Twin-piston semi-rotary drives DRRD

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Up to 6 x 10^{12} variants per product series

Look for the star!

Twin-piston semi-rotary drives DRRD

Features

At a glance

- Rack and pinion principle
- Very high accuracy in the end positions
- Very high bearing load capacity
- Very good axial run-out at the flanged shaft
- High mass moments of inertia
- Low backlash and good dynamic response
- Splash-proof design to IP65 based on EN 60529
- Defined interfaces
- Supply port at one end
- Choice of mounting options
- Ideal for use in handling applications

Wide choice of variants

Flanged shaft



- Size 8 ... 63
- Torque: 0.2 ... 112 Nm
- Swivel angle: 0 ... 180°

Drive shaft



- Size 12 ... 40
- Torque: 0.8 ... 24.1 Nm
- Swivel angle: 0 ... 180°
- Suitable for ATEX
- Can be ordered as an accessory

Position sensing



- Size 8 ... 12
  - C-slot for proximity sensor SMT/SME-10
- Size 16 ... 63
  - T-slot for proximity sensor SMT/SME-8

External position sensing (sensor mounting)



- Size 16 ... 63
- Position sensing possible directly at the flanged shaft
- Inductive proximity sensors SIES can be used in combination with external position sensing

Cushioning



- Size 12 ... 63
- Five cushioning types available:
  - Elastic cushioning with metal end position (P)
  - Shock absorber (Y9)
  - Shock absorber, hard (Y10)
  - Shock absorber, external (Y12)
  - Shock absorber, soft (Y14)

External cushioning



- Size 12 ... 63
- The full torque can be realised in the end positions in combination with external cushioning

Energy throughfeed



- Size 16 ... 63
- Electrical signals or compressed air can be transferred through the hollow shaft using the energy throughfeed. This enables fast and easy supply of the parts connected to the flange (e.g. gripper)

Intermediate position



- Size 16 ... 50
- The semi-rotary drive can additionally be positioned at 90° using the intermediate-position module.
- The intermediate position can be approached from both directions
- The cushioning for the intermediate position corresponds to the cushioning for the basic drive. Except in the case of cushioning Y12, when shock absorbers Y9 are used

End-position locking



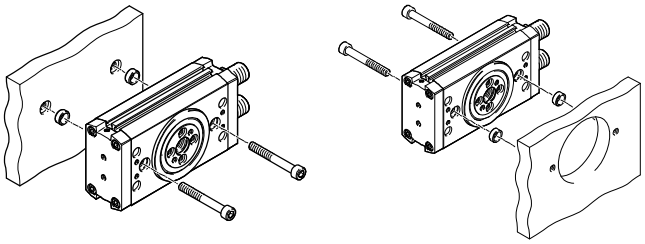
- Size 16 ... 63
- Mechanical lock in the end positions to prevent unwanted movement in unpressurised condition

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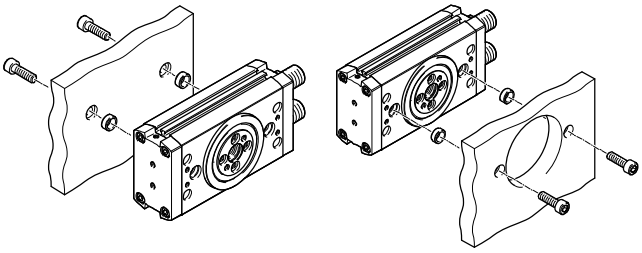
System example

Mounting options

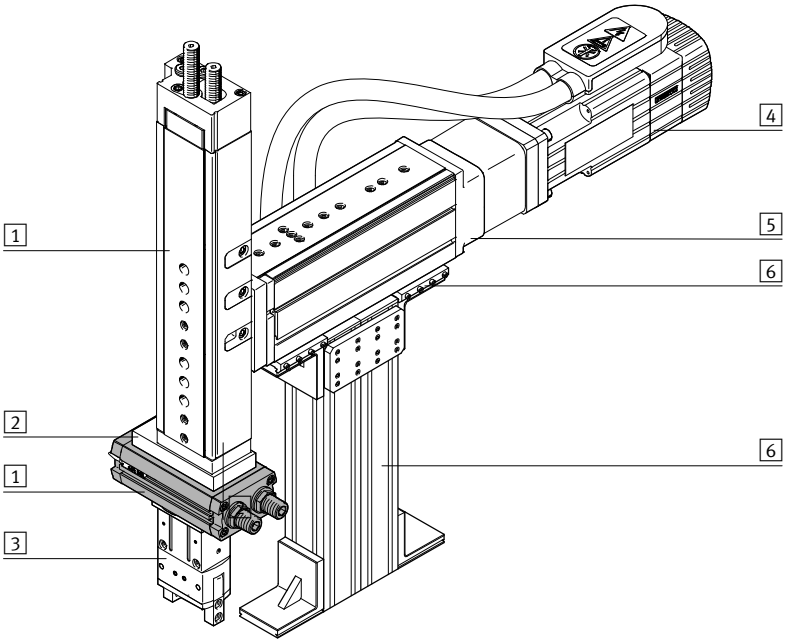
Via through-holes



Via thread in the housing profile



System product for handling and assembly technology

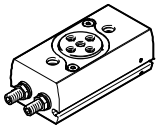
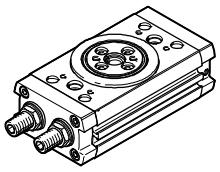


System components and accessories

		Description	➔ Page/Internet
1	Drives	Wide range of combinations possible within handling and assembly technology	drive
2	Adapters	For drive/drive and drive/gripper connections	adapter kit
3	Grippers	Wide range of combination options within handling and assembly technology	gripper
4	Motors	Servo and stepper motors, with or without gear unit	motor
5	Axes	Wide range of combinations possible within handling and assembly technology	axis
6	Basic components	Profiles and profile connections as well as profile/drive connections	base component
–	Installation components	For a clear, safe layout of electrical cables and tubing	installation component

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Product range overview

Function	Version	Size	Swivel angle	Energy throughfeed					
			[°]	P2	P2E2	P4	P4E6	P8	P8E8
Double-acting	**DRRD-8 … 12**								
		8	Max. 200	–	–	–	–	–	–
		10	Max. 200	–	–	–	–	–	–
		12	Max. 200	–	–	–	–	–	–
	DRRD-16 … 63								
		16	Max. 200	■	■	–	–	–	–
		20	Max. 200	■	■	–	–	–	–
		25	Max. 200	–	–	■	■	–	–
		32	Max. 200	–	–	■	■	–	–
		35	Max. 200	–	–	■	■	–	–
		40	Max. 200	–	–	–	–	■	■
		50	Max. 200	–	–	–	–	■	■
		63	Max. 200	–	–	–	–	■	■

Product options

Energy throughfeed

P2 Pneumatic, 2 channels
P2E2 Pneumatic, 2 channels; electric, 2 signals
P4 Pneumatic, 4 channels
P4E6 Pneumatic, 4 channels; electric, 6 signals
P8 Pneumatic, 8 channels
P8E8 Pneumatic, 8 channels; electric, 8 signals

Twin-piston semi-rotary drives DRRD

Product range overview

Function	Size	Cushioning					Position sensing	EU certification	Intermediate position	End-position locking	Sensor mounting, external	Splash-proof design	➔ Page/ Internet
		P	Y9	Y10	Y12	Y14	A	EX4	PS1	E1	R	SG	
Double-acting	**DRRD-8 … 12**												
	8	■	–	–	–	–	■	–	–	–	–	–	7
	10	■	–	–	–	–	■	–	–	–	–	–	
	12	■	■	–	■	–	■	–	–	–	–	–	
	DRRD-16 … 63												
	16	■	■	–	■	■	■	■	■	■	■	■	18
	20	■	■	–	■	■	■	■	■	■	■	■	
	25	■	■	■	■	■	■	■	■	■	■	■	
	32	■	■	–	■	■	■	■	■	■	■	■	
	35	■	■	■	■	■	■	■	■	■	■	■	
	40	■	■	■	■	■	■	■	■	■	■	■	
	50	–	■	■	■	–	■	■	■	■	■	■	
	63	–	■	■	■	–	■	■	–	■	■	■	

Product options

Cushioning

P Elastic cushioning at both ends

Y9 Linear shock absorber, self-adjusting at both ends, internal

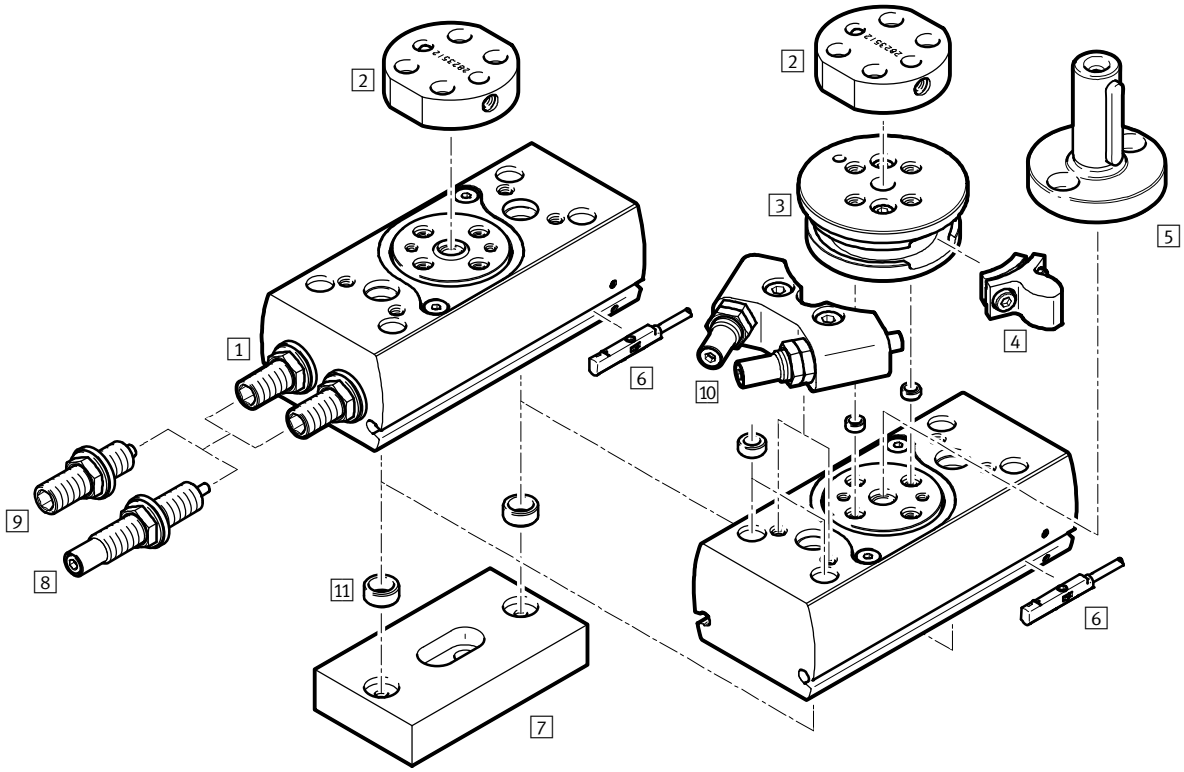
Y10 Linear shock absorber, self-adjusting at both ends, hard, internal

Y12 Linear shock absorber, self-adjusting at both ends, external

Y14 Linear shock absorber, self-adjusting at both ends, soft, internal

Twin-piston semi-rotary drives DRRD-8 … 12

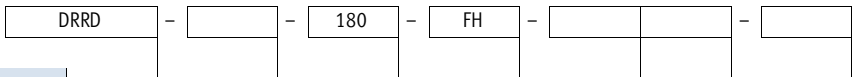
Peripherals overview



Variants, mounting components and accessories						
	Description	Size			→ Page/ Internet
		8	10	12	
1 Semi-rotary drive DRRD	Double-acting	■	■	■	7
2 Adapter kit DHAA	• Connecting plate between semi-rotary drive and gripper • Included in the scope of delivery: 2 centring sleeves and screws	■	■	■	gripper
3 Flange assembly	• Required for the fastening of component 4	–	–	■	16
4 Stop element	• Serves as an end stop in combination with external shock absorbers (Y12) • Two stop elements are included in the scope of delivery of external shock absorbers (Y12)	–	–	■	16
5 Drive shaft DARF-Q11	• The interface corresponds with that of semi-rotary drive DRQD. • The drive shaft can only be mounted directly on the flanged shaft. • Suitable for ATEX	–	–	■	56
6 Proximity sensor SMT/SME-10	For sensing the piston position	■	■	■	60
7 Adapter kit DHAA	Connecting plate between semi-rotary drive and drive	■	■	■	65
8 Shock absorber Y9	Linear shock absorber, self-adjusting at both ends	–	–	■	17
9 Shock absorber P	Elastic cushioning with metal end position, both ends	■	■	■	17
10 Shock absorber, external Y12	• Linear shock absorber, self-adjusting at both ends, external • Included in the scope of delivery: 3, 2x 4, 9	–	–	■	17
11 Centring sleeve ZBH	For centring attachments (two centring sleeves for mounting the semi-rotary drive included in the scope of delivery)	■	■	■	59

Twin-piston semi-rotary drives DRRD-8 … 12

Type codes



Product type	
Double-acting	
DRRD	Semi-rotary drive

Size	

Nominal swivel angle	
180	180°

Output shaft	
FH	Flanged shaft, hollow

Cushioning	
P	Elastic cushioning at both ends
Y9	Linear shock absorber, self-adjusting at both ends, internal
Y12	Linear shock absorber, self-adjusting at both ends, external

Position sensing	
A	Via proximity sensors

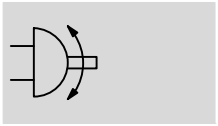
Operating instructions	
–	With operating instructions
DN	Without operating instructions

Twin-piston semi-rotary drives DRRD-8 ... 12

Technical data

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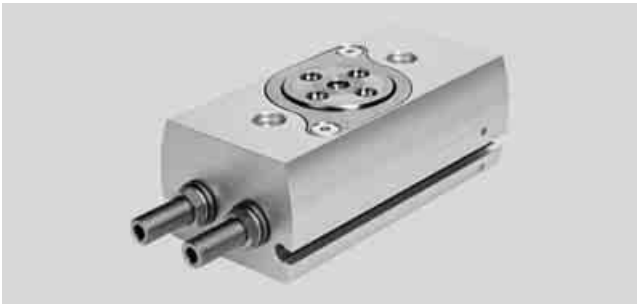
Function



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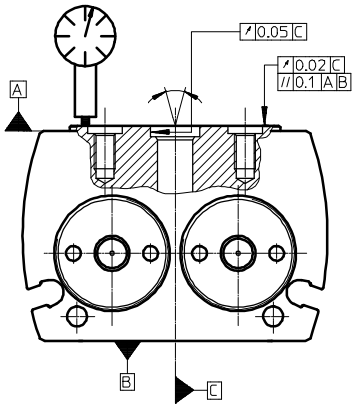
Diameter
8 ... 12 mm

Torque
0.2 ... 0.8 Nm



General technical data				
Size		8	10	12
Design		Rack and pinion		
Mode of operation		Double-acting		
Pneumatic connection		M3	M3	M5
Type of mounting		With through-hole		
		Via female thread		
Swivel angle	[°]	180 (➔ page 10)		
Cushioning with fixed stop				
DRRD-...-P		Elastic cushioning at both ends		
DRRD-...-Y9		–		Linear shock absorber, self-adjusting at both ends
DRRD-...-Y12		–		External linear shock absorber, self-adjusting at both ends
Repetition accuracy	[°]	≤ 0.03		
Axial run-out[1)]	[mm]	≤ 0.02		
Max. axial load (static)				
Pulling	[N]	260	260	330
Pushing	[N]	700	1100	1400
Mounting position		Any		

1) Axial run-out in new condition



Twin-piston semi-rotary drives DRRD-8 … 12

Technical data

Operating and environmental conditions		
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)
Operating pressure		
DRRD-...-P	[bar]	3 … 8
DRRD-...-Y9/-Y12	[bar]	2 … 10
Ambient temperature	[°C]	–10 … +60
Storage temperature	[°C]	–20 … +60

Weight [g]			
Size	8	10	12
DRRD-...-P	155	245	380
DRRD-...-Y9	–	–	385
DRRD-...-Y12	–	–	500

Forces and torques				
Size		8	10	12
Theoretical torque at 6 bar	[Nm]	0.2	0.4	0.8
Max. permissible mass moment of inertia				
DRRD-...-P	[kgcm^2]	15	20	80
DRRD-...-Y9	[kgcm^2]	–	–	300
DRRD-...-Y12	[kgcm^2]	–	–	300

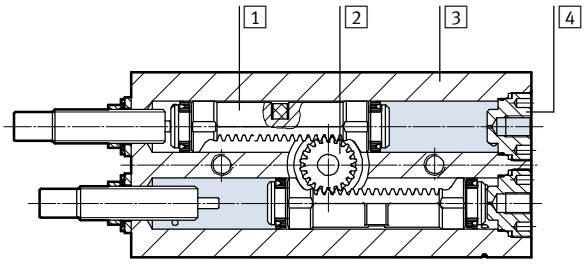
Note

If, in the end positions, a torque which exceeds 50% of the theoretical torque acts against the direction of rotation, no exact end position is guaranteed.

This can be avoided by using external shock absorbers (Y12) or a semi-rotary drive with double the torque.

Materials

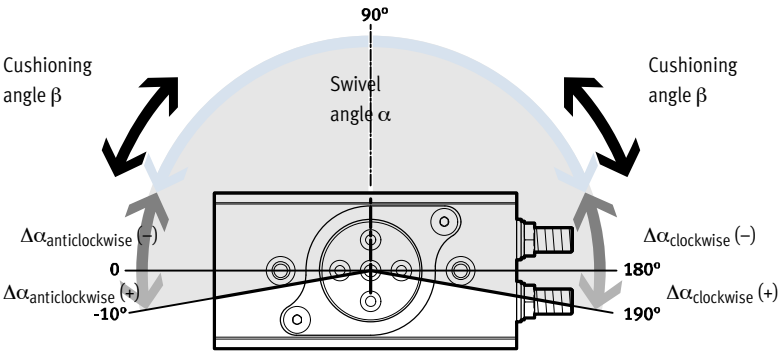
Sectional view



Semi-rotary drive		
1	Piston	Copper base alloy
2	Flanged shaft	High-alloy stainless steel
3	Housing	Wrought aluminium alloy, hard-anodised
4	Port plug	High-alloy stainless steel
	Seals	NBR
	Piston seal	TPE-U(PU)
	Note on materials	RoHS compliant
		Contains paint-wetting impairment substances

Swivel angle

Fundamentally, the following applies:
Swivel angle $\alpha \geq$ cushioning angle β
Swivel angle $\alpha = 180° + \Delta\alpha_{clockwise} + \Delta\alpha_{anti\text{-}clockwise}$



Size		8	10	12
Swivel angle α	[°]	180		
Min. swivel angle α[1]				
DRRD-...-P	[°]	38	37	32
DRRD-...-Y9	[°]	–	–	48
DRRD-...-Y12	[°]	–	–	20
Max. swivel angle α				
DRRD-...	[°]	200		
DRRD-...-Y12	[°]	–	–	192
Swivel angle adjustment α per side (infinitely adjustable)				
DRRD-...-P	[°]	–100 … +10		
DRRD-...-Y9	[°]	≥ –100 … +10		
DRRD-...-Y12	[°]	–	–	–92 … +6
Cushioning angle β				
DRRD-...-P	[°]	38	37	32
DRRD-...-Y9	[°]	–	–	48
DRRD-...-Y12	[°]	–	–	10

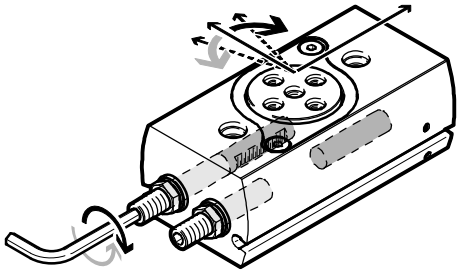
1) It is possible to set smaller swivel angles. However, this reduces the cushioning energy.

Swivel angle adjustment

Clockwise direction of rotation:
- Swivel angle decreases

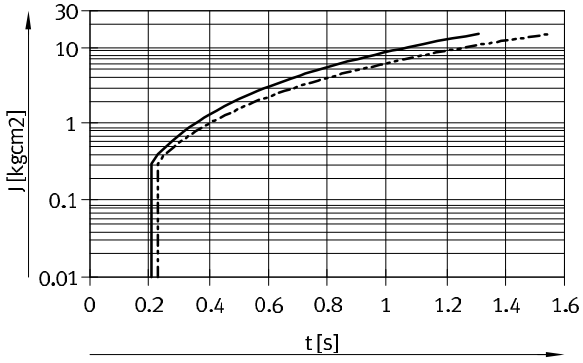
Anticlockwise direction of rotation:
- Swivel angle increases

The swivel angle is adjusted via the cushioning components using an Allen key. Any reduction in the swivel angle should preferably be evenly split between the two end positions.



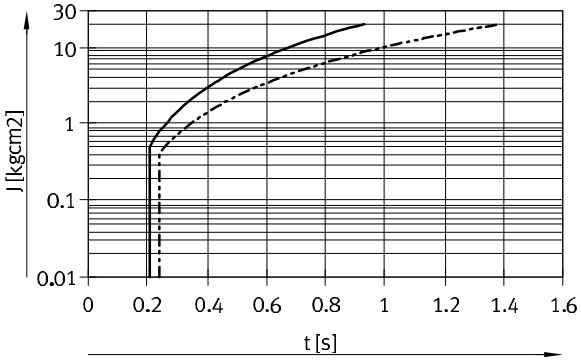
Max. permissible mass moment of inertia J at the flanged shaft as a function of swivel time t (at room temperature and an operating pressure of 6 bar)

Size 8 with cushioning P
Swivel angle 90°/180°



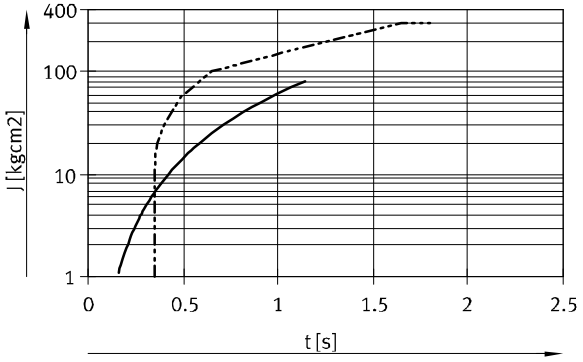
	Ranges
DRRD-8-...P (90°)	➔ 0 … 15 kgcm²
DRRD-8-...-P (180°)	➔ 0 … 15 kgcm²

Size 10 with cushioning P



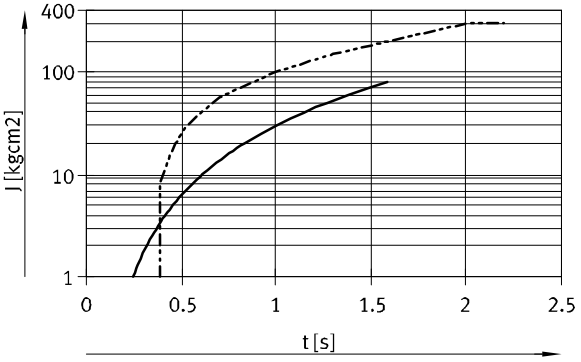
	Ranges
DRRD-10-...-P (90°)	➔ 0 … 20 kgcm²
DRRD-10-...-P (180°)	➔ 0 … 20 kgcm²

Size 12 with cushioning P/Y9
Swivel angle 90°



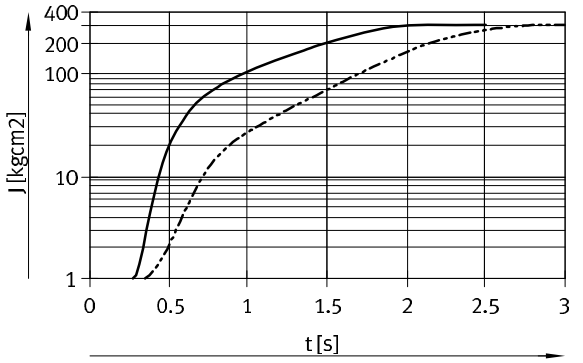
	Ranges
DRRD-12-...-P (90°)	➔ 0 … 80 kgcm²
DRRD-12-...-Y9 (90°)	➔ 0 … 300 kgcm²

Swivel angle 180°



	Ranges
DRRD-12-...-P (180°)	➔ 0 … 80 kgcm²
DRRD-12-...-Y9 (180°)	➔ 0 … 300 kgcm²

Size 12 with cushioning Y12
Swivel angle 90°/180°



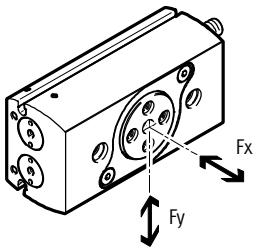
	Ranges
DRRD-12-...-Y12 (90°)	➔ 1 … 300 kgcm²
DRRD-12-...-Y12 (180°)	➔ 1 … 300 kgcm²

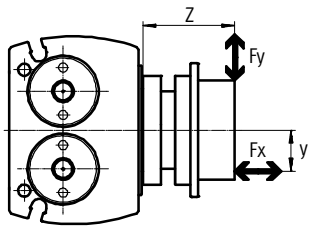
Twin-piston semi-rotary drives DRRD-8 … 12

Technical data

Max. load capacity at the flanged shaft

The zero point for dimension z is always the flange level of the basic drive, independently of the mounting parts (flange assembly).



