

Mini slide DGSS

FESTO



Characteristics

At a glance

Further information → dgss

- Compact drive
- Optimum price/performance ratio
- Slide and yoke plate as a single component
- Excellent positioning accuracy
- Precise and resilient rolling bearing guide
- Operation possible without additional cushioning elements.
- Optional: stroke adjustment and external cushioning using accessories
- Very flexible thanks to wide choice of mounting and attachment options
- Simple design thanks to symmetrical mounting interface

Diagrams

Further information → dgss



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

Cushioning

End-position cushioning has the following functions:

- Reduces kinetic energy in the end positions
- Avoids vibrations
- Reduces noise generation

Operation possible without additional cushioning elements.

Can be operated with external cushioning components:

- Higher permissible energy (payload and speed)
- Reduced cycle times
- Easy stroke reduction possible from one side
- Precision end-position adjustment

[E1] Elastomer cushioning, double-sided, stroke not adjustable

- Standard design
- Internal cushioning without stroke adjustment
- Elastic cushioning
- For lower cushioning energy
- Without metal fixed stop

[P] Elastic cushioning rings/plates on both sides

- External cushioning with stroke adjustment
- Elastic cushioning
- For medium cushioning energy
- Stroke reduction to the next smaller stroke is possible
- Without metal fixed stop
- Available from stroke 10 mm

[E] Elastomer cushioning, short, on both sides

- External cushioning with stroke adjustment
- Elastic cushioning
- For medium cushioning energy
- Stroke reduction, space-saving
- Without metal fixed stop
- Available from stroke 10 mm

[Y12] Shock absorber, self-adjusting, linear at both ends, external

- External cushioning with stroke adjustment
- Hydraulic cushioning
- For high cushioning energy
- Stroke reduction to the next smaller stroke is possible
- With metal fixed stop for a very precise end position
- Available from stroke 10 mm

Position sensing

[A] For proximity sensor

By using proximity switches, any position can be detected.

Characteristics

Special material properties

Product:

- Recommended for production systems for manufacturing 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, 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
DGSS	Mini slide

002	Size [mm]
16	16
20	20

003	Stroke [mm]
5	5
10	10
15	15
20	20
25	25
30	30
40	40
50	50
60	60

004	Cushioning
E1	Elastomer cushioning, double-sided, stroke not adjustable

005	Position sensing
A	For proximity sensor

Datasheet

General technical data		
Size [mm]	16	20
Piston diameter	16 mm	20 mm
Stroke	5 ... 60 mm	
Design	Yoke Piston rod Slide	
Guide	Recirculating ball bearing guide	
Mode of operation	Double-acting	
Type of mounting	Via female thread With through-hole	
Pneumatic connection	M5	
Cushioning	Elastomer cushioning, double-sided, stroke not adjustable	
Cushioning length	0.65 mm	1 mm
Position detection	Via proximity switch	
Mounting position	optional	
Max. speed ¹⁾	0.5 m/s	
Repetition accuracy ²⁾	<= 0.3 mm	

1) With shock absorber DYE (cushioning P/-E) or shock absorber DYSS (cushioning Y12): 0.8 m/s

2) With shock absorber DYSS (cushioning Y12): ≤ 0.015 mm

Operating and environmental conditions		
Size [mm]	16	20
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]	
Note on operating and pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)	
Operating pressure	0.1 ... 0.8 MPa	
Operating pressure	1 ... 8 bar	
Operating pressure	14.5 ... 116 psi	
Ambient temperature	-10 ... 60°C	
Corrosion resistance class CRC ¹⁾	1 - Low corrosion stress	

1) More information www.festo.com/x/topic/crc

Forces		
Size [mm]	16	20
Theoretical force at 0.6 MPa (6 bar, 87 psi), advance stroke	121 N	188 N
Theoretical force at 0.6 MPa (6 bar, 87 psi), return stroke	104 N	158 N

Impact energy		
Size [mm]	16	20
Impact energy in end positions ¹⁾	0.03 J	0.05 J

1) With shock absorber DYE (cushioning P/-E) - size 16: 0.11 J/With shock absorber DYE (cushioning P/-E) - size 20: 0.21 J/With shock absorber DYSS (cushioning Y12) - size 16: 0.58 J (energy per stroke)/With shock absorber DYSS (cushioning Y12) - size 20: 1.15 J (energy per stroke)

Impact energy for cushioning P/-E/-E1 - Formula

$$V = \sqrt{\frac{2 \cdot E}{m_1 + m_2}}$$

$$m_2 = \frac{2 \cdot E}{v^2} - m_1$$

The specifications represent the maximum values that can be achieved. The maximum permissible impact energy must be observed.

V = permissible impact velocity

E = max. impact energy

m1 = moving mass (drive)

m2 = moving payload

Datasheet

Impact energy for cushioning Y12 – formula

$$V = \sqrt{\frac{2 \cdot (E - (F + (m_1 + m_2) \cdot g \cdot \sin(\alpha)) \cdot s)}{m_1 + m_2}}$$

$$m_2 = \frac{E - F \cdot s}{\frac{1}{2} \cdot v^2 + g \cdot s \cdot \sin(\alpha)} - m_1$$

The specifications represent the maximum values that can be achieved. The maximum permissible impact energy must be observed.

V = permissible impact velocity

E = kinetic impact energy

F = cylinder force minus friction force

m1 = moving mass (drive)

m2 = moving payload

g = acceleration due to gravity

s = shock absorber stroke (values → DYSS catalogue)

a = angle of impact

v = impact velocity

Weights for DGSS-16

Size [mm]	16									
Stroke	5 mm	10 mm	15 mm	20 mm	25 mm	30 mm	40 mm	50 mm	60 mm	
Product weight	191 g	202 g	214 g	227 g	241 g	253 g	279 g	306 g	330 g	
Moving mass	86 g	92 g	97 g	103 g	109 g	114 g	125 g	137 g	147 g	

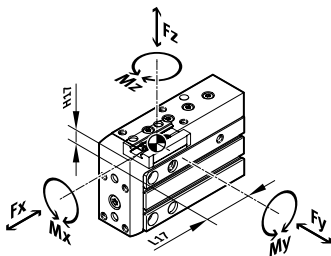
Weights for DGSS-20

Size [mm]	20									
Stroke	5 mm	10 mm	15 mm	20 mm	25 mm	30 mm	40 mm	50 mm	60 mm	
Product weight	379 g	389 g	407 g	432 g	450 g	477 g	513 g	564 g	600 g	
Moving mass	156 g	161 g	166 g	179 g	184 g	199 g	209 g	235 g	246 g	

Materials

Material cover	Wrought aluminium alloy
Material housing	Wrought aluminium alloy
Material piston rod	High-alloy stainless steel
Material guide	High-alloy steel
Material seals	NBR PU
Note on materials	RoHS-compliant
LABS (PWIS) conformity	VDMA24364-C1-L

Dynamic load values



The indicated forces and torques refer to the centre of the guide. They must not be exceeded in dynamic operation. Special attention must be paid to the deceleration process.

The values for the position of the guide centre (H17, L17) can be found in the chapter Dimensions.

