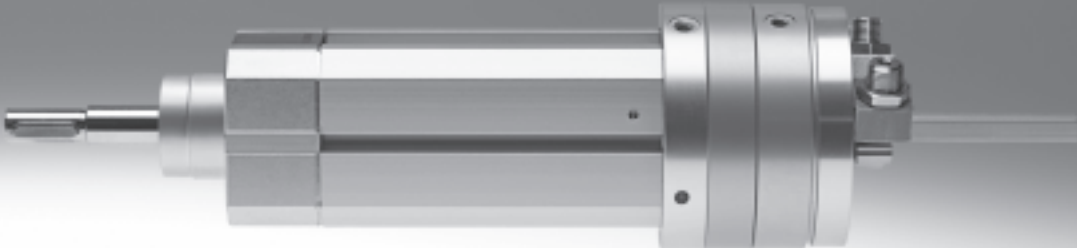


Swivel/linear drive units DSL-B



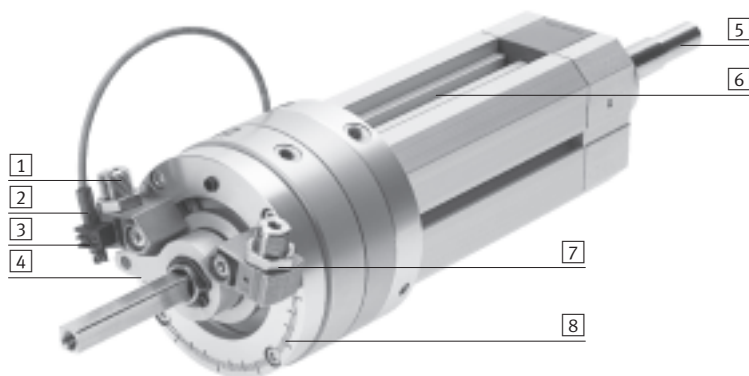
# Swivel/linear drive units DSL-B

Key features

## At a glance

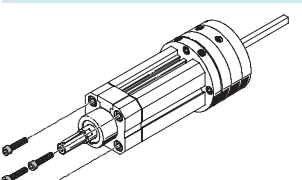
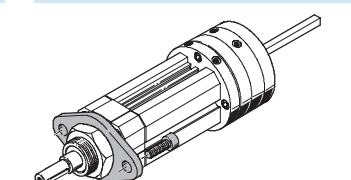
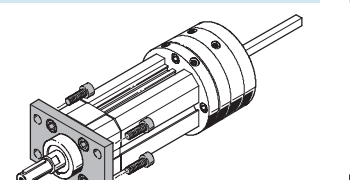
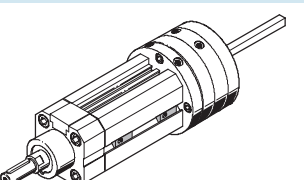
- High repetition accuracy thanks to cushioning components with fixed stop
- Swivel angle can be infinitely and accurately set
- The mechanical gearing between the stop element and swivel module prevents movement of the stop system under load
- Compact sensing of the swivel motion via proximity sensors SME/SMT-10F
- With plain-bearing guide
- With recirculating ball bearing guide
- Swivel motion of up to 270°
- Linear motion of up to 200 mm stroke
- Both motion types can be controlled individually or simultaneously
- High rotational energy during swivelling thanks to directly mounted, self-adjusting shock absorbers
- Supply ports at one end for quick, clear-cut tubing connections
- High precision thanks to recirculating ball bearing guide
  - Backlash-free swivel motion
  - Resists torque loads even during linear motion

## The technology in detail



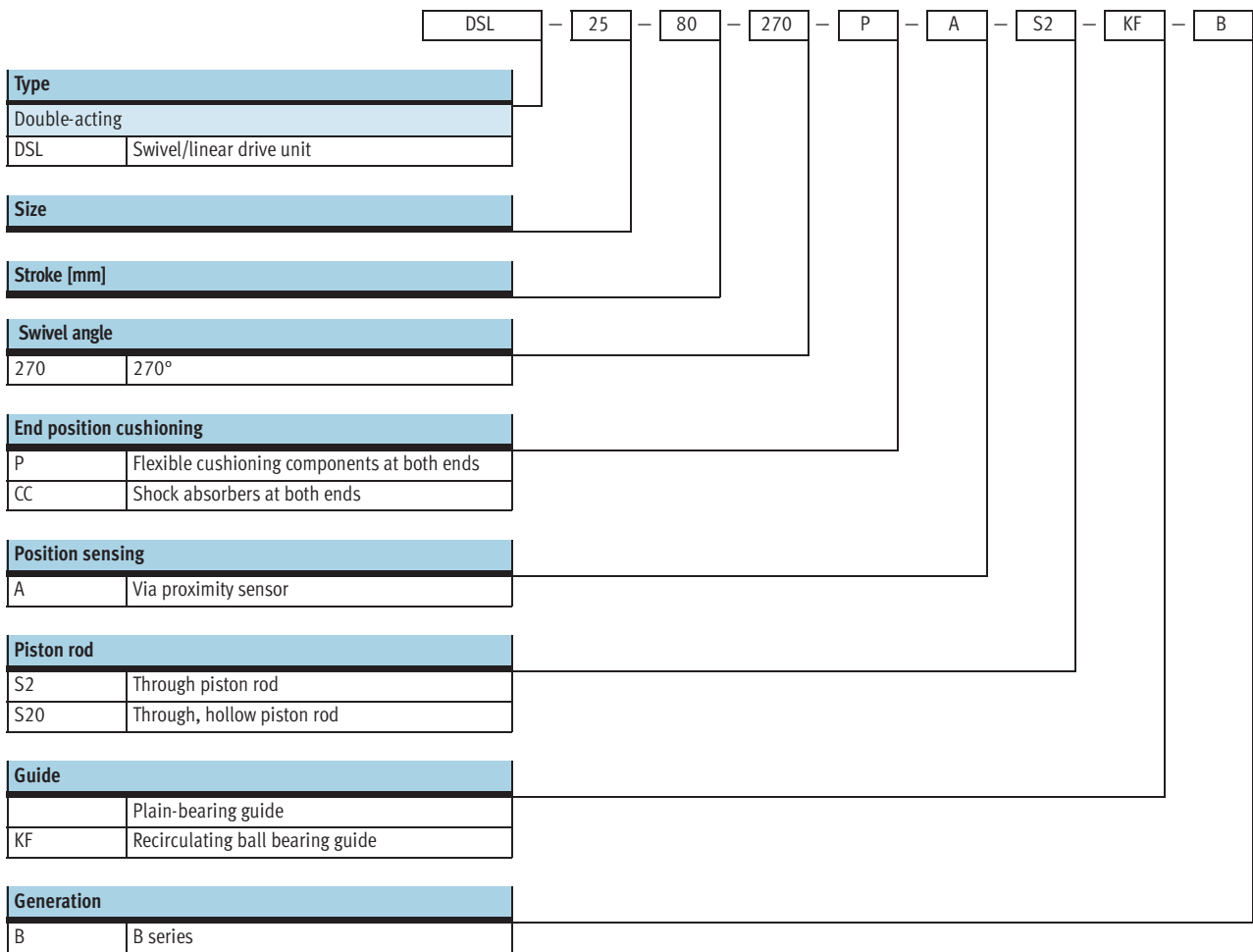
<p><b>1</b> Cushioning</p> <ul style="list-style-type: none"> <li>• Choice of two types of cushioning, each with metal fixed stop:                     <ul style="list-style-type: none"> <li>– Flexible cushioning elements</li> <li>– Hydraulic shock absorbers</li> </ul> </li> </ul>	<p><b>2</b> Position sensing</p> <ul style="list-style-type: none"> <li>• Compact sensing of the swivel position using proximity sensors SME/SMT-10F</li> </ul>	<p><b>3</b> Sensor retainer</p> <ul style="list-style-type: none"> <li>• The proximity sensors are mounted directly on the stop system. The sensor retainer can be ordered as an accessory</li> </ul>	<p><b>4</b> Stop lever</p> <ul style="list-style-type: none"> <li>• The magnet in the stop lever enables the swivel angle to be sensed</li> </ul>
<p><b>5</b> Piston rod</p> <p>Mounting interface, for example for a gripper</p>	<p><b>6</b> Slot for proximity sensor</p> <ul style="list-style-type: none"> <li>• Compact sensing of the linear position using proximity sensors SME/SMT-8</li> </ul>	<p><b>7</b> Precision end position adjustment</p> <ul style="list-style-type: none"> <li>• After the lock nut is loosened, precision adjustment of the end positions is possible using an Allen key</li> </ul>	<p><b>8</b> Angle scale</p> <ul style="list-style-type: none"> <li>• The required angle can easily be preset using the scale</li> </ul>

