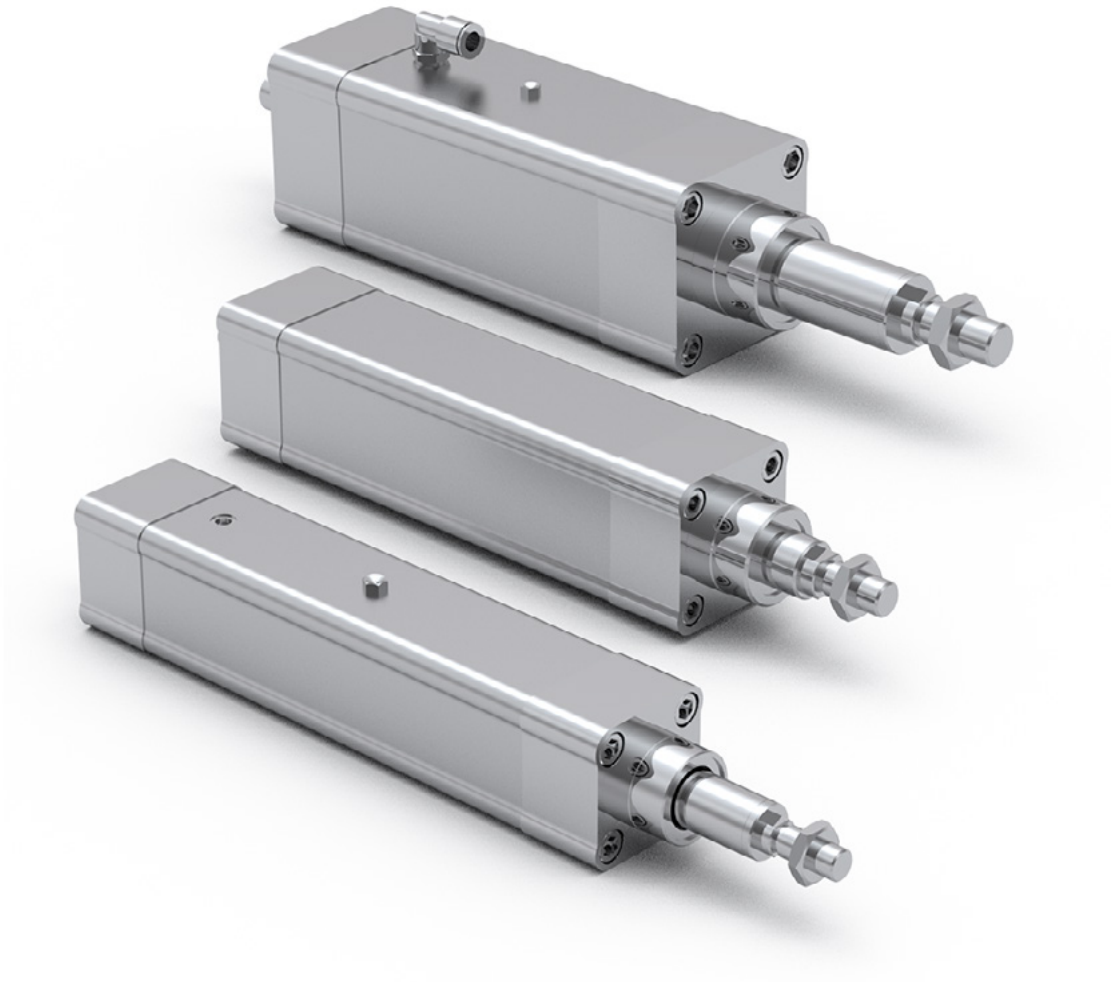
ROLLCO

TECHNICAL INFORMATION
PNCE ELECTRIC CYLINDERS



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Product overview

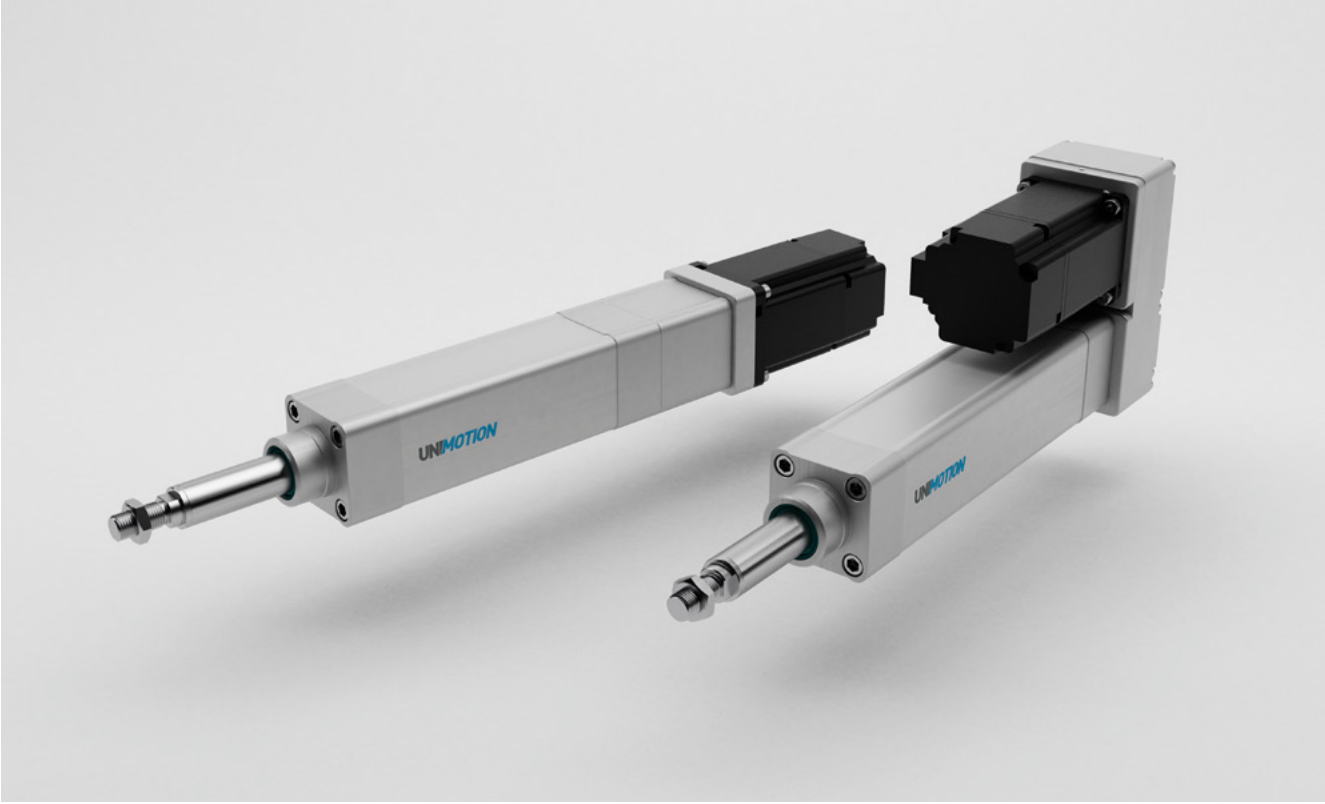
The PNCE are electric cylinders with a precision ball screw drive. The electric cylinder is based on the standard ISO 15552. Its outer design and dimensions are very similar to pneumatic cylinders.

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 additionaly 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 occurence 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.

