

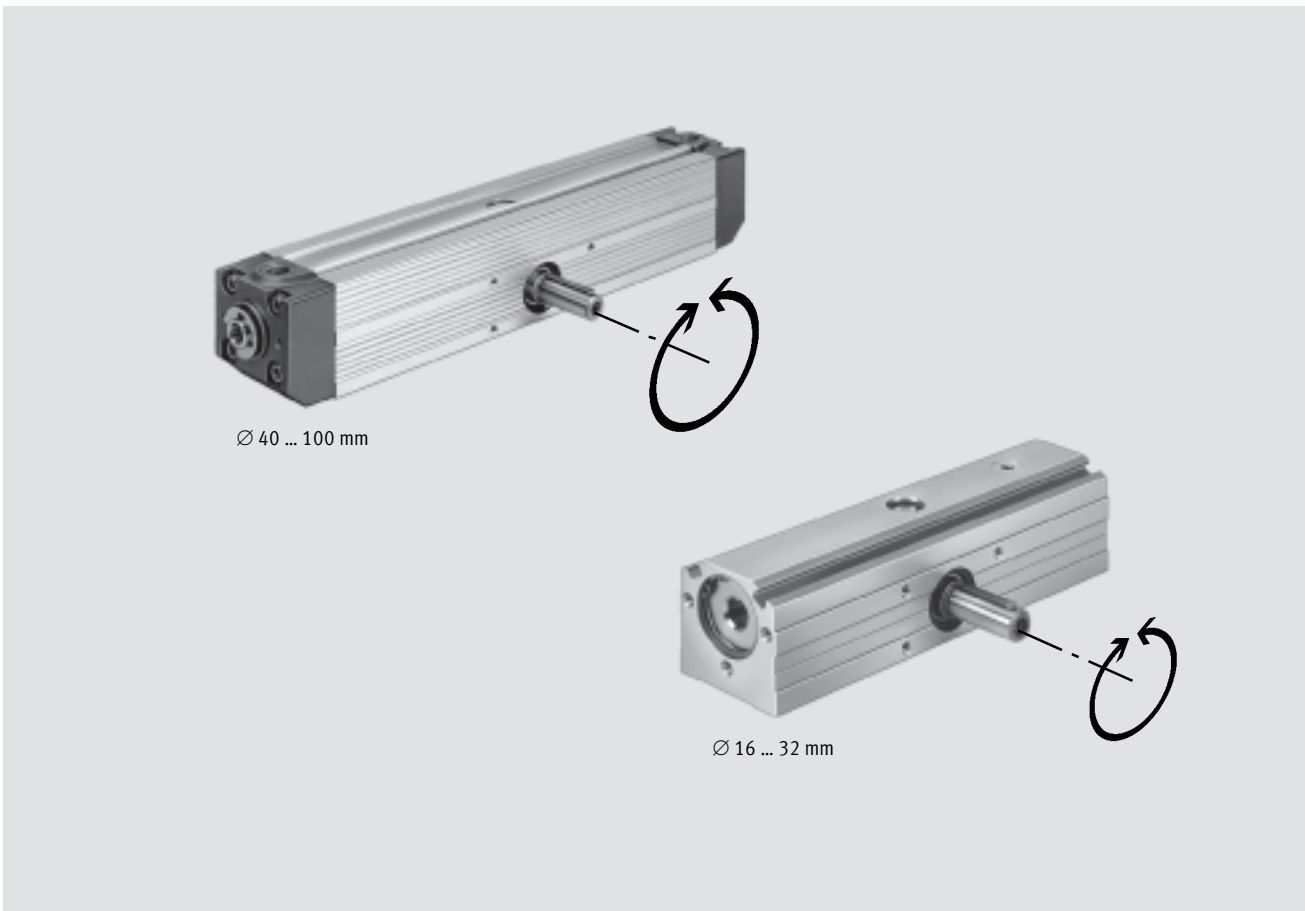
Semi-rotary drives DRQ

FESTO



Semi-rotary drives DRQ

Features




Rotating and swivelling


The linear movement of the cylinder is converted into rotational movement by a backlash-compensating gear unit. Precision is increased by backlash-free transmission of force from the gear rack to the pinion.

The semi-rotary drive DRQ-...-PPVJ-A has variable end-position adjustment at both ends, combined with adjustable end-position cushioning. This permits constant cushioning over the entire end-position adjustment range.

- Nominal swivel angles of 90°, 180°, 270° or 360°
- Freely selectable swivel angle from 0 to 360°
- With adjustable end-position cushioning at both ends and end-position adjustment for piston Ø 16 to 100 mm

- With adjustable end-position cushioning at both ends for piston Ø 40 to 100 mm
- For contactless position sensing
- Backlash-free power transmission
- Wide choice of mounting options

-  - Note
Sizing software
Calculating inertia
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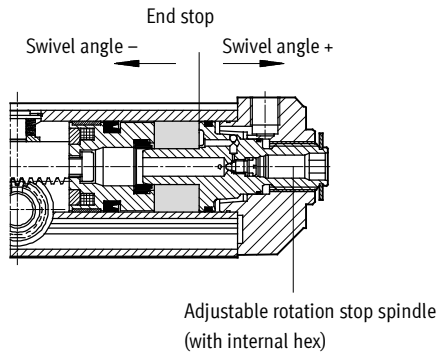
-  - Note
DRQ-...-PPV-A (without end-position adjustment) is only available for drives with piston Ø 40 to 100 mm.

Semi-rotary drives DRQ

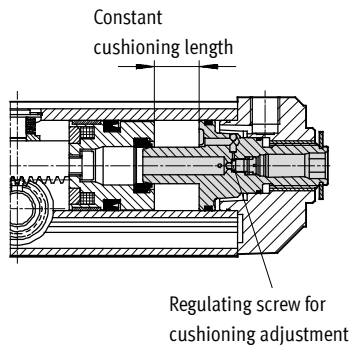
Key features and product range overview

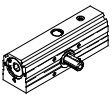
Individually adjustable end positions

The externally adjustable end position adjustment increases service life and permits precise adjustment of the swivel angle.



The design principle always guarantees the full cushioning length. Exception: small swivel angle

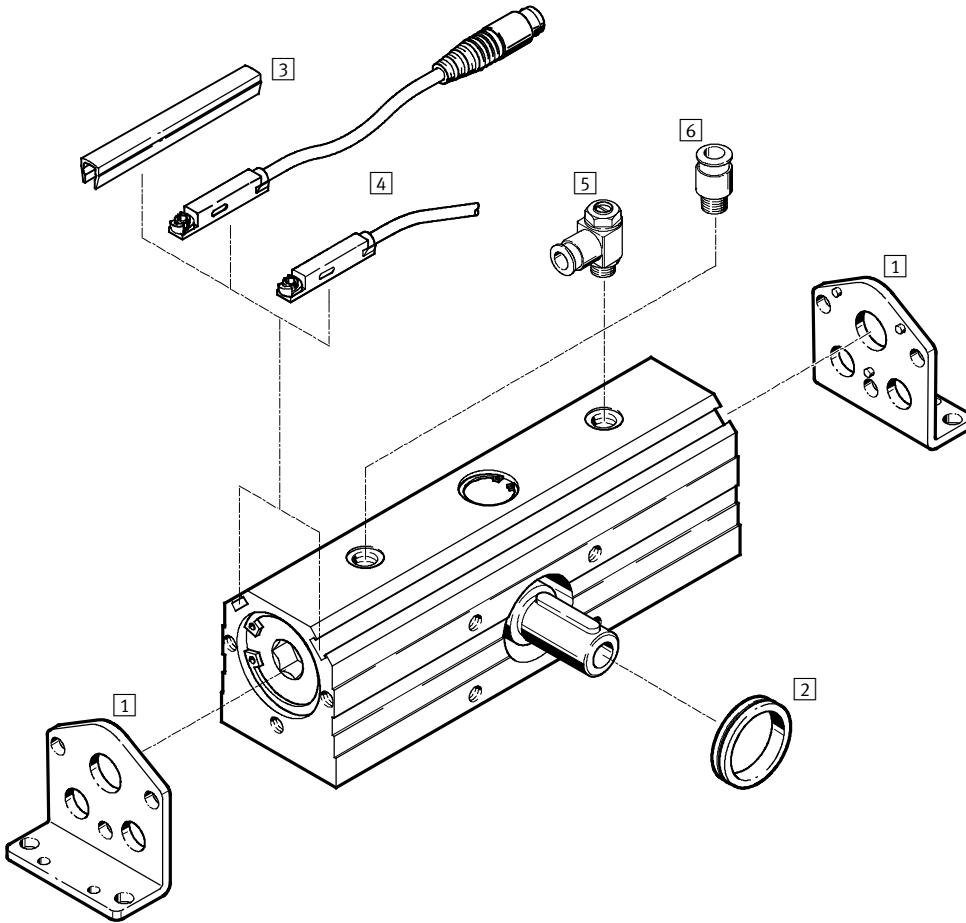


Product range overview									
Function	Design	Type	Piston Ø [mm]	Swivel angle		Adjustable cushioning at both ends PPV	End position adjustment	Position sensing A	→ Page/ Internet
				Fixed [°]	Selectable [°]				
Double-acting	Basic version		16, 20, 25, 32	90, 180, 270, 360	1 ... 359	■	■	■	7
		DRQ	40, 50, 63, 80, 100			■	■	■	7