## Mounting options

<p>Direct mounting</p>	<p>Flange mounting</p>	<p>Flange mounting</p>	<p>Via slot nuts</p>
	 <p>For size 16: The mounting thread on the bearing cap complies with DIN ISO 6432.</p>	 <p>For sizes 20 ... 40: Mounting hole pattern to DIN ISO 6431, VDMA 24 562 and NF E 49 003.1.</p>	

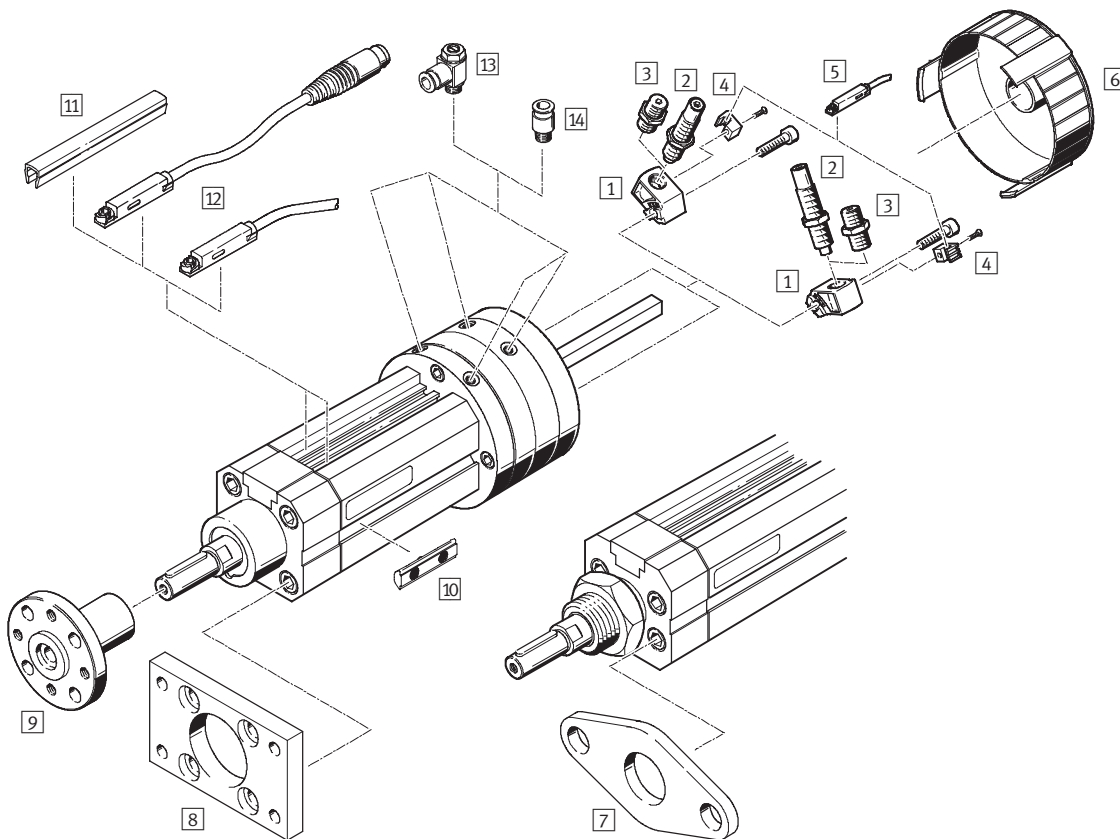
# Swivel/linear drive units DSL-B

Type codes



# Swivel/linear drive units DSL-B

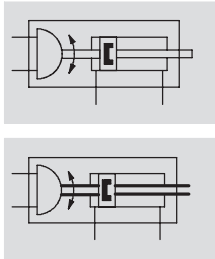
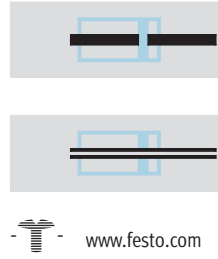
Peripherals overview



Accessories			
	Brief description	→ Page/Internet	
1	Cushioning mount DSM-B	<ul style="list-style-type: none"> <li>For flexible cushioning components</li> <li>For shock absorbers</li> </ul>	18
2	Shock absorber DYSC	Self-adjusting shock absorbers with fixed stop	18
3	Cushioning kit DSM-...-P-B	Flexible cushioning components with fixed stop	18
4	Sensor retainer SL-DSM-B	For mounting proximity sensors SME/SMT-10	19
5	Proximity sensor SME/SMT-10F	For sensing the swivel position	19
6	Cover cap AKM	Reduces the risk of injury in the swivel range of the stop lever	18
7	Flange mounting FBN	For bearing cap of swivel/linear unit DSL-16	16
8	Flange mounting FNG	For bearing cap of swivel/linear units DSL-20 ... 40	16
9	Push-on flange FWSR	For retrofitting the swivel/linear unit DSL	17
10	Slot nut NST	For mounting the drive via the linear part	17
11	Slot cover ABP	To protect the proximity sensor cable and keep dirt out of the sensor/profile slots	20
12	Proximity sensor SME/SMT-8	For sensing the linear position	19
13	One-way flow control valve GRLA	For regulating speed	18
14	Push-in fitting QS	For connecting compressed air tubing with standard outside diameter	quick star

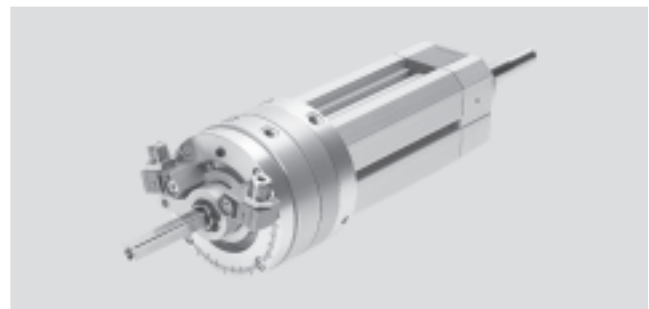
# Swivel/linear drive units DSL-B




Technical data

**Function**

**Variants**


S2

S20



-  Size  
16 ... 40 mm
-  Stroke length  
10 ... 200 mm
-  Force  
1.25 ... 20 Nm

General technical data							
Size			16	20	25	32	40
Pneumatic connection			M5			G1/8	
Constructional design	Vane-driven semi-rotary actuator in combination with a double-acting linear cylinder						
Cushioning	Swivel motion	P – Flexible cushioning components at both ends CC – Shock absorbers at both ends					
	Linear motion	P – Not adjustable at either end					
Max. swivel angle	with cushioning P	[°]	270	270	270	270	270
	with cushioning CC	[°]	246	246	246	246	240
Max. swivel angle backlash <sup>1)</sup>	with plain-bearing guide	[°]	2				
	with recirculating ball bearing guide	[°]	0.05				
Swivel angle adjustment <sup>2)</sup>	with cushioning P	[°]	–6				
	with cushioning CC	[°]	–3				
Max. perm. swivel frequency <sup>3)</sup>	with cushioning P	[Hz]	2	2	2	2	2
	with cushioning CC	[Hz]	1.5	1	1	0.7	0.7
Stroke	with plain-bearing guide	[mm]	10 ... 160			10 ... 200	
	with recirculating ball bearing guide	[mm]	10 ... 100				10 ... 160
Max. impact velocity		[mm/s]	500				
Repetition accuracy of swivel motion	with cushioning P	[°]	1				
	with cushioning CC	[°]	0.1				
Position sensing	Via proximity sensor						
Type of mounting	Clamped in T-slot						
	Via external thread						
Mounting position	Any						

- 1) In new condition
- 2) Per side
- 3) At max. swivel angle

# Swivel/linear drive units DSL-B

Technical data


Operating and environmental conditions	
Operating medium	Filtered compressed air, lubricated or unlubricated
Operating pressure [bar]	2.5 ... 8
Ambient temperature <sup>1)</sup> [°C]	-10 ... +60
Corrosion resistance class CRC <sup>2)</sup>	1

- 1) Note operating range of proximity sensors.
- 2) Corrosion resistance class 1 as per Festo standard 940 070  
Components requiring low corrosion resistance. Transport and storage protection. Parts that do not have primarily decorative surface requirements, e.g. in internal areas that are not visible or behind covers.

Forces and torques						
Size		16	20	25	32	40
Theoretical torque at 6 bar <sup>1)</sup>	[Nm]	1.25	2.5	5	10	20
Theoretical force at 6 bar, advancing with plain-bearing guide	[N]	102.5	159	246	422.5	660
Theoretical force at 6 bar, advancing with recirculating ball bearing guide	[N]	103.5	158	248	403.5	603
Theoretical force at 6 bar, retracting	[N]	73.5	120.5	173.5	294	495
Max. perm. effective load → 7	[kg]	1	3	6	9	14

- 1) Theoretical values

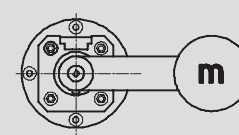
Weight [g]						
Size		16	20	25	32	40
<b>Plain-bearing guide</b>						
Cushioning P		695	1,090	1,510	2,985	5,150
Cushioning CC		697	1,130	1,605	3,020	5,205
Additional weight per 10 mm stroke		33	52	67	109	170
<b>Recirculating ball bearing guide</b>						
Cushioning P		745	1,180	1,660	3,265	5,300
Cushioning CC		747	1,220	1,755	3,300	5,355
Additional weight per 10 mm stroke		33	52	67	109	175

 **Note**

The rotary vane is not suitable for use in defining end positions, i.e. the stop lever and the stops must not be removed.

