

## Semi-rotary drive DRRS

**FESTO**



## Characteristics

### At a glance

[Link](#) [↗](#) [drrs](#)

- Rack-and-pinion principle
- Extremely accurate in the end positions
- High load-bearing capacity for the bearing, precise and backlash-free
- High mass moments of inertia
- Defined interfaces
- Supply ports at both ends
- Slots on both sides for mounting proximity switches
- Choice of mounting options
- Perfectly suited for handling applications

### Diagrams

[Link](#) [↗](#) [drrs](#)



The diagrams shown in this document are also available online. These can be used to display precise values.

### Nominal swivel angle [°]

The swivel angle is adjusted via the cushioning elements using a hex screwdriver. If possible, the reduction of the swivel angle should be evenly distributed over both end positions.

- Clockwise direction of rotation: swivel angle decreases
- Anticlockwise direction of rotation: swivel angle increases

### Output shaft

[FH] Flanged shaft, hollow

- The shaft is hollow on the inside. This allows it to be used for carrying electrical signals or compressed air
- Compressed air tubing is required to pass compressed air through the hollow flanged shaft

### Cushioning

Several cushioning variants available

### Position sensing

[A] For proximity sensor

By using proximity switches, any position can be detected.

### Special material properties

Recommended for production systems for manufacturing lithium-ion batteries

Product:

- Metals with more than 1% copper, zinc or nickel by mass are excluded from use. Exceptions are nickel in steel, chemically nickel-plated surfaces, circuit boards, cables, electrical plug connectors and coils

Accessories:

- Please contact your Festo representative for information on which accessories are suitable for manufacturing lithium-ion batteries

## Type code

001	Series	
DRRS	Semi-rotary drive	

002	Size [mm]	
12	12	
16	16	
20	20	
25	25	

003	Nominal swivel angle [°]	
180	180	

004	Output shaft	
FH	Flanged shaft, hollow	

005	Cushioning	
P	Elastic cushioning rings/plates on both sides	
Y9	Shock absorber, self-adjusting, linear, at both ends	

006	Position sensing	
A	For proximity sensor	

## Datasheet

## General technical data

Size	12	16	20	25
Design	Rack and pinion			
Mode of operation	Double-acting			
Pneumatic connection	M3	M5		
Type of mounting	Either: Via mounting kit With through-hole Via female thread			
Swivel angle	180 deg			
Cushioning	Elastic cushioning rings/plates on both sides Shock absorber, self-adjusting, linear, at both ends			
Repetition accuracy	0.05 deg	0.07 deg		
Axial eccentricity poppet valve	<0.05 mm	<0.07 mm		
Position detection <sup>1)</sup>	Via proximity switch			
Mounting position	optional			

1) Note the operating range of the proximity switches.

## Operating and environmental conditions

Size	12	16	20	25				
Cushioning	Elastic cushioning rings/plates on both sides [P]	Shock absorber, self-adjusting, linear, at both ends [Y9]	Elastic cushioning rings/plates on both sides [P]	Shock absorber, self-adjusting, linear, at both ends [Y9]	Elastic cushioning rings/plates on both sides [P]	Shock absorber, self-adjusting, linear, at both ends [Y9]	Elastic cushioning rings/plates on both sides [P]	Shock absorber, self-adjusting, linear, at both ends [Y9]
Operating pressure	0.3 ... 0.8 MPa	0.2 ... 0.8 MPa	0.3 ... 0.8 MPa	0.2 ... 0.8 MPa	0.3 ... 0.8 MPa	0.2 ... 0.8 MPa	0.3 ... 0.8 MPa	0.2 ... 0.8 MPa
Operating pressure	3 ... 8 bar	2 ... 8 bar	3 ... 8 bar	2 ... 8 bar	3 ... 8 bar	2 ... 8 bar	3 ... 8 bar	2 ... 8 bar
Operating pressure	43.5 ... 116 psi	29 ... 116 psi	43.5 ... 116 psi	29 ... 116 psi	43.5 ... 116 psi	29 ... 116 psi	43.5 ... 116 psi	29 ... 116 psi
Note on operating and pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)							
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]							
Ambient temperature	0 ... 60°C							
Storage temperature	-20 ... 60°C							
Corrosion resistance class CRC <sup>1)</sup>	1 - Low corrosion stress							

1) More information: [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)

## Weight

Size	12	16	20	25
Product weight	310 g	630 g	790 g	1,240 g

## Forces and torques

Size	12	16	20	25				
Cushioning	Elastic cushioning rings/plates on both sides [P]	Shock absorber, self-adjusting, linear, at both ends [Y9]	Elastic cushioning rings/plates on both sides [P]	Shock absorber, self-adjusting, linear, at both ends [Y9]	Elastic cushioning rings/plates on both sides [P]	Shock absorber, self-adjusting, linear, at both ends [Y9]	Elastic cushioning rings/plates on both sides [P]	Shock absorber, self-adjusting, linear, at both ends [Y9]
Max. axial load static	80 N	140 N	350 N	450 N				
Max. bending moment	2 Nm	4 Nm	5 Nm	10 Nm				
Theoretical torque at 0.6 MPa (6 bar, 87 psi) <sup>1)</sup>	0.9 Nm	2.1 Nm	3.3 Nm	6.6 Nm				
Permissible mass moment of inertia	0.005 kgm <sup>2</sup>	0.01 kgm <sup>2</sup>	0.008 kgm <sup>2</sup>	0.02 kgm <sup>2</sup>	0.0175 kgm <sup>2</sup>	0.03 kgm <sup>2</sup>	0.04 kgm <sup>2</sup>	0.06 kgm <sup>2</sup>

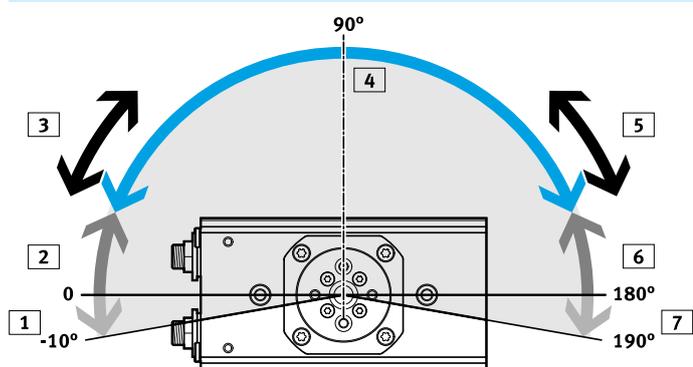
1) If, in the end positions, a torque which exceeds 50% of the theoretical torque acts against the direction of rotation, no exact end position is guaranteed.

This can be avoided by using a semi-rotary drive with double the torque.

## Datasheet

Materials								
Size	12		16		20		25	
Material housing	Anodised aluminium							
Material drive shaft	Tempered steel							
Flange shaft material	Wrought aluminium alloy							
Pinion material	Tempered steel							
Material seals	NBR TPE-U(PU)							
Note on materials	RoHS-compliant							
LABS (PWIS) conformity	VDMA24364-C1-L							
Cleanroom class	Class 9 according to ISO 14644-1							
Suitability for the production of Li-ion batteries	Suitable for battery production with reduced Cu/Zn/Ni values (F1a)							

### Swivel angle



Fundamentally, the following applies:

Swivel angle  $\geq$  cushioning angle

Swivel angle =  $180^\circ + \text{difference swivel angle right} + \text{difference swivel angle left}$

1 = difference swivel angle left (+)

2 = difference swivel angle left (-)

3 = cushioning angle

4 = swivel angle

5 = cushioning angle

6 = difference swivel angle right (-)

7 = difference swivel angle right (+)

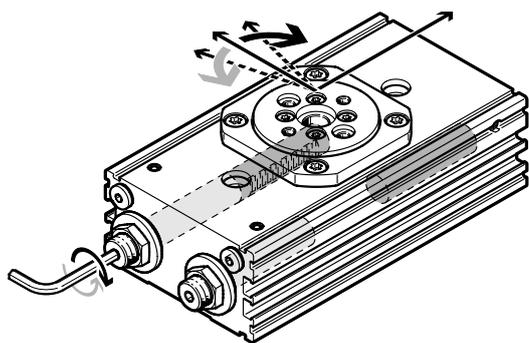
Note: Illustrated position of the flange shaft corresponds to the mid-position (swivel angle  $90^\circ$ ).