Dynamic load values – formula

$$f_v = \frac{|F_{y1}|}{F_{y2}} + \frac{|F_{z1}|}{F_{z2}} + \frac{|M_{x1}|}{M_{x2}} + \frac{|M_{y1}|}{M_{y2}} + \frac{|M_{z1}|}{M_{z2}} \leq 1$$

If the drive is simultaneously subjected to several of the indicated forces and torques, the following equation must be satisfied in addition to the indicated maximum loads.

f_v = load comparison factor

F1 = dynamic value

F2 = maximum value

Datasheet

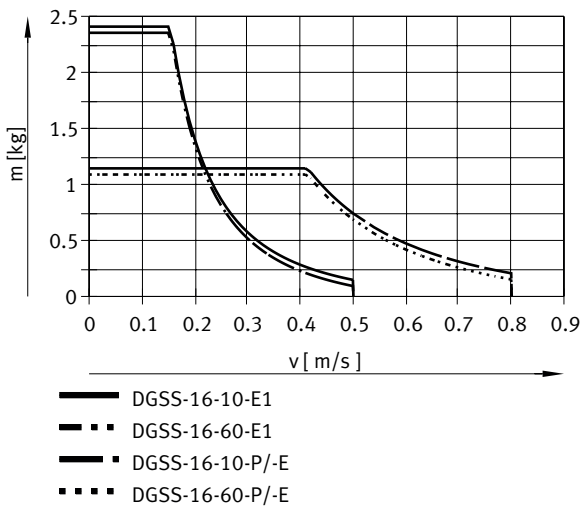
Dynamic load values for DGSS-16

Size [mm]	16									
Stroke	5 mm	10 mm	15 mm	20 mm	25 mm	30 mm	40 mm	50 mm	60 mm	
Max. force F _y	925 N				859 N	808 N	734 N	682 N	641 N	
Max. force F _z	925 N				859 N	808 N	734 N	682 N	641 N	
Max. moment M _x	4.4 Nm				4 Nm	3.8 Nm	3.5 Nm	3.2 Nm	3 Nm	
Max. moment M _y	2.6 Nm				2.4 Nm	2.3 Nm	2.1 Nm	1.9 Nm	1.8 Nm	
Max. moment M _z	2.6 Nm				2.4 Nm	2.3 Nm	2.1 Nm	1.9 Nm	1.8 Nm	

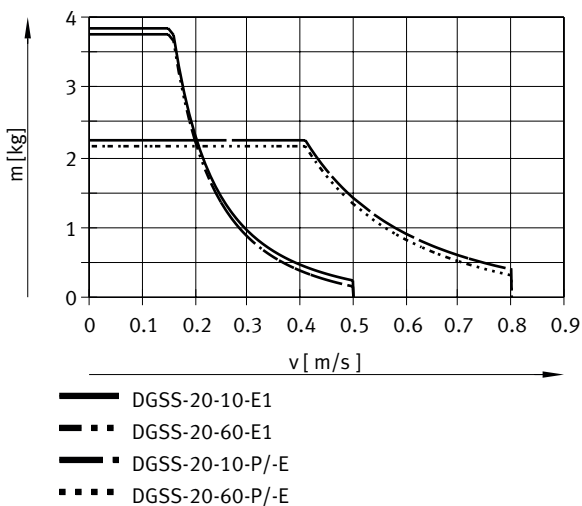
Dynamic load values for DGSS-20

Size [mm]	20									
Stroke	5 mm	10 mm	15 mm	20 mm	25 mm	30 mm	40 mm	50 mm	60 mm	
Max. force F _y	1,560 N				1,448 N	1,363 N	1,238 N	1,149 N	1,082 N	
Max. force F _z	1,560 N				1,448 N	1,363 N	1,238 N	1,149 N	1,082 N	
Max. moment M _x	10.1 Nm				9.4 Nm	8.9 Nm	8 Nm	7.5 Nm	7 Nm	
Max. moment M _y	5.1 Nm				4.7 Nm	4.4 Nm	4 Nm	3.7 Nm	3.5 Nm	
Max. moment M _z	5.1 Nm				4.7 Nm	4.4 Nm	4 Nm	3.7 Nm	3.5 Nm	

Payload m as a function of impact velocity v and cushioning P/-E/-E1

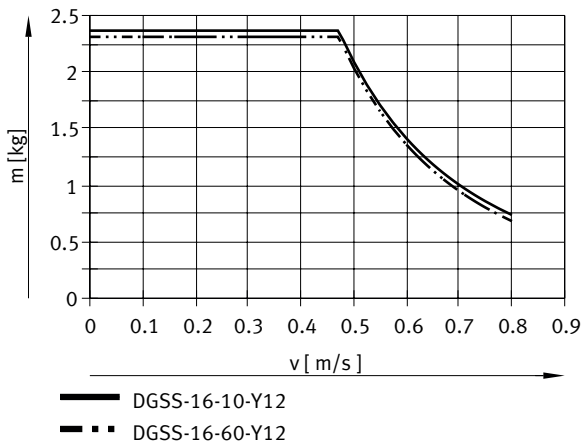


Payload m as a function of impact velocity v and cushioning P/-E/-E1

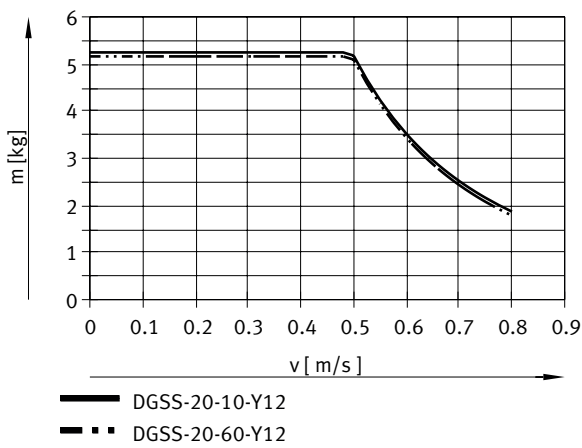


Datasheet

Payload m as a function of impact velocity v and cushioning Y12



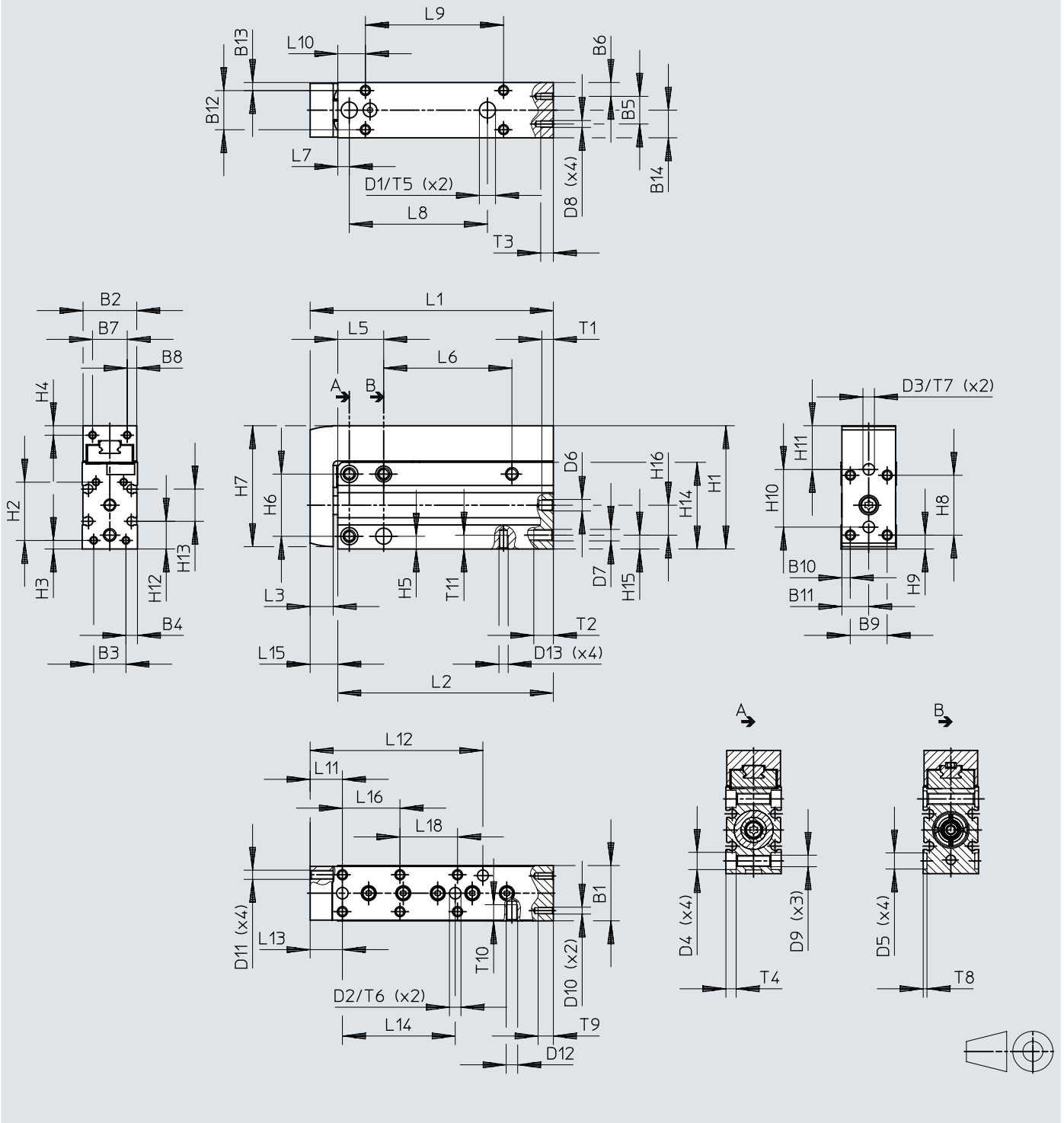
Payload m as a function of impact velocity v and cushioning Y12