Semi-rotary drives DRQ

Peripherals overview

Piston \varnothing 16 ... 32 mm

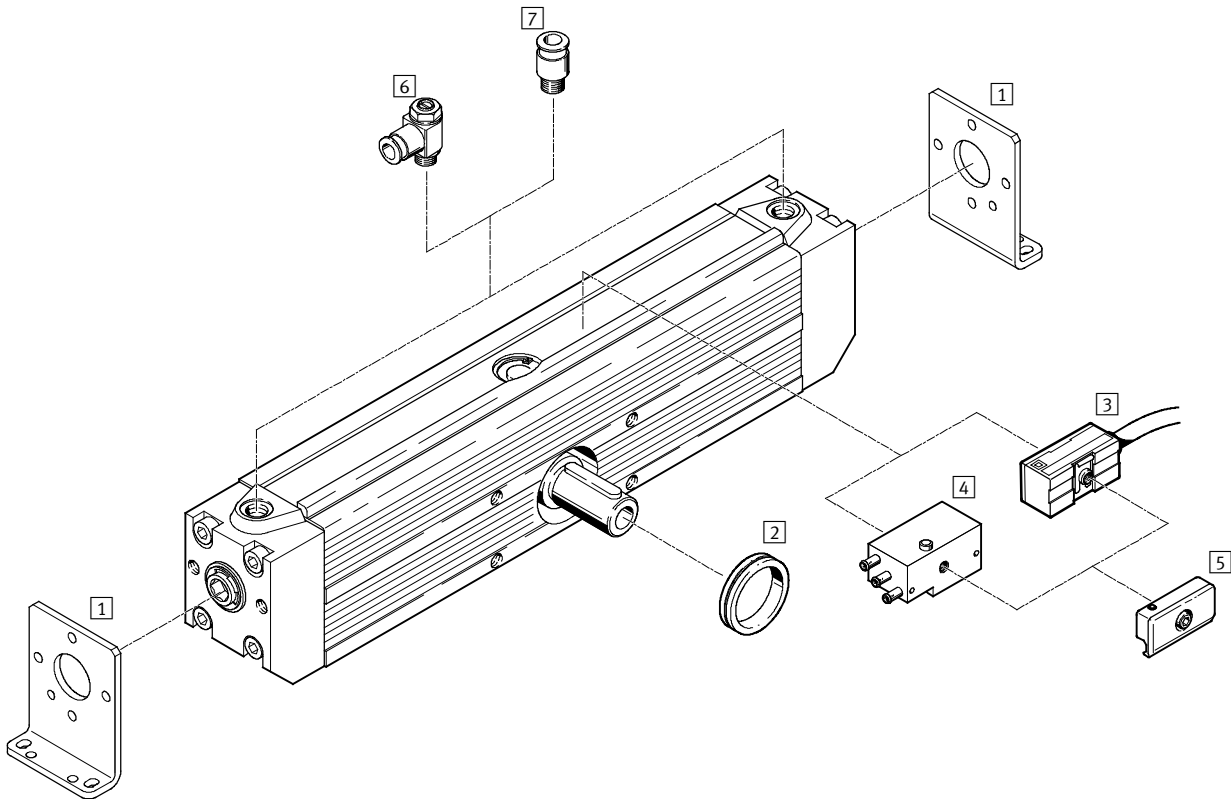


Mounting attachments and accessories		
	Brief description	→ Page/Internet
1	Foot mounting HQ...-W	18
2	Central mounting ZBRQ	20
3	Slot cover ABP	21
4	Proximity sensors SME/SMT-8	21
5	One-way flow control valve GRLA	20
6	Push-in fitting QS	quick star

Semi-rotary drives DRQ

Peripherals overview

Piston \varnothing 40 ... 100 mm



Mounting attachments and accessories		
	Brief description	→ Page/Internet
1	Foot mounting HQ-...-W	For end caps 19
2	Central mounting ZBRQ	For centering 20
3	Proximity sensors (SMEO/SMT0)	Magnetic proximity sensor in block design 22
4	Proximity sensors SMPO	Pneumatic proximity sensor in block design 22
5	Sensor mounting kit SMB-1	To mount the proximity sensor on the profile rail 22
6	One-way flow control valve GRLA	For speed regulation 20
7	Push-in fitting QS	For connecting compressed air tubing with standard O.D. quick star

Semi-rotary drives DRQ

Type codes

DRQ – 40 – ...-180 – PPVJ – A

Type	
Double-acting	
DRQ	Rotary actuator

Piston Ø [mm]	
---------------	--

Swivel angle [°]	
Fixed	
90	Nominal swivel angle 90°
180	Nominal swivel angle 180°
270	Nominal swivel angle 270°
360	Nominal swivel angle 360°
Selectable	
...-90	Selectable from 1° to max. 89°
...-180	Selectable from 91° to max. 179°
...-270	Selectable from 181° to max. 269°
...-360	Selectable from 271° to max. 359°

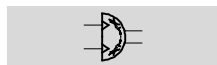
Cushioning	
PPV	Pneumatic cushioning adjustable at both ends without end position adjustment
PPVJ	Pneumatic cushioning adjustable at both ends with end position adjustment

Position sensing	
A	For proximity sensing


Semi-rotary drives DRQ


Technical data

Function



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 Diameter
16 ... 100 mm

 Force
0.5 ... 150 Nm



General technical data									
Piston Ø	16	20	25	32	40	50	63	80	100
Pneumatic connection	M5			G1/8	G1/4		G3/8		G1/2
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:-:-]								
Design	Semi-rotary drive based on the rack and pinion principle								
Cushioning	Adjustable at both ends								
Cushioning length [mm]	6.3	8.2	10.4	13.5	21	23	23	30	30
Cushioning angle [°]	72.2	78.3	74.5	77.3	96	84	65	69	52
Position sensing	For proximity sensing								
Type of mounting	Via female threads Via accessories								
Mounting position	Any								

• † - Note: This product conforms to ISO 1179-1 and to ISO 228-1

Operating and environmental conditions									
Piston Ø	16	20	25	32	40	50	63	80	100
Operating pressure [bar]	2.5 ... 10								
Max. swivelling 90° [Hz]	4.0	3.4	2.6	2.8	2.2	2.6	1.5	1.7	0.9
frequency at 180° [Hz]	2.8	2.0	1.6	1.6	2.3	2.1	1.1	1.3	0.6
6 bar ¹⁾ 270° [Hz]	2.0	1.3	1.1	1.1	1.8	1.5	0.7	1.0	0.5
360° [Hz]	1.5	1.0	0.7	0.9	1.2	1.2	0.6	0.9	0.4
Ambient temperature ²⁾ [°C]	-10 ... +60								

1) At the max. permissible mass moment of inertia for a completed movement cycle (0° > X° > 0°)

2) Note operating range of proximity sensors

Forces and torques									
Piston Ø	16	20	25	32	40	50	63	80	100
Theoretical torque at 6 bar [Nm]	0.5	1	2.5	5	9	19	37	75	150
Max. perm. radial load ¹⁾ [N]	60	80	100	120	60	200	300	800	1,500
Max. perm. axial load ¹⁾ [N]					150	300	500	1,000	
Max. perm. mass moment of inertia ¹⁾ [kgm ²]	2x10 ⁻⁴	3.5x10 ⁻⁴	7.8x10 ⁻⁴	20x10 ⁻⁴	50x10 ⁻⁴	160x10 ⁻⁴	400x10 ⁻⁴	1,200x10 ⁻⁴	2,000x10 ⁻⁴

