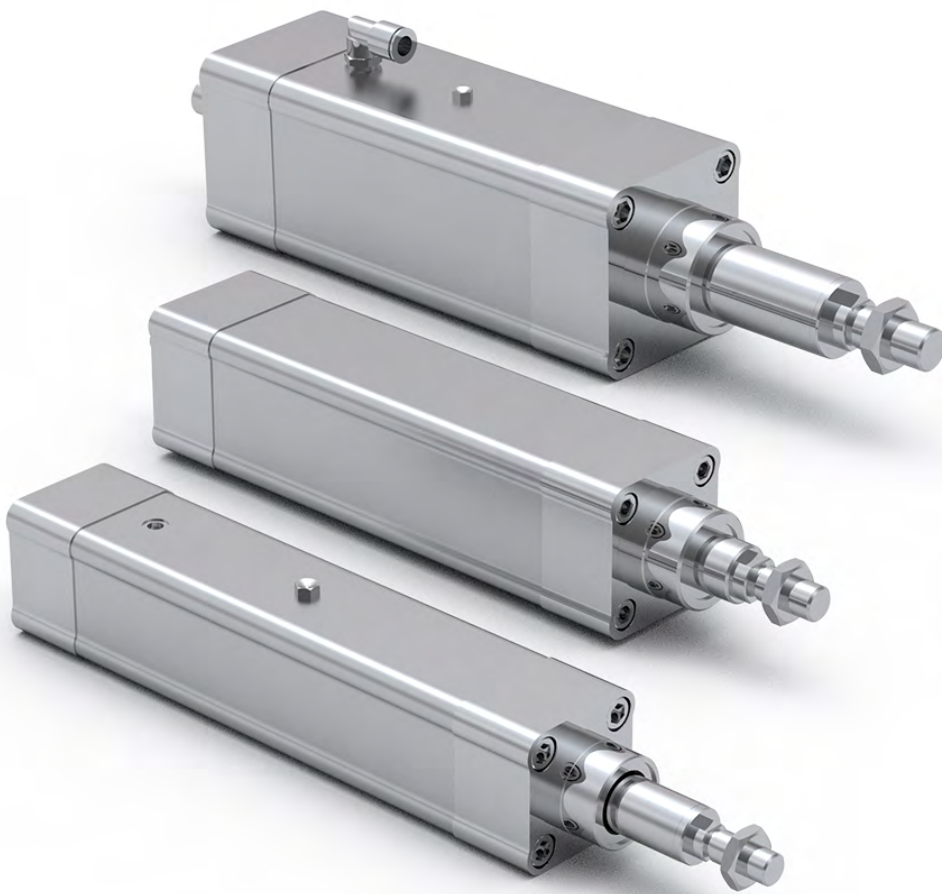


TECHNICAL INFORMATION

PNCE ELECTRIC CYLINDERS



Information in this document is subject to change. Owing to continued product development, Rollco reserves the right to make alterations without prior notice. Every care has been taken to ensure the accuracy of the information, but no liability can be accepted for any errors or omissions.

All information and content included in this document, such as text, and images, are property of Rollco. Any reproduction, even partial, is allowed only by written permission by Rollco.

Index

| | |
|---|----------|
| GENERAL INFORMATION | 4 |
| Product overview | 4 |
| TECHNICAL INFORMATION | 6 |
| Absolute stroke and length of the PNCE definition | 6 |
| Lubrication position | 6 |
| Load torque calculation | 7 |
| ACCESSORIES & OPTIONS | 8 |
| Attachment accessory overview | 8 |
| ORDER CODES | 9 |
| PNCE | 9 |
| Guiding unit | 9 |
| Motor adapter with coupling | 10 |
| Motor side drive with a timing belt | 10 |
| Couplings | 11 |