Dimensions

Dimensions – DGSS-...-E1

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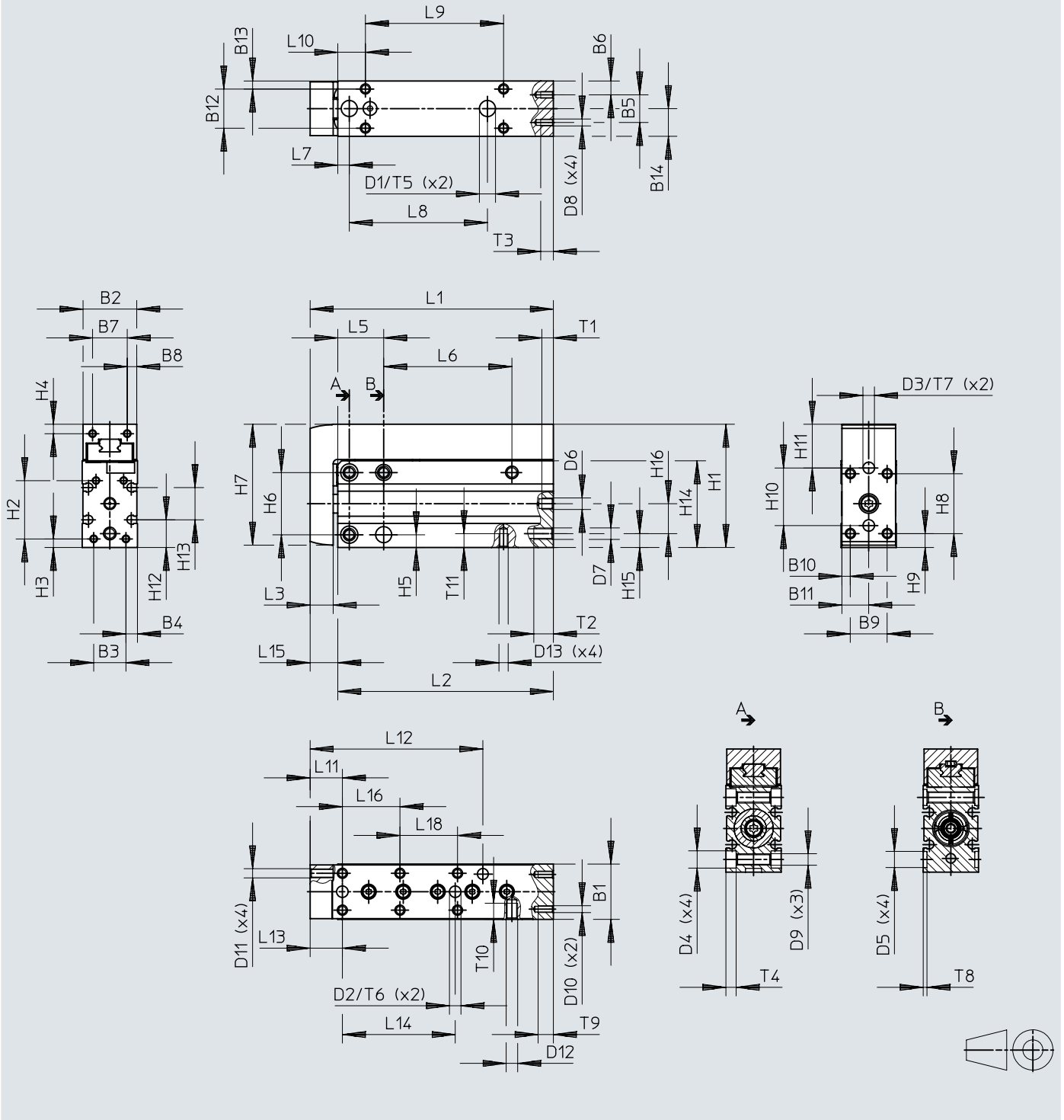
Dimensions

	B1 ±0,2	B2 ±0,1	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	D1 ∅ H7	D2 ∅ H7	D3 ∅ H7	D4 ∅ H7
DGSS-16-5-E1A	24	23,3	14	5	12	6	-	-	16	3,7	11,7	17	3,5	12	7	5	5	7,5
DGSS-16-10-E1A																		
DGSS-16-15-E1A																		
DGSS-16-20-E1A																		
DGSS-16-25-E1A																		
DGSS-16-30-E1A																		
DGSS-16-40-E1A																		
DGSS-16-50-E1A																		
DGSS-16-60-E1A																		
DGSS-20-5-E1A	32	31,3	21,6	5,2	21,6	5,2	-	-	20	5,7	15,7	20	6	16	9	7	7	9,3
DGSS-20-10-E1A																		
DGSS-20-15-E1A																		
DGSS-20-20-E1A																		
DGSS-20-25-E1A																		
DGSS-20-30-E1A																		
DGSS-20-40-E1A																		
DGSS-20-50-E1A																		
DGSS-20-60-E1A																		
	D5 ∅ H7	D6	D7	D8	D9	D10	D11	D12	D13	H1	H2	H3	H4	H5	H6	H7 ±0,2	H8	H9
DGSS-16-5-E1A	7	M5	M5	M3	M5	-	M4	-	M4	53,5	25,3	3,7	-	5,5	27	52,5	26	6
DGSS-16-10-E1A																		
DGSS-16-15-E1A																		
DGSS-16-20-E1A																		
DGSS-16-25-E1A																		
DGSS-16-30-E1A																		
DGSS-16-40-E1A																		
DGSS-16-50-E1A																		
DGSS-16-60-E1A																		
DGSS-20-5-E1A	9	M5	M5	M4	M6	-	M4	-	M5	64,5	26,7	5	-	6	34	63,5	34	6
DGSS-20-10-E1A																		
DGSS-20-15-E1A																		
DGSS-20-20-E1A																		
DGSS-20-25-E1A																		
DGSS-20-30-E1A																		
DGSS-20-40-E1A																		
DGSS-20-50-E1A																		
DGSS-20-60-E1A																		

