Resistance table

Which materials for which fluids?

The resistance table supports you in your search for suitable materials and compiles information on the chemical resistance of sealing and enclosure materials for gaseous and liquid media. **The table is subject to updating.

Contents of the resistance table

- The suitability of the materials is confirmed by a simple "+".
- For some media, only the minimum requirement is confirmed with a "+". This means that higher quality materials can also be used.
- Ask if you are unsure, even if a medium is not listed.
- Operating conditions cannot be derived from the table.
- There is no such thing as an unconditional application. Therefore, also consider operational dependencies such as pressure, temperature, viscosity, concentration, degree of contamination. These can have a negative effect on the longevity of the valve.
- The table does not claim to be complete.
- No warranty claims can be derived from the information given.
- We reserve the right to change the information given at any time without notice.

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			Material Sealing																					Material Housing														
Media	Density (kg/m³)	Gaseous	-30°C 140°C EPDM	-30°C 140°C EPDM/EPDM	-30°C 120°C EPDM/PTFE	-15°C 200°C FFKM	-10°C 140°C FKM	-10°C 140°C FKM/FKM	-40°C 300°C Metall	-40°C 80°C Metall/HP	-20°C 400°C Metall/Wills®	-10°C 80°C NBR	-10°C 80°C NBR/NBR	-200°C 80°C PCTFE	-40°C 250°C PEEK-HT	-40°C 80°C Peek/PCTFE	-196°C 80°C PEEK/PCTFE-HP	PEEK/UHMW-PE	-10°C 90°C POM	-196°C 230°C PTFE	-30°C 200°C PTFE/FKM	-10°C 80°C PTFE/Peek	-40°C 230°C Silikon	-196°C 250°C 1.4301 AISI 304	-196°C 80°C 1.4404 AISI 316L	-196°C 300°C 1.4408 AISI 316	-40°C 80°C 1.4418 AISI S165M	-40°C 250°C 1.4435 AISI 316L	-40°C 250°C 1.4462 AISI 318LN	-196°C 300°C 1.4581(71) AISI 316L	aluminium	-196°C 300°C brass	-20°C 300°C cast steel PN40	-10°C 300°C ductile iron PN16	-10°C 300°C grey cast PN16	PTFE	PVC	-40°C 200°C red brass	-10°C 300°C steel
potassium hydroxide KOH, 50%, aqueous	1000		+																	+				+		+				+									
2-methylpentan, isohexane, liquid																				+				+		+				+		+							
Acetone CH3COCH3	791		+														+			+				+						+		+	+		+			+	
Acetylene C2H2	1.17	ja	+									+					+			+				+						+		+	+		+				
Additives for Fuels							+	+												+				+		+				+		+							
Air	1.2	ja					+	+				+					+		+	+	+			+		+				+	+	+	+	+	+			+	+
Ammoniac NH3	0.77	ja	+		+												+			+				+		+				+			+						
Argon Ar	1.78	ja					+					+					+			+				+						+		+	+					+	
Argon, liquified cryogenic -186°C														+			+			+				+	+					+		+							
Bilge Water (water-oil mix)	1000						+					+								+										+			+		+				
Biodiesel, Rapsmethylester (RME)	885						+	+												+				+		+				+		+							
biogas (wet, max. 3% H2S)		ja					+																												+				
Biogas <= 0,5% H2S		ja					+					+					+			+	+			+						+				+	+				
Boron Trichloride BCL3 <0,5% Halogen																																							
Brake Fluid	1100		+	+				+												+						+				+		+	+					+	
Butadien C4H6	2.4	ja																		+						+				+									
Calibration gas, test gas, dry	0.72	ja					+										+			+				+															
CNG - Compressed Natural Gas	0.7	ja								+		+					+			+				+	+				+	+		+							

