Suction cup with connector ESS

Characteristics

At a glance Link ess

Suction cup consisting of the suction cup itself plus the support plate with mounting

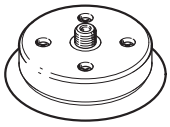
- Suction volume: 0.002 ... 245 cm³
- Min. workpiece radius: 10 ... 680 mm
- Mounting for suction cup holder: Female, male thread, push-in connection
- Suction cup with mounting thread

Additional documents Link ess

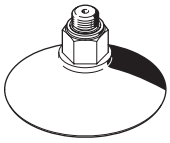
The additional document ESS-ESV-ADD contains further information on using suction cups without connector ESV and suction cups with connector ESS.

Suction cup shape

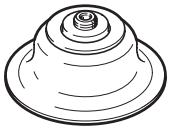
[S] Round, standard



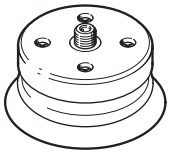
[G] Round, bell shape



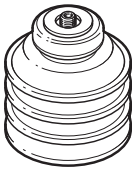
[E] Round, extra-deep



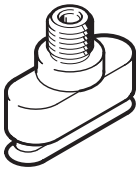
[B] Round, bellows, 1.5 convolutions



[C] Round, bellows, 3.5 convolutions



[O] Oval, flat



Type code

001	Series	
ESS	Suction cup complete	

002	Suction cup size	
2	2 mm diameter	
4	4 mm diameter	
4x10	4x10 mm	
4x20	4x20 mm	
6	6 mm diameter	
6x10	6x10 mm	
6x20	6x20 mm	
8	8 mm diameter	
8x20	8x20 mm	
8x30	8x30 mm	
10	10 mm diameter	
10x30	10x30 mm	
15	15 mm diameter	
15x45	15x45 mm	
20	20 mm diameter	
20x60	20x60 mm	
25x75	25x75 mm	
30	30 mm diameter	
30x90	30x90 mm	
40	40 mm diameter	
50	50 mm diameter	
60	60 mm diameter	
80	80 mm diameter	
100	100 mm diameter	
150	150 mm diameter	
200	200 mm diameter	

003	Suction cup shape	
B	Round, bellows, 1.5 convolutions	
C	Round, bellows, 3.5 convolutions	
E	Round, extra-deep	
G	Round, bell shape	
O	Oval, flat	
S	Round, standard	

004	Material	
F	Fluoro rubber	
N	Nitrile rubber	
S	Silicone	
T	Polyurethane high-performance elastomer	
U	Polyurethane	

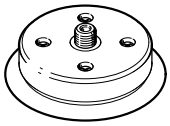
005	Additional features	
	None	
A	Antistatic	
F	Food-safe	

006	Vacuum connection	
M6	Threaded connection M6	
M10	Threaded connection M10	
G1/8	Threaded connection G1/8	
G1/4	Threaded connection G1/4	

007	Thread type	
	Male thread	
I	Female thread	

Datasheet

Technical data – ESS-...-S... (round, flat)



General technical data – ESS-...-S..., suction cup diameter 2-15 mm (round, flat)

Suction cup diameter	2 mm	4 mm	6 mm	8 mm	10 mm	15 mm
Vacuum connection [1]	Outside diameter 3 mm		Inside diameter 4 mm		M4	
Nominal size	0.6 mm	1.2 mm	2 mm			
Correlation to suction-cup holder	Size 1		Size 2		Size 3	
Suction cup shape	Round, flat					
Type of mounting	Via vacuum port					
Position of connection	Top					
Mounting position	optional					
Holding force at nominal operating pressure	0.1 N	0.46 N	1.1 N	2.3 N	3.9 N	8.5 N
Suction cup volume	0.002 cm³	0.008 cm³	0.015 cm³	0.03 cm³	0.05 cm³	0.208 cm³
Min. workpiece radius	10 mm		15 mm	20 mm	30 mm	35 mm
Suitable for ejector pulse	4				–	
Product weight	0.1 g		0.2 g		1.5 g	1.9 g

1) For outside/inside diameter: plugged into or unplugged from the suction cup complete holder

General technical data – ESS-...-S..., suction cup diameter 20-50 mm (round, flat)

Suction cup diameter	20 mm	30 mm	40 mm	50 mm
Vacuum connection	M6			
Nominal size	3 mm			
Correlation to suction-cup holder	Size 4			
Suction cup shape	Round, flat			
Type of mounting	Via vacuum port			
Position of connection	Top			
Mounting position	optional			
Holding force at nominal operating pressure	16.3 N	40.8 N	69.6 N	105.8 N
Suction cup volume	0.318 cm³	0.867 cm³	1.566 cm³	2.387 cm³
Min. workpiece radius	60 mm	110 mm	230 mm	330 mm
Product weight	6.4 g	9 g	16.3 g	22 g

General technical data – ESS-...-S..., suction cup diameter 60-200 mm (round, flat)

Suction cup diameter	60 mm	80 mm	100 mm	150 mm	200 mm
Vacuum connection [1]	M10			M20x2	
Nominal size	6 mm			10 mm	
Correlation to suction-cup holder	Size 5			Size 6	
Suction cup shape	Round, flat				
Type of mounting	Via vacuum port				
Position of connection	Top				
Mounting position	optional				
Holding force at nominal operating pressure	166.1 N	309.7 N	503.6 N	900 N	1,610 N
Suction cup volume	3.953 cm³	19.312 cm³	29.779 cm³	173.826 cm³	245.454 cm³
Min. workpiece radius	350 mm	400 mm	460 mm	480 mm	680 mm
Product weight	49 g	133 g	222 g	719 g	1,198 g

1) For outside/inside diameter: plugged into or unplugged from the suction cup complete holder

Datasheet

Operating and environmental conditions – ESS-...-S... (round, flat)

Material suction cup	FPM	NBR	PUR	VMQ (silicone)
Operating pressure	-95 ... 0 kPa			
Operating pressure	-0.95 ... 0 bar			
Operating pressure	-13.775 ... 0 psi			
Nominal operating pressure	-70 kPa			
Nominal operating pressure	-0.7 bar			
Nominal operating pressure	-10.15 psi			
Operating medium	Atmospheric air based on ISO 8573-1:2010 [7:-:-]			
Ambient temperature	-10 ... 200°C	-10 ... 70°C	-20 ... 60°C	-30 ... 180°C
Corrosion resistance class CRC [1]	1 - Low corrosion stress			
Special characteristics	–	Antistatic	–	
Suitable for use with food [2]	See supplementary material information			

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

2) More information: www.festo.com/catalogue/ess → Support/Downloads.