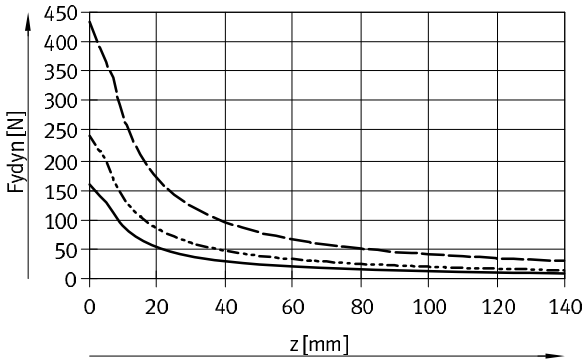


The following equation applies to combined loads (axial and radial):

$$\frac{F_{y\,(z)}}{F_{y,\,max.\,(z)}} + \frac{F_{z\,(v)}}{F_{z,\,max.\,(v)}} \leq 1$$

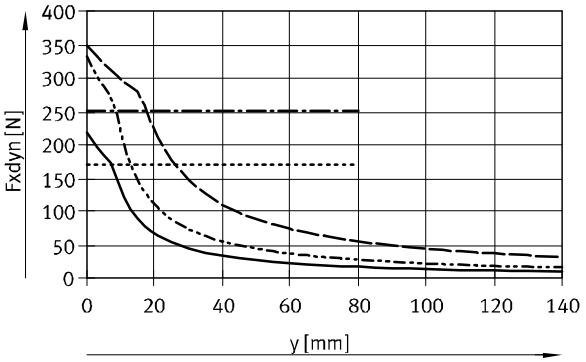
Dynamic values

Max. radial force F_y as a function of distance z



DRRD-8
DRRD-10
DRRD-12

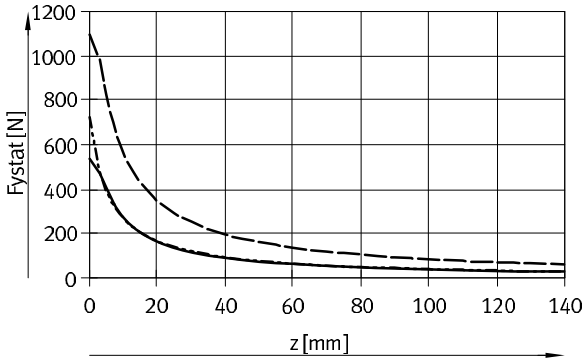
Max. axial force F_x as a function of distance y



Tensile force limit DRRD-8/10
Tensile force limit DRRD-12

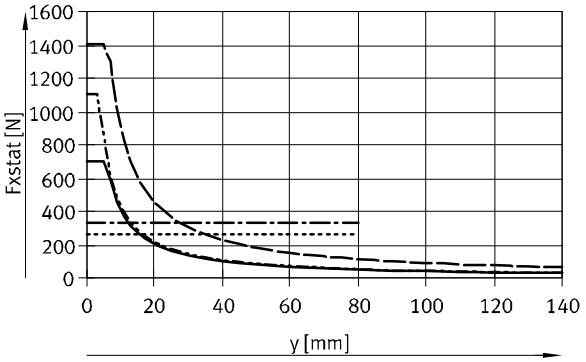
Static values

Max. radial force F_y as a function of distance z



DRRD-8
DRRD-10
DRRD-12

Max. axial force F_x as a function of distance y

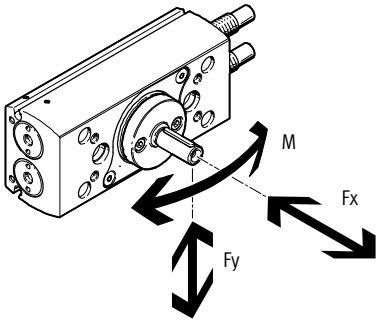


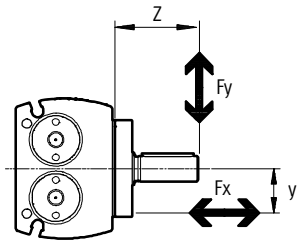
Tensile force limit DRRD-8/10
Tensile force limit DRRD-12

Max. load capacity on drive shaft (DARF-Q11)

Max. radial forces F_y / axial forces F_x / bending moment M

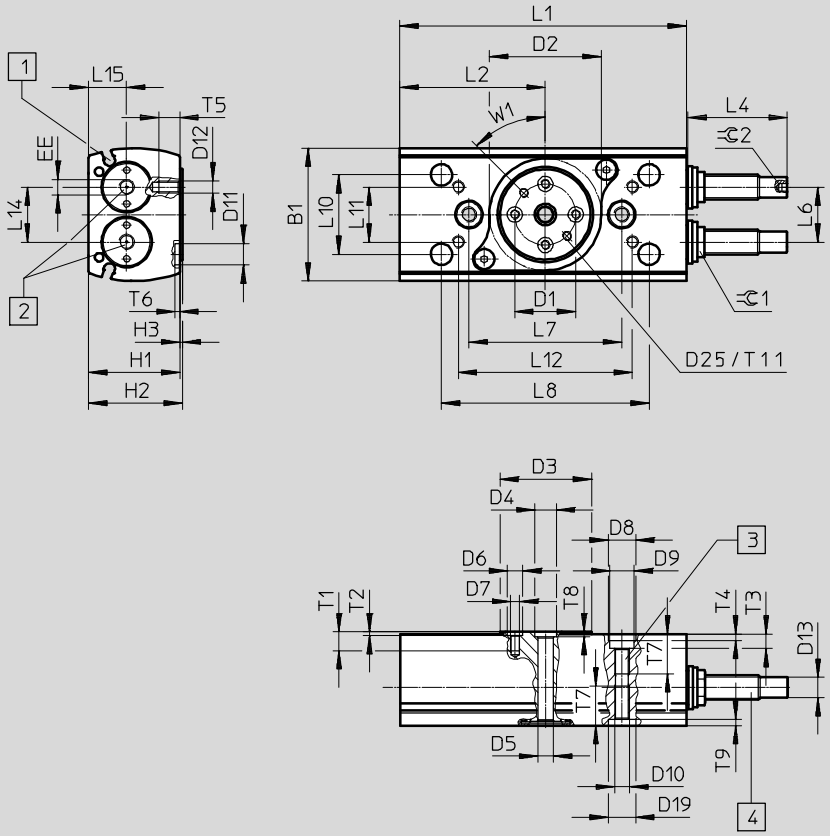
- For the radial forces F_y, the limits of the flanged shaft ➔ page 12 and max. bending moment of the drive shaft apply ➔ table below.
- The bending moment represents the load limit of the drive shaft and must not be exceeded.
- The zero point for dimension z is always the flange level of the basic drive, independently of the mounting parts (flange assembly).
- The axial force represents an additional load.



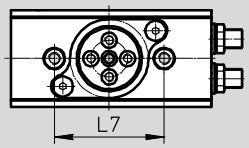


Size		12
Axial force F_x	[N]	170
Bending moment M	[Nm]	5.44

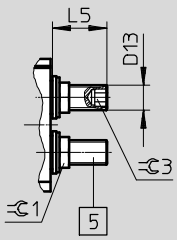
Dimensions Download CAD data ➔ **www.festo.com**



DRRD-8/10



DRRD-...-P



Note

Illustrated position of the flanged shaft corresponds to the mid-position (swivel angle 90°).
Dimensions D25, T11 and W1 only for size 12.

1 Sensor slot for proximity sensor
2 Supply ports
3 Mounting thread
4 Shock absorber (DRRD-...-Y9)
5 Cushioning component (DRRD-...-P)

Twin-piston semi-rotary drives DRRD-8 … 12

Technical data

Size	B1 ±0.25	D1 ∅ ±0.025	D2 ∅ +0.1	D3 ∅	D4 ∅ H7	D5 ∅ ±0.1	D6 ∅ H7	D7	D8 ∅ H7	D9 ∅	D10
8	31.5	12	26	20.4	5	3	5	M3	7	6	M4
10	38	15	32	24	5	3	5	M3	7	6	M4
12	43.5	20	37	30	7	5	5	M3	9	8	M5

Size	D11 ∅ H7	D12	D13	D19 ∅ H7	D25	H1 +0.4	H2 ±0.2	H3 +0.2/−0.6	L1 ±0.1	L2 +0.1	L6
8	–	–	M6x0.5	7	–	24.5	25.25	0.75	65.6	32.2	$13_{-0.1}$
10	–	–	M6x0.5	7	–	27.5	28.25	0.75	74	38.3	$15.2_{-0.1}$
12	7	M4	M8x1	9	M3	30	30.75	0.75	93.9	47.7	$18^{+0.1}$

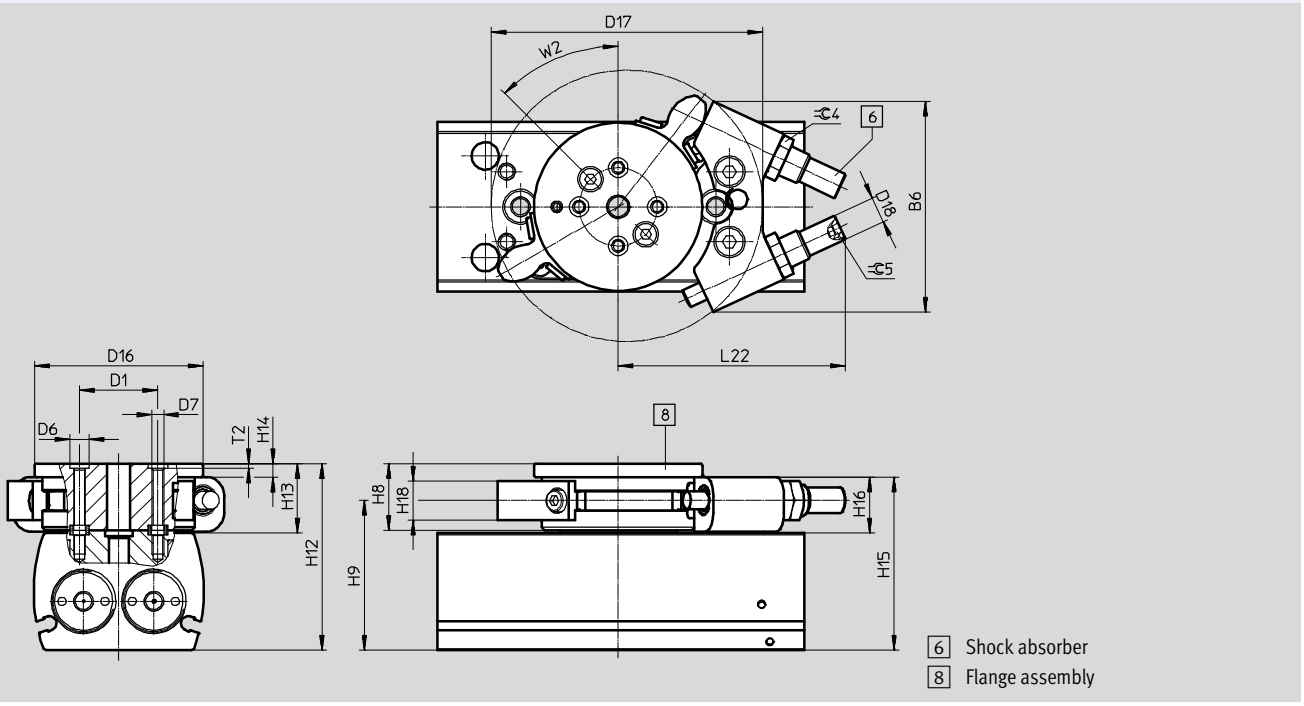
Size	L7 ±0.02	L8 ±0.2	L10 ±0.02	L11 ±0.15	L12 ±0.2	L14	L15 −0.1	T1	T2 +0.1	T3	T4 +0.4/−0.1
8	36	–	–	–	–	13	11.1	4.8	1.2	3.4	1.5
10	44	–	–	–	–	15.2	11.1	6.2	1.2	3.4	1.5
12	50	68	26	18	57	18	12.5	5.4	1.2	4.7	2.1

Size	T5	T6 +0.4/−0.1	T7	T8 +0.1	T9 +0.1	T11	EE	W1	⫧ 1	⫧ 2	⫧ 3
8	–	–	10.5	1.2	1.6	–	M3	–	10	–	3
10	–	–	10	1.2	1.6	–	M3	–	10	–	3
12	7	1.6	13	1.6	2.1	5.5	M5	45°	10	2.5	5

Size	Dimension with 180° swivel angle		Swivel angle adjustment range		
	L4	L5	L4 min./max.	L5 min./max.	1 mm = …°
8	–	11.1	–	−6.1/+0.8	16.4
10	–	12.6	–	−7.6/+1.2	13.64
12	28	17	−1.9/+1.9	−11/+1.8	9.6

Dimensions – Variants Download CAD data ➔ **www.festo.com**

Y12 – With external shock absorber



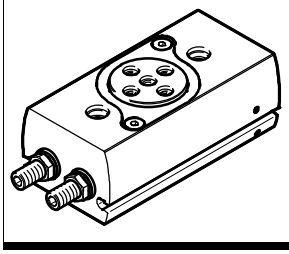
Size	B6	D1 ∅	D6 ∅	D7	D16 ∅	D17	D18	H8	H9	H12
	±0.2	±0.025	H7					±0.1		±0.3
12	54	20	5	M3	43	69.4	M8x1	17	38.25	47.75

Size	H13	H14	H15	H16	H18	L22	T2	W2	⫷ 4	⫷ 5
						Max.	+0.1			
12	17.75	3.5	44	14	10	58.2	1.2	45°	10	2.5

Twin-piston semi-rotary drives DRRD-8 … 12

Ordering data

Ordering data – Stock items

DRRD	Size	Swivel angle [°]	Part No.	Type
	P – Elastic cushioning rings/pads at both ends			
	8	180	**2223060**	**DRRD-8-180-FH-PA**
	10		**2350968**	**DRRD-10-180-FH-PA**
	12		**2282067**	**DRRD-12-180-FH-PA**
	Y9 – Linear shock absorber, self-adjusting at both ends			
	12	180	**2399248**	**DRRD-12-180-FH-Y9A**

Ordering table – Modular product system

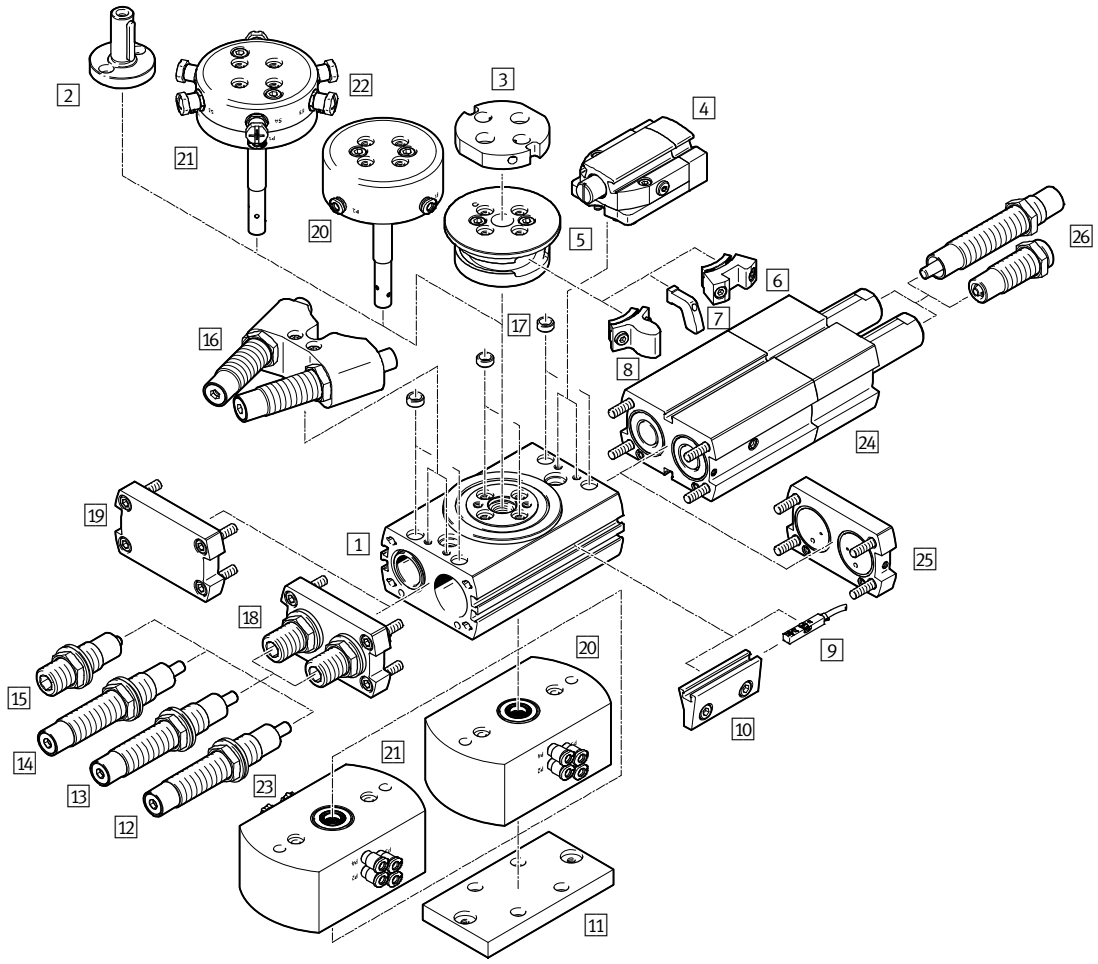
	Size	12	Condi-tions	Code		Entry code
M	Part no.	**574398**				
	Function	Semi-rotary drive		**DRRD**		DRRD
	Size	12		**-12**		-12
	Nominal swivel angle	180°		**-180**		-180
	Output shaft	Flanged shaft, hollow		**-FH**		-FH
	Cushioning	Elastic cushioning rings/pads at both ends		**-P**		
		Linear shock absorber, self-adjusting at both ends		**-Y9**		
		Linear shock absorber, self-adjusting at both ends, external		**-Y12**		
	Position sensing	Via proximity sensor		**A**		A
O	Operating instructions	With operating instructions				
		Without operating instructions		**-DN**		

Transfer order code

	DRRD	–	**12**	–	**180**	–	**FH**	–			**A**	–

Twin-piston semi-rotary drives DRRD-16 ... 63

Peripherals overview



Variants, mounting components and accessories

		Description	Size								➔ Page/ Internet
			16	20	25	32	35	40	50	63	
1	Semi-rotary drive DRRD	Double-acting	■	■	■	■	■	■	■	■	20
2	Drive shaft DARF-Q11	• The interface corresponds with that of semi-rotary drive DRQD • The drive shaft should only mounted directly onto the flanged shaft • Suitable for ATEX	■	■	■	■	■	■	–	–	56
3	Adapter kit DHAA	• Connecting plate between semi-rotary drive and gripper • Included in the scope of delivery: 2 centring sleeves and screws	■	■	■	■	■	■	■	–	gripper
4	End-position locking E1 (clamping unit DADL-...-EL as an accessory)	• Mechanical lock in the end positions to prevent unwanted movement when unpressurised • Included in the scope of delivery: 4, 5, 2x 6	■	■	■	■	■	■	■	■	57
5	Flange assembly	Required to mount components 6, 7 and 8	■	■	■	■	■	■	■	■	57
6	Clamping component (type: DADL-EC)	Secures the semi-rotary drive DRRD when cylinder 4 is advanced	■	■	■	■	■	■	■	■	59
7	Switch lug DASI-Q11-...-SL	For sensing the piston position using e.g. inductive proximity sensors SIES-8M ➔ page 61, in conjunction with a sensor bracket 10	■	■	■	■	■	■	■	■	59

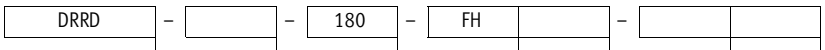
Twin-piston semi-rotary drives DRRD-16 ... 63

Peripherals overview

Variants, mounting components and accessories												
		Description	Size								➔ Page/ Internet
			16	20	25	32	35	40	50	63	
8	Stop element	Serves as an end stop in combination with external shock absorbers (Y12)	■	■	■	■	■	■	■	■	55
9	Proximity sensor SMT/SME-8	For sensing the piston position	■	■	■	■	■	■	■	■	60
	Position sensor SMAT-8M	Analogue positional feedback from 0 ... 10 V possible	■	■	■	■	■	■	■	■	63
10	Sensor mounting R (sensing kit DASI-...-KT as an accessory)	• For sensing the piston position using e.g. inductive proximity sensors SIES-8M ➔ page 61 • Included in the scope of delivery: 5, 2x 7, 2x 10	■	■	■	■	■	■	■	■	58
11	Adapter kit DHAA	Connecting plate between semi-rotary drive and drive	■	■	■	■	■	■	■	–	adapter
12	Shock absorber Y9	Linear shock absorber, self-adjusting at both ends	■	■	■	■	■	■	■	■	55
13	Shock absorber, hard Y10	Linear shock absorber, self-adjusting at both ends, hard	–	–	■	–	■	■	■	■	55
14	Shock absorber, soft Y14	Linear shock absorber, self-adjusting at both ends, soft	■	■	■	■	■	■	–	–	55
15	Shock absorber P	Elastic cushioning elements with metal end position, both ends	■	■	■	■	■	■	–	–	55
16	Shock absorber, external Y12	• Linear shock absorber, self-adjusting at both ends, external • Included in the scope of delivery: 5, 2x 8, 16	■	■	■	■	■	■	■	■	55
17	Centring sleeve ZBH	For centring attachment (2 pieces included in the scope of delivery of the drive)	■	■	■	■	■	■	■	■	59
18	End cap	In conjunction with elastic cushioning element P or shock absorber Y9, Y10, Y14	■	■	■	■	■	■	■	■	–
19	End cap	In combination with external shock absorber Y12	■	■	■	■	■	■	■	■	–
20	Pneumatic energy throughfeed	Enables the quick and easy pneumatic supply of parts connected to the flange (e.g. gripper)	■	■	■	■	■	■	■	■	37
21	Pneumatic/electric energy throughfeed	Enables the quick and easy pneumatic/electrical supply of parts connected to the flange (e.g. gripper)	■	■	■	■	■	■	■	■	37
22	Connecting cable NEBU	From the energy throughfeed to the proximity sensor	■	■	■	■	■	■	■	■	62
23	Connecting cable NEBU	From the energy throughfeed to the controller	■	■	■	■	■	■	■	■	62
24	Intermediate position	Possible at 90°	■	■	■	■	■	■	■	–	40
25	Connection cap	For the supply ports	■	■	■	■	■	■	■	–	–
26	Shock absorber	The cushioning for the intermediate position corresponds to the cushioning for the basic drive. Except in the case of Y12 when shock absorbers Y9 are used	■	■	■	■	■	■	■	–	59
–	One-way flow control valves GRLA	To set the swivel speed	■	■	■	■	■	■	■	■	64

Twin-piston semi-rotary drives DRRD-16 ... 63

Type codes



Product type	
Double-acting	
DRRD	Semi-rotary drive

Size	

Nominal swivel angle	
180	180°

Output shaft	
FH	Flanged shaft, hollow

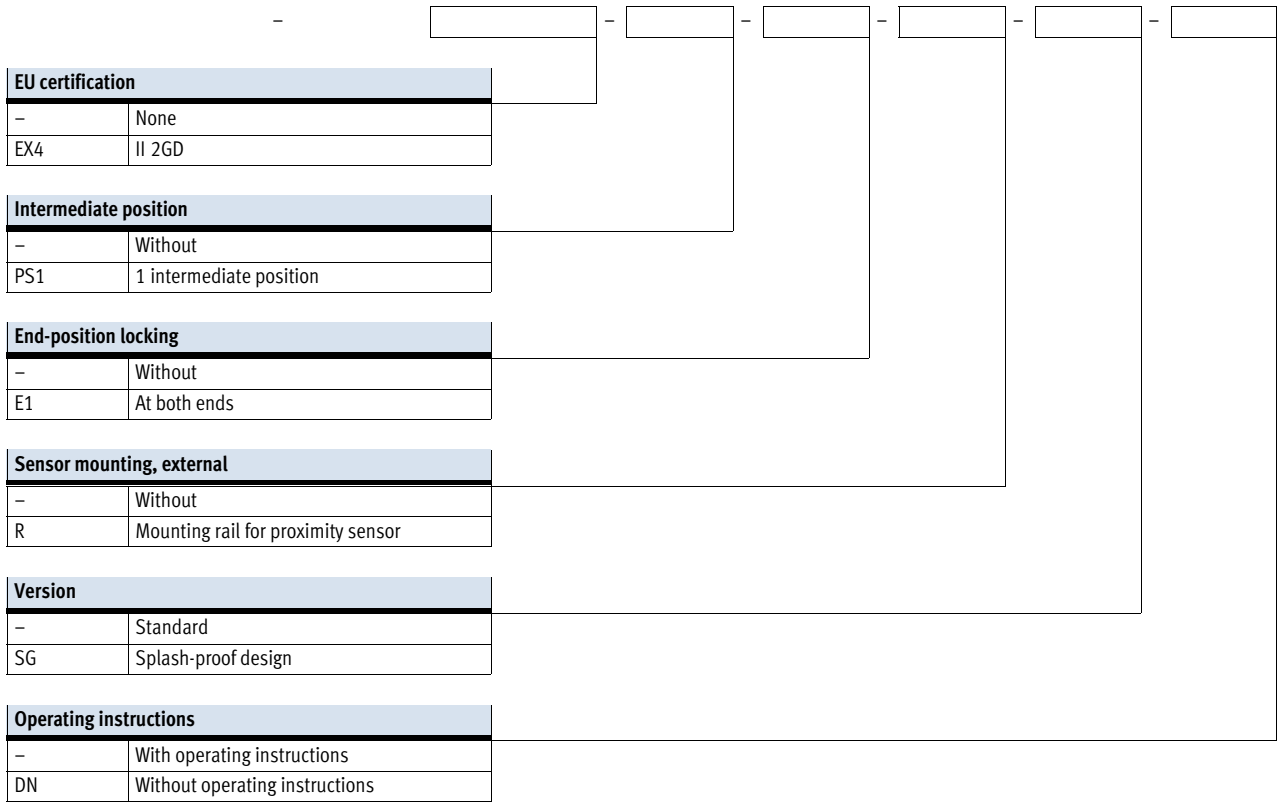
Energy throughfeed	
–	None
P2	Pneumatic, 2 ducts
P2E2	Pneumatic, 2 ducts; electric, 2 signals
P4	Pneumatic, 4 ducts
P4E6	Pneumatic, 4 ducts; electric, 6 signals
P8	Pneumatic, 8 ducts
P8E8	Pneumatic, 8 ducts; electric, 8 signals