			Material Sealing																				Material Housing															
Media	Density (kg/m³)	Gaseous	EPDM -30°C 140°C	EPDM/EPDM -30°C 140°C	EPDM/PTFE -30°C 120°C	FFKM -15°C 200°C	FKM -10°C 140°C	FKM/FKM -10°C 140°C	Metall -40°C 300°C	Metall/HP -40°C 80°C	Metall/Wills® -20°C 400°C	NBR -10°C 80°C	NBR/NBR -10°C 80°C	PCTFE -200°C 80°C	PEEK-HT -40°C 250°C	Peek/PCTFE -40°C 80°C	PEEK/PCTFE-HP -196°C 80°C	PEEK/UHMW-PE	POM -10°C 90°C	PTFE -196°C 230°C	PTFE/FKM -30°C 200°C	PTFE/Peek -10°C 80°C	Silikon -40°C 230°C	1.4301 AISI 304 -196°C 250°C	1.4404 AISI 316L -196°C 80°C	1.4408 AISI 316 -196°C 300°C	1.4418 AISI S165M -40°C 80°C	1.4435 AISI 316L -40°C 250°C	1.4462 AISI 318LN -40°C 250°C	1.4581(71) AISI 316L -196°C 300°C	aluminium	brass -196°C 300°C	cast steel PN40 -20°C 300°C	ductile iron PN16 -10°C 300°C	grey cast PN16 -10°C 300°C	PTFE	PVC	red brass -40°C 200°C	steel -10°C 300°C
CO carbon monoxide	1.25	ja					+	+				+					+			+	+			+						+		+	+		+			+	
CO2 carbon dioxide gas	1.98	ja					+	+		+		+					+			+	+			+	+					+		+	+		+			+	
Coke oven gas	0.6	ja					+																			+				+		+							
Condensate			+					+												+				+						+		+	+		+			+	
Condensate up to +200°C																				+	+					+				+		+	+		+			+	
Cool Emulsion, Cooling Water	1000						+	+				+					+			+	+					+				+		+	+		+			+	
Dimethylether DME	2	ja																		+				+		+				+									
Dipropylenglycolmethylether DPM																				+				+						+									
dirty Fluids							+						+								+			+						+		+						+	
Ethane C2H6	1.36	ja					+	+				+					+			+				+						+		+						+	
Ethanol	789		+		+		+										+			+	+			+		+				+		+	+		+			+	
Ethylacetat CH3 CO2 CH2 CH3	894																			+						+				+		+	+		+			+	
Ethylene C2H4	1.26	ja					+					+								+				+								+						+	
flour, powder, dust, soot			+				+					+																+			+								
Flue Gas SOX, SO2, N2, O2, CO		ja													+		+			+						+				+									+
Formic Acid HCOOH																				+						+				+									
Forming Gas		ja					+	+				+								+										+		+	+		+				
Fuel Oil	920						+	+									+			+	+			+						+		+	+		+			+	
gaseous, liquid, aggressive		ja													+					+						+				+			+						
Gases flammable		ja					+	+				+					+			+				+						+		+	+		+			+	
Gasoline, Dieseloil, Fuels	800						+	+												+						+				+		+	+		+			+	
Glycerine aqueous, H2O with C3H8O3	1260						+														+			+															
granules, sand, gravel, chalk			+				+					+																+			+								
Grinding oil with dirt and abrasion particles							+														+			+															
HCL Hydrogen chloride gas	1.64	ja					+													+										+									

