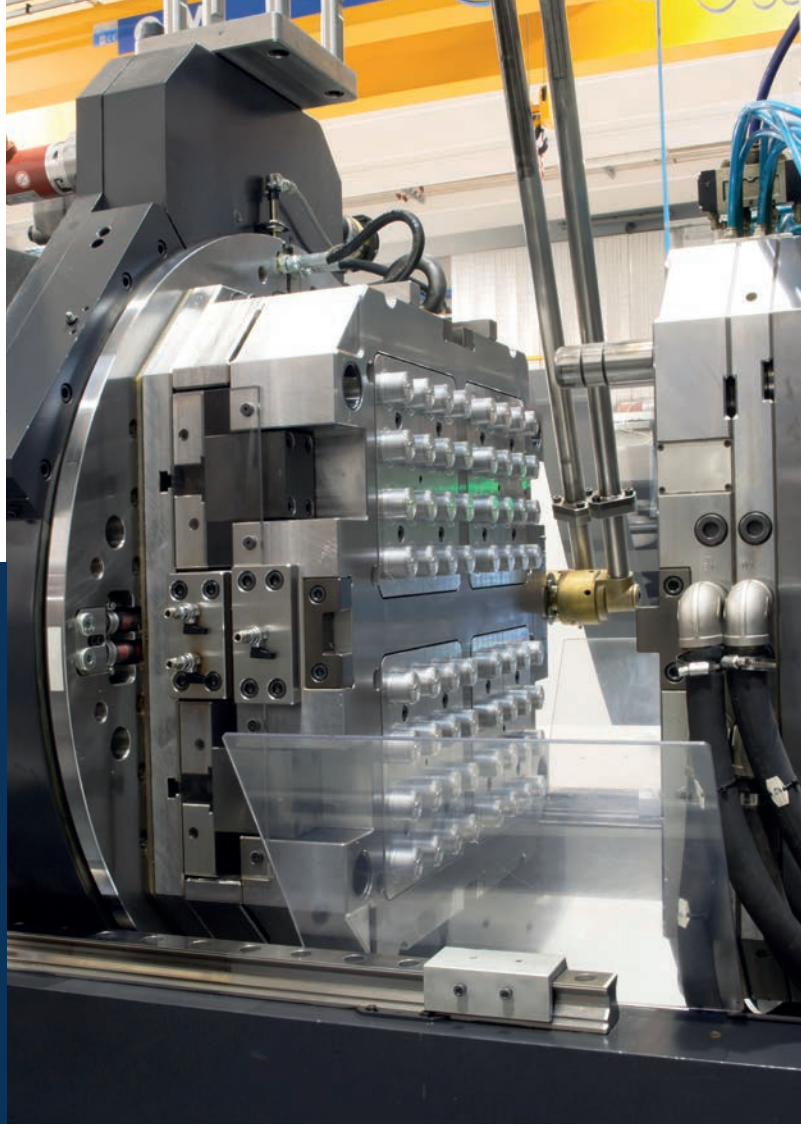
Hydraulic Cylinders

Smooth performance in
demanding applications

ERIKS

Durability and performance



DEVELOPED WITH AN UNCOMPROMISING APPROACH TO DURABILITY AND PERFORMANCE.

Every component is built from high quality materials for maximum life in harsh conditions and every feature designed to ensure high load capacity, wear resistance and smooth performance even in the most demanding application.

HOW HYDRAULIC CYLINDERS WORK

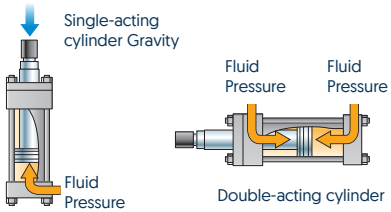
Hydraulic cylinders use pressurised fluid bearing against a piston, to generate a controlled force. Typically they are used to move, lift, compress or hold something in place.

Hydraulic cylinders are not new – water-based systems were in use over 100 years ago – but today's hydraulic cylinder is a highly sophisticated product.

THERE ARE TWO MAIN TYPES OF CYLINDER COMMON TO UK INDUSTRY:

SINGLE-ACTING CYLINDERS

Single acting cylinders are controlled by gravity. They usually perform a task and then return to the start position, for example through gravity or an external force.



DOUBLE-ACTING CYLINDERS

Double-acting cylinders apply pressurised fluid to both sides of a piston in turn, and are used to 'cycle' the cylinder in both directions. These are the most common models – found on everything from machine tools to wind turbines and backhoe loaders.

APPLICATIONS INCLUDE

- Presses
- Cranes
- Forges
- Packing machines
- Cement plants
- Crushers
- Marine equipment
- Steel mills
- Machine tools
- Power stations
- Powered access equipment
- Scissor lifts
- Refuse vehicles
- Agriculture equipment
- Scrap metal plants
- Paper and wood mills
- Injection moulding

Guarantee reliability

MITIGATE THE RISK OF PREMATURE FAILURE

Did you know that 90% of all hydraulic cylinder failures are due to one of three reasons?