Cushioning	
P	Elastic cushioning at both ends
Y9	Linear shock absorber, self-adjusting at both ends, internal
Y10	Linear shock absorber, self-adjusting at both ends, hard, internal
Y12	Linear shock absorber, self-adjusting at both ends, external
Y14	Linear shock absorber, self-adjusting at both ends, soft, internal

Position sensing	
A	Via proximity sensor

Twin-piston semi-rotary drives DRRD-16 ... 63

Type code



EU certification	
–	None
EX4	II 2GD

Intermediate position	
–	Without
PS1	1 intermediate position

End-position locking	
–	Without
E1	At both ends

Sensor mounting, external	
–	Without
R	Mounting rail for proximity sensor

Version	
–	Standard
SG	Splash-proof design

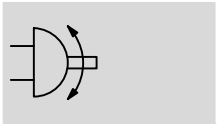
Operating instructions	
–	With operating instructions
DN	Without operating instructions

Twin-piston semi-rotary drives DRRD-16 ... 63

Technical data

FESTO

Function



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Diameter
16 ... 63 mm

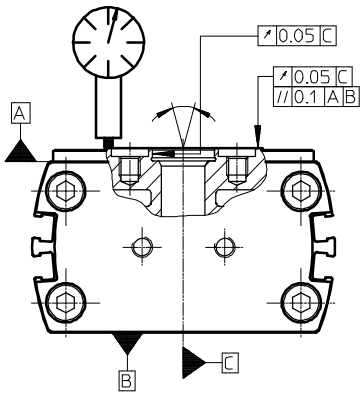
Torque
1.6 ... 112 Nm



General technical data									
Size		16	20	25	32	35	40	50	63
Design		Rack and pinion							
Mode of operation		Double-acting							
Pneumatic connection									
DRRD-...		M5			G1⁄8			G1⁄4	G3⁄8
DRRD-...-PS1		M5						G1⁄8	–
Type of mounting		With through-hole							
		Via female thread							
Swivel angle									
DRRD-...	[°]	180 (➔ page 25)							
DRRD-...-PS1	[°]	90 ±10°							–
Cushioning with fixed stop									
DRRD-...-P		Elastic cushioning rings/plates at both ends						–	
DRRD-...-Y9		Linear shock absorber, self-adjusting at both ends							
DRRD-...-Y10[1]		–		Linear shock absorber, self-adjusting at both ends, hard		–		Linear shock absorber, self-adjusting at both ends, hard	
DRRD-...-Y12		Linear shock absorber, self-adjusting at both ends, external							
DRRD-...-Y14[1]		Linear shock absorber, self-adjusting at both ends, soft						–	
Repeat accuracy									
DRRD-...	[°]	< 0.05						≤0.03	
DRRD-...-PS1									
Approached from one end	[°]	0.1							–
Approached from both ends	[°]	0.7							–
Axial run-out[2]	[mm]	< 0.05							
Max. axial load (static)	[N]	1500	2400	2400	3750	6100	6100	9000	11000
Mounting position		Any							

1) Not in combination with intermediate position DRRD-...-PS1

2) Axial run-out in new condition



Operating and environmental conditions		
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)
Operating pressure		
DRRD-…		
DRRD-…-P	[bar]	3 … 8
DRRD-…-Y9/-Y10/-Y12/-Y14	[bar]	2 … 10
DRRD-…-PS1		
DRRD-…-P	[bar]	4 … 8
DRRD-…-Y9/-Y12	[bar]	2 … 10
Ambient temperature	[°C]	–10 … +60
Storage temperature	[°C]	–20 … +60
Degree of protection based on EN 60529		
DRRD-…-SG		IP65

ATEX[1)]	
ATEX category for gas	II 2G
Type of (ignition) protection for gas	c T4
ATEX category for dust	II 2D
Type of (ignition) protection for dust	c T120°C
Explosion-proof ambient temperature	–10°C ≤ Ta ≤ +60°C
CE marking (see declaration of conformity)	To EU Explosion Protection Directive (ATEX)

1) Note the ATEX certification of the accessories.

Weight [g]								
Size	16	20	25	32	35	40	50	63
Basic drive with cushioning								
DRRD-…-P	640	839	1349	2815	4510	6070	–	–
DRRD-…-Y9/-Y10/-Y14	650	883	1358	2976	4784	6424	11300	19100
DRRD-…-Y12	757	1132	1705	3760	5425	7160	12450	22400
Energy throughfeed (additional)								
DRRD-…-P	320	350	710	920	1090	1470	1950	2250
DRRD-…-P…E…	460	480	720	900	880	1770	2330	2610
Intermediate position (additional)								
DRRD-…-P	502	701	1078	2304	–	–	–	–
DRRD-…-Y9	511	720	1130	2450	3940	4380	8270	–
End-position locking (additional)								
DRRD-…-E1	166	382	370	600	900	900	1610	2380
Sensor mounting, external (additional)								
DRRD-…-R	110	192	192	366	485	485	810	1390

Twin-piston semi-rotary drives DRRD-16 ... 63

Technical data

Forces and torques									
Size		16	20	25	32	35	40	50	63
Theoretical torque at 6 bar	[Nm]	1.6	2.4	5.1	10.1	15.8	24.1	53	112
Max. permissible mass moment of inertia									
Rotation from end position to end position									
DRRD-...-P	[kgcm²]	175	400	900	1500	2500	6700	–	–
DRRD-...-Y9	[kgcm²]	700	1250	1500	26000	15000	23000	40000	40000
DRRD-...-Y10	[kgcm²]	–	–	5500	–	45000	67000	200000	420000
DRRD-...-Y12	[kgcm²]	900	1500	5500	26000	45000	67000	200000	420000
DRRD-...-Y14	[kgcm²]	100	150	100	2000	2000	23000	–	–
Rotation with intermediate position									
DRRD-...-P	[kgcm²]	150	300	400	500	–	–	–	–
DRRD-...-Y9	[kgcm²]	500	900	1500	8000	15000	23000	40000	–
DRRD-...-Y12	[kgcm²]	500	900	1500	8000	15000	23000	40000	–

- Note

If, in the end positions, a torque which exceeds 50% of the theoretical torque acts against the direction of rotation, no exact end position is guaranteed.

This can be avoided by using external shock absorbers (Y12) or a semi-rotary drive with double the torque.

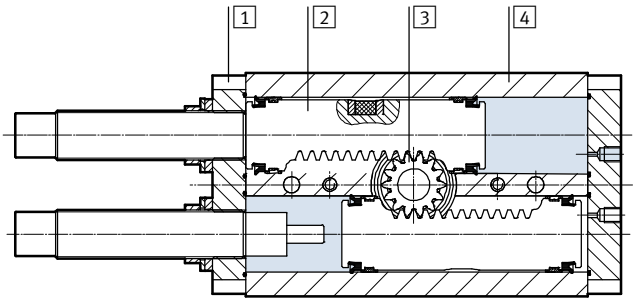
- Note

The cushioning for the intermediate position corresponds to the cushioning for the basic drive. Except in the case of cushioning Y12 when shock absorbers Y9 are used.

In combination with cushioning P, the intermediate position is only available for sizes 16 ... 32.

Materials

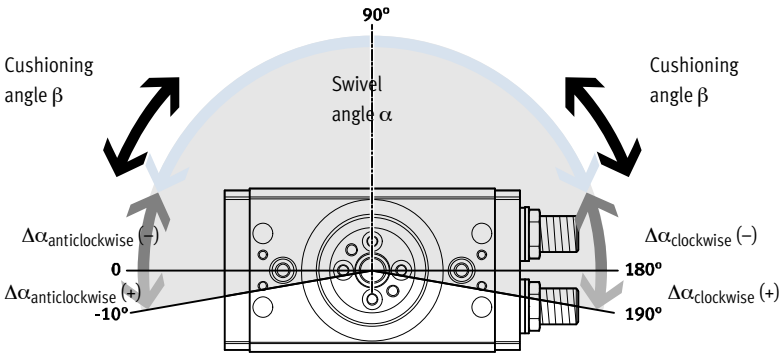
Sectional view



Semi-rotary drive		
1	End cap	Anodised wrought aluminium alloy
2	Piston	Stainless steel
3	Flanged shaft	Tempered steel
4	Housing	Wrought aluminium alloy, hard-anodised
	Seals	NBR
	Piston seal	TPE-U(PU)
	Note on materials	RoHS compliant
		Contains paint-wetting impairment substances

Swivel angle

Fundamentally, the following applies:
Swivel angle $\alpha \geq$ cushioning angle β
Swivel angle $\alpha = 180° + \Delta\alpha_{clockwise} + \Delta\alpha_{anti\text{-}clockwise}$



Note

Illustrated position of the flanged shaft corresponds to the mid-position (swivel angle 90°).

Size		16	20	25	32	35	40	50	63
Swivel angle α	[°]	180							
Min. swivel angle α[1]									
DRRD-…-P	[°]	36	45	33	33	36	23	–	–
DRRD-…-Y9/-Y10/-Y14	[°]	43	72	79	82	85	56	61	48
DRRD-…-Y12	[°]	20	24	38	34	34	34	30	34
DRRD-…-E1	[°]	60	60	60	55	57	57	62	55
Max. swivel angle α[2]									
DRRD-…	[°]	200							
DRRD-…-Y12	[°]	192	194	190	190	193	193	186	190
Swivel angle adjustment α per side (infinitely adjustable)									
DRRD-…-P	[°]	–100 … +10						–	–
DRRD-…-Y9/-Y10/-Y14	[°]	≥ –100 … +10							
DRRD-…-Y12	[°]	–94 … +6	–85 … +7	–88 … +5	–93 … +5	–86 … +6.5		–86 … +3	–91 … +5
Cushioning angle β									
DRRD-…-P	[°]	36	45	33	33	36	23	–	–
DRRD-…-Y9/-Y10/-Y14	[°]	43	72	79	82	85	56	61	48
DRRD-…-Y12	[°]	10	12	19	17	17	17	15	17

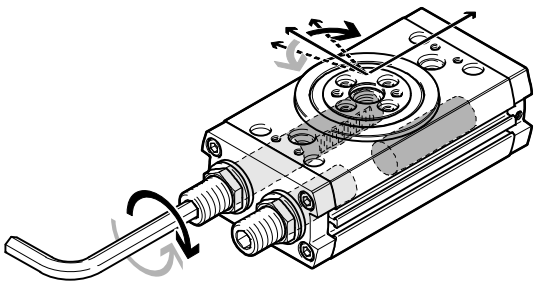
1) It is possible to set smaller swivel angles. However, this reduces the cushioning energy.
2) The max. swivel angle is reduced by approx. 10° in combination with the external sensor mounting

Swivel angle adjustment

Clockwise direction of rotation:
- Swivel angle decreases

Anticlockwise direction of rotation:
- Swivel angle increases

The swivel angle is adjusted via the cushioning components using an Allen key. Any reduction in the swivel angle should preferably be evenly split between the two end positions.

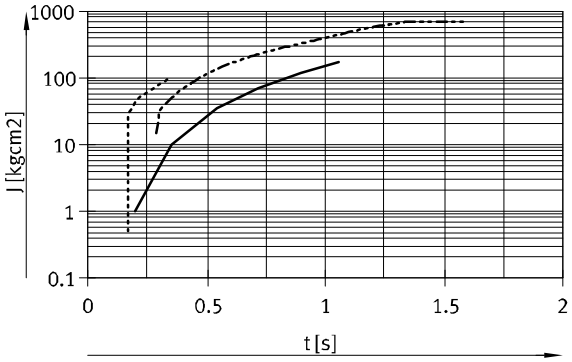


Swivel angle adjustment of the intermediate position ➔ page 40

Max. permissible mass moment of inertia J at the flanged shaft as a function of swivel time t (at room temperature and an operating pressure of 6 bar)

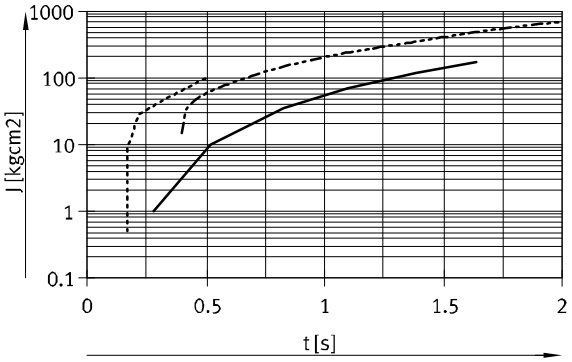
Size 16 with cushioning P/Y9/Y14

Swivel angle 90°



	Ranges
DRRD-16-...-P (90°)	➔ 1 ... 175 kgcm²
DRRD-16-...-Y9 (90°)	➔ 15 ... 700 kgcm²
DRRD-16-...-Y14 (90°)	➔ 0.5 ... 100 kgcm²

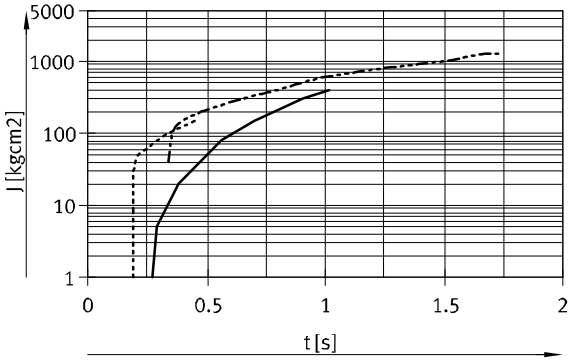
Swivel angle 180°



	Ranges
DRRD-16-...-P (180°)	➔ 1 ... 175 kgcm²
DRRD-16-...-Y9 (180°)	➔ 15 ... 700 kgcm²
DRRD-16-...-Y14 (180°)	➔ 0.5 ... 100 kgcm²

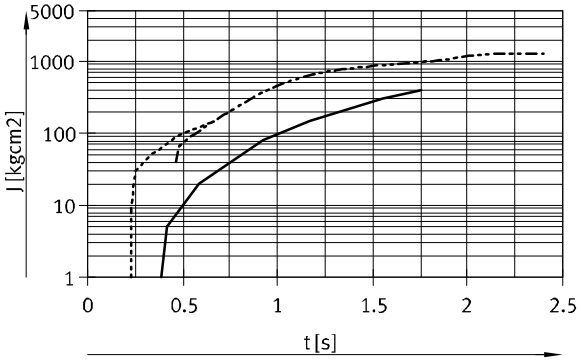
Size 20 with cushioning P/Y9/Y14

Swivel angle 90°



	Ranges
DRRD-20-...-P (90°)	➔ 1 ... 400 kgcm²
DRRD-20-...-Y9 (90°)	➔ 40 ... 1250 kgcm²
DRRD-20-...-Y14 (90°)	➔ 1 ... 150 kgcm²

Swivel angle 180°

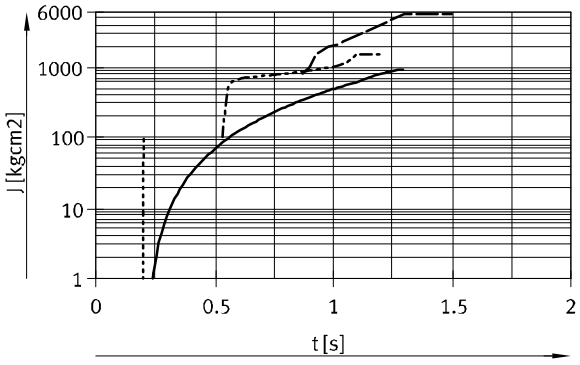


	Ranges
DRRD-20-...-P (180°)	➔ 1 ... 400 kgcm²
DRRD-20-...-Y9 (180°)	➔ 40 ... 1250 kgcm²
DRRD-20-...-Y14 (180°)	➔ 1 ... 150 kgcm²

Max. permissible mass moment of inertia J at the flanged shaft as a function of swivel time t
(at room temperature and an operating pressure of 6 bar)

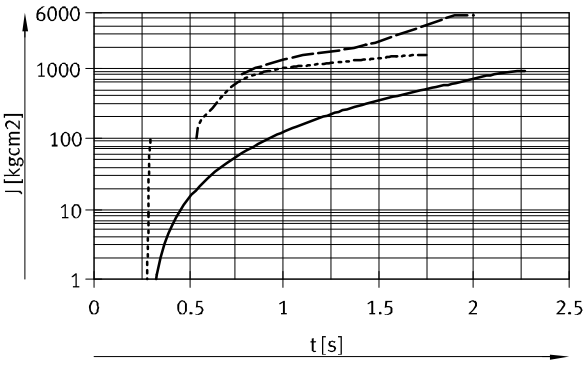
Size 25 with cushioning P/Y9/Y10/Y14

Swivel angle 90°



	Ranges
DRRD-25-...-P (90°)	➔ 1 ... 900 kgcm²
DRRD-25-...-Y9 (90°)	➔ 100 ... 1500 kgcm²
DRRD-25-...-Y10 (90°)	➔ 800 ... 5500 kgcm²
DRRD-25-...-Y14 (90°)	➔ 1 ... 100 kgcm²

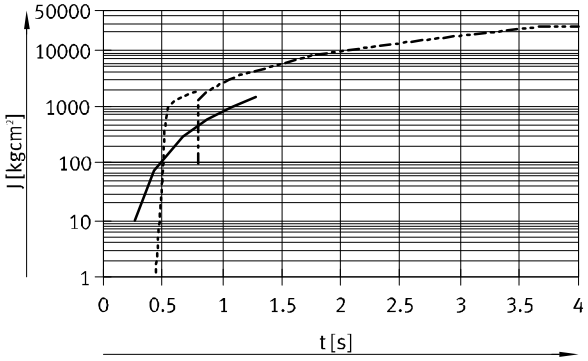
Swivel angle 180°



	Ranges
DRRD-25-...-P (180°)	➔ 1 ... 900 kgcm²
DRRD-25-...-Y9 (180°)	➔ 100 ... 1500 kgcm²
DRRD-25-...-Y10 (180°)	➔ 800 ... 5500 kgcm²
DRRD-25-...-Y14 (180°)	➔ 1 ... 100 kgcm²

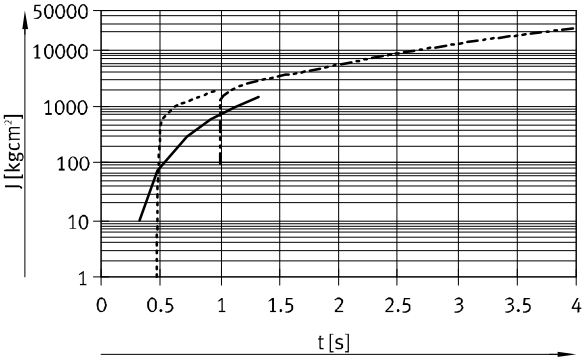
Size 32 with cushioning P/Y9/Y14

Swivel angle 90°



	Ranges
DRRD-32-...-P (90°)	➔ 10 ... 1500 kgcm²
DRRD-32-...-Y9 (90°)	➔ 100 ... 26000 kgcm²
DRRD-32-...-Y14 (90°)	➔ 1 ... 2000 kgcm²

Swivel angle 180°

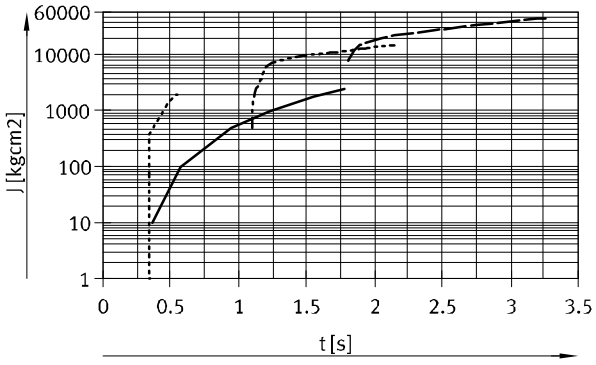


	Ranges
DRRD-32-...-P (180°)	➔ 10 ... 1500 kgcm²
DRRD-32-...-Y9 (180°)	➔ 100 ... 26000 kgcm²
DRRD-32-...-Y14 (180°)	➔ 1 ... 2000 kgcm²

Max. permissible mass moment of inertia J at the flanged shaft as a function of swivel time t (at room temperature and an operating pressure of 6 bar)

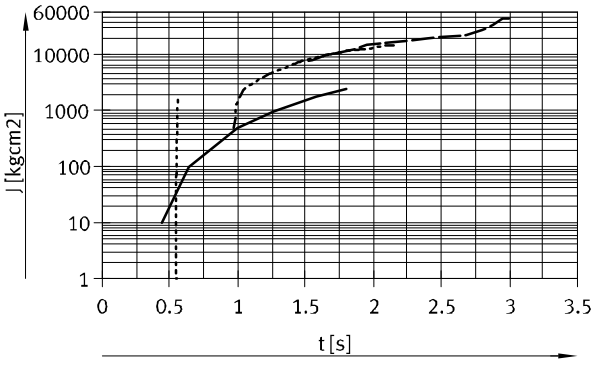
Size 35 with cushioning P/Y9/Y10/Y14

Swivel angle 90°



	Ranges
DRRD-35-...-P (90°)	➔ 10 ... 2500 kgcm^2
DRRD-35-...-Y9 (90°)	➔ 500 ... 15000 kgcm^2
DRRD-35-...-Y10 (90°)	➔ 8000 ... 45000 kgcm^2
DRRD-35-...-Y14 (90°)	➔ 1 ... 2000 kgcm^2

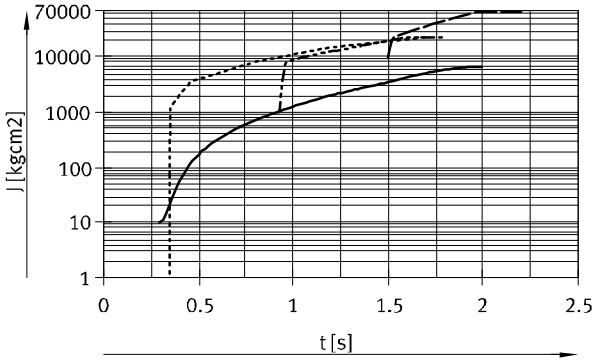
Swivel angle 180°



	Ranges
DRRD-35-...-P (180°)	➔ 10 ... 2500 kgcm^2
DRRD-35-...-Y9 (180°)	➔ 500 ... 15000 kgcm^2
DRRD-35-...-Y10 (180°)	➔ 8000 ... 45000 kgcm^2
DRRD-35-...-Y14 (180°)	➔ 1 ... 2000 kgcm^2

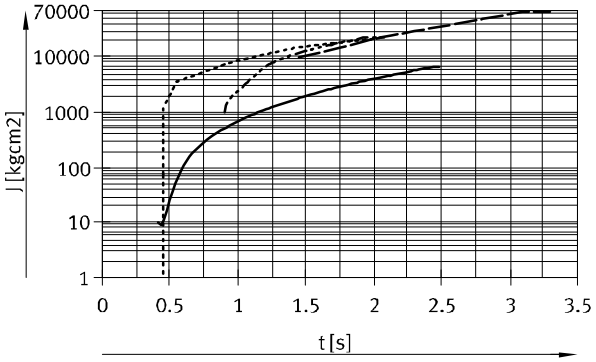
Size 40 with cushioning P/Y9/Y10/Y14

Swivel angle 90°



	Ranges
DRRD-40-...-P (90°)	➔ 10 ... 6700 kgcm^2
DRRD-40-...-Y9 (90°)	➔ 1000 ... 23000 kgcm^2
DRRD-40-...-Y10 (90°)	➔ 10000 ... 67000 kgcm^2
DRRD-40-...-Y14 (90°)	➔ 1 ... 23000 kgcm^2

Swivel angle 180°

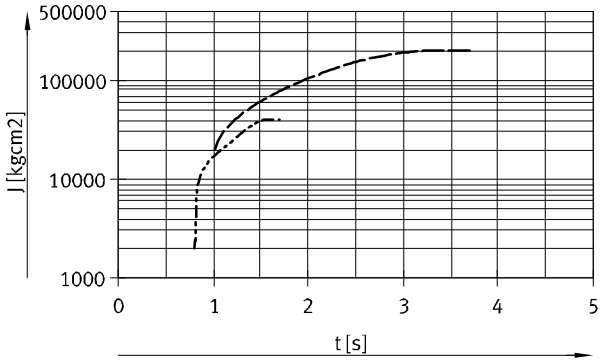


	Ranges
DRRD-40-...-P (180°)	➔ 10 ... 6700 kgcm^2
DRRD-40-...-Y9 (180°)	➔ 1000 ... 23000 kgcm^2
DRRD-40-...-Y10 (180°)	➔ 10000 ... 67000 kgcm^2
DRRD-40-...-Y14 (180°)	➔ 1 ... 23000 kgcm^2

Max. permissible mass moment of inertia J at the flanged shaft as a function of swivel time t (at room temperature and an operating pressure of 6 bar)

