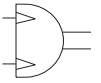


ROTARY ACTUATORS

Series R

The UNIVER rotary actuator incorporates several technology features which provide a higher degree of accuracy and reliability. The robust mechanical design expands application possibilities within modern day automation.



TECHNICAL CHARACTERISTICS

Working pressure: 1,5 ÷ 10 bar
 Ambient temperature: -20° ÷ +80°C
 Media: filtered air with or without lubrication
 Cylinder barrel: aluminium extrusion, internally and externally anodized 15 - 18 microns
 Rack backlash recovery
 Rotating pinion supported by ball bearings

Optional
 Magnetic sensors, see page 2.27

Theoretical torque at 1 bar

Multiply the value in the table by the operating pressure

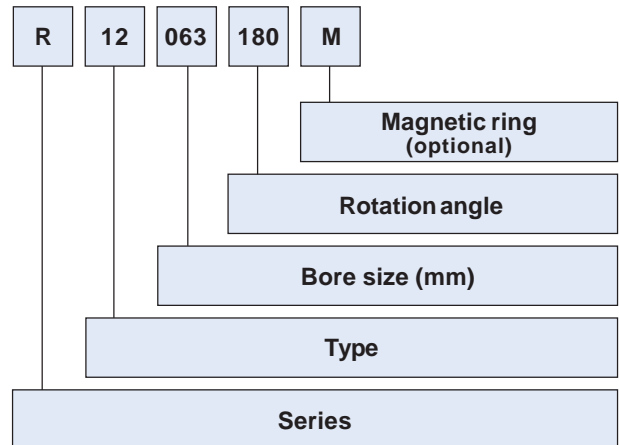
| Cyl. Ø | 32 | 40 | 50 | 63 | 80 | 100 | 125 |
|---------------------|-----|------|-----|-----|------|------|-----|
| M _t (Nm) | 1,2 | 2,25 | 3,9 | 7,3 | 15,7 | 26,5 | 51 |

Maximum kinetic energy absorbable by cushioning

The adjustment of the rotation angle reduces the effect of cushioning (R12 - R14)

| Cyl. Ø | 32 | 40 | 50 | 63 | 80 | 100 | 125 |
|------------------------|-----|-----|-----|----|----|-----|-----|
| E _c (Joule) | 1,8 | 2,5 | 4,5 | 8 | 12 | 21 | 36 |

Codification Key



TYPES

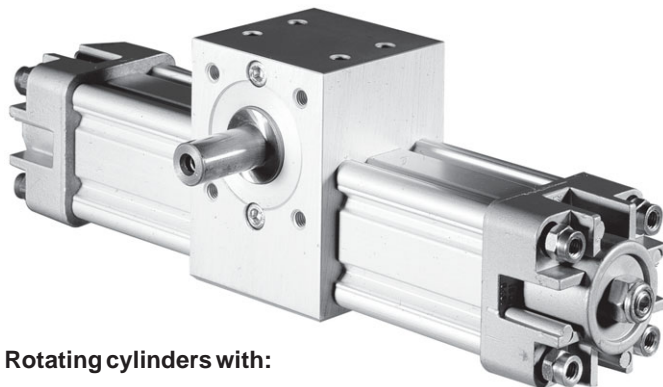
- 11 male pinion without adjustment (positional accuracy ± 3°)
- 12 male pinion with adjustment ± 5°
- 13 female pinion without adjustment, (positional accuracy ± 3°)
- 14 female pinion with adjustment ± 5°

BORE

32 - 40 - 50 - 63 - 80 - 100 - 125 mm

ROTATION ANGLE

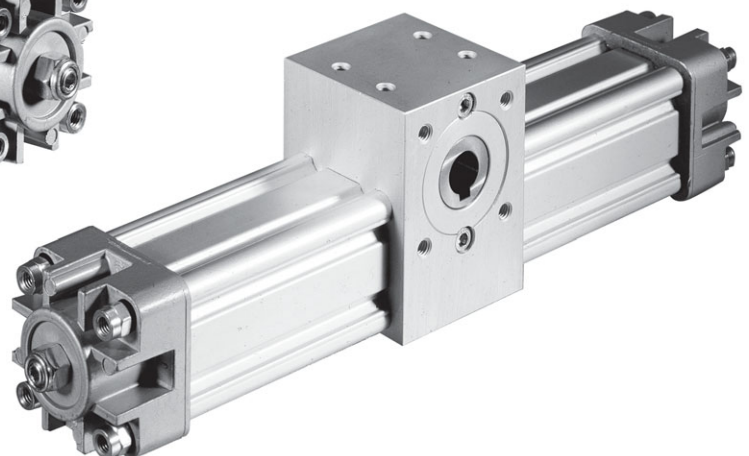
90° - 180° - 270° - 360°



Rotating cylinders with:

• R11.../R12... male pinion

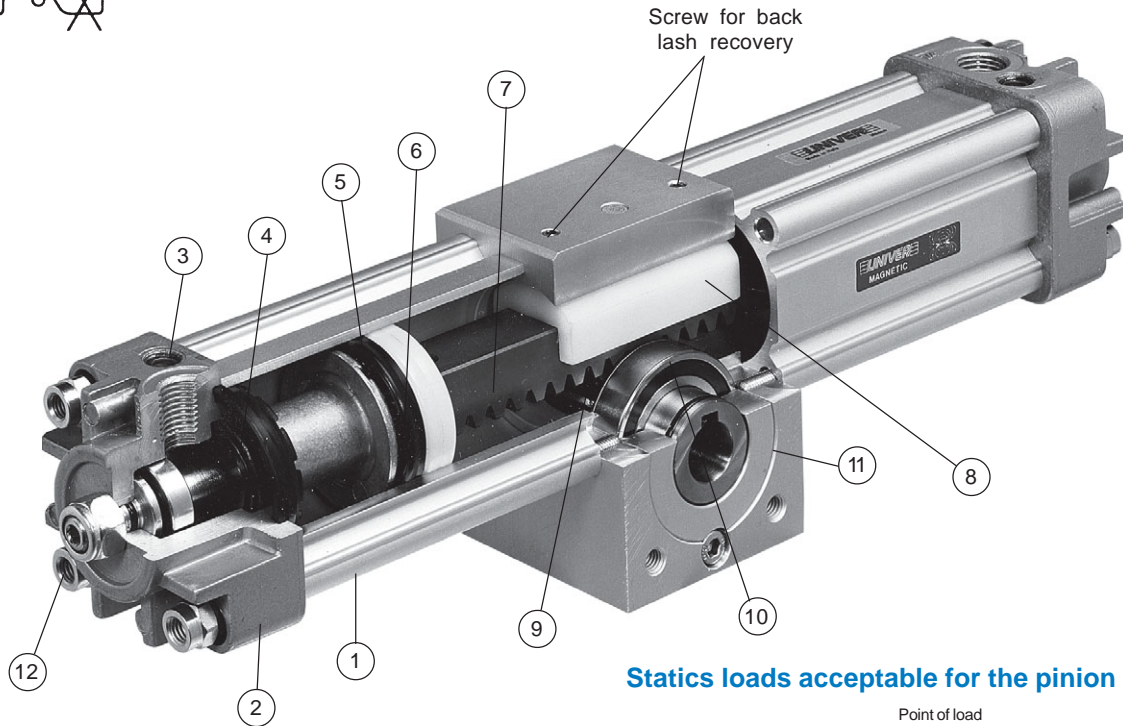
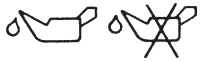
• R13.../R14... female pinion



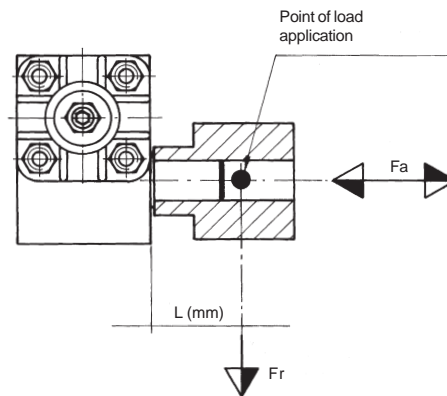
Technical modifications keep in reserve !

(2020/10)

Overall dimensions



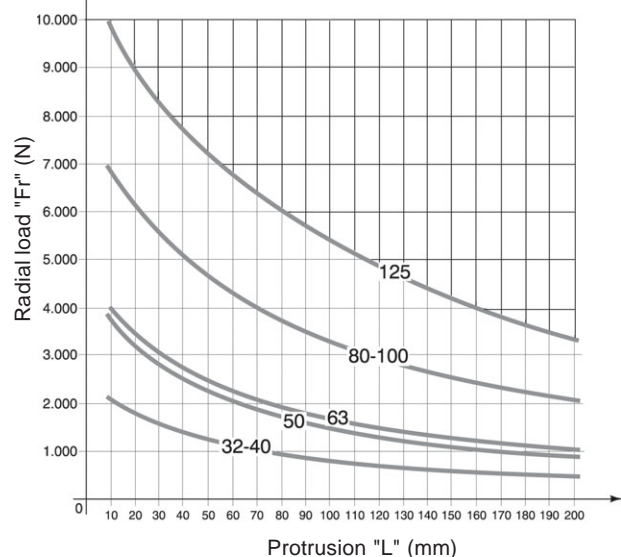
Statics loads acceptable for the pinion



Fa = Radial load max (N) with Fr = 0

| Cyl. Ø | 32 | 40 | 50 | 63 | 80 | 100 | 125 |
|--------|-----|-----|-----|-----|-----|-----|-----|
| Fa | 100 | 100 | 120 | 120 | 200 | 250 | 300 |