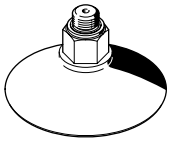
Materials – ESS-...-S... (round, flat)

Material suction cup	FPM	NBR	PUR	VMQ (silicone)
Shore hardness [1]	60 +/- 5	50 +/- 5 60 +/- 5	60 +/- 5	50 +/- 5
Colour [2]	grey	Black Black/white dot	Blue	Transparent
Material screwed plug	Nickel-plated wrought aluminium alloy Nickel-plated brass NBR POM Nickel-plated steel Steel, galvanised and chrome-plated			
Note on materials	RoHS-compliant			
LABS (PWIS) conformity	VDMA24364-A1-L		VDMA24364 zone III	

1) Nitrile rubber with additional antistatic properties (ESS-...-SNA): 50 ±5

2) Nitrile rubber with additional antistatic properties (ESS-...-SNA): black/white dot

Technical data – ESS-...-G... (round, bell-shaped)



General technical data – ESS-...-G..., suction cup diameter 30-50 mm (round, bell-shaped)

Suction cup diameter	30 mm			40 mm			50 mm		
Vacuum connection	M6	M10	G1/8	M6	M10	G1/4	M6	M10	G1/4
Height compensator for suction-cup holder	3.5 mm			5.5 mm			8 mm		
Nominal size	2.5 mm								
Correlation to suction-cup holder	Size 4	Size 5	–	Size 4	Size 5	–	Size 4	Size 5	–
Suction cup shape	Round deep								
Type of mounting	Via vacuum port								
Mounting position	optional								
Holding force at nominal operating pressure	36 N			64 N			97 N		
Suction cup volume	2.4 cm^3			5.4 cm^3			11.2 cm^3		
Min. workpiece radius	26 mm			35 mm			40 mm		
Product weight	12 g	13 g	13 ... 14 g	14 g	15 g	14.5 ... 16 g	17 g	18 g	18 ... 21 g

Datasheet

General technical data – ESS-...-G..., suction cup diameter 60-100 mm (round, bell-shaped)

Suction cup diameter	60 mm		80 mm		100 mm	
Vacuum connection [1]	M10	G1/4	M10	G1/4	M10	G1/4
Height compensator for suction-cup holder	6		7.5		9	
Nominal size	2.5 mm		5.5 mm			
Correlation to suction-cup holder	Size 5	–	Size 5	–	Size 5	–
Suction cup shape	Round deep					
Type of mounting	Via vacuum port					
Mounting position	optional					
Holding force at nominal operating pressure	134 N		245 N		375 N	
Suction cup volume	11.3 cm^3		28.6 cm^3		53.9 cm^3	
Min. workpiece radius	75 mm		100 mm		135 mm	
Suitable for ejector pulse	–					
Product weight	20 g	19.5 ... 21 g	28 g	60 ... 61 g	86.5 g	87.5 ... 89.5 g

1) For outside/inside diameter: plugged into or unplugged from the suction cup complete holder

Operating and environmental conditions – ESS-...-G... (round, bell-shaped)

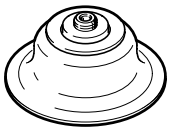
Material suction cup	Vulkollan
Operating pressure	-0.95 ... 0 bar
Nominal operating pressure	-0.7 bar
Operating medium	Atmospheric air based on ISO 8573-1:2010 [7:-:-]
Ambient temperature	-10 ... 80°C
Corrosion resistance class CRC [1]	2 - Moderate corrosion stress

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

Materials – ESS-...-G... (round, bell-shaped)

Material suction cup	Vulkollan
Shore hardness	72 +/- 5
Colour	Red-brown
Material screwed plug	Wrought aluminium alloy
Note on materials	RoHS-compliant
LABS (PWIS) conformity	VDMA24364-A1-L

Technical data – ESS-...-E... (round, extra deep)



General technical data – ESS-...-E... (round, extra deep)

Suction cup diameter	15 mm	20 mm	30 mm	40 mm	50 mm	60 mm	80 mm	100 mm
Vacuum connection	M4	M6				M10		
Nominal size	2 mm	3 mm				6 mm		
Correlation to suction-cup holder	Size 3	Size 4				Size 5		
Suction cup shape	Round extra deep							
Type of mounting	Via vacuum port							
Mounting position	optional							
Nominal operating pressure	-0.7 bar							
Holding force at nominal operating pressure	9.8 N	17 N	37.2 N	67.6 N	103.6 N	162.5 N	275 N	440.8 N
Suction cup volume	0.35 cm^3	0.84 cm^3	2.12 cm^3	4.04 cm^3	7.9 cm^3	19.77 cm^3	51.61 cm^3	84.66 cm^3
Min. workpiece radius	20 mm	30 mm	50 mm	80 mm	100 mm	120 mm	160 mm	200 mm
Product weight	1.9 g	6.4 g	9.2 g	16.9 g	23.4 g	48 g	141 g	228 g

Datasheet

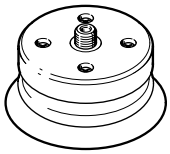
Operating and environmental conditions – ESS-...-E... (round, extra deep)				
Material suction cup	FPM	NBR	PUR	VMQ (silicone)
Operating pressure	-95 ... 0 kPa			
Operating pressure	-0.95 ... 0 bar			
Operating pressure	-13.775 ... 0 psi			
Nominal operating pressure	-70 kPa			
Nominal operating pressure	-0.7 bar			
Nominal operating pressure	-10.15 psi			
Operating medium	Atmospheric air based on ISO 8573-1:2010 [7:-:-]			
Ambient temperature	-10 ... 200°C	-10 ... 70°C	-20 ... 60°C	-30 ... 180°C
Corrosion resistance class CRC [1]	1 - Low corrosion stress			
Special characteristics	–			
Suitable for use with food [2]	See supplementary material information			

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

2) More information: www.festo.com/catalogue/ess → Support/Downloads.

