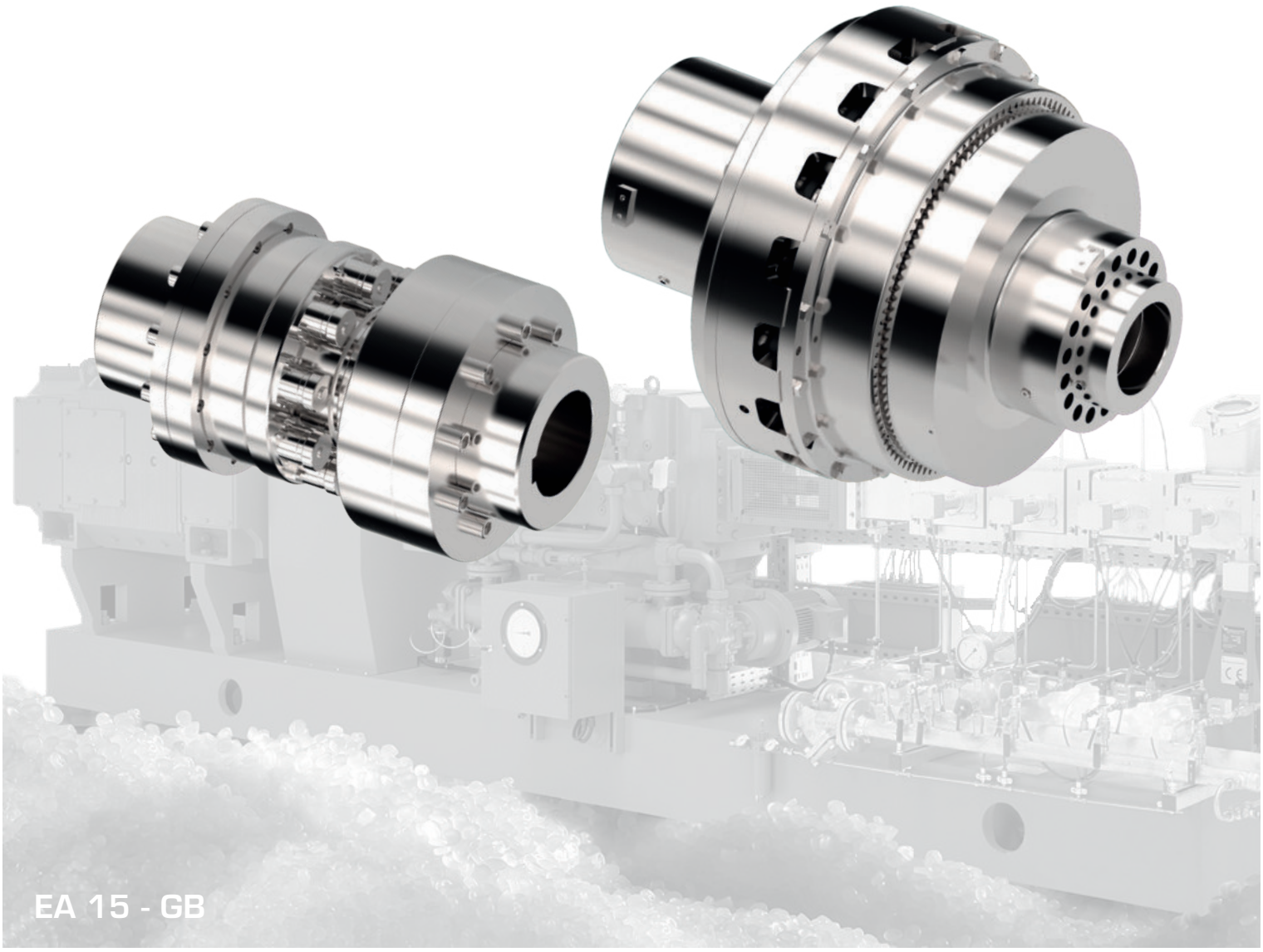
Smart Drive
Solutions

DESCH

# DESCH Sinox and Planox®

Safety Clutches for Extruder Drives



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POWER TRANSMISSION

# DESCH Safety Clutches for Extruder Drives Sinox

For more than 90 years, DESCH is an internationally leading manufacturer of safety clutches for mechanical and plant engineering.

