

Standards-based cylinders DSBC, ISO 15552

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Characteristics

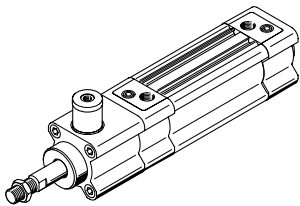
At a glance



- Standards-based cylinders to ISO15552 (corresponds to the withdrawn standards ISO 6431, DIN ISO 6431, VDMA24562, NFE49003.1 and UNI 10290)

- Double-acting
- For contactless position sensing
- Optionally with protection against rotation
- EX4: for use in potentially explosive areas
- Extensive range of accessories makes it possible to install the cylinder virtually anywhere
- Three types of cushioning available:
 - Elastic cushioning: elastic cushioning rings/plates at both ends
 - PPS cushioning: pneumatic cushioning, self-adjusting at both ends
 - PPV cushioning: pneumatic cushioning, adjustable at both ends
- The variants can be configured according to individual needs using a modular product system
- Wide range of variants provides high level of flexibility

DSBC-...-C – with clamping unit, standard hole pattern

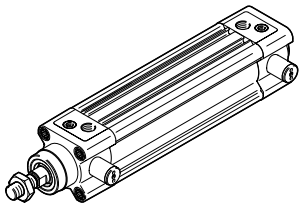


- Standard hole pattern
- Piston rod can be held or clamped in any position
- The piston rod can be held in position for long periods even with alternating loads, fluctuating operating pressure or leaks in the system

Additional measures are required for use in safety-related applications; in Europe, for example, the standards listed under the EC Machinery Directive must be observed.

Without additional measures in accordance with legally specified minimum requirements, the product is not suitable as a safety relevant component in control systems.

DSBC-...-E1/-E2/-E3 – with end-position locking, standard hole pattern

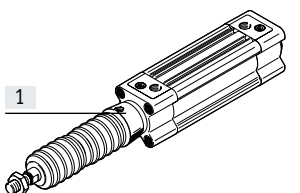


- Standard hole pattern
- Positive locking in the end position as a drop guard. In the event of a pressure drop, the piston rod is locked in its end position.
- Optionally at one or both ends

Additional measures are required for use in safety-related applications; in Europe, for example, the standards listed under the EC Machinery Directive must be observed.

Without additional measures in accordance with legally specified minimum requirements, the product is not suitable as a safety relevant component in control systems.

DSBC-...-P2 – with bellows kit DADB, standard hole pattern



The bellows protects the piston rod, the seal and the bearing from the effects of a wide range of media, which has a positive impact on the service life of these components.

The bellows kit is a leak-free system. To prevent unwanted media from being drawn in, the supply and exhaust air for the kit must be ducted via a pressure compensation hole in the connection part [1].

The kit protects the piston rod, seal and bearing against a wide variety of media, for example:

- Dust
- Chippings
- Oil
- Grease
- Fuel

Ordering the bellows kit

An extended piston rod is absolutely essential if a bellows kit is to be used. The bellows kit can be ordered via the modular product system or as an accessory. The following must be noted in this case:

Ordering via the modular product system:

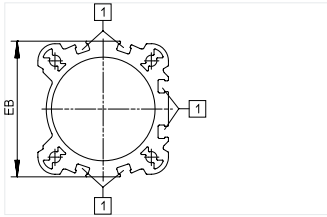
The bellows kit is supplied mounted on the bearing cap using feature P2. The required piston rod extension is automatically taken into consideration. This means that there is no need to specify a value for feature ...E.

Ordering as an accessory:

If the bellows kit is ordered as an accessory, the required value → page 52 must be entered for feature ...E in the modular product system.

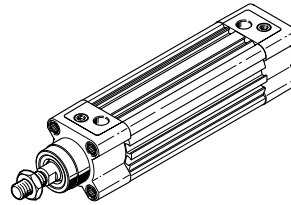
Characteristics

DSBC... D3 – Sensor slots on 3 sides



The piston position can be sensed on 3 sides of the drive if feature D3 is selected in the modular product system.

[1] Sensor slot for proximity switch



Position sensing/force control

With position transmitter SMAT, SDAT → page 62



Analogue position feedback possible

- Analogue output
 - 0 ... 10 V

With proportional-pressure regulator VPPM



Infinite adjustment of the gripping force possible

- Setpoint value input
 - 0 ... 10 V
 - 4 ... 20 mA

For manufacturing lithium-ion batteries

DSBC...-F1A

Recommended for production facilities for the manufacture of lithium-ion batteries.

