flange connections as replacement of 3 – 5 mm flange gaskets



100% CCP protection

INSULATING FLANGE WITH SINGLE-SIDED SOCKET AND SLEEVES

In the KKS5 B1, the socket and sleeve ensure that the insulating flange connection protrudes precisely into the pipe cross-section, even with a length of only 5 mm: they ensure electrical isolation and prevent deposits or electrical bridging from impairing the effectiveness of the CCP system. Thanks to the insulating flange's overall length of just 5 mm — with a single-sided socket at the inner diameter and at the bolt holes — the installation length remains minimal. The bolt size is one size smaller than specified in DIN standards; however, this is fully accounted for in the torque calculation, thereby enabling a space-saving yet safely designed CCP separation point.

HP2 ASME

technical dimensions

ALL AVAILABLE RANGES

Sizes1" – 48"

Pressure classes ..class 150 – class 2500

Temperatures-60 °C / +100 °C

TABLE: STANDARD DIMENSIONS

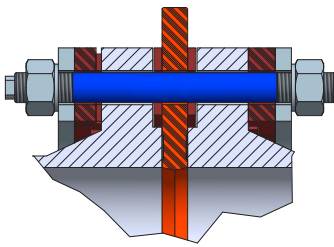
- In accordance with ASME B16.5 / B16.47
- Dimensions for additional pressure classes, nominal diameters and corresponding STEP files are available on request

NPS	Class	Bolts	Sizes bolts	Across flats	Outer diameter dimension		Length cable lug
					D	Dplus	
2"	150	4	5/8"	27	150	190	137
	300 – 600	8	5/8"	27	165	205	133
3"	150	4	5/8"	27	190	250	123
	300 – 600	8	3/4"	32	210	270	144
4"	150	8	5/8"	27	230	290	122
	300	8	3/4"	32	255	315	137
	600	8	7/8"	36	275	335	135
5"	150	8	3/4"	32	255	315	145
	300	8	3/4"	32	280	340	142
	600	8	1"	41	330	360	133
6"	150	8	3/4"	32	280	340	145
	300	12	3/4"	32	320	380	139
	600	12	1"	41	355	415	133
8"	150	8	3/4"	32	345	405	141
	300	12	7/8"	36	380	440	144
	600	12	1 1/8"	46	420	480	133

GENERAL FEATURES

- For gases in accordance with G260, including the 5th gas family (up to 100% H₂), CO₂ and liquids with low conductivity
- Technically maintenance-free
- Gaskets can be replaced; the complete insulated flange connection is reusable
- Corrugated metallic gaskets operating on the secondary load path principle; the gasket material does not deform
- Piggable, flow-optimised design

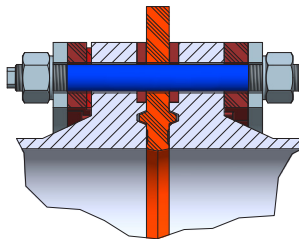
HP2 ASME RF



Application

- Insulating flange connections for high-pressure pipelines and high operating pressures in accordance with ASME B16.5 and B16.47 with RF flange facing

HP2 ASME RTJ



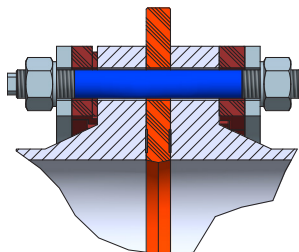
Specific feature

- Sealing is achieved not by a soft iron seal, but by a corrugated metallic gasket operating on the secondary load path principle; the gasket material does not deform

Application

- Insulating flange connections for high-pressure pipelines and high operating pressures in accordance with ASME B16.5 and B16.47 with RTJ flange facing

HP2 ASME FF



Specific features

- Design without compensating rings
- Fewer components, easy-to-install solution
- Full HP2 block flange functionality

Application

- Insulating flange connections e.g. for new pipeline projects and process plants with flat-face flanges in accordance with ASME B16.5 and ASME B16.47

ASME custom designs

In addition to the versions shown (RF, RTJ, FF), we also supply Large Female (LF), Small Female (SF), and other flange facing configurations in accordance with ASME or customer requirements for any flange geometry or flange type.