1) On the drive shaft at maximum frequency

Semi-rotary drives DRQ

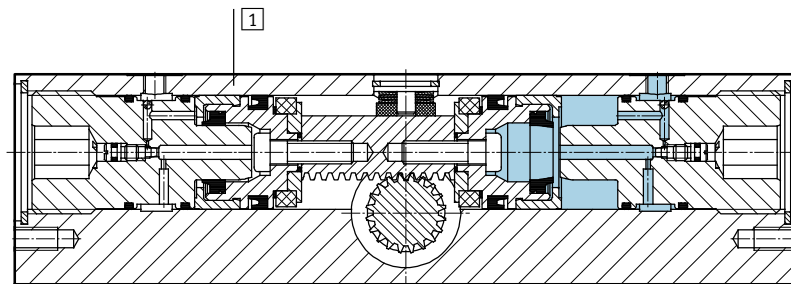
Technical data

Weights											
Piston Ø		16	20	25	32	40	50	63	80	100	
DRQ without end position adjustment											
Product weight	90°	[g]	–	–	–	–	2,630	5,030	8,650	16,000	26,800
	180°	[g]					2,920	5,620	9,500	17,700	30,670
	270°	[g]					3,330	6,550	11,000	21,700	34,200
	360°	[g]					3,470	6,750	11,500	22,500	38,000
DRQ with end position adjustment											
Product weight	90°	[g]	530	730	1,120	2,270	2,900	5,510	9,800	19,000	29,300
	180°	[g]	550	800	1,320	2,440	3,220	5,640	10,600	20,700	33,000
	270°	[g]	620	920	1,510	2,770	3,610	6,900	12,200	24,400	39,000
	360°	[g]	640	960	1,570	2,860	3,710	7,180	12,600	25,340	40,600

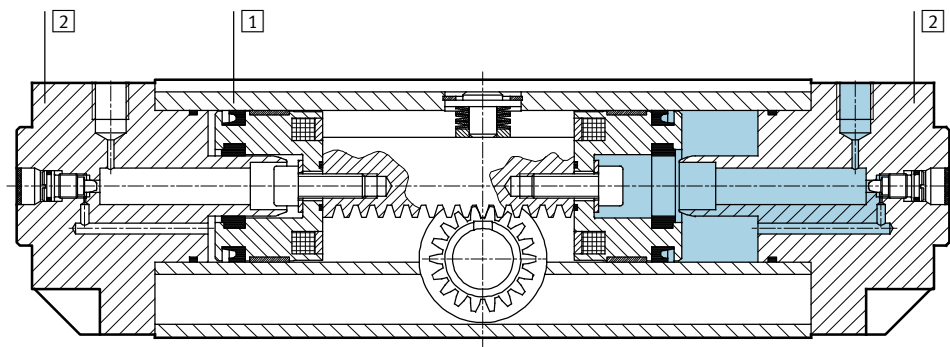
Materials

Sectional view

Ø 16 ... 32



Ø 40 ... 100



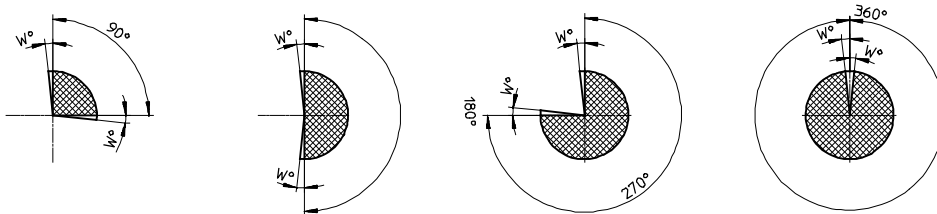
Rotary actuator		
1	Cylinder barrel	Ø 16 ... 32 Ø 40 ... 100
		Anodised aluminium Aluminium
2	End cap	Ø 40 ... 100
		Die-cast aluminium, anodised
–	Seals	
		Nitrile rubber, polyurethane

Semi-rotary drives DRQ

Technical data

Swivel angle for DRQ without end position adjustment

Nominal swivel angle

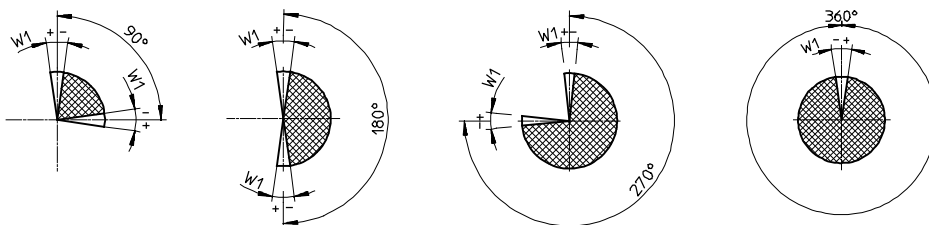


The drives have a tolerance in the end positions that exceeds the guaranteed nominal swivel angle.

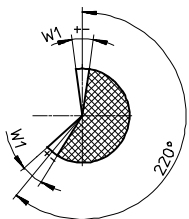
∅ [mm]	Tolerance of end positions W [°]
40	8
50	6
63	4
80	
100	3

Swivel angle for DRQ with end position adjustment

Nominal swivel angle



Selectable swivel angle



∅ [mm]	Adjustment range of swivel angle W1 [°]
16	-4 ... +4
20	
25	-5 ... +5
32	
40	-4 ... +5

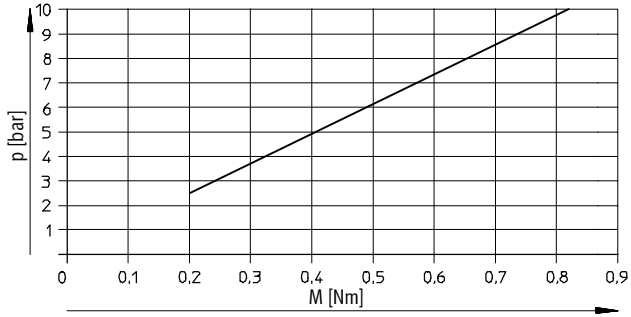
∅ [mm]	Adjustment range of swivel angle W1 [°]
50	-7 ... +8
63	-12 ... +12
80	-12 ... +10
100	-8 ... +8