Size	12		16		20		25	
Cushioning	Elastic cushioning rings/plates on both sides [P]	Shock absorber, self-adjusting, linear, at both ends [Y9]	Elastic cushioning rings/plates on both sides [P]	Shock absorber, self-adjusting, linear, at both ends [Y9]	Elastic cushioning rings/plates on both sides [P]	Shock absorber, self-adjusting, linear, at both ends [Y9]	Elastic cushioning rings/plates on both sides [P]	Shock absorber, self-adjusting, linear, at both ends [Y9]
Swivel angle	180 deg							
Min. swivel angle <sup>1)</sup>	45 deg	80 deg						
Max. swivel angle	200 deg							
Setting range of swivel angle for each end position <sup>2)</sup>	+10/-100 deg							
Cushioning angle	23.5 deg	34.7 deg	19.5 deg	32.5 deg	27.5 deg	32.8 deg	25.5 deg	40.8 deg

1) Smaller swivel angles are adjustable. However, this reduces the cushioning energy.

2) Continuously adjustable

### Swivel angle adjustment



Direction of rotation to the right:

- Swivel angle decreases

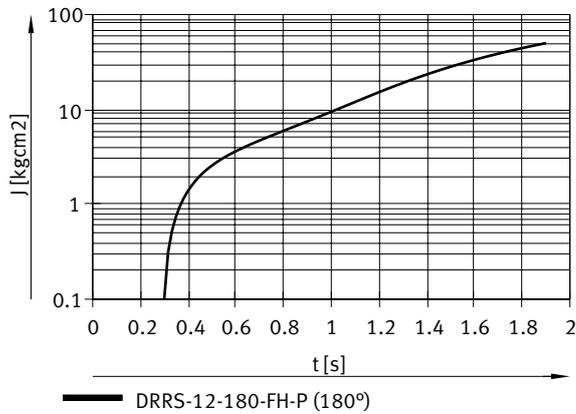
Anticlockwise direction of rotation:

- Swivel angle increases

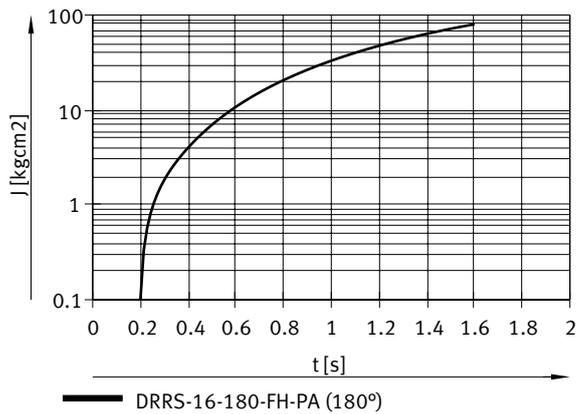
The swivel angle is adjusted via the cushioning elements using a hex screwdriver. If possible, the swivel angle should be reduced evenly over both end positions.

Datasheet

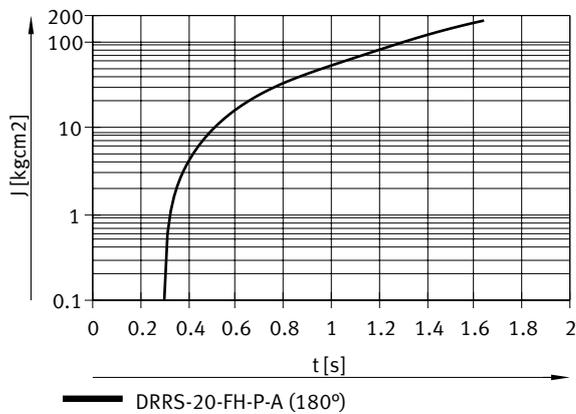
Max. permissible moment of inertia  $J$  at the flange shaft as a function of swivel time  $t$  at room temperature and an operating pressure of 0.6 MPa (6 bar, 87 psi)  
 – DRRS-12-180-FH-P



Max. permissible moment of inertia  $J$  at the flange shaft as a function of swivel time  $t$  at room temperature and an operating pressure of 0.6 MPa (6 bar, 87 psi)  
 – DRRS-16-180-FH-P

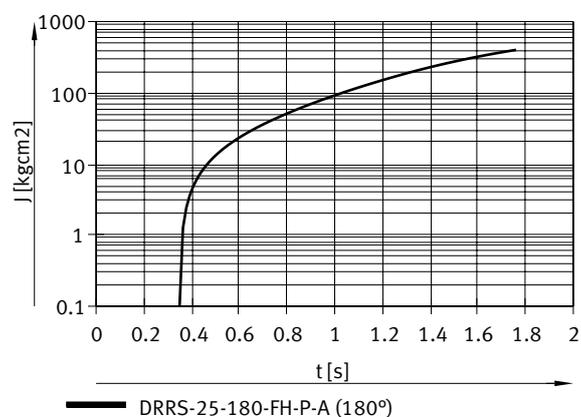


Max. permissible moment of inertia  $J$  at the flange shaft as a function of swivel time  $t$  at room temperature and an operating pressure of 0.6 MPa (6 bar, 87 psi)  
 – DRRS-20-180-FH-P

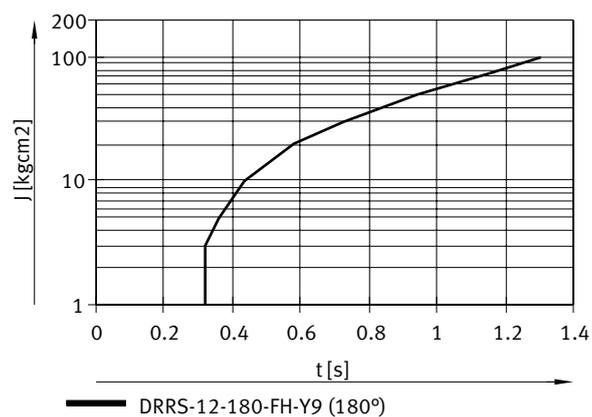


## Datasheet

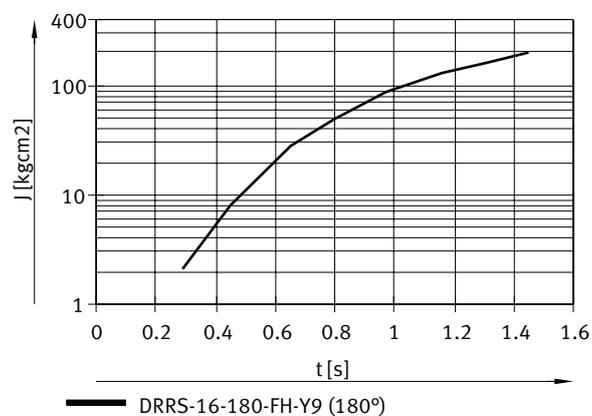
Max. permissible moment of inertia  $J$  at the flange shaft as a function of swivel time  $t$  at room temperature and an operating pressure of 0.6 MPa (6 bar, 87 psi)  
 – DRRS-25-180-FH-P