**With plain-bearing guide:**  
If the effective load is attached eccentrically, increased internal friction forces occur with horizontal installation, thereby causing a reduction of the effective force of the linear motion.

**With recirculating ball bearing guide:**  
Observe max. dynamic torque load (linear motion).

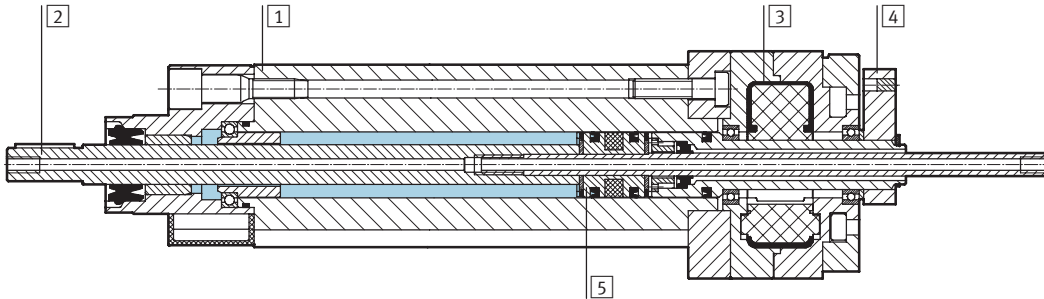


# Swivel/linear drive units DSL-B

Technical data

## Materials

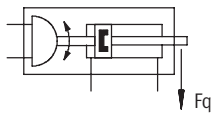
Sectional view



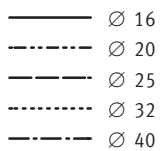
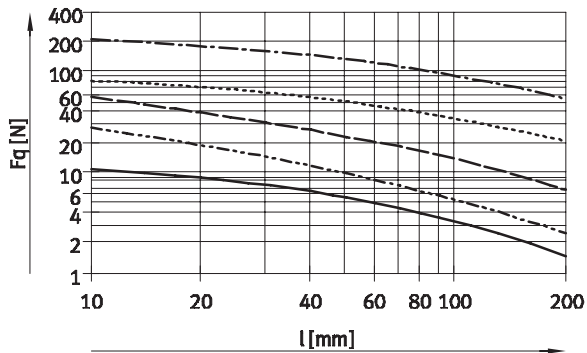
## Swivel/linear drive unit

1	Cylinder barrel, housing	Wrought aluminium alloy, smooth anodised
2	Piston rod, shaft	Stainless steel, nickel plated
3	Rotary vane	Glass fibre reinforced plastic
4	Stop lever	Anodised aluminium
5	Piston	Brass
-	Fixed stops, shock absorber retainer	Stainless steel
-	Seals	Polyurethane

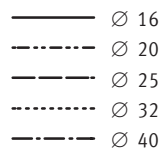
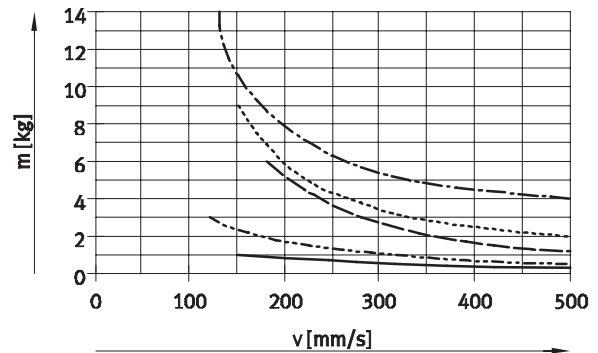
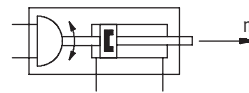
## Lateral force $F_q$ as a function of stroke length $l$



- Piston rod with bearings at both ends
- Resists high torques and lateral forces