Semi-rotary drives DRQ

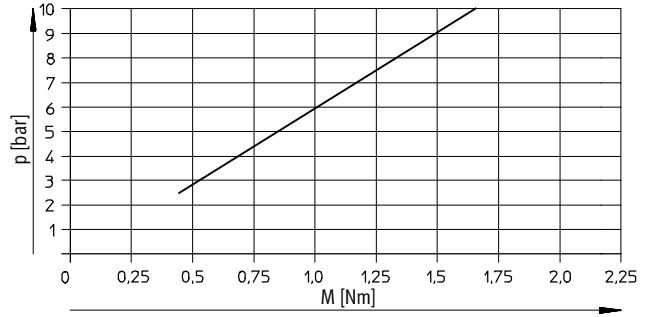
Technical data

Torque M as a function of the operating pressure p
 Static

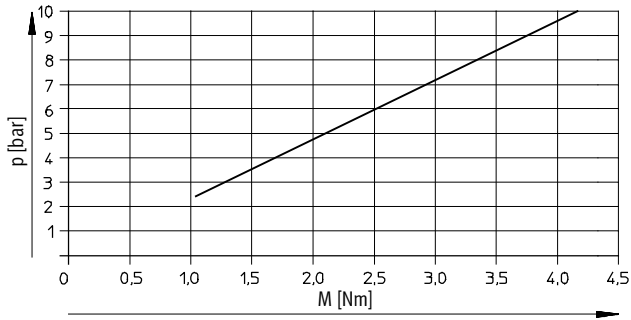
DRQ-16



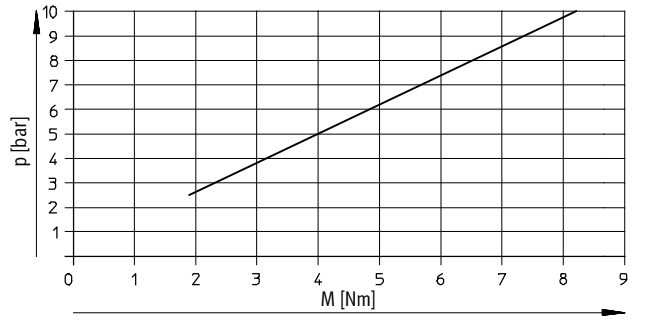
DRQ-20



DRQ-25



DRQ-32



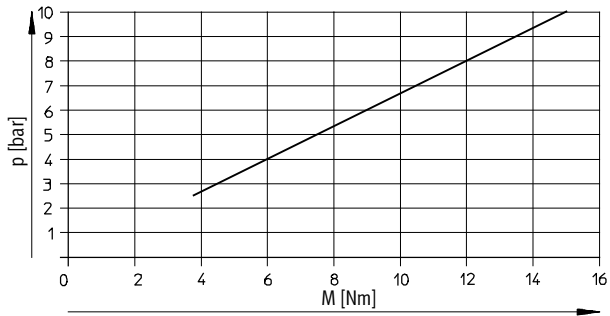
Semi-rotary drives DRQ

Technical data

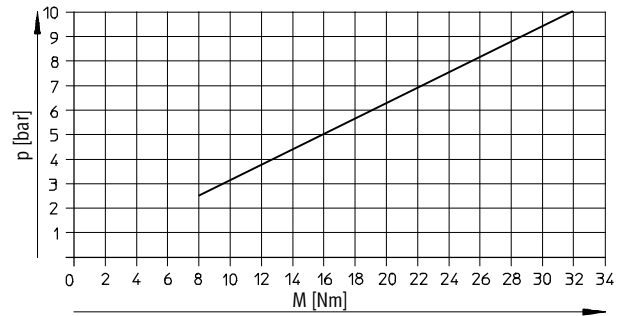
Torque M as a function of the operating pressure p