			Material Sealing																				Material Housing														
Media	Density (kg/m³)	Gaseous	-30°C 140°C EPDM	-30°C 140°C EPDM/EPDM	-30°C 120°C EPDM/PTFE	-15°C 200°C FFKM	-10°C 140°C FKM	-10°C 140°C FKM/FKM	-40°C 300°C Metall	-40°C 80°C Metall/HP	-20°C 400°C Metall/Wills®	-10°C 80°C NBR	-10°C 80°C NBR/NBR	-200°C 80°C PCTFE	-40°C 250°C PEEK-HT	-40°C 80°C Peek/PCTFE	-196°C 80°C PEEK/PCTFE-HP	PEEK/UHMW-PE	-10°C 90°C POM	-196°C 230°C PTFE	-30°C 200°C PTFE/FKM	-10°C 80°C PTFE/Peek	-40°C 230°C Silikon	-196°C 250°C 1.4301 AISI 304	-196°C 80°C 1.4404 AISI 316L	-196°C 300°C 1.4408 AISI 316	-40°C 80°C 1.4418 AISI S165M	-40°C 250°C 1.4435 AISI 316L	-40°C 250°C 1.4462 AISI 318LN	-196°C 300°C 1.4581(71) AISI 316L	aluminium	-196°C 300°C brass	-20°C 300°C cast steel PN40	-10°C 300°C ductile iron PN16	-10°C 300°C grey cast PN16	PTFE	PVC	-40°C 200°C red brass	-10°C 300°C steel
Helium Gas He	0.18	ja					+			+		+					+			+				+	+	+				+		+							
heptane (hexan, petrol)	684						+					+								+				+		+				+		+							
high viscous Fluids up to 1000 mm²/s							+														+			+						+		+							
Hot Air >180°C	1.2	ja																		+	+					+				+		+	+		+			+	
hot Gases >230°C	1	ja													+											+				+		+	+					+	
hot Water up to +140°C	1000		+																	+	+			+						+		+	+		+			+	
Hydraulic Oil	800						+					+					+			+										+		+	+		+			+	
Hydrogen H2	0.09	ja					+	+		+						+	+			+	+			+	+	+	+			+		+	+	+	+			+	+
Hydrogen Peroxide 0,5% H2O2, +20°C	1000						+													+						+				+									
Hydrogen Sulfide, gas, dry, H2S	1.6	ja	+				+													+				+		+				+						+			
Isobutane C4H10	2.51	ja					+													+				+						+		+							
isoprene C5H8	681																			+				+		+				+									
Isopropanol CH3 CH(OH)CH3	786						+													+				+		+				+		+						+	
JP-8 jet fuel, kerosine	800						+										+			+						+				+		+	+						
Liqud Nitrogen -196°C LN2														+			+			+				+	+					+		+							
Liquid Carbon Dioxide LCO2							+										+			+	+			+						+		+							
LNG liquified natural gas -162°C	1590													+			+			+					+					+		+							
LPG liquified petrol gas propane, butane	600						+	+												+	+			+		+				+		+	+	+				+	
Mercaptane		ja				+											+			+				+		+				+									
Methane CH4	0.72	ja					+	+				+					+			+				+		+			+	+		+	+	+	+			+	
Methanol Alcohole CH3OH	793		+		+												+			+				+		+				+			+					+	
Mineral Oil	800						+	+				+					+			+						+				+		+	+		+			+	
Motor Oil	800						+	+				+					+			+	+					+				+		+	+		+			+	
natural Gas CH4	0.7	ja					+	+		+		+					+			+	+			+	+	+			+	+		+	+	+	+			+	+
neongas NE	0.84	ja					+					+																				+							