Size 50 with cushioning Y9/Y10

Swivel angle 90°

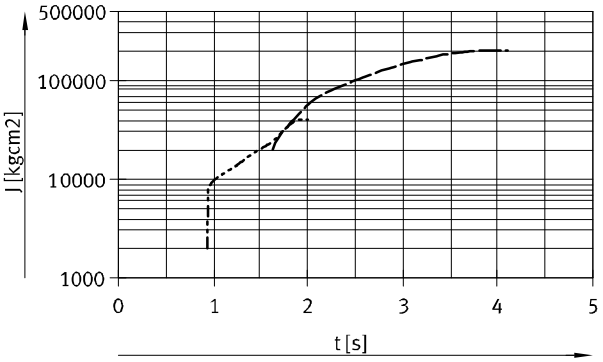


Ranges

DRRD-50-...-Y9 (90°) → 2000 ... 40000 kgcm²

DRRD-50-...-Y10 (90°) → 20000 ... 200000 kgcm²

Swivel angle 180°



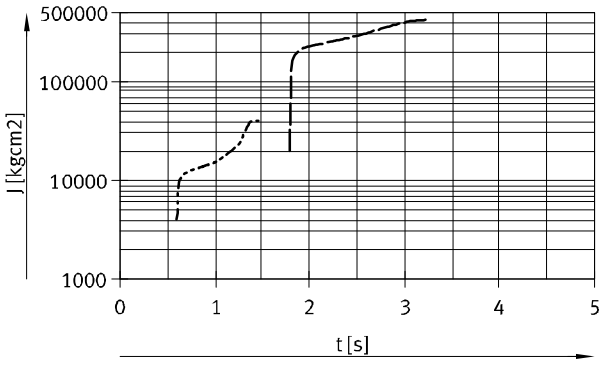
Ranges

DRRD-50-...-Y9 (180°) → 2000 ... 40000 kgcm²

DRRD-50-...-Y10 (180°) → 20000 ... 200000 kgcm²

Size 63 with cushioning Y9/Y10

Swivel angle 90°

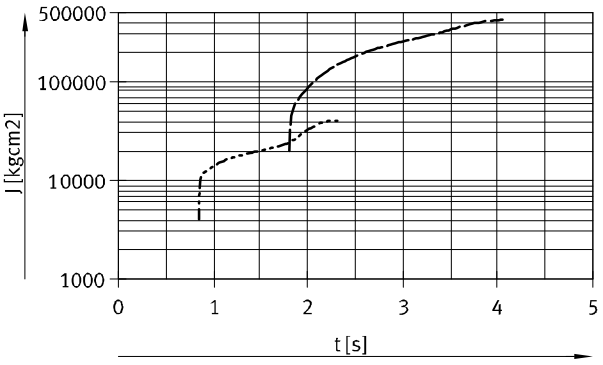


Ranges

DRRD-63-...-Y9 (90°) → 4000 ... 40000 kgcm²

DRRD-63-...-Y10 (90°) → 20000 ... 420000 kgcm²

Swivel angle 180°



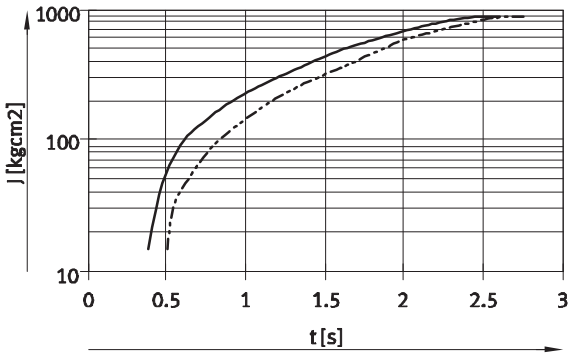
Ranges

DRRD-63-...-Y9 (180°) → 4000 ... 40000 kgcm²

DRRD-63-...-Y10 (180°) → 20000 ... 420000 kgcm²

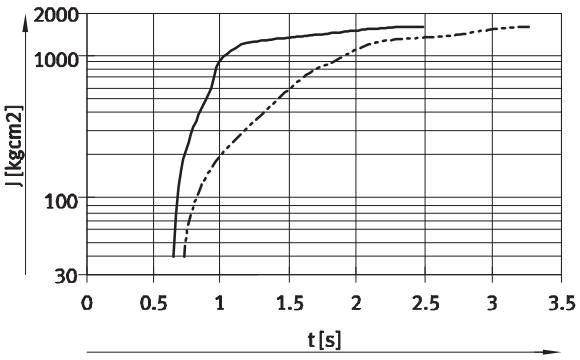
Max. permissible mass moment of inertia J at the flanged shaft as a function of swivel time t
(at room temperature and an operating pressure of 6 bar)

Size 16 with cushioning Y12
Swivel angle 90°/180°



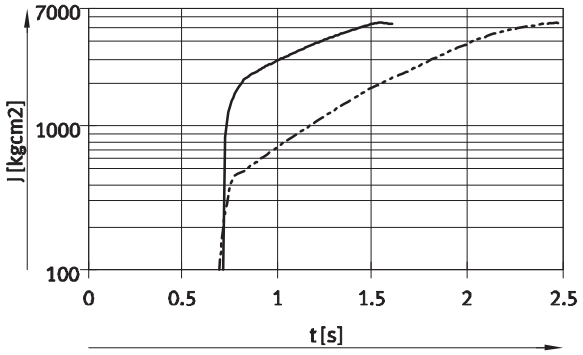
	Ranges
DRRD-16-...-Y12 (90°)	➔ 15 ... 900 kgcm²
DRRD-16-...-Y12 (180°)	➔ 15 ... 900 kgcm²

Size 20 with cushioning Y12



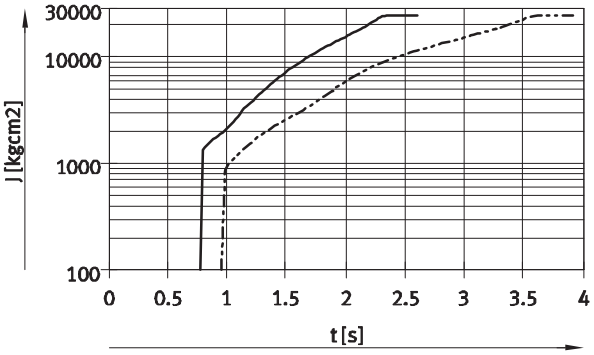
	Ranges
DRRD-20-...-Y12 (90°)	➔ 40 ... 1600 kgcm²
DRRD-20-...-Y12 (180°)	➔ 40 ... 1600 kgcm²

Size 25 with cushioning Y12
Swivel angle 90°/180°



	Ranges
DRRD-25-...-Y12 (90°)	➔ 100 ... 5500 kgcm²
DRRD-25-...-Y12 (180°)	➔ 100 ... 5500 kgcm²

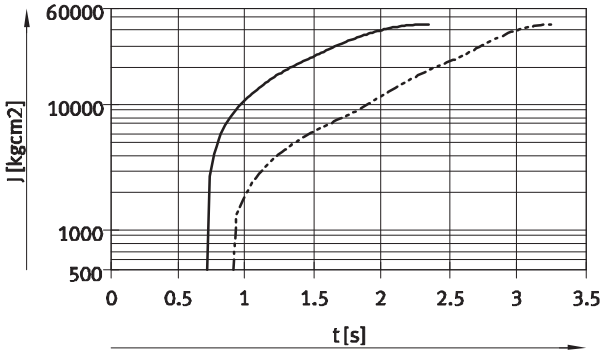
Size 32 with cushioning Y12



	Ranges
DRRD-32-...-Y12 (90°)	➔ 100 ... 26000 kgcm²
DRRD-32-...-Y12 (180°)	➔ 100 ... 26000 kgcm²

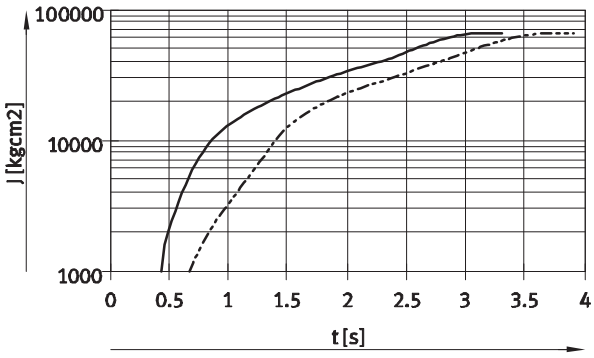
Max. permissible mass moment of inertia J at the flanged shaft as a function of swivel time t
(at room temperature and an operating pressure of 6 bar)

Size 35 with cushioning Y12
Swivel angle 90°/180°



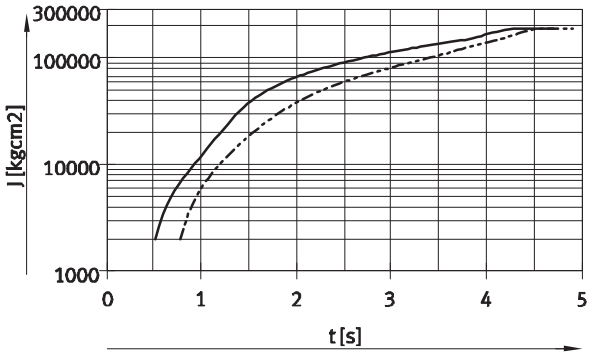
	Ranges
DRRD-35-...-Y12 (90°)	➔ 500 ... 45000 kgcm^2
DRRD-35-...-Y12 (180°)	➔ 500 ... 45000 kgcm^2

Size 40 with cushioning Y12



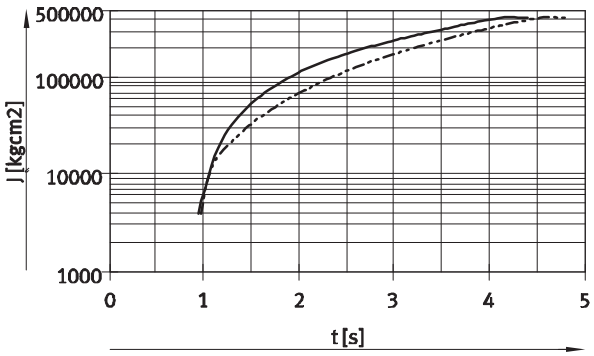
	Ranges
DRRD-40-...-Y12 (90°)	➔ 1000 ... 67000 kgcm^2
DRRD-40-...-Y12 (180°)	➔ 1000 ... 67000 kgcm^2

Size 50 with cushioning Y12
Swivel angle 90°/180°



	Ranges
DRRD-50-...-Y12 (90°)	➔ 2000 ... 200000 kgcm^2
DRRD-50-...-Y12 (180°)	➔ 2000 ... 200000 kgcm^2

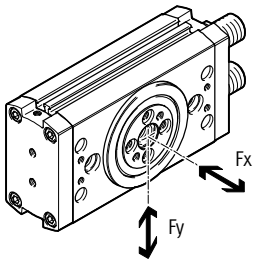
Size 63 with cushioning Y12

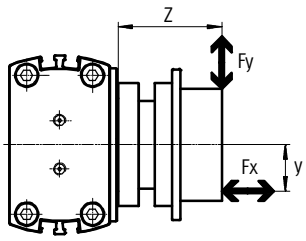


	Ranges
DRRD-63-...-Y12 (90°)	➔ 4000 ... 420000 kgcm^2
DRRD-63-...-Y12 (180°)	➔ 4000 ... 420000 kgcm^2

Max. dynamic load capacity at the flanged shaft

The zero point for dimension Z is always the flange level of the basic drive, independently of the mounting parts (flange assembly).



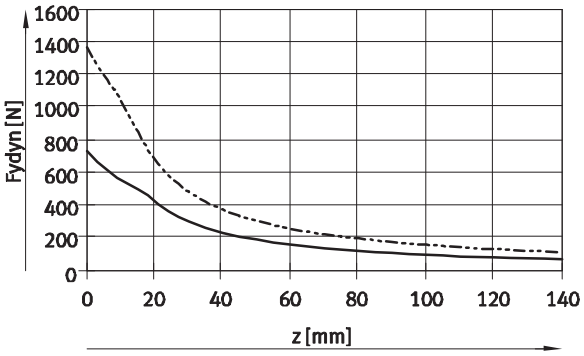


The following equation applies to combined loads (axial and radial):

$$\frac{F_{y\,(z)}}{F_{y,\,max.\,(z)}} + \frac{F_{z\,(v)}}{F_{z,\,max.\,(v)}} \leq 1$$

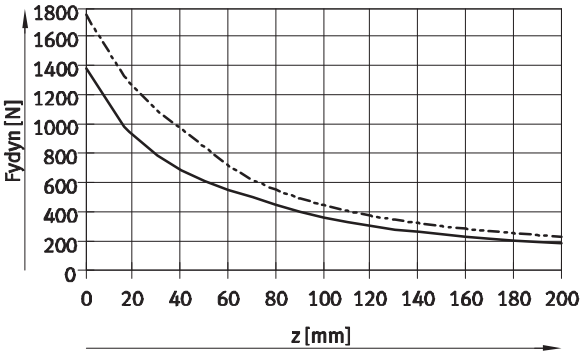
Max. dynamic radial force F_y as a function of distance z

Size 16/20



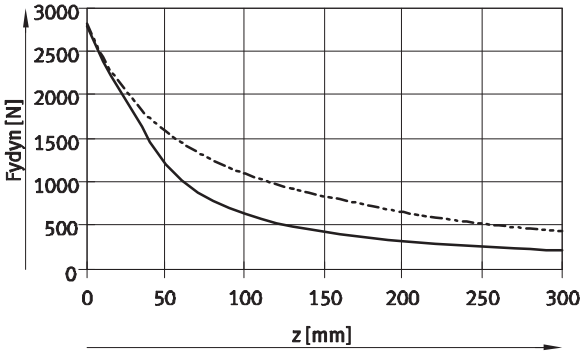
DRRD-16
DRRD-20

Size 25/32



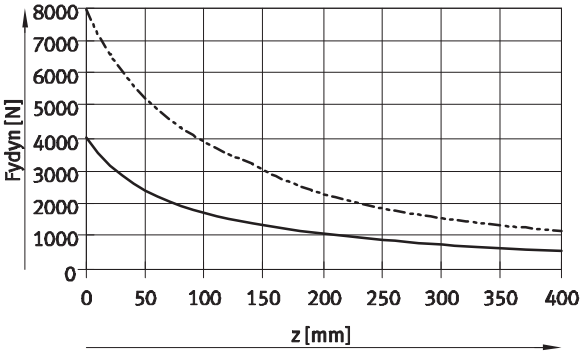
DRRD-25
DRRD-32

Size 35/40



DRRD-35
DRRD-40

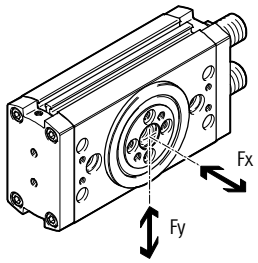
Size 50/63

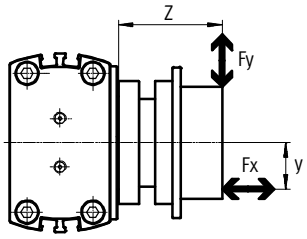


DRRD-50
DRRD-63

Max. dynamic load capacity at the flanged shaft

The zero point for dimension Z is always the flange level of the basic drive, independently of the mounting parts (flange assembly).



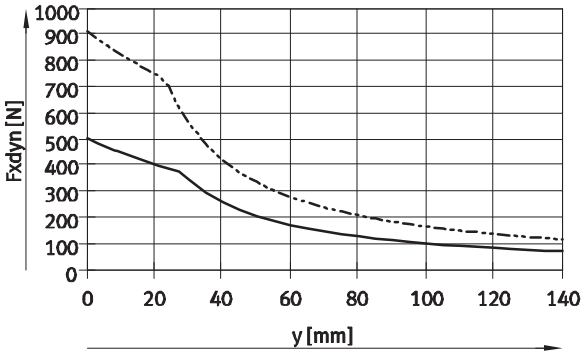


The following equation applies to combined loads (axial and radial):

$$\frac{F_{y\,(z)}}{F_{y,\,max.\,(z)}} + \frac{F_{z\,(v)}}{F_{z,\,max.\,(v)}} \leq 1$$

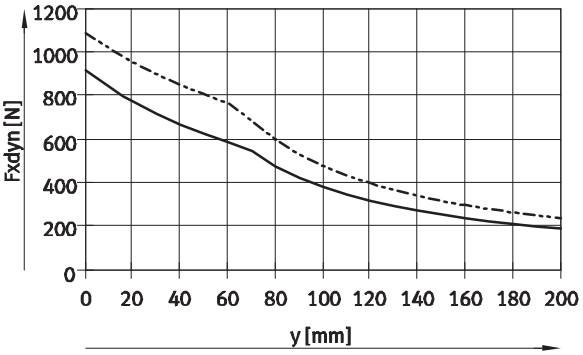
Max. dynamic axial force F_x as a function of distance y

Size 16/20



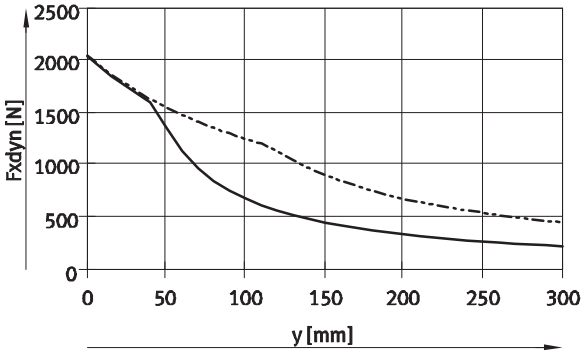
DRRD-16
DRRD-20

Size 25/32



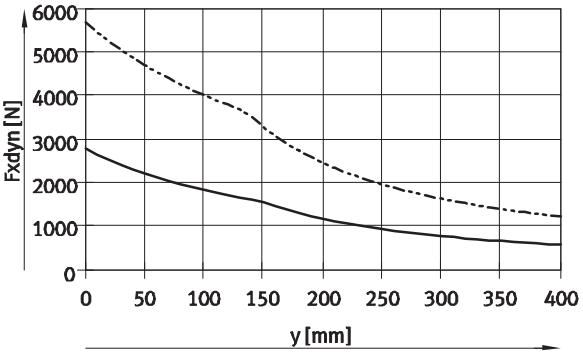
DRRD-25
DRRD-32

Size 35/40



DRRD-35
DRRD-40

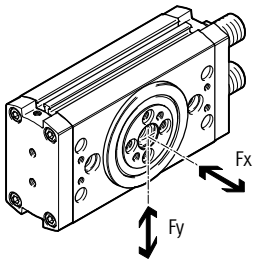
Size 50/63

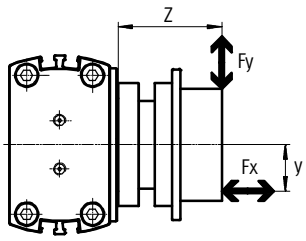


DRRD-50
DRRD-63

Max. static load capacity at the flanged shaft

The zero point for dimension Z is always the flange level of the basic drive, independently of the mounting parts (flange assembly).



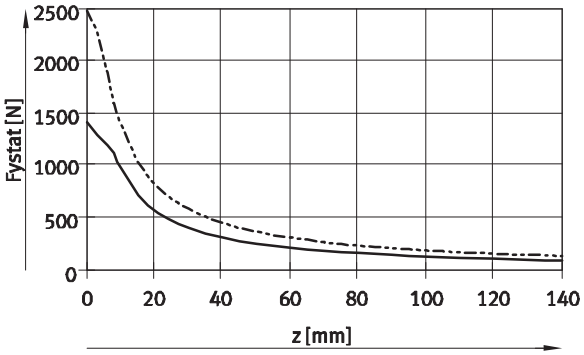


The following equation applies to combined loads (axial and radial):

$$\frac{F_{y\,(z)}}{F_{y,\,max.\,(z)}} + \frac{F_{z\,(v)}}{F_{z,\,max.\,(v)}} \leq 1$$

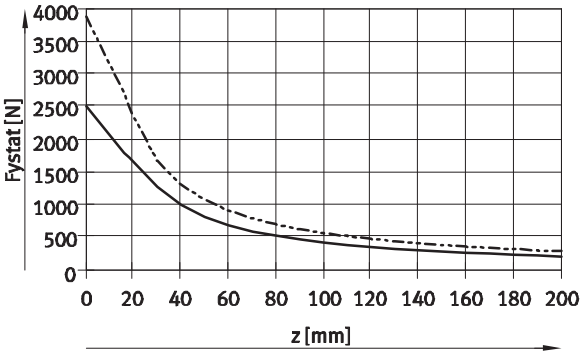
Max. static radial force F_y as a function of distance z

Size 16/20



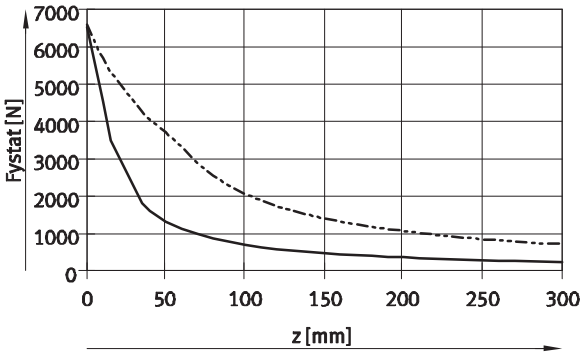
DRRD-16
DRRD-20

Size 25/32



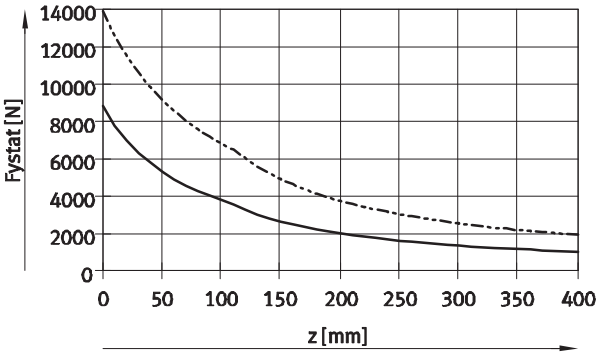
DRRD-25
DRRD-32

Size 35/40



DRRD-35
DRRD-40

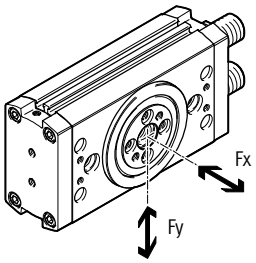
Size 50/63

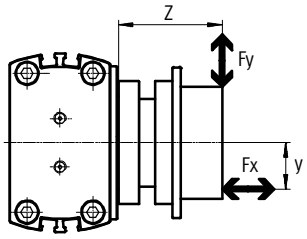


DRRD-50
DRRD-63

Max. static load capacity at the flanged shaft

The zero point for dimension Z is always the flange level of the basic drive, independently of the mounting parts (flange assembly).



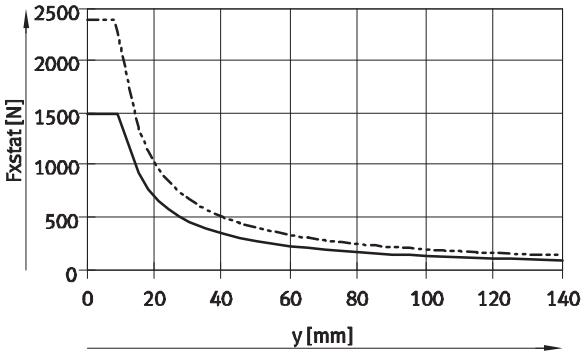


The following equation applies to combined loads (axial and radial):

$$\frac{F_{y\,(z)}}{F_{y,\,max.\,(z)}} + \frac{F_{z\,(v)}}{F_{z,\,max.\,(v)}} \leq 1$$

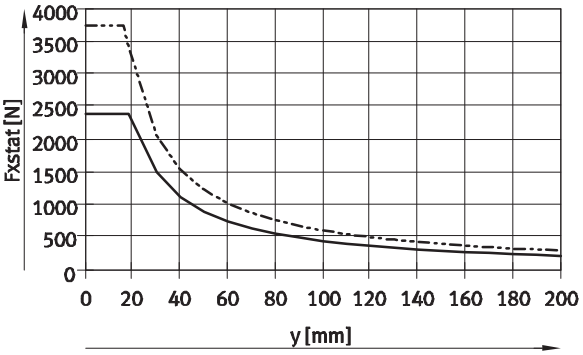
Max. static axial force F_x as a function of distance y

Size 16/20



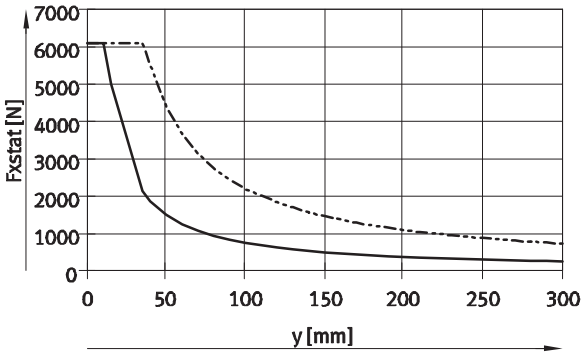
DRRD-16
DRRD-20

Size 25/32



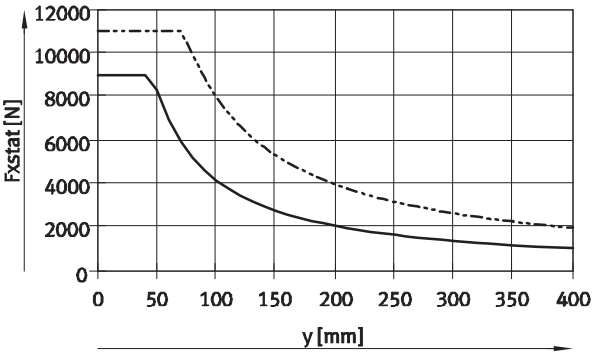
DRRD-25
DRRD-32

Size 35/40



DRRD-35
DRRD-40

Size 50/63

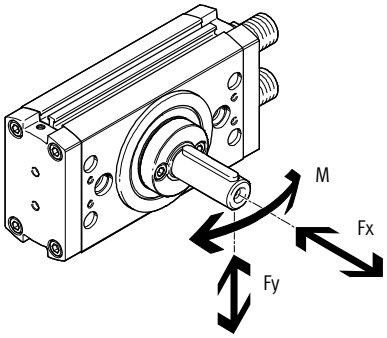


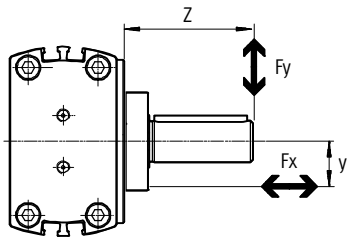
DRRD-50
DRRD-63

Max. load capacity on drive shaft (DARF-Q11)

Max. radial forces F_y / axial forces F_x / bending moment M

- For the radial forces F_y, the limits of the flanged shaft ➔ page 32 and max. bending moment of the drive shaft apply ➔ table below.
- The bending moment represents the load limit of the drive shaft and must not be exceeded.
- The zero point for dimension z is always the flange level of the basic drive, independently of the mounting parts (flange assembly).
- The axial force represents an additional load.