Max. permissible moment of inertia  $J$  at the flange shaft as a function of swivel time  $t$  at room temperature and an operating pressure of 0.6 MPa (6 bar, 87 psi)  
 – DRRS-12-180-FH-Y9

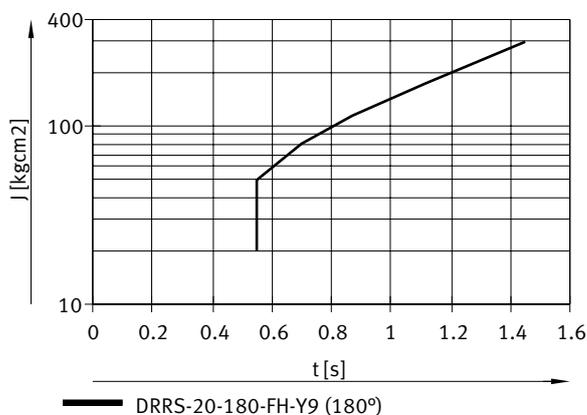


Max. permissible moment of inertia  $J$  at the flange shaft as a function of swivel time  $t$  at room temperature and an operating pressure of 0.6 MPa (6 bar, 87 psi)  
 – DRRS-16-180-FH-Y9

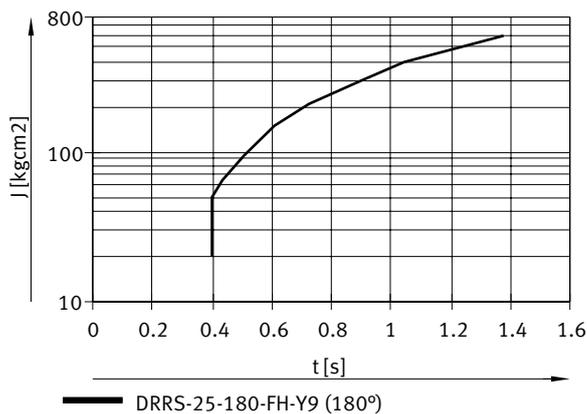


## Datasheet

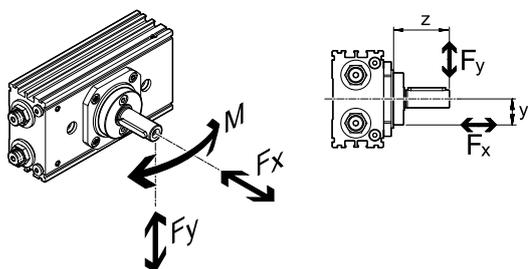
Max. permissible moment of inertia  $J$  at the flange shaft as a function of swivel time  $t$  at room temperature and an operating pressure of 0.6 MPa (6 bar, 87 psi)  
 – DRRS-20-180-FH-Y9



Max. permissible moment of inertia  $J$  at the flange shaft as a function of swivel time  $t$  at room temperature and an operating pressure of 0.6 MPa (6 bar, 87 psi)  
 – DRRS-25-180-FH-Y9



Max. load capacity at drive shaft adapter DARF-Q13-...

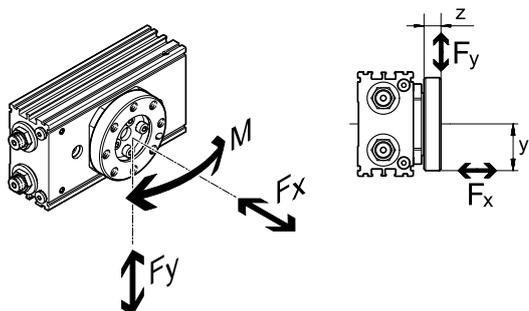


- For the radial forces  $F_y$ , the limits of the flange shaft and max. bending moment of the drive shaft adapter.
- The max. bending moment represents the load limit of the drive shaft adapter and must not be exceeded.
- The zero point for dimension  $z$  is always the flange level of the basic drive, independently of the attachments.
- The max. static axial load represents an additional load.

Size	12	16	20	25
Max. axial load static	80 N	140 N	350 N	450 N
Max. bending moment	2 Nm	4 Nm	5 Nm	10 Nm

## Datasheet

## Max. load capacity on push-on flange DARF-Q13-...-1



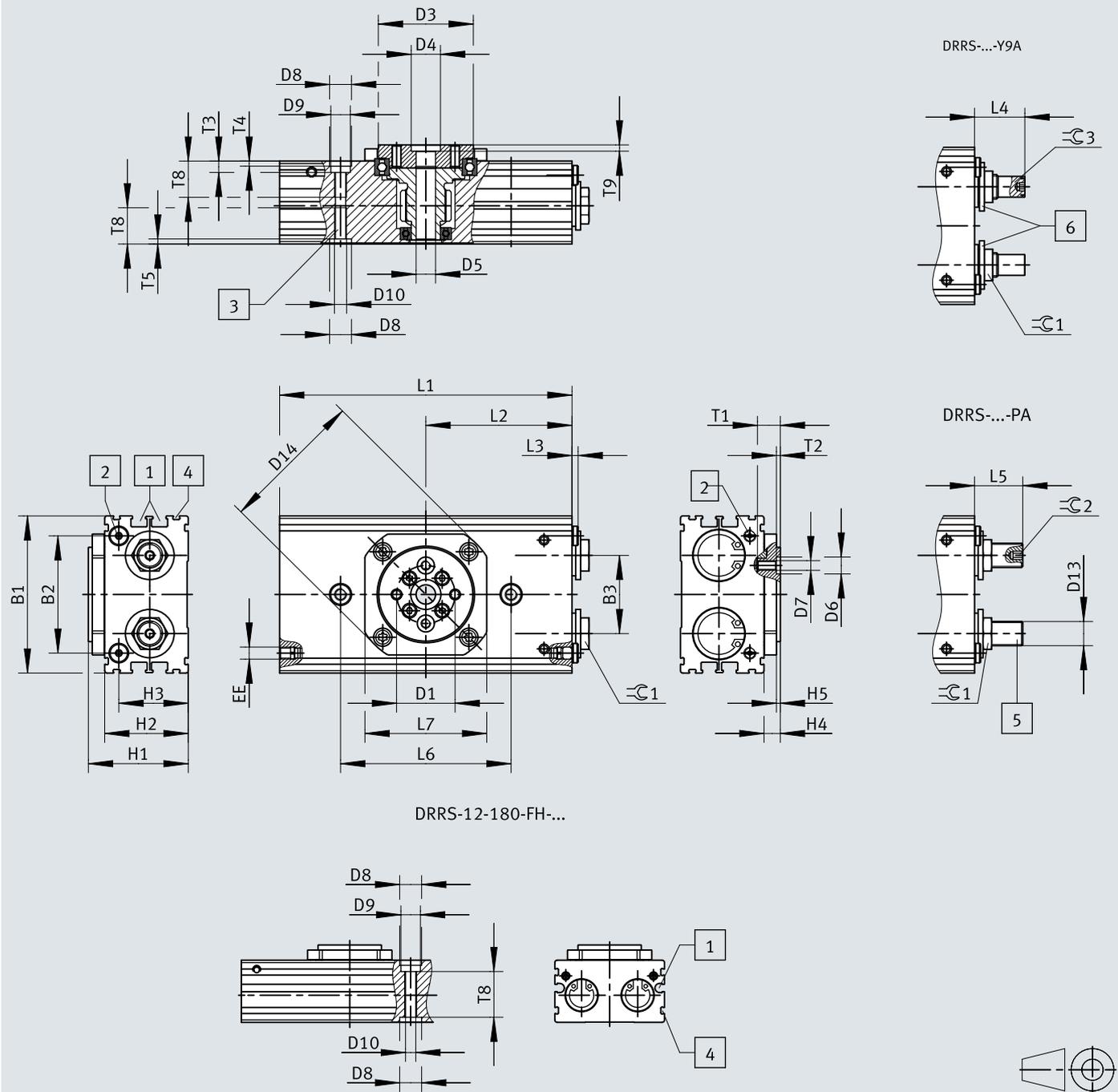
- The limits of the flange shaft and the max. bending moment of the push-on flange apply to the radial forces  $F_y$ .
- The maximum bending moment represents the load limit of the push-on flange and must not be exceeded.
- The zero point for dimension  $z$  is always the flange level of the basic drive, independently of the attachments.
- The maximum axial static load represents an additional load.

