Piston seals MAD

DESCRIPTION

PTFE High-Glide Piston Seals

GER HD and MAD series high-glide piston seals are composite dynamic seals designed for double-acting hydraulic cylinders where minimal friction, zero stick-slip effect, and excellent long-term sealing performance are required. Structurally, they consist of a dynamic profile ring made of filled PTFE (bronze or carbon-graphite) which offers outstanding resistance to wear and extrusion, energized by a static elastomer O-Ring providing the necessary radial pre-load even under low-pressure conditions.

PROFILES AND GEOMETRIES

PROFILE	GEOMETRIC DESCRIPTION AND APPLICATION
GER HD Type Heavy Duty	Reinforced profile featuring a thick bronze-filled PTFE ring, specifically developed for heavy-duty hydraulics. Engineered to withstand high pressure peaks, severe radial loads, and prevent extrusion in housings with large clearance gaps.
MAD Type Standard	Compact configuration with extremely low friction properties. Perfect for positioning cylinders, servo-valves, industrial automation, and high-frequency applications where a minimal friction coefficient is a critical operational requirement.

MATERIALS AND OPERATING CONDITIONS

RING MATERIAL	ENERGIZER	SPEED	TEMPERATURE	MAX PRESSURE
PTFE + Bronze GER HD / MAD	NBR 70 ShA	Up to 15.0 m/s	−30 / +100 °C	60 MPa 600 bar
PTFE + Carbon Chemical App.	FKM / Viton	Up to 15.0 m/s	−20 / +200 °C	40 MPa 400 bar

MAIN FEATURES AND ADVANTAGES

Zero Stick-Slip Effect

The exceptionally low static and dynamic friction coefficient of the PTFE blend prevents stiction, ensuring ultra-smooth and precise millimeter adjustments even after prolonged system standstills.

High Extrusion Resistance

The heavy bronze or carbon fill ensures excellent thermal conductivity and superior defense against extrusion and abrasive wear during high-pressure cycles.

Compact Housing Design

The streamlined geometric envelope allows for substantially smaller housing grooves compared to traditional multi-piece chevron stacks, reducing overall cylinder weight.

COMPATIBLE FLUIDS AND COMPLIANCE

Traditional mineral oils, ester-based synthetic lubricants, eco-friendly hydraulic fluids, and water-glycol emulsions. Manufactured in strict compliance with the dimensional layout and housing groove tolerances dictated by international standard**ISO 7425-1**.

MARKET INTERCHANGEABILITY

MANUFACTURER	GER HD SERIES (BRONZE-FILLED)	MAD SERIES (STANDARD PTFE)

Net Seals	GER / GER HD Series	MAD / MUP Series
Freudenberg (Simrit)	OMK-MR Profile	OMK-ES Profile
Parker Prädifa	OE Profile	OG Profile
Trelleborg Sealing Sol.	Glyd Ring T	Glyd Ring Standard
Kastas Sealing Tech.	K35 Profile	K50 Profile