Size		16	20	25	32	35	40
Axial force F_x	[N]	625	625	625	900	900	2400
Bending moment M	[Nm]	13.5	14.4	34.4	63	63	84

Twin-piston semi-rotary drives DRRD-16 ... 63

Technical data

Energy throughfeed
DRRD-...-P...E...

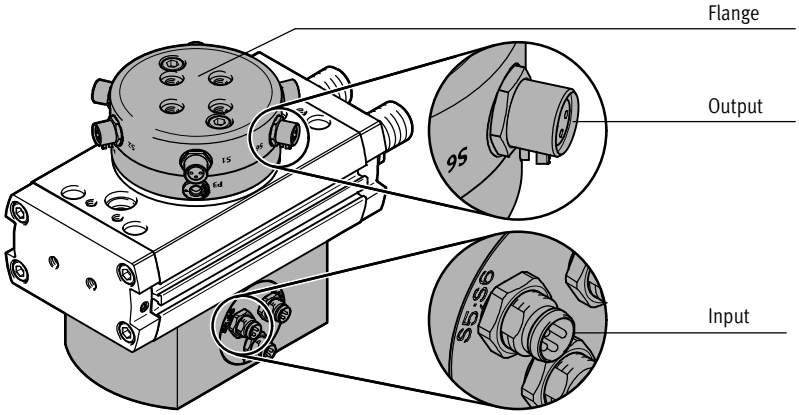


Function

Electrical signals or compressed air can be transferred through the hollow shaft using the energy throughfeed.

Benefits

- Fast and easy supply of the parts connected to the flange (e.g. gripper)
- Tubing and electrical cables are not damaged by the rotation
- Two variants available:
  - Pneumatic
  - Pneumatic and electrical
- Different number of connections depending on the size



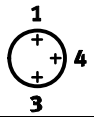
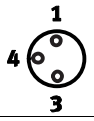
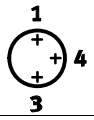
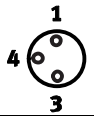
Note

Only connecting cables with straight connectors can be used (➔ page 62).

Technical data							
Size		16/20		25/32/35		40/50/63	
Variant		Pneumatic	Pneumatic/ electrical	Pneumatic	Pneumatic/ electrical	Pneumatic	Pneumatic/ electrical
Order code		P2	P2E2	P4	P4E6	P8	P8E8
Pneumatic							
Number of pneumatic ducts		2	2	4	4	8	8
Tubing O.D.		4					
Max. operating pressure	[bar]	8					
Connection		M5					
Flow rate per duct	[l/min.]	86				33	
Electrical							
Number of electric signals		–	2	–	6	–	8
Rated voltage	[V DC]	–	30	–	30	–	30
Max. current[1)]	[A]	1.5					
Connection		M8				M12	

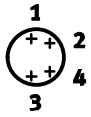
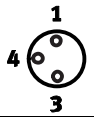
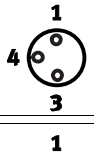
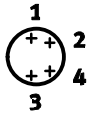
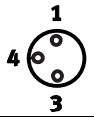
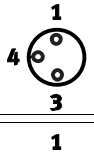
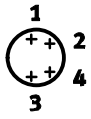
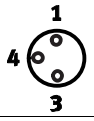
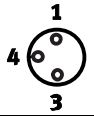
1) The positive and negative lines of each electrical connection are linked. The combined maximum peak current for this common positive and negative line is also 1.5 A.

DRRD-…-P…E… – Energy throughfeed
Pin allocation
Size 16/20

Input M8 plug				**Output** M8 socket			
Designation	Signals	Pin[1)]	Circuit diagram	Circuit diagram	Pin[1)]	Signals	Designation
S1	+ – Sig 1	1 3 4			1 3 4	+ – Sig 1	S1
S2	+ – Sig 2	1 3 4			1 3 4	+ – Sig 2	S2

1) Pin 1 (+) and Pin 3 (-) are connected to each other between plugs S1 and S2. Unused plugs and sockets should therefore be protected with the cover caps.

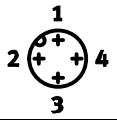
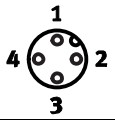
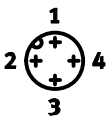
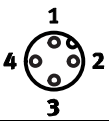
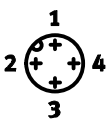
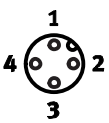
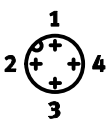
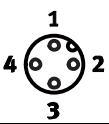
Pin allocation
Sizes 25/32/35

Input M8 plug				**Output** M8 socket			
Designation	Signals	Pin[1)]	Circuit diagram	Circuit diagram	Pin[1)]	Signals	Designation
S1;S2	+ Sig 2 – Sig 1	1 2 3 4			1 3 4	+ – Sig 1	S1
					1 3 4	+ – Sig 2	S2
S3;S4	+ Sig 4 – Sig 3	1 2 3 4			1 3 4	+ – Sig 3	S3
					1 3 4	+ – Sig 4	S4
S5;S6	+ Sig 6 – Sig 5	1 2 3 4			1 3 4	+ – Sig 5	S5
					1 3 4	+ – Sig 6	S6

1) Pin 1 (+) and Pin 3 (-) are connected to each other between plugs S1 … S6. Unused plugs and sockets should therefore be protected with the cover caps.

DRRD-…-P…E… – Energy throughfeed

Size 40/50/63

Input M12 plug					**Output** M12 socket			
Designation	Signals	Pin[1)]	Circuit diagram		Circuit diagram	Pin[1)]	Signals	Designation
S1;S2	+ Sig 2 – Sig 1	1 2 3 4				1 2 3 4	+ Sig 2 – Sig 1	S1;S2
S3;S4	+ Sig 4 – Sig 3	1 2 3 4				1 2 3 4	+ Sig 4 – Sig 3	S3;S4
S5;S6	+ Sig 6 – Sig 5	1 2 3 4				1 2 3 4	+ Sig 6 – Sig 5	S5;S6
S7;S8	+ Sig 8 – Sig 7	1 2 3 4				1 2 3 4	+ Sig 8 – Sig 7	S7;S8

1) Pin 1 (+) and Pin 3 (-) are connected to each other between plugs S1 … S8. Unused plugs and sockets should therefore be protected with the cover caps.

Intermediate position
DRRD-...-PS1

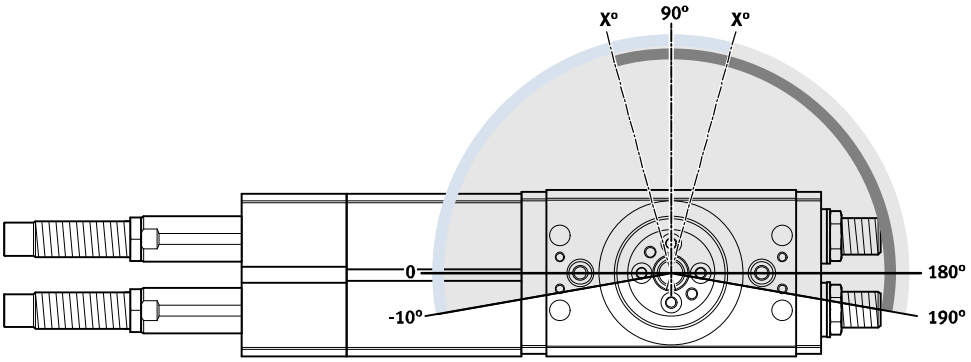


Function

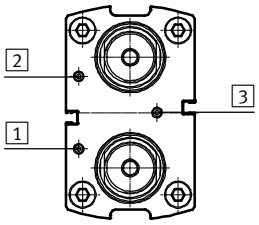
The intermediate-position module enables an additional position to be set, at half of the nominal rotation angle (90°).
A piston with two screwed-in guide systems is supplied with compressed air and moves the racks of the unpressurised semi-rotary drive until both pistons rest on the plungers positioned in the guide systems and are held in this position. The movement is cushioned using a shock absorber.
For further movement to the end position, the semi-rotary drive is pressurised with compressed air. The piston of the basic drive thus moves the entire intermediate-position piston back into its initial position.

Feature

- Setting range: 90° ±10°
- Cushioning variants: P, Y9
- Can be approached and travelled through from both end positions
- Position sensing of the intermediate position possible



Setting the swivel speed



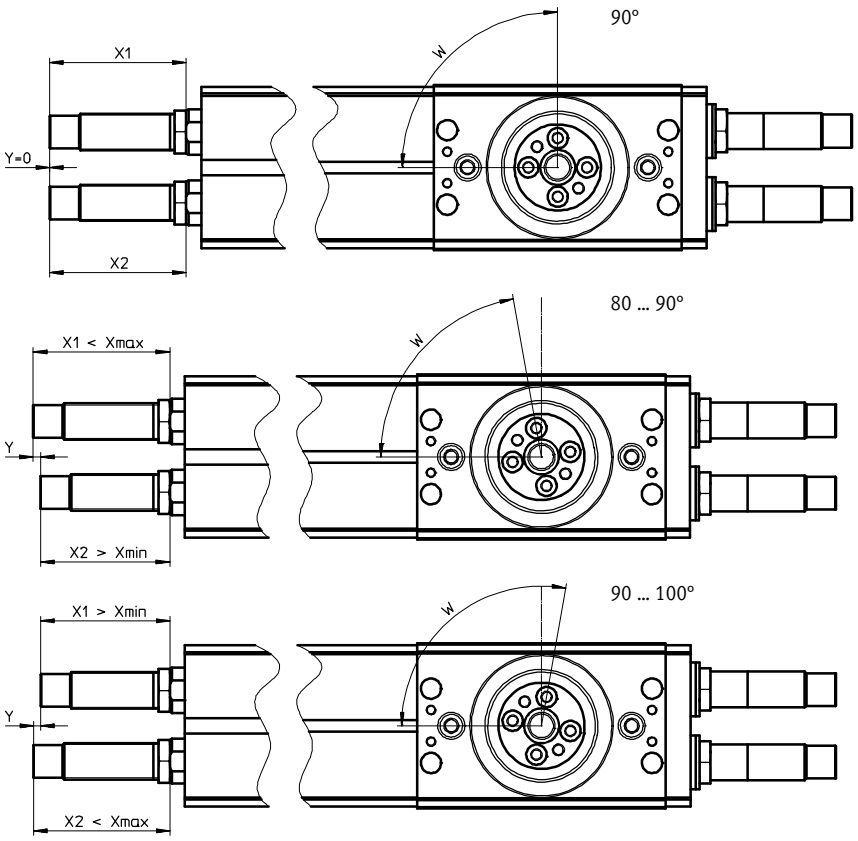
Semi-rotary module and intermediate-position module must only be operated with controlled air flow. The throttles should be connected as close as possible to the semi-rotary drive (e.g. one-way flow control valve GRLA-...) ➔ page 64.
In the event of pressure failure, the payload may hit an end position in an uncontrolled manner. In order to prevent this, piloted check valves HGL or an air reservoir VZS are recommended ➔ page 64.

The following movements are adjusted using the supply ports 1 and 2: end position ➔ intermediate position.
Both directions can be adjusted separately from each other.
The following movement is set via supply port 3.
Intermediate position ➔ end position
Both directions are set simultaneously.

DRRD-…-PS1 – Intermediate position

Swivel angle adjustment

By pushing the shock absorber as far as the stop, the flanged shaft of the semi-rotary drive rotates into the intermediate position.
In delivered state, the intermediate position is set to 90°. By screwing in or unscrewing the shock absorbers, the swivel angle can be adjusted by ±10°.
If the setting dimension X_{max} is exceeded, the shock absorber can no longer completely cushion the movement.
If the setting dimension X_{min} is not reached, the shock absorber not only cushions the intermediate position, but also the end position of the semi-rotary drive.



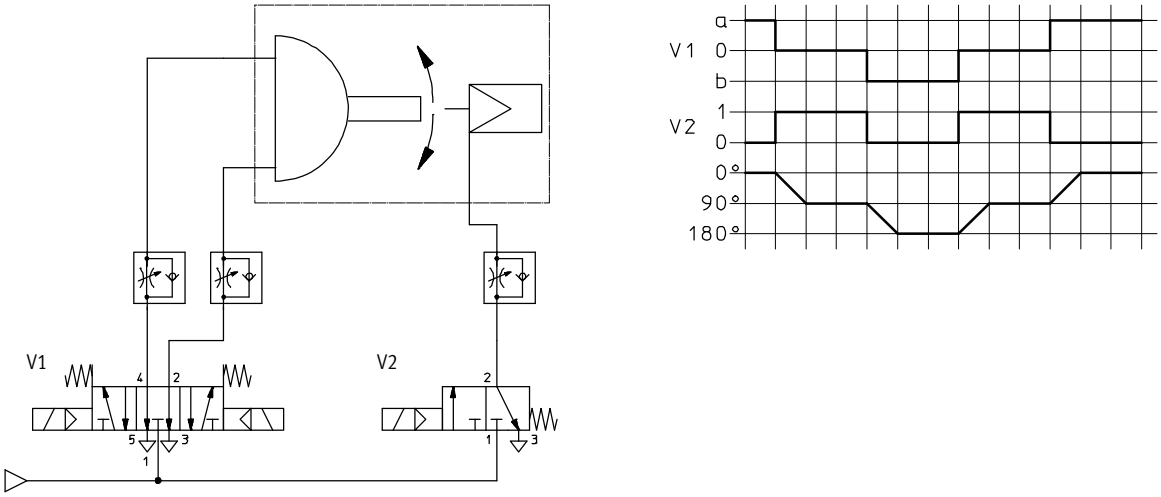
Size		16	20	25	32	35	40	50
Setting dimension X								
DRRD-…-P								
X_{min}	[mm]	7.7	14.9	14.2	12.5	–	–	–
X_{max}	[mm]	10.1	17.8	20.6	23.2	–	–	–
DRRD-…-Y9								
X_{min}	[mm]	29.6	41.8	56.9	70.3	88.6	86.7	114
X_{max}	[mm]	32	44.5	60.4	78.5	96.2	92.7	128
Dimension Y for 10° swivel angle change	[mm]	2.3	2.4	3.2	3.7	3.7	5.6	8

DRRD-...-PS1 – Intermediate position

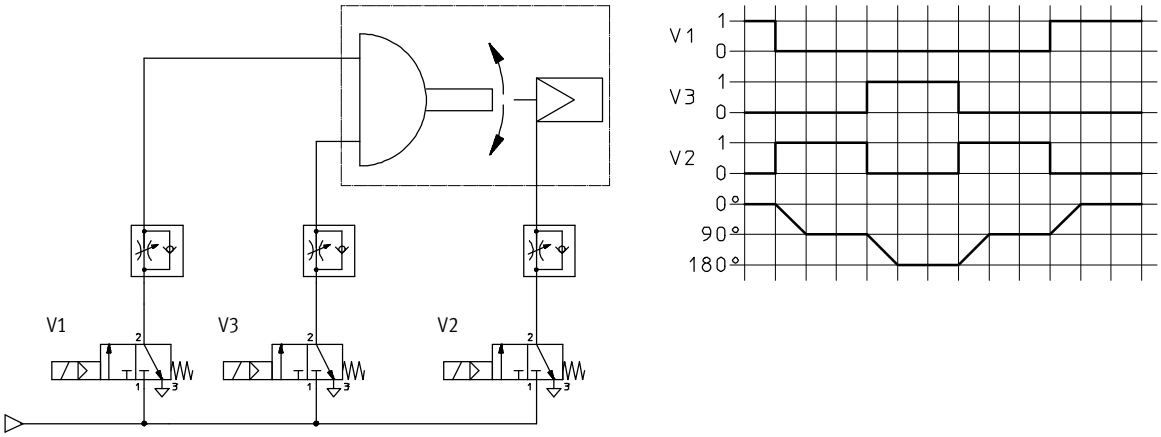
Control variants

Circuit diagram | Control sequence

1 With 1x 5/3-way valve and 1x 3/2-way valve

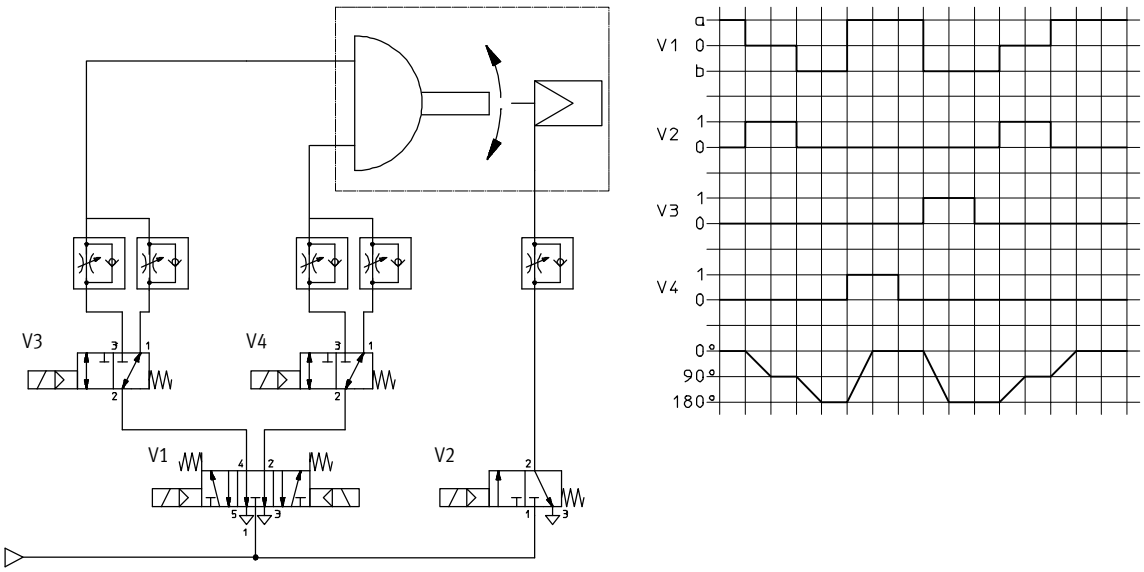


2 With 3x 3/2-way valves



3 With 1x 5/3-way valve and 3x 3/2-way valves

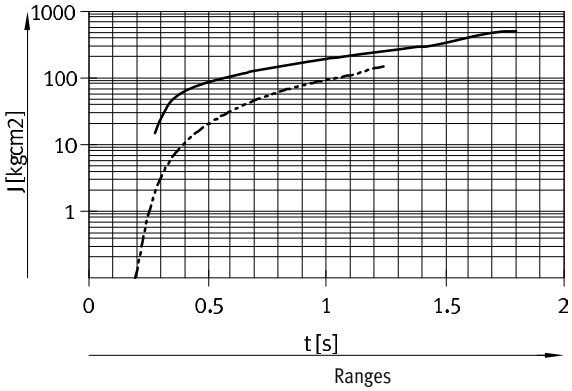
The exhaust air flow control valves for the basic drive can be adjusted separately here.



DRRD-...-PS1 – Intermediate position
Max. permissible mass moment of inertia J at the flanged shaft as a function of swivel time t
(at room temperature and an operating pressure of 6 bar)

Size 16

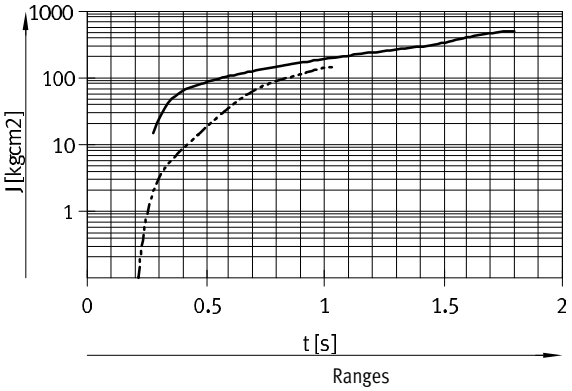
End position to intermediate position



Ranges

DRRD-16-Y9-PS1	➔ 15 ... 500 kgcm²
DRRD-16-P-PS1	➔ 0 ... 150 kgcm²

Intermediate position to end position

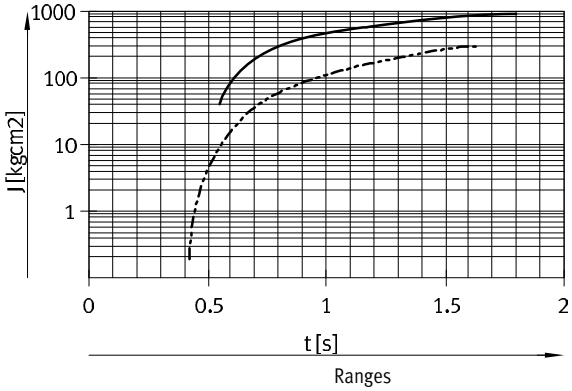


Ranges

DRRD-16-Y9-PS1	➔ 15 ... 500 kgcm²
DRRD-16-P-PS1	➔ 0 ... 150 kgcm²

Size 20

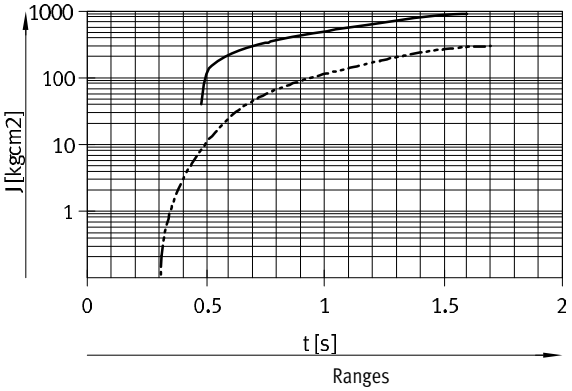
End position to intermediate position



Ranges

DRRD-20-Y9-PS1	➔ 40 ... 900 kgcm²
DRRD-20-P-PS1	➔ 0 ... 300 kgcm²

Intermediate position to end position

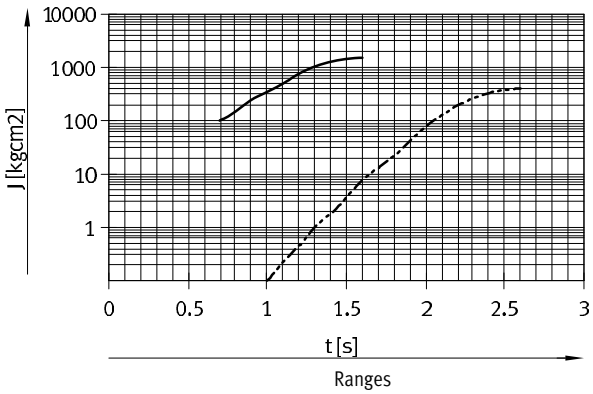


Ranges

DRRD-20-Y9-PS1	➔ 40 ... 900 kgcm²
DRRD-20-P-PS1	➔ 0 ... 300 kgcm²

Size 25

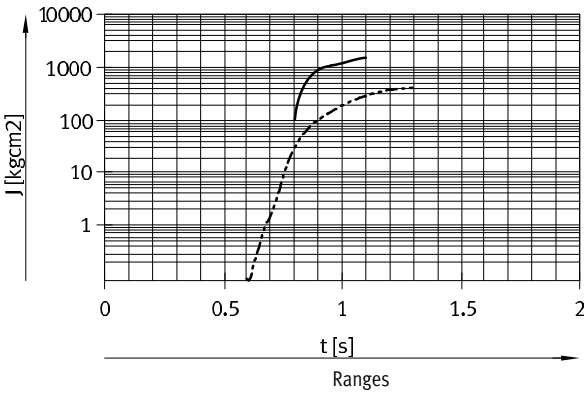
End position to intermediate position



Ranges

DRRD-25-Y9-PS1	➔ 100 ... 1500 kgcm²
DRRD-25-P-PS1	➔ 0 ... 400 kgcm²

Intermediate position to end position



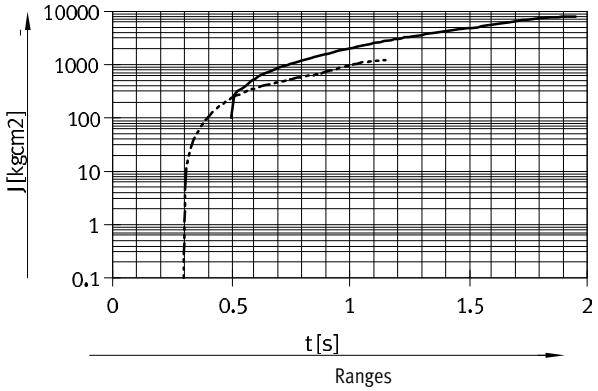
Ranges

DRRD-25-Y9-PS1	➔ 100 ... 1500 kgcm²
DRRD-25-P-PS1	➔ 0 ... 400 kgcm²

DRRD-…-PS1 – Intermediate position
Max. permissible mass moment of inertia J at the flanged shaft as a function of swivel time t
(at room temperature and an operating pressure of 6 bar)