## Max. permissible effective load as a function of piston speed $v$

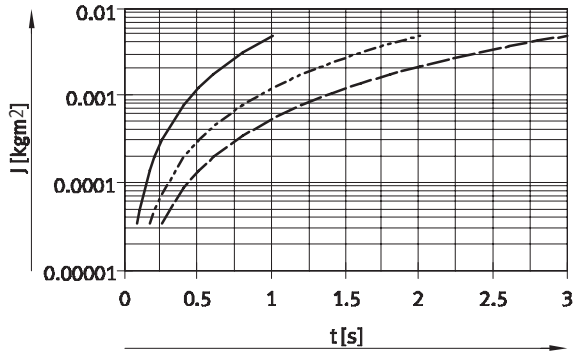


# Swivel/linear drive units DSL-B

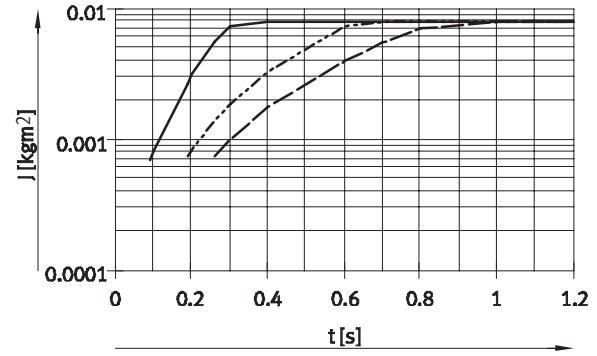
Technical data

Max. permissible mass moment of inertia  $J$  as a function of swivel time  $t$

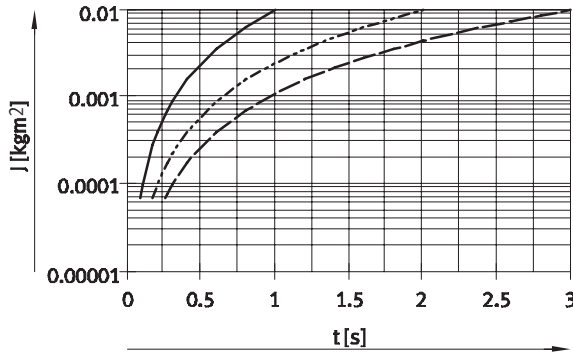
DSL-16-...-P



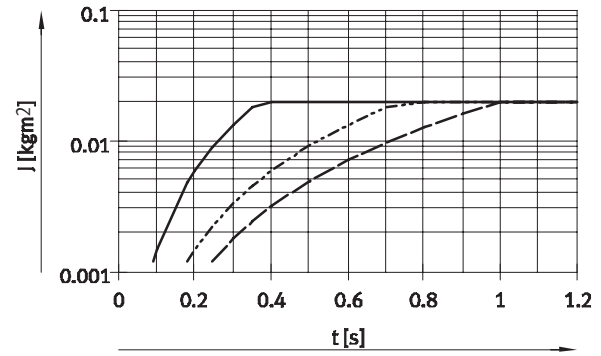
DSL-16-...-CC



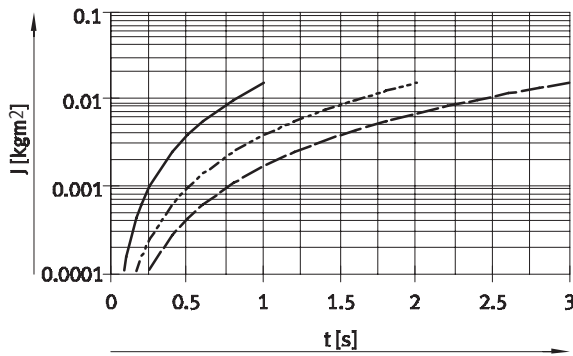
DSL-20-...-P



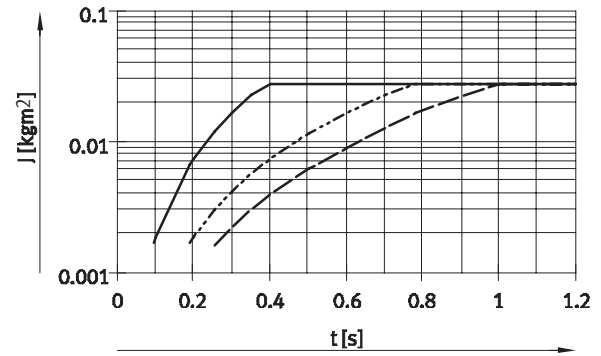
DSL-20-...-CC



DSL-25-...-P



DSL-25-...-CC



- 90°
- - - 180°
- · - 270°

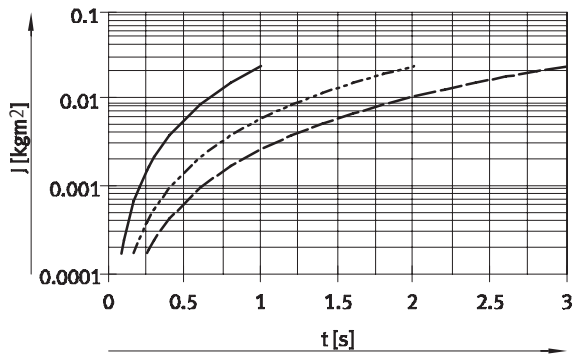


# Swivel/linear drive units DSL-B

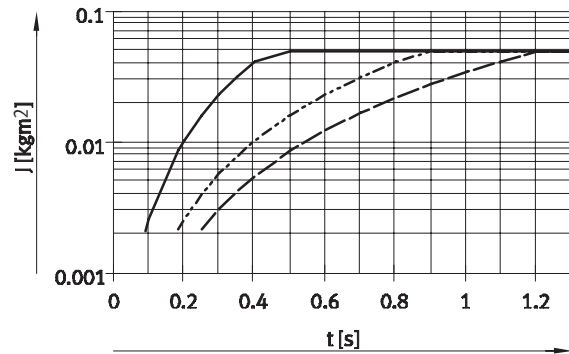
Technical data

## Max. permissible mass moment of inertia J as a function of swivel time t

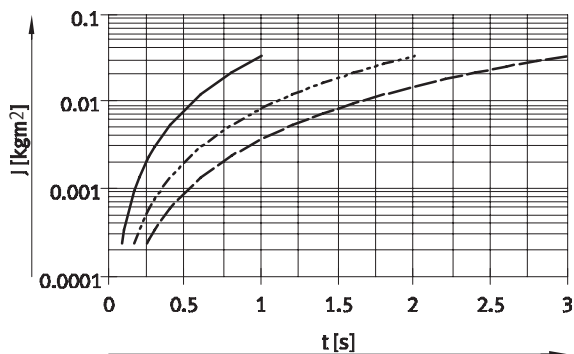
DSL-32-...-P



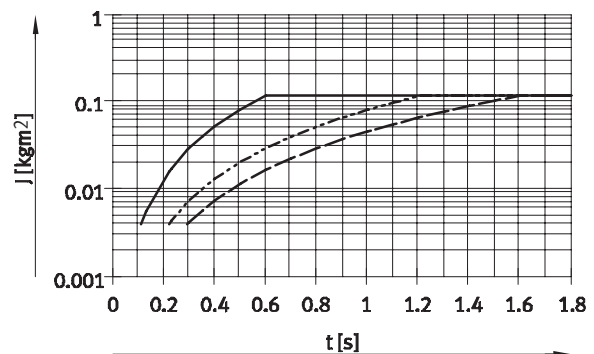
DSL-32-...-CC



DSL-40-...-P



DSL-40-...-CC



- 90°
- - - 180°
- · - 270°

In the graphs for the types DSL-...-CC, the swivel time is shown up to the point when the stop lever meets the shock absorber. The cushioning time of the shock absorber must be added in order to obtain total swivel time.

### Cushioning time of the shock absorber

Size	16/20/25	32	40
Cushioning time [s]	0.1	0.25	0.3

Note

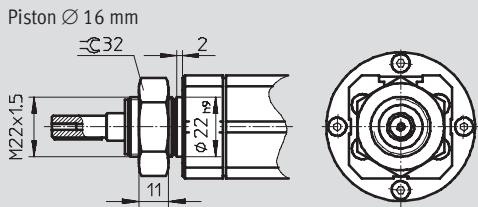
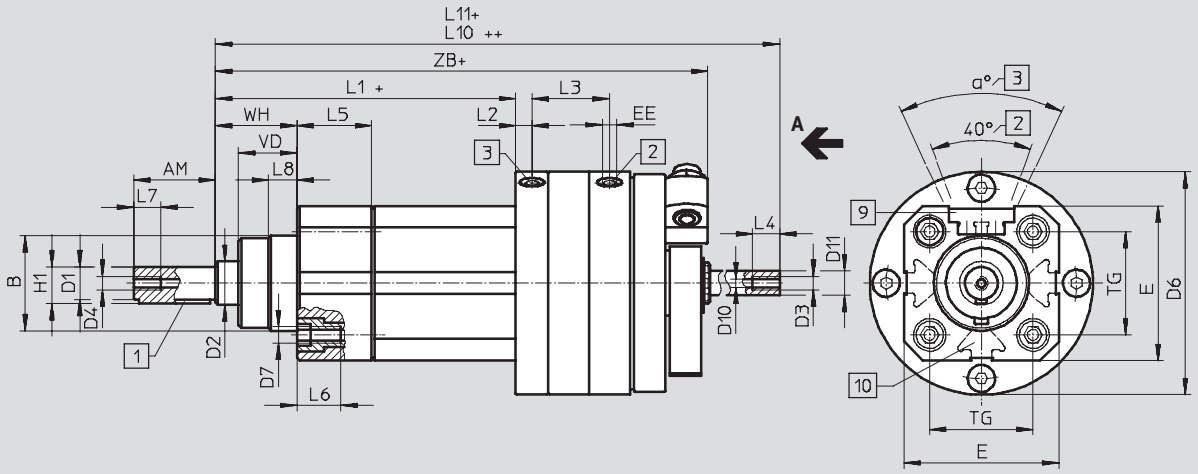
Sizing software  
Calculating inertia  
→ [www.festo.com](http://www.festo.com)

# Swivel/linear drive units DSL-B

Technical data

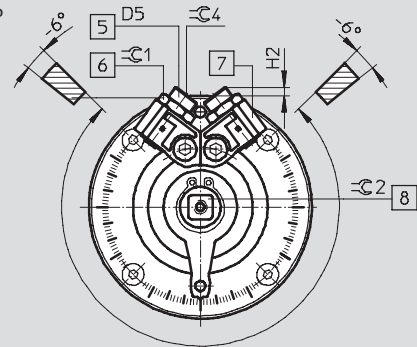
**Dimensions**

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

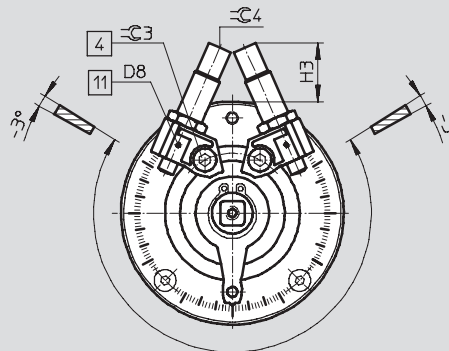


**View A**

Variant P



Variant CC



- |                                      |   |  |   |
|--------------------------------------|---|--|---|
| <b>1</b> Woodruff key position at 0° | <b>4</b> Locking screw for clamping the stop  | <b>7</b> Infinitely adjustable fixed stops   | <b>10</b> Mounting slots                      |
| <b>2</b> Supply port, rotary part    | <b>5</b> End position adjustment              | <b>8</b> Manual override (square)            | <b>11</b> Mounting thread for sensor retainer |
| <b>3</b> Supply port, linear part    | <b>6</b> Lock nut for end position adjustment | <b>9</b> Slot for proximity sensor SME/SMT-8 |   |

+ = plus stroke length  
++ = plus 2 stroke lengths

# Swivel/linear drive units DSL-B

Technical data

FESTO

Size	AM	B ∅ d11	D1 ∅ g7	D2 ∅ f8	D3 <sup>1)</sup>		D4		D5	D6 ∅ ±0.2	D7	D8
					S2	S20	S2	S20				
16	20 <sup>+0.2</sup>	–	8	10	M3	M3	M3	M3	M8x1	58	–	M2
20	23 <sup>+0.2</sup>	30	10	12	M5	M5	M5	M5	M10x1	69	M6	M2
25	30 <sup>+0.2</sup>	35	12	16	M5	M5	M5	M5	M10x1	82	M6	M2
32	40 <sup>+0.3</sup>	40	16	20	M5	M5	M5	M5	M12x1	104	M8	M2
40	50 <sup>+0.3</sup>	45	20	25	M6	G <sup>1</sup> / <sub>8</sub>	M6	M7	M16x1	128	M8	M2

Size	D11 <sup>1)</sup>	E	EE	H1 max.	H2	H3	L1 <sup>1)</sup>	L2 ±0.2	L3	L4
20	–	50	M5	11.2	8.1	27.7	95 <sup>+1.1/-1.3</sup>	6	26.2 <sup>+0.6</sup>	10 <sup>+1</sup>
25	–	57	M5	13.5	4	22	100.5 <sup>+1.2/-1.3</sup>	6	29.5 <sup>+0.6</sup>	10 <sup>+1</sup>
32	–	72	G <sup>1</sup> / <sub>8</sub>	18	6	30.5	111 <sup>+1.3/-1.4</sup>	9	39.5 <sup>+0.6</sup>	12.5 <sup>+2</sup>
40	–	83.5	G <sup>1</sup> / <sub>8</sub>	22.5	5.7	45.5	132 <sup>+1.3/-1.4</sup>	9	44.7 <sup>+0.6</sup>	6.5 <sup>+2</sup>