Static

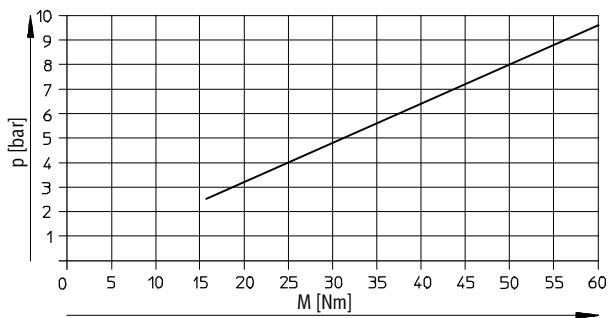
DRQ-40



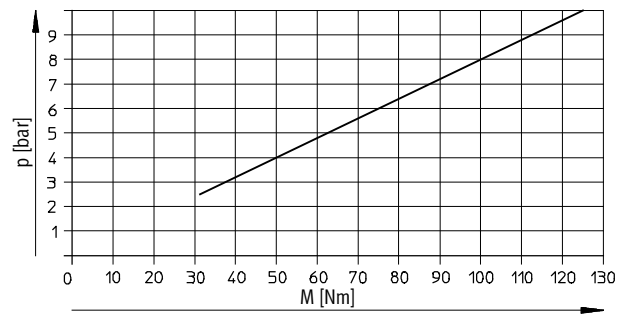
DRQ-50



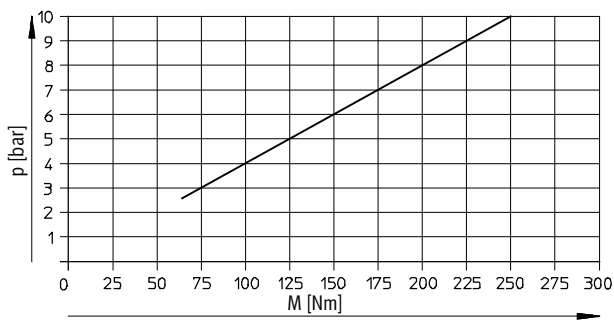
DRQ-63



DRQ-80



DRQ-100

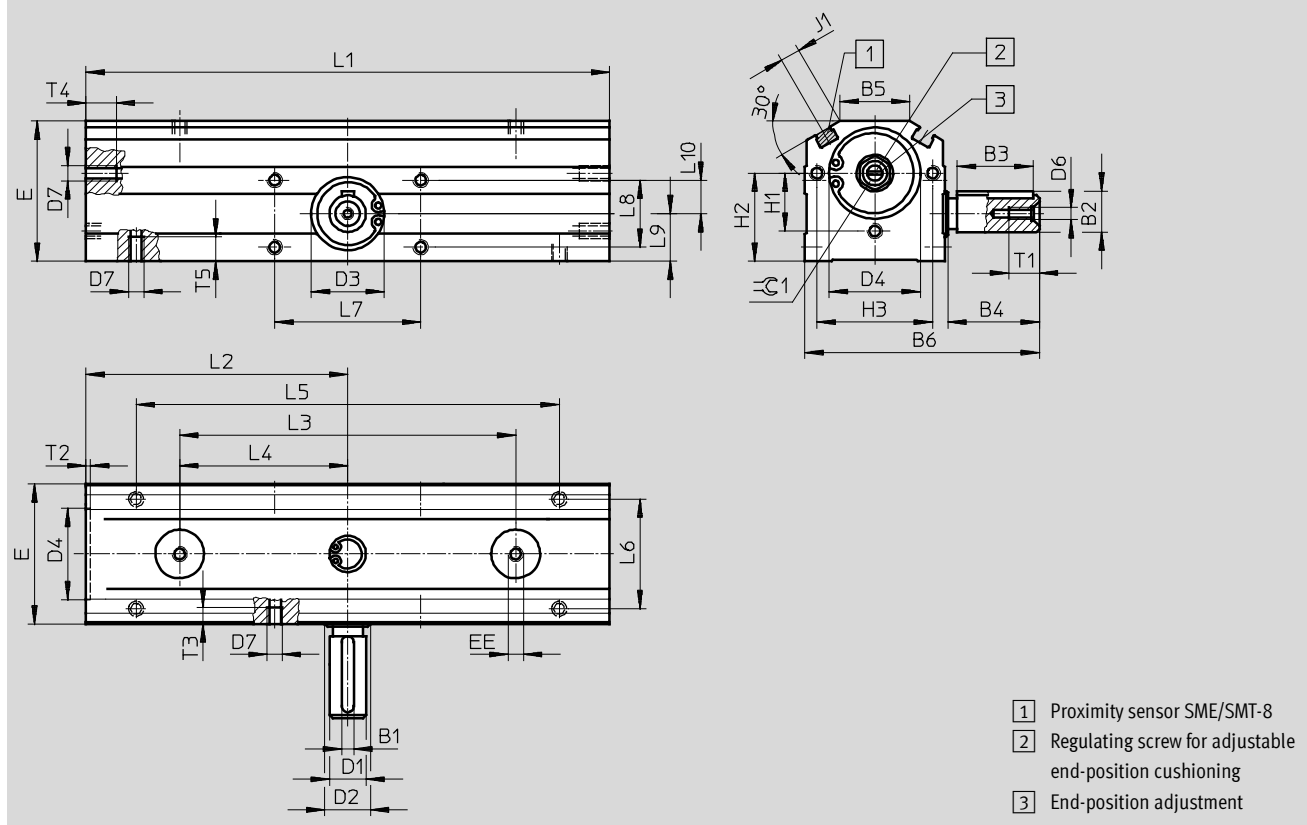


Semi-rotary drives DRQ

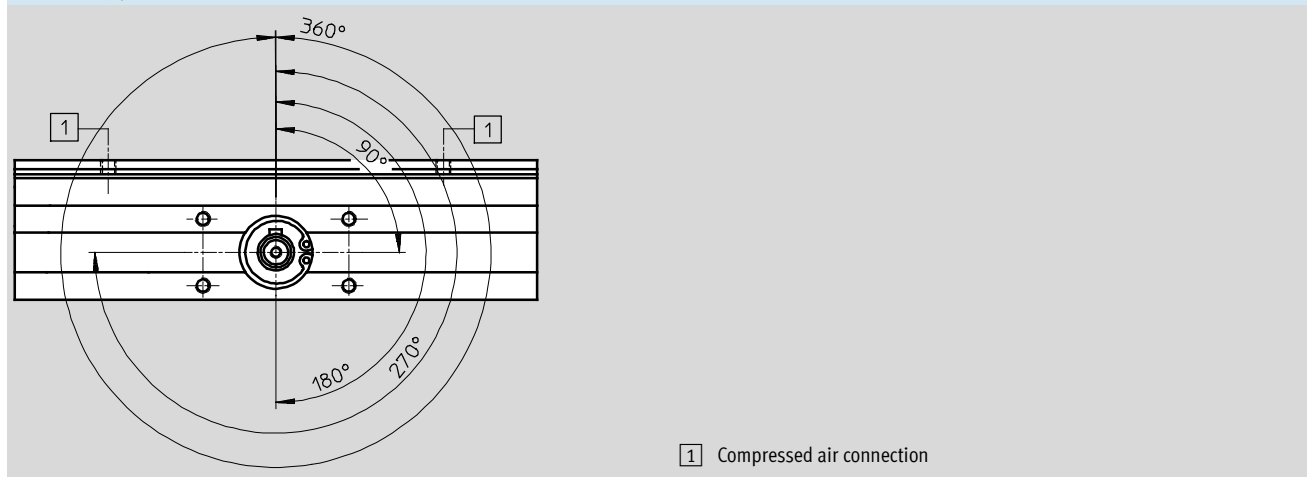
Technical data

Dimensions Download CAD data → www.festo.com

Piston Ø 16...32 mm



Woodruff key position



Semi-rotary drives DRQ

Technical data

∅ [mm]	B1 h9	B2 max.	B3 -0.2	B4 ±0.1	B5	B6	D1 ∅ g6	D2 ∅ k6	D3 ∅ K7
16	2	8.8	16	20	17	57	8	10	19
20	3	11.2	18	23	19	66	10	12	21
25	4	13.5	25	30	23	77	12	15	24
32	4	13.5	25	30	24	87	12	17	26

∅ [mm]	D4 ∅ H11	D6	D7	E ±0.4	EE	H1 ±0.1	H2 ±0.3	H3 ±0.1	J1
16	20	M3	M5	36	M5	13.75	22.5	27.5	5
20	24	M3	M5	42	M5	15.75	26.7	31.5	5.5
25	30	M4	M5	46	M5	19	28.9	38	6.5
32	38	M4	M5	56	G $\frac{1}{8}$	23	33.5	46	8.5

∅ [mm]		L1 ±0.05	L2 ±0.05	L3 ±0.1	L4 ±0.1	L5 ±0.2
16	90°	137	68.5	92.2	46.1	105
	180°	153	76.5	108.2	54.1	121
	270°	176	88.6	131.2	66.2	144
	360°	184	91.9	139.2	69.5	152
20	90°	142	71	90.8	45.4	110
	180°	160	80	108.8	54.4	128
	270°	189	95.3	137.8	69.7	157
	360°	198	99	146.8	73.4	166
25	90°	172	86	110.4	55.2	139
	180°	197	98.5	135.4	67.7	164
	270°	235	118.5	173.4	88	202
	360°	248	124	186.4	93.2	215
32	90°	228	114	143.8	71.9	196
	180°	259	129.5	174.8	87.4	227
	270°	306	154.7	221.8	112.6	274
	360°	322	161	237.8	118.9	290

∅ [mm]	L6 ±0.1	L7 ±0.2	L8 ±0.1	L9 ±0.35	L10 ±0.1	T1	T2	T3	T4	T5	≈ $\text{C}1$
16	28	40	19	13.7	9.5	9	1.3	5.5	10	8	8
20	32	45	22	16	11	9	1.8	5.5	10	8	8
25	36	48	22	15.6	11	10	1.5	5.5	10	8	10
32	44	52	24	17.3	12	10	2	7.5	10	8	14

· | · Note: This product conforms to ISO 1179-1 and to ISO 228-1

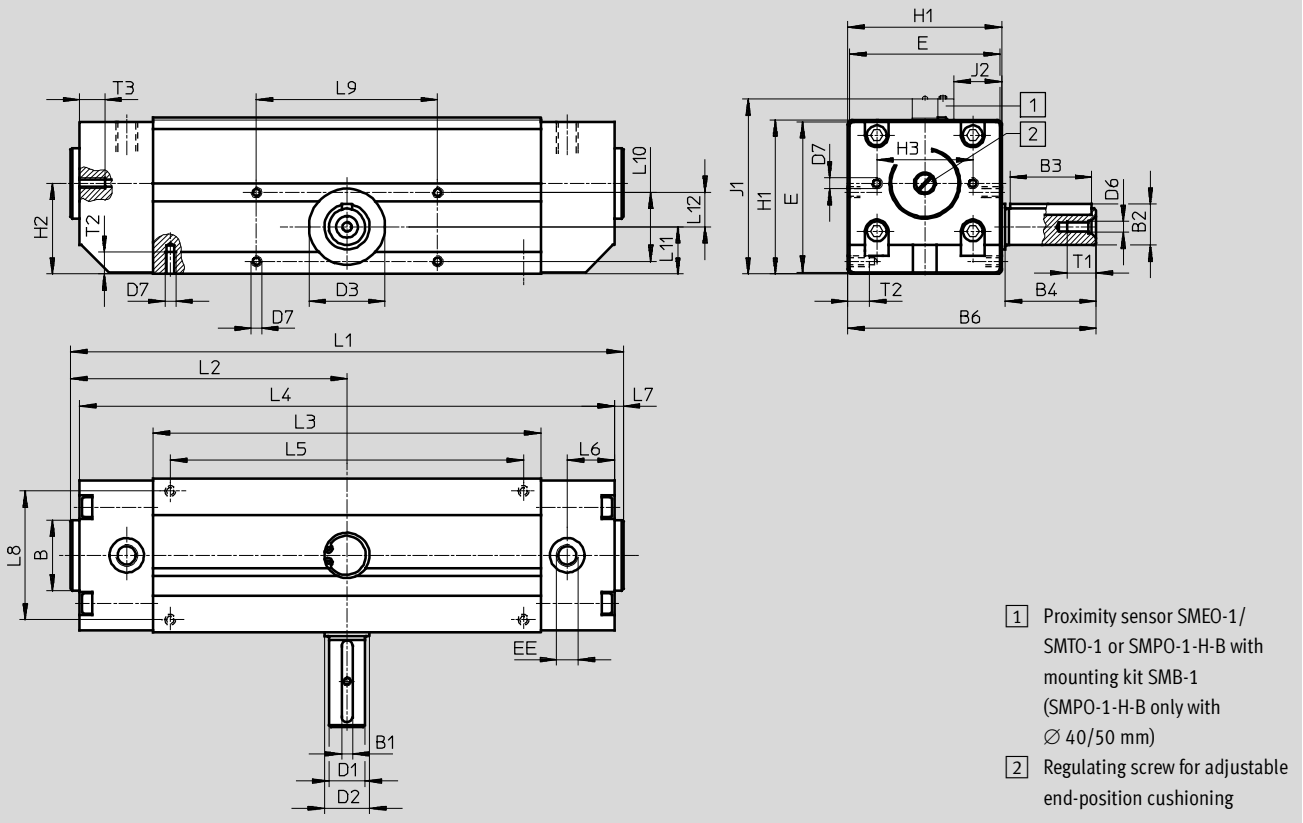
Semi-rotary drives DRQ

Technical data

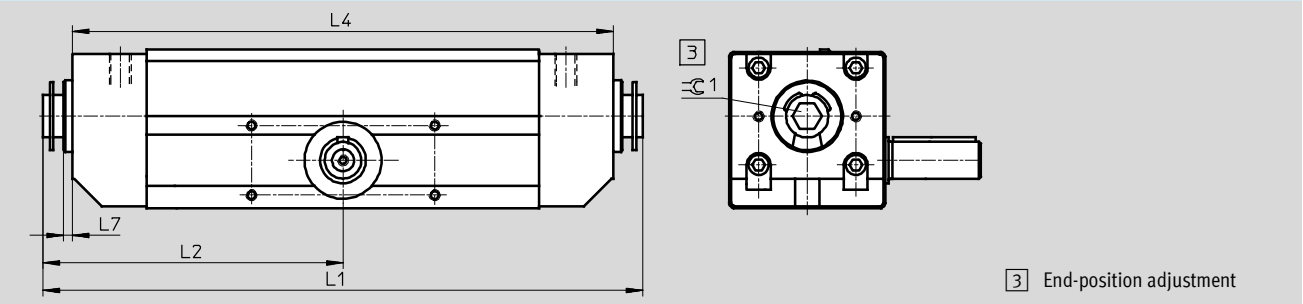
Dimensions

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Piston \varnothing 40 ... 100 mm, DRQ without end position adjustment