Size 32

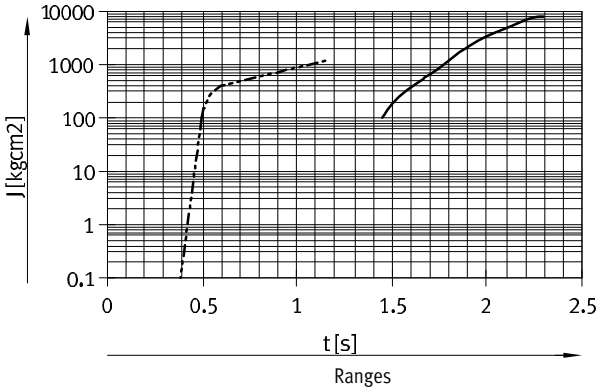
End position to intermediate position



Ranges

DRRD-32-Y9-PS1 ➔ 100 … 8000 kgcm²
DRRD-32-P-PS1 ➔ 0 … 500 kgcm²

Intermediate position to end position

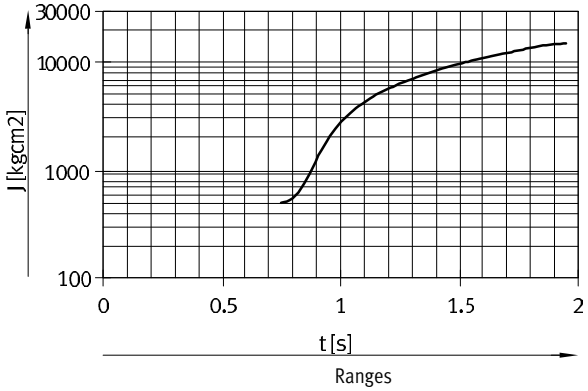


Ranges

DRRD-32-Y9-PS1 ➔ 100 … 8000 kgcm²
DRRD-32-P-PS1 ➔ 0 … 500 kgcm²

Size 35

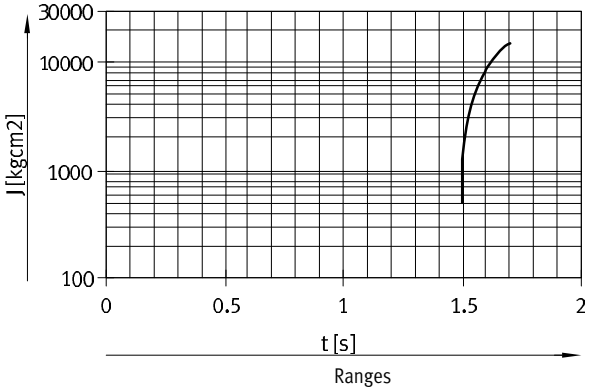
End position to intermediate position



Ranges

DRRD-35-Y9-PS1 ➔ 500 … 15000 kgcm²

Intermediate position to end position



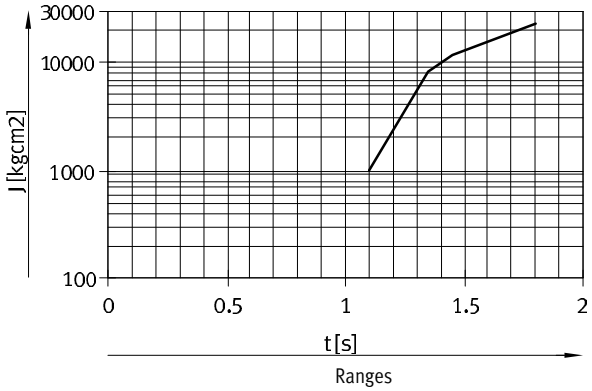
Ranges

DRRD-35-Y9-PS1 ➔ 500 … 15000 kgcm²

DRRD-…-PS1 – Intermediate position
Max. permissible mass moment of inertia J at the flanged shaft as a function of swivel time t
(at room temperature and an operating pressure of 6 bar)

Size 40

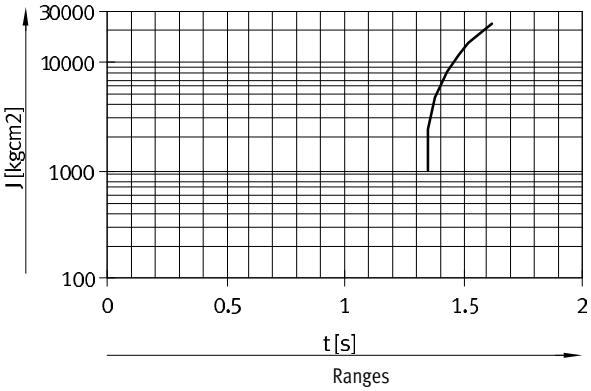
End position to intermediate position



Ranges

DRRD-40-Y9-PS1 ➔ 1000 … 23000 kgcm²

Intermediate position to end position

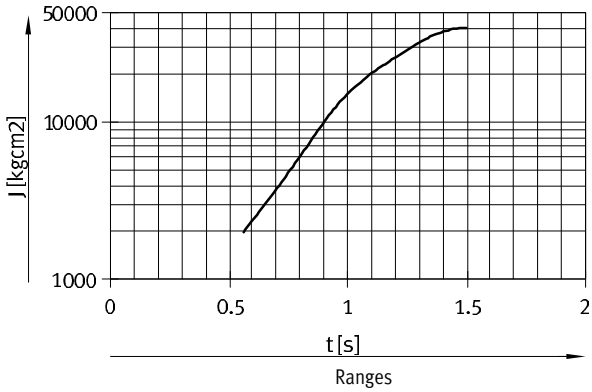


Ranges

DRRD-40-Y9-PS1 ➔ 1000 … 23000 kgcm²

Size 50

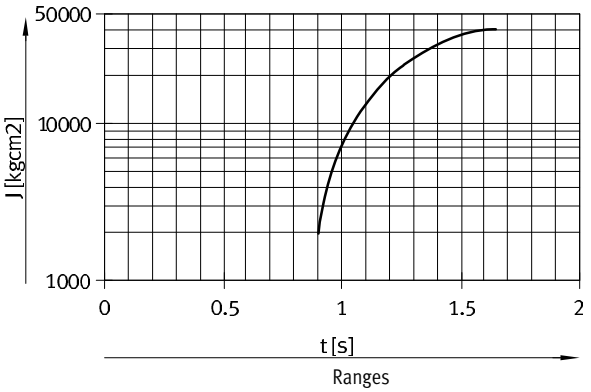
End position to intermediate position



Ranges

DRRD-50-Y9-PS1 ➔ 2000 … 40000 kgcm²

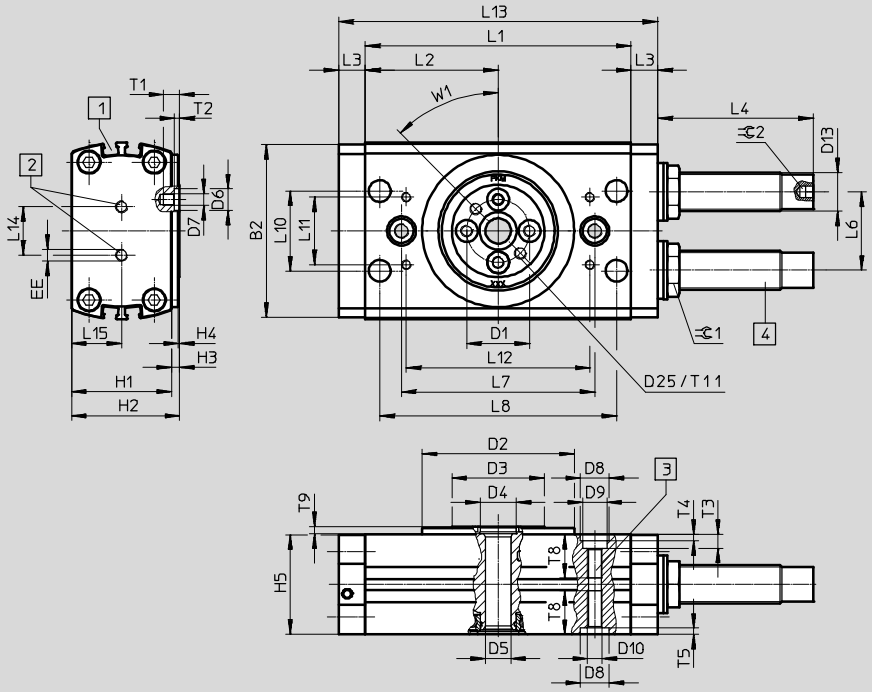
Intermediate position to end position



Ranges

DRRD-50-Y9-PS1 ➔ 2000 … 40000 kgcm²

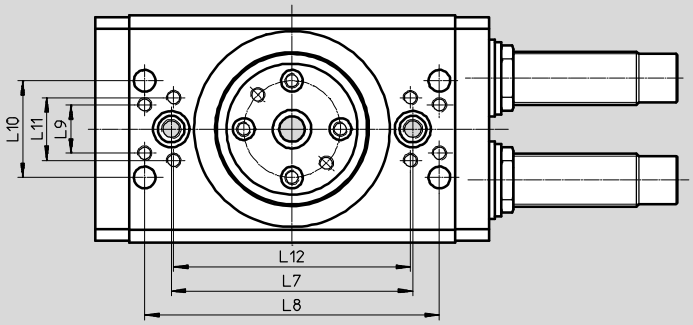
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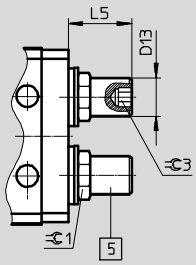
The semi-rotary drive must only be operated with controlled air flow. The throttles should be connected as close as possible to the semi-rotary drive (e.g. one-way flow control valve GRLA-…) ➔ page 64.

Illustrated position of the flanged shaft corresponds to the mid-position (swivel angle 90°).

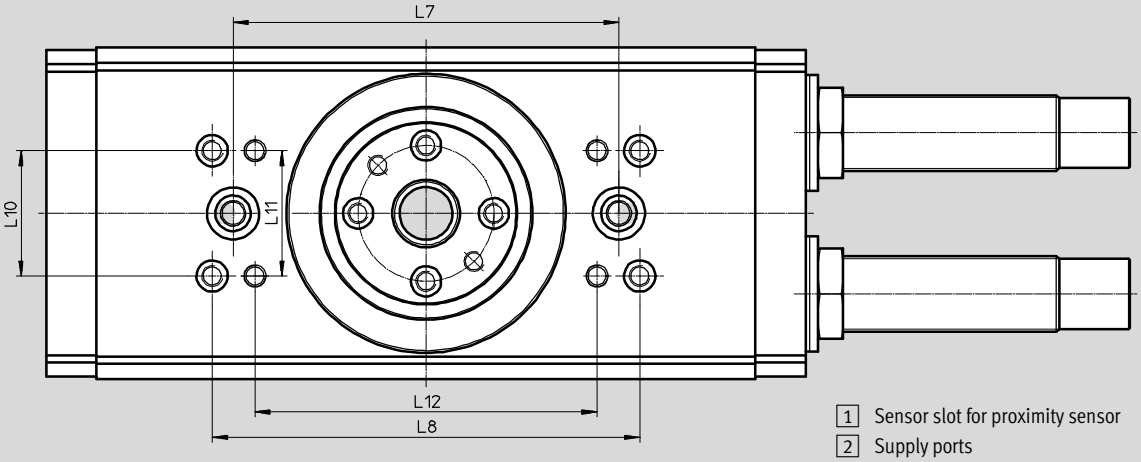
DRRD-32 … 40



DRRD-…-P



DRRD-50/63



1 Sensor slot for proximity sensor
2 Supply ports
3 Mounting thread
4 Shock absorber (DRRD-…-Y9/-Y10/-Y14)
5 Cushioning component (DRRD-…-P)

Twin-piston semi-rotary drive DRRD-16 … 63

Technical data

Size	B1 ±0.25	B2	D1 ∅ ±0.025	D2 ∅ H7	D3 ∅	D4 ∅ H7	D5 ∅ +0.15/–0.05	D6 ∅ H7	D7	D8 ∅ H7	D9 ∅	D10
16	58	56.2	21	50	32	12	8	7	M4	9	8	M5
20	65	63.4	24	56	34.9	12	8	7	M4	9	8	M5
25	73.2	71.5	26	63	38.25	15	10.5	9	M5	12	10	M6
32	94	92.6	40	81	54.2	15	10.5	9	M6	15	11	M8
35	106	104	45	91	59.9	25	10.5	9	M6	15	11	M8
40	113	111	45	91	59.9	25	21	9	M6	15	14	M10
50	132	129.9	54	110	73	25	21	12	M8	15	14	M10
63	159	157	63	135	82.8	25	21	15	M10	25	17	M12

Size	D11 ∅ H7	D12	D13	D25	H1 ±0.1	H2 +0.2/–0.1	H3 +0.3/–0.2	H4 ±0.1	H5	L1 ±0.1	L2	L3 ±0.1
16	7	M3	M10x1	M4	33	35.6	2.6	0.5	32.6	84	42	10.5
20	9	M4	M12x1	M5	36	39.6	3.6	0.5	35.6	86	43	11
25	9	M4	M16x1	M5	41.4	44.7	3.3	0.5	41	110	55	11
32	9	M6	M22x1.5	M6	50	55.5	5.5	1	49.6	135	67.5	14
35	9	M6	M26x1.5	M6	63	67	4	1	62.2	148	74	15
40	9	M6	M26x1.5	M6	68	72	4	1	67.2	199	99.5	15
50	15	M8	M30x1.5	M8	78	83	5	1	77.2	262	131	20
63	15	M10	M37x1.5	M10	100	107	7	2	99.2	335	167.5	25

Size	L6	L7 ±0.02	L8 ±0.2	L9 ±0.15	L10 ±0.02	L11 ±0.15	L12 ±0.2	L13	L14	L15	T1	T2 +0.1
16	23.2	64	74	–	26	22	61	105	20	16.3	5.6	1.6
20	26	70	74	–	33	14	80	108	20	17.8	6	1.6
25	32.25	80	98	–	33	14	98	132	20	20.5	6.6	2.1
32	42.2	100	122	20	40	26	98	163	30	24.8	8	2.1
35	49.6	120	130	44	26	44	105	178	42	31.1	8	2.1
40	56	120	130	44	26	44	105	229	42	33.6	8	2.1
50	64	160	160	34	34	54	132	302	50	39	10.6	2.6
63	78	170	190	60	60	60	149	385	50	49.6	14	3.1

Size	T3	T4 +0.1	T5 +0.3/–0.2	T6	T7 +0.1	T8	T9 +0.1	T11	EE	W1	⌀ 1	⌀ 2	⌀ 3
16	4.7	2.1	2.1	6.3	1.6	15	2.6	5.6	M5	45°	13	3	5
20	4.7	2.1	2.1	6.3	2.1	15	2.6	5.6	M5	45°	15	4	6
25	5.7	2.6	2.6	7	2.1	18	3.1	5.5	M5	45°	19	5	8
32	6.5	3.1	3.1	7.8	2.1	23.1	3.1	8	G1⁄8	45°	27	5	10
35	6.5	3.1	3.1	8.5	2.1	22.6	3.5	8	G1⁄8	45°	32	6	10
40	8.6	3.1	3.1	9	2.1	32	3.5	8	G1⁄8	45°	32	6	10
50	8.6	3.1	3.1	10.5	3.1	30	3.5	10	G1⁄4	45°	36	8	–
63	11	3.5	3.5	14	3.1	40	3.5	14	G3⁄8	45°	46	8	–

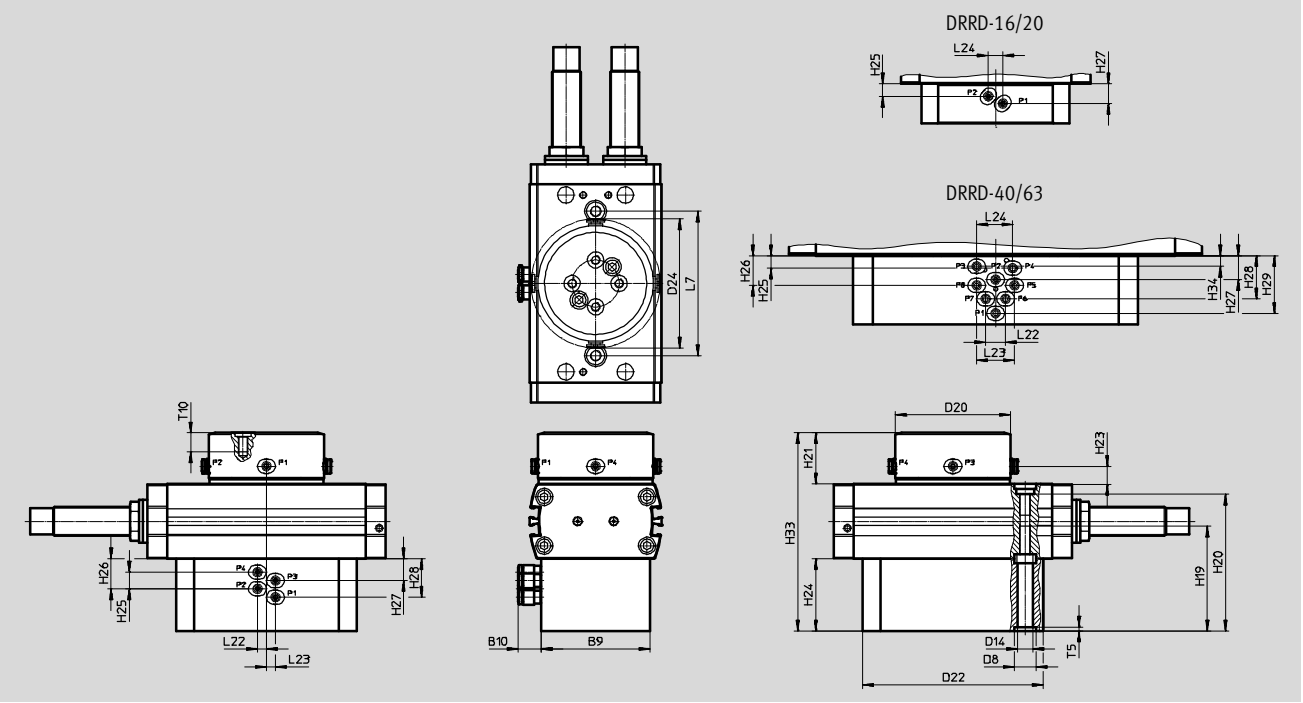
Size	Dimension with 180° swivel angle		Swivel angle adjustment range		
	L4	L5	L4 min./max.	L5 min./max.	1 mm = …°
16	37	17.6	–20/+1.5	–12/+1.4	8.7
20	41.8	18	–21.1/+1.5	–11/+1.4	9
25	63	24.3	–28.9/+1.9	–15/+1.8	6.6
32	78.3	29.5	–34.7/+2.4	–19/+2.3	5.6
35	97.5	40.9	–34.7/+2.4	–27/+2.3	5.6
40	98.2	41.6	–53/+3.2	–28/+3.1	3.6
50	126	–	–74.5/+4.4	–	2.6
63	120	–	–71.7/+7.1	–	1.9

Twin-piston semi-rotary drives DRRD-16 ... 63

Technical data

Dimensions – Variants Download CAD data ➔ **www.festo.com**

P... – Pneumatic energy throughfeed



Size	B9	B10	D8 ∅ H7	D14 ∅	D20 ∅	D22 ∅
16	52	13.4	9	6	54	82
20	58	13.4	9	6	54	82
25	60	12.8	12	6.5	64	100
32	70	12.8	15	8.5	64	120
35	80	12.8	15	8.5	64	138
40	80	13.4	15	11	89	158
50	80	13.4	15	11	89	190
63	80	13.4	25	13	89	210

Size	D24 ∅	H19	H20	H21	H23	H24
16	70	43	56.4	16.6	7.6	22
20	70	43	59.3	17.6	8.6	22
25	71.6	57	74.7	28.3	9.8	40
32	71.6	62	82.4	31.5	12	40
35	71.6	61.6	95.5	30	10.5	40
40	96.9	70	97.4	21	10.5	38
50	96.9	68	107.4	24	11.5	38
63	96.9	78	127	29	13.5	38

Size	H25	H26	H27	H28	H29	H33	H34
16	6.9	–	10.9	–	–	71.6	–
20	6.9	–	10.9	–	–	75.6	–
25	7.5	16.7	12.2	21.4	–	109.7	–
32	7.5	16.7	12.2	21.4	–	121.5	–
35	7.5	16.7	12.2	21.4	–	133	–
40	7	16.5	13.3	24	32	127	6
50	7	16.5	13.3	24	32	140	6
63	7	16.5	13.3	24	32	167	6

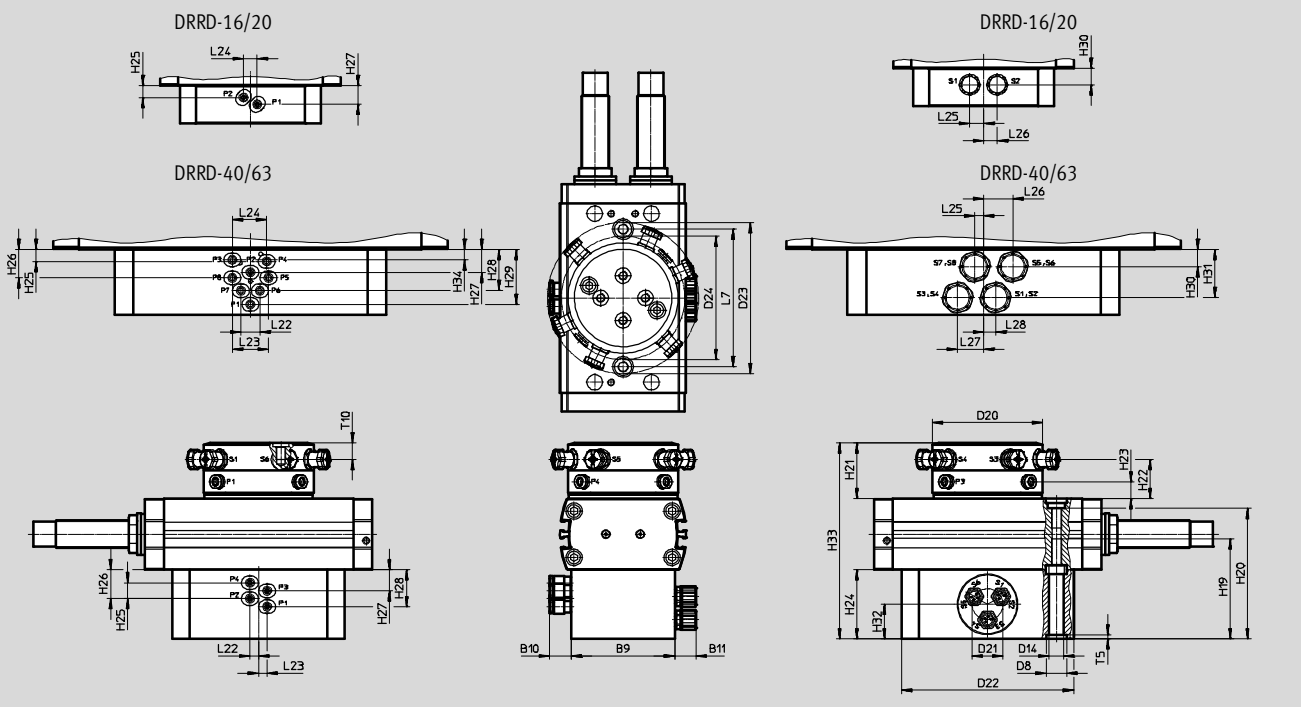
Size	L7 ±0.02	L22	L23	L24	T5 +0.3/–0.2	T10
16	64	4	4	8	2.1	8.6
20	70	4	4	8	2.1	8.6
25	80	5	5	–	2.1	9.6
32	100	5	5	–	3.1	11.1
35	120	5	5	–	3.1	11.1
40	120	11	21	20	3.1	10.1
50	160	11	21	20	3.1	14.6
63	170	11	21	20	3.5	17.1

Twin-piston semi-rotary drives DRRD-16 ... 63

Technical data

Dimensions – Variants Download CAD data ➔ **www.festo.com**

P...E... – Pneumatic/electrical energy throughfeed



Size	B9	B10	B11	D8 ∅ H7	D14 ∅	D20 ∅	D21 ∅	D22 ∅
16	52	13.4	8.5	9	6	54	16	82
20	58	13.4	8.5	9	6	54	16	82
25	60	12.8	12.4	12	6.5	64	18	100
32	70	12.8	12.4	15	8.5	64	18	120
35	80	12.8	12.4	15	8.5	64	18	138
40	80	13.4	24	15	11	89	–	158
50	80	13.4	24	15	11	89	–	190
63	80	13.4	24	25	13	89	–	210

Size	D23 ∅	D24 ∅	H21	H22	H23	H24	H25	H26
16	71.1	70	28.6	21.1	7.6	28	6.9	–
20	71.1	70	29.6	22.1	8.6	28	6.9	–
25	89.8	71.6	32.3	22.8	9.8	40	7.5	16.7
32	89.8	71.6	34.5	25	12	40	7.5	16.7
35	89.8	71.6	33	23.5	10.5	40	7.5	16.7
40	138.5	96.9	40	28.5	10.5	38	7	16.5
50	138.5	96.9	44	32.5	11.5	38	7	16.5
63	138.5	96.9	48	36.5	13.5	38	7	16.5