Materials – ESS-...-E... (round, extra deep)				
Material suction cup	FPM	NBR	PUR	VMQ (silicone)
Shore hardness	60 +/- 5			50 +/- 5
Colour	grey	Black	Blue	Transparent
Material screwed plug	Nickel-plated wrought aluminium alloy Nickel-plated brass POM Nickel-plated steel Steel, galvanised and chrome-plated			
Note on materials	RoHS-compliant			
LABS (PWIS) conformity	VDMA24364-A1-L		VDMA24364 zone III	

Technical data – ESS-...-B... (round, protective bellows 1.5 convolutions)



General technical data – ESS-...-B... (round, protective bellows 1.5 convolutions)						
Suction cup diameter	10 mm	20 mm	30 mm	40 mm	50 mm	80 mm
Vacuum connection	M4	M6				M10
Height compensator for suction cup	4 mm	6 mm	8 mm	9.5 mm	11 mm	10 mm
Nominal size	2 mm	3 mm				6 mm
Correlation to suction-cup holder	Size 3	Size 4				Size 5
Suction cup shape	Round bellows 1.5 convolutions					
Type of mounting	Via vacuum port					
Position of connection	Top					
Mounting position	optional					
Nominal operating pressure	-0.7 bar					
Holding force at nominal operating pressure	4.7 N	12.9 N	26.2 N	52.3 N	72.6 N	213.6 N
Suction cup volume	0.38 cm^3	1.6 cm^3	4.07 cm^3	8.87 cm^3	14.23 cm^3	63.9 cm^3
Min. workpiece radius	20 mm	40 mm	80 mm	90 mm	150 mm	430 mm
Product weight	1.8 g	6.7 g	9.9 g	18.7 g	24.7 g	139 g

Datasheet

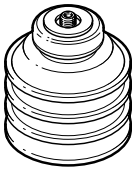
Operating and environmental conditions – ESS-...-B... (round, protective bellows 1.5 convolutions)			
Material suction cup	NBR	PUR	VMQ (silicone)
Operating pressure	-95 ... 0 kPa		
Operating pressure	-0.95 ... 0 bar		
Operating pressure	-13.775 ... 0 psi		
Nominal operating pressure	-70 kPa		
Nominal operating pressure	-0.7 bar		
Nominal operating pressure	-10.15 psi		
Operating medium	Atmospheric air based on ISO 8573-1:2010 [7:-:-]		
Ambient temperature	-10 ... 70°C	-20 ... 60°C	-30 ... 180°C
Corrosion resistance class CRC [1]	1 - Low corrosion stress		
Suitable for use with food [2]	See supplementary material information		

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

2) More information: www.festo.com/catalogue/ess → Support/Downloads.

Materials – ESS-...-B... (round, protective bellows 1.5 convolutions)			
Material suction cup	NBR	PUR	VMQ (silicone)
Shore hardness	50 +/- 5	60 +/- 5	50 +/- 5
Colour	Black	Blue	Transparent
Material screwed plug	Nickel-plated wrought aluminium alloy Nickel-plated brass POM Nickel-plated steel Steel, galvanised and chrome-plated		
Note on materials	RoHS-compliant		
LABS (PWIS) conformity	VDMA24364-A1-L	VDMA24364 zone III	

Technical data – ESS-...-C... (round, protective bellows 3.5 convolutions)



General technical data – ESS-...-C... (round, protective bellows 3.5 convolutions)					
Suction cup diameter	10 mm	20 mm	30 mm	40 mm	50 mm
Vacuum connection	M4	M6			
Height compensator for suction cup	3.3 mm	7 mm	10.5 mm	12.8 mm	17.5 mm
Nominal size	2 mm	3 mm			
Correlation to suction-cup holder	Size 3	Size 4			
Suction cup shape	Round bellows 3.5 convolutions				
Type of mounting	Via vacuum port				
Position of connection	Top				
Mounting position	optional				
Nominal operating pressure	-0.7 bar				
Holding force at nominal operating pressure	3.9 N	8.2 N	20.8 N	42.4 N	63.4 N
Suction cup volume	0.29 cm^3	2.75 cm^3	9.47 cm^3	19.72 cm^3	38.92 cm^3
Min. workpiece radius	25 mm	50 mm	80 mm	100 mm	180 mm
Product weight	1.6 g	6.9 g	12.2 g	21.9 g	32.1 g

Datasheet

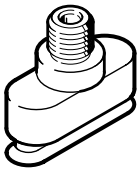
Operating and environmental conditions – ESS-...-C... (round, protective bellows 3.5 convolutions)		
Material suction cup	NBR	VMQ (silicone)
Operating pressure	-95 ... 0 kPa	
Operating pressure	-0.95 ... 0 bar	
Operating pressure	-13.775 ... 0 psi	
Nominal operating pressure	-70 kPa	
Nominal operating pressure	-0.7 bar	
Nominal operating pressure	-10.15 psi	
Operating medium	Atmospheric air based on ISO 8573-1:2010 [7:-:-]	
Ambient temperature	-10 ... 70°C	-30 ... 180°C
Corrosion resistance class CRC [1]	1 - Low corrosion stress	
Suitable for use with food [2]	See supplementary material information	

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

2) More information: www.festo.com/catalogue/ess → Support/Downloads.

