

EN seal-wiper ring

For pneumatic cylinders in hygienically sensitive applications



The newly developed, self-retaining EN seal-wiper ring for piston rods of pneumatic cylinders performs three functions: sealing, wiping and fixing. The EN profile consists of the known geometry of the EU profile with a double, flexible sealing lip plus a new

wiper lip that is combined with a cover cap. The cover cap protects the seal and the cylinder against the intrusion of fluids. Due to the simple geometry of the cover cap the housing in front of the seal can be easily cleaned as there are no undercuts or dead spaces. The EN seal-wiper ring is thus particularly well suited for the food and pharmaceutical production as well as for all other fields of application requiring an environment that is easy to clean.

In addition to the possibility of easy cleaning – which is similar to the E7 profile – the injection-moulded one-piece EN design offers the advantage of lower production costs compared with the three-part E7 (sealing jacket, spring, silicone filling). Provided that the application parameters permit a one-piece design to be used the EN profile thus offers savings potential versus the



E7 profile. The housing, which is identical for all sealing elements of the EU system (see blue box), allows easy refitting of the pneumatic cylinders for different requirements. The seals are installed into the open housings by means of a handling tool.

Due to the application-optimised, lubricant film-preserving geometry and compounds the EN seal-wiper can be used in both oiled and oil-free compressed air (after initial lubrication), with smooth running characteristics assured. Another advantage is the coordinated geometry of the sealing and wiper lip for low friction and long service life. The robust EN seal profile is suitable for harshest operating conditions as the advanced TPU compound exhibits extreme wear resistance and low compression set.

Excellent media resistance when selecting the suitable compound allows the EN profile to be used even in sensitive media such as foodstuffs. For special requirements in these areas compounds with appropriate approvals and particularly good hydrolysis resistance are available.

The improved low-temperature suitability down to -45 °C additionally allows the profile to be used in frozen food applications.

One groove – unlimited potential

Modular kit for rod-side seal-wiper elements in pneumatic cylinders

Parker-Prädifa offers a large number of combined pneumatic seals and wipers for the open groove of the EU system. By installing the right type of seal a wide range of applications can be covered with just one cylinder.

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| • Standard seal-wiper: | Profil EU |
| • Dry running, aggressive chemicals, extreme temperatures: | Profil E7 |
| • Harsh application conditions: | Profil E8 |
| • High temperatures: | Profil E9 |
| • High temperatures and risk of contamination by dirt: | Profil EW |
| • Hygienically sensitive applications: | Profil EN |

Range of application

The seal-wiper EN has been developed for hygienically sensitive applications:

Clean room technology

Pneumatic cylinders are used particularly in automated clean room technology. In printed circuit board (PCB) assembly operations, for instance, it is important to keep the PCBs free from any foreign particles. The seal, which has no dead space, ensures that no particles are trapped in undercuts where the formation of deposits and contaminations would result in flawed PCB assembly for the manufacturer.

Medical technology/ pharmaceuticals

The example used here is the production of pharmaceuticals. The media can be processed in both solid and liquid form in such applications. In either form, it was possible for dust and drops of liquid to deposit in the undercuts of the previous version. Such deposits can have devastating consequences in the event that they cause premature reactions or contaminate the preparations. The cover cap prevents such deposits and makes easy cleaning, for instance by spraying or steaming, possible.



Food applications

In the field of perishable fluids and media, smooth and easy to clean areas are important. The cover cap on the wiper prevents the formation of residual particle deposits which might cause the growth of bacteria and fungi. For crystalline media particularly wear-resistant compounds are available.

Materials

Standard: P5000, PUR-Compound ($\approx$ 94 Shore A)

Approvals: FDA 21 CFR 177.2600

Installation guidelines

The EN profile seal-wiper ring is pushed in by means of a recess for a round wire circlip according to DIN 7993 (type B) and fixed in position by the retaining element that easily snaps in. During installation care should be taken not to push the wiper or the seal lips across sharp edges that would cause them to be damaged.

Performance data

Operating pressure	≤ 16 bar
Operating temperature	-20 to +150 °C
Sliding speed	≤ 1 m/s
Media	Compressed air, both oiled and oil-free (after initial lubrication)