DESCH know-how offers support in individual concepts and finds solutions for small as well as large torques. Outputs of up to 10,000 kW are easily achieved.

The new DESCH Sinox safety clutch is a spring-actuated clutch, combined with the flexible DESCH Pex coupling.

The function of the safety clutch is based on the ball-stop principle. In this procedure, the torque is transmitted backlash free by spring-tensioned balls and calottes. The clutch transmits the torque and is characterized by a high stiffness of the components.

If the previously set torque is exceeded by an overload, the balls immediately exit the calottes of the counterpiece, thereby causing a permanent separation between the drive and the output side that is free of residual torque.

After elimination of the fault, the extruder is ready for operation by simple and rapid re-engagement of the clutch. The clutch is re-engaged with the help of a lever. Due to the design of the clutch, radial assembly and disassembly is possible at any time. Complex movement of the engine and the transmission is therefore not required.

Due to their elasticity, the elements of the DESCH Pex coupling provide for effective damping against back loads, torsional vibrations and noise. A possible radial, axial and angular offset between the engine and the transmission is compensated by the flexible elements.

## Advantages of the Sinox combination

- Immediate disconnection in a fraction of a second in the event of an overload
- The switching component can be removed radially, thereby allowing disassembly and assembly within the shortest time
- Vibration-damping by combination with flexible clutch
- Compensation for shift displacement by combination with flexible coupling
- Complete separation of the drive and output side after switch off
- ATEX protection possible (Zone 2, 22)
- Smooth running due to high balancing quality
- Optional electronic monitoring possible
- Easy re-engagement
- High shut-off and repeat accuracy

Sinox safety clutch

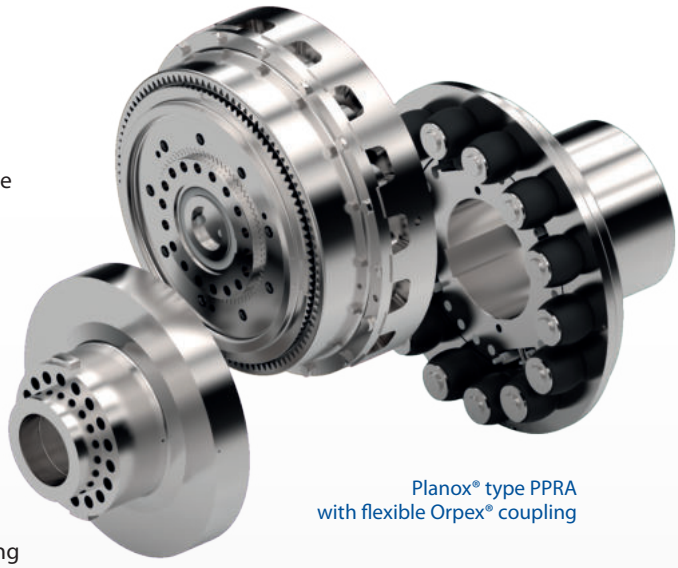
# Planox®

Global market and technology leaders of extruders use a combination of the DESCH Planox® friction clutch with an flexible DESCH Orpex® coupling to protect the shafts in the drive train.

In this combination, the torque is directly influenced by variation of the air pressure. The air supply is axial, but can also be radial on request.

To protect the high-precision worm shafts, the drive side is completely separated from the output side in fractions of seconds when there is an overload. In order to ensure switch-off accuracy, each clutch is grinded-in to a defined pressure/ torque curve on our specially developed test benches.

The Planox® PPF-RA version has been developed to reduce maintenance and related downtime to a minimum. If the friction part has to be replaced due to wear, it can be removed radially, i.e. the engine or gearbox does not have to be moved.



