

**The proper material
for each application**



HOERBIGER has the optimal material for each operating condition

For the reliability and durability of a valve not only design and customized engineering are decisive but to a very high extent also material selection.

The proper material for each application

In order to obtain the high reliability and efficiency of our valves we consider essential process and operating parameters for the selection of the best suitable material, such as

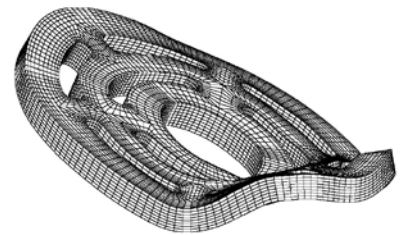
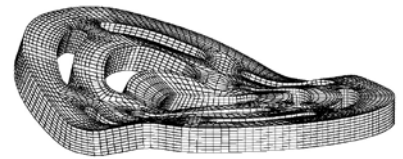
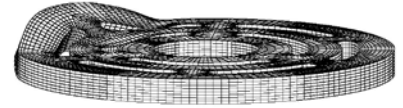
- pressure
- temperature
- gas composition
- gas condition

Steel for seat, guard, unloader and springs

Stainless steel is HOERBIGER standard with slightly to highly corrosive gases. Our martensitic and austenitic stainless steels and the nickel based alloys are in compliance with all the NACE specifications.

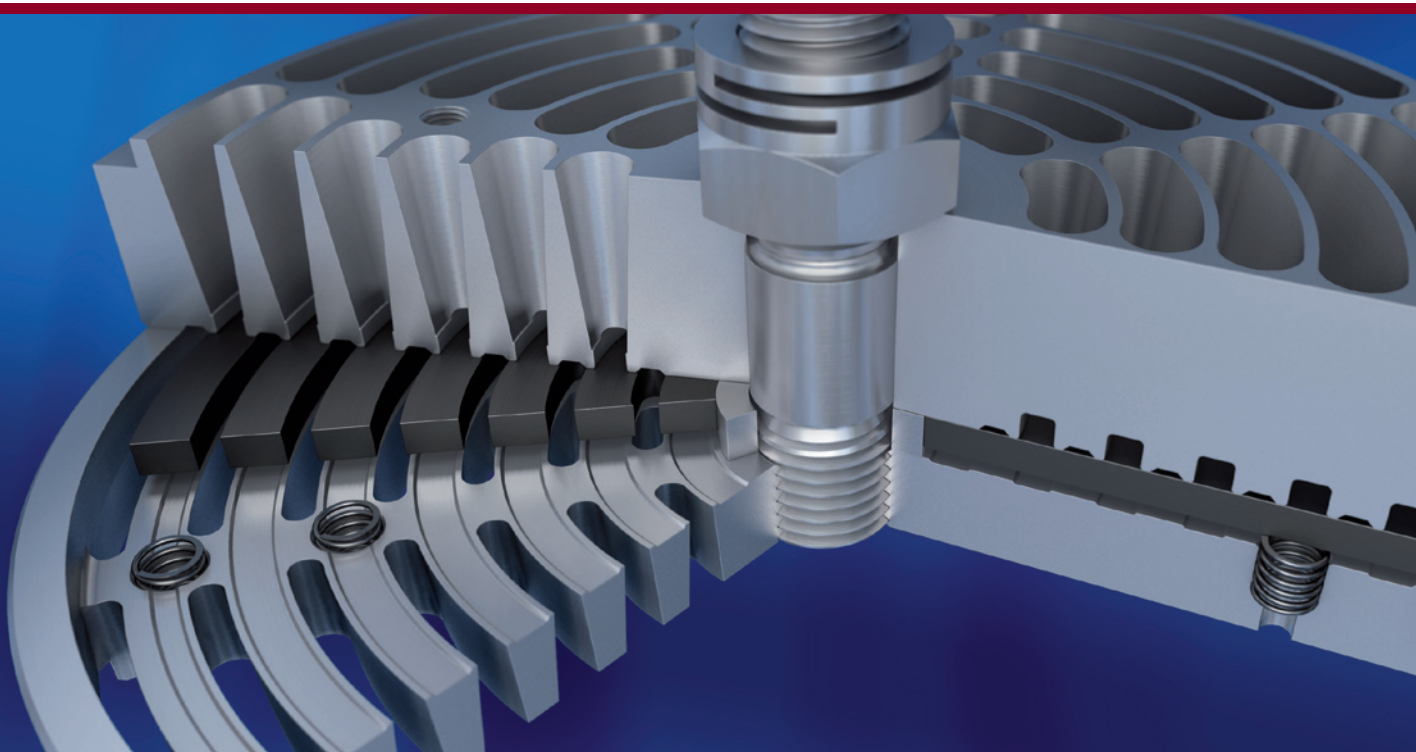
High quality non-metallics for plates and rings

HOERBIGER uses for valve plates and rings non-metallic materials which have been especially developed by and for HOERBIGER, and which meet the requirements of even very critical operating conditions.