Materials – ESS-...-C... (round, protective bellows 3.5 convolutions)		
Material suction cup	NBR	VMQ (silicone)
Shore hardness	50 +/- 5	
Colour	Black	Transparent
Material screwed plug	Nickel-plated wrought aluminium alloy Nickel-plated brass Steel, galvanised and chrome-plated	
Note on materials	RoHS-compliant	
LABS (PWIS) conformity	VDMA24364-A1-L	VDMA24364 zone III

Technical data – ESS-...-O... (oval, flat)



General technical data – ESS-...-O...; suction cup size 4x10 to 8x30 mm (oval, flat)						
Suction cup size	4x10 mm	4x20 mm	6x10 mm	6x20 mm	8 x 20 mm	8x30 mm
Vacuum connection	M6					
Nominal size	2.5 mm					
Correlation to suction-cup holder	Size 4					
Suction cup shape	Oval, flat					
Type of mounting	Via vacuum port					
Position of connection	Top					
Mounting position	optional					
Nominal operating pressure	-0.7 bar					
Holding force at nominal operating pressure	2 N	3.4 N	2.9 N	5.9 N	8 N	10.9 N
Suction cup volume	0.064 cm^3	0.112 cm^3	0.106 cm^3	0.196 cm^3	0.256 cm^3	0.376 cm^3
Product weight	2 g	2.5 g	2 g	2.5 g		3 g

Datasheet

General technical data – ESS-...-O...; suction cup size 10x30 to 30x90 mm (oval, flat)					
Suction cup size	10x30 mm	15x45 mm	20x60 mm	25x75 mm	30x90 mm
Vacuum connection	M6	M10			
Nominal size	2.5 mm	6 mm			
Correlation to suction-cup holder	Size 4	Size 5			
Suction cup shape	Oval, flat				
Type of mounting	Via vacuum port				
Position of connection	Top				
Mounting position	optional				
Nominal operating pressure	-0.7 bar				
Holding force at nominal operating pressure	15.2 N	32 N	62.8 N	92.5 N	134.4 N
Suction cup volume	0.35 cm³	1.57 cm³	3.69 cm³	6.7 cm³	10.17 cm³
Product weight	2.9 g	23.8 g	30.8 g	46.8 g	55.3 g

Operating and environmental conditions – ESS-...-O... (oval, flat)	
Material suction cup	NBR
Operating pressure	-95 ... 0 kPa
Operating pressure	-0.95 ... 0 bar
Operating pressure	-13.775 ... 0 psi
Nominal operating pressure	-70 kPa
Nominal operating pressure	-0.7 bar
Nominal operating pressure	-10.15 psi
Operating medium	Atmospheric air based on ISO 8573-1:2010 [7:-:-]
Ambient temperature	-10 ... 70°C
Corrosion resistance class CRC [1]	1 - Low corrosion stress
Suitable for use with food [2]	See supplementary material information

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

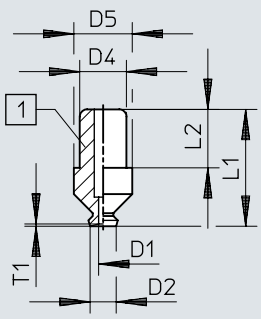
2) More information: www.festo.com/catalogue/ess → Support/Downloads.

Materials – ESS-...-O... (oval, flat)	
Material suction cup	NBR
Shore hardness	50 +/- 5
Colour	Black
Note on materials	RoHS-compliant
LABS (PWIS) conformity	VDMA24364-A1-L

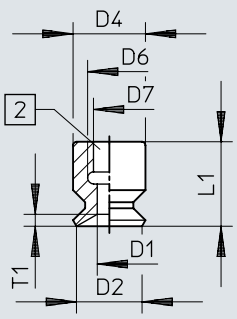
Dimensions

Dimensions – Suction cup with connector ESS-...-S... Download CAD data www.festo.com

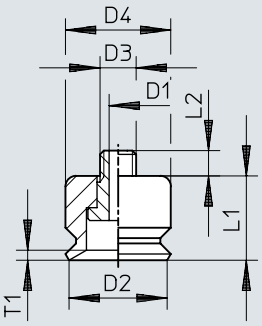
ESS-2/4-S



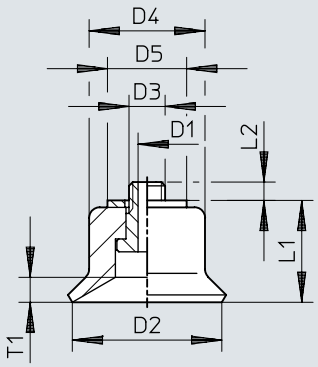
ESS-6/8-S



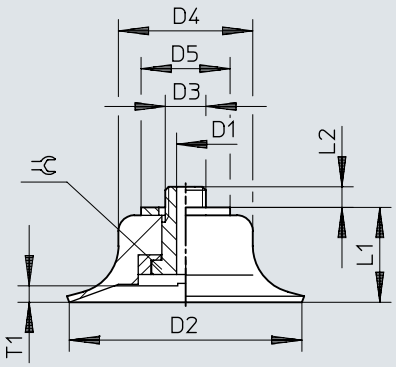
ESS-10/15-S



ESS-20/30-S



ESS-40/50/60-S



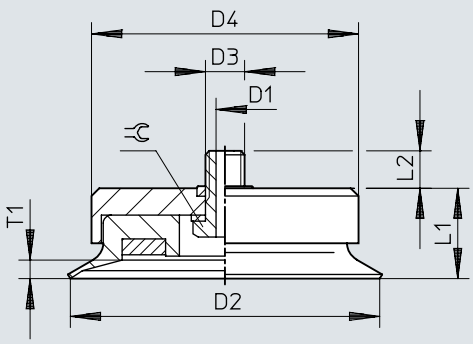
[1] Trunnion for insertion into retainer
[2] Drilled hole for pushing onto retainer

	D1 NW	D2 ø	D3	D4 ø	D5 ø	L1	L2	T1	⫧
ESS-2-S...	ø 0,6	2	–	3,2	4	8	4	0,2	–
ESS-4-S...	ø 1,2	4	–	3,2	4	8	4	0,6	–
ESS-6-S...	ø 2	6	–	6	–	7	–	1	–
ESS-8-S...	ø 2	8	–	6	–	5,5	–	1,1	–
ESS-10-S...	⫧ 2	10	M4x0,7	10	–	8	3	1	–
ESS-15-S...	⫧ 2	15	M4x0,7	11	–	9	3	2,4	–
ESS-20-S...	⫧ 3	20	M6x1	15	15,5	11,6	2,4	1,8	–
ESS-30-S...	⫧ 3	30	M6x1	17	15,5	12,6	3,4	2	–
ESS-40-S...	⫧ 3	40	M6x1	25	22	15,6	2,7	1,9	–
ESS-50-S...	⫧ 3	50	M6x1	30	22	16,6	3,4	1,9	–
ESS-60-S...	ø 6	60	M10x1,5	40	–	20,6	4,5	2,6	14