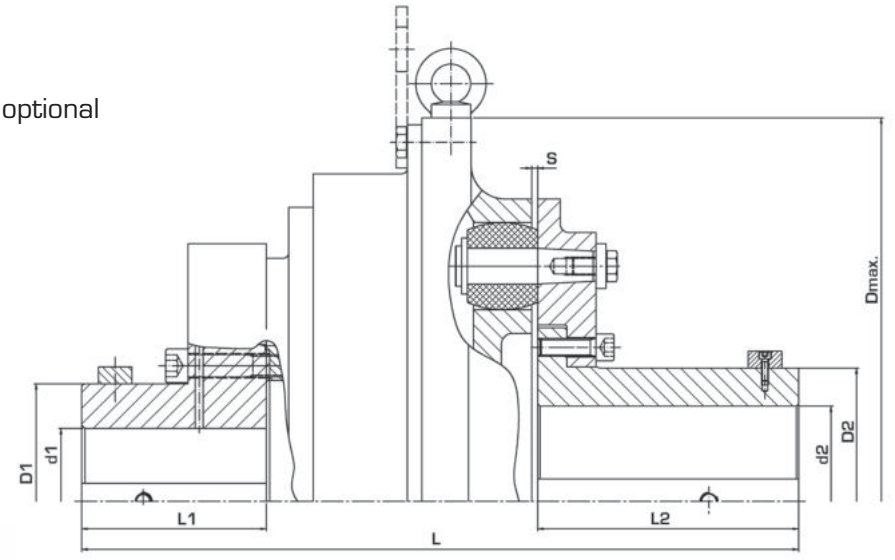
Planox® type PPRA
with flexible Orpex® coupling

## Advantages of the Planox® combination

- Immediate disconnection in a fraction of a second in the event of an overload
- Friction part can be removed radially, thereby allowing disassembly and assembly within the shortest time
- Vibration-damping by combination with flexible coupling
- Compensation for shift displacement by combination with flexible coupling
- Complete separation of the drive and output side after switch off
- ATEX protection possible (Zone 2, 22)
- Smooth running due to high balancing quality
- Operation of the extruder at the absolute load limit has no influence whatsoever on the lifetime of the clutch
- The Planox® clutch can be integrated in the process control of the extruder, because the torque setting can be controlled by the air pressure
- Is immediately ready for operation again without any manual effort
- Shut-off accuracy is ± 5% of pre-set torque
  (when clutch is ground-in and at a minimum air pressure of 2 bar)
- Plant can be started up either with a completely separated or connected clutch; insensitive to shock loads
- Considerable reduction in loss of production costs
- No change in the torque curve of the ground-in friction part, even after longer periods of storage.

# Planox®

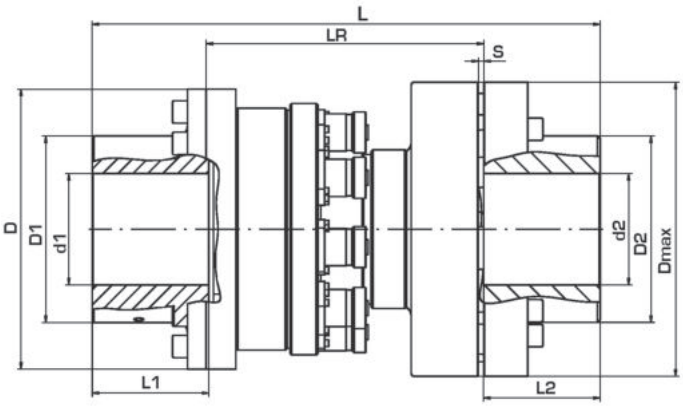
axiale air pressure
radiale air pressure optional