HP2 ASME 5 KKS

technical dimensions

ALL AVAILABLE RANGES

Sizes 2" – 30"

Pressure classes ..class 150 – class 2500

Temperatures -60 °C / +100 °C

TABLE: STANDARD DIMENSIONS

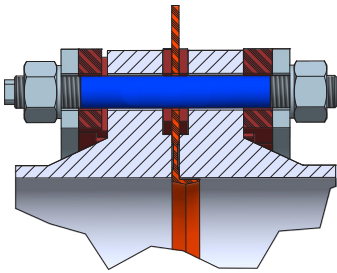
- In accordance with ASME B16.5 / B16.47
- Dimensions for additional pressure classes, nominal diameters and corresponding STEP files are available on request

NPS	Class	Bolts	Sizes bolts	Across flats	Outer diameter dimension		Length cable lug
					D	Dplus	
2"	150	4	1/2"	22	150	190	137
	300	8	1/2"	22	165	205	133
	600	8	5/8"	27	165	205	133
3"	150	4	1/2"	22	190	250	123
	300	8	5/8"	27	210	270	144
	600	8	3/4"	32	210	270	144
4"	150	8	1/2"	22	230	290	122
	300	8	5/8"	27	255	315	137
	600	8	7/8"	36	275	335	135
5"	150	8	5/8"	27	255	315	145
	300	8	5/8"	27	280	340	142
	600	8	1"	41	330	360	133
6"	150	8	5/8"	27	280	340	145
	300	12	5/8"	27	320	380	139
	600	12	1"	41	355	415	133
8"	150	8	5/8"	27	345	405	141
	300	12	3/4"	32	380	440	144
	600	12	1 1/8"	46	420	480	133

GENERAL FEATURES

- For gases in accordance with G260, including the 5th gas family (up to 100% H₂), CO₂ and liquids with low conductivity
- Installation without welding or modification of pipe fittings
- Features a socket projecting into the pipe cross-section to ensure reliable electrical isolation while preventing deposits and electrical bridging.
- Technically maintenance-free
- Gaskets can be replaced; the complete insulated flange connection is reusable
- Corrugated metallic gaskets operating on the secondary load path principle; the gasket material does not deform

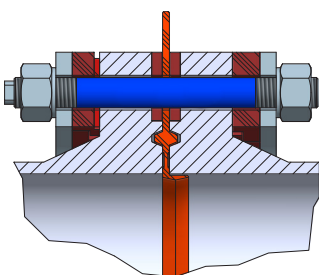
HP2 ASME RF5 KKS



Application

- CCP retrofit system for ASME RF flange connections as replacement of 3 – 5 mm flange gaskets in oil, gas, H₂ and CO₂ pipelines as well as process plants

HP2 ASME RTJ5 KKS



Specific feature

- Corrugated metallic gaskets operating on secondary load path; the gasket material does not deform

Application

- CCP retrofit system for ASME – RTJ flange connections as replacement of 3 – 5 mm flange gaskets in oil, gas, H₂ and CO₂ pipelines as well as process plants

Special applications

ALL AVAILABLE RANGES

for HP2 DIN/ASME B1 HTG

	Sizes	Pressure classes	Temperatures
DIN	DN20 – DN2200	DIN PN10 – PN250	-250 °C / +260 °C
ASME	1" – 48"	class 150 – class 2500	-250 °C / +260 °C

ALL AVAILABLE RANGES

for HP2 DIN/ASME drinking water

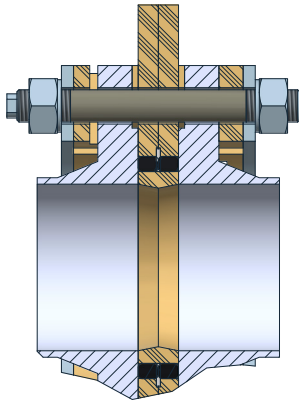
	Sizes	Pressure classes	Temperatures
DIN	DN20 – DN2200	DIN PN10 – PN250	-60 °C / +100 °C
ASME	1" – 48"	class 150 – class 2500	-60 °C / +100 °C

