ROTARY ACTUATORS ø 32 ÷ 125 mm
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

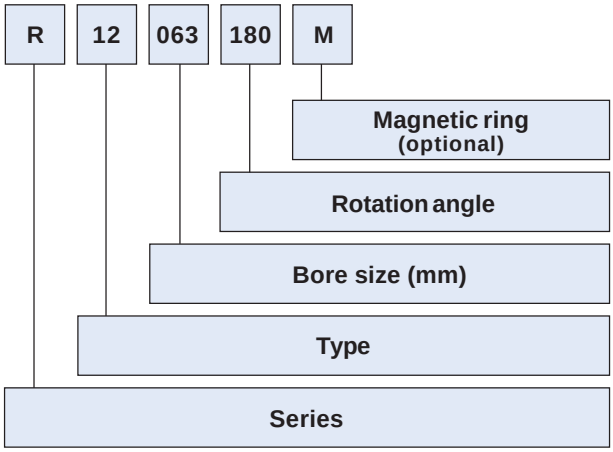
Cyl. Ø	32	40	50	63	80	100	125
M_t (Nm)	1,2	2,25	3,9	7,3	15,7	26,5	51

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:

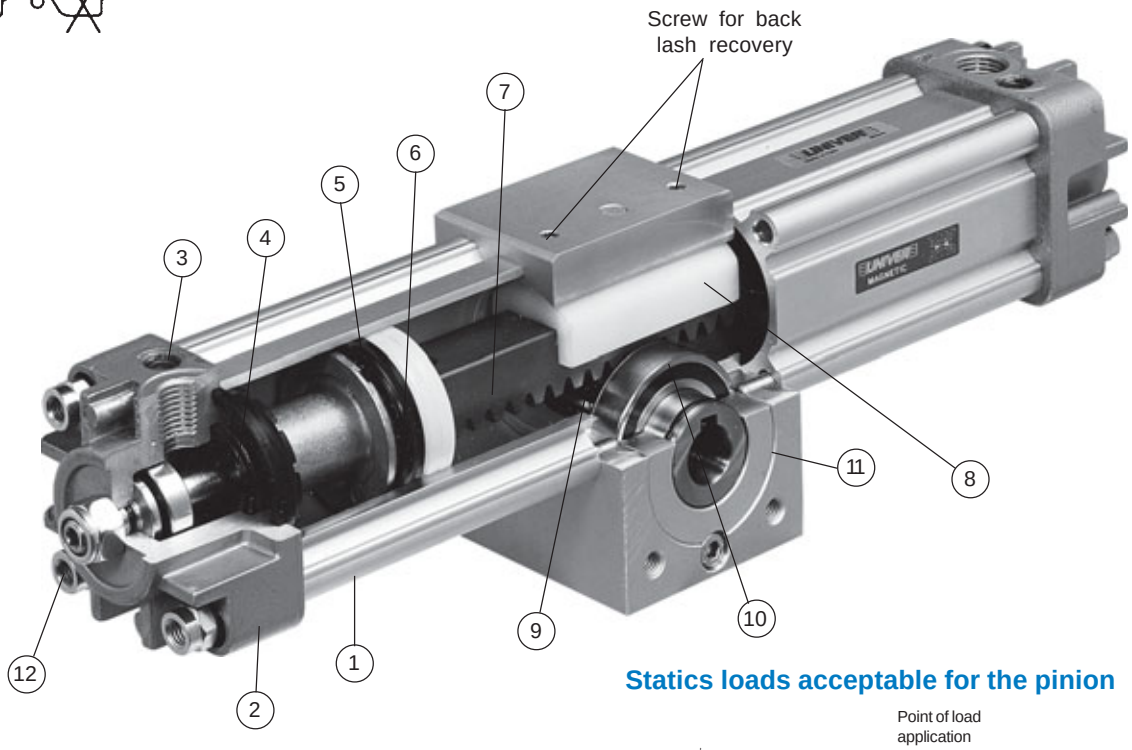
• **R11.../R12... male pinion**

• **R13.../R14... female pinion**

Technical modifications keep in reserve !