Size	12	16	20	25
Max. axial load static	80 N	140 N	350 N	450 N
Max. bending moment	2 Nm	4 Nm	5 Nm	10 Nm

## Dimensions

Dimensions – Semi-rotary drives DRRS

Download CAD data [www.festo.com](http://www.festo.com)



DRRS-12-180-FH...

[1] Sensor slot for proximity switch

[2] Compressed air ports

[3] Mounting thread

[4] For profile mounting

[5] Cushioning P

[6] Cushioning Y9

[7] Note: The semi-rotary drive may only be operated with a flow control valve. The flow control valves should be installed as close as possible to the semi-rotary drive.

[8] Note: Illustrated position of the flange shaft corresponds to the mid-position (swivel angle 90°).

## Dimensions

	B1	B2	B3	D1 ∅	D3 ∅ ±0,05	D4 H8	D5 ∅	D6 ∅ H8	D7	D8 ∅ H7	D9 ∅	D10	D13
DRRS-12-180-FH-PA	45	36	23	20	26	7	5	5	M3	9	8	M5	M6x0,5
DRRS-12-180-FH-Y9A													
DRRS-16-180-FH-PA	60	44,2	30,8	21	34	12	8	7	M4				M8x1
DRRS-16-180-FH-Y9A													
DRRS-20-180-FH-PA	65	48,5	32,35	24	39				M4				M10x1
DRRS-20-180-FH-Y9A													
DRRS-25-180-FH-PA	60	60	37,2	26	49,5	15	10,5	9	M5	12	10	M6	M12x1
DRRS-25-180-FH-Y9A													

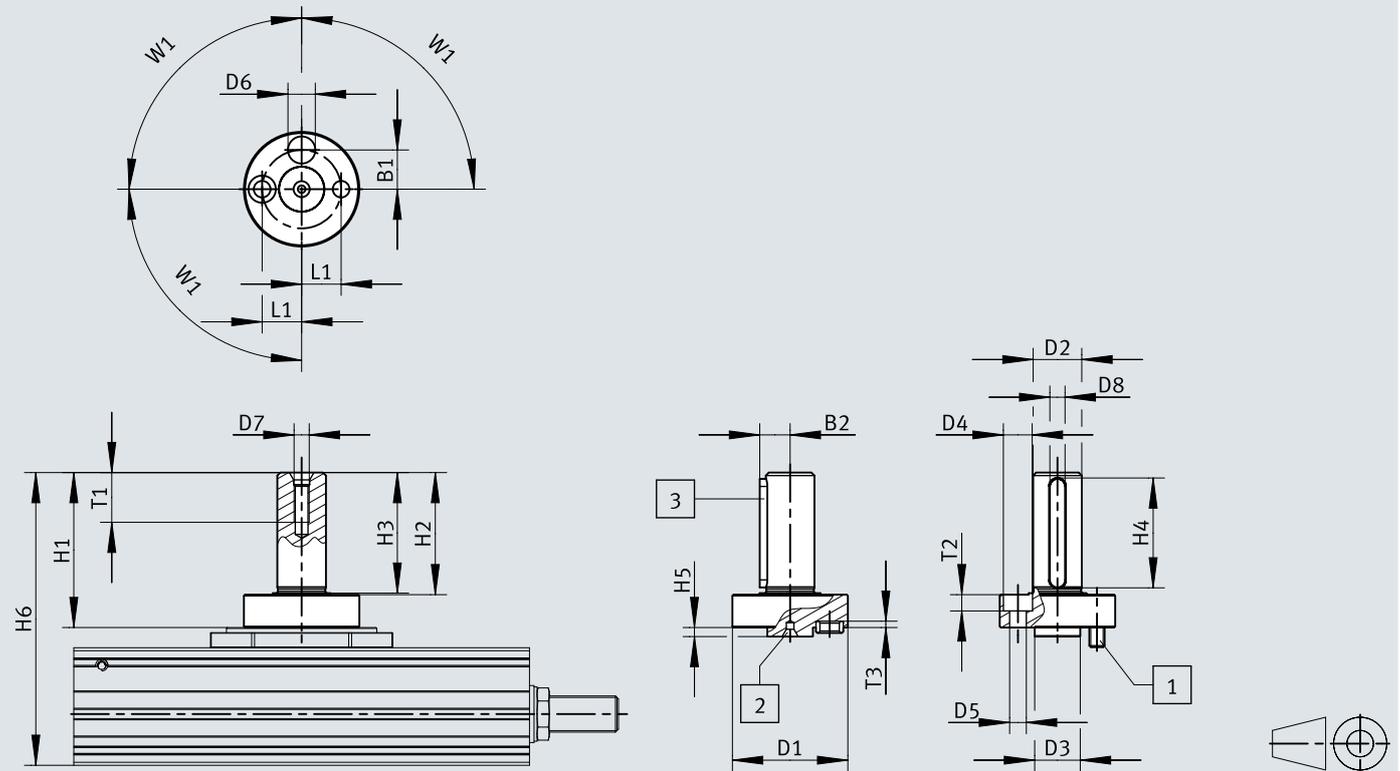
	D14 ∅	EE	H1	H2	H3	H4	H5	L1 ±0,1	L2	L3	L4			L5		
											180°	min.	max.	180°	min.	max.
DRRS-12-180-FH-PA	42	M3	32	25,7	19,2	6,3	2,1	89	44,5	2,5	-	-	-	18	-10,4	1,1
DRRS-12-180-FH-Y9A											25,8	-10,4	1,1	-	-	-
DRRS-16-180-FH-PA	52	M5	39	32	27,2	7	2,3	114	57	2,5	-	-	-	23,1	-13,8	1,6
DRRS-16-180-FH-Y9A											30,1	-13,8	1,6	-	-	-
DRRS-20-180-FH-PA	59	M5	41	34,3	28,5	6,7	1,6	120	60	2,5	-	-	-	23,3	-13,8	1,5
DRRS-20-180-FH-Y9A											34,4	-13,8	1,5	-	-	-
DRRS-25-180-FH-PA	68	M5	46	39	31,5	7	1,8	150	75	2,5	-	-	-	27	-17,7	1,9
DRRS-25-180-FH-Y9A											48,9	-17,7	1,9	-	-	-

	L6	L7	T1	T2	T3	T4	T5	T8	T9	≈C1	≈C2	≈C3
			max.	+0,1								
DRRS-12-180-FH-PA	50	34,6	4,8	1,2	4,7	2,1	2,1	18,9	1,6	8	3	2
DRRS-12-180-FH-Y9A												
DRRS-16-180-FH-PA	64	43,4	6	1,6	4,7	2,1	2,1	14,5	2,6	10	5	2,5
DRRS-16-180-FH-Y9A												
DRRS-20-180-FH-PA	70	50	9,2	1,6	4,7	2,1	2,1	15	2,6	13	5	3
DRRS-20-180-FH-Y9A												
DRRS-25-180-FH-PA	80	60	9	2,1	5,7	2,6	2,6	18	3,2	15	6	4
DRRS-25-180-FH-Y9A												

## Dimensions

Dimensions – Drive shaft adapter DARF-Q13-...