ALL AVAILABLE RANGES

for HP2 DIN/ASME aggressive and critical media

	Sizes	Pressure classes	Temperatures
DIN	DN20 – DN2200	DIN PN10 – PN250	-60 °C / +100 °C
ASME	1" – 48"	class 150 – class 2500	-60 °C / +100 °C

HP2 DIN/ASME B1 HTG



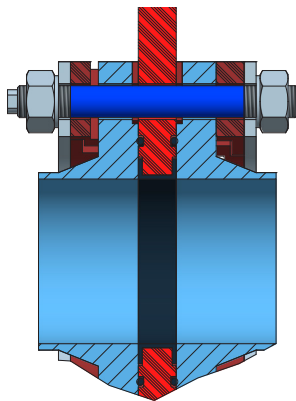
Specific features

- High-temperature-resistant HP2 design in accordance with relevant standards
- Designed for continuous process temperatures up to +260 °C
- HTB-approved for installation in particularly hazardous areas in accordance with DVGW G491

Application

- Superheated steam, hot gas and high-temperature pipelines in power generation and industrial plants with HTB requirements

HP2 DIN/ASME drinking water



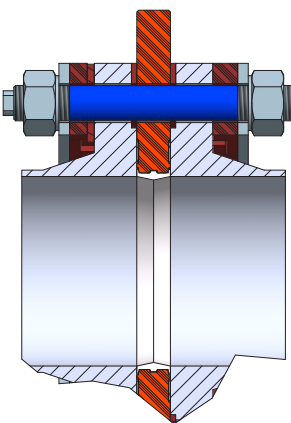
Specific features

- Lip seals as a component in contact with the medium, with KTW certification
- Reusable insulating flange; gaskets can be replaced during maintenance
- O-ring gaskets operating on secondary load path; the gasket material does not deform

Application

- Insulating flange connection in drinking water systems, greywater, and service water networks, including for carbon steel and electrical isolation in waterworks and supply pipelines

HP2 DIN/ASME aggressive and critical media



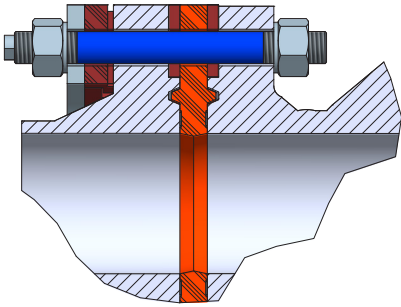
Specific features

- Inliners tailored to the medium for enhanced media resistance and a wider range of applications
- Suitable for high-purity applications
- Replaceable liners
- Can also be used in brine and salt solution pipelines, amongst others

Application

- Insulating flange connection in systems handling aggressive, high-purity or critical media, e.g. in the oil and gas, chemical industries and in brine pipelines

HP2 B (limited installation space)



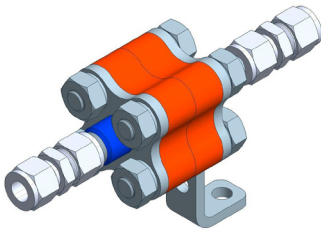
Specific features

- Compact design for very short overall lengths
- Single-sided insulating ring/pressure ring combination for optimum use of installation space
- Full-specification, pressure-resistant insulating point despite the reduced geometry

Application

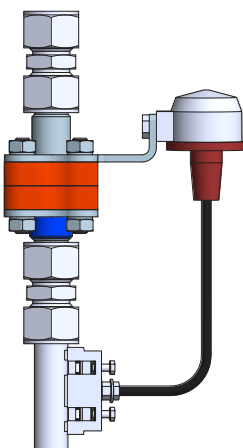
- Insulating flange connection in areas with severely limited installation space and in densely routed pipework areas, directly adjacent to valves, in shafts or compact plant modules

ISO-KONNEX



Specific features

- For gases in accordance with G260, including the 5th gas family (up to 100% H₂), CO₂ and liquids with low conductivity
- Meets all requirements for full-featured CCP systems
- Range of adaptors for all standard size bolting systems from 6–28 mm
- Suitable for compression and cutting-ring fittings
- Includes band pipe clamp for installation in Ex-Zone 1 and Ex-Zone 2



Application

- Galvanic and electrical isolation of precision pipework in measurement and control lines, in skids and compact modules, in measurement and control circuits, for Ex-Zone 1 and Ex-Zone 2 applications.