(2009/09)

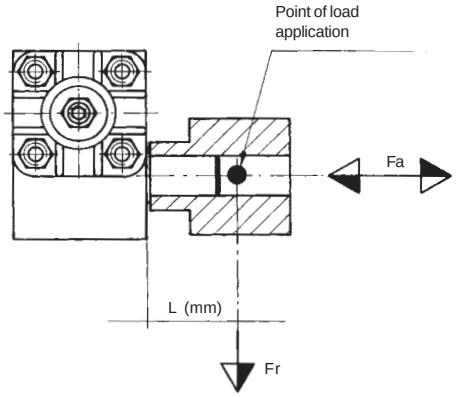
Overall dimensions



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 ±5° Series R12 - 14. (It is advisable not to make adjustments while the cylinder is under pressure)

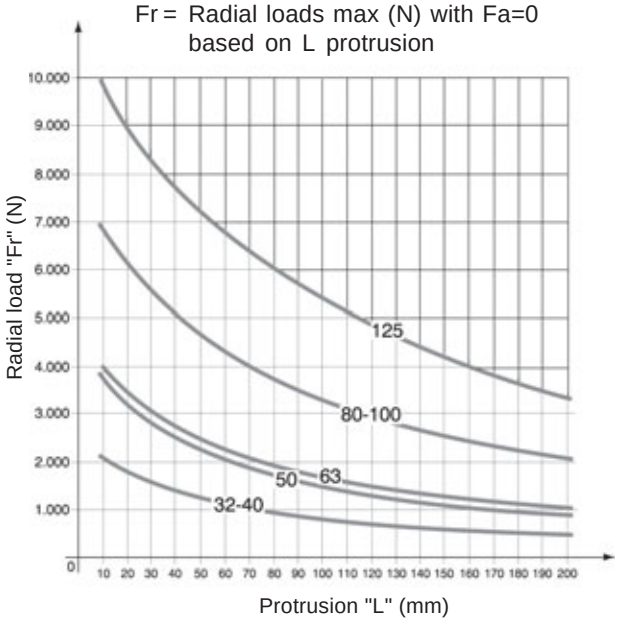
Statics loads acceptable for the pinion



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



Technical modifications keep in reserve !

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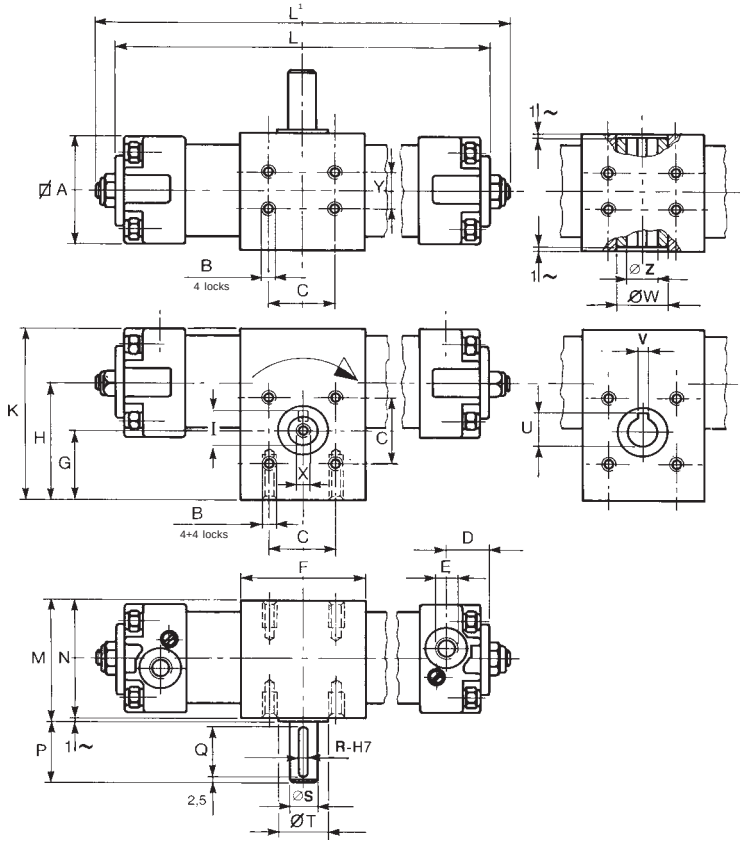
Basic overall dimensions

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	G1/8	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	G1/4	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	G1/4	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	G3/8	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	G3/8	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	G1/2	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	G1/2	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°			
			Mass (kg)				Mass (kg)				Mass (kg)				Mass (kg)	
	L1	L	Male pinion	Female pinion	L1	L	Male pinion	Female pinion	L1	L	Male pinion	Female pinion	L1	L	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 !

(2009/09)