



# GUIDE ELEMENTS

Guide elements are used to guide pistons and piston rods. Their great advantage lies in their universal applicability.

Guide elements permit a simple groove configuration. They prevent metallic contact with the component, can absorb transverse forces and, depending on the model, have good damping characteristics.

## APPLICATIONS

The guide elements GS 01 and GS 10 are especially suited to light and medium mobile hydraulics as well as stationary hydraulics. The guide strip GS05 and the guide rings FRK 05 / FRS 05 are mainly used in medium and heavy mobile hydraulics.

Application	GS 01 / GS 10 FRK 01 / FRS 01	GS 05 FRK 05 / FRS 05
Injection molding machines	•	
Machine tools	•	
Agricultural equipment	•	•
Standard cylinders	•	•
Material-handling vehicles	•	
Handling tools	•	
Construction machinery		•
Water hydraulics		•

## CHARACTERISTICS

### GS 01 / GS 10

- Friction and lubricating behavior very good for GS 10, and outstanding for GS 01 thanks to special surface structure
- No stick-slip effect, even at low speeds
- High thermal and chemical stability

- Avoidance of edge loading at the groove edges and ease of assembly thanks to chamfers starting at a groove width of 5.6 mm
- Good damping of mechanical oscillations
- Good wiping effect as well as good embedding of foreign particles

### GS 01

Non-standard solution that is available on request.

- For soft counter surfaces, slight rotational movements and water hydraulics, carbon-graphite-filled PTFE is the first choice
- Guide rings for the piston FRK 01 or rod FRS 01 are already guide strips tailored to the desired diameter

### GS 05 / FRK 05 / FRS 05

- Permit high surface pressures and high transverse forces
- Very good wear characteristics
- Improvement of the stick-slip effect and frictional and lubricating behavior thanks to PTFE inlay, which promotes lubrication
- Avoidance of edge loading at the groove edges thanks to chamfers on all sizes
- No appreciable water absorption, thus suited for oil-water fluids (water hydraulics)
- Guide rings for FRK 05 pistons and FRS05 rods are easier to install than the guide strip GS05, since they are already machined to the desired diameter
- GS05 guide strips are available as metered material and a good choice for larger diameters

## DIMENSIONS

The currently available dimensions can be found on our website [dichtomatik.fst.com](http://dichtomatik.fst.com) or on our online ordering platform **EASY**.

## INSTALLATION SPACE AND MOUNTING

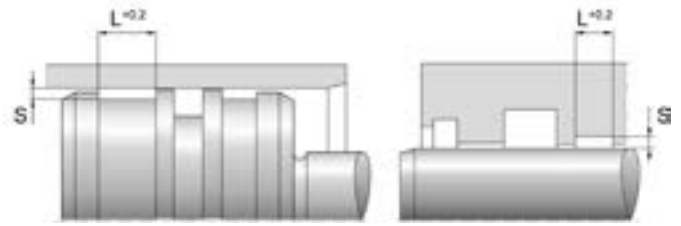
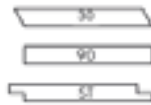
Guide elements can be easily mounted in closed grooves in accordance with ISO 10766. Guide strips GS 01, GS 05 and GS 10 must be cut to length so that clearance is available for the joint.

The following formulas are used to determine the stretched length L1

- Piston guide ring  $L1 = 3,11 \times (\varnothing D - S) - 1,0$
- Rod guide ring  $L1 = 3,11 \times (\varnothing d + S) - 1,0$








Possible cut forms:

- 30° = better pressing force distribution and ease of mounting
- 90° = and ease of mounting
- ST = rotation/oscillation



## MEDIA RESISTANCE

- Hydraulic oils in accordance with DIN 51524 section 1-3
- Petroleum-oil based-lubricating oils, greases
- Flame retardant hydraulic fluids HFA, HFB, and HFC in accordance with VDMA 243170,2d

Product information					Operating limits			
Profile	Type	Material	Surface	Delivered condition	Slide speed (m/s)	Contact pressure dyn. (N/mm <sup>2</sup> )	Contact pressure stat. (N/mm <sup>2</sup> )	Temperature (°C)
	GS 01	PTFE, bronze filled	structured	roll	≤ 15	≤ 15	≤ 25	-60 to +200
	GS 10	PTFE, bronze filled	smooth	roll	≤ 15	≤ 15	≤ 25	-60 to +200
	FRK 01	PTFE, bronze filled	structured	strip, 30° cut	≤ 15	≤ 15	≤ 25	-60 to +200
	FRS 01	PTFE, bronze filled	structured	strip, 30° cut	≤ 15	≤ 15	≤ 25	-60 to +200
	GS 05	hard fabric with PTFE	smooth	roll	≤ 1	≤ 100	≤ 350	-50 to +120
	FRK 05	hard fabric with PTFE	smooth	ring, 45° bevel cut	≤ 1	≤ 100	≤ 350	-50 to +120
	FRS 05	hard fabric with PTFE	smooth	ring, 45° bevel cut	≤ 1	≤ 100	≤ 350	-50 to +120

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