Acceptance testing and documentation

SAFETY YOU CAN VERIFY

HP2 insulating flange connections are safety-critical components, which is why every insulating flange connection that leaves our factory has undergone a final acceptance test of the prefabricated components in accordance with regulatory requirements and is accompanied by complete project documentation. This turns HP2 insulating flange connections into transparent, fully traceable safety components within your plant.

FINAL ASSEMBLY ACCEPTANCE

The HP2 insulating flange connection is tested as a complete construction unit and accepted in accordance with DIN EN 12007-3, DVGW G462, DIN EN 1594, DVGW G 463, DVGW GW 24 and TRFL § 9(5) Part 2.

HIGH-VOLTAGE TEST

A high-voltage test at 5,000 V, with a limit value of 10 mA, ensures the electrical isolation strength of the connection.

LEAKAGE TEST

The leak test is performed using test gas at a test pressure of $1.1 \times DP$ and a holding time of 10 minutes. The pressure is then reduced first to 5 bar and

then to 2 bar, and leak tightness is verified at these pressure levels as well.

STRENGTH TEST

A triple pressure ramp test between 10 bar and 85% standard temperature and pressure (STP), followed by a strength test at $1.5 \times DP$ using deaerated water, confirms the connection's mechanical safety margins (holding time 30 minutes).

DC VOLTAGE TEST

An insulation resistance test using 500 V DC and a minimum threshold of 0.1 MΩ confirms reliable electrical isolation.

DOCUMENTATION

Each HP2 insulated flange connection comes with complete documentation:

- **Acceptance test certificate APZ 3.1 in accordance with DIN EN 10204,**
- **Declaration of Conformity and CE marking in accordance with the Pressure Equipment Directive PED 2014/68/EU (certified under Module H), and**
- **Documentation drawing, including torque specifications**

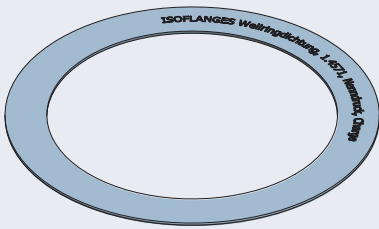
Acceptance test certificate APZ 3.1 in accordance with DIN EN 10204, Declaration of Conformity and CE marking in accordance with the Pressure Equipment Directive PED 2014/68/EU (certified under Module H), and Documentation drawing, including torque specifications

Accessoires



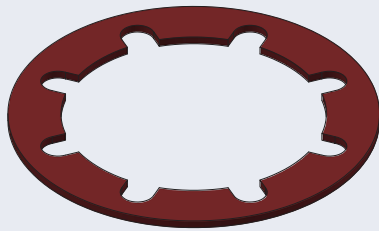
STUD BOLTS

- Permanently bonded stud bolt insulation, min. 1.5–2.0 mm thick,
- Insulation resistant to UV, alkalis, acids and seawater
- Non-slip and position-stable insulation
- Stud bolts with self-lubricating zinc flake surface coating; no lubrication or greasing required, with a constant coefficient of friction
- Stud bolts and nuts made from 25CrMo4 material with APZ 3.2



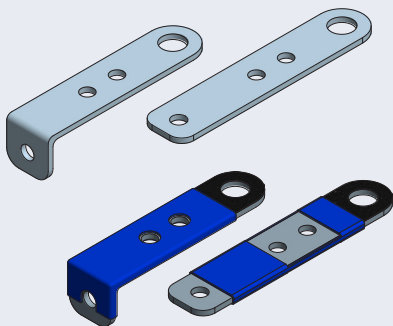
CORRUGATED METALLIC GASKET

- Corrugated metallic gasket fixed into a groove with full-surface compression operating on secondary load path; the gasket material does not deform
- Approved in accordance with DIN 30690 and TA-Luft
- Suitable for all media and pressure classes in HP2 insulating flange connections
- Available for reorder