Product overview

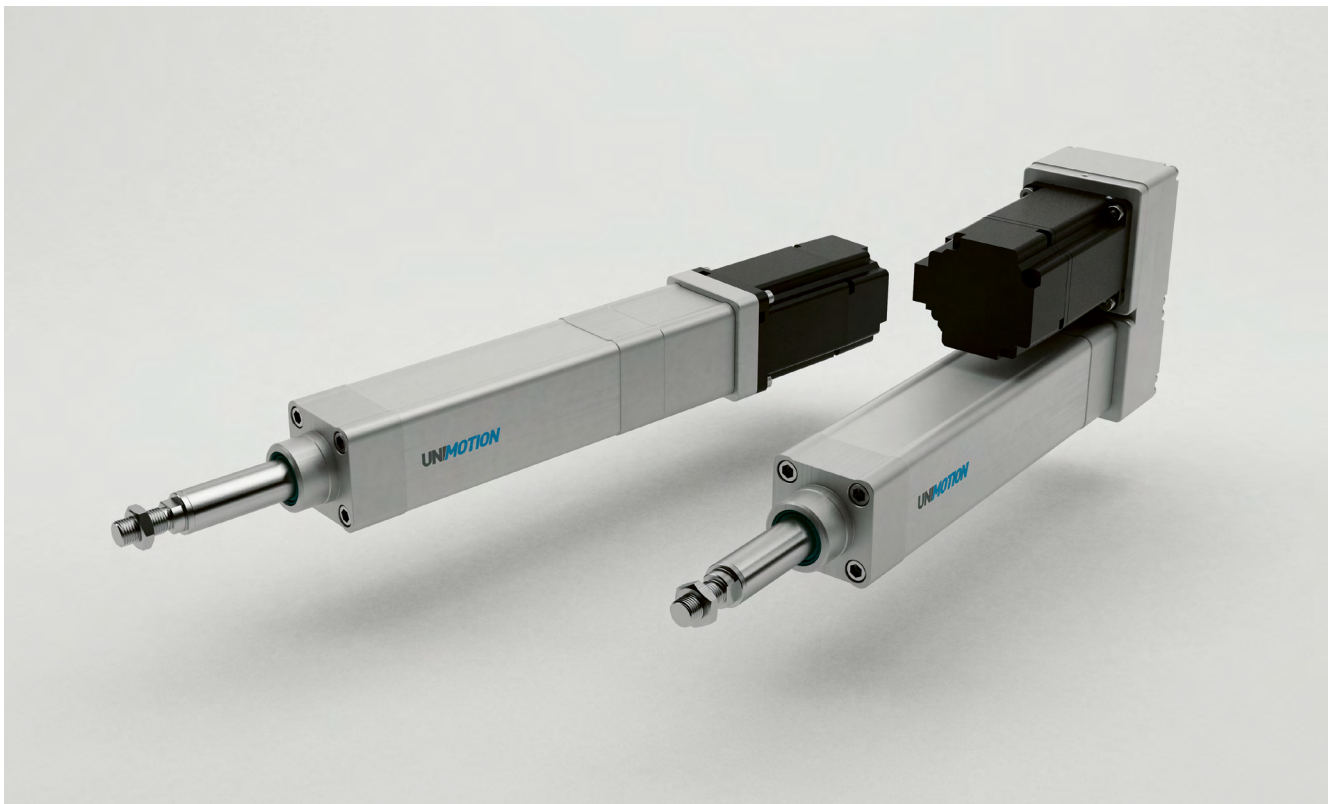
The PNCE are electric cylinders with a precision ball screw drive. The electric cylinder is based on the standard ISO 15552. Its outer design and dimensions are very similar to pneumatic cylinders.

The precision ball screw with reduced backlash of the ball nut and non-rotating piston rod offers high performance. Preload is available on request. For a long service life the re-lubrication can be done through a lubrication nipple.

The design with its smooth surfaces enables easy cleaning of the cylinder, which makes it suitable for food and beverage applications. It can be additionally equipped with switches and ISO standard accessories. The excellent sealing of the components in the cylinder protects the interior of the cylinder from dust, water and other contaminants. For harsh environments there is a high corrosion resistance version.