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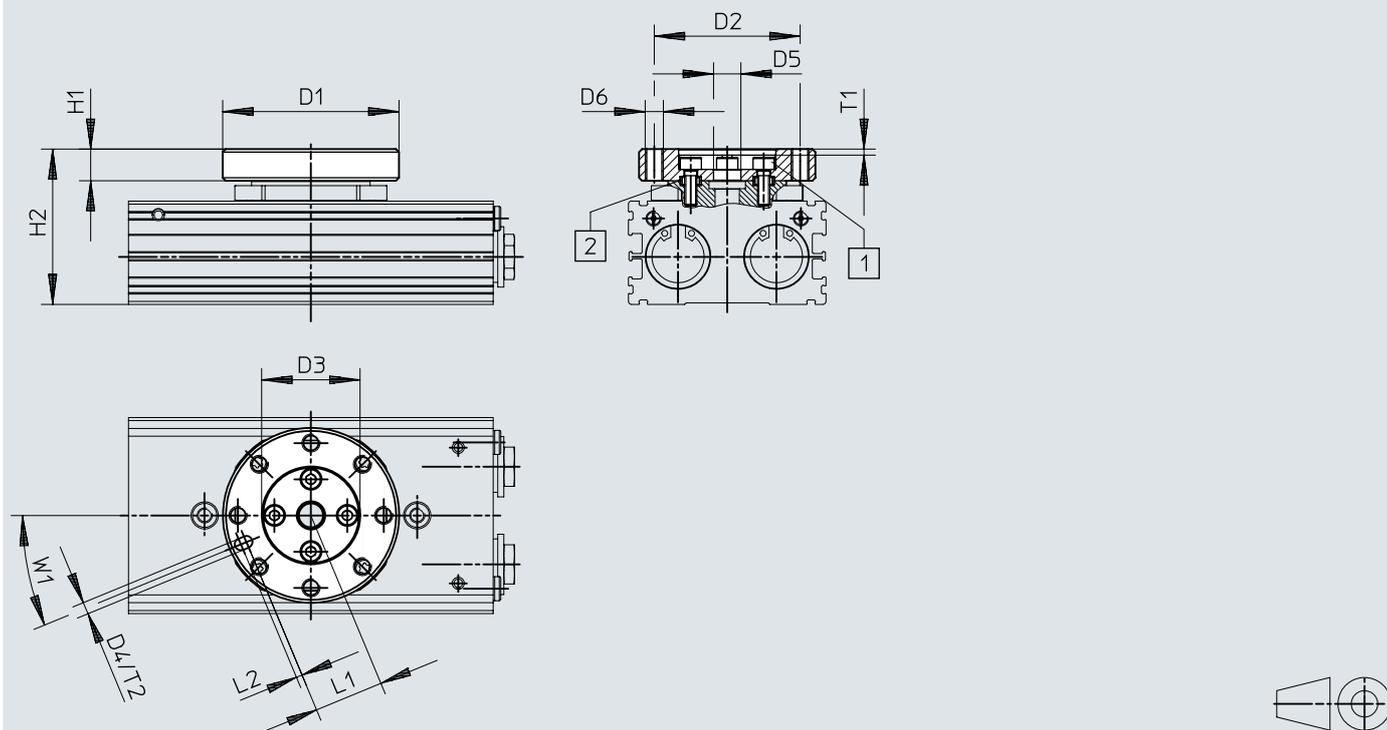
- [1] Socket head screw
- [2] Drilled hole for centring sleeve

	B1	B2	D1	D2	D3	D4	D5	D6	D7	D8
		+0,1/-0,2	∅ -0,2	∅ g7	∅ h8	∅	∅	∅ H8		P9
DARF-Q13-12	10	4,8	30	8	7	6,5	3,4	5	M3	2
DARF-Q13-16	10,5	6,2	32	10	12	8	4,5	7		3
DARF-Q13-20	12	7,5	35	12					M4	4
DARF-Q13-25	13	10	38	16	15	9,6	5,5	9		M5

	H1	H2	H3	H4	H5	H6	L1	T1	T2	T3
	±0,1		±0,2	+0,3	-0,1	+0,3/-0,2		+2		+0,1
DARF-Q13-12	27,2	20,5	20	16	1,5	59,2	10	11,6	3,4	1,2
DARF-Q13-16	32,1	23,5	23	18,1	2,5	71,1	10,5			
DARF-Q13-20	38,8	30,5	30	25,1		79,8	12	13,5		
DARF-Q13-25	51,4	40,5	40	36,1	3	97,4	13	16,5	5,4	2,1

## Dimensions

## Dimensions – Push-on flange DARF-Q13-...-1

Download CAD data [www.festo.com](http://www.festo.com)

- [1] Socket head screw  
 [2] Drilled hole for centring sleeve  
 [3] The attachment can be positioned every 90°

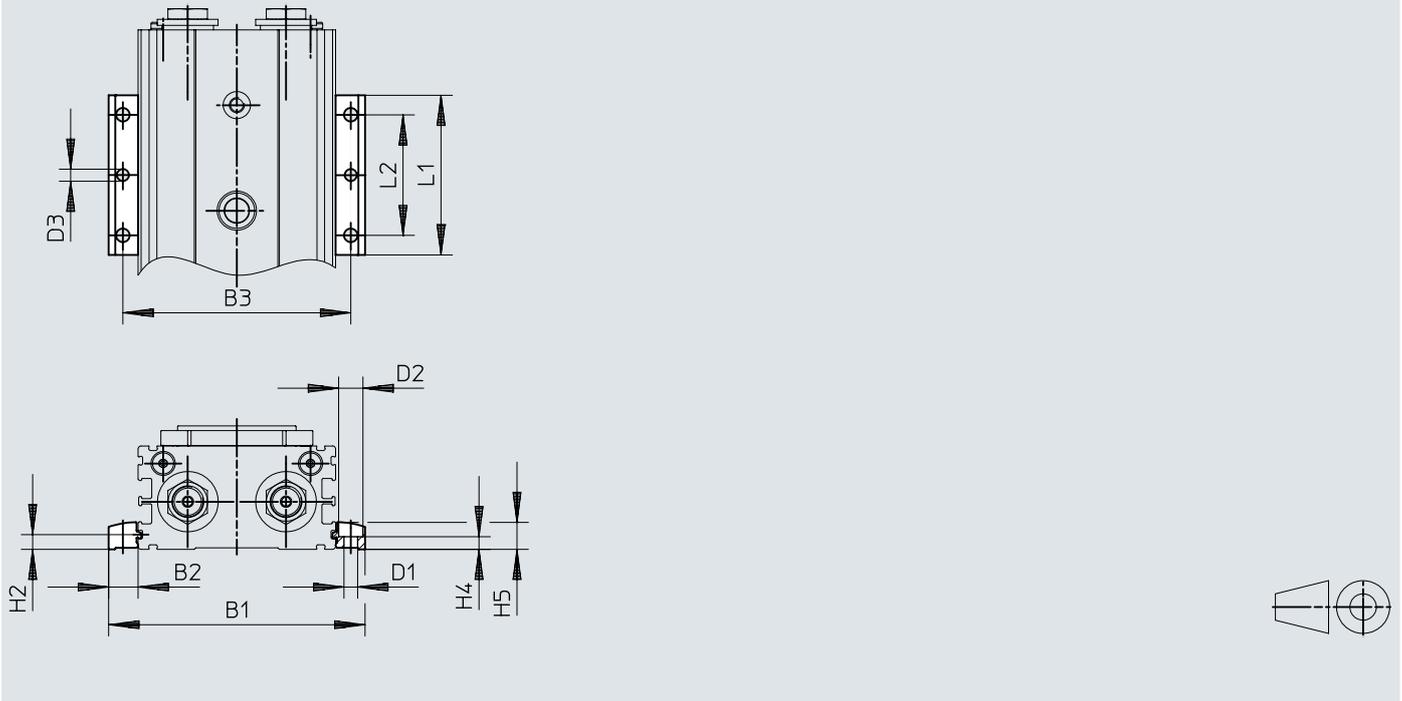
	B1	B2 +0,1 -0,2	D1 ∅ h9	D2 ∅	D3 ∅ H8	D4 H9	D5 ∅	D6
DARF-Q13-12-1	10	4,8	40	32	20	3	6	M5x0,8
DARF-Q13-16-1	10,5	6,2	51,5	43	28	4	9	M6x1
DARF-Q13-20-1	12	7,5	58	48	32			
DARF-Q13-25-1	13	10	66	55	35	5	11	M8x1,25