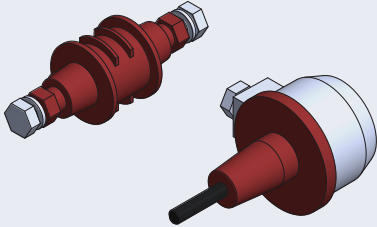
COMPENSATING RING SUPPLEMENTARY KIT

- Accessories for flange connections in accordance with DIN EN 1092-1
- Compensating ring supplementary kits for reliable adjustment of the sealing face height, in various material thicknesses



CABLE LUG: KALA / KALA PLUS

- Suitable for usage in Ex-Zone 1 and Ex-Zone 2
- Electrogalvanized design for high corrosion resistance
- **KaLa Plus** with cable lugs and graphite contact surfaces for secure, spark-free contact
- **KaLa Plus** with additional sheathing to protect against accidental electrical bridging and mechanical damage



EX ISOLATING SPARK GAPS

- ExFS 100 available with cable lengths of 100, 200 or 300 mm for Ex-Zone 1
- ExFS 200 and ExFS 300 variants for Ex Zone 2
- KU spark gap, approved for underground installation and Ex Zone 1
- Manufacturer: DEHN

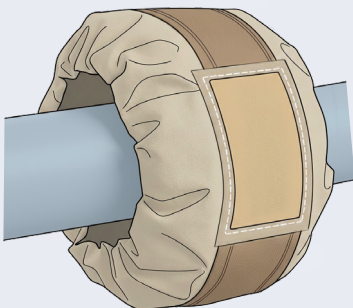


CORROSION PROTECTION SPRAY ISO KSS-010

- Dry, barely visible and flexible anti-corrosion film
- To protect the steel parts after assembly
- Temperature-resistant with excellent lubricating properties
- Coefficient of friction of 0.10, suitable for calculations in accordance with EN 1594-1
- Significantly higher corrosion protection than conventional protective films

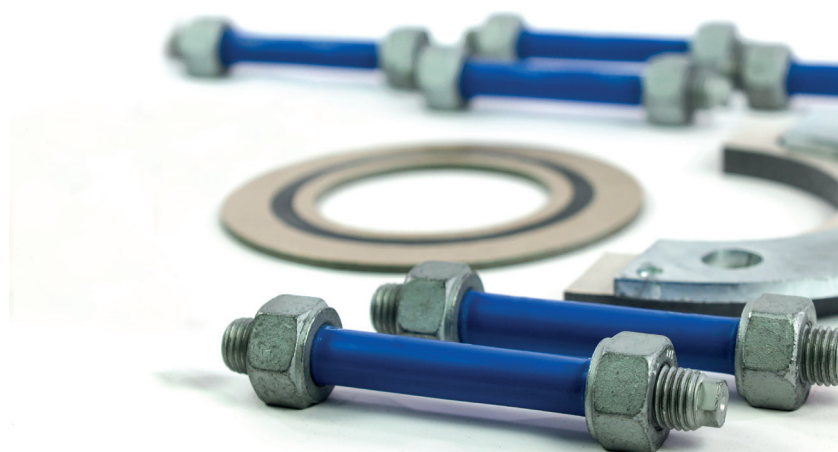
ADHESIVE SPRAY FOR GASKETS

- Adhesive spray for securing corrugated metal gaskets
- Simplifies installation of insulating flange connections



SPLASH PROTECTION SLEEVES

- Additional protection against weather and splash water for flange connections
- Design and sizing according to application



BY YOUR SIDE FROM CONCEPT TO SYSTEM START-UP

ISOFLANGES specialises in insulating flange connections – HP2 is our core product. Our team combines in-depth technical expertise with practical experience, from selecting the appropriate standard version to developing bespoke solutions for any installation condition. You can also rely on us to deliver on schedule, offer rapid-response solutions in emergencies, and provide fast, straightforward support whenever technical questions, engineering issues, or unexpected challenges arise during your project. This keeps your schedule on track – and critical connections reliably under control.



Planning a new installation? Converting a system from natural gas to H₂ or CO₂ service or resolving a critical connection in an existing system?

Give us a call. We'll discuss your application and find the right solution.

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