Piston \varnothing 40 ... 100 mm, DRQ with end position adjustment



Semi-rotary drives DRQ

Technical data

∅ [mm]	B ∅ h10	B1 h9	B2 max.	B3 -0.3	B4 ±0.2	B6	D1 ∅ g6	D2 ∅ k6	D3 ∅ K6
40	33	5	18	36	40	110	16	20	32
50	39	6	22.5	45	50	137	20	25	42
63	46	6	24.5	45	50	158	22	25	47
80	46	8	31	56	60	192	28	30	55
100	50	10	38	70	80	242.5	35	40	80

∅ [mm]	D6	D7	E	EE	H1	H2	H3 ±0.2	J1	J2
40	M5	M6	66	G¼	68 ±0.4	40	47	82	18
50	M6	M6	83	G¼	85 ±0.4	50	53	98	26.5
63	M8	M8	104	G¾	106 ±0.4	64	66	119	37
80	M12	M8	127	G¾	130 ±0.4	80	70.7	142	49
100	M12	M10	157	G½	160 ±0.6	98	94	172	64

∅ [mm]		L1		L2		L3 ±0.2	L4		L5 ±0.2
		max. PPV	max. PPVJ	max. PPV	max. PPVJ		max. PPV	max. PPVJ	
40	90°	264.4	279	132.3	139.6	194	255.4	254.9	174
	180°	303.4	318	151.8	159.1	233	294.4	293.6	213
	270°	362.4	378	181.3	189.1	293	354.4	353.6	270
	360°	382.4	397	191.3	198.6	312	373.4	372.7	292
50	90°	307.2	327.2	153.7	163.7	215	296.2	295	195
	180°	356.2	376.2	178.2	188.2	264	345.2	344	244
	270°	431.2	451.2	215.7	225.7	339	420.2	419	316
	360°	455.2	475.2	227.7	237.7	363	444.2	443	343
63	90°	364.4	392.4	182.3	196.3	245	351.4	351	215
	180°	427.4	455.4	213.8	227.8	308	414.4	414	278
	270°	521.4	549.4	260.8	274.8	402	508.4	508	366
	360°	553.4	581.4	276.8	290.8	434	540.4	540	404
80	90°	443.4	495.2	221.8	247.7	310	430.4	450	280
	180°	521.4	573.2	260.8	286.7	388	508.4	528	358
	270°	639.4	691.2	319.8	345.7	506	626.4	646	468
	360°	678.4	730.2	339.3	365.2	545	665.4	685	515
100	90°	506.6	558.2	253.4	278.2	363	483.6	483	323
	180°	609.6	659.2	304.9	329.7	466	586.6	586	426
	270°	765.6	815.2	382.9	407.7	622	742.6	742	568
	360°	817.6	867.2	408.9	433.7	674	794.6	794	634

∅ [mm]	L6	L7	L8	L9 ±0.2	L10 ±0.1	L11	L12 ±0.1	T1 min.	T2	T3	≈G1
40	18	4	56 ±0.1	80	30	21 ±0.4	15	12.5	9	15	10
50	26	5	71 ±0.1	100	38	26 ±0.4	19	16	12	14	14
63	37	6	90 ±0.1	130	48	32 ±0.4	24	19	15	19	14
80	51	6	112 ±0.2	160	60	39 ±0.4	30	28	15	17	14
100	38	11	140 ±0.2	200	76	48 ±0.5	38	28	20	22	14

• Note: This product conforms to ISO 1179-1 and to ISO 228-1

Semi-rotary drives DRQ

Technical data

Ordering data – Variants with end position adjustment						
Design	∅ 16 [mm]		∅ 20 [mm]		∅ 25 [mm]	
	Part No.	Type	Part No.	Type	Part No.	Type
Nominal swivel angle						
90°	35 200	DRQ-16-90-PPVJ-A	35 204	DRQ-20-90-PPVJ-A	35 208	DRQ-25-90-PPVJ-A
180°	35 201	DRQ-16-180-PPVJ-A	35 205	DRQ-20-180-PPVJ-A	35 209	DRQ-25-180-PPVJ-A
270°	35 202	DRQ-16-270-PPVJ-A	35 206	DRQ-20-270-PPVJ-A	35 210	DRQ-25-270-PPVJ-A
360°	35 203	DRQ-16-360-PPVJ-A	35 207	DRQ-20-360-PPVJ-A	35 211	DRQ-25-360-PPVJ-A
Selectable swivel angle						
1 ... max. 89°	154 451	DRQ-16-...-90-PPVJ-A	154 455	DRQ-20-...-90-PPVJ-A	154 459	DRQ-25-...-90-PPVJ-A
91 ... max. 179°	154 452	DRQ-16-...-180-PPVJ-A	154 456	DRQ-20-...-180-PPVJ-A	154 460	DRQ-25-...-180-PPVJ-A
181 ... max. 269°	154 453	DRQ-16-...-270-PPVJ-A	154 457	DRQ-20-...-270-PPVJ-A	154 461	DRQ-25-...-270-PPVJ-A
271 ... max. 359°	154 454	DRQ-16-...-360-PPVJ-A	154 458	DRQ-20-...-360-PPVJ-A	154 462	DRQ-25-...-360-PPVJ-A

Design	∅ 32 [mm]		∅ 40 [mm]		∅ 50 [mm]	
	Part No.	Type	Part No.	Type	Part No.	Type
Nominal swivel angle						
90°	35 212	DRQ-32-90-PPVJ-A	19 380	DRQ-40-90-PPVJ-A	19 383	DRQ-50-90-PPVJ-A
180°	35 213	DRQ-32-180-PPVJ-A	19 381	DRQ-40-180-PPVJ-A	19 384	DRQ-50-180-PPVJ-A
270°	35 214	DRQ-32-270-PPVJ-A	30 600	DRQ-40-270-PPVJ-A	30 601	DRQ-50-270-PPVJ-A
360°	35 215	DRQ-32-360-PPVJ-A	19 382	DRQ-40-360-PPVJ-A	19 385	DRQ-50-360-PPVJ-A
Selectable swivel angle						
1 ... max. 89°	154 463	DRQ-32-...-90-PPVJ-A	150 180	DRQ-40-...-90-PPVJ-A	150 183	DRQ-50-...-90-PPVJ-A
91 ... max. 179°	154 464	DRQ-32-...-180-PPVJ-A	150 181	DRQ-40-...-180-PPVJ-A	150 184	DRQ-50-...-180-PPVJ-A
181 ... max. 269°	154 465	DRQ-32-...-270-PPVJ-A	151 310	DRQ-40-...-270-PPVJ-A	151 311	DRQ-50-...-270-PPVJ-A
271 ... max. 359°	154 466	DRQ-32-...-360-PPVJ-A	150 182	DRQ-40-...-360-PPVJ-A	150 185	DRQ-50-...-360-PPVJ-A

Design	∅ 63 [mm]		∅ 80 [mm]		∅ 100 [mm]	
	Part No.	Type	Part No.	Type	Part No.	Type
Nominal swivel angle						
90°	19 386	DRQ-63-90-PPVJ-A	19 389	DRQ-80-90-PPVJ-A	19 392	DRQ-100-90-PPVJ-A
180°	19 387	DRQ-63-180-PPVJ-A	19 390	DRQ-80-180-PPVJ-A	19 393	DRQ-100-180-PPVJ-A
270°	30 602	DRQ-63-270-PPVJ-A	30 603	DRQ-80-270-PPVJ-A	30 604	DRQ-100-270-PPVJ-A
360°	19 388	DRQ-63-360-PPVJ-A	19 391	DRQ-80-360-PPVJ-A	19 394	DRQ-100-360-PPVJ-A
Selectable swivel angle						
1 ... max. 89°	150 186	DRQ-63-...-90-PPVJ-A	150 189	DRQ-80-...-90-PPVJ-A	150 192	DRQ-100-...-90-PPVJ-A
91 ... max. 179°	150 187	DRQ-63-...-180-PPVJ-A	150 190	DRQ-80-...-180-PPVJ-A	150 193	DRQ-100-...-180-PPVJ-A
181 ... max. 269°	151 312	DRQ-63-...-270-PPVJ-A	151 313	DRQ-80-...-270-PPVJ-A	151 314	DRQ-100-...-270-PPVJ-A
271 ... max. 359°	150 188	DRQ-63-...-360-PPVJ-A	150 191	DRQ-80-...-360-PPVJ-A	150 194	DRQ-100-...-360-PPVJ-A