Size	L5	L6 +2	L7	L8 ±0.3	L10 <sup>1)</sup>	TG	VD	WH	ZB <sup>1)</sup>
20	26 <sup>-0.2</sup>	17	10 <sup>+1</sup>	10.5	175 <sup>+0.8/-0.1</sup>	32.5	19 <sup>+0.2</sup>	26 <sup>+1.3/-1.7</sup>	161.8 <sup>+1.4/-1.5</sup>
25	27.5 <sup>-0.2</sup>	17	10 <sup>+1</sup>	10.5	186.5 <sup>+0.8/-0.1</sup>	38	21.5 <sup>+0.2</sup>	30 <sup>+1.4/-1.7</sup>	173.4 <sup>+1.4/-1.2</sup>
32	28.5 <sup>-0.2</sup>	21	12.5 <sup>+2</sup>	12	224 <sup>+0.6/-0.2</sup>	46.5	28.5 <sup>+0.3</sup>	37 <sup>+1.4/-1.8</sup>	205 <sup>+1.5/-1.9</sup>
40	35 <sup>-0.2</sup>	18	14 <sup>+2</sup>	15	263 <sup>+0.6/-0.2</sup>	56.5	34.7 <sup>+0.3</sup>	46 <sup>+1.4/-1.8</sup>	243.5 <sup>+1.8/-1.9</sup>

Size	α	≈C1	≈C2	≈C3	≈C4	Woodruff key to DIN 6885	D10 min. ∅ S20
20	50°	13	7	3	3	A3x3x18	3.2
25	50°	13	9	4	3	A4x4x25	4.2
32	50°	15	10	5	4	A5x5x36	4.2
40	50°	19	12	8	5	A6x6x45	5.6


1) Deviating dimensions for variant with recirculating ball bearing guide KF

Size	Stroke	D3	D11 ∅ h7	L1	L11		ZB
					S2 +0.8/-0.1	S20 +0.8/-0.1	
16	25	M3	6	104 <sup>+1.1/-1.3</sup>	*	198	159.6 <sup>+1.4/-1.5</sup>
	≤ 50				*	233	
	> 50				213	273	
20	≤ 50	M5	8	111 <sup>+1.1/-1.3</sup>	*	241	177.7 <sup>+1.4/-1.5</sup>
	> 50				225	291	
25	≤ 50	M5	10	129 <sup>+1.2/-1.3</sup>	*	266	201.2 <sup>+1.4/-1.2</sup>
	> 50				238	316	
32	≤ 50	M7	13	143 <sup>+1.3/-1.4</sup>	*	305	237 <sup>+1.5/-1.9</sup>
	> 50				253	355	
40	≤ 50	G <sup>1</sup> / <sub>8</sub>	16	182 <sup>+1.3/-1.4</sup>	*	364	293.5 <sup>+1.5/-1.9</sup>
	> 50				*	414	
	> 100				352	464	

\*) Profile rod does not protrude beyond the drive unit


# Swivel/linear drive units DSL-B

Technical data

Ordering data – With recirculating ball bearing guide						
Version	Size	Stroke [mm]	P – Flexible cushioning components at both ends		CC – Shock absorbers at both ends	
			Part No.	Type	Part No.	Type
<b>S2 – Through piston rod</b>						
	16	25	556 390	DSL-16-25-270-P-A-S2-B	556 391	DSL-16-25-270-CC-A-S2-B
		40	556 396	DSL-16-40-270-P-A-S2-B	556 397	DSL-16-40-270-CC-A-S2-B
		50	556 402	DSL-16-50-270-P-A-S2-B	556 403	DSL-16-50-270-CC-A-S2-B
		80	556 408	DSL-16-80-270-P-A-S2-B	556 409	DSL-16-80-270-CC-A-S2-B
		100	556 414	DSL-16-100-270-P-A-S2-B	556 415	DSL-16-100-270-CC-A-S2-B
		10 ... 160	556 420	DSL-16-...-270-P-A-S2-B	556 421	DSL-16-...-270-CC-A-S2-B
	20	25	556 426	DSL-20-25-270-P-A-S2-B	556 427	DSL-20-25-270-CC-A-S2-B
		40	556 432	DSL-20-40-270-P-A-S2-B	556 433	DSL-20-40-270-CC-A-S2-B
		50	556 438	DSL-20-50-270-P-A-S2-B	556 439	DSL-20-50-270-CC-A-S2-B
		80	556 444	DSL-20-80-270-P-A-S2-B	556 445	DSL-20-80-270-CC-A-S2-B
		100	556 450	DSL-20-100-270-P-A-S2-B	556 451	DSL-20-100-270-CC-A-S2-B
		10 ... 160	556 456	DSL-20-...-270-P-A-S2-B	556 457	DSL-20-...-270-CC-A-S2-B
	25	25	556 462	DSL-25-25-270-P-A-S2-B	556 463	DSL-25-25-270-CC-A-S2-B
		40	556 468	DSL-25-40-270-P-A-S2-B	556 469	DSL-25-40-270-CC-A-S2-B
		50	556 474	DSL-25-50-270-P-A-S2-B	556 475	DSL-25-50-270-CC-A-S2-B
		80	556 480	DSL-25-80-270-P-A-S2-B	556 481	DSL-25-80-270-CC-A-S2-B
		100	556 486	DSL-25-100-270-P-A-S2-B	556 487	DSL-25-100-270-CC-A-S2-B
		10 ... 160	556 492	DSL-25-...-270-P-A-S2-B	556 493	DSL-25-...-270-CC-A-S2-B
	32	25	556 498	DSL-32-25-270-P-A-S2-B	556 499	DSL-32-25-270-CC-A-S2-B
		40	556 504	DSL-32-40-270-P-A-S2-B	556 505	DSL-32-40-270-CC-A-S2-B
		50	556 510	DSL-32-50-270-P-A-S2-B	556 511	DSL-32-50-270-CC-A-S2-B
		80	556 516	DSL-32-80-270-P-A-S2-B	556 517	DSL-32-80-270-CC-A-S2-B
		100	556 522	DSL-32-100-270-P-A-S2-B	556 523	DSL-32-100-270-CC-A-S2-B
		10 ... 200	556 528	DSL-32-...-270-P-A-S2-B	556 529	DSL-32-...-270-CC-A-S2-B
	40	25	556 534	DSL-40-25-270-P-A-S2-B	556 535	DSL-40-25-270-CC-A-S2-B
		40	556 540	DSL-40-40-270-P-A-S2-B	556 541	DSL-40-40-270-CC-A-S2-B
		50	556 546	DSL-40-50-270-P-A-S2-B	556 547	DSL-40-50-270-CC-A-S2-B
		80	556 552	DSL-40-80-270-P-A-S2-B	556 553	DSL-40-80-270-CC-A-S2-B
		100	556 558	DSL-40-100-270-P-A-S2-B	556 559	DSL-40-100-270-CC-A-S2-B
		125	556 564	DSL-40-125-270-P-A-S2-B	556 565	DSL-40-125-270-CC-A-S2-B
		160	556 570	DSL-40-160-270-P-A-S2-B	556 571	DSL-40-160-270-CC-A-S2-B
		10 ... 200	556 576	DSL-40-...-270-P-A-S2-B	556 577	DSL-40-...-270-CC-A-S2-B