Dimensions

Dimensions – DGSS-...-E1

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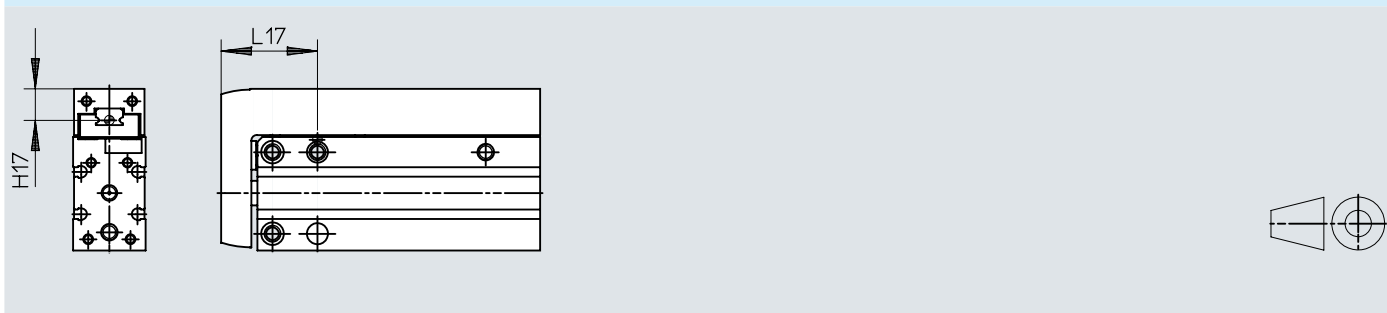
Dimensions

	H10	H11	H12	H13	H14	H15	H16	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	
DGSS-16-5-E1A	25	19	12	14	37,6	6	13	60,6	48,6	10	5	19,9	-	5	37	35	12	14	
DGSS-16-10-E1A								65,6	53,6										15
DGSS-16-15-E1A								70,6	58,6										20
DGSS-16-20-E1A								75,6	63,6										25
DGSS-16-25-E1A								80,6	68,6										30
DGSS-16-30-E1A								85,6	73,6										35
DGSS-16-40-E1A								95,6	83,6										40
DGSS-16-50-E1A								105,6	93,6										50
DGSS-16-60-E1A								115,6	103,6										60
DGSS-20-5-E1A								34	22										17
DGSS-20-10-E1A	78	65,5	15																
DGSS-20-15-E1A	83	70,5	20																
DGSS-20-20-E1A	88	75,5	25																
DGSS-20-25-E1A	93	80,5	30																
DGSS-20-30-E1A	98	85,5	35																
DGSS-20-40-E1A	108	95,5	45																
DGSS-20-50-E1A	118	105,5	55																
DGSS-20-60-E1A	128	115,5	65																

	L12	L13	L14	L15	L16	L18	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11													
							max.	±1	max.	±0,05				±0,05	max.	max.	max.													
DGSS-16-5-E1A	-	14	19	12	10	5	8,5	5,5	4,4	1,7	1,4	1,4	1,7	-	6,6	6	8													
DGSS-16-10-E1A	55,8				20									-																
DGSS-16-15-E1A	60				34									20				20												
DGSS-16-20-E1A																		25	25											
DGSS-16-30-E1A																		30	30											
DGSS-16-40-E1A																		49	30	30										
DGSS-16-50-E1A	75				23									12,5				30	10	6,5	8	2,1	1,7	1,7	2,1	-	7,5	9	8	
DGSS-20-5-E1A	-																		20							-				
DGSS-20-10-E1A	67																		41							20				20
DGSS-20-15-E1A	69																													59
DGSS-20-20-E1A		20	20																											
DGSS-20-25-E1A				30		30																								
DGSS-20-30-E1A	73	59	25				25																							
DGSS-20-40-E1A	82			30		30																								

Dimensions

Dimensions – DGSS-...-E1 guide centre and additional stroke/cushioning stroke

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	H17	L17
DGSS-16-...-E1A	10,4	31,9
DGSS-20-...-E1A	10,8	35,9

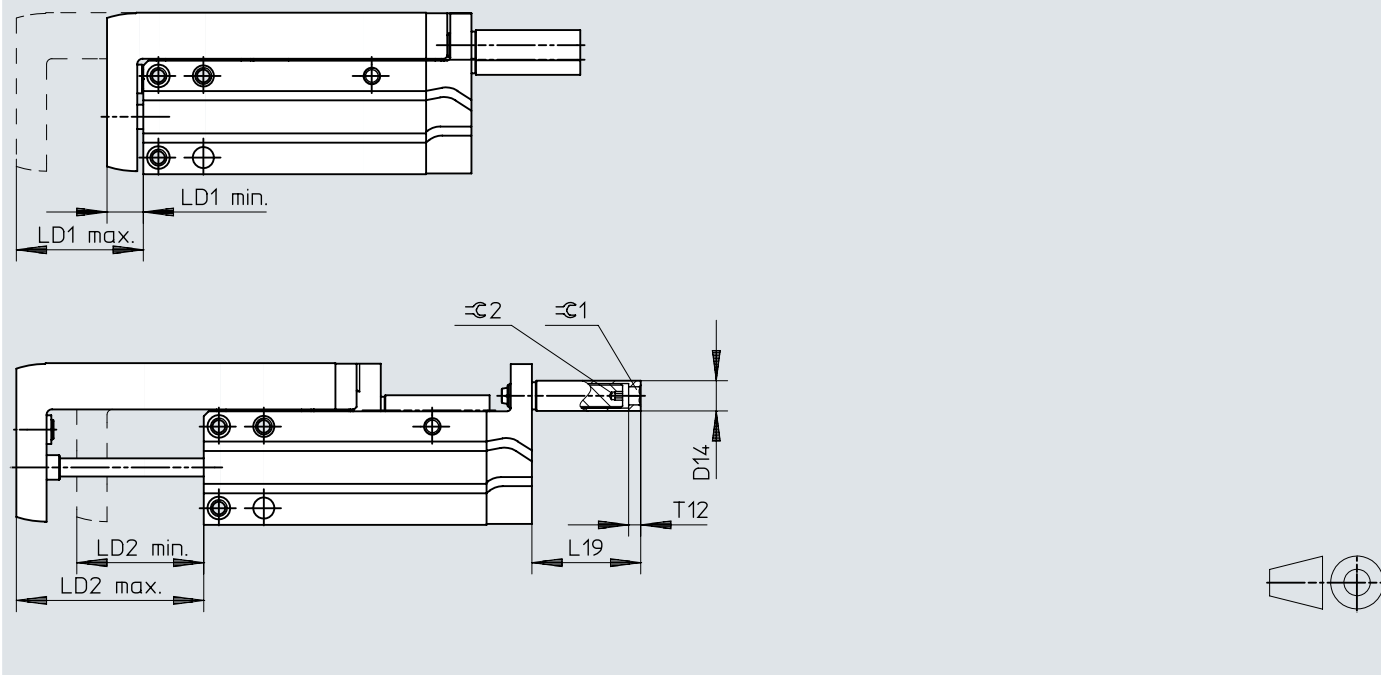
	1)	2)	3)	4)
DGSS-16-...-E1A	1,9	0,65	0,65	0,6
DGSS-20-...-E1A	1,9	0,4	1	0,5

- 1) Max. additional stroke = additional stroke without cushioning + max. cushioning stroke for the retracted/extended end position.
- 2) Additional stroke without cushioning. Without pressurisation and with cushioning.
- 3) Max. cushioning stroke for the retracted end position.
- 4) Max. cushioning stroke for the extended end position.