Semi-rotary drives DRQ

Technical data

Ordering data – Variants without end position adjustment						
Design	∅ 40 [mm]		∅ 50 [mm]		∅ 63 [mm]	
	Part No.	Type	Part No.	Type	Part No.	Type
Nominal swivel angle						
90°	30 580	DRQ-40-90-PPV-A	30 584	DRQ-50-90-PPV-A	30 588	DRQ-63-90-PPV-A
180°	30 581	DRQ-40-180-PPV-A	30 585	DRQ-50-180-PPV-A	30 589	DRQ-63-180-PPV-A
270°	30 582	DRQ-40-270-PPV-A	30 586	DRQ-50-270-PPV-A	30 590	DRQ-63-270-PPV-A
360°	30 583	DRQ-40-360-PPV-A	30 587	DRQ-50-360-PPV-A	30 591	DRQ-63-360-PPV-A
Selectable swivel angle						
1 ... max. 89°	150 242	DRQ-40-...-90-PPV-A	150 245	DRQ-50-...-90-PPV-A	150 248	DRQ-63-...-90-PPV-A
91 ... max. 179°	150 243	DRQ-40-...-180-PPV-A	150 246	DRQ-50-...-180-PPV-A	150 249	DRQ-63-...-180-PPV-A
181 ... max. 269°	151 315	DRQ-40-...-270-PPV-A	151 316	DRQ-50-...-270-PPV-A	151 317	DRQ-63-...-270-PPV-A
271 ... max. 359°	150 244	DRQ-40-...-360-PPV-A	150 247	DRQ-50-...-360-PPV-A	150 250	DRQ-63-...-360-PPV-A

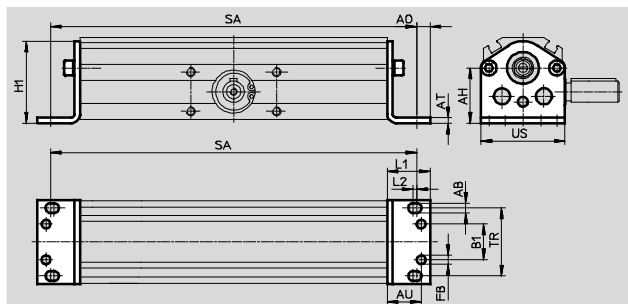
Design	∅ 80 [mm]		∅ 100 [mm]		
	Part No.	Type	Part No.	Type	
Nominal swivel angle					
90°	30 592	DRQ-80-90-PPV-A	30 596	DRQ-100-90-PPV-A	–
180°	30 593	DRQ-80-180-PPV-A	30 597	DRQ-100-180-PPV-A	
270°	30 594	DRQ-80-270-PPV-A	30 598	DRQ-100-270-PPV-A	
360°	30 595	DRQ-80-360-PPV-A	30 599	DRQ-100-360-PPV-A	
Selectable swivel angle					
1 ... max. 89°	150 251	DRQ-80-...-90-PPV-A	150 254	DRQ-100-...-90-PPV-A	–
91 ... max. 179°	150 252	DRQ-80-...-180-PPV-A	150 255	DRQ-100-...-180-PPV-A	
181 ... max. 269°	151 318	DRQ-80-...-270-PPV-A	151 319	DRQ-100-...-270-PPV-A	
271 ... max. 359°	150 253	DRQ-80-...-360-PPV-A	150 256	DRQ-100-...-360-PPV-A	

Semi-rotary drives DRQ

Accessories

Foot mounting HQ-...-W
for piston \varnothing 16...32 mm

Material:
Galvanised steel



Dimensions and ordering data						
For \varnothing [mm]	AB \varnothing H13	AH	AO	AT	AU	B1
16	5.5	24.5	7.5	2.5	19	10 ± 0.1
20	5.5	28.7	7.5	2.5	19	14 ± 0.1
25	5.5	30.9	7.5	3	19	20 ± 0.1
32	5.5	35.5	7.5	3	19	28 ± 0.1

For \varnothing [mm]	FB \varnothing -0.1	H1	L1	L2	TR	US
16	4.9	35.5	24	2	27.5 ± 0.1	37
20	4.9	41.7	24	2	31.5 ± 0.1	43
25	4.9	45.9	24	2	38 ± 0.1	47
32	4.9	55.5	24	2	46 ± 0.1	57

For \varnothing [mm]	SA				CRC ¹⁾	Part No.	Type
	Swivel angle						
	90°	180°	270°	360°			
16	170 ± 1.05	186 ± 1.05	209 ± 1.05	217 ± 1.05	2	35 232	HQ-16-W
20	175 ± 1.05	193 ± 1.05	222 ± 1.05	231 ± 1.05	2	35 233	HQ-20-W
25	205 ± 1.05	230 ± 1.05	268 ± 1.05	281 ± 1.05	2	35 234	HQ-25-W
32	261 ± 1.05	292 ± 1.05	339 ± 1.05	355 ± 1.05	2	35 235	HQ-32-W

1) Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a surrounding industrial atmosphere or media such as cooling or lubricating agents.

Semi-rotary drives DRQ

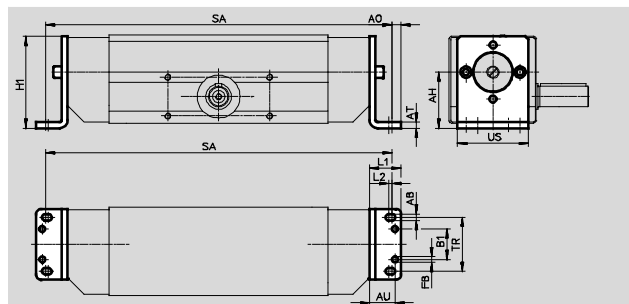
Accessories

Foot mounting HQ-...-W

for piston \varnothing 40 ... 100 mm

Material:

Galvanised steel



Dimensions and ordering data						
For \varnothing	AB	AH	AO	AT	AU	B1
[mm]	\varnothing H13					
40	6.6	45	9	5	24	24 ± 0.2
50	6.6	55	9	6	25	30 ± 0.2
63	9	69	11.5	6	30	36 ± 0.2
80	9	84	11.5	8	32	40 ± 0.2
100	11	102	13.5	8	36	58 ± 0.2

For \varnothing	FB	H1	L1	L2	TR	US
[mm]	\varnothing -0.1					
40	5.9	77	30	3	47 ± 0.2	63.5
50	5.9	90	31	3	53 ± 0.2	69.5
63	7.9	112.5	37	4	66 ± 0.2	87
80	7.9	130	39	4	70.7 ± 0.2	89
100	9.9	161.5	44	5	94 ± 0.2	119

For \varnothing	SA (for DRQ without end position adjustment)				CRC ¹⁾	Part No.	Type
	Swivel angle						
[mm]	90°	180°	270°	360°			
40	297.4 $\pm 1.6/-1.2$	336.4 $\pm 1.6/-1.2$	396.4 $\pm 1.6/-1.2$	415.4 $\pm 1.6/-1.2$	2	19 360	HQ-40-W
50	340.2 $\pm 1.6/-1.2$	389.2 $\pm 1.6/-1.2$	464.2 $\pm 1.6/-1.2$	488.8 $\pm 1.6/-1.2$	2	19 361	HQ-50-W
63	402.4 $\pm 1.8/-1.4$	465.4 $\pm 1.8/-1.4$	559.4 $\pm 1.8/-1.4$	591.4 $\pm 1.8/-1.4$	2	19 362	HQ-63-W
80	485.4 $\pm 1.8/-1.4$	563.4 $\pm 1.8/-1.4$	681.4 $\pm 1.8/-1.4$	720.4 $\pm 1.8/-1.4$	2	19 363	HQ-80-W
100	544.6 $\pm 1.8/-1.4$	647.6 $\pm 1.8/-1.4$	803.6 $\pm 1.8/-1.4$	855.6 $\pm 1.8/-1.4$	2	19 364	HQ-100-W