Characteristics

- High speeds
- Good positioning accuracy
- High repeatability
- Long service life
- Protection classes up to IP65
- Corrosions resistant versions available
- Smooth surfaces and secure sealing





Sensor holder

ISO standard accessories

Pressure compensation (IP65)

Motor adapter with coupling

Motor side drive

Options for special applications

IP65 protection class (IP65)

The appropriate sealing of the external parts ensures the electric cylinder the IP65 protection class. The IP65 protection class of the electric cylinder fulfils the specifications to IEC 60 529. The connection for pressure compensation in the cylinder profile ensures the exchange of air between the interior of the cylinder and the environment. This prevents the occurrence of excess pressure or negative pressure inside the electric cylinder. It also protects the interior of the cylinder from the external media like dust and water.

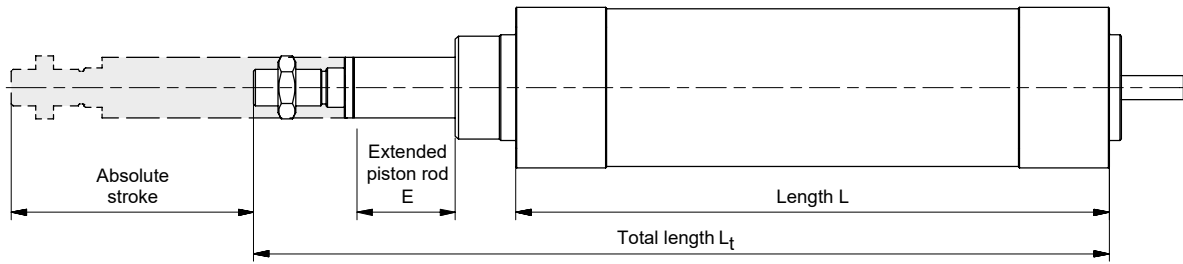
IP65 protection class with high corrosion resistance (IP65CR)

It offers high corrosion resistance in harsh environments. The version IP65CR includes all the features of the electric cylinder version IP65. In addition to ensuring high corrosion resistance all the external parts are corrosion resistant (e.g. the connection for pressure compensation, lubrication nipple, and the connection elements are made of stainless steel). More information about materials is available upon request in the extended material information list.

For applications in the food industry (FI)

The version FI includes all the features of the electric cylinder version IP65CR. It is upgraded by materials suitable for some applications in the food industry. The cylinder is greased with a lubricant class NSF H1. The design with the smooth surfaces of the aluminium profile enables its quick and effective cleaning. During the cleaning the sealing air can be applied to the connection for pressure compensation. The use for the food and beverage industry is limited by the materials of the electric cylinder. More information about materials is available upon request in the extended material information list.

Absolute stroke and length of the PNCE definition



Absolute stroke = Effective stroke + 2 × Safety stroke

L = L1 + Absolute stroke

Lt = L + L2 + E Emax = 200 mm

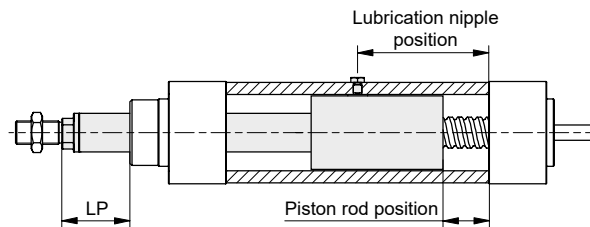
Female thread:

Lt = L + L4 + E Emax = 200 mm

E = Extended piston rod (mm)

Note! The electric cylinder doesn't include any safety stroke.