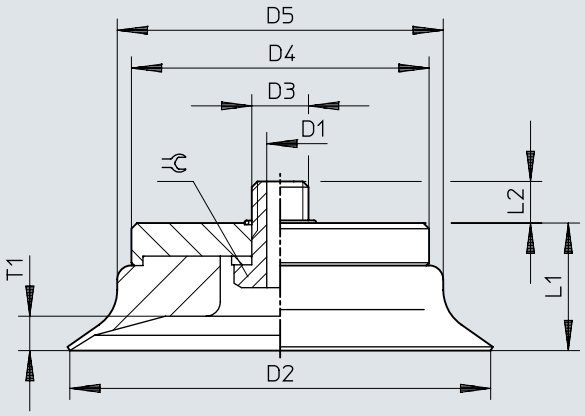
Dimensions

Dimensions – Suction cup with connector ESS-...-S... Download CAD data www.festo.com

ESS-80/100-S



ESS-150/200-S

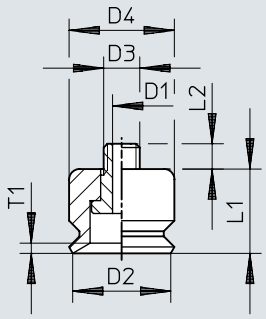


	D1 NW	D2 ø	D3	D4 ø	D5 ø	L1	L2	T1	⌀
ESS-80-S...	ø 6	80	M10x1,5	68	–	23	9,4	4,7	14
ESS-100-S...	ø 6	100	M10x1,5	85	–	25	8,4	5,5	14
ESS-150-S...	ø 10	150	M20x2	105	115	45	13	12	27
ESS-200-S...	ø 10	200	M20x2	105	160	50	13	15	27

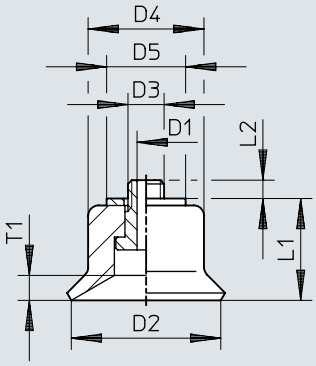
Dimensions

Dimensions – Suction cup with connector ESS-...-E... Download CAD data www.festo.com

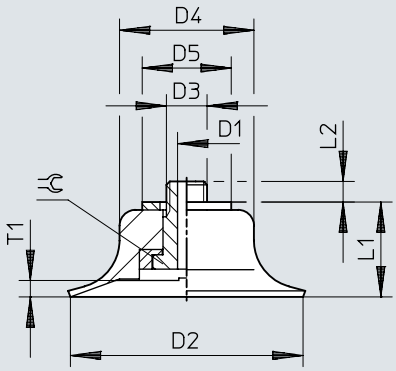
ESS-15-E



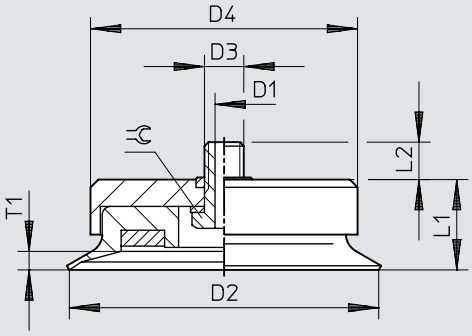
ESS-20/30-E



ESS-40/50/60-E



ESS-80/100-E

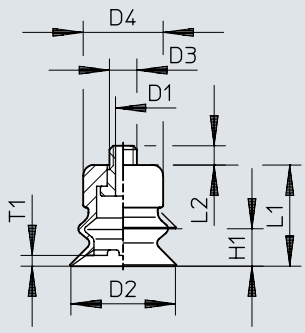


	D1 NW	D2 ø	D3	D4 ø	D5 ø	L1	L2	T1	⫧
ESS-15-E...	⫧ 2	15	M4x0,7	11	–	10	3	2,9	–
ESS-20-E...	⫧ 3	20	M6x1	15	15,5	12,6	2,4	3	–
ESS-30-E...	⫧ 3	30	M6x1	17	15,5	15,6	3,4	4,5	–
ESS-40-E...	⫧ 3	40	M6x1	25	22	19,1	2,7	4,5	–
ESS-50-E...	⫧ 3	50	M6x1	30	22	21,1	3,4	6,5	–
ESS-60-E...	ø 6	60	M10x1,5	40	–	27,6	5,4	9,5	14
ESS-80-E...	ø 6	80	M10x1,5	68	–	33	9,4	8,6	14
ESS-100-E...	ø 6	100	M10x1,5	85	–	33	8,4	10,7	14

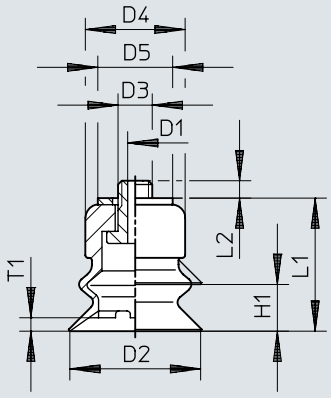
Dimensions

Dimensions – Suction cup with connector ESS-...-B... Download CAD data www.festo.com