Dimensions

Dimensions – DGSS-...-E1 with stop kit DADP and shock absorber DYE-F-G8-...-Y1 (cushioning P)

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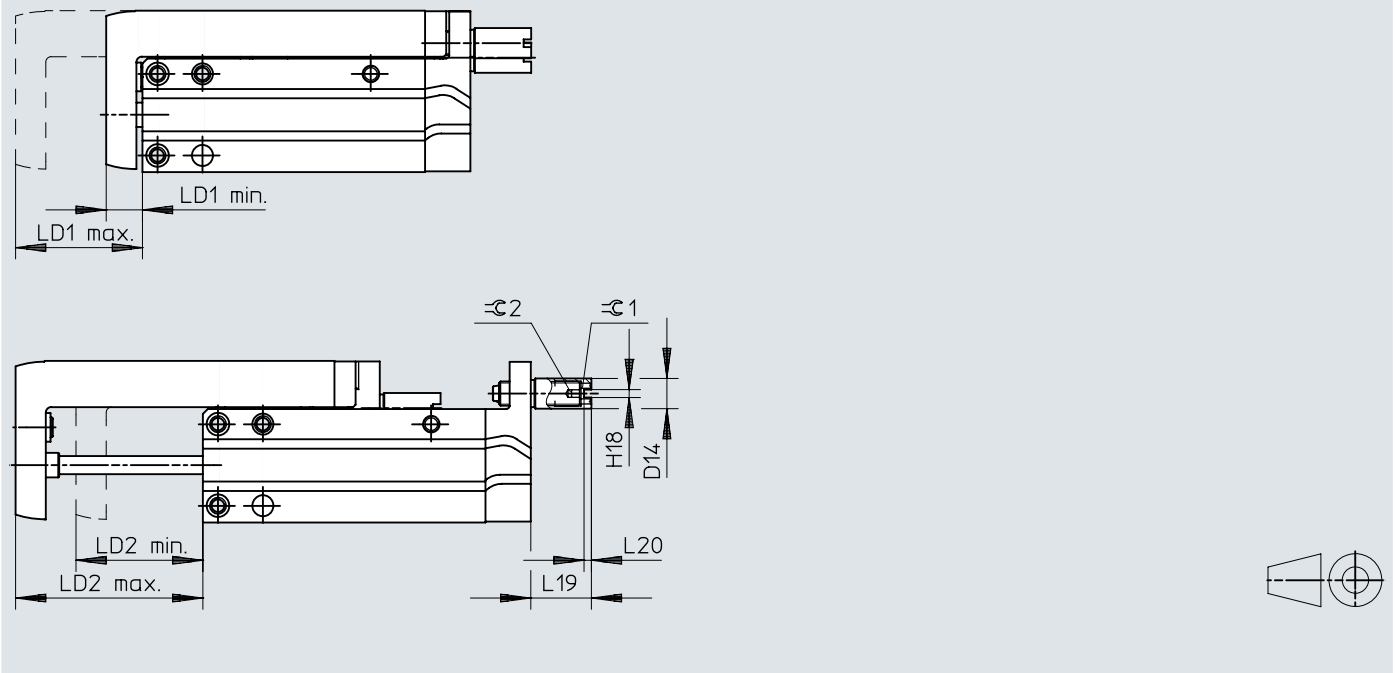
	D14 ∅	L19	LD1			LD2			T12	±ε1	±ε2
			1)	min.	max.	1)	min.	max.			
DGSS-16-10-E1A	10	36	22,4	12,4	34,7	10	12,4	22,4	4	6	2,5
DGSS-16-15-E1A							17,4	27,4			
DGSS-16-20-E1A							22,4	32,4			
DGSS-16-25-E1A							27,4	37,4			
DGSS-16-30-E1A							32,4	42,4			
DGSS-16-40-E1A							42,4	52,4			
DGSS-16-50-E1A							52,4	62,4			
DGSS-16-60-E1A	62,4	72,4									
DGSS-20-10-E1A	13	39	20,7	12,8	33,5	10	12,8	22,8	5	8	3
DGSS-20-15-E1A						15	27,8				
DGSS-20-20-E1A						19,1	13,7	32,8			
DGSS-20-25-E1A							18,7	37,8			
DGSS-20-30-E1A							32,8	42,8			
DGSS-20-40-E1A							33,7	52,8			
DGSS-20-50-E1A							43,7	62,8			
DGSS-20-60-E1A							53,7	72,8			

1) Setting range

Dimensions

Dimensions – DGSS-...-E1 with stop kit DADP and shock absorber DYE-F-G8-S-...-Y1 (cushioning E)

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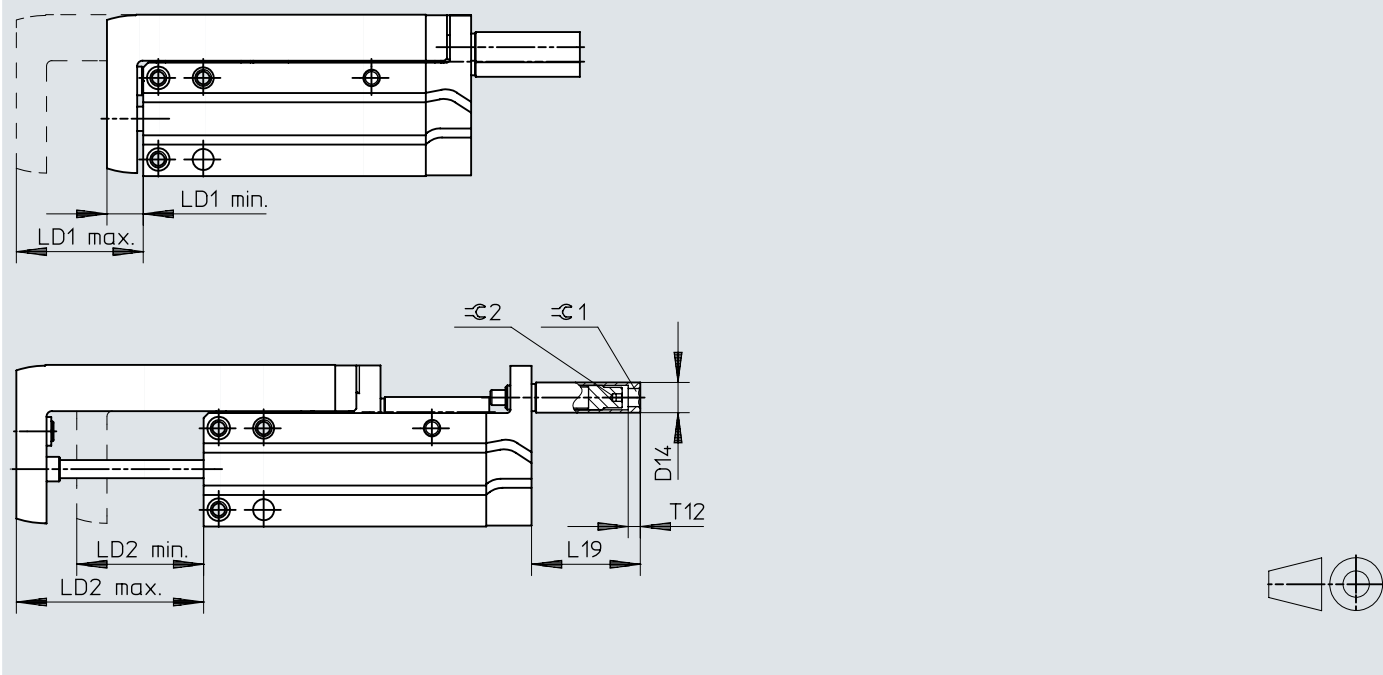
	D14 ø	H18	L19	L20	LD1			LD2			Ø1	Ø2
					1)	min.	max.	1)	min.	max.		
DGSS-16-10-E1A	10	2,6	20,1	2,5	8,1	15,3	23,4	8,1	15,3	21,3	6	2,5
DGSS-16-15-E1A									18,2	26,3		
DGSS-16-20-E1A									23,2	31,3		
DGSS-16-25-E1A									28,2	36,3		
DGSS-16-30-E1A									33,2	41,3		
DGSS-16-40-E1A									43,2	51,3		
DGSS-16-50-E1A									53,2	61,3		
DGSS-16-60-E1A									63,2	71,3		
DGSS-20-10-E1A	13	3,1	21,4	3	6,9	15,1	21,9	7,4	15,3	22,7	8	3
DGSS-20-15-E1A									20,3	27,7		
DGSS-20-20-E1A									25,3	32,7		
DGSS-20-25-E1A									30,3	37,7		
DGSS-20-30-E1A									35,3	42,7		
DGSS-20-40-E1A									45,3	52,7		
DGSS-20-50-E1A									55,3	62,7		
DGSS-20-60-E1A									65,3	72,7		

