

# Merkel Guide Ring FRA

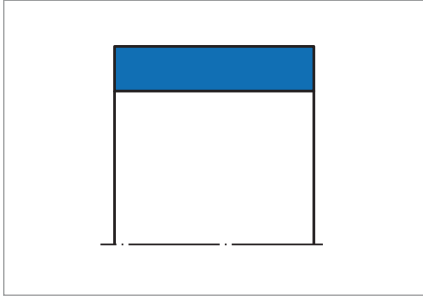


Fig. 1 Merkel Guide Ring FRA

## Product description

Slit, non-metallic Merkel Guide Ring FRA.

## Product advantages

As a non-metallic guide element for pistons, for standardised housings, amongst others, according to ISO 10766

- No seizure due to metal/plastic materials combination
- Medium load-bearing capacity
- Chamfered profile edges prevent pressing of edge into the corner radii of the housing groove
- Simple snap-in fitting.

## Application

Earth moving equipment, industrial vehicles, agricultural machinery, cranes.

## Material

Material	Code
Filled polyamide	PA 4112

## Operating conditions

Material	PA 4112 (filled polyamide)
	Temperature range in °C
Hydraulic oils HL, HLP	-30 ... +100
HFA fluids	+5 ... +50
HFB fluids	+5 ... +50
HFC fluids	-30 ... +50
HFD fluids	-
Water	+5 ... +50
HETG (rapeseed oil)	-30 ... +60
HEES (synthetic esters)	-30 ... +80
HEPG (glycol)	-30 ... +50
Mineral greases	-30 ... +100
Running speed in m/s	1
Load (permitted specific surface pressure*)	≤40 N/mm <sup>2</sup> at 20 °C ≤30 N/mm <sup>2</sup> at 100 °C

\* For the simple determination of the load, a constant surface pressure is calculated using the projected area (D x H). The actual surface pressure is clearly greater in the centre of the surface than the calculated surface pressure. This is taken into account in the value for the permissible specific surface pressure.

## Surface quality

Surface roughness	R <sub>a</sub>	R <sub>max</sub>
Sliding surface	0,05 ... 0,3 µm	≤2,5 µm
Groove base	≤2 µm	≤10,0 µm
Groove flanks	≤3 µm	≤15,0 µm

Percentage contact area M<sub>v</sub> >50% to max. 90% at cutting depth c = Rz/2 and reference line C ref = 0%.

## Design notes

Please observe our general design notes in → Technical Manual.

### Tolerance recommendation

D	d <sub>F</sub>	d <sub>F1</sub>
H8	h8	h9

The tolerances given are recommended values. The usage of the guide and tolerance definition are to be considered in relation to the seal employed. The diameter d<sub>F1</sub> given in the table of dimensions is to be considered exclusively in connection with the guide ring. The corresponding diameter for the adjacent seal housing is to be matched to the sealing component.

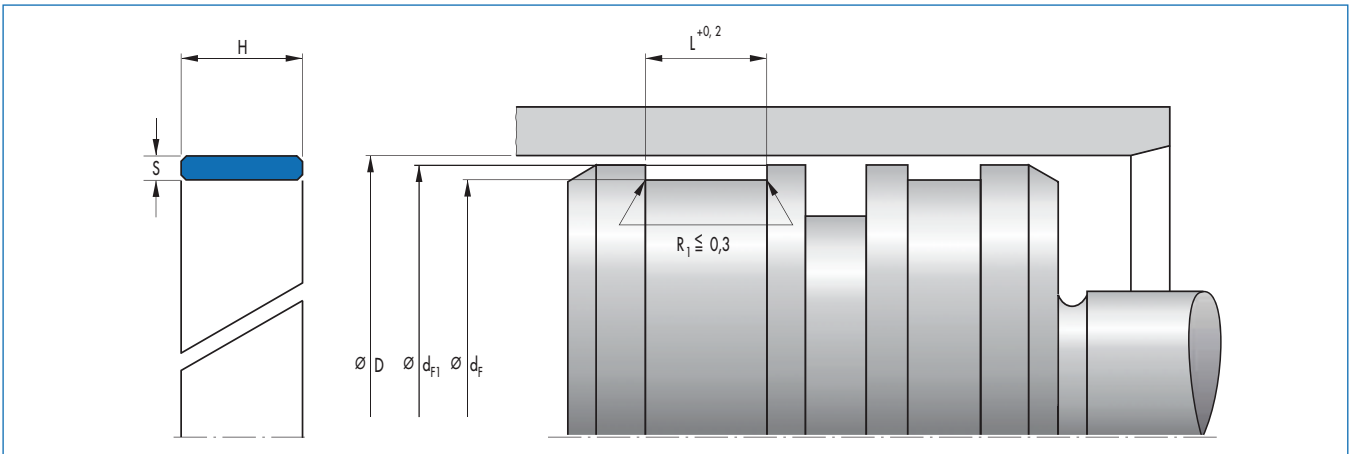
### Manufacturing tolerance

D	Production tolerance profile thickness S
≤120	-0,1
>120	-0,15

## Fitting & installation

Merkel Guide Ring FRA can be easily snapped into the housing groove. Careful fitting is a prerequisite for correct function. → Technical Manual.

Article list



D	d <sub>F</sub>	L	H	d <sub>F1</sub>	Material	Article No.	
20	16,9	4	3,9	19,4	PAGF Q04112	434212	●
25	21,9	4	3,9	24,4	PAGF Q04112	434213	●
30	26,9	4	3,9	29,4	PAGF Q04112	434214	○
32	28,9	4	3,9	31,4	PAGF Q04112	434215	●
35	31,9	4	3,9	34,4	PAGF Q04112	434217	●
40	35	5,6	5,4	39,4	PAGF Q04112	424740	●
45	40	5,6	5,4	44,4	PAGF Q04112	428783	●
50	45	5,6	5,4	49,4	PAGF Q04112	423806	●
55	50	9,7	9,5	54,4	PAGF Q04112	428789	●
60	55	9,7	9,5	59,4	PAGF Q04112	428800	●
63	58	9,7	9,5	62,4	PAGF Q04112	424703	●
65	60	9,7	9,5	64,4	PAGF Q04112	428802	●
70	65	9,7	9,5	69,4	PAGF Q04112	434199	●
75	70	9,7	9,5	74,4	PAGF Q04112	428814	●
80	75	9,7	9,5	79,4	PAGF Q04112	424702	●
90	85	9,7	9,5	89,4	PAGF Q04112	428815	●
100	95	9,7	9,5	99,4	PAGF Q04112	426223	●
110	105	9,7	9,5	109,4	PAGF Q04112	428819	●
120	115	9,7	9,5	119,4	PAGF Q04112	428820	●
125	120	9,7	9,5	124,4	PAGF Q04112	426238	●
140	135	15	14,8	139,4	PAGF Q04112	428858	●
160	155	15	14,8	159,4	PAGF Q04112	428860	●
180	175	15	14,8	179,4	PAGF Q04112	428863	●
200	195	15	14,8	199,4	PAGF Q04112	428866	●

● Available from stock ○ On request: Tool is available, delivery at short notice