	H1 ±0,05	H2	L1	L2	T1	T2	W1
DARF-Q13-12-1	9	41	15	2	2	3,5	22,5
DARF-Q13-16-1	10	49	20,5			4,5	
DARF-Q13-20-1	10,5	51,5	23			4,5	
DARF-Q13-25-1	12	58	26,5			5,5	

## Dimensions

### Dimensions – Profile mounting EAHF-L2-...-P

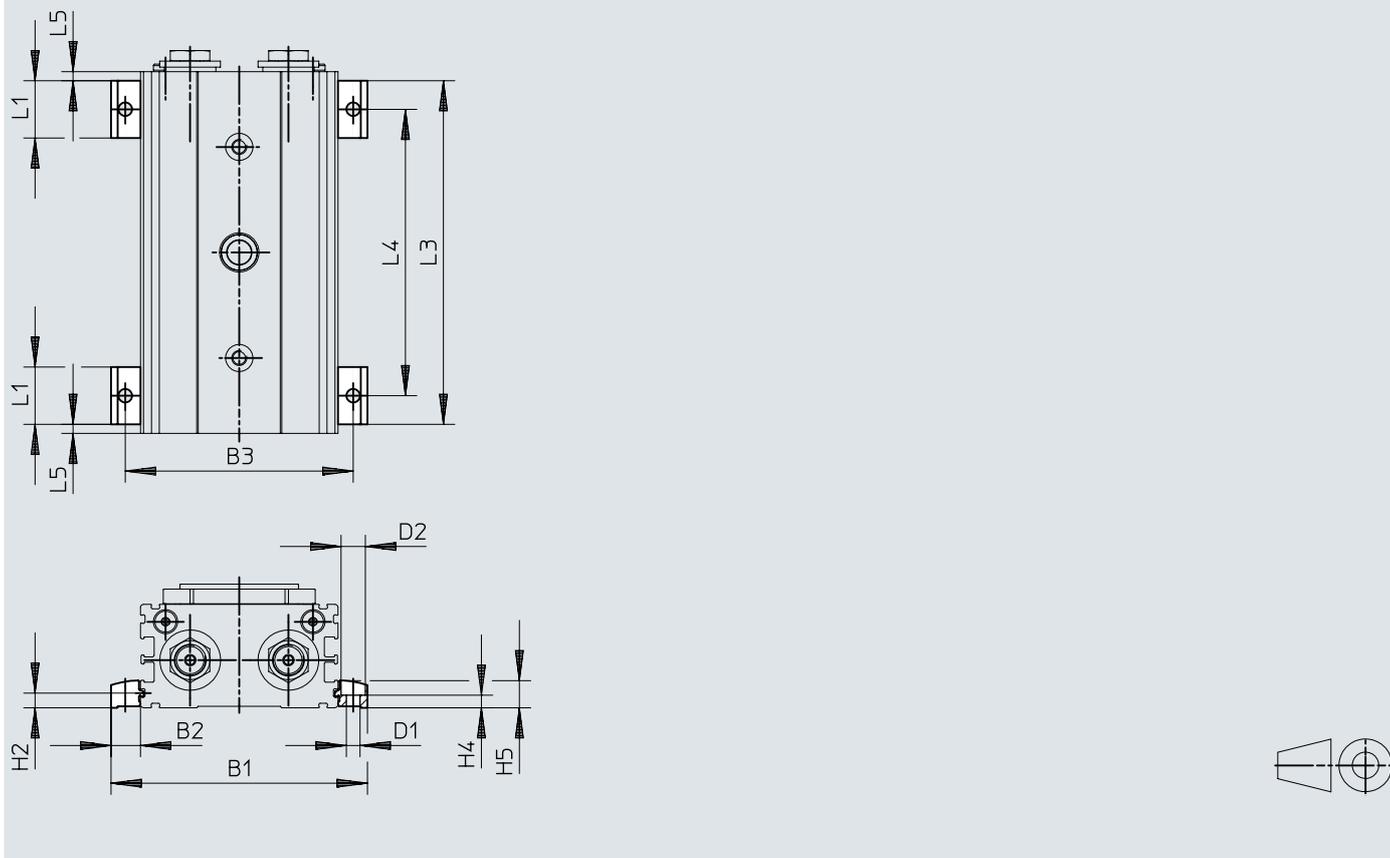
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		B1	B2	B3	D1 ∅ H13	D2 ∅ H13	D3	H2	H4 ±0,1	H5	L1	L2
EAHF-L2-25-P	DRRS-12	64,4	9,7	55	4,5	8	4	4,9	4,2	9	53	40
	DRRS-16	79,4		70								
	DRRS-20	84,4		75								
	DRRS-25	94,4		85								

## Dimensions

## Dimensions – Profile mounting EAHF-L2-...-P-S

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		B1	B2	B3	D1 ∅ H13	D2 ∅ H13	H2	H4 ±0,1
EAHF-L2-25-P-S	DRRS-12	64,4	9,7	55	4,5	8	4,9	4,2
	DRRS-16	79,4		70				
	DRRS-20	84,4		75				
	DRRS-25	94,4		85				
		H540	L1	L3		L4		L5
				min.	max.	min.	max.	min.
EAHF-L2-25-P-S	DRRS-12	9	19	59	83	40	64	3
	DRRS-16			73	108	54	89	
	DRRS-20			79	114	60	95	
	DRRS-25			89	144	70	125	