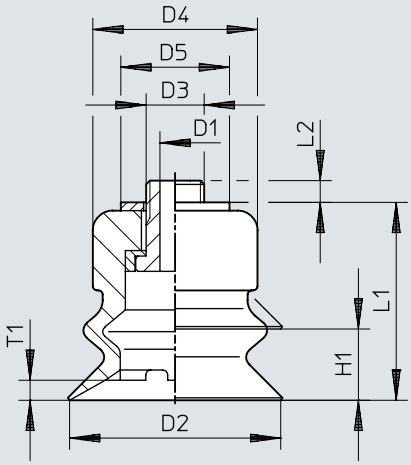
ESS-10-B



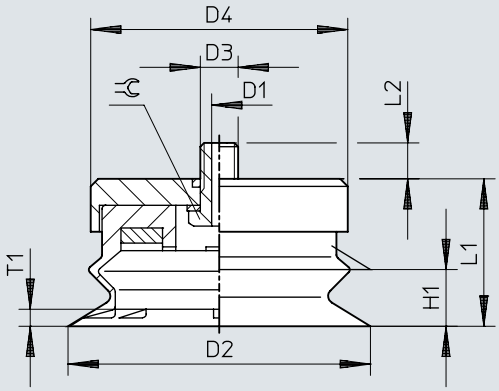
ESS-20/30-B



ESS-40/50-B



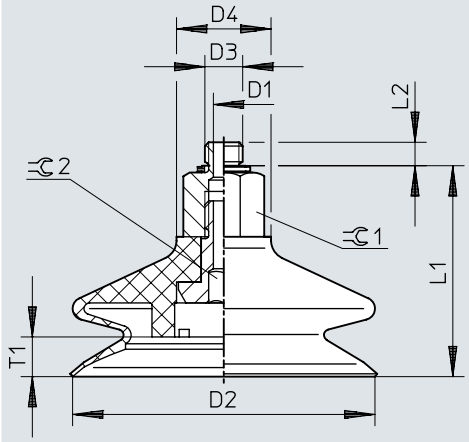
ESS-80-B



	D1 NW	D2 ø	D3	D4 ø	D5 ø	H1	L1	L2	T1	⌀
ESS-10-B...	⌀ 2	10	M4x0,7	10	–	4	16	3	1	–
ESS-20-B...	⌀ 3	20	M6x1	15	15,5	6	20,6	2,4	2	–
ESS-30-B...	⌀ 3	30	M6x1	17	15,5	8	24,6	3,4	2,5	–
ESS-40-B...	⌀ 3	40	M6x1	25	22	9,5	31,6	2,7	4	–
ESS-50-B...	⌀ 3	50	M6x1	30	22	11	33,6	3,4	4	–
ESS-80-B...	ø 6	80	M10x1,5	68	–	10	39	9,4	2	14

Dimensions

Dimensions – Suction cup with connector ESS-...-BT... Download CAD data www.festo.com

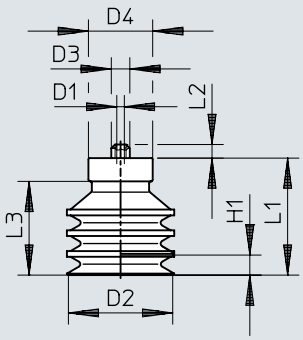


	D1 ⌀ NW	D2 ⌀	D3	D4 ⌀	L1	L2	T1	⌀1	⌀2
ESS-40-BT	2,5	40	M6	20	36	3,45	9	15	4
			M10		36,3	6,2		17	
			G1/4						
ESS-40-BT-I			G1/4		48,3	–			
ESS-50-BT	2,5	50	M6	20	38,05	3,45	10	15	4
			M10		38,3	6,2		17	
			G1/4						
ESS-50-BT-I			G1/4		50,3	–			
ESS-80-BT	2,5	80	M10	20	53,3	6,2	10,5	17	8
			G1/4						
ESS-80-BT-I			G1/4		60,8	–			

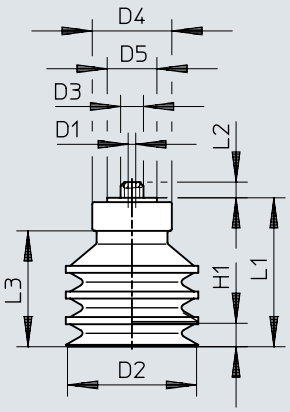
Dimensions

Dimensions – Suction cup with connector ESS-...-C... Download CAD data www.festo.com

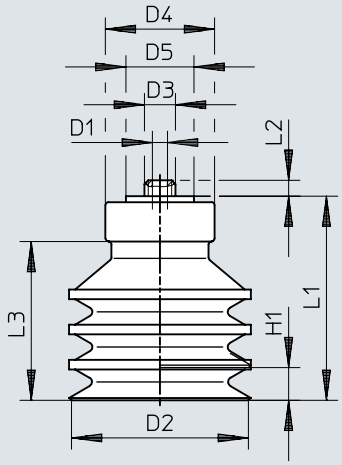
ESS-10-C



ESS-20/30-C



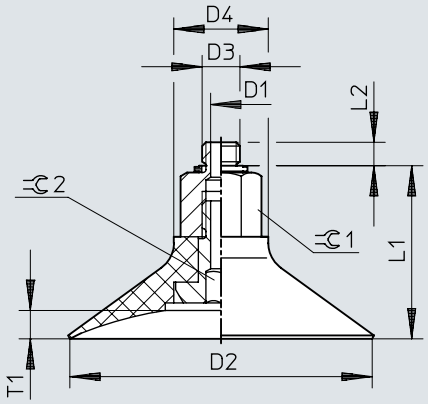
ESS-40/50-C



	D1 ⌀ NW	D2 ⌀	D3	D4 ⌀	D5 ⌀	H1	L1	L2	L3
ESS-10-C...	2	10	M4x0,7	10	–	3,3	12,7	3	8,7
ESS-20-C...	3	20	M6x1	15	15,5	7	23	2,4	16,4
ESS-30-C...	3	30	M6x1	18	15,5	10,5	34,3	3,4	26,2
ESS-40-C...	3	40	M6x1	25	22	12,8	39,6	2,7	31
ESS-50-C...	3	50	M6x1	30	22	17,5	48	3,4	39,4

Dimensions

Dimensions – Suction cup with connector ESS-...-GT... Download CAD data www.festo.com

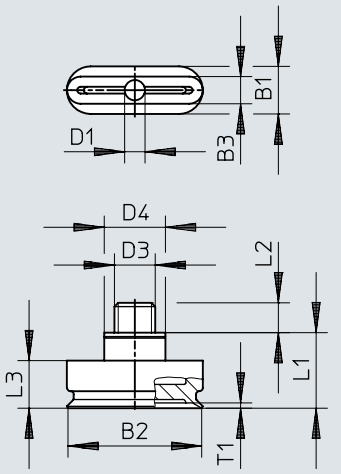


	D1 ⌀ NW	D2 ⌀	D3	D4 ⌀	L1	L2	T1	⌀ 1	⌀ 2
ESS-30-GT	2,5	30	M6	20	27,55	3,45	3,5	15	4
			M10		27,8	6,2		17	
			G1/8			4,7		15	
ESS-30-GT-I			G1/8		36,8	–			
ESS-40-GT	2,5	40	M6	20	29,55	3,45	5,5	15	4
			M10		29,8	6,2		17	
			G1/4						
ESS-40-GT-I			G1/4		41,8	–			
ESS-50-GT	2,5	50	M6	20	32,05	3,45	8	15	4
			M10		32,3	6,2		17	
			G1/4						
ESS-50-GT-I			G1/4		44,3	–			
ESS-60-GT	2,5	60	M10	20	29,8	6,2	6	17	4
			G1/4						
ESS-60-GT-I			G1/4		41,8	–			
ESS-80-GT	5,5	80	M10	25	43,3	6,2	7,5	22	8
			G1/4						
ESS-80-GT-I			G1/4		54,3	–			
ESS-100-GT	5,5	100	M10	25	45,8	6,2	9	22	8
			G1/4						
ESS-100-GT-I			G1/4		56,8	–			