| Size | Torque [1] | Speed | D | L | D1 | L1 | D2 | L2 | S Orpex® |
|---|---|---|---|---|---|---|---|---|---|
| | T min. - T max. Nm | n max. rpm | mm | mm | mm | mm | mm | mm | mm |
| PPF 101 H - Orpex® WS 252 | 390 - 2.300 | 3.000 | 325 | 277,5 - 280,5 | 60 | 100 | 110 | 100 | 2 - 5 |
| PPF 112 RA1 - Orpex® F 252 | 700 - 2.300 | 2.500 | 365 | 375 - 376 | 115 | 100 | 160 | 130 | 4 - 5 |
| PPF 143 RA1 - Orpex® F 285 | 1.900 - 5.000 | 2.500 | 480 | 444,5 - 446,5 | 127 | 130 | 182 | 150 | 4 - 6 |
| PPF 163 RA1 - Orpex® F 360 | 4.300 - 9.500 | 2.270 | 530 | 548 - 550 | 156 | 170 | 197 | 180 | 4 - 6 |
| PPF 183 H-RA - Orpex® F 450 | 8.500 - 21.245 | 1.950 | 585 | 587 - 590 | 182 | 203 | 238 | 180 | 4 - 7 |
| PPF 213 H-RA - Orpex® F 500 | 12.000 - 30.825 | 1.800 | 686 | 656 - 659 | 224 | 225 | 290 | 200 | 4 - 7 |
| PPF 243 H-RA - Orpex® F 560 | 18.000 - 49.850 | 1.950 | 745 | 848 | 233 | 247 | 300 | 250 | 8 |
| PPF 272 H-RA - Orpex® F 630 | 26.000 - 66.425 | 1.800 | 870 | 1.007 | 380 | 247 | 340 | 386 | 8 |
| PPF 273 H-RA - Orpex® F 710 | 39.000 - 97.500 | 1.950 | 870 | 1.090 | 380 | 247 | 420 | 400 | 8 |
| PPF 274 H-RA - Orpex® F 800 SB | 48.000 - 130.000 | 1.800 | 940 | 1.161 | 380 | 351 | 450 | 400 | 8 |
| PPF 363 H-RA - Orpex® F 900/20 | 70.000 - 145.000 | 1.200 | 1.145 | 1.155,5 | 992 | 360,5 | 500 | 403 | 29 |

[1] required air pressure min. 2 to max. 5,5 bar

# Sinox




Sinox safety clutch

| Size | Torque T min. - T max. Nm | Speed n max. rpm | D mm | D max. mm | L mm | D1 mm | d1 min. mm | d1 max. mm | L1 mm | D2 mm | d2 min. mm | d2 max. mm | L2 mm | S mm | LR mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 100 - 550 | 3.800 | 180 | 198 | 348 | 130 | 0 | 85 | 75 | 130 | 0 | 85 | 75 | 4 | 201 |
| 2 | 400 - 1.000 | 3.000 | 225 | 230 | 395 | 150 | 0 | 100 | 93 | 150 | 0 | 100 | 93 | 4 | 211 |
| 3 | 1.000 - 1.300 | 3.000 | 225 | 230 | 429 | 150 | 0 | 100 | 93 | 150 | 0 | 100 | 93 | 4 | 246 |
| 4 | 1.200 - 2.000 | 3.000 | 225 | 230 | 429 | 150 | 0 | 100 | 93 | 150 | 0 | 100 | 93 | 4 | 246 |
| 5 | 1.200 - 2.000 | 2.750 | 250 | 250 | 461 | 150 | 0 | 110 | 103 | 150 | 0 | 110 | 103 | 6 | 254 |
| 6 | 1.400 - 2.600 | 2.750 | 250 | 250 | 461 | 150 | 0 | 110 | 103 | 150 | 0 | 110 | 103 | 6 | 254 |
| 7 | 2.300 - 3.900 | 2.450 | 280 | 280 | 504 | 180 | 0 | 110 | 110 | 180 | 0 | 110 | 110 | 6 | 281 |
| 8 | 2.600 - 5.500 | 2.150 | 300 | 315 | 545 | 200 | 0 | 120 | 125 | 200 | 0 | 120 | 125 | 6 | 292 |
| 9 | 4.200 - 7.700 | 2.000 | 335 | 350 | 577 | 230 | 0 | 140 | 140 | 230 | 0 | 140 | 140 | 6 | 294 |
| 10 | 5.200 - 10.000 | 1.700 | 360 | 400 | 626 | 250 | 0 | 150 | 160 | 250 | 0 | 150 | 160 | 6 | 303 |

Smart Drive
Solutions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