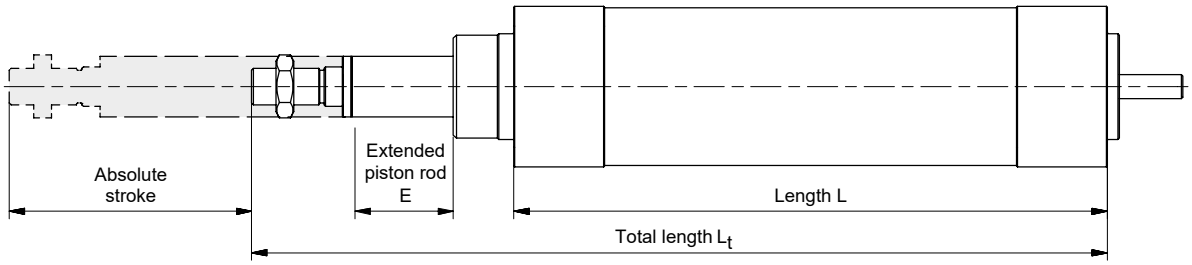
IP65 protection class with high corrosion resistance (IP65CR)

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

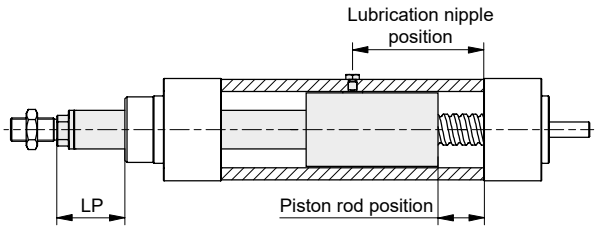
Female thread:

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 [mm]	Piston rod position [mm]	LP [mm]
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	32x5, 32x10, 32x20, 32x32	Abs. stroke / 2 + 62,0	Abs. stroke / 2 - 27,0	Abs. stroke / 2 + E - 12,0
100	40x5, 40x10, 40x20	Abs. stroke / 2 + 70,0	Abs. stroke / 2 - 20,0	Abs. stroke / 2 + E - 3,0
	40x40	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 lubricationing 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:

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

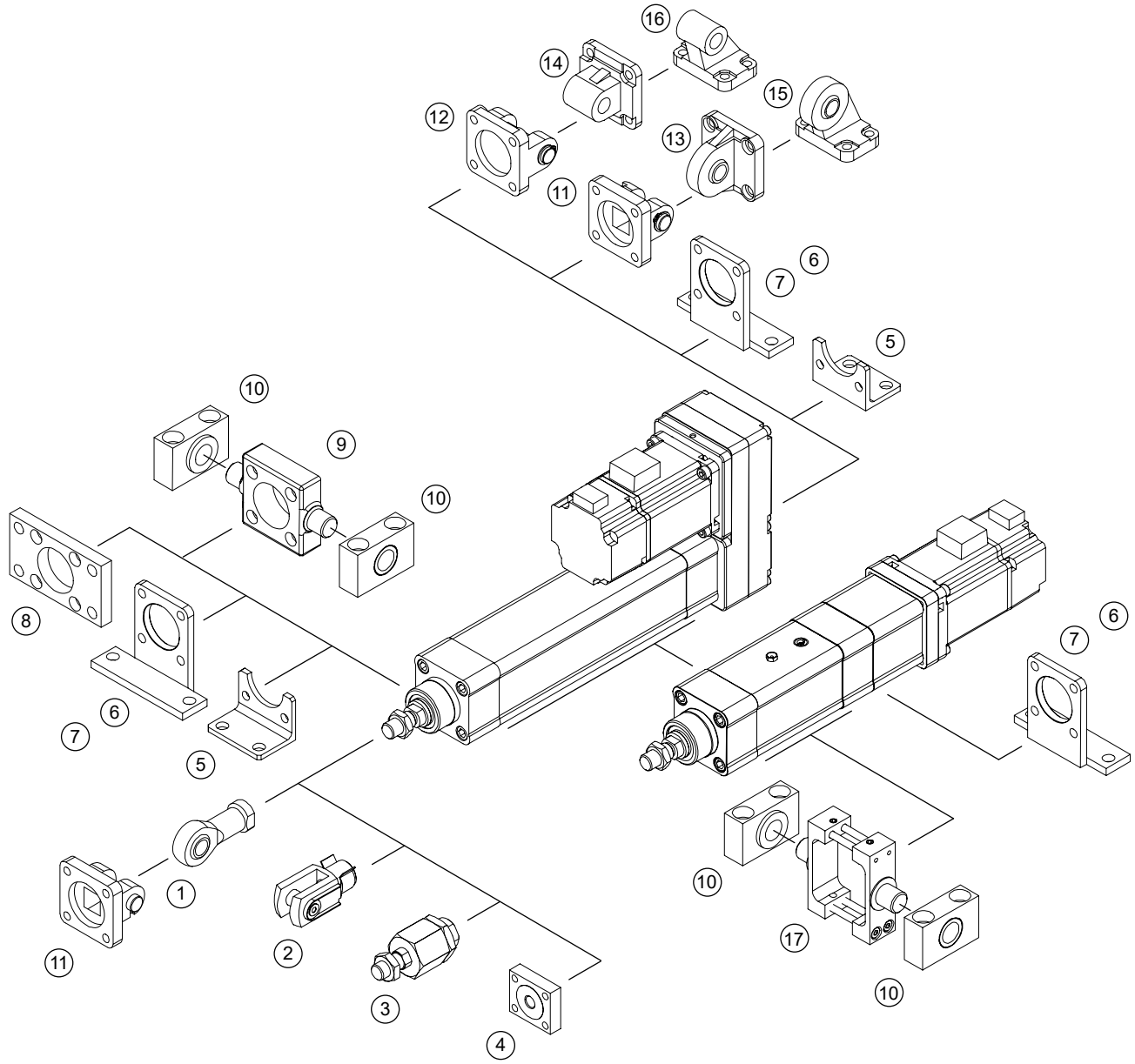
When the motor side drive (MSD) is taken into consideration:

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

M_{load}	Load torque	[Nm]
F_{axial}	Applied axial load on the PNCE	[N]
l	Ball screw lead	[mm]
η	Mechanical efficiency ≈ 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
2. Piston rod accessory SG
3. Piston rod accessory FK
4. Piston rod accessory KSZ
5. Mounting attachment accessory HG
6. Mounting attachment accessory HGL
7. Mounting attachment accessory HGLL
8. Mounting attachment accessory FG
9. Mounting attachment accessory ZK
10. Mounting attachment accessory LZ
11. Mounting attachment accessory SGN
12. Mounting attachment accessory SBG
13. Mounting attachment accessory SSG
14. Mounting attachment accessory SGL
15. Mounting attachment accessory LSG
16. Mounting attachment accessory LG
17. Mounting attachment accessory ZKCE

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]

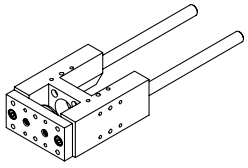
Guiding unit

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 with coupling

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

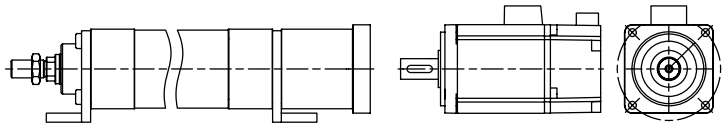
Coupling type

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

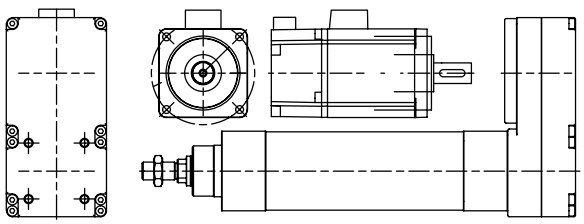
Type

Gear ratio

Versions:
S: Standard
IP65CR: IP65CR protection

Motor dimensions [mm]

(°)



Couplings

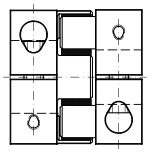
COUPLING - EKL10 - A - F8 - F14PFN

Coupling type/size
5, 10, 20, 60 or 150

Elastomer insert type
A

Hole diameter

Option
PFN: with keyway
Leave blank: without keyway



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