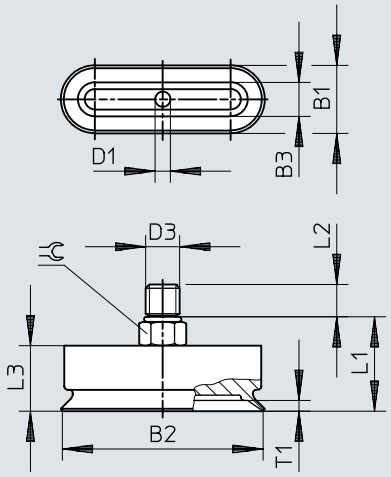
Dimensions

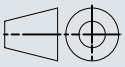
Dimensions – Suction cup with connector ESS-...-O... Download CAD data www.festo.com

ESS-4x10 bis 10x30-O



ESS-15x45 bis 30x90-O

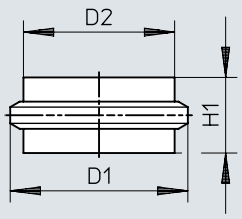




	B1	B2	B3	D1 ø NW	D3	D4 ø	L1	L2	L3	T1	⫩
ESS-4x10-O...	7	10	4	2,5	M6x1	9	11,1	4,4	7	0,8	–
ESS-4x20-O...	7	20	4	2,5	M6x1	9	11,1	4,4	7	0,8	–
ESS-6x10-O...	7	10	6	2,5	M6x1	9	11,1	4,4	7	1	–
ESS-6x20-O...	7	20	6	2,5	M6x1	9	11,1	4,4	7	1	–
ESS-8x20-O...	7	20	8	2,5	M6x1	9	11,1	4,4	7	1	–
ESS-8x30-O...	7	30	8	2,5	M6x1	9	11,1	4,4	7	1	–
ESS-10x30-O...	10	30	7	2,5	M6x1	9	11,1	4,4	7	1,1	–
ESS-15x45-O...	15	45	15	6	M10x1,5	–	25,5	8,5	18,5	2,5	12
ESS-20x60-O...	20	60	20	6	M10x1,5	–	26,3	8,5	19,3	3,2	12
ESS-25x75-O...	25	75	25	6	M10x1,5	–	28	8,5	21	3,7	12
ESS-30x90-O...	30	90	30	6	M10x1,5	–	28,5	8,5	21,5	3,7	12

Dimensions

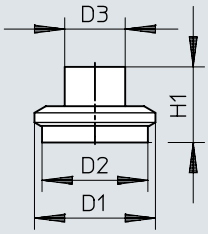
Dimensions – Suction-cup insert OASI Download CAD data www.festo.com



	D1	D2	H1
OASI-10	7	6	3
OASI-20	16	14	6,5
OASI-30	23,5	20	10
OASI-40	33	27	12
OASI-50	40	32	15

Dimensions

Dimensions – Suction-cup insert OASI-20-E Download CAD data www.festo.com



	D1	D2	D3	H1
OASI-20-E	16	14	8	10

Ordering data

ESS-...-S... (round, flat)

	Material	Correlation to suction-cup holder	Suction cup diameter	Holding force at nominal operating pressure	Lateral force at nominal operating pressure	Part no.	Type
	Fluoro rubber	Size 6	150 mm	900 N	480 N	**189329**	**ESS-150-SF**
			200 mm	1,610 N	500 N	**189333**	**ESS-200-SF**
		Size 5	60 mm	166.1 N	117.5 N	**189317**	**ESS-60-SF**
			80 mm	309.7 N	139.5 N	**189321**	**ESS-80-SF**
			100 mm	503.6 N	299 N	**189325**	**ESS-100-SF**
		Size 4	20 mm	16.3 N	15.5 N	**189297**	**ESS-20-SF**
			30 mm	40.8 N	22 N	**189302**	**ESS-30-SF**
			40 mm	69.6 N	25 N	**189307**	**ESS-40-SF**
			50 mm	105.8 N	69.5 N	**189312**	**ESS-50-SF**
		Size 3	10 mm	3.9 N	4.5 N	**189287**	**ESS-10-SF**
			15 mm	8.5 N	10.5 N	**189292**	**ESS-15-SF**
		Size 2	6 mm	1.1 N	1.5 N	**189277**	**ESS-6-SF**
			8 mm	2.3 N	3.5 N	**189282**	**ESS-8-SF**
		Size 1	2 mm	0.1 N	0.5 N	**189267**	**ESS-2-SF**
			4 mm	0.46 N		**189272**	**ESS-4-SF**
	Nitrile rubber	Size 6	150 mm	900 N	675 N	**189326**	**ESS-150-SN**
			200 mm	1,610 N	850 N	**189330**	**ESS-200-SN**
		Size 5	60 mm	166.1 N	136 N	**189314**	**ESS-60-SN**
			80 mm	309.7 N	315 N	**189318**	**ESS-80-SN**
			100 mm	503.6 N	600 N	**189322**	**ESS-100-SN**
		Size 4	20 mm	16.3 N	11.5 N	**189294**	**ESS-20-SN**
					14.5 N	**189298**	**ESS-20-SNA**
			30 mm	40.8 N	19.5 N	**189299**	**ESS-30-SN**
					20 N	**189303**	**ESS-30-SNA**
			40 mm	69.6 N	49 N	**189308**	**ESS-40-SNA**
					60 N	**189304**	**ESS-40-SN**
			50 mm	105.8 N	81.5 N	**189313**	**ESS-50-SNA**
					135 N	**189309**	**ESS-50-SN**
		Size 3	10 mm	3.9 N	3.5 N	**189284**	**ESS-10-SN**
					7.5 N	**189288**	**ESS-10-SNA**
			15 mm	8.5 N	10.5 N	**189289**	**ESS-15-SN**
					13.5 N	**189293**	**ESS-15-SNA**
		Size 2	6 mm	1.1 N	2 N	**189278**	**ESS-6-SNA**
					3.5 N	**189274**	**ESS-6-SN**
			8 mm	2.3 N	4 N	**189283**	**ESS-8-SNA**
					9.5 N	**189279**	**ESS-8-SN**
		Size 1	2 mm	0.1 N	0.5 N	**189264**	**ESS-2-SN**
						189268	**ESS-2-SNA**
			4 mm	0.46 N		**189273**	**ESS-4-SNA**
						189269	**ESS-4-SN**
	Silicone	Size 6	150 mm	900 N	400 N	**189328**	**ESS-150-SS**
			200 mm	1,610 N	425 N	**189332**	**ESS-200-SS**
		Size 5	60 mm	166.1 N	85 N	**189316**	**ESS-60-SS**
			80 mm	309.7 N	104 N	**189320**	**ESS-80-SS**
			100 mm	503.6 N	130 N	**189324**	**ESS-100-SS**
		Size 4	20 mm	16.3 N	10.5 N	**189296**	**ESS-20-SS**
			30 mm	40.8 N	23.5 N	**189301**	**ESS-30-SS**
			40 mm	69.6 N	25 N	**189306**	**ESS-40-SS**
			50 mm	105.8 N	84 N	**189311**	**ESS-50-SS**
		Size 3	10 mm	3.9 N	4 N	**189286**	**ESS-10-SS**
			15 mm	8.5 N	6.5 N	**189291**	**ESS-15-SS**
		Size 2	6 mm	1.1 N	2.5 N	**189276**	**ESS-6-SS**
			8 mm	2.3 N	3.5 N	**189281**	**ESS-8-SS**
		Size 1	2 mm	0.1 N	0.5 N	**189266**	**ESS-2-SS**