Metals with more than 1% copper, zinc or nickel by mass are excluded from use.

Exceptions are nickel in steel, chemically nickel-plated surfaces, printed circuit boards, cables, electrical plug connectors and coils

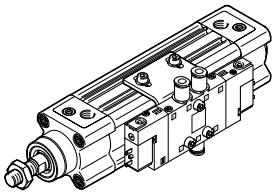
Accessories

Your Festo contact partner can provide information about which accessories are suitable for manufacturing lithium-ion batteries.

Optional accessories

Mounting kit DAVM

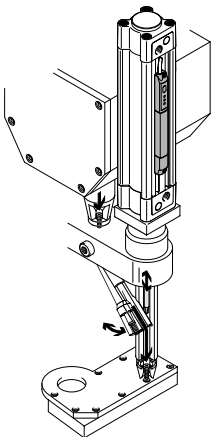
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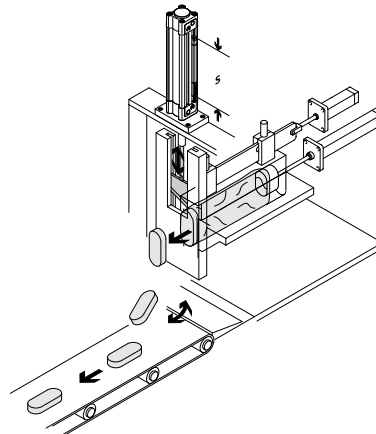
- For lateral valve mounting, directly on the drive
- Particularly suitable for decentralised use in large systems
- Mounting is only possible on the side on which the pneumatic connections are located

Application examples


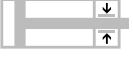






Automatic screw machine












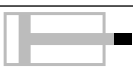
For process control



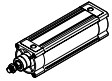
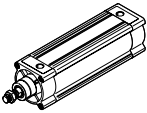
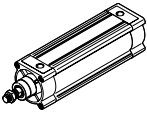
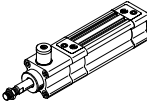
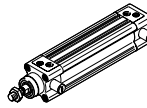
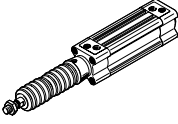
Characteristics

Variants from the modular product system		
Symbol	Characteristics	Description
	Q Square piston rod	Protection against rotation. For correctly oriented feeding
	C Clamping unit	Integrated clamping unit on the piston rod
	E1/E2/E3 End-position locking	Positive locking in the end position as a drop guard. If there is a drop in pressure, the piston rod is secured in its end position to prevent it from dropping
	L Low friction	<ul style="list-style-type: none"> • Break-away pressure: low • Dynamic response: Suitable for very fast movements, especially at low operating pressures Application example: Very dynamic movements with no standstill
	U Constant, slow movement	<ul style="list-style-type: none"> • Break-away pressure: very low • Dynamic response: Suitable for very slow, constant and stick-slip-free movements Application example: Slow, constant feed motion
	L1 Low friction for balancer applications	<ul style="list-style-type: none"> • Break-away pressure: low • Dynamic response: Suitable for slow movements with constant application of pressure at one end. System friction is independent of operating pressure Application example: Applications for load balancing (balancer, belt tensioner with constant feed motion)
	T Through piston rod	For working at both ends with the same force in the forward and return stroke, for attaching external stops
	F Female piston rod thread	–

Characteristics

Variants from the modular product system		
Symbol	Characteristics	Description
	R3 High corrosion protection	All external cylinder surfaces comply with corrosion resistance class 3 to Festo standard 940070. The piston rod is made from corrosion- and acid-resistant steel
	T1 Heat-resistant seals	Temperature range 0 ... +120°C
	T3 Low temperature	Temperature range -40 ... +80°C
	T4 Heat-resistant seals	Temperature range 0 ... +150°C
	A1 Scraper variant	Increased chemical resistance: For longer service life, e.g. when using cooling lubricants.
	A2 Wiper variant	Hard wiper: The cylinder is equipped with a hard-chrome plated piston rod and a hard scraper, which protects against dry, dusty and viscous media
	A3 Wiper variant	Unlubricated operation: Cleaning processes degrease the piston rod. A special piston rod seal designed for unlubricated operation permits a longer service life compared to the standard seal
	A6 Scraper variant	Metal wiper: The cylinder is fitted with a hard-chrome plated piston rod and metal scraper, which scrapes off hard particles (e.g. welding spatter) sticking to the piston rod. Application: Use in welding equipment
	F1A Recommended for production facilities for manufacturing lithium-ion batteries	Cylinders free of copper, zinc and nickel ($\leq 1\%$)
	...E Extended piston rod	–
	...L Extended piston rod thread	–