Fr = Radial loads max (N) with Fa=0 based on L protrusion



Construction details

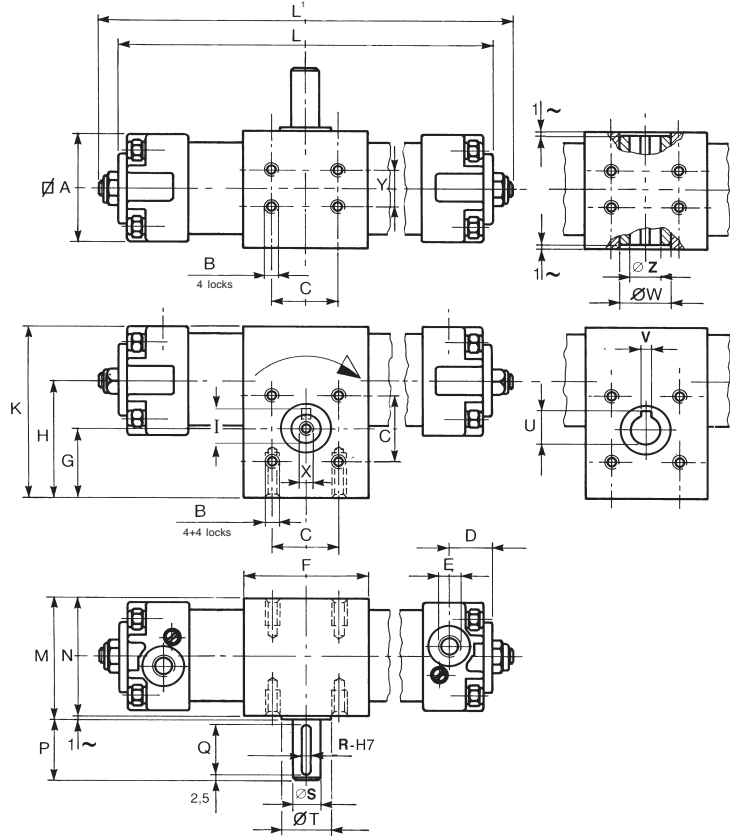
- ① Cylinder barrel in extruded aluminium alloy with ribbed design for rigidity and without stagnation points. Internally and externally anodized.
- ② Light alloy die-cast end-caps are fixed to the body by means of tie rods and bushings.
- ③ Pneumatic adjustable cushioning provides an efficient piston deceleration.
- ④ Mechanical cushion/end-cap seal.
- ⑤ Aluminium alloy articulated piston and acetalic-resin slide with permanent plastoferrite magnetic ring (optional).
- ⑥ Piston, seals and cushions are made of a wear resistant nitrilic rubber compound, suitable for applications with or without lubrication.
- ⑦ Square rack made of stainless steel reduces backlash in the mechanism.
- ⑧ Rack guiding slide with self adjusting backlash.
- ⑨ Pinion of nitrided steel.
- ⑩ Pinion supported by ball-race bearings (bronze/teflon bearing fitted to Ø 32 version).
- ⑪ Anodized aluminium body.
- ⑫ Rotation angle adjustment screw, with a rotation angle $\pm 5^\circ$ Series R12 - 14. (It is advisable not to make adjustments while the cylinder is under pressure)

Technical modifications keep in reserve !

(2020/10)