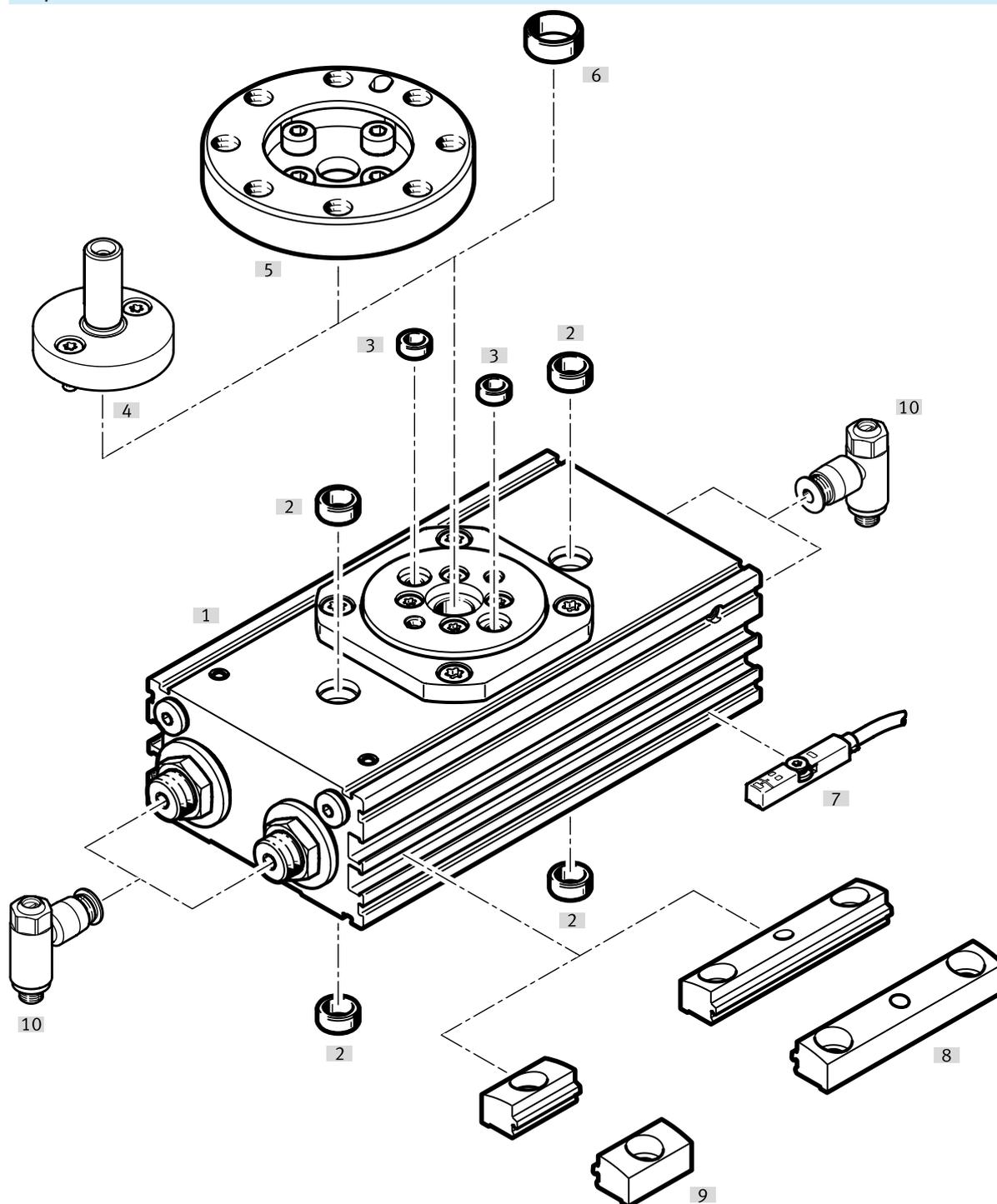
## Ordering data

With cushioning P				
	Cushioning	Size	Part no.	Type
	Elastic cushioning rings/plates on both sides	12	<b>8163607</b>	<b>DRRS-12-180-FH-PA</b>
		16	<b>8163609</b>	<b>DRRS-16-180-FH-PA</b>
		20	<b>8163611</b>	<b>DRRS-20-180-FH-PA</b>
		25	<b>8163613</b>	<b>DRRS-25-180-FH-PA</b>

With cushioning Y9				
	Cushioning	Size	Part no.	Type
	Shock absorber, self-adjusting, linear, at both ends	12	<b>8163608</b>	<b>DRRS-12-180-FH-Y9A</b>
		16	<b>8163610</b>	<b>DRRS-16-180-FH-Y9A</b>
		20	<b>8163612</b>	<b>DRRS-20-180-FH-Y9A</b>
		25	<b>8163614</b>	<b>DRRS-25-180-FH-Y9A</b>

## Peripherals

## Peripherals overview

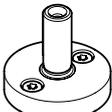


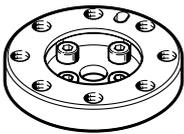
Accessories			→ Link
Type/order code	Description		
[1] Semi-rotary drive DRRS	Double-acting		<a href="#">drrs</a>
[2] Centring sleeve ZBH	For centring the drive		<a href="#">20</a>
[3] Centring sleeve ZBH	For centring attachments		<a href="#">20</a>
[4] Drive shaft adapter DARF-Q13-...	For mounting on the flange shaft		<a href="#">19</a>
[5] Push-on flange DARF-Q13-...-1	For mounting on the flanged shaft		<a href="#">19</a>
[6] Centring sleeve ZBH	For centring attachments		<a href="#">20</a>
[7] Proximity switch SMT-8	<ul style="list-style-type: none"> <li>• For size 16 ... 25</li> <li>• For sensing the piston position</li> </ul>		<a href="#">20</a>

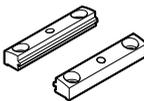
## Peripherals

Accessories		→ Link
Type/order code	Description	
[7] Proximity switch SDBT-MSB	<ul style="list-style-type: none"> <li>• For size 16 ... 25</li> <li>• For sensing the piston position</li> </ul>	<a href="#">21</a>
[7] Proximity switch SMT-10	<ul style="list-style-type: none"> <li>• For size 12</li> <li>• For sensing the piston position</li> </ul>	<a href="#">20</a>
[7] Proximity switch SDBC-MSB	<ul style="list-style-type: none"> <li>• For size 12</li> <li>• For sensing the piston position</li> </ul>	<a href="#">20</a>
[8] Profile mounting EAHF-L2-...-P	For mounting on the side of the profile	<a href="#">19</a>
[9] Profile mounting EAHF-L2-...-P-S	For mounting on the side of the profile	<a href="#">19</a>
[10] Cushioning Y9	<ul style="list-style-type: none"> <li>• Shock absorber, self-adjusting, linear at both ends</li> <li>• Included in the scope of delivery of the drive</li> </ul>	<a href="#">19</a>
[11] One-way flow control valve GRLA	For regulating speed	<a href="#">20</a>
[11] One-way flow control valve VFOE	For regulating speed	<a href="#">vfoe</a>

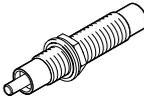
## Accessories

Drive shaft adapter DARF-Q13-...						
	Size	Type of mounting	Drive shaft adapter material	Product weight	Part no.	Type
	12	Via through-hole and centring sleeve	Quenched and tempered steel	50 g	<b>8200997</b>	<b>DARF-Q13-12</b>
	16			75 g	<b>8200998</b>	<b>DARF-Q13-16</b>
	20			93 g	<b>8200999</b>	<b>DARF-Q13-20</b>
	25			160 g	<b>8201000</b>	<b>DARF-Q13-25</b>

Push-on flange DARF-Q13-...-1						
	Size	Type of mounting	Material flange	Product weight	Part no.	Type
	12	Via through-hole and centring sleeve	Anodised wrought aluminium alloy	23 g	<b>8163621</b>	<b>DARF-Q13-12-1</b>
	16			52 g	<b>8163622</b>	<b>DARF-Q13-16-1</b>
	20			66 g	<b>8163623</b>	<b>DARF-Q13-20-1</b>
	25			94 g	<b>8163624</b>	<b>DARF-Q13-25-1</b>

Profile mounting EAHF-L2-...-P						
	Material plate	Note on materials	Product weight	Part no.	Type	
	Anodised wrought aluminium alloy	RoHS-compliant	19 g	<b>4835684</b>	<b>EAHF-L2-25-P</b>	