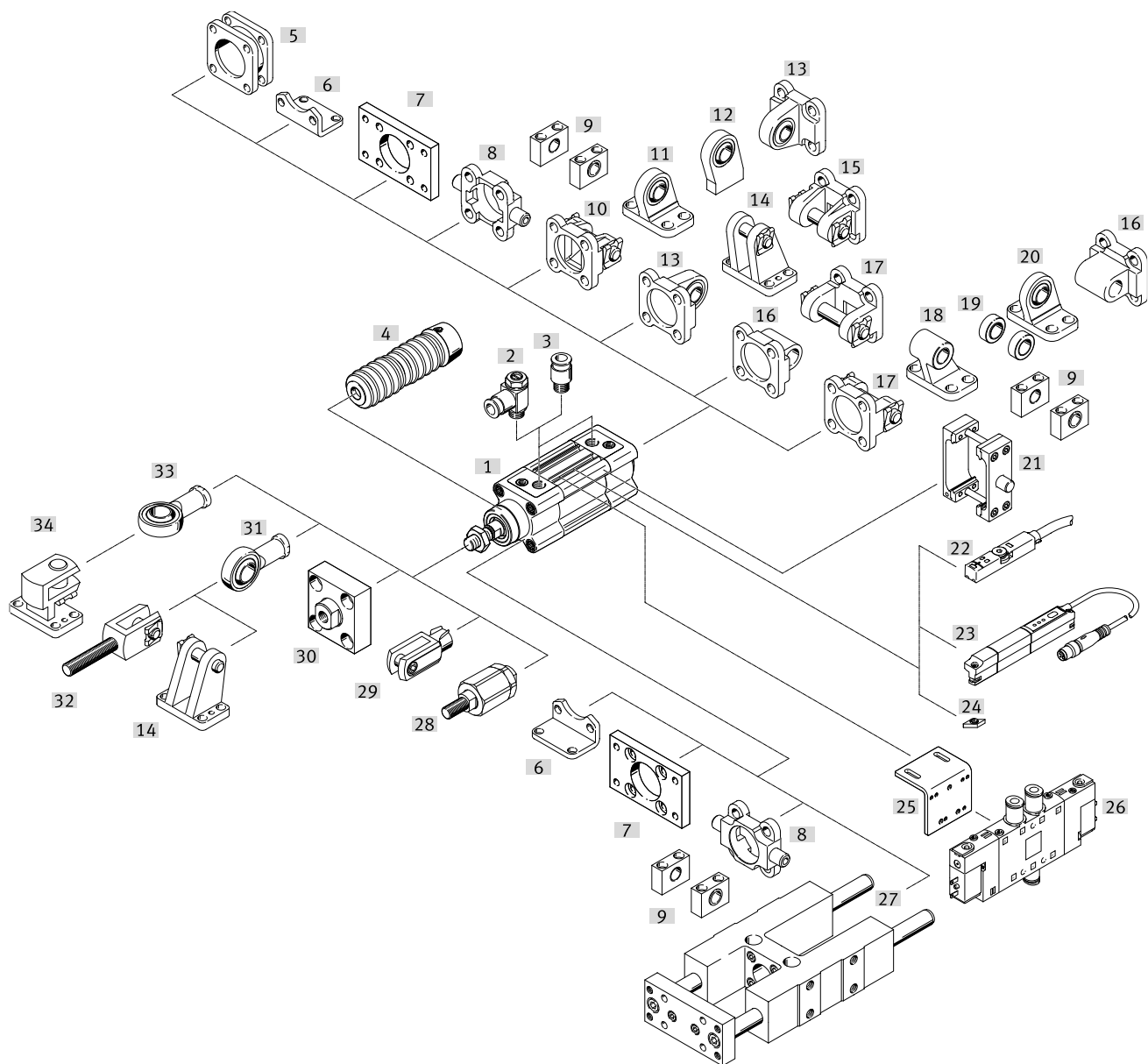
Product range overview

Function	Version	Type	Piston diameter	Stroke	Through piston rod	Female piston rod thread	Sensor slot on 3 sides	Cushioning	PPS	PPV	
			[mm]	[mm]							
Double-acting	DSBC-...										
		DSBC-...	32, 40, 50, 63, 80, 100, 125	1 ... 2800	■	■	■	■	■	■	
	DSBC-...-Q – with protection against rotation										
		DSBC-...-Q	32, 40, 50, 63, 80, 100	1 ... 1500	■	■	■	■	■	■	
	DSBC-...-L/-U/-L1 – with special running characteristics										
		DSBC-...-L	32, 40, 50, 63, 80, 100	1 ... 2800	-	■	■	■	■	■	
		DSBC-...-U	32, 40, 50, 63, 80, 100, 125	1 ... 2800	-	■	■	■	■	■	
		DSBC-...-L1	32, 40, 50, 63, 80, 100, 125	10 ... 1000	-	■	■	■	■	-	
	DSBC-...-C – with clamping unit, standard hole pattern										
		DSBC-...-C	32, 40, 50, 63, 80, 100, 125	10 ... 2000	■	■	■	■	■	■	
DSBC-...-E1/-E2/-E3 – with end-position locking, standard hole pattern											
	DSBC-...-E1/-E2/-E3	32, 40, 50, 63, 80, 100	10 ... 2000	-	■	■	■	-	■		
DSBC-...-P2 – with bellows, standard hole pattern											
	DSBC-...-P2	32, 40, 50, 63, 80, 100	10 ... 500	■	■	■	■	■	■		

Product range overview

Type	Position sensing	High corrosion protection	Temperature range 0 ... +120°C	Temperature range -40 ... +80°C	Temperature range 0 ... +150°C	Scraper variant increased chemical resistance	Scraper variant hard scraper	Scraper variant for unlubricated operation	Scraper variant metal scraper	EU certification	Piston rod extension	Extended piston rod thread
	A	R3	T1	T3	T4	A1	A2	A3	A6	EX4	...E	...L
DSBC...												
DSBC...	■	■	■	■	■	■	■	■	■	■	■	■