1) Setting range

Dimensions

Dimensions – DGSS-...-E1 with stop kit DADP and shock absorber DYSS-G8-...-Y1F (cushioning Y12)

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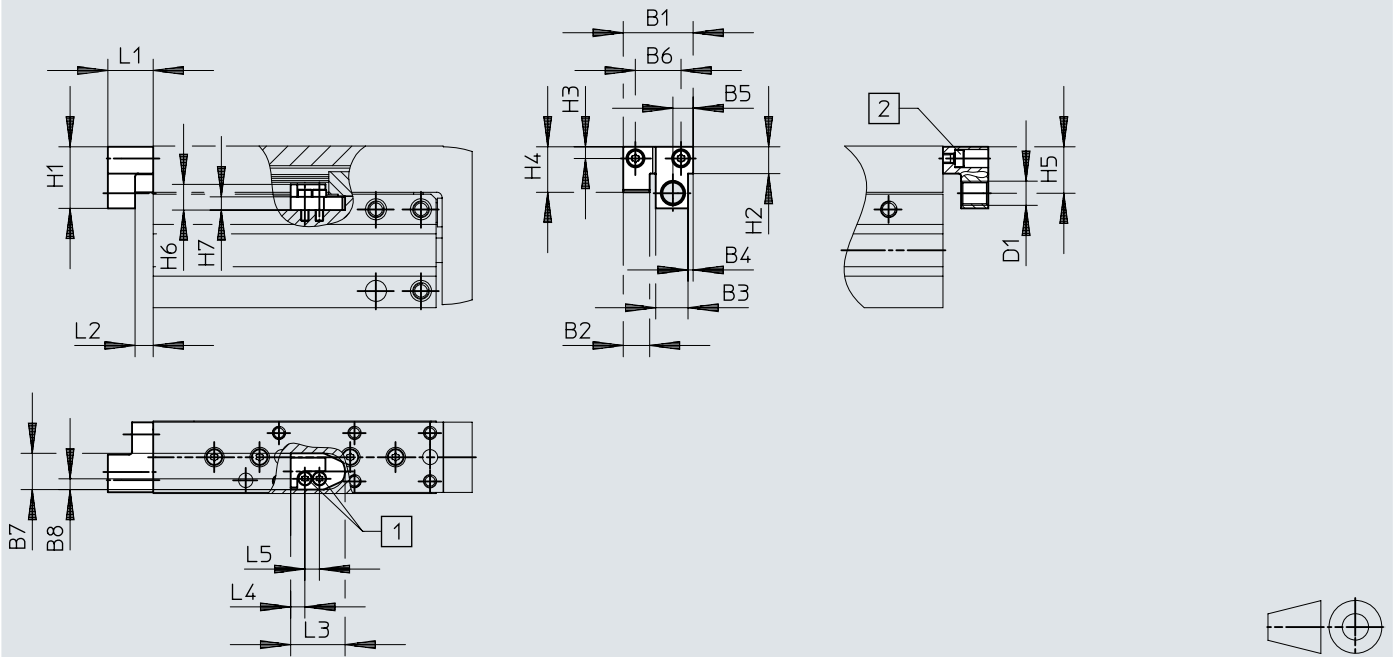
	D14 ∅	L19	LD1			LD2			T12	⌀1	⌀2
			1)	min.	max.	1)	min.	max.			
DGSS-16-10-E1A	10	36	15,8	12,9	28,6	10	12,9	22,9	4	6	2,5
DGSS-16-15-E1A							17,9	27,9			
DGSS-16-20-E1A							22,9	32,9			
DGSS-16-25-E1A							27,9	37,9			
DGSS-16-30-E1A							32,9	42,9			
DGSS-16-40-E1A							42,9	52,9			
DGSS-16-50-E1A							52,9	62,9			
DGSS-16-60-E1A	62,9	72,9									
DGSS-20-10-E1A	13	39	13,6	13,3	26,9	5	13,3	18,3	5	8	3
DGSS-20-15-E1A						10		23,3			
DGSS-20-20-E1A						13	15,3	28,3			
DGSS-20-25-E1A							20,3	33,3			
DGSS-20-30-E1A							25,3	38,3			
DGSS-20-40-E1A							30,3	43,3			
DGSS-20-50-E1A							40,3	53,3			
DGSS-20-60-E1A							50,3	63,3			

1) Setting range

Dimensions

Dimensions – Stop kit DADP-SP-G9-...-F

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- [1] DADP-SP-G9-16-F: M2.5x8 screw – DADP-SP-G9-20-F: M3x12 screw
- [2] DADP-SP-G9-16-F: M3x10 screw – DADP-SP-G9-20-F: M4x10 screw

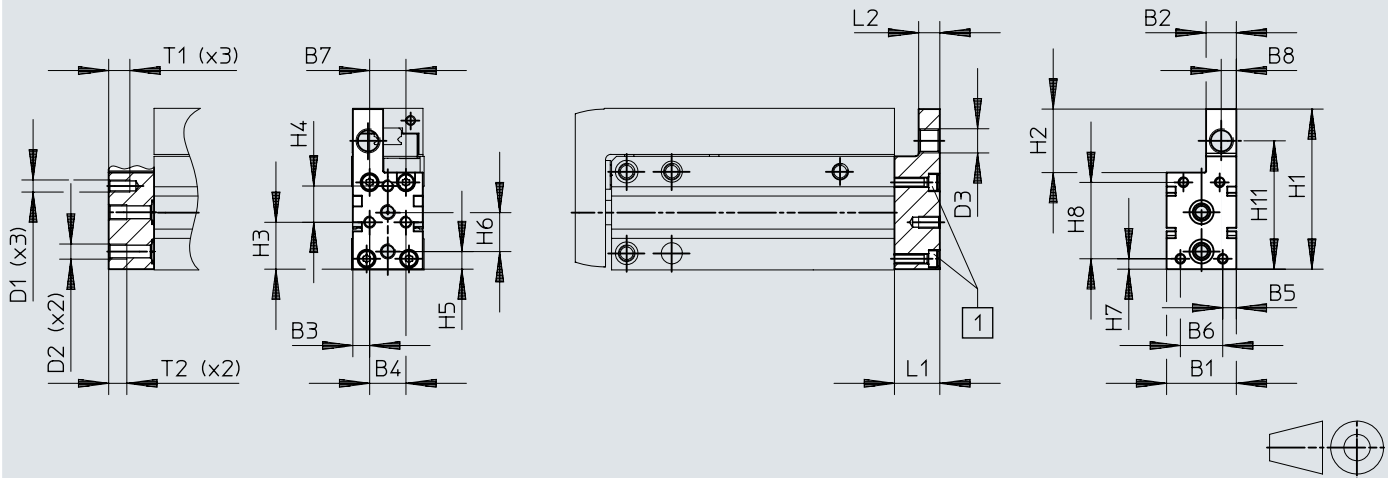
	B1	B2	B3	B4	B5	B6	B7	B8	D1	H1	H2
	-0,1						-0,05				
DADP-SP-G9-16-F	23,1	8,7	10,7	1,7	6,7	15,1	12	3,6	M8x1	20,4	8,9
DADP-SP-G9-20-F	31,1	13	13,4	2,8	9,5	21,7	15		M10x1	27,1	13,2