Lubrication position



| PNCE size | Ball screw d×l [mm] | Lubrication nipple position | Piston rod position [mm] | LP |
|-----------|---------------------------|-----------------------------|--------------------------|----------------------------|
| 32 | 12×5, 12×0 | Abs. stroke / 2 + 38,0 | Abs. stroke / 2 - 9,0 | Abs. stroke / 2 + E - 1,0 |
| 40 | 16×5, 16×10, 16×16 | Abs. stroke / 2 + 42,0 | Abs. stroke / 2 - 10,5 | Abs. stroke / 2 + E - 0,5 |
| 50 | 20×5, 20×10, 20×20 | Abs. stroke / 2 + 53,5 | Abs. stroke / 2 - 22,0 | Abs. stroke / 2 + E - 10,0 |
| | 20×50 | | Abs. stroke / 2 - 5,0 | Abs. stroke / 2 + E + 7,0 |
| 63 | 25×5, 25×10 | Abs. stroke / 2 + 47,5 | Abs. stroke / 2 - 13,5 | Abs. stroke / 2 + E - 1,5 |
| | 25×25 | | Abs. stroke / 2 - 4,0 | Abs. stroke / 2 + E + 8,0 |
| 80 | 32×5, 32×10, 32×20, 32×32 | Abs. stroke / 2 + 62,0 | Abs. stroke / 2 - 27,0 | Abs. stroke / 2 + E - 12,0 |
| 100 | 40×5, 40×10, 40×20 | Abs. stroke / 2 + 70,0 | Abs. stroke / 2 - 20,0 | Abs. stroke / 2 + E - 3,0 |
| | 40×40 | Abs. stroke / 2 + 77,5 | Abs. stroke / 2 - 27,5 | Abs. stroke / 2 + E - 10,5 |

The lubrication nipple on the aluminum profile of the electric cylinder allows easy re-lubrication of the ball screw. To achieve the lubrication position the piston rod must be moved from the end position into position (piston rod position) shown in the table above. The same position is achieved when the distance LP is obtained.

Load torque calculation

Load torque can be approximated as follows. For further information, contact Rollco technical department.

The load torque is a function of an applied axial load on the PNCE and can be calculated as follows:

$$M_{load} = \frac{F_{axial} \times l}{2000 \times \pi \times \eta}$$

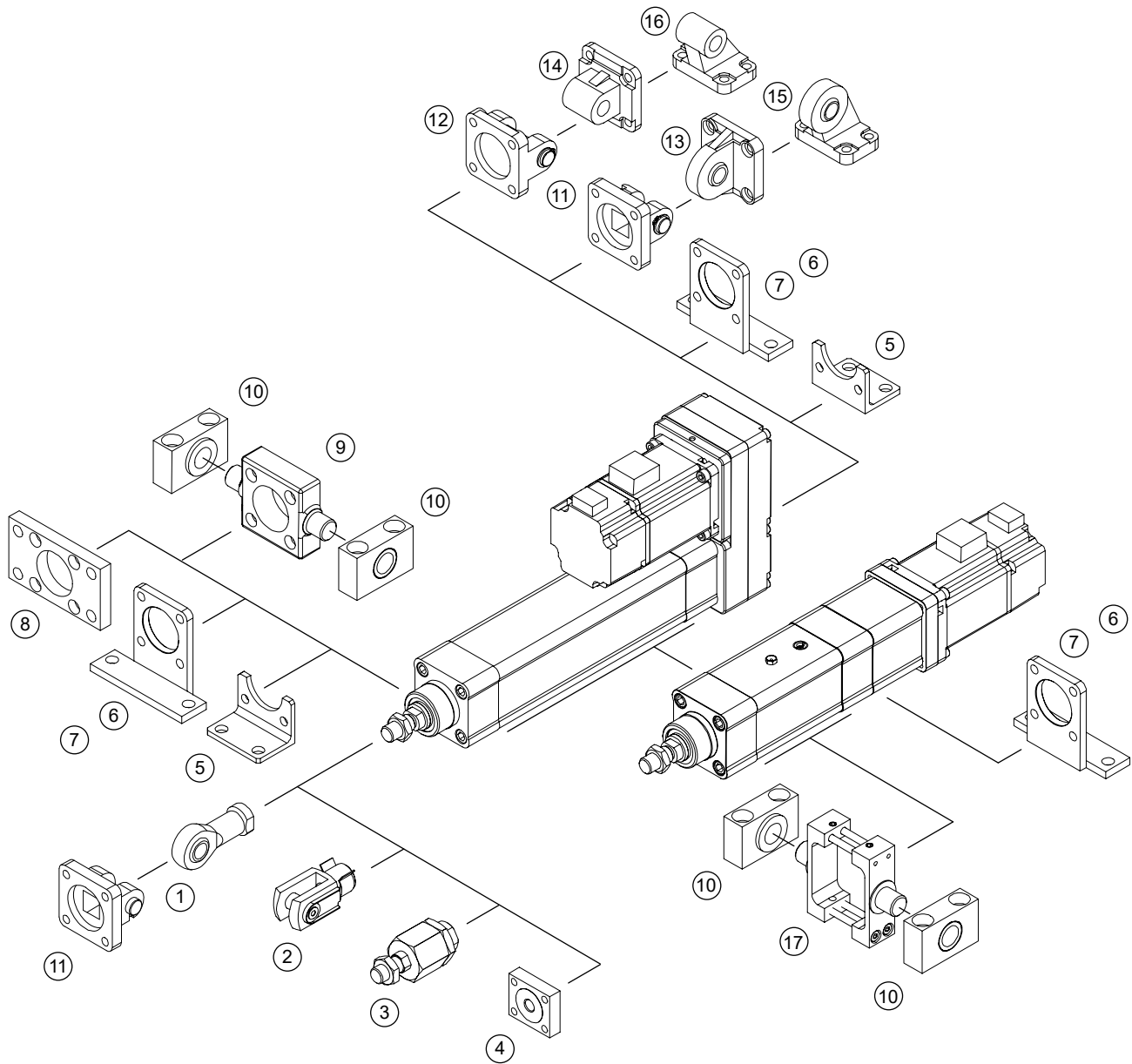
When the motor side drive (MSD) is taken into consideration:

$$M_{load} = \frac{F_{axial} \times l}{2000 \times \pi \times \eta \times i}$$

| | | |
|-------------|-------------------------------------|------|
| M_{load} | Load torque | [Nm] |
| F_{axial} | Applied axial load on the PNCE | [N] |
| l | Ball screw lead | [mm] |
| η | Mechanical efficiency $\approx 0,9$ | [-] |
| i | Gear ratio | [-] |

Please note that the load torque M_{load} must never exceed the maximum drive torque M_p .

Attachment accessory overview



- | | |
|---------------------------------------|--|
| 1. Piston rod accessory SGS | 10. Mounting attachment accessory LZ |
| 2. Piston rod accessory SG | 11. Mounting attachment accessory SGN |
| 3. Piston rod accessory FK | 12. Mounting attachment accessory SBG |
| 4. Piston rod accessory KSZ | 13. Mounting attachment accessory SSG |
| 5. Mounting attachment accessory HG | 14. Mounting attachment accessory SGL |
| 6. Mounting attachment accessory HGL | 15. Mounting attachment accessory LSG |
| 7. Mounting attachment accessory HGLL | 16. Mounting attachment accessory LG |
| 8. Mounting attachment accessory FG | 17. Mounting attachment accessory ZKCE |
| 9. Mounting attachment accessory ZK | |

PNCE

PNCE - 40 - BS - 1610 - 200 - S - F - E20

PNCE size

32, 40, 50, 63, 80 or 100

Screw type

BS: ball screw

Ball screw

PNCE 32: Ø12x5, Ø12x10
 PNCE 40: Ø16x5, Ø16x10, Ø16x16
 PNCE 50: Ø20x5, Ø20x10, Ø20x20, Ø20x50
 PNCE 63: Ø25x5, Ø25x10, Ø25x25
 PNCE 80: Ø32x5, Ø32x10, Ø32x20, Ø32x32
 PNCE 100: Ø40x5, Ø40x10, Ø40x20, Ø40x40

Absolute stroke [mm]