DSBC...-Q – with protection against rotation												
DSBC...-Q	■	■	■	-	-	-	-	-	-	■	■	■
DSBC...-L/-U/-L1 – with special running characteristics												
DSBC...-L	■	-	-	-	-	-	-	-	-	-	■	■
DSBC...-U	■	-	-	-	-	-	-	-	-	-	■	■
DSBC...-L1	■	-	-	-	-	-	-	-	-	-	■	■
DSBC...-C – with clamping unit, standard hole pattern												
DSBC...-C	■	-	-	-	-	-	-	-	-	-	■	■
DSBC...-E1/-E2/-E3 – with end-position locking, standard hole pattern												
DSBC...-E1/ E2/-E3	■	-	-	-	-	-	-	-	-	-	■	■
DSBC...-P2 – with bellows, standard hole pattern												
DSBC...-P2	■	■	-	-	-	-	-	-	-	-	■	■

Peripherals overview



Mounting components and accessories		Description	DSBC....-					→ Page/ Internet
			L/U/ L1	C	E1/E2/ E3	T		
[1]	Standards-based cylinder DSBC	Standards-based cylinder without accessories, basic design						11
[2]	One-way flow control valve GRLA	For speed regulation	■	■	■	■	■	63
[3]	Push-in fitting QS	For connecting compressed air tubing with standard O.D.	■	■	■	■	■	qs
[4]	Bellows kit DADB	<ul style="list-style-type: none"> Protects the cylinder (piston rod, seal and bearings) against a wide range of media and thus prevents premature wear Can only be used in combination with an extended piston rod (E) 	■	-	-	-	■	52
[5]	Multi-position kit DPNC	For connecting two cylinders with identical piston diameters to form a multi-position cylinder	■	-	■	■	■	56
[6]	Foot mounting HNC/CRHNC	For bearing or end caps	■	■	■	■	■	41

1) Cannot be mounted in combination with E1.
Can only be mounted on the end cap in combination with E2.
Can only be mounted on the bearing cap in combination with E3.