	H3	H4	H5	H6	H7	L1	L2	L3	L4	L5
				-0,1	-0,1					
DADP-SP-G9-16-F	3,9	15,1	15,4	8,5	4,4	15	6	18	4,7	4,8
DADP-SP-G9-20-F	4,6	17,4	20,4	13	7,4	20,5	9	22	9	6

Dimensions

Dimensions – Stop kit DADP-SP-G9-...-R

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[1] DADP-SP-G9-16-R: screw M3x16 – DADP-SP-G9-20-R: screw M4x22

	B1	B2	B3	B4	B5	B6	B7	B8	D1	D2	D3
	-0,1	-0,1									
DADP-SP-G9-16-R	23,1	10	5,6	12	4,6	14	12	5	M4	M5	M8x1
DADP-SP-G9-20-R	31	14,1	7	17	4,7	21,6	17	7,3	M5		M10x1

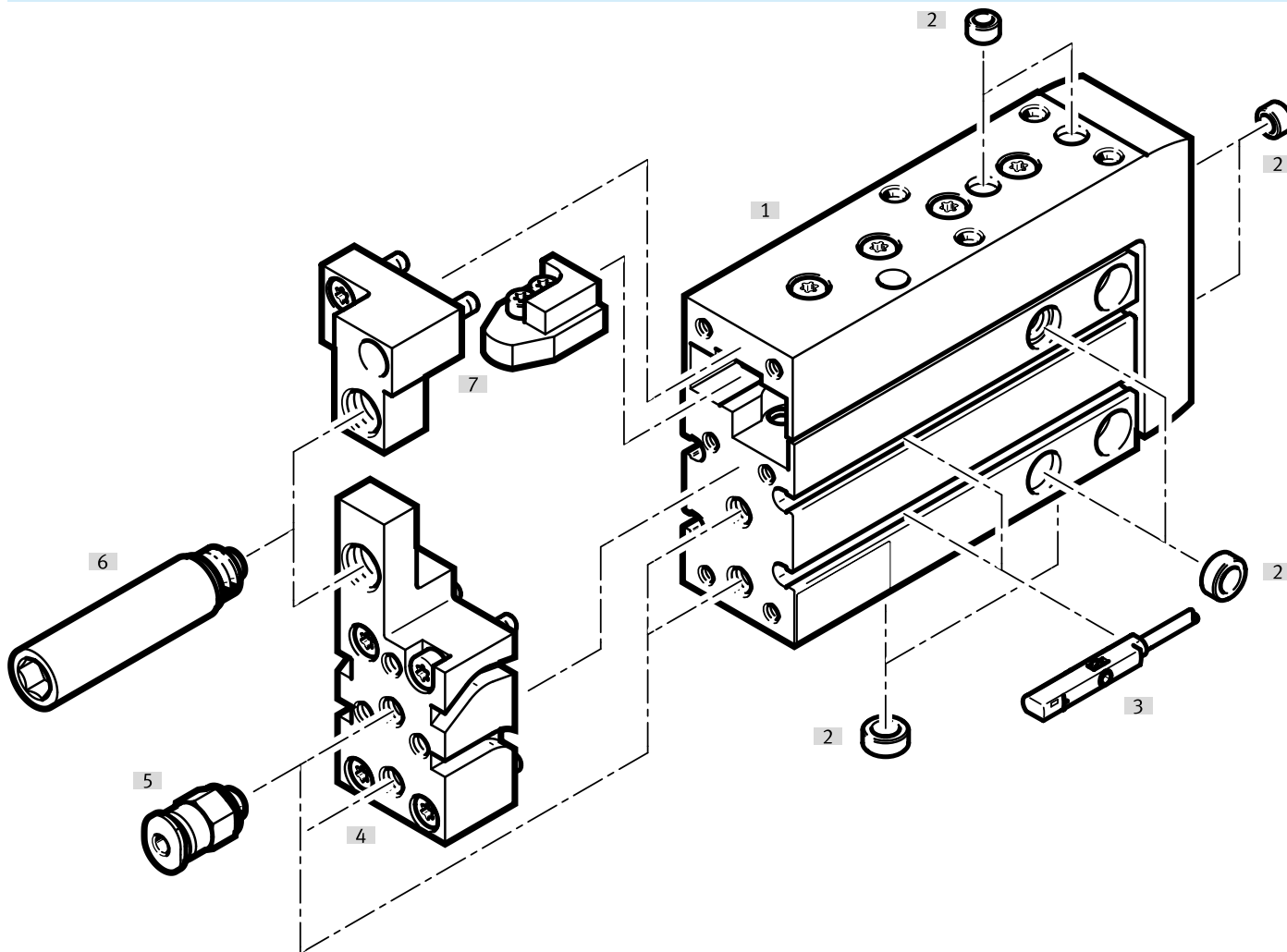
	H1	H2	H3	H4	H5	H6	H7	H8	H11	L1	L2
	-0,1										
DADP-SP-G9-16-R	52,9	21	15,5	12	5,8	13	3,4	25,3	42,4	15	7
DADP-SP-G9-20-R	63,9	27,9	16	16	6,7	16	4,7	26,7	52	20,5	9,8

Ordering data

Ordering data					
	Size	Stroke	Cushioning	Part no.	Type
	16	5 mm	Elastomer cushioning, double-sided, stroke not adjustable	8164068	DGSS-16-5-E1A
		10 mm		8164069	DGSS-16-10-E1A
		15 mm		8164070	DGSS-16-15-E1A
		20 mm		8164071	DGSS-16-20-E1A
		25 mm		8164072	DGSS-16-25-E1A
		30 mm		8164073	DGSS-16-30-E1A
		40 mm		8164074	DGSS-16-40-E1A
		50 mm		8164075	DGSS-16-50-E1A
		60 mm		8164076	DGSS-16-60-E1A
		20		5 mm	8164077
	10 mm		8164078	DGSS-20-10-E1A	
	15 mm		8164079	DGSS-20-15-E1A	
	20 mm		8164080	DGSS-20-20-E1A	
	25 mm		8164081	DGSS-20-25-E1A	
	30 mm		8164082	DGSS-20-30-E1A	
	40 mm		8164083	DGSS-20-40-E1A	
	50 mm		8164084	DGSS-20-50-E1A	
	60 mm		8164085	DGSS-20-60-E1A	

Peripherals

Peripherals overview





Accessories		→ Page/Internet
Type/order code	Description	
[1] Mini slide DGSS	Compact version	dgss
[2] Centring sleeve ZBH	<ul style="list-style-type: none"> • For centring loads and attachments • Centring sleeves are not in the scope of delivery of the mini slide 	24
[3] Proximity switch SMT-10M	<ul style="list-style-type: none"> • For round slot • For position sensing 	22
[3] Proximity switch SMT-10G	<ul style="list-style-type: none"> • For round slot • For position sensing 	23
[4] Stop kit DADP-...-R	<ul style="list-style-type: none"> • For mounting shock absorbers • For cushioning the extended and retracted end position • Stop kit DADP-...-F included in the scope of delivery 	23
[5] Push-in fitting QSM	For connecting tubing with standard O.D	22
[5] One-way flow control valve GRLA	For regulating speed	22
[6] Shock absorber DYEF-G8-...-Y1	<ul style="list-style-type: none"> • Cushioning P • For cushioning the end positions • Elastic cushioning rings/pads at both ends without metal fixed stop • Threaded sleeve included in the scope of delivery 	24
[6] Shock absorber DYEF-G8-S-...-Y1	<ul style="list-style-type: none"> • Cushioning E • For cushioning the end positions • Elastic cushioning rings/pads at both ends without metal fixed stop • Short design • Threaded sleeve included in the scope of delivery 	24


Peripherals

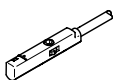
Accessories		→ Page/Internet
Type/order code	Description	
[6] Shock absorber DYSS-G8-...-Y1F	<ul style="list-style-type: none"> • Cushioning Y12 • For cushioning the end positions • Self-adjusting, hydraulic • Threaded sleeve included in the scope of delivery 	24
[7] Stop kit DADP-...-F	<ul style="list-style-type: none"> • For mounting shock absorbers • For cushioning the extended end position 	23