Absolute stroke = Effective stroke + 2 × Safety stroke

Versions

S: Standard version
 IP65: IP65 protection class
 IP65CR: IP65 protection class with high corrosion resistance
 FI: For applications in the food industry (check the material information)

Option 1

Leave blank: standard
 F: female thread on the piston rod

Option 2:

Extended piston rod E [mm]

Guiding unit

GUH - 40 - 200 - BB

PNCE size

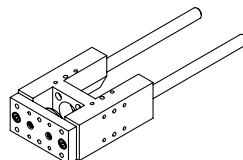
32, 40, 50, 63, 80 or 100

Absolute stroke + Extended piston rod E [mm]

Max. 500 mm

Option

BA: with slide bushes
 BB: with ball bushes



Motor adapter

VK - PNCE40 - EKL10 - 1 - S - 60 - 70 - 50 - 3 - 30 - 7,5 - 5,5 - 4,6 - 29 - 45
 (A) (ØB) (ØC) (M) (L1) (H) (ØO) (V) (ØZ) (α)

Motor adapter

PNCE series

Suitable coupling size (ordered separately)

Mounting attachment HGL/HGLL:

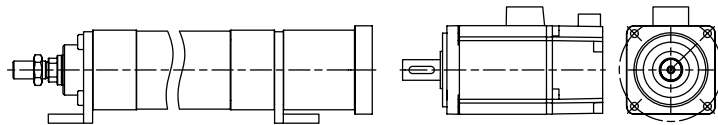
0: without
 1: with

Versions:

S: Standard
 IP65CR: IP65CR protection (Also suitable for some applications in the food industry.)

Motor dimensions [mm]

(°)



Motor side drive with a timing belt

MSD - PNCE40 - T1 - 1 - S - 60 - 70 - 50 - 3 - 30 - 14 - 7,5 - 5,5 - 20 - 20 - 4,6 - 29 - 45
 (A) (ØB) (ØC) (M) (L1) (ØD) (H) (ØO) (R) (S) (V) (ØZ) (α)

Motor side drive

PNCE series

Type

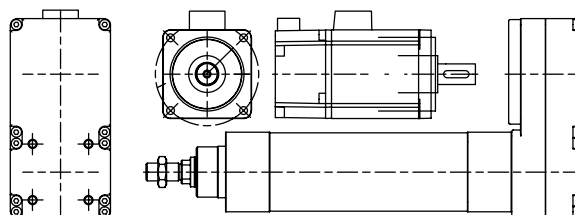
Gear ratio

Versions:

S: Standard
 IP65CR: IP65CR protection

Motor dimensions [mm]

(°)



Coupling

COUPLING - EKL10 - A - F8 - F14PFN

Coupling type/size

5, 10, 20, 60 or 150

Elastomer insert type

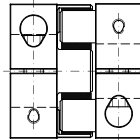
A

Hole diameter

Option

PFN: with keyway

Leave blank: without keyway



**ALWAYS THE RIGHT
SOLUTION AT THE RIGHT TIME.**

With reliability, competence and commitment Rollco rapidly delivers the right solutions and components to create safe and cost-effective automation and linear movement.

ROLLCO

LINEAR SOLUTIONS **YOUR WAY**

Rollco AB

Box 22234
Ekvändan 17
250 24 Helsingborg
Sweden
Tel. +46 42 15 00 40
www.rollco.se

Rollco A/S

Skomagervej 13 E
7100 Vejle
Denmark
Tel. +45 75 52 26 66
www.rollco.dk

Rollco Oy

Sarankulmankatu 12
33900 Tampere
Finland
Tel. +358 207 57 97 90
www.rollco.fi

Rollco Norge AS

Industrigata 6
3414 Lierstrada
Norway
Tel. +47 32 84 00 34
www.rollco.no

Rollco Taiwan

No. 28, Lane 125, Da-an Road
Shulin District 238
New Taipei City, Taiwan
Tel. +886-2-8687-2726
Fax +886-2-8687-2720
www.rollco-tw.com