Twin-piston semi-rotary drives DRRD-16 ... 63

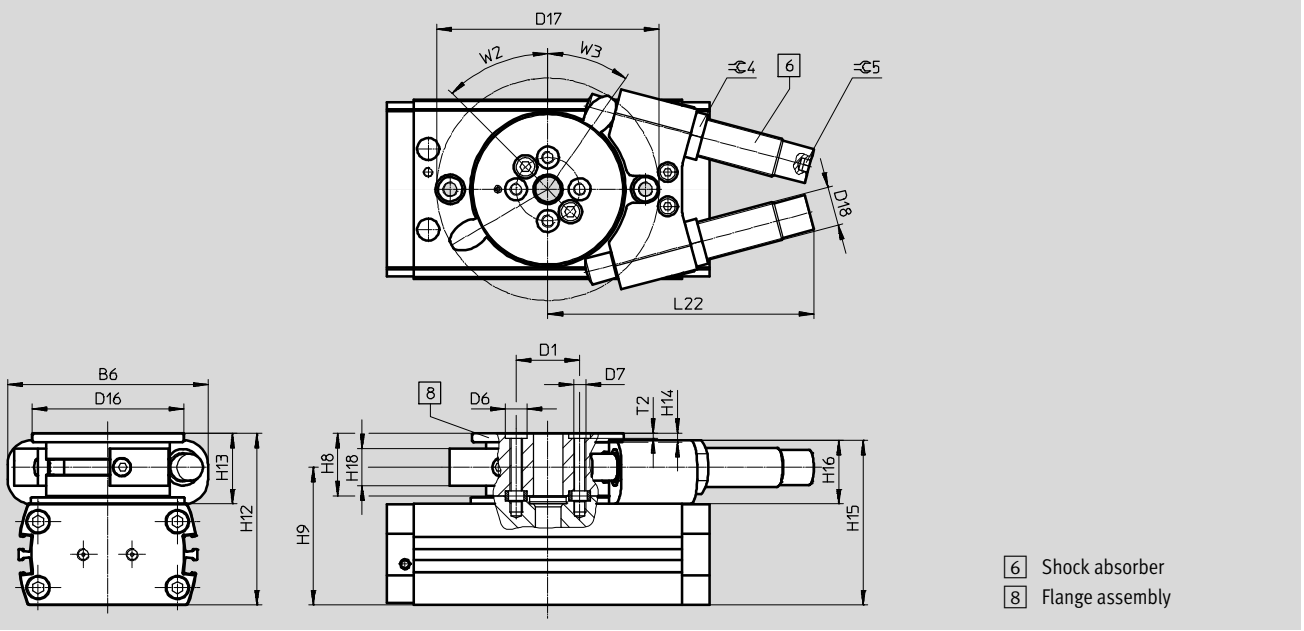
Technical data

Size	H27	H28	H29	H30	H31	H32	H33	H34	L7 ±0.02
16	10.9	–	–	15.5	–	–	89.6	–	64
20	10.9	–	–	15.5	–	–	93.6	–	70
25	12.2	21.4	–	–	–	20	113.7	–	80
32	12.2	21.4	–	–	–	20	124.5	–	100
35	12.2	21.4	–	–	–	20	136	–	120
40	13.3	24	32	10	28	–	146	6	120
50	13.3	24	32	10	28	–	160	6	160
63	13.3	24	32	10	28	–	186	6	170

Size	L22	L23	L24	L25	L26	L27	L28	T5 +0.3/–0.2	T10
16	4	4	8	8	8	–	–	2.1	8.6
20	4	4	8	8	8	–	–	2.1	8.6
25	5	5	–	–	–	–	–	2.1	9.6
32	5	5	–	–	–	–	–	3.1	11.1
35	5	5	–	–	–	–	–	3.1	11.1
40	11	21	20	5	17	15	7	3.1	10.1
50	11	21	20	5	17	15	7	3.1	14.6
63	11	21	20	5	17	15	7	3.5	17.1

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Y12 – With external shock absorber

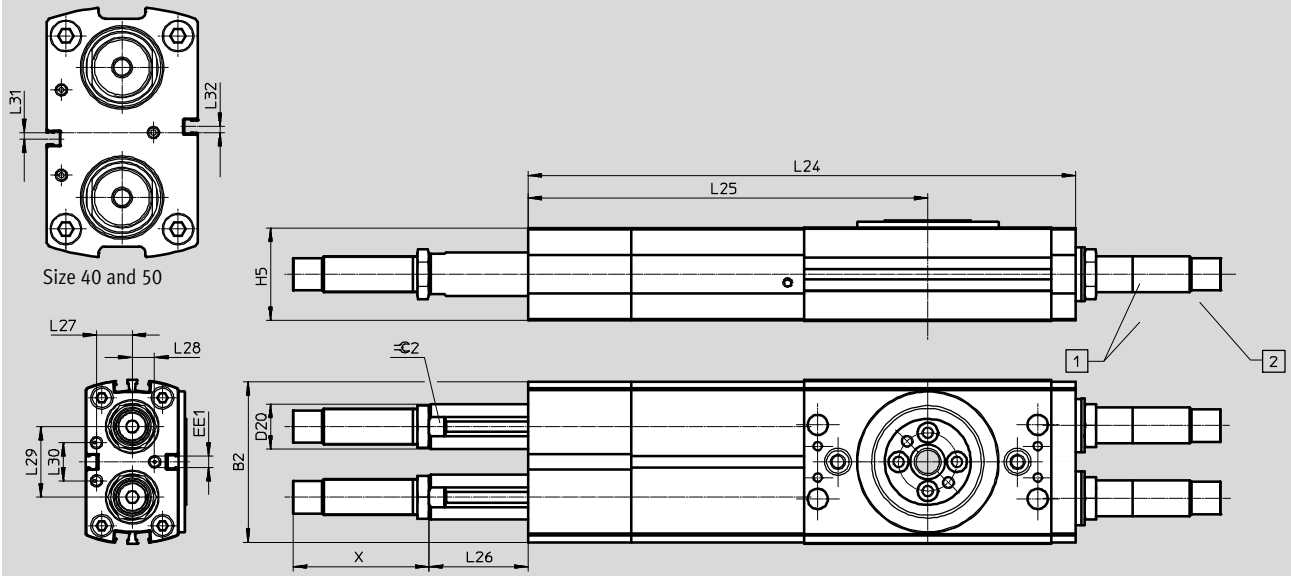


Size	B6 ±0.2	D1 ∅ ±0.025	D6 ∅ H7	D7	D16 ∅	D17	D18	H8 ±0.1	H9	H12
16	58	21	7	M4	49	69.4	M10x1	17	43.1	52.6
20	75	24	7	M4	62	91	M12x1	25.6	51.2	65.2
25	82	26	9	M5	62	91	M16x1	25.6	56.5	70.3
32	120	40	9	M6	79	126.2	M22x1.5	31.5	68.5	87
35	133	45	9	M6	89	146.7	M22x1.5	34	83	101
40	133	45	9	M6	89	146.7	M22x1.5	34	88	106
50	152	54	12	M8	110	165.2	M26x1.5	42	101.5	125
63	186	63	15	M10	130	212.2	M30x1.5	52	129.5	159

Size	H13	H14	H15	H16	H18	L22 Max.	T2 +0.1	W2	W3	⌯ 4	⌯ 5
16	19.6	3.5	51	18	10	65.2	1.6	45°	36°	13	3
20	29.2	3.5	59.5	23.5	15	85.3	1.6	45°	38°	15	4
25	28.9	3.5	67.4	26	15	108.9	2.1	45°	35°	19	5
32	37	4	85	35	22	149.7	2.1	45°	35°	27	5
35	38	5	99	36	21	155.5	2.1	45°	38°	27	5
40	38	5	104	36	21	155.5	2.1	45°	38°	27	5
50	47	6	123	45	30	171.6	2.6	45°	33°	32	6
63	59	6	155.5	55.5	36	228	3.1	45°	36°	36	8

Dimensions – Variants Download CAD data ➔ **www.festo.com**

PS1 – Intermediate position



Dimensions for X ➔ page 41

1 Supply ports to rotate basic drive

2 Supply port to rotate into intermediate position

Size	B2	H5	L24	L25	L26 Min.	L26 Max.	L27
16	56.2	32.6	193.1	140.6	0.3	21.5	12
20	63.4	35.6	205.1	151.1	4.5	28.4	14
25	71.5	41	244.1	178.1	14.1	44.2	15.9
32	92.6	49.6	320.1	238.6	3.4	43.5	19.5
35	104	62.2	343.1	254.1	14.8	54.5	25
40	111	67.2	392.1	277.6	9	54.1	27
50	129.9	77.2	542.6	391.6	12.3	86	30

Size	L28	L29	L30	L31	L32	D20 ∅	EE1	⫩2
16	6.2	21.65	15	–	–	14	M5	12
20	9	26.25	16	–	–	16	M5	14
25	10	31.45	17	–	–	20	M5	18
32	14	38.45	16	–	–	28	M5	24
35	18	49.6	18	–	–	32	M5	27
40	14	58	38	2.6	2.6	32	M5	27
50	20	78	44	5	5	36	G⅛	32

★ Core product range

Ordering data – Stock items				
DRRD	Size	Swivel angle [°]	Part No.	Type
P – Elastic cushioning rings/pads at both ends				
	16	180	★ 1577238	DRRD-16-180-FH-PA
	20		★ 1395606	DRRD-20-180-FH-PA
	25		★ 1359980	DRRD-25-180-FH-PA
	32		★ 1578512	DRRD-32-180-FH-PA
	35		★ 1526825	DRRD-35-180-FH-PA
	40		★ 1503269	DRRD-40-180-FH-PA
Y9 – Linear shock absorber, self-adjusting at both ends				
	16	180	★ 1644389	DRRD-16-180-FH-Y9A
	20		★ 1427379	DRRD-20-180-FH-Y9A
	25		★ 1360248	DRRD-25-180-FH-Y9A
	32		★ 1578518	DRRD-32-180-FH-Y9A
	35		★ 1547102	DRRD-35-180-FH-Y9A
	40		★ 1526986	DRRD-40-180-FH-Y9A

Festo core product range	★ Ready for dispatch from the Festo factory in 24 hours ☆ Ready for dispatch in 5 days maximum from stock

Twin-piston semi-rotary drives DRRD-16 … 63

Ordering data – Modular product system

Ordering table

Size		16	20	25	32	35	40	50	63	Condi-tions	Code	Entry code
M	Part no.	**574399**	**574400**	**574401**	**574402**	**574403**	**574404**	**574405**	**574407**			
	Function	Semi-rotary drive									**DRRD**	DRRD
	Size	16	20	25	32	35	40	50	63		**-...**	
	Nominal swivel angle	180°									**-180**	-180
	Output shaft	Flanged shaft, hollow									**-FH**	-FH
O	Energy throughfeed	None									**–**	
		Pneumatic, 2 ducts		–							**P2**	
		Pneumatic, 2 ducts; electric, 2 signals		–							**P2E2**	
		–		Pneumatic, 4 ducts			–				**P4**	
		–		Pneumatic, 4 channels; electric, 6 signals			–				**P4E6**	
		–					Pneumatic, 8 ducts				**P8**	
		–					Pneumatic, 8 ducts; electric, 8 signals				**P8E8**	
M	Cushioning	Elastic cushioning rings/pads at both ends						–			**-P**	
		Linear shock absorber, self-adjusting at both ends									**-Y9**	
		–		Linear shock absorber, self-adjusting at both ends, hard		–	Linear shock absorber, self-adjusting at both ends, hard				**-Y10**	
		Linear shock absorber, self-adjusting at both ends, external								1 5	**-Y12**	
		Linear shock absorber, self-adjusting at both ends, soft						–			**-Y14**	
	Position sensing	Via proximity sensor									**A**	A
O	EU certification	None										
		II 2GD								2	**-EX4**	
	Intermediate position	Without							–			
		1 intermediate position							–	3	**-PS1**	
	End-position locking	Without										
		At both ends								4 5	**-E1**	
	Sensor mounting, external	Without										
		Mounting rail for proximity sensor								5	**-R**	
	Version	Standard										
		Splash-proof design									**-SG**	
	Operating instructions	With operating instructions										
		Without operating instructions									**-DN**	

1 **Y12** Not with end-position locking E1 and splash-proof design SG
2 **EX4** Not with end-position locking E1, energy throughfeed P2E2, P4E6, P8E8 and intermediate position PS1
3 **PS1** Not with cushioning Y10, Y14 and with cushioning P only for size 16 … 32
4 **E1** Not with sensor mounting R and splash-proof design SG
5 **Y12, E1, R** Not with energy throughfeed P2, P2E2, P4, P4E6, P8, P8E8

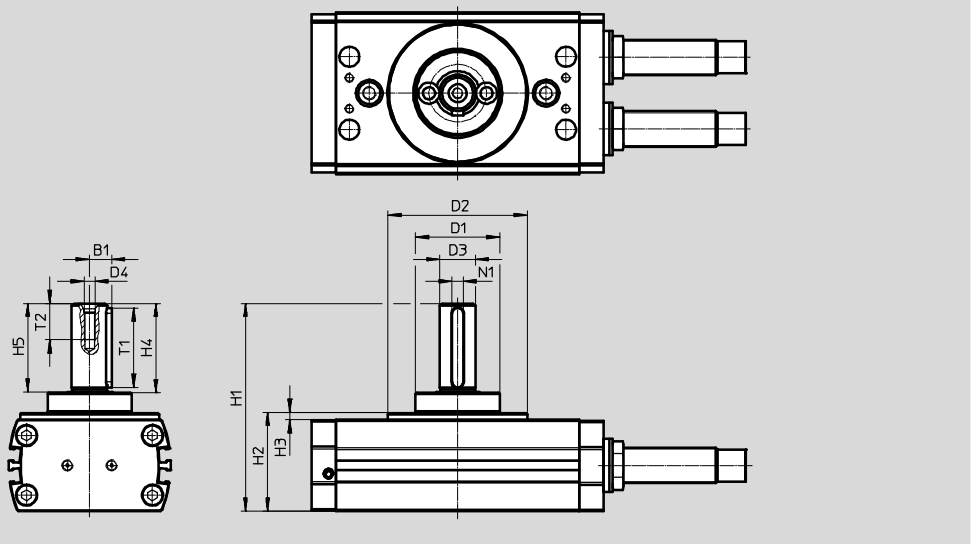
Transfer order code

	DRRD	–		–	180	–	FH	–		–		A	–		–		–		–		–	

Drive shaft DARF-Q11
For size 12 ... 40

Materials:
Tempered steel
RoHS compliant





Dimensions and ordering data

For size	B1 +0.1/−0.2	D1 ∅ −0.2	D2 ∅	D3 ∅ g7	D4	H1	H2	H3
12	4.8	30	30	8	M3	56.75±0.3	30.75±0.2	0.75+0.2/−0.6
16	6.2	32	50h7	10	M3	66.1+0.3/−0.2	35.6+0.2/−0.1	2.6+0.3/−0.2
20	7.5	35	56h7	12	M4	76.8+0.3/−0.2	39.6+0.2/−0.1	3.6+0.3/−0.2
25	10	38	63h7	16	M5	94+0.3/−0.2	44.7+0.2/−0.1	3.3+0.3/−0.2
32	12.5	55	81h7	20	M6	114.8+0.3/−0.2	55.5+0.2/−0.1	5.5+0.3/−0.2
35	13.5	60	91h7	22	M8	126.2+0.3/−0.2	67+0.2/−0.1	4+0.3/−0.2
40	13.5	60	91h7	22	M8	131.2+0.3/−0.2	72+0.2/−0.1	4+0.3/−0.2

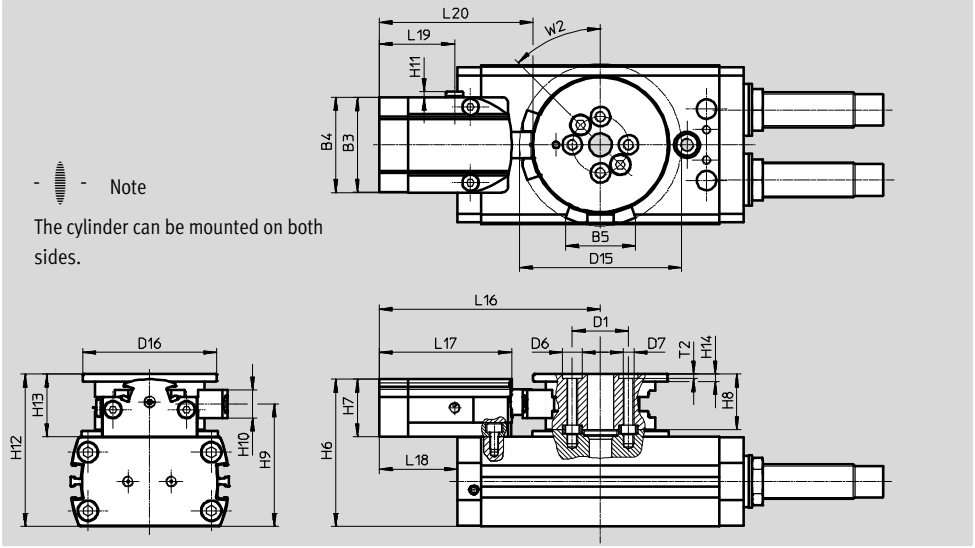
For size	H4	H5	T1	T2 +2	N1[2] P9	Weight [g]	Part No.	Type[1]
12	20.5	20±0.1	16+0.2	11.6	2	38	**4835942**	**DARF-Q11-12**
16	23.5	23±0.1	18.1+0.3	11.6	3	60	**4835943**	**DARF-Q11-16**
20	30.5	30±0.1	25.1+0.3	13.5	4	79	**4835941**	**DARF-Q11-20**
25	40.5	40±0.2	36.1+0.3	16.5	5	145	**4835938**	**DARF-Q11-25**
32	50.5	50±0.2	45.1+0.3	21	6	287	**4835940**	**DARF-Q11-32**
35	50.5	50±0.2	45.1+0.3	32	6	350	**4835939**	**DARF-Q11-35/40**
40	50.5	50±0.2	45.1+0.3	32	6	350	**4835939**	**DARF-Q11-35/40**

1) Suitable for ATEX
2) Feather key according to DIN 6885

Clamping unit DADL-EL
For size 16 ... 63
(order code: E1)
Stock items

Materials:
Housing: Anodised aluminium
Bearing: Plastic
RoHS compliant





Note
The cylinder can be mounted on both sides.

Dimensions and ordering data

For size	B3 ±0.2	B4 ±0.2	B5	D1 ∅ ±0.025	D6 ∅ H7	D7	D15 ∅	D16 ∅	H6	H7 ±0.15	H8 ±0.1	H9
16	37.6	38	26.9	21	7	M4	61.9	49	51	18	17	43.1
20	43.6	44	32.4	24	7	M4	74.9	62	62.5	26.5	25.6	51.2
25	43.6	44	32.4	26	9	M5	74.9	62	67.9	26.5	25.6	56.5
32	43.6	44	39.4	40	9	M6	95.4	79	79	26.7	31.5	68.5
35	57.6	58	50.2	45	9	M6	110.9	89	98	35	34	83
40	57.6	58	50.2	45	9	M6	110.9	89	103	35	34	88
50	71.4	72	59.6	54	12	M8	124.3	110	123	45	42	101.5
63	71.4	72	65.8	63	15	M10	148.5	130	149	49	52	129.5

For size	H10	H11	H12	H13	H14	L16	L17	L18	L19	L20	T2 +0.1	W2
16	9	2.5	52.6	19.6	3.5	83	50	30.5	34	58.3	1.6	45°
20	13	2.5	65.2	29.2	3.5	102.2	61.2	48.2	34.8	71.1	1.6	45°
25	13	2.5	70.3	28.9	3.5	102.2	61.2	36.2	34.8	71.1	2.1	45°
32	17	2.5	87	37	4	112.2	61.2	30.7	34.8	71.1	2.1	45°
35	14.8	2.5	101	38	5	132.5	70.6	43.5	42.6	85.4	2.1	45°
40	14.8	2.5	106	38	5	132.5	70.6	18	42.6	85.4	2.1	45°
50	19	4.6	125	47	6	151	81	0	46	98	2.6	45°
63	22	4.6	159	59	6	163	81	−29.5	46	99.5	3.1	45°

For size	Pneumatic connection	Operating pressure [bar]	Position sensing	Adjustable swivel angle [°]	Weight [g]	Part No.	Type
16	M5	5 ... 8	Via proximity sensor	60 ... 200	166	**1692770**	**DADL-EL-Q11-16**
20					382	**1579786**	**DADL-EL-Q11-20**
25					370	**1568183**	**DADL-EL-Q11-25**
32				55 ... 200	600	**1631139**	**DADL-EL-Q11-32**
35				57 ... 200	900	**1544900**	**DADL-EL-Q11-35/40**
40					900	**1544900**	**DADL-EL-Q11-35/40**
50	G1⁄8			62 ... 200	1610	**1796637**	**DADL-EL-Q11-50**
63				55 ... 200	2380	**1941568**	**DADL-EL-Q11-63**

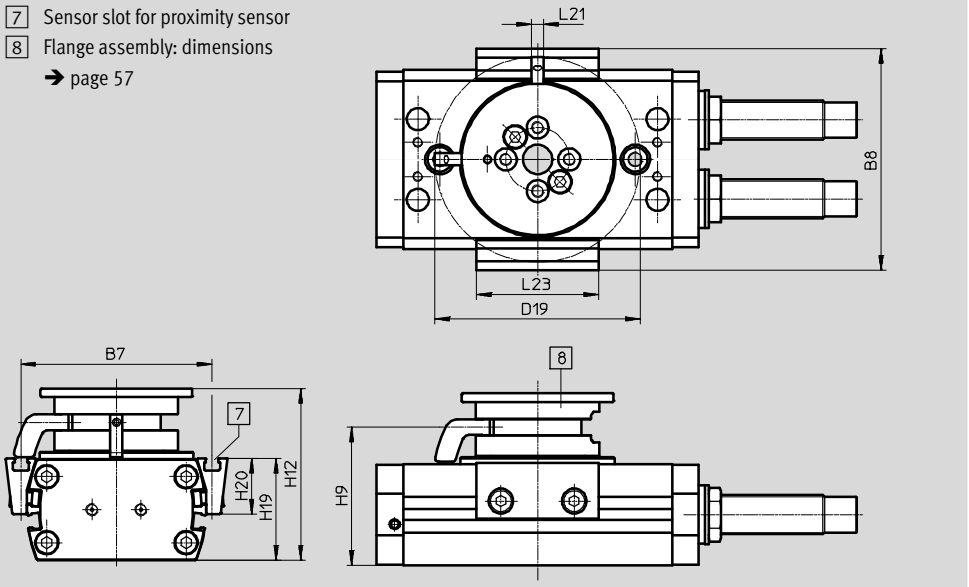
Sensing kit DASI-...-KT
For size 16 ... 63
(order code: R)
Stock items

Materials:
Anodised aluminium
RoHS compliant

For sensing the piston position using
inductive proximity sensors SIES
➔ page 61



7 Sensor slot for proximity sensor
8 Flange assembly: dimensions
➔ page 57

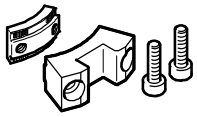
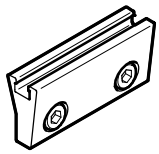


Dimensions and ordering data

For size	B7	B8	D19 ∅	H9	H12	H19
16	64.4	76.1	70.9	43.1	52.6	33.5
20	74	85.7	84	51.2	65.2	36.4
25	78.2	90.7	84	56.5	70.3	41.8
32	100	113.5	107.5	68.5	87	50.5
35	116	132.9	125.2	83	101	63.5
40	118	135.8	125.2	88	106	68.5
50	136	155.3	146.6	101.5	125	79.1
63	163	185.3	173.9	129.5	159	101

For size	H20 ±0.1	L21	L23	Weight [g]	Part No.	Type[1)]
16	18.5	5	50	110	**1693008**	**DASI-Q11-16-A-KT**
20	20.2	5	50	192	**1580899**	**DASI-Q11-20-A-KT**
25	22.8	5	50	192	**1568461**	**DASI-Q11-25-A-KT**
32	26.5	7	50	366	**1632097**	**DASI-Q11-32-A-KT**
35	33.1	7	50	485	**1551144**	**DASI-Q11-35-A-KT**
40	35.5	7	50	485	**1550027**	**DASI-Q11-40-A-KT**
50	43	7	50	810	**1797135**	**DASI-Q11-50-A-KT**
63	55	7	50	1390	**1946877**	**DASI-Q11-63-A-KT**

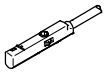
1) Suitable for ATEX

Ordering data[3]	For size	Description	Weight [g]	Part No.	Type	PU[1]
Clamping component DADL-EC						
	16	For securing an intermediate position in combination with the clamping unit DADL-EL	18	**1692496**	**DADL-EC-Q11-16**	1
	20, 25		36	**1435411**	**DADL-EC-Q11-20/25**	
	32		67	**1631170**	**DADL-EC-Q11-32**	
	35, 40		98	**1535091**	**DADL-EC-Q11-35/40**	
	50		140	**1796626**	**DADL-EC-Q11-50**	
	63		220	**1941355**	**DADL-EC-Q11-63**	
Sensor bracket DASI-...-SR[4]						
	16	Additional sensing option in combination with the sensing kit DASI-...-KT	28	**1692983**	**DASI-Q11-16-A-SR**	2
	20		32	**1581420**	**DASI-Q11-20-A-SR**	
	25		32	**1568451**	**DASI-Q11-25-A-SR**	
	32		42	**1631997**	**DASI-Q11-32-A-SR**	
	35		62	**1550870**	**DASI-Q11-35-A-SR**	
	40		62	**1548054**	**DASI-Q11-40-A-SR**	
	50		75	**1797071**	**DASI-Q11-50-A-SR**	
	63		110	**1971563**	**DASI-Q11-63-A-SR**	
Switch lug DASI-...-SL[4]						
	16	Additional sensing option in combination with the sensing kit DASI-...-KT	2.5	**1692969**	**DASI-Q11-16-A-SL**	1
	20, 25		4	**1568436**	**DASI-Q11-20/25-A-SL**	
	32		6	**1631824**	**DASI-Q11-32-A-SL**	
	35, 40		8	**1548155**	**DASI-Q11-35/40-A-SL**	
	50		10	**1797021**	**DASI-Q11-50-A-SL**	
	63		15	**1971550**	**DASI-Q11-63-A-SL**	
Shock absorber DYSC[4]						
	12	• Self-adjusting shock absorber • Included in the scope of delivery for semi-rotary drive DRRD-...-Y12	9	**548011**	**DYSC-5-5-Y1F**	1
	16		17	**548012**	**DYSC-7-5-Y1F**	
	20		36	**548013**	**DYSC-8-8-Y1F**	
	25		81	**548014**	**DYSC-12-12-Y1F**	
	32, 35, 40		210	**553593**	**DYSC-16-18-Y1F**	
	50		370	**2479149**	**DYSC-20-18-Y1F**	
	63		575	**2480234**	**DYSC-25-25-Y1F**	
Centring sleeve ZBH[2][4]						
	8, 10	For centring the semi-rotary drive	1	**186717**	**ZBH-7**	10
	12, 16, 20		1	**150927**	**ZBH-9**	
	25		1	**189653**	**ZBH-12**	
	32 ... 50		3	**191409**	**ZBH-15**	
	63		5	**8023856**	**ZBH-25**	
	8, 10, 12	For centring attachments on the flanged shaft	1	**189652**	**ZBH-5**	
	16, 20		1	**186717**	**ZBH-7**	
	25 ... 40		1	**150927**	**ZBH-9**	
	50		1	**189653**	**ZBH-12**	
	63		3	**191409**	**ZBH-15**	