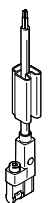
Accessories

Push-in fitting QSM						
	Pneumatic connection 1	Pneumatic connection, port 2	Note on materials	Product weight	Part no.	Type
	Male thread M5	For tubing outer diameter of 3 mm	RoHS-compliant	3.4 g	153302	QSM-M5-3
		For tubing outside diameter of 4 mm		3.2 g	★ 153304	QSM-M5-4
		For tubing outside diameter of 6 mm		4.5 g	★ 153306	QSM-M5-6


Push-in fitting QSM-...-I						
	Pneumatic connection 1	Pneumatic connection, port 2	Note on materials	Product weight	Part no.	Type
	Male thread M5	For tubing outer diameter of 3 mm	RoHS-compliant	3.2 g	153313	QSM-M5-3-I
		For tubing outside diameter of 4 mm		3 g	★ 153315	QSM-M5-4-I
		For tubing outside diameter of 6 mm		4.4 g	★ 153317	QSM-M5-6-I

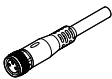
One-way flow control valve GRLA						
	Pneumatic connection, port 2	Pneumatic connection 1	Note on materials	Product weight	Part no.	Type
	M5	Push-in connector 3 mm	RoHS-compliant	1.3 g	★ 193137	GRLA-M5-QS-3-D
		Push-in connector 4 mm			★ 193138	GRLA-M5-QS-4-D
		Push-in connector 6 mm			★ 193139	GRLA-M5-QS-6-D

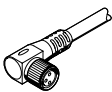
Proximity switch SMT-10M for round slot, magneto-resistive						
	Type of mounting	Switching output	Electrical connection	Cable length	Part no.	Type
	Screw-clamped, Insertable in the slot from above	3-wire NPN N/O contact	Open end	2.5 m	★ 551377	SMT-10M-NS-24V-E-2,5-L-OE
			Plug M8, A-coded	0.3 m	★ 551379	SMT-10M-NS-24V-E-0,3-L-M8D
		3-wire PNP N/O contact	Open end	2.5 m	★ 551373	SMT-10M-PS-24V-E-2,5-L-OE
			Plug M8, A-coded	0.3 m	★ 551375	SMT-10M-PS-24V-E-0,3-L-M8D
		2-wire PNP N/O contact	Open end	2.5 m	★ 551382	SMT-10M-ZS-24V-E-2,5-L-OE

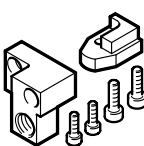
Proximity switch SMT-10G for round slot, magneto-resistive						
	Type of mounting	Switching output	Electrical connection	Cable length	Part no.	Type
	Clamped in C-slot, Insertable in the slot lengthwise	3-wire NPN N/O contact	Open end	2.5 m	8065030	SMT-10G-NS-24V-E-2,5Q-OE

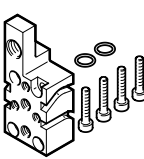
Accessories

Proximity switch SMT-10G for round slot, magneto-resistive						
	Type of mounting	Switching output	Electrical connection	Cable length	Part no.	Type
	Clamped in C-slot, Insertable in the slot lengthwise	3-wire NPN N/O contact	Plug M8, A-coded	0.3 m	8065029	SMT-10G-NS-24V-E-0,3Q-M8D
		3-wire PNP N/O contact	Open end	2.5 m	547862	SMT-10G-PS-24V-E-2,5Q-OE
			Plug M8, A-coded	0.3 m	547863	SMT-10G-PS-24V-E-0,3Q-M8D

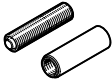
Connecting cables NEBU, straight						
	Electrical connection 1, connector system	Electrical connection 2, connector system	Electrical connection 2, number of connections/cores	Cable length	Part no.	Type
	M8x1, A-coded, to EN 61076-2-104	Open end	3	2.5 m	★ 541333	NEBU-M8G3-K-2.5-LE3
				5 m	★ 541334	NEBU-M8G3-K-5-LE3

Connecting cables NEBU, 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	★ 541338	NEBU-M8W3-K-2.5-LE3
				5 m	★ 541341	NEBU-M8W3-K-5-LE3

Stop kit DADP-...-F						
	Size	Material stops	Note on materials	Product weight	Part no.	Type
	16	High-alloy steel	RoHS-compliant	36 g	8173538	DADP-SP-G9-16-F
	20			87 g	8173539	DADP-SP-G9-20-F

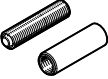
Stop kit DADP-...-R						
	Size ¹⁾	Material plate	Note on materials	Product weight	Part no.	Type
	16	Anodised wrought aluminium alloy	RoHS-compliant	68 g	8173534	DADP-SP-G9-16-R
	20			160 g	8173535	DADP-SP-G9-20-R

1) Scope of delivery: DADP-...-R and DADP-...-F stop kits

Shock absorber DYEF-G8-...-Y1 (cushioning P)						
	Description ¹⁾	Cushioning	Material housing	Product weight	Part no.	Type
	For size 16	Elastic cushioning rings/pads at both ends without metal fixed stop	High-alloy steel	23 g	★ 8073905	DYEF-G8-M8-Y1

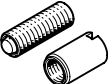
Accessories

Shock absorber DYEF-G8-...-Y1 (cushioning P)

	Description ¹⁾	Cushioning	Material housing	Product weight	Part no.	Type
	For size 16	Elastic cushioning rings/pads at both ends without metal fixed stop	High-alloy steel	23 g	8131073	DYEF-G8-M8-Y1-F1A
	For size 20			41 g	★ 8073906	DYEF-G8-M10-Y1
				8131074	DYEF-G8-M10-Y1-F1A	

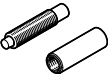
1) Scope of delivery: 1 cushioning component and 1 threaded sleeve
 DYEF-...-F1A: Recommended for production systems for manufacturing lithium-ion batteries. Further information www.festo.com/x/topic/bat

Shock absorber DYEF-G8-S-...-Y1 (cushioning E)

	Description ¹⁾	Cushioning	Material housing	Product weight	Part no.	Type
	For size 16	Elastic cushioning rings/pads at both ends without metal fixed stop	High-alloy steel	14.6 g	8159473	DYEF-G8-S-M8-Y1
	For size 20			26 g	8159474	DYEF-G8-S-M10-Y1


1) Scope of delivery: 1 cushioning component and 1 threaded sleeve

Shock absorber DYSS-G8-...-Y1F (cushioning Y12)


	Description ¹⁾	Cushioning	Material housing	Product weight	Part no.	Type
	For size 16	Self-adjusting	High-alloy steel	16 g	★ 8073914	DYSS-G8-5-5-Y1F
					8119983	DYSS-G8-5-5-Y1F-F1A
	For size 20			33 g	★ 8073915	DYSS-G8-7-5-Y1F
				8119984	DYSS-G8-7-5-Y1F-F1A	

1) Scope of delivery: 1 cushioning component and 1 threaded sleeve
 DYSS-...-F1A: Recommended for production plants for manufacturing lithium-ion batteries. More information www.festo.com/x/topic/bat


Centring sleeve ZBH-5

	Description	Material sleeve	Size of pack	Product weight	Part no.	Type
	For size 16	Steel	10	1 g	8146543	ZBH-5-B

Centring sleeve ZBH-7

	Description	Material sleeve	Size of pack	Product weight	Part no.	Type
	For size 16, 20	Steel	10	1 g	8146544	ZBH-7-B

Centring sleeve ZBH-9

	Description	Material sleeve	Size of pack	Product weight	Part no.	Type
	For size 20	Steel	10	2 g	8137184	ZBH-9-B