

FFKM O-Ring

# Withstand every aggressor

Ensures long-term operational safety



FFKM O-Ring

# An unbeatable performer

Karlrez® Spectrum™ 6375 O-Rings are specifically designed for most challenging applications in segments like the Chemical Process Industry or Microelectronics. They are designed with highest performance in chemical resistance and applicable temperature range of -20°C up to 275°C (-4°F to 525°F).

- + **Widest temperature range**
- + **Highest chemical resistance**
- + **Low maintenance**
- + **Longevity**



# Customizable quality and in-house experts

FFKM O-Rings (Karlrez® Spectrum™ 6375) are available for the entire line-up of GF Piping Systems valves and fittings. They can be combined with every material to comply with individual requirements. Our specialized in house experts will help every customer to find the perfect solution to equip every application with

the right valve, material and the right O-Ring. With our in-house testing capabilities and our own test laboratory, we are able to check the chemical resistance of O-Rings to assure that all necessary requirements are met and the highest quality products can be shipped to our customers.



Ball Valves



Diaphragm Valves



Pressure Regulating Valves



Fittings



Bleeding and Ventilating Valves



Check Valves



## Chemical & thermal resistance

# Best in class

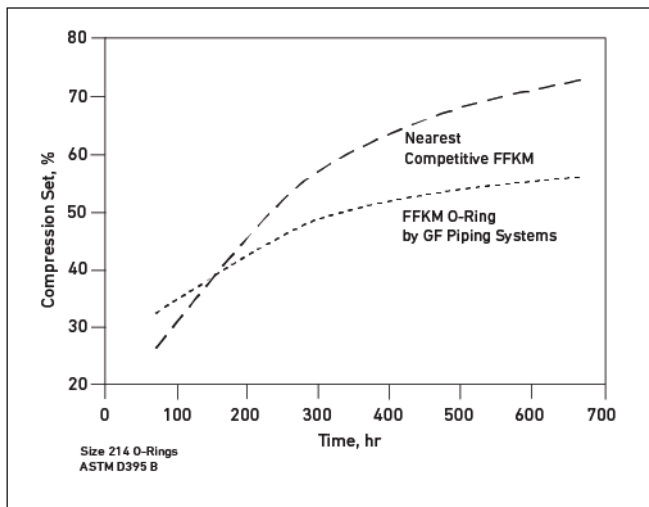
FFKM O-Rings are made out of a combination of perfluorinated rubber and carbon black, making them especially durable against a variety of aggressive media such as highly aggressive acids, bases and amines. They also withstand mixtures of media, making them the optimal choice for chemical processes.

FFKM O-Rings show an extraordinary resistance due to their stretchable molecular chains. This combination of highly resistant material also allows for the wide temperature range of -20 to 275°C (-4°F to 525°F) and a continuous upper service temperature at 275°C (525°F). Nevertheless, the outstanding performance of FFKM O-Rings by GF Piping Systems provides each application to be assessed individually to guaran-

tee safe operation. Compression set is the permanent deformation of the material after removal of an executed pressure for a certain time. This is a reliable method to predict heat resistance. GF Piping Systems is the biggest supplier of thermoplastic piping systems.

Please contact GF Piping Systems experts to find the right FFKM O-Ring for your individual application.

*Compression Set vs. Time at 204°C (400°F)*



Source: DuPont Dow elastomers (2013), Kalrez Spectrum perfluoroelastomer parts – Technical information



## Chemical Resistance at 20°C

Media Groups	Media	Concentration	Elastomers		
			EPDM	FKM	FFKM
<b>Acids</b>	Nitric acid	Diluted	o	+	+
		Concentrated	-	+	+
	Sulfuric acid	Diluted	o	+	+
		Concentrated	-	+	+
	Hydrochloric acid	Diluted	o	+	+
		Concentrated	-	+	+
	Hydrofluoric acid	Diluted	o	+	+
		Concentrated	-	o	+
	Formic acid	Diluted	+	o	+
		Concentrated	+	-	+
	Acetic acid	Diluted	+	o	+
		Concentrated	+	-	+
	Citric acid	All	+	+	+
	<b>Bases</b>	Inorganic bases (NaOH, Ca(OH) <sub>2</sub> , ...)	All	+	-
<b>Salts</b>	Chloride containing solutions	All	+	+	+
<b>Halogens</b>	Chlorine, bromine, iodine (no fluorine)		-	o	o
<b>Gasoline/Oils</b>	Aliphatic hydrocarbons		-	+	+
	Aromatic hydrocarbons		-	+	+
<b>Solvents</b>	Chlorinated hydrocarbons		o	o	o
	Ketones (acetone, ...)		+	-	+
	Alcohols		+	o	+
	Esters (ethyl acetate, ...)		+	-	+
	Aldehydes		+	o	+
<b>Oxidizers</b>	Peroxides (H <sub>2</sub> O <sub>2</sub> , peracetic acid, ...)		o	+	+
	Active chlorine compounds (NaOCl, ClO <sub>2</sub> , ...)		o	o	o

+ : Material is basically suitable

o : Material is restrictedly suitable

- : Material is basically unsuitable

Detailed evaluation is dependent on concentration! Contact ChemRes (chem@georgfischer.com) for further information.

Field of Application

# As versatile as your environment



FFKM O-Rings are perfectly equipped for the usage in especially harsh conditions and applications with the highest security requirements. They were designed with chemical processes in mind. But thanks to their outstanding performance, they deliver in a variety of applications the best outcome.



- + **Chemical Process Industry**
- + **Microelectronics\***
- + **Food & Beverage**
- + **Mining**

## Your key benefits

- **Widest temperature range**
- **Highest chemical resistance**
- **Low maintenance**
- **Longevity**

FFKM O-Rings surpass fluorelastomer rings by up to 10% of fluorine, enabling outstanding heat protection and the highest chemical resistance.\*\*

Perfluorelastomer compounds withstand a lot of stress and show excellent capabilities in demanding environments. FFKM

O-Rings by GF Piping Systems outperform other chemical and thermal resistant products by approximately 37°C (100°F).

Typical fields of application are chemical processing, mining, microelectronics, semiconductors and the food and beverage industry.

\*HP version on request

\*\* Source: Kalrez®/FFKM (<https://o-ring.info/de/materialien/ffkm/>)

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