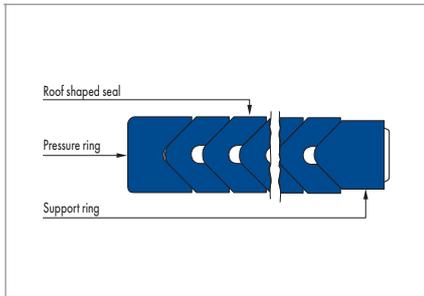


MERKEL CHEVRON SEAL SET ES, ESV



PRODUCT DESCRIPTION

Multi-component Merkel seal set for sealing piston rods, consisting of a pressure ring, at least 3 seals and a back-up ring. The Merkel Chevron Seal Sets are available in 3 different designs.

Type A has 3 to 5 fabric roof-shaped seals and can be installed in adjustable or non-adjustable sealing areas.

Type B has 3 to 5 fabric roof-shaped seals, one rubber-sprung back-up ring and is installed in non-adjustable sealing areas. Constant axial pre-load.

Type C has 2 to 4 fabric roof-shaped seals, one rubber seal and can be installed in adjustable and non-adjustable sealing areas. For an enhanced sealing effect. Type A and Type B can be supplied in open form. Type C is always delivered in endless form.

PRODUCT ADVANTAGES

Seal set for robust operating conditions, mainly for provision of spare parts to old plant.

- Proven under extreme conditions
- Long service life
- Can be optimally adjusted to the related application
- Functions over a certain time period even with poorer surfaces
- For application and design-related reasons fluctuations in the leakage behaviour and friction behaviour are to be expected

APPLICATION

- Iron and steel technology
- Presses
- Marine hydraulics
- Scrap cutters
- Injection moulding machines
- Steel hydraulics engineering
- Special cylinders

MATERIAL

Pressure ring

Material	Code	Hardness
Cotton fabric/NBR	BI-NBR B259	–
Cotton fabric/FKM	BI-FKM	–

Rubber fabric roof-shaped seal

Material	Code	Hardness
Cotton fabric/NBR	BI-FKM	–
Cotton fabric/FKM	BI-FKM	–

Rubber seal

Material	Code	Hardness
NBR	85 NBR	85 Shore A
FKM	85 FKM (ESV)	85 Shore A

Back-up ring

Material	Code	Hardness
Cotton fabric/NBR	BI-NBR	–
Cotton fabric/FKM	BI-FKM	–
Polyacetal POM	POM	–

OPERATING CONDITIONS

Pressure p	40 MPa
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Running speed v	0,5 m/s
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Medium/ Temperature	BI-NBR / 85 NBR	BI-FKM / 85 FKM
Hydraulic oils HL, HLP	–30 °C ... +100 °C	–15 °C ... +140 °C
HFA fluids	+5 °C ... +60 °C	+5 °C ... +60 °C
HFB fluids	+5 °C ... +60 °C	+5 °C ... +60 °C
HFC fluids	–30 °C ... +60 °C	–15 °C ... +60 °C
HFD fluids	–	–15 °C ... +140 °C
Water	+5 °C ... +100 °C	+5 °C ... +80 °C
HETG (rapeseed oil)	–30 °C ... +80 °C	–15 °C ... +80 °C
HEES (synthetic ester)	–30 °C ... +80 °C	–15 °C ... +100 °C
HEPG (glycol)	–30 °C ... +60 °C	–15 °C ... +80 °C
Mineral greases	–30 °C ... +100 °C	–15 °C ... +140 °C

DESIGN NOTES

Please observe our general design notes in → Technical Manual.

Surface quality

Peak-to-valley heights	R_a	R_{max}
Sliding surface	0,05 ... 0,3 μm	$\leq 2,5 \mu\text{m}$
Groove base	$\leq 1,6 \mu\text{m}$	$\leq 6,3 \mu\text{m}$
Groove flanks	$\leq 3,0 \mu\text{m}$	$\leq 15,0 \mu\text{m}$

Admissible gap dimension

The largest gap dimension occurring on the non-pressurised side of the seal in operation is of vital importance for the function of the seal. → Technical Manual.

Tolerances

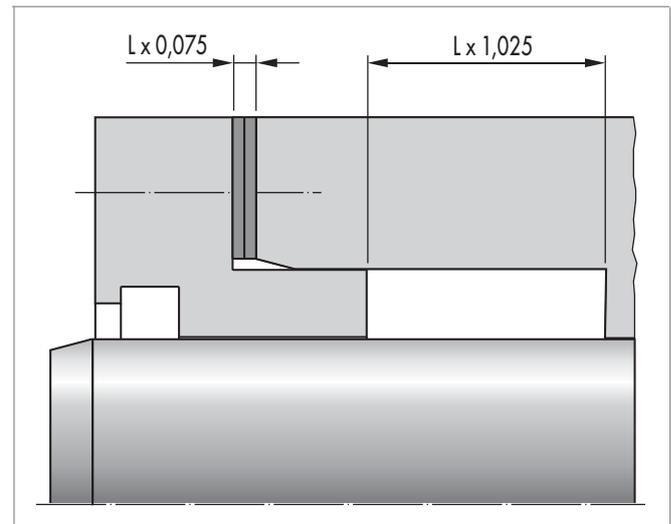
Nominal $\varnothing d$	D	d
$\leq 120 \text{ mm}$	H11	f8
120 ... 150 mm	H11	f7
$> 500 \text{ mm}$	H10	f7

FITTING & INSTALLATION

Careful fitting is a prerequisite for the correct function of the seal. Before installation all individual parts of the seal set must be greased. Mineral-oil-based greases can be used so long as they have a good seal-compatibility. The rod must be in the cylinder's installation space before installation. Merkel Chevron Seal Sets can also be built-in in an open form. This has the advantage that in the event of a repair and replacement of the seal set, e.g. in a large system, it does not require a large amount of work for installation. The sealing rings are installed on the plunger or the piston rod and pushed into the housing one by one → Technical Manual.

SPECIALITIES

Housing



Adjustable housings have the advantage of an optimal adjustment option for the sealing effect with minimal idling friction. After a lengthy period of running and incipient wear on the seal tightening the gland can extend the durability and significantly delay a system standstill. For adjustable housings an extension of 2,5% and an adjustability of 7,5% of dimension L is recommended. Non-adjustable housings have the advantage of more cost-effective manufacture, because washers are not required. Seal set type B is particularly recommended for these housings. The rubber-sprung back-up rings handle the function of initial compression and continuous re-adjustment during operation. Maintenance of the seal contact area is not required. This takes optimum advantage of the durability of the seal set.