Typical deformation of a valve plate during opening or closing impact: The specific stress only very impact resistant materials can cope with.

For plate valves: MT and PK reinforced with glass fibre reinforcement, HP reinforced with carbon fibre



MT: HOERBIGER's standard material for valve plates

Due to its high impact resistance MT is especially suited for applications where high impact loading occurs. Being a non-metallic material for medium temperatures, MT is mainly employed in the range of -50°C to $+170^{\circ}\text{C}$.

PK: HOERBIGER's material with the highest temperature resistance

PEEK with glass fibres is applied especially for extremely high temperatures and chemical stress. The application temperature range is from -50°C to $+250^{\circ}\text{C}$.

MC: HOERBIGER's standard material for light gas applications

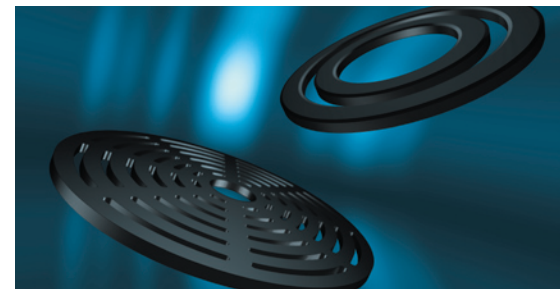
MC (MT+carbon fibre) is a very impact tolerating material. It is optimally suited for the temperature range of -50°C to $+170^{\circ}\text{C}$ and is proven mainly for light gas applications.

PC: the material with extremely high temperature resistance

PC (PEEK+carbon fibre) is the material for extreme applications with high valve loading. It offers very high resistance and is also suited for high temperatures up to $+250^{\circ}\text{C}$.

MC and PC – especially developed for HOERBIGER ring valves – care due to their special properties for optimum sealing behaviour and reliable operation. The high contents of carbon fibre creates a self-lubricating effect which reduces mainly seat wear.

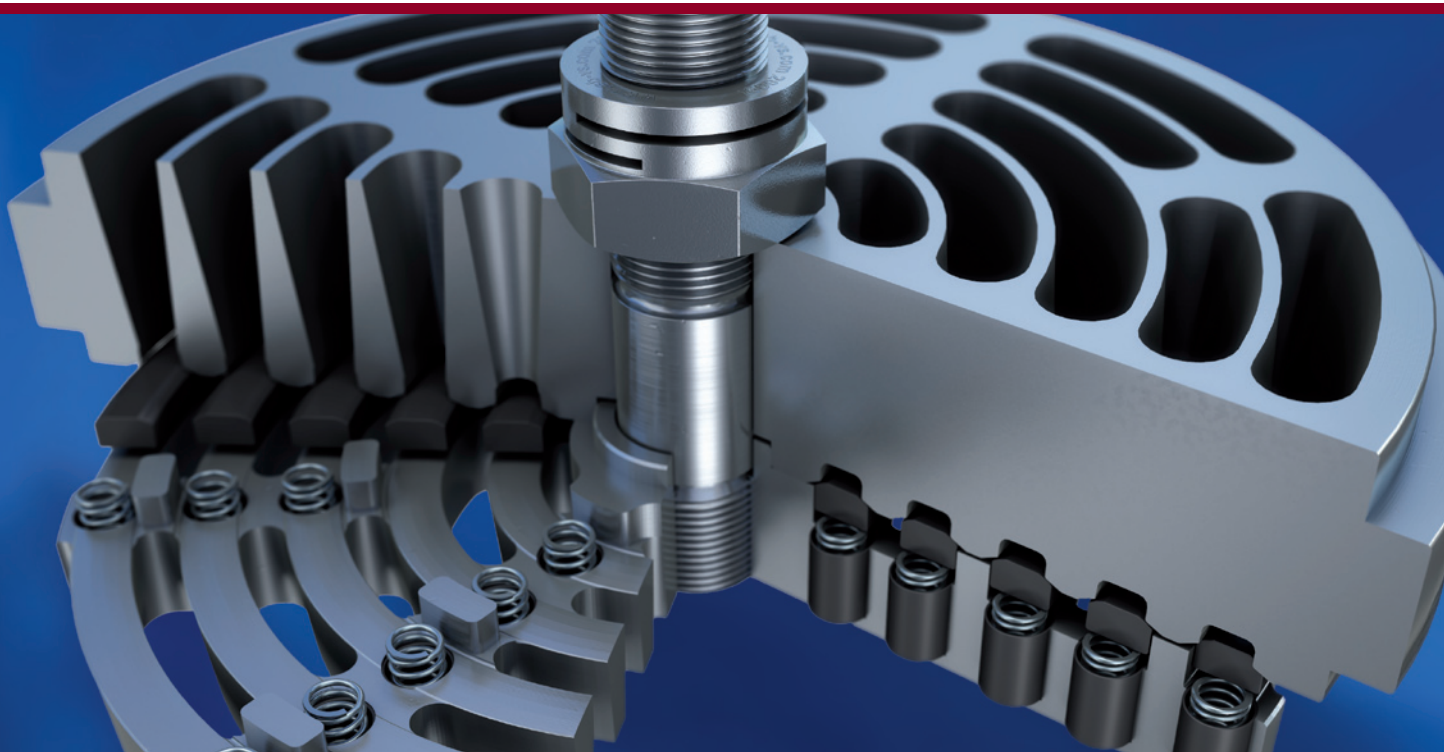
HP: HOERBIGER's material lasts in even the most demanding applications