- Misalignment between the cylinder and its load
- Contamination with environmental or system pollutants
- Mechanical damage (particularly in harsh environments, such as extreme temperatures or where aggressive materials are handled).

Sometimes, customers will book a repair, only to find that the same problem crops up again weeks or months later. And over time, that can be a costly and inefficient option.

HOW CLEAN IS YOUR OIL?

Poor maintenance, failing components and contaminated hose assemblies can all lead to oil contamination. Sampling and analysing your hydraulic system oil will:

- Highlight developing problems
- Prevent premature failure
- Ensure optimum operational efficiency

Provide ERIKS with a sample of oil from any hydraulic system, and our experienced Application Engineers will then produce a detailed evaluation of the results to help you keep running for longer.

DON'T RISK IT, SAMPLE IT

RESOLVING COMMON HYDRAULIC CYLINDER PROBLEMS

DAMAGED PISTON RODS OR ROD BEARINGS

Damaged piston rods or rod bearings are the most common cause of rod seal failure. The usual causes of such damage are poor alignment between the cylinder and its load, resulting in side loading; or a bent piston rod, resulting from the use of an undersized rod in the thrust application.

Gland and seal showing wear resulting from excessive side loading. Brass 'paste' on seal is a mixture of gland material and hydraulic fluid

The cracked outer sealing lip of this wiper seal shows damage caused by heat

Contamination damage is apparent in this rod seal, where the serrations are worn completely away. The seal on the right is new, shown for comparison.

Particle contamination has scored the surface of this cushion bush, resulting in a loss of cushioning effect

CONTAMINATED FLUID

Contaminated fluid can also cause premature rod seal failure. Abrasive particles suspended in the fluid can damage the seal and the piston rod surface, while airborne contamination can be drawn into a cylinder via a faulty wiper seal. Particle contamination may be reduced through appropriate filtration methods.

Other solutions to particle and water contamination include the installation of metal rod scrapers or rod bellows to slow the ingress of contaminants. Paying close attention to the alignment of the cylinder on installation will also reduce the rate at which the cylinder produces its own fluid contaminants.

EXTREME TEMPERATURES

Extreme temperature applications pose two challenges. First, the temperature itself may limit the choice of seal materials and geometries. Second the fluids used in such applications often have less lubricity than mineral oil-based fluids. Seals that have been overheated or exposed to too low a temperature have the same appearance: hard,cracked and brittle. Parker cylinders are available with high and low temperature seal options.

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Metric Tie Rod Series HMI/HMD

The HMI and HMD ranges are Compact Series cylinders to ISO 6020/2 and DIN 24 554, rated for use at working pressures up to 210 bar depending on the rod end and type of service. They have been designed to satisfy the requirements of a wide range of industries in which cylinders to ISO or DIN standards are specified.

THE RIGHT CHOICE FOR EVERY APPLICATION

- The steel head and caps offer excellent fatigue resistance and zero porosity providing greater machine reliability and operator safety
- The piston is threadlocked and torque-tightened to the rod, then pinned for ultimate security offering longer life and reduced maintenance
- Induction case hardened piston rods offer exceptional resistance to denting, scoring and external damage
- Spiral grooves machined into the faces of the piston distribute oil rapidly resulting in improved power delivery and higher productivity
- The range offers a wide range of mounting styles including, head, cap and mid-tube styles and pivoting foot mounts ensuring you get the right cylinder for the application

TECHNICAL FEATURES

- Working pressure up to 210 bar
- Bore sizes: 25mm to 200mm
- Piston rod diameters: 12mm to 140mm
- Single and double rod designs available
- Strokes – available in any practical stroke length
- Cushioning optional at both ends
- Five seal types to suit a wide range of fluid specifications
- Temperature ranges:
- -20°C to +150°C.
- Solution for existing application problems with an ISO /DIN Product

APPLICATIONS INCLUDE

- Machine tools
- Presses
- Injection moulding
- Die casting
- Oil and gas
- Tyre presses
- Steel mills
- Leisure simulators (theme parks)
- Manipulators
- Gas turbines
- Crushers
- Baling (waste materials, card, paper)

Roundline MMA “Mill Type” Series

The heavy duty series MMA cylinder has been designed for service in steel mills and in other arduous applications where a rugged, dependable cylinder is required. In addition to the standard cylinders, MMA cylinders can be designed and manufactured to suit individual customer requirements.