Profile mounting EAHF-L2-...-P-S						
	Material plate	Note on materials	Product weight	Part no.	Type	
	Anodised wrought aluminium alloy	RoHS-compliant	4 g	<b>5183153</b>	<b>EAHF-L2-25-P-S</b>	

Shock absorber DYSD-Q13-...-Y9						
	Description	Cushioning	Material housing	Product weight	Part no.	Type
	For size 12, Especially for pressure chamber, included in the scope of delivery of the drive	Self-adjusting	High-alloy steel	6.5 g	<b>8199038</b>	<b>DYSD-Q13-4-4-Y1F-Y9</b>
	For size 16, Especially for pressure chamber, included in the scope of delivery of the drive			12 g	<b>8199039</b>	<b>DYSD-Q13-5-5-Y1F-Y9</b>
	For size 20, Especially for pressure chamber, included in the scope of delivery of the drive			20 g	<b>8199040</b>	<b>DYSD-Q13-7-5-Y1F-Y9</b>
	For size 25, Especially for pressure chamber, included in the scope of delivery of the drive			41.5 g	<b>8199041</b>	<b>DYSD-Q13-8-8-Y1F-Y9</b>

## Accessories

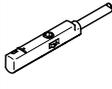
Centring sleeve ZBH-5						
	Description	Material sleeve	Size of pack	Product weight	Part no.	Type
	For size 12	Steel	10	1 g	<b>8146543</b>	ZBH-5-B

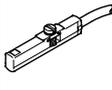
Centring sleeve ZBH-7						
	Description	Material sleeve	Size of pack	Product weight	Part no.	Type
	For sizes 12, 16, 20	Steel	10	1 g	<b>8146544</b>	ZBH-7-B

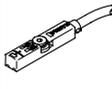
Centring sleeve ZBH-9						
	Description	Material sleeve	Size of pack	Product weight	Part no.	Type
	For sizes 12, 16, 20, 25	Steel	10	2 g	<b>8137184</b>	ZBH-9-B

Centring sleeve ZBH-12						
	Description	Material sleeve	Size of pack	Product weight	Part no.	Type
	For sizes 16, 20, 25	Steel	10	1 g	<b>8137185</b>	ZBH-12-B

One-way flow control valve GRLA						
	Pneumatic connection, port 2	Pneumatic connection 1	Product weight	Part no.	Type	
	M3	Push-in connector 3 mm	7 g	<b>175041</b>	GRLA-M3-QS-3	
	M5		13 g	<b>193137</b>	GRLA-M5-QS-3-D	

Proximity switch SMT-10M for round slot, magneto-resistive – for sizes 12 <span style="float: right;">Link <a href="#">smt</a></span>						
	Type of mounting	Switching output	Electrical connection	Cable length	Part no.	Type
	Screw-clamped, Insertable in the slot from above	3-wire NPN N/O contact	Open end	2.5 m	<b>551377</b>	SMT-10M-NS-24V-E-2,5-L-OE
			Plug M8, A-coded	0.3 m	<b>551379</b>	SMT-10M-NS-24V-E-0,3-L-M8D
		3-wire PNP N/O contact	Open end	2.5 m	<b>551373</b>	SMT-10M-PS-24V-E-2,5-L-OE
			Plug M8, A-coded	0.3 m	<b>551375</b>	SMT-10M-PS-24V-E-0,3-L-M8D
		2-wire PNP N/O contact	Open end	2.5 m	<b>551382</b>	SMT-10M-ZS-24V-E-2,5-L-OE

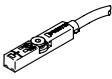
Proximity switch SDBC-MSB for round slot, magneto-resistive – for size 12 <span style="float: right;">Link <a href="#">sdbc</a></span>						
	Switching output	Switching element function	Electrical connection	Cable length	Part no.	Type
	NPN	N/O contact	Open end	2 m	<b>8139724</b>	SDBC-MSB-1L-NU-K-2-LE
			Plug M8, A-coded	0.3 m	<b>8139727</b>	SDBC-MSB-1L-NU-K-0.3-M8
	PNP		Open end	2 m	<b>8139723</b>	SDBC-MSB-1L-PU-K-2-LE
			Plug M8, A-coded	0.3 m	<b>8139726</b>	SDBC-MSB-1L-PU-K-0.3-M8
	Non-contacting, 2-wire			Open end	2 m	<b>8139725</b>

Proximity switch SMT-8M for T-slot, magneto-resistive – for sizes 16 ... 25 <span style="float: right;">Link <a href="#">smt</a></span>						
	Type of mounting	Switching output	Electrical connection	Cable length	Part no.	Type
	Screw-clamped, Insertable in the slot from above	3-wire NPN N/O contact	Open end	2.5 m	<b>574338</b>	SMT-8M-A-NS-24V-E-2,5-OE

## Accessories

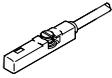
## Proximity switch SMT-8M for T-slot, magneto-resistive – for sizes 16 ... 25

Link [smt](#)

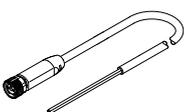
	Type of mounting	Switching output	Electrical connection	Cable length	Part no.	Type
	Screw-clamped, Insertable in the slot from above	3-wire NPN N/O contact	Plug M8, A-coded	0.3 m	<b>574339</b>	<b>SMT-8M-A-NS-24V-E-0,3-M8D</b>
		3-wire PNP N/O contact	Open end	2.5 m	<b>574335</b>	<b>SMT-8M-A-PS-24V-E-2,5-OE</b>
			Plug M8, A-coded	0.3 m	<b>574334</b>	<b>SMT-8M-A-PS-24V-E-0,3-M8D</b>
		2-wire PNP N/O contact	Open end	5 m	<b>8165237</b>	<b>SMT-8M-A-ZS-24V-E-5,0-OE</b>

## Proximity switch SDBT-MSB for T-slot, magneto-resistive – for sizes 16 ... 25

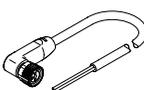
Link [sdbt](#)

	Switching output	Switching element function	Electrical connection	Cable length	Part no.	Type
	NPN	N/O contact	Open end	2 m	<b>8150172</b>	<b>SDBT-MSB-1L-NU-K-2-LE</b>
			Plug M8, A-coded	0.3 m	<b>8150175</b>	<b>SDBT-MSB-1L-NU-K-0.3-M8</b>
	PNP		Open end	2 m	<b>8150171</b>	<b>SDBT-MSB-1L-PU-K-2-LE</b>
			Plug M8, A-coded	0.3 m	<b>8150174</b>	<b>SDBT-MSB-1L-PU-K-0.3-M8</b>
	Non-contacting, 2-wire		Open end	2 m	<b>8150173</b>	<b>SDBT-MSB-1L-ZU-K-2-LE</b>

## Connecting cables NEBA, straight

	Electrical connection 1, connector system	Electrical connection 2, connector system	Electrical connection 2, number of connections/cores	Cable length	Part no.	Type
	M8x1, A-coded, to EN 61076-2-104	Open end	3	2.5 m	<b>8078223</b>	<b>NEBA-M8G3-U-2.5-N-LE3</b>
				5 m	<b>8078224</b>	<b>NEBA-M8G3-U-5-N-LE3</b>

## Connecting cables NEBA, angled

	Electrical connection 1, connector system	Electrical connection 2, connector system	Electrical connection 2, number of connections/cores	Cable length	Part no.	Type
	M8x1, A-coded, to EN 61076-2-104	Open end	3	2.5 m	<b>8078230</b>	<b>NEBA-M8W3-U-2.5-N-LE3</b>
				5 m	<b>8078231</b>	<b>NEBA-M8W3-U-5-N-LE3</b>