# Swivel/linear drive units DSL-B

Technical data

Ordering data – With recirculating ball bearing guide						
Version	Size	Stroke [mm]	P – Flexible cushioning components at both ends		CC – Shock absorbers at both ends	
			Part No.	Type	Part No.	Type
S20 – Through, hollow piston rod						
	16	25	556 393	DSL-16-25-270-P-A-S20-B	556 394	DSL-16-25-270-CC-A-S20-B
		40	556 399	DSL-16-40-270-P-A-S20-B	556 400	DSL-16-40-270-CC-A-S20-B
		50	556 405	DSL-16-50-270-P-A-S20-B	556 406	DSL-16-50-270-CC-A-S20-B
		80	556 411	DSL-16-80-270-P-A-S20-B	556 412	DSL-16-80-270-CC-A-S20-B
		100	556 417	DSL-16-100-270-P-A-S20-B	556 418	DSL-16-100-270-CC-A-S20-B
		10 ... 160	556 423	DSL-16-...-270-P-A-S20-B	556 424	DSL-16-...-270-CC-A-S20-B
	20	25	556 429	DSL-20-25-270-P-A-S20-B	556 430	DSL-20-25-270-CC-A-S20-B
		40	556 435	DSL-20-40-270-P-A-S20-B	556 436	DSL-20-40-270-CC-A-S20-B
		50	556 441	DSL-20-50-270-P-A-S20-B	556 442	DSL-20-50-270-CC-A-S20-B
		80	556 447	DSL-20-80-270-P-A-S20-B	556 448	DSL-20-80-270-CC-A-S20-B
		100	556 453	DSL-20-100-270-P-A-S20-B	556 454	DSL-20-100-270-CC-A-S20-B
		10 ... 160	556 459	DSL-20-...-270-P-A-S20-B	556 460	DSL-20-...-270-CC-A-S20-B
	25	25	556 465	DSL-25-25-270-P-A-S20-B	556 466	DSL-25-25-270-CC-A-S20-B
		40	556 471	DSL-25-40-270-P-A-S20-B	556 472	DSL-25-40-270-CC-A-S20-B
		50	556 477	DSL-25-50-270-P-A-S20-B	556 478	DSL-25-50-270-CC-A-S20-B
		80	556 483	DSL-25-80-270-P-A-S20-B	556 484	DSL-25-80-270-CC-A-S20-B
		100	556 489	DSL-25-100-270-P-A-S20-B	556 490	DSL-25-100-270-CC-A-S20-B
		10 ... 160	556 495	DSL-25-...-270-P-A-S20-B	556 496	DSL-25-...-270-CC-A-S20-B
	32	25	556 501	DSL-32-25-270-P-A-S20-B	556 502	DSL-32-25-270-CC-A-S20-B
		40	556 507	DSL-32-40-270-P-A-S20-B	556 508	DSL-32-40-270-CC-A-S20-B
		50	556 513	DSL-32-50-270-P-A-S20-B	556 514	DSL-32-50-270-CC-A-S20-B
		80	556 519	DSL-32-80-270-P-A-S20-B	556 520	DSL-32-80-270-CC-A-S20-B
		100	556 525	DSL-32-100-270-P-A-S20-B	556 526	DSL-32-100-270-CC-A-S20-B
		10 ... 200	556 531	DSL-32-...-270-P-A-S20-B	556 532	DSL-32-...-270-CC-A-S20-B
	40	25	556 537	DSL-40-25-270-P-A-S20-B	556 538	DSL-40-25-270-CC-A-S20-B
		40	556 543	DSL-40-40-270-P-A-S20-B	556 544	DSL-40-40-270-CC-A-S20-B
		50	556 549	DSL-40-50-270-P-A-S20-B	556 550	DSL-40-50-270-CC-A-S20-B
		80	556 555	DSL-40-80-270-P-A-S20-B	556 556	DSL-40-80-270-CC-A-S20-B
		100	556 561	DSL-40-100-270-P-A-S20-B	556 562	DSL-40-100-270-CC-A-S20-B
		125	556 567	DSL-40-125-270-P-A-S20-B	556 568	DSL-40-125-270-CC-A-S20-B
		160	556 573	DSL-40-160-270-P-A-S20-B	556 574	DSL-40-160-270-CC-A-S20-B
		10 ... 200	556 579	DSL-40-...-270-P-A-S20-B	556 580	DSL-40-...-270-CC-A-S20-B

# Swivel/linear drive units DSL-B


Technical data

Ordering data – With recirculating ball bearing guide							
Version	Size	Stroke [mm]	P – Flexible cushioning components at both ends		CC – Shock absorbers at both ends		
			Part No.	Type	Part No.	Type	
<b>S2 – Through piston rod</b>							
	16	25	556 582	DSL-16-25-270-P-A-S2-KF-B	556 583	DSL-16-25-270-CC-A-S2-KF-B	
		40	556 588	DSL-16-40-270-P-A-S2-KF-B	556 589	DSL-16-40-270-CC-A-S2-KF-B	
		50	556 594	DSL-16-50-270-P-A-S2-KF-B	556 595	DSL-16-50-270-CC-A-S2-KF-B	
		80	556 600	DSL-16-80-270-P-A-S2-KF-B	556 601	DSL-16-80-270-CC-A-S2-KF-B	
		100	556 606	DSL-16-100-270-P-A-S2-KF-B	556 607	DSL-16-100-270-CC-A-S2-KF-B	
		10 ... 100	556 612	DSL-16-...-270-P-A-S2-KF-B	556 613	DSL-16-...-270-CC-A-S2-KF-B	
	20	25	556 618	DSL-20-25-270-P-A-S2-KF-B	556 619	DSL-20-25-270-CC-A-S2-KF-B	
		40	556 624	DSL-20-40-270-P-A-S2-KF-B	556 625	DSL-20-40-270-CC-A-S2-KF-B	
		50	556 630	DSL-20-50-270-P-A-S2-KF-B	556 631	DSL-20-50-270-CC-A-S2-KF-B	
		80	556 636	DSL-20-80-270-P-A-S2-KF-B	556 637	DSL-20-80-270-CC-A-S2-KF-B	
		100	556 642	DSL-20-100-270-P-A-S2-KF-B	556 643	DSL-20-100-270-CC-A-S2-KF-B	
		10 ... 100	556 648	DSL-20-...-270-P-A-S2-KF-B	556 649	DSL-20-...-270-CC-A-S2-KF-B	
	25	25	556 654	DSL-25-25-270-P-A-S2-KF-B	556 655	DSL-25-25-270-CC-A-S2-KF-B	
		40	556 660	DSL-25-40-270-P-A-S2-KF-B	556 661	DSL-25-40-270-CC-A-S2-KF-B	
		50	556 666	DSL-25-50-270-P-A-S2-KF-B	556 667	DSL-25-50-270-CC-A-S2-KF-B	
		80	556 672	DSL-25-80-270-P-A-S2-KF-B	556 673	DSL-25-80-270-CC-A-S2-KF-B	
		100	556 678	DSL-25-100-270-P-A-S2-KF-B	556 679	DSL-25-100-270-CC-A-S2-KF-B	
		10 ... 100	556 684	DSL-25-...-270-P-A-S2-KF-B	556 685	DSL-25-...-270-CC-A-S2-KF-B	
	32	25	556 690	DSL-32-25-270-P-A-S2-KF-B	556 691	DSL-32-25-270-CC-A-S2-KF-B	
		40	556 696	DSL-32-40-270-P-A-S2-KF-B	556 697	DSL-32-40-270-CC-A-S2-KF-B	
		50	556 702	DSL-32-50-270-P-A-S2-KF-B	556 703	DSL-32-50-270-CC-A-S2-KF-B	
		80	556 708	DSL-32-80-270-P-A-S2-KF-B	556 709	DSL-32-80-270-CC-A-S2-KF-B	
		100	556 714	DSL-32-100-270-P-A-S2-KF-B	556 715	DSL-32-100-270-CC-A-S2-KF-B	
		10 ... 100	556 720	DSL-32-...-270-P-A-S2-KF-B	556 721	DSL-32-...-270-CC-A-S2-KF-B	
	40	25	556 726	DSL-40-25-270-P-A-S2-KF-B	556 727	DSL-40-25-270-CC-A-S2-KF-B	
		40	556 732	DSL-40-40-270-P-A-S2-KF-B	556 733	DSL-40-40-270-CC-A-S2-KF-B	
		50	556 738	DSL-40-50-270-P-A-S2-KF-B	556 739	DSL-40-50-270-CC-A-S2-KF-B	
		80	556 744	DSL-40-80-270-P-A-S2-KF-B	556 745	DSL-40-80-270-CC-A-S2-KF-B	
		100	556 750	DSL-40-100-270-P-A-S2-KF-B	556 751	DSL-40-100-270-CC-A-S2-KF-B	
		125	556 756	DSL-40-125-270-P-A-S2-KF-B	556 757	DSL-40-125-270-CC-A-S2-KF-B	
		160	556 762	DSL-40-160-270-P-A-S2-KF-B	556 763	DSL-40-160-270-CC-A-S2-KF-B	
		10 ... 160	556 768	DSL-40-...-270-P-A-S2-KF-B	556 769	DSL-40-...-270-CC-A-S2-KF-B	