REDUCED MAINTENANCE COSTS AND EXTENDED OPERATION

- The range incorporates removable glands and separate bodies with detachable heads and caps to ensure ease of maintenance and whole life operating costs
- Detachable threaded flanges for head and cap retention help simplify maintenance
- Induction hardened piston rods, offer the ultimate resistance to damage in tough applications
- The heavy wall steel tubing is honed to a high surface finish to ensure longer seal life
- Smooth operation for precise and dynamic performance
- A wider range of mounting accessories offer greater versatility for the designer and are supported by web-based CAD models

TECHNICAL FEATURES

- Heavy duty construction
- Styles and dimensions to: CETOP RP73H, ISO 6022, DIN 24 333, AFNOR NF E48-025, VW 39D 921
- Rated pressure: 250 bar
- Fatigue-free at the rated pressure
- Hydraulic mineral oil – other fluids on request
- Temperature range of standard seals: -20°C to +80°C
- Construction: head and cap bolted to heavy steel flanges
- Bore sizes: 50mm to 320mm
- Piston rod diameters: 32mm to 220mm
- Cushioning – optional at both ends
- Air bleeds – optional at both ends
- Tested in accordance with ISO 10100 : 2001

APPLICATIONS INCLUDE

- Machine tools
- Presses
- Injection moulding
- Die casting
- Steel mills
- Cement plants
- Dams and lock gates
- Power stations
- Damping systems
- Wind turbines
- Wave energy
- Bridges

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How to order ISO Cylinders

50	C	MF3 [1]	MMA	R [2]	N	S
Bore Size in mm	Cushion Head	Mounting Style	Series	Ports	Gland & Piston Type	Special features

Bore Size in mm

Bore Ø
50
63
80
100
125
1401
160
1801
200
250
320

Cushion Head

	Description
C	Cushion head
-	No cushion

Mounting Style

	Description
MF3	Head circular flange
MF4	Cap circular flange
MP3	Cap fixed eye
MP5	Cap fixed eye with spherical bearing
MT4	Intermediate trunion

Series

	Description
MMA	Roundline mill type 250 bar
HMI	Metric tie rod 210 bar (ISO 6020/2)
HMD	Metric tie rod 210 bar (DIN 24554)

Ports

	Description
R	BSP parallel
M	Metric to DIN 3852
P	Flange ports to ISO 6162
Y	Metric to ISO 6149

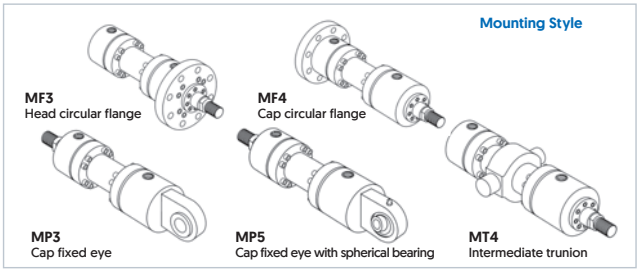
Gland & Piston Type

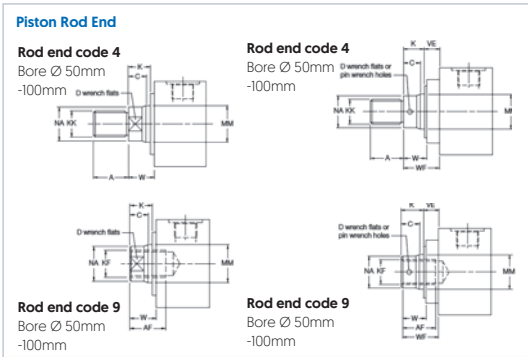
	Description
N	Standard
F	Low friction
LL	Chevron
A	Load holding
E	Special designs

Special features

	Description
S	Oversized ports
S	Special Seals
S	Stop tube
	or to customer spec

Bore Ø	Rod No.	MM Rod Ø
50	1	32
	2	36
63	1	40
	2	45
80	1	50
	2	56
100	1	63
	2	70
125	1	80
	2	90
140[1]	1	90
	2	100





1	1 [3]	1 [4]	C	1	M	1	00
Piston Rod Number	Piston Rod End	Rod Thread	Cushion Cap	Net Stroke	Fluid Medium	Port Positions	Air Bleeds

Description	
4	Style 4
9	Style 9
3	Style 3 (special) supply drawing or description

Bore Ø	Rod No.	MM Rod Ø
160	1	100
	2	110
180[1]	1	110
	2	125
200	1	125
	2	140
250	1	160
	2	180
320	1	200
	2	220

Bore Ø	Thread	Bore Ø	Rod No.
50	M27x2	160	M80x3
63	M33x2	180[1]	M90x3
80	M42x2	200	M100x3
100	M48x2	250	M125x4
125	M64x2	320	M160x4
140[1]	M72x3		

Description	
C	Cushion cap
-	

Description
Customer to advise

Description	
M	Group 1 - NBR, PTFE, AU
C	Group 2 - NBR, PTFE
D	Group 5 - FPM, PTFE
A1	Group 6 - Various (95/5 HFA)
B	Group 7 - Various (60/40HFB)

Description	
1	Head position 1-4
1	Cap position 1-4

Description	
4	Head position 1-4
4	Cap position 1-4
00	No air bleeds

Required for base cylinder

Indicate optional features or leave blank

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