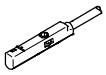
1) Packaging unit
2) 2 included in the scope of delivery for the semi-rotary drive or attachments
3) Stock items
4) Suitable for ATEX

Proximity sensor for size 8 … 12

Ordering data – Proximity sensors for C-slot, magneto-resistive — Technical data ➔ Internet: smt

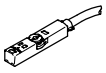
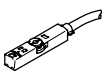
	Type of mounting	Switching output	Electrical connection, outlet direction	Cable length [m]	Part No.	Type
N/O contact						
	Inserted in the slot from above	PNP	Cable, 3-wire, lengthwise	2.5	★ **551373**	**SMT-10M-PS-24V-E-2,5-L-OE**
			Plug M8x1, 3-pin, lengthwise	0.3	★ **551375**	**SMT-10M-PS-24V-E-0,3-L-M8D**
			Plug M8x1, 3-pin, lateral	0.3	**551376**	**SMT-10M-PS-24V-E-0,3-Q-M8D**
	Insertable in the slot lengthwise	PNP	Cable, 3-wire, lateral	2.5	**547862**	**SMT-10G-PS-24V-E-2,5Q-OE**
			Plug M8x1, 3-pin, lateral	0.3	**547863**	**SMT-10G-PS-24V-E-0,3Q-M8D**

Ordering data – Proximity sensors for C-slot, magnetic reed — Technical data ➔ Internet: sme

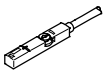
	Type of mounting	Switching output	Electrical connection, outlet direction	Cable length [m]	Part No.	Type
N/O contact						
	Inserted in the slot from above	Contacting	Plug M8x1, 3-pin, lengthwise	0.3	★ **551367**	**SME-10M-DS-24V-E-0,3-L-M8D**
			Cable, 3-wire, lengthwise	2.5	★ **551365**	**SME-10M-DS-24V-E-2,5-L-OE**
			Cable, 2-wire, lengthwise	2.5	★ **551369**	**SME-10M-ZS-24V-E-2,5-L-OE**

Proximity sensors for size 16 … 63

Ordering data – Proximity sensors for T-slot, magneto-resistive — Technical data ➔ Internet: smt

	Type of mounting	Switching output	Electrical connection	Cable length [m]	Part No.	Type
N/O contact						
	Inserted in the slot from above, flush with the cylinder profile, short design	PNP	Cable, 3-wire	2.5	★ **574335**	**SMT-8M-A-PS-24V-E-2,5-OE**
			Plug connector M8x1, 3-pin	0.3	★ **574334**	**SMT-8M-A-PS-24V-E-0,3-M8D**
			Plug connector 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 connector M8x1, 3-pin	0.3	★ **574339**	**SMT-8M-A-NS-24V-E-0,3-M8D**
N/C contact						
	Inserted in the slot from above, flush with the cylinder profile, short design	PNP	Cable, 3-wire	7.5	★ **574340**	**SMT-8M-A-PO-24V-E-7,5-OE**

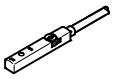
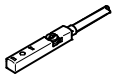
Ordering data – Proximity sensors for T-slot, magnetic reed — Technical data ➔ Internet: sme

	Type of mounting	Switching output	Electrical connection	Cable length [m]	Part No.	Type
N/O contact						
	Inserted in the slot from above, flush with the cylinder profile	Contacting	Cable, 3-wire	2.5	★ **543862**	**SME-8M-DS-24V-K-2,5-OE**
				5.0	★ **543863**	**SME-8M-DS-24V-K-5,0-OE**
			Cable, 2-wire	2.5	★ **543872**	**SME-8M-ZS-24V-K-2,5-OE**
			Plug connector M8x1, 3-pin	0.3	★ **543861**	**SME-8M-DS-24V-K-0,3-M8D**
	Inserted in the slot lengthwise, flush with the cylinder profile	Contacting	Cable, 3-wire	2.5	**150855**	**SME-8-K-LED-24**
			Plug connector M8x1, 3-pin	0.3	**150857**	**SME-8-S-LED-24**

Festo core product range

★ Ready for dispatch from the Festo factory in 24 hours
☆ Ready for dispatch in 5 days maximum from stock

Ordering data – Proximity sensors for T-slot, inductive — Technical data ➔ Internet: sies

	Type of mounting	Switching output	Electrical connection	Cable length [m]	Part No.	Type
N/O contact						
	Insertable in the slot from above, flush with the cylinder profile	PNP	Cable, 3-wire	7.5	**551386**	**SIES-8M-PS-24V-K-7,5-OE**
			Plug connector M8x1, 3-pin	0.3	**551387**	**SIES-8M-PS-24V-K-0,3-M8D**
		NPN	Cable, 3-wire	7.5	**551396**	**SIES-8M-NS-24V-K-7,5-OE**
			Plug connector M8x1, 3-pin	0.3	**551397**	**SIES-8M-NS-24V-K-0,3-M8D**
N/C contact						
	Insertable in the slot from above, flush with the cylinder profile	PNP	Cable, 3-wire	7.5	**551391**	**SIES-8M-PO-24V-K-7,5-OE**
			Plug connector M8x1, 3-pin	0.3	**551392**	**SIES-8M-PO-24V-K-0,3-M8D**
		NPN	Cable, 3-wire	7.5	**551401**	**SIES-8M-NO-24V-K-7,5-OE**
			Plug connector M8x1, 3-pin	0.3	**551402**	**SIES-8M-NO-24V-K-0,3-M8D**

- Note

The inductive proximity sensors SIES can only be used in combination with the sensing kit DASI-...-KT.

Ordering data – Connecting cables — Technical data ➔ Internet: nebu

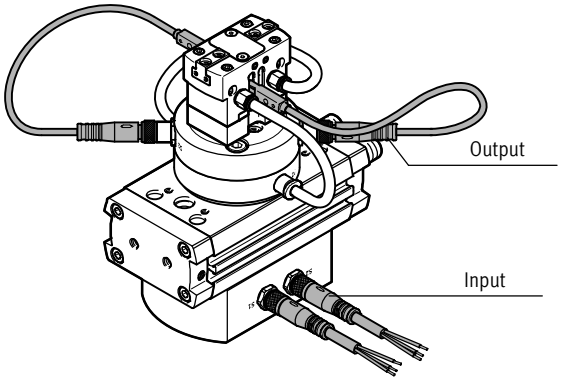
	Electrical connection, left	Electrical connection, right	Cable length [m]	Part No.	Type
	Straight socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	★ **541333**	**NEBU-M8G3-K-2.5-LE3**
			5	★ **541334**	**NEBU-M8G3-K-5-LE3**
	Angled socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	★ **541338**	**NEBU-M8W3-K-2.5-LE3**
			5	★ **541341**	**NEBU-M8W3-K-5-LE3**

Festo core product range

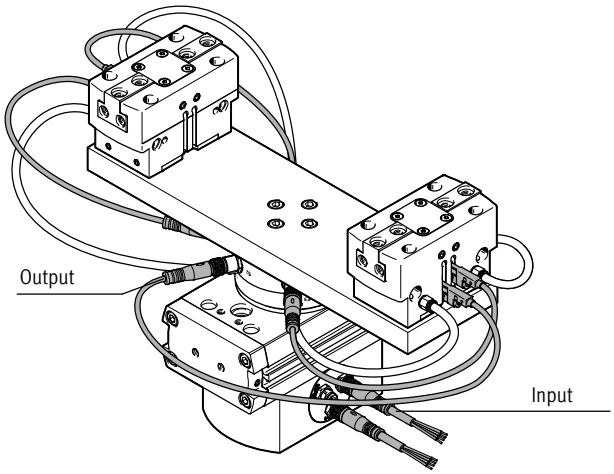
★ Ready for dispatch from the Festo factory in 24 hours
☆ Ready for dispatch in 5 days maximum from stock

Wiring of the proximity sensor in combination with the energy throughfeed

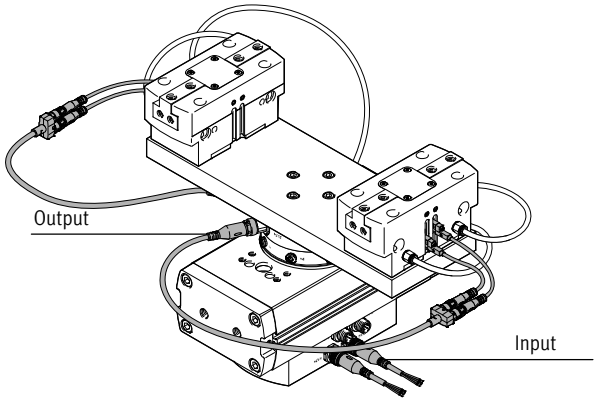
Size 16/20



Sizes 25/32/35



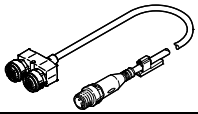
Size 40/50/63



Note

Proximity sensors with plug connectors must be used for attachments (e.g. grippers) at the output. On sizes 16 ... 35 these can be connected directly to the energy throughfeed module.
For sizes 40 ... 63, the proximity sensor must be connected to the energy throughfeed module through a Y-distributor.

Ordering data — Technical data ➔ Internet: nebu

	Electrical connection, left	Electrical connection, right	Cable length [m]	Part No.	Type
Input – Connecting cable					
Size 16/20					
	Straight socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	★ **541333**	**NEBU-M8G3-K-2.5-LE3**
	Straight socket, M8x1, 3-pin	Cable, open end, 3-wire	5	★ **541334**	**NEBU-M8G3-K-5-LE3**
Size 25/32/35					
	Straight socket, M8x1, 4-pin	Cable, open end, 4-wire	2.5	**541342**	**NEBU-M8G4-K-2.5-LE4**
	Straight socket, M8x1, 4-pin	Cable, open end, 4-wire	5	**541343**	**NEBU-M8G4-K-5-LE4**
Size 40/50/63					
	Straight socket, M12x1, 5-pin	Cable, open end, 4-wire	2.5	★ **550326**	**NEBU-M12G5-K-2.5-LE4**
	Straight socket, M12x1, 5-pin	Cable, open end, 4-wire	5	★ **541328**	**NEBU-M12G5-K-5-LE4**
Output – Y-distributor					
Size 40/50/63					
	Straight plug, M12x1, 4-pin	2x straight sockets, M8x1, 3-pin	0.5[1)]	**8032867**	**NEDY-L2R1-V1-M8G3-U-M12G4-0.5R**

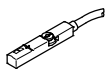
1) Cable lengths from 0.3 m to 30 m available ➔ Internet: nedy

Festo core product range

★ Ready for dispatch from the Festo factory in 24 hours
☆ Ready for dispatch in 5 days maximum from stock

Proximity sensor for size 16 … 63

Ordering data – Position sensor for T-slot — Technical data ➔ Internet: smat

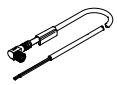
	Type of mounting	Electrical connection, outlet direction	Analogue output [V]	Cable length [m]	Part No.	Type
	Insertable in slot from above	Plug M8x1, 4-pin, in-line	0 … 10	0.3	**553744**	**SMAT-8M-U-E-0,3-M8D**

Note

Function :
The position transmitter continuously senses the position of the piston. It has an analogue output with an output signal in proportion to the piston position.

For size	Position measuring range approx. [°]
16	151
20	120
25	183
32	159
35	185
40	132
50	82
63	64

Ordering data – Connecting cables — Technical data ➔ Internet: nebu

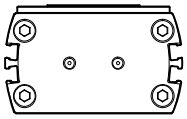
	Electrical connection, left	Electrical connection, right	Cable length [m]	Part No.	Type
	Straight socket, M8x1, 4-pin	Cable, open end, 4-wire	2.5	**541342**	**NEBU-M8G4-K-2.5-LE4**
			5	**541343**	**NEBU-M8G4-K-5-LE4**
	Angled socket, M8x1, 4-pin	Cable, open end, 4-wire	2.5	**541344**	**NEBU-M8W4-K-2.5-LE4**
			5	**541345**	**NEBU-M8W4-K-5-LE4**

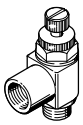
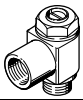
Setting the swivel speed

Basic drive and intermediate position module must only be operated with controlled air flow. The throttle valves should be connected as close as possible to the semi-rotary drive (e.g. one-way flow control valve GRLA-...) ➔ table below.

In the event of pressure failure, the payload may hit an end position in an uncontrolled manner. In order to prevent this, piloted check valves HGL or an air reservoir VZS are recommended.

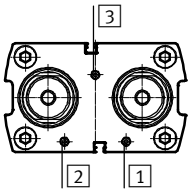
Ordering data – Accessories for basic drive



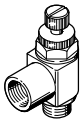
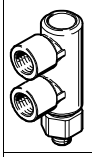
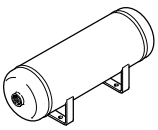
	For size	Description	Weight [g]	Part No.	Type	PU[1]
One-way flow control valve GRLA						
	16[2], 20, 25	• To set the swivel speed	14	★ 197576	GRLA-M5-QS-3-RS-D	1
			14	★ 197577	GRLA-M5-QS-4-RS-D	
	32, 35, 40		30	151169	GRLA-1/8-RS-B	
	50		59	151175	GRLA-1/4-RS-B	
	63		97	151178	GRLA-3/8-B	

1) Packaging unit

Ordering data – Accessories for intermediate position module (PS1)



The following movements are adjusted using the supply ports 1 and 2: end position ➔ intermediate position.
Both directions can be adjusted separately from each other.
The following movement is set via supply port 3.
Intermediate position ➔ end position
Both directions are set simultaneously.

	For size	Description	Weight [g]	Part No.	Type	PU[1]
One-way flow control valve GRLA						
	16[2], 20, 25, 32, 35, 40	• To set the swivel speed from the intermediate position	14	★ 197576	GRLA-M5-QS-3-RS-D	1
			14	★ 197577	GRLA-M5-QS-4-RS-D	
	50		30	151169	GRLA-1/8-RS-B	
Check valve HGL						
	20, 25, 32, 35, 40	• For cushioning the payload in the event of a loss of compressed air	21	★ 530029	HGL-M5-B	1
			21	★ 530038	HGL-M5-QS-4	
	50		26	543253	HGL-1/8-1/8-B	
			21	★ 530030	HGL-1/8-B	
Air reservoir VZS						
	16, 20, 25, 32, 35, 40, 50	• For cushioning the payload in the event of a loss of compressed air	8600	192161	VZS-20-B	1

1) Packaging unit
2) Strongly recommended for this size

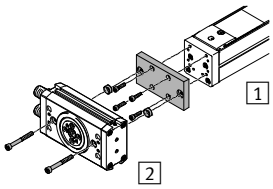
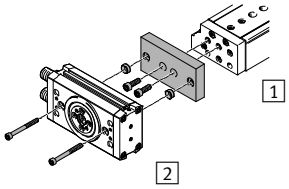
Festo core product range
★ Ready for dispatch from the Festo factory in 24 hours
☆ Ready for dispatch in 5 days maximum from stock

Adapter kit
DHAA, HAPG

Materials:
Wrought aluminium alloy
Free of copper and PTFE
RoHS compliant

- Note
The kit includes the individual mounting interface as well as the necessary mounting material.

Permissible drive/drive combinations with adapter kit Download CAD data ➔ **www.festo.com**

Combination	1 Drive	2 Drive	Adapter kit			
	Size	Size	CRC[1]	Part No.	Type	Required quantity
DGEA/DRRD	DGEA	DRRD	DHAA			
	18	16	2	**1675259**	**DHAA-D-E2-18-Q11-16**	1
	18, 25	20		**1679833**	**DHAA-D-E2-18/25-Q11-20**	
	25	25		**1696421**	**DHAA-D-E2-25-Q11-25**	
	25	32		**1702297**	**DHAA-D-E2-25-Q11-32**	
	40	32		**1706071**	**DHAA-D-E2-40-Q11-32**	
	40	35		**1706503**	**DHAA-D-E2-40-Q11-35**	
	40	40		**1706822**	**DHAA-D-E2-40-Q11-40**	
	DGEA	DRRD-...-P...E...[2]	DHAA			
	18	16	2	**2328624**	**DHAA-D-E2-18-Q11-16-E**	1
	18, 25	20		**2328779**	**DHAA-D-E2-18/25-Q11-20-E**	
	25	25		**2328793**	**DHAA-D-E2-25-Q11-25-E**	
	25	32		**2328805**	**DHAA-D-E2-25-Q11-32-E**	
	40	32		**2328816**	**DHAA-D-E2-40-Q11-32-E**	
	40	35		**2328827**	**DHAA-D-E2-40-Q11-35-E**	
	40	40		**2328838**	**DHAA-D-E2-40-Q11-40-E**	
DGSL/DRRD	DGSL	DRRD	DHAA			
	4	8	2	**2767489**	**DHAA-D-G6-4-Q11-8**	1
	6	8		**2762930**	**DHAA-D-G6-6-Q11-8**	
	8, 10	10		**2737394**	**DHAA-D-G6-8/10-Q11-10**	
	12, 16	10		**2737247**	**DHAA-D-G6-12/16-Q11-10**	
	8, 10	12		**2736429**	**DHAA-D-G6-8/10-Q11-12**	
	12	12		**2782718**	**DHAA-D-G6-12-Q11-12**	
	16	12		**2734418**	**DHAA-D-G6-16-Q11-12**	
	20	16		**1917841**	**DHAA-D-G6-20-Q11-16**	
	20, 25	20		**1916912**	**DHAA-D-G6-20/25-Q11-20**	
	25	25		**1707360**	**DHAA-D-G6-25-Q11-25**	
	DGSL	DRRD-...-P...E...[2]	DHAA			
	20	16	2	**2332271**	**DHAA-D-G6-20-Q11-16-E**	1
	20, 25	20		**2332452**	**DHAA-D-G6-20/25-Q11-20-E**	
	25	25		**2332584**	**DHAA-D-G6-25-Q11-25-E**	

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.
2) With energy throughfeed

Twin-piston semi-rotary drives DRRD

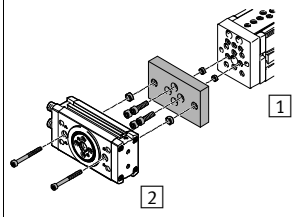
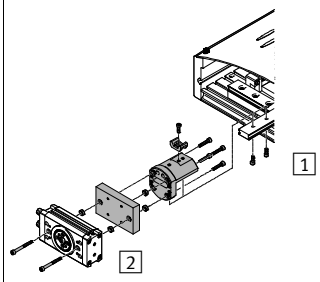
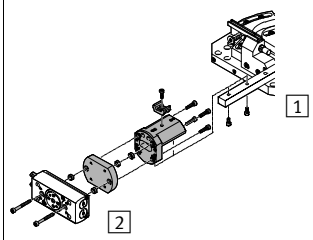
Accessories

Adapter kit
DHAA, HAPG

Materials:
Wrought aluminium alloy
Free of copper and PTFE
RoHS compliant

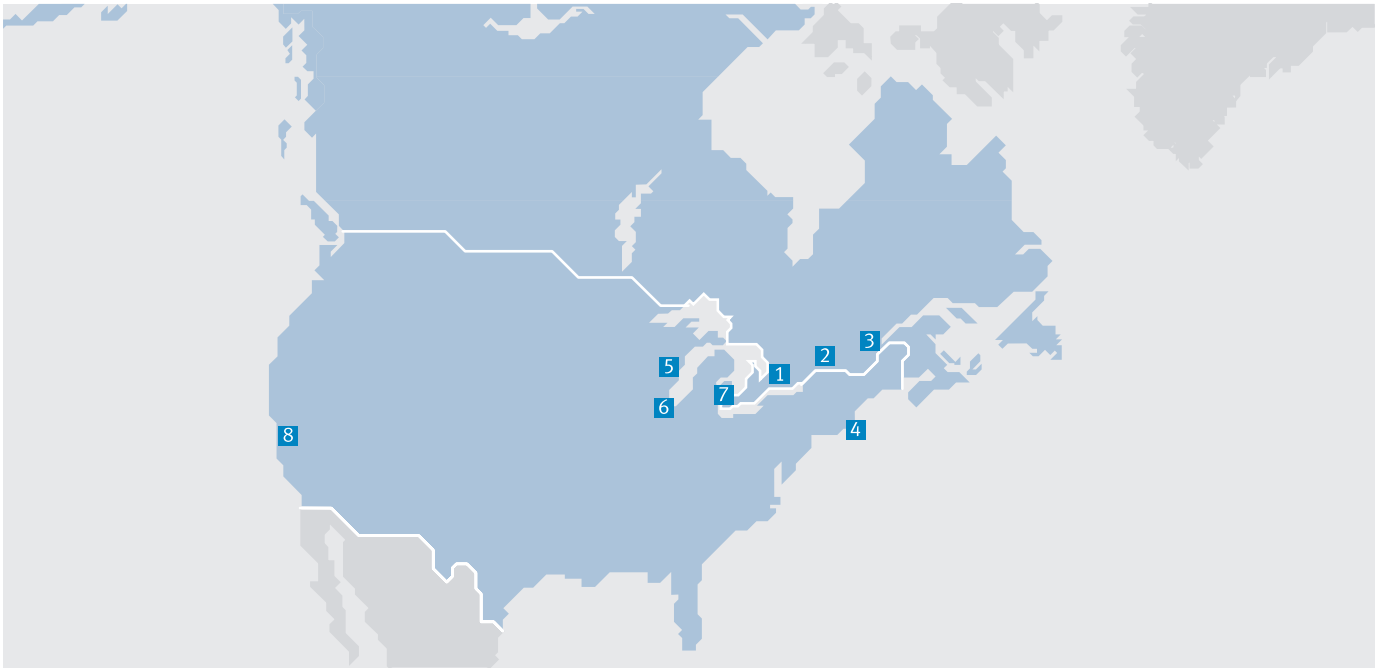
Note
The kit includes the individual mounting interface as well as the necessary mounting material.

Permissible drive/drive combinations with adapter kit — Download CAD data ➔ **www.festo.com**

Combination	1 Drive	2 Drive	Adapter kit			
	Size	Size	CRC[1]	Part No.	Type	Required quantity
EGSL/DRRD	EGSL	DRRD	DHAA			
	35	8	2	**2730033**	**DHAA-D-E8-35-Q11-8**	1
	35	10		**2729506**	**DHAA-D-E8-35-Q11-10**	
	45	10		**2728486**	**DHAA-D-E8-45-Q11-10**	
	35	12		**2719384**	**DHAA-D-E8-35-Q11-12**	
	45, 55	12		**2715152**	**DHAA-D-E8-45/55-Q11-12**	
	55	16		**1926914**	**DHAA-D-E8-55-Q11-16**	
	75	16		**1928306**	**DHAA-D-E8-75-Q11-16**	
	75	20		**1930038**	**DHAA-D-E8-75-Q11-20**	
	EGSL	DRRD-...-P...E...[2]	DHAA			
	55	16	2	**2279410**	**DHAA-D-E8-55-Q11-16-E**	1
	75	16		**2279453**	**DHAA-D-E8-75-Q11-16-E**	
	75	20		**2279473**	**DHAA-D-E8-75-Q11-20-E**	
HSP/DRRD	HSP	DRRD	DHAA			
	12	8	2	**2786084**	**DHAA-D-H4-12-Q11-8**	1
			–	**540881**	**HAPG-70-B**	
	16	10	2	**2785801**	**DHAA-D-H4/H5-12/16-Q11-10**	
			–	**540882**	**HAPG-71-B**	
	16	12	2	**2784113**	**DHAA-D-H4/H5-16/25-Q11-12**	
			–	**540882**	**HAPG-71-B**	
	25	12	2	**2784113**	**DHAA-D-H4/H5-16/25-Q11-12**	
			–	**540883**	**HAPG-72-B**[3]	
	25	16	2	**1919910**	**DHAA-D-H4-25-Q11-16**	
			–	**540883**	**HAPG-72-B**[3]	
	HSP	DRRD-...-P...E...[2]	DHAA			
	25	16	2	**2284940**	**DHAA-D-H4-25-Q11-16-E**	1
			–	**540883**	**HAPG-72-B**[3)]	
HSW/DRRD	HSW	DRRD	DHAA			
	10	8	2	**2789655**	**DHAA-D-H5-10-Q11-8**	1
			–	**540249**	**HAPG-69**	
	12	8	2	**2788114**	**DHAA-D-H5-12-Q11-8**	
			–	**540882**	**HAPG-71-B**	
	12	10	2	**2785801**	**DHAA-D-H4/H5-12/16-Q11-10**	
			–	**540882**	**HAPG-71-B**	
	16	10	2	**2785801**	**DHAA-D-H4/H5-12/16-Q11-10**	
			–	**540882**	**HAPG-71-B**	
	16	12	2	**2784113**	**DHAA-D-H4/H5-16/25-Q11-12**	
			–	**540882**	**HAPG-71-B**	

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.
2) With energy throughfeed
3) The centring sleeves for attaching to the adapter kit HAPG-72-B are not required.

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