Peripherals overview

	Description	DSBC-...					→ Page/ Internet	
			L/U/ L1	C	E1/E2/ E3	T		
[7]	Flange mounting FNC/CRFNG	<ul style="list-style-type: none"> For bearing or end caps Cannot be used on the bearing cap in combination with the bellows kit DADB 	■	■	■	■	■	42
[8]	Trunnion flange ZNCF/CRZNG	<ul style="list-style-type: none"> For bearing or end caps Cannot be used on the bearing cap in combination with the bellows kit DADB 	■	■	■	■ ¹⁾	■	43
[9]	Trunnion support LNZG/CRLNZG	–	■	■	■	■ ¹⁾	■	44
[10][15]	Swivel flange SNC	For end caps	■	■	■	■	–	45
[11]	Clevis foot LSNG	With spherical bearing	■	■	■	■	–	50
[12]	Clevis foot LSNSG	Weld-on, with spherical bearing	■	■	■	■	–	50
[13]	Swivel flange SNCS/CRSNCS/SNCS-...-R3	With spherical bearing for end caps	■	■	■	■	–	47
[14]	Clevis foot LBG/LBG-...-R3	–	■	■	■	■	–	50
[16]	Swivel flange SNCL	For end caps	■	■	■	■	–	48
[17]	Swivel flange SNCB/SNCB-...-R3	For end caps	■	■	■	■	–	46
[18]	Clevis foot LNG/CRLNG	–	■	■	■	■	–	50
[19][20]	Clevis foot LSN	With spherical bearing	■	■	■	■	–	50
[21]	Trunnion flange kit DAMT	For mounting anywhere along the cylinder profile barrel	■	■	■	■	■	49
[22]	Proximity switch SME/SMT-8M/SDBT-MS	Can be integrated in the cylinder profile barrel	■	■	■	■	■	61
[23]	Position transmitter SMAT, SDAT	<ul style="list-style-type: none"> Continuously senses the position of the piston Has an analogue output 	■	■	■	■	■	62
[24]	Slot nut ABAN	Inserted in slot from above	■	■	■	■	■	63
[25]	Mounting kit DAVM	For mounting the valve	■	■	■	■	■	57
[26]	Solenoid valve CPE/VUVG/VUVS	For standards-based cylinder	■	■	■	■	■	57
[27]	Guide unit FENG	For protecting standards-based cylinders against rotation at high torque loads	■	■	■	–	■	60
[28]	Self-aligning rod coupler FK, CRFK	For compensating radial and angular deviations	■	■	■	■	■	51
[29]	Rod clevis SG/CRSG	Permits a swivelling movement of the cylinder in one plane	■	■	■	■	■	51
[30]	Coupling piece KSG	For compensating radial deviations	■	■	■	■	■	51
	Coupling piece KSZ	For cylinders with a non-rotating piston rod to compensate for radial deviations	■	■	■	■	■	51
[31][33]	Rod eye SGS/CRSGS	With spherical bearing	■	■	■	■	■	51
[32]	Rod clevis SGA	With male thread	■	■	■	■	■	51
[34]	Right-angle clevis foot LQG	–	■	■	■	■	■	50
–	Slot cover ABP-5-S	For protecting the sensor cable and the sensor slots from contamination	■	■	■	■	■	63

Type codes

001	Series	
DSBC	Standards-based cylinder, double-acting, based on ISO 15552	

002	Protection against rotation	
	None	
Q	With protection against rotation	

003	Running characteristics	
	Standard	
L	Low friction	
U	Uniform, slow movement	
L1	Low friction for balancer applications	

004	Piston diameter [mm]	
32	32	
40	40	
50	50	
63	63	
80	80	
100	100	
125	125	

005	Stroke [mm]	
20	20	
25	25	
30	30	
40	40	
50	50	
60	60	
70	70	
80	80	
100	100	
125	125	
150	150	
160	160	
200	200	
250	250	
300	300	
320	320	
400	400	
500	500	
...	1 ... 2800	

006	Clamping unit	
	None	
C	Attached	

007	End-position locking	
	None	
E1	Both sides	
E2	With advanced piston rod	
E3	With retracted piston rod	

008	Piston rod type	
	At one end	
T	Through piston rod	

009	Piston rod thread type	
	Male thread	
F	Female thread	

010	Profile type	
D3	Sensor slots on 3 profile sides	
	Sensor slot on one profile side only	

011	Cushioning	
P	Elastic cushioning rings/plates on both sides	
PPS	Pneumatic cushioning, self-adjusting at both ends	
PPV	Pneumatic cushioning, adjustable at both ends	

012	Position sensing	
A	For proximity sensor	

013	Corrosion protection	
	Standard	
R3	High corrosion protection	

014	Temperature range	
	Standard	
T1	Heat-resistant seals max. 120°C	
T3	-40 ... +80°C	
T4	0 ... +150°C	

015	Protection against particles	
	Standard	
P2	Bellows on bearing cap	

016	Scraper variant	
	None	
A1	Increased chemical resistance	
A2	Hard scraper	
A3	For unlubricated operation	
A6	Metal scraper	

017	Special material properties	
	None	
F1A	Recommended for production facilities for the manufacture of lithium-ion batteries	

018	EU certification	
	None	
EX4	II 2GD	

019	Piston rod extension	
	None	
...E	1 ... 500 mm	

020	Piston rod thread extension	
	None	
...L	0 ... 70 mm	