Basic overall dimensions

| Cyl. Ø | A | B | C ±0,1 | D | E | F | G | H | I | K | M | N | P | Q | R | S g 6 | T | U | V M7 | W | X | Y ±0,1 | Z H7 |
|-----------|-----|-----|-----------|------|-------------------------------|-----|------|------|------|-------|-----|-----|----|----|----|----------|----|------|---------|----|-----|-----------|---------|
| | | | | | | | | | | | | | | | | | | | | | | | |
| 32 | 48 | M6 | 33 | 18 | G ¹ / ₈ | 50 | 25 | 46,5 | 16 | 71,5 | 51 | 50 | 30 | 25 | 5 | 14 | 25 | 16,3 | 5 | 25 | M5 | 18 | 14 |
| 40 | 54 | M6 | 40 | 22 | G ¹ / ₄ | 60 | 30 | 54,5 | 16 | 82 | 61 | 60 | 30 | 25 | 5 | 14 | 25 | 16,3 | 5 | 25 | M5 | 22 | 14 |
| 50 | 67 | M8 | 50 | 22 | G ¹ / ₄ | 70 | 32,5 | 60,5 | 21,5 | 94 | 66 | 65 | 40 | 35 | 6 | 19 | 30 | 21,8 | 6 | 30 | M6 | 25 | 19 |
| 63 | 78 | M8 | 60 | 25,5 | G ³ / ₈ | 75 | 37 | 70,8 | 27 | 110 | 76 | 75 | 40 | 35 | 8 | 24 | 30 | 21,8 | 6 | 30 | M8 | 35 | 19 |
| 80 | 97 | M10 | 80 | 27 | G ³ / ₈ | 99 | 50 | 93,5 | 31 | 142 | 100 | 99 | 50 | 45 | 8 | 28 | 45 | 27,3 | 8 | 45 | M8 | 50 | 24 |
| 100 | 115 | M10 | 80 | 27,5 | G ¹ / ₂ | 115 | 54 | 99 | 41 | 156,5 | 116 | 115 | 50 | 45 | 10 | 38 | 50 | 31,3 | 8 | 50 | M10 | 60 | 28 |
| 125 | 140 | M12 | 90 | 31,5 | G ¹ / ₂ | 125 | 60 | 118 | 41 | 188 | 141 | 140 | 50 | 45 | 10 | 38 | 60 | 31,3 | 8 | 60 | M10 | 70 | 28 |



Overall length L-L₁ and weight with standard rotation

L₁ : overall dimensions with stroke regulation (R12 - R14)
 L : overall dimensions without stroke regulation (R11 - R13)

| Cyl. Ø | Rotation 90° | | | | Rotation 180° | | | | Rotation 270° | | | | Rotation 360° | | | |
|-----------|----------------|-----|----------------------------------------|--------|----------------|-----|----------------------------------------|--------|----------------|-----|----------------------------------------|--------|----------------|-----|----------------------------------------|--------|
| | L ₁ | L | Mass (kg) Male pinion Female pinion | | L ₁ | L | Mass (kg) Male pinion Female pinion | | L ₁ | L | Mass (kg) Male pinion Female pinion | | L ₁ | L | Mass (kg) Male pinion Female pinion | |
| 32 | 230 | 204 | 1,300 | 1,200 | 277 | 252 | 1,420 | 1,320 | 324 | 299 | 1,540 | 1,440 | 371 | 346 | 1,660 | 1,560 |
| 40 | 273 | 246 | 2,010 | 1,900 | 329 | 302 | 2,210 | 2,900 | 386 | 359 | 2,390 | 2,280 | 443 | 416 | 2,580 | 2,470 |
| 50 | 303 | 269 | 3,070 | 2,840 | 366 | 332 | 3,340 | 3,110 | 429 | 395 | 3,610 | 3,380 | 492 | 458 | 3,880 | 3,650 |
| 63 | 346 | 311 | 4,990 | 4,640 | 420 | 386 | 5,500 | 5,170 | 495 | 461 | 6,010 | 5,700 | 570 | 535 | 6,520 | 6,230 |
| 80 | 422 | 372 | 9,840 | 9,220 | 521 | 471 | 10,840 | 10,230 | 620 | 570 | 11,840 | 11,240 | 719 | 669 | 12,840 | 12,250 |
| 100 | 452 | 402 | 13,650 | 12,680 | 559 | 509 | 14,860 | 13,870 | 666 | 616 | 16,070 | 15,060 | 773 | 723 | 17,280 | 16,250 |
| 125 | 519 | 474 | 23,370 | 22,220 | 651 | 606 | 25,720 | 24,520 | 783 | 738 | 28,070 | 26,820 | 915 | 870 | 30,420 | 29,120 |

Overall dimensions with intermediate rotation

Intermediate rotation can be obtained by reducing the length of the right-hand piston housing. For this purpose the nearest standard model is selected with the degree of rotation higher than required.

The length dimension L-L₁ is then reduced in accordance with the following table for each degree of rotation.

| Piston size Ø | 32 | 40 | 50 | 63 | 80 | 100 | 125 |
|---------------|-------|-------|-------|-------|-------|-------|-------|
| Reduction mm | 0,262 | 0,315 | 0,350 | 0,415 | 0,550 | 0,594 | 0,733 |

Left-hand piston housing retains standard dimensions $\left(\frac{L}{2}, \frac{L_1}{2} \right)$

Technical modifications keep in reserve !

(2020/10)