



Wipers of PTFE

Wipers of the series **AS**, **AD** and **ADD** serve to protect the downstream sealing system. They prevent contaminants and foreign particles, which adhere to the piston rod, from coming into contact with the sealing system as the rod is retracted.

The wipers are essentially installed together with an O-ring as the preload element. The elasticity of the O-ring ensures effective contact of the wiper lips with the mating surface while compensating for any deflection in the piston rod. The **type AS** constitutes the classic design. The wiping function is ensured by its profiled contour and the unilaterally extending wiper lip.

The **types AD** and **ADD** are double wipers that serve to remove contamination from the retracting piston rod while also retaining any residual fluid film on the medium side so as to prevent entrainment by the extending piston rod. This variant is used in conjunction with PTFE rod seals with hydrodynamic flow-back. The profile shape of the **type ADD** is designed for heavy-duty applications in, for example, construction machinery, presses etc.

The broad spectrum of material combinations available for the wiping element and selection of the appropriate material for the preload element ensure almost unlimited suitability in a wide range of different applications.

Advantages

- Outstanding sliding properties
- No stick-slip effect, even at low velocities
- High wear resistance, long service life
- Very good thermal and chemical resistance
- Effective compensation of rod deflection
- Very good wiping efficiency

Application ranges

Speed: up to 15 m/s (for PTFE materials)
up to 2 m/s (for PU materials)

Temperature: -60°C to +200°C
depending on material combination
and O-ring material

Groove root:	$R_a \leq 1.6 \mu\text{m}$	$R_t \leq 10 \mu\text{m}$
Groove flanks:	$R_a \leq 3.0 \mu\text{m}$	$R_t \leq 16 \mu\text{m}$
Contact area:	$R_a \leq 0.4 \mu\text{m}$	$R_t \leq 4.2 \mu\text{m}$

Installation

Wipers of the series **AS**, **AD** or **ADD** can be installed in continuous grooves, with selection depending on the rod diameter, the profile cross section of the wiper and the cord thickness of the O-ring.

The piston rod should exhibit an insertion bevel. It must always be ensured that sharp edges are removed by rounding or bevelling. Thread tips should be covered. Before fitting, ensure that all machining residues such as swarf, chips, dirt and other foreign particles have been removed.

To facilitate fitting, the wipers can be lightly greased or oiled, provided that the lubricant used is compatible with the materials involved and the hydraulic fluid.

Wipers should be covered prior to any painting operation.

The surface quality of the mating faces involved is of decisive importance for the functional reliability and service life of the wiper.

It is important to ensure that there are no ridges, scratches or recesses, nor any concentric or spiral machining marks on the surface.

The parameters usually applied for surface description such as R_a , R_z , R_t and R_{max} are defined in DIN 4762 and DIN 4768.

In order to properly assess surface quality for sealing applications, the material ratio (bearing curve tp) should also be taken into account. This profile shape parameter is influenced by the machining process applied. The material ratio (M_r) should lie between 50 and 70% as determined at a slice depth of approx. $0.25 \times R_z$ based on a reference percentage of approx. 5%.