For \varnothing	SA (for DRQ with end position adjustment)				CRC ¹⁾	Part No.	Type
	Swivel angle						
[mm]	90°	180°	270°	360°			
40	296.6 $\pm 1/-1.4$	335.6 $\pm 1/-1.4$	395.6 $\pm 1/-1.4$	414.6 $\pm 1/-1.4$	2	19 360	HQ-40-W
50	339 $\pm 1/-1.4$	388 $\pm 1/-1.4$	463 $\pm 1/-1.4$	487 $\pm 1/-1.4$	2	19 361	HQ-50-W
63	402 $\pm 1/-1.4$	465 $\pm 1/-1.4$	559 $\pm 1/-1.4$	591 $\pm 1/-1.4$	2	19 362	HQ-63-W
80	505 $\pm 1/-1.4$	583 $\pm 1/-1.4$	701 $\pm 1/-1.4$	740 $\pm 1/-1.4$	2	19 363	HQ-80-W
100	544 $\pm 1.2/-1.6$	647 $\pm 1.2/-1.6$	803 $\pm 1.2/-1.6$	855 $\pm 1.2/-1.6$	2	19 364	HQ-100-W

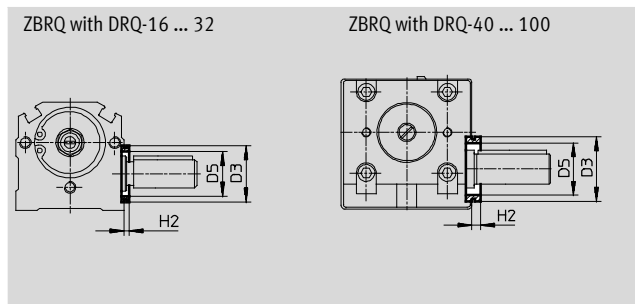
1) Corrosion resistance class 2 according to Festo standard 940 070
 Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a surrounding industrial atmosphere or media such as cooling or lubricating agents.

Semi-rotary drives DRQ

Accessories

Central mounting ZBRQ

Material:
Wrought aluminium alloy
Free of copper, PTFE and silicone



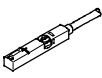
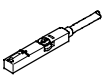
Dimensions and ordering data						
For \varnothing	D3	D5	H2	CRC ¹⁾	Part No.	Type
[mm]	\varnothing js7	\varnothing	max.			
16	19	14	1.8	2	35 236	ZBRQ-16
20	21	16	2.3	2	35 237	ZBRQ-20
25	24	19	2.1	2	35 238	ZBRQ-25
32	26	21	2.3	2	35 239	ZBRQ-32
40	32	25	4.8	2	19 395	ZBRQ-40
50	42	34	5.8	2	19 396	ZBRQ-50
63	47	38	5.8	2	19 397	ZBRQ-63
80	55	44	8	2	19 398	ZBRQ-80
100	80	68	8	2	19 399	ZBRQ-100

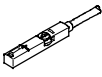


1) Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a surrounding industrial atmosphere or media such as cooling or lubricating agents.

Ordering data – One-way flow control valves			Technical data → Internet: grla		
Connection	Material		Part No.	Type	
	Thread	For tubing O.D.			
	M5	3	Metal design	193 137	GRLA-M5-QS-3-D
		4		193 138	GRLA-M5-QS-4-D
	G1/8	3		193 142	GRLA-1/8-QS-3-D
		4		193 143	GRLA-1/8-QS-4-D
		6		193 144	GRLA-1/8-QS-6-D
		8		193 145	GRLA-1/8-QS-8-D
		10		193 146	GRLA-1/8-QS-10-D
	G1/4	6		193 147	GRLA-1/4-QS-6-D
		8		193 148	GRLA-1/4-QS-8-D
		10		193 149	GRLA-1/4-QS-10-D
	G3/8	6		193 149	GRLA-3/8-QS-6-D
		8		193 150	GRLA-3/8-QS-8-D
		10		193 151	GRLA-3/8-QS-10-D
	G1/2	12		193 152	GRLA-1/2-QS-12-D

Semi-rotary drives DRQ

Accessories


Ordering data – Proximity sensors for T-slot, magneto-resistive					Technical data → Internet: smt	
	Type of mounting	Switch output	Electrical connection	Cable length [m]	Part No.	Type
N/O contact						
	Insertable in the slot from above, flush with cylinder profile, short design	PNP	Cable, 3-wire	2.5	574335	SMT-8M-A-PS-24V-E-2,5-OE
			Plug M8x1, 3-pin	0.3	574334	SMT-8M-A-PS-24V-E-0,3-M8D
			Plug M12x1, 3-pin	0.3	574337	SMT-8M-A-PS-24V-E-0,3-M12
		NPN	Cable, 3-wire	2.5	574338	SMT-8M-A-NS-24V-E-2,5-OE
			Plug M8x1, 3-pin	0.3	574339	SMT-8M-A-NS-24V-E-0,3-M8D
N/C contact						
	Insertable in the slot from above, flush with cylinder profile, short design	PNP	Cable, 3-wire	7.5	574340	SMT-8M-A-PO-24V-E-7,5-OE


Ordering data – Proximity sensors for T-slot, magnetic reed					Technical data → Internet: sme		
	Type of mounting	Switch output	Electrical connection	Cable length [m]	Part No.	Type	
N/O contact							
	Insertable in the slot from above, flush with cylinder profile	Contacting	Cable, 3-wire	2.5	543 862	SME-8M-DS-24V-K-2,5-OE	
				5.0	543 863	SME-8M-DS-24V-K-5,0-OE	
			Plug M8x1, 3-pin	Cable, 2-wire	2.5	543 872	SME-8M-ZS-24V-K-2,5-OE
				0.3	543 861	SME-8M-DS-24V-K-0,3-M8D	
	Insertable in the slot lengthwise, flush with the cylinder profile	Contacting	Cable, 3-wire	2.5	150 855	SME-8-K-LED-24	
			Plug M8x1, 3-pin	0.3	150 857	SME-8-S-LED-24	
N/C contact							
	Insertable in the slot lengthwise, flush with the cylinder profile	Contacting	Cable, 3-wire	7.5	160 251	SME-8-O-K-LED-24	


Ordering data – Slot cover for T-slot			
	Mounting	Length [m]	Part No. Type
	Insertable from above	2x 0.5	151 680 ABP-5-S


Semi-rotary drives DRQ



Accessories

Ordering data – Rectangular proximity sensor, magneto-resistive						Technical data → Internet: smto	
	Mounting	Switch output	Electrical connection		Cable length [m]	Part No.	Type
			Cable	M8 plug			
NO contact							
	Via accessories	PNP	3-wire	–	2.5	151 683	SMTO-1-PS-K-LED-24-C
			–	3-pin	–	151 685	SMTO-1-PS-S-LED-24-C
		NPN	3-wire	–	2.5	151 684	SMTO-1-NS-K-LED-24-C
			–	3-pin	–	151 686	SMTO-1-NS-S-LED-24-C

Ordering data – Rectangular proximity sensors, magnetic reed						Technical data → Internet: smeo	
	Mounting	Electrical connection		Cable length [m]	Part No.	Type	
		Cables	M8 plug				
NO contact							
	Via accessories	3-wire	–	2.5	30 459	SMEO-1-LED-24-B	
		3-wire	–	5.0	151 672	SMEO-1-LED-24-K5-B	
		–	3-pin	–	150 848	SMEO-1-S-LED-24-B	

Ordering data – Rectangular proximity sensors, pneumatic					Technical data → Internet: smpo		
	Mounting	Pneumatic connection		Part No.	Type		
3/2-way valve, normally closed							
	Via accessories	Barbed fitting for tubing ID of 3 mm		31 008	SMPO-1-H-B		

Ordering data – Mounting kit				Technical data → Internet: smb	
	Mounting			Part No.	Type
	For cylinder with tie rod \varnothing 6 mm or profile mounting rail			11 886	SMB-1

Ordering data – Connecting cables					Technical data → Internet: nebu	
	Electrical connection, left	Electrical connection, right	Cable length [m]	Part No.	Type	
	Straight socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	541 333	NEBU-M8G3-K-2.5-LE3	
			5	541 334	NEBU-M8G3-K-5-LE3	
	Straight socket, M12x1, 5-pin	Cable, open end, 3-wire	2.5	541 363	NEBU-M12G5-K-2.5-LE3	
			5	541 364	NEBU-M12G5-K-5-LE3	
	Angled socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	541 338	NEBU-M8W3-K-2.5-LE3	
			5	541 341	NEBU-M8W3-K-5-LE3	
	Angled socket, M12x1, 5-pin	Cable, open end, 3-wire	2.5	541 367	NEBU-M12W5-K-2.5-LE3	
			5	541 370	NEBU-M12W5-K-5-LE3	