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Media	Density (kg/m³)	Gaseous	-30°C 140°C EPDM	-30°C 140°C EPDM/EPDM	-30°C 120°C EPDM/PTFE	-15°C 200°C FFKM	-10°C 140°C FKM	-10°C 140°C FKM/FKM	-40°C 300°C Metall	-40°C 80°C Metall/HP	-20°C 400°C Metall/Wills®	-10°C 80°C NBR	-10°C 80°C NBR/NBR	-200°C 80°C PCTFE	-40°C 250°C PEEK-HT	-40°C 80°C Peek/PCTFE	-196°C 80°C PEEK/PCTFE-HP	PEEK/UHMW-PE	-10°C 90°C POM	-196°C 230°C PTFE	-30°C 200°C PTFE/FKM	-10°C 80°C PTFE/Peek	-40°C 230°C Silikon	-196°C 250°C 1.4301 AISI 304	-196°C 80°C 1.4404 AISI 316L	-196°C 300°C 1.4408 AISI 316	-40°C 80°C 1.4418 AISI S165M	-40°C 250°C 1.4435 AISI 316L	-40°C 250°C 1.4462 AISI 318LN	-196°C 300°C 1.4581(71) AISI 316L	aluminium	-196°C 300°C brass	-20°C 300°C cast steel PN40	-10°C 300°C ductile iron PN16	-10°C 300°C grey cast PN16	PTFE	PVC	-40°C 200°C red brass	-10°C 300°C steel
Nitric acid aqueous 40%, HNO3	1100						+													+	+					+				+						+			
Nitrogen dioxide NO2	2.053																			+				+		+				+									
Nitrogen Gas N2	1.25	ja					+	+				+					+		+	+	+			+					+	+		+	+		+			+	
Nitrogen oxides, nitrous gases NOx		ja															+			+				+		+				+									
Nitrous Oxide N2O	2	ja					+										+			+				+		+				+		+	+						
Odorant		ja				+											+			+				+						+									
Oxygen Liquid, -183°C LOX	1140																			+										+		+							
Oxygen O2	1.43	ja					+	+									+			+				+		+				+		+	+	+	+			+	
paint, ink - highly viscous			+				+					+									+							+			+	+							
Phenol, Carbolic Acid - diluted with water						+														+						+				+									
Propane/Butane gaseous C3H8	2	ja					+					+					+			+	+			+		+				+		+	+	+	+			+	
Propionic acid C3H6O2	990						+													+	+			+		+				+									
propylene glycol C3H8O2							+					+								+												+			+			+	
Propylene, Propene - C3H6	1.915	ja					+													+				+		+				+		+						+	
Rape Oil							+	+												+										+		+	+		+			+	
refrigerant R290, R600a																				+				+		+				+		+						+	
Refrigerant R407C	2.51	ja																		+				+		+				+		+						+	
Resins							+													+	+			+		+				+									
sea water	1000											+																										+	
sewage gas, proportionally H2S, NH3	0.77	ja	+																											+									
silan gas	1.34	ja					+													+	+			+		+				+									
slurry of chalk							+																	+								+							
Sodium hydroxide (sodium hydroxide), NaOH, 30%, +20°C			+																	+						+				+									
sodium hypochlorite NaOCl (Chlorine bleach) max. 12%, +20°C																	+			+										+									

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Sodium nitrite - aqueous NaNO2	1290						+					+								+				+		+				+								
Sodium Phosphate NA3PO4							+										+			+	+			+		+				+								
sodium silicate (waterglass)	1000						+					+								+	+			+		+				+								
Sole (cooling sole) up to 40%			+									+																				+						
Steam >110°C	0.6		+																	+				+						+		+	+		+			+	
Steam >180°C	0.6	ja																		+	+					+				+		+	+		+			+	
Steam >200°C																				+						+				+		+	+						
Steam >230°C															+											+				+		+	+					+	
Steam >250°C									+		+															+				+		+							
Steam >300°C											+																			+			+						
Sulfur Dioxide Gaseous, dry SO2	2.93	ja																																					
Sulfur Dioxide Gaseous, wet, SO2	2.93	ja					+													+	+									+									
Sulfur Dioxide Liquid SO2							+													+				+		+				+									
Sulfuric acid H2SO4 max. 10%, 20°C	1.6	ja					+																							+									
Tetraflourmethane CF4, gas	1.69	ja																		+				+						+									
Thermal-Oil >180°C	1000																			+	+					+				+		+	+		+			+	
Thermal-Oil >200°C	1000																			+						+				+		+	+						
Thermal-Oil >230°C	1000														+											+				+		+	+					+	
Thermal-Oil >250°C	1000								+		+															+				+		+							
Thermal-Oil >300°C	1000										+																			+			+						
Toluol C6H5CH3	867																			+				+						+		+							
Triglycole, Triethylenglycole C6H14O4	1100						+													+						+				+									
Urea	1300						+													+						+				+									
Used Oil, Waste Oil							+													+												+						+	
Vacuum	1.2	ja	+	+			+	+				+	+													+				+		+			+			+	

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Vacuum + Pressure		ja	+	+				+				+	+							+						+				+		+	+		+			+	
vapour aggressive (natural gas + steam)	0.9	ja				+																								+									
Water demineralised, Osmose	1000		+				+													+				+		+				+									
Water H2O	1000		+		+		+	+				+	+				+			+	+	+		+		+				+		+	+	+	+			+	
Water H2O with Glycole	1000		+				+	+				+					+			+				+		+				+		+	+		+			+	