# Swivel/linear drive units DSL-B

Technical data

FESTO

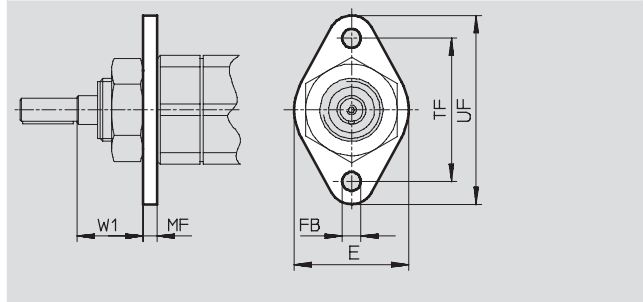
Ordering data – With recirculating ball bearing guide						
Version	Size	Stroke [mm]	P – Flexible cushioning components at both ends		CC – Shock absorbers at both ends	
			Part No.	Type	Part No.	Type
S20 – Through, hollow piston rod						
	16	25	556 585	DSL-16-25-270-P-A-S20-KF-B	556 586	DSL-16-25-270-CC-A-S20-KF-B
		40	556 591	DSL-16-40-270-P-A-S20-KF-B	556 592	DSL-16-40-270-CC-A-S20-KF-B
		50	556 597	DSL-16-50-270-P-A-S20-KF-B	556 598	DSL-16-50-270-CC-A-S20-KF-B
		80	556 603	DSL-16-80-270-P-A-S20-KF-B	556 604	DSL-16-80-270-CC-A-S20-KF-B
		100	556 609	DSL-16-100-270-P-A-S20-KF-B	556 610	DSL-16-100-270-CC-A-S20-KF-B
		10 ... 100	556 615	DSL-16-...-270-P-A-S20-KF-B	556 616	DSL-16-...-270-CC-A-S20-KF-B
	20	25	556 621	DSL-20-25-270-P-A-S20-KF-B	556 622	DSL-20-25-270-CC-A-S20-KF-B
		40	556 627	DSL-20-40-270-P-A-S20-KF-B	556 628	DSL-20-40-270-CC-A-S20-KF-B
		50	556 633	DSL-20-50-270-P-A-S20-KF-B	556 634	DSL-20-50-270-CC-A-S20-KF-B
		80	556 639	DSL-20-80-270-P-A-S20-KF-B	556 640	DSL-20-80-270-CC-A-S20-KF-B
		100	556 645	DSL-20-100-270-P-A-S20-KF-B	556 646	DSL-20-100-270-CC-A-S20-KF-B
		10 ... 100	556 651	DSL-20-...-270-P-A-S20-KF-B	556 652	DSL-20-...-270-CC-A-S20-KF-B
	25	25	556 657	DSL-25-25-270-P-A-S20-KF-B	556 658	DSL-25-25-270-CC-A-S20-KF-B
		40	556 663	DSL-25-40-270-P-A-S20-KF-B	556 664	DSL-25-40-270-CC-A-S20-KF-B
		50	556 669	DSL-25-50-270-P-A-S20-KF-B	556 670	DSL-25-50-270-CC-A-S20-KF-B
		80	556 675	DSL-25-80-270-P-A-S20-KF-B	556 676	DSL-25-80-270-CC-A-S20-KF-B
		100	556 681	DSL-25-100-270-P-A-S20-KF-B	556 682	DSL-25-100-270-CC-A-S20-KF-B
		10 ... 100	556 687	DSL-25-...-270-P-A-S20-KF-B	556 688	DSL-25-...-270-CC-A-S20-KF-B
	32	25	556 693	DSL-32-25-270-P-A-S20-KF-B	556 694	DSL-32-25-270-CC-A-S20-KF-B
		40	556 699	DSL-32-40-270-P-A-S20-KF-B	556 700	DSL-32-40-270-CC-A-S20-KF-B
		50	556 705	DSL-32-50-270-P-A-S20-KF-B	556 706	DSL-32-50-270-CC-A-S20-KF-B
		80	556 711	DSL-32-80-270-P-A-S20-KF-B	556 712	DSL-32-80-270-CC-A-S20-KF-B
		100	556 717	DSL-32-100-270-P-A-S20-KF-B	556 718	DSL-32-100-270-CC-A-S20-KF-B
		10 ... 100	556 723	DSL-32-...-270-P-A-S20-KF-B	556 724	DSL-32-...-270-CC-A-S20-KF-B
	40	25	556 729	DSL-40-25-270-P-A-S20-KF-B	556 730	DSL-40-25-270-CC-A-S20-KF-B
		40	556 735	DSL-40-40-270-P-A-S20-KF-B	556 736	DSL-40-40-270-CC-A-S20-KF-B
		50	556 741	DSL-40-50-270-P-A-S20-KF-B	556 742	DSL-40-50-270-CC-A-S20-KF-B
		80	556 747	DSL-40-80-270-P-A-S20-KF-B	556 748	DSL-40-80-270-CC-A-S20-KF-B
		100	556 753	DSL-40-100-270-P-A-S20-KF-B	556 754	DSL-40-100-270-CC-A-S20-KF-B
		125	556 759	DSL-40-125-270-P-A-S20-KF-B	556 760	DSL-40-125-270-CC-A-S20-KF-B
		160	556 765	DSL-40-160-270-P-A-S20-KF-B	556 766	DSL-40-160-270-CC-A-S20-KF-B
		10 ... 160	556 771	DSL-40-...-270-P-A-S20-KF-B	556 772	DSL-40-...-270-CC-A-S20-KF-B

## Swivel/linear drive units DSL-B

Accessories

### Flange mounting FBN

Material:  
Galvanised steel  
Free of copper, PTFE and silicone

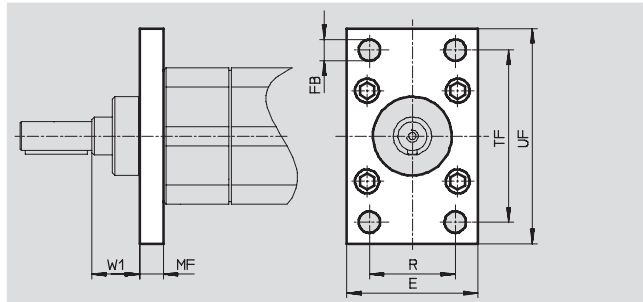
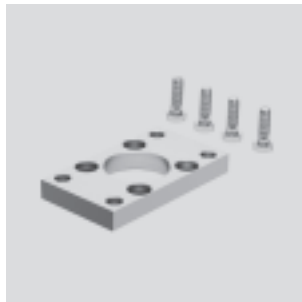


Dimensions and ordering data										
For size	E	FB ∅ H13	MF	TF	UF	W1	CRC <sup>1)</sup>	Weight [g]	Part No.	Type
16	40	6.6	5	50	66	23	2	47	5 131	FBN-20/25

1) Corrosion resistance class 2 as per Festo standard 940 070  
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

### Flange mounting FNG

Material:  
Galvanised steel  
Free of copper, PTFE and silicone



Dimensions and ordering data											
For size	E	FB ∅ H13	MF	R	TF	UF	W1	CRC <sup>1)</sup>	Weight [g]	Part No.	Type
20	45	7	10	32	64	80	16	2	245	32 940	FNG-32
25	54	9	10	36	72	90	20	2	290	32 941	FNG-40
32	65	9	12	45	90	110	25	2	520	32 942	FNG-50
40	75	9	12	50	100	120	34	2	690	32 943	FNG-63

1) Corrosion resistance class 2 as per Festo standard 940 070  
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

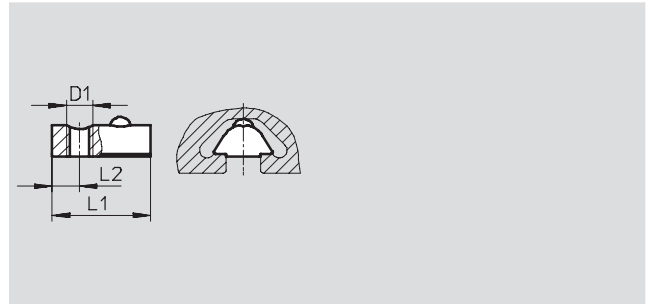


# Swivel/linear drive units DSL-B

Accessories

## Slot nut NST

Material:  
Tempered steel, non-alloyed  
Free of copper, PTFE and silicone



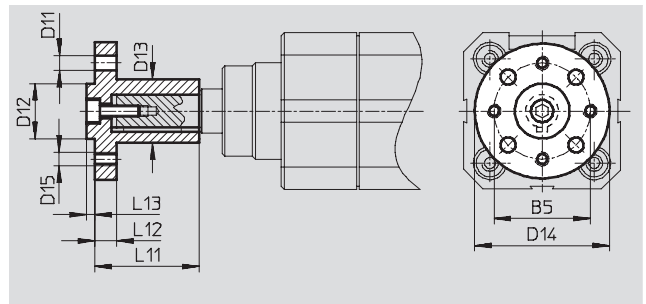
Dimensions and ordering data							
For size	D1	L1	L2	CRC <sup>1)</sup>	Weight [g]	Part No.	Type
16	M5	12 ±0.5	4	2	3	150 914	NST-5-M5
20							
25	M6	22.5	6.25	2	11	150 915	NST-8-M6
32							
40							

1) Corrosion resistance class 2 as per Festo standard 940 070  
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

## Push-on flange FWSR

The permissible tightening torque must not be exceeded when attaching additional components to the spigot shaft.