HP – the new “high performance” material from HOERBIGER – is both chemical and corrosion resistant at temperatures from -200°C up to 230°C .

Even at large valve diameters and low differential pressure, HP valve plates and rings are incomparably tighter than regular plates and rings thanks to their complete lack of residual stress and the resulting absolute flatness. Due to this properties HP is particularly suitable for ammonia, chlorine and oxygen applications as well as for cryogenic applications as LNG boil-off gas or ethylene.

For ring valves: MC, PC and HP reinforced with carbon fibre



MT, PK, MC, PC or HP.

Which material for which application?

HOERBIGER Code	MT	PK	MC	PC	HP
	Plate valves		Ring valves		Plate valves Ring valves
Material properties					
Reinforcement	glass fibre	glass fibre	carbon fibre	carbon fibre	carbon fibre
Operating temperature range					
min	-50° C	-50° C	-50° C	-50° C	-200° C
max	+170° C	+250° C	+170° C	+250° C	+230° C

Chemical resistance	MT	PK	MC	PC	HP
Medium/Fluid					
Conditions					
Hydrogen	+	+	+	+	+
Ammonia	-	+/-	-	+/-	+
Hydrocarbon gases	+	+	+	+	+
Carbon dioxide	+	+	+	+	+
Hydrogen sulfide (H ₂ S)					
dry	+	+	+	+	+
humid	+/-	+	+/-	+	+
Nitrogen	+	+	+	+	+
Natural gas	+	+	+	+	+
Refrigerants (R22, R134a)	+	+	+	+	+
Air (with temperature limits)	-	+/-	-	+/-	+

+ resistance - no resistance +/- limited resistance

The advantages of HOERBIGER materials at a glance

- ✓ excellent resistance against impact stress
- ✓ insensitive to contamination and liquids
- ✓ applicable for varying operating conditions
- ✓ no consequential damage by broken parts
- ✓ good dry running properties
- ✓ good chemical resistance
- ✓ high material damping properties

This means for the user

- ✓ higher service life of valves
- ✓ lower maintenance cost
- ✓ lower shutdown costs; lower loss of production
- ✓ lower noise emission

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HOERBIGER Compression Technology is a business unit of HOERBIGER Holding AG, Zug / Switzerland. HOERBIGER is active throughout the world as a leading player in the fields of compression technology, automation technology and drive technology. Its 6,400 employees achieve sales of around 1 billion Euros. The focal points of its business activities include key components and services for compressors, gas engines and turbomachines, hydraulic systems and piezo technology for vehicles and machine tools, as well as components and systems for shift and clutch operations in vehicle drive trains of all kinds. Through innovations in attractive technological niche markets, the HOERBIGER Group sets standards and delivers cutting-edge solutions for the benefit of its customers.