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



Dimensions and ordering data														
For size	B5	D11 H13 Ø	D12 f8 Ø	D13 Ø	D14 Ø	D15	L11	L12	L13	Tightening torque [Nm]	CRC <sup>1)</sup>	Weight [g]	Part No.	Type
16	25	3.4	14	15	35	M3	25	3	3	1.2	2	21	14 659	FWSR-12
20	28	4.5	16	17	40	M4	28	5	6	5.5	2	32	170 153	FWSR-16-M5
25	35	5.5	20	23	50	M5	38	8	3	5.5	2	70	170 154	FWSR-25-M5
32	45	6.6	28	28	60	M6	48	10	4	5.5	2	127	13 241	FWSR-32
40	54	9	36	38	70	M8	60	11	5	10	2	240	14 656	FWSR-40

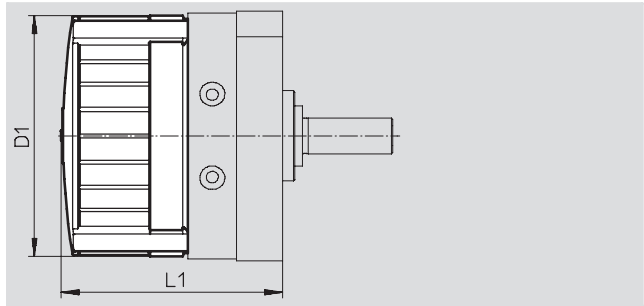
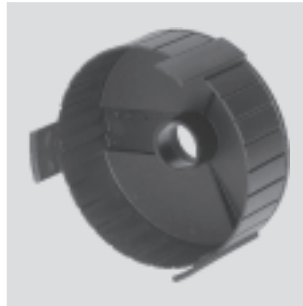
1) Corrosion resistance class 2 as per Festo standard 940 070  
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

# Swivel/linear drive units DSL-B


Accessories


## Cover cap AKM

Material:  
Polyamide

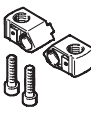



Dimensions and ordering data				
For size	D1 Ø	L1	Part No.	Type
16	59	56.2±1.2	549 194	AKM-12
20	70	68±1.2	549 195	AKM-16
25	83	73.4±1.2	549 196	AKM-25
32	105	89.7±1.5	549 197	AKM-32
40	130	107.1±1.5	549 198	AKM-40

Ordering data – Cushioning kits				
	For size	Remarks	Part No.	Type
	16	For cushioning mount DSM-...-B	550 657	DSM-12-P-B
	20, 25		550 658	DSM-16/25-P-B
	32		550 659	DSM-32-P-B
	40		550 660	DSM-40-P-B

Ordering data – Shock absorbers				
	For size	Remarks	Part No.	Type
	16	For cushioning mount DSM-...-B	548 011	DYSC-5-5-Y1F
	20, 25		548 012	DYSC-7-5-Y1F
	32		548 013	DYSC-8-8-Y1F
	40		548 014	DYSC-12-12-Y1F

Technical data → Internet: dysc

Ordering data – Cushioning mounts				
	For size	Remarks	Part No.	Type
	16	<ul style="list-style-type: none"> <li>For flexible cushioning components</li> <li>For shock absorbers</li> </ul>	547 900	DSM-12-B
	20		547 901	DSM-16-B
	25		547 902	DSM-25-B
	32		547 903	DSM-32-B
	40		547 904	DSM-40-B


Ordering data – One-way flow control valves						
	Connection		Material	Part No.	Type	
	Thread	For tubing O.D.				
	M5	3	Metal design	193 137	GRLA-M5-QS-3-D	
		4		193 138	GRLA-M5-QS-4-D	
		6		193 139	GRLA-M5-QS-6-D	
		G1/8		3	193 142	GRLA-1/8-QS-3-D
				4	193 143	GRLA-1/8-QS-4-D
				6	193 144	GRLA-1/8-QS-6-D
	8			193 145	GRLA-1/8-QS-8-D	


Technical data → Internet: grla


# Swivel/linear drive units DSL-B




Accessories




**FESTO**

Ordering data – Sensor retainer						
	For size	Remarks	Part No.	Type		
	16, 20, 25, 32, 40	Can only be used in combination with proximity sensors SME-/SMT-10F	<b>550 661</b>	<b>SL-DSM-B</b>		

Ordering data – Proximity sensors for C-slot, magneto-resistive							Technical data → Internet: smt-10	
	Type of mounting	Switching output	Electrical connection, connection direction	Cable length [m]	Part No.	Type		
N/O contact								
	Is clamped to the DSM using the sensor retainer	PNP	Cable, 3-wire, in-line	2.5	<b>525 915</b>	<b>SMT-10F-PS-24V-K2,5L-OE</b>		
			Plug M8x1, 3-pin, in-line	0.3	<b>525 916</b>	<b>SMT-10F-PS-24V-K0,3L-M8D</b>		



Ordering data – Proximity sensors for C-slot, magnetic reed							Technical data → Internet: sme-10	
	Type of mounting	Switching output	Electrical connection, connection direction	Cable length [m]	Part No.	Type		
N/O contact								
	Is clamped to the DSM using the sensor retainer	Contacting	Plug M8x1, 3-pin, in-line	0.3	<b>525 914</b>	<b>SME-10F-DS-24V-K0,3L-M8D</b>		
			Cable, 3-wire, in-line	2.5	<b>525 913</b>	<b>SME-10F-DS-24V-K2,5L-OE</b>		
			Cable, 2-wire, in-line	2.5	<b>526 672</b>	<b>SME-10F-ZS-24V-K2,5L-OE</b>		


Ordering data – Proximity sensors for T-slot, magneto-resistive							Technical data → Internet: smt-8	
	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	2.5	<b>543 867</b>	<b>SMT-8M-PS-24V-K-2,5-OE</b>		
			Plug M8x1, 3-pin	0.3	<b>543 866</b>	<b>SMT-8M-PS-24V-K-0,3-M8D</b>		
			Plug M12x1, 3-pin	0.3	<b>543 869</b>	<b>SMT-8M-PS-24V-K-0,3-M12</b>		
	Insertable in the slot lengthwise, flush with the cylinder profile	NPN	Cable, 3-wire	2.5	<b>543 870</b>	<b>SMT-8M-NS-24V-K-2,5-OE</b>		
			Plug M8x1, 3-pin	0.3	<b>543 871</b>	<b>SMT-8M-NS-24V-K-0,3-M8D</b>		
			Cable, 3-wire	2.5	<b>175 436</b>	<b>SMT-8-PS-K-LED-24-B</b>		
			Plug M8x1, 3-pin	0.3	<b>175 484</b>	<b>SMT-8-PS-S-LED-24-B</b>		
N/C contact								
	Insertable in the slot from above, flush with the cylinder profile	PNP	Cable, 3-wire	7.5	<b>543 873</b>	<b>SMT-8M-PO-24V-K7,5-OE</b>		

Ordering data – Proximity sensors for T-slot, magnetic reed							Technical data → Internet: sme-8		
	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	Contacting	Cable, 3-wire	2.5	<b>543 862</b>	<b>SME-8M-DS-24V-K-2,5-OE</b>			
				5.0	<b>543 863</b>	<b>SME-8M-DS-24V-K-5,0-OE</b>			
			Plug M8x1, 3-pin	Cable, 2-wire	2.5	<b>543 872</b>	<b>SME-8M-ZS-24V-K-2,5-OE</b>		
				0.3	<b>543 861</b>	<b>SME-8M-DS-24V-K-0,3-M8D</b>			
	Insertable in the slot lengthwise, flush with the cylinder profile	Contacting	Cable, 3-wire	2.5	<b>150 855</b>	<b>SME-8-K-LED-24</b>			
			Plug M8x1, 3-pin	0.3	<b>150 857</b>	<b>SME-8-S-LED-24</b>			
N/C contact									
	Insertable in the slot lengthwise, flush with the cylinder profile	Contacting	Cable, 3-wire	7.5	<b>160 251</b>	<b>SME-8-O-K-LED-24</b>			

## Swivel/linear drive units DSL-B

Accessories

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	<b>541 333</b>	<b>NEBU-M8G3-K-2.5-LE3</b>
			5	<b>541 334</b>	<b>NEBU-M8G3-K-5-LE3</b>
	Straight socket, M12x1, 5-pin	Cable, open end, 3-wire	2.5	<b>541 363</b>	<b>NEBU-M12G5-K-2.5-LE3</b>
			5	<b>541 364</b>	<b>NEBU-M12G5-K-5-LE3</b>
	Angled socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	<b>541 338</b>	<b>NEBU-M8W3-K-2.5-LE3</b>
			5	<b>541 341</b>	<b>NEBU-M8W3-K-5-LE3</b>
	Angled socket, M12x1, 5-pin	Cable, open end, 3-wire	2.5	<b>541 367</b>	<b>NEBU-M12W5-K-2.5-LE3</b>
			5	<b>541 370</b>	<b>NEBU-M12W5-K-5-LE3</b>

Ordering data – Slot covers for T-slot						
	For Ø	Application	Assembly	Length [m]	Part No.	Type
	16 ... 40	For sensor slots	Insertable from above	2x 0.5	<b>151 680</b>	<b>ABP-5-S</b>
	16, 20	For profile slots	Insertable from above	2x 0.5	<b>151 681</b>	<b>ABP-5</b>
	25 ... 40				<b>151 682</b>	<b>ABP-8</b>