Ordering data

ESS-...-S... (round, flat)

	Material	Correlation to suction-cup holder	Suction cup diameter	Holding force at nominal operating pressure	Lateral force at nominal operating pressure	Part no.	Type
	Silicone	Size 1	4 mm	0.46 N	0.5 N	**189271**	**ESS-4-SS**
	Polyurethane	Size 6	150 mm	900 N	1,000 N	**189327**	**ESS-150-SU**
			200 mm	1,610 N		**189331**	**ESS-200-SU**
		Size 5	60 mm	166.1 N	151 N	**189315**	**ESS-60-SU**
			80 mm	309.7 N	295 N	**189319**	**ESS-80-SU**
			100 mm	503.6 N	482.5 N	**189323**	**ESS-100-SU**
		Size 4	20 mm	16.3 N	23 N	**189295**	**ESS-20-SU**
			30 mm	40.8 N	19 N	**189300**	**ESS-30-SU**
			40 mm	69.6 N	83 N	**189305**	**ESS-40-SU**
			50 mm	105.8 N	130 N	**189310**	**ESS-50-SU**
		Size 3	10 mm	3.9 N	7 N	**189285**	**ESS-10-SU**
			15 mm	8.5 N	9 N	**189290**	**ESS-15-SU**
		Size 2	6 mm	1.1 N	3 N	**189275**	**ESS-6-SU**
			8 mm	2.3 N	5 N	**189280**	**ESS-8-SU**
		Size 1	2 mm	0.1 N	0.5 N	**189265**	**ESS-2-SU**
			4 mm	0.46 N		**189270**	**ESS-4-SU**

ESS-...-G... (round, bell-shaped)

	Material	Correlation to suction-cup holder	Suction cup diameter	Holding force at nominal operating pressure	Lateral force at nominal operating pressure	Part no.	Type
	Polyurethane high-performance elastomer		30 mm	36 N	13 N	**525971**	**ESS-30-GT-G1/8**
						525970	**ESS-30-GT-G1/8-I**
			40 mm	64 N	20 N	**525975**	**ESS-40-GT-G1/4**
						525974	**ESS-40-GT-G1/4-I**
			50 mm	97 N	30 N	**525979**	**ESS-50-GT-G1/4**
						525978	**ESS-50-GT-G1/4-I**
			60 mm	134 N	37 N	**525982**	**ESS-60-GT-G1/4**
						525981	**ESS-60-GT-G1/4-I**
			80 mm	245 N	99 N	**525984**	**ESS-80-GT-G1/4-I**
						525985	**ESS-80-GT-G1/4**
			100 mm	375 N	183 N	**525987**	**ESS-100-GT-G1/4-I**
						525988	**ESS-100-GT-G1/4**
		Size 5	30 mm	36 N	13 N	**525969**	**ESS-30-GT-M10**
			40 mm	64 N	20 N	**525973**	**ESS-40-GT-M10**
			50 mm	97 N	30 N	**525977**	**ESS-50-GT-M10**
			60 mm	134 N	37 N	**525980**	**ESS-60-GT-M10**
			80 mm	245 N	99 N	**525983**	**ESS-80-GT-M10**
			100 mm	375 N	183 N	**525986**	**ESS-100-GT-M10**
		Size 4	30 mm	36 N	13 N	**525968**	**ESS-30-GT-M6**
			40 mm	64 N	20 N	**525972**	**ESS-40-GT-M6**
			50 mm	97 N	30 N	**525976**	**ESS-50-GT-M6**

ESS-...-E... (round, extra deep)

	Material	Correlation to suction-cup holder	Suction cup diameter	Holding force at nominal operating pressure	Lateral force at nominal operating pressure	Part no.	Type
	Fluoro rubber	Size 5	60 mm	162.5 N	62.5 N	**189357**	**ESS-60-EF**

Ordering data

ESS-...-E... (round, extra deep)

	Material	Correlation to suction-cup holder	Suction cup diameter	Holding force at nominal operating pressure	Lateral force at nominal operating pressure	Part no.	Type
	Fluoro rubber	Size 5	80 mm	275 N	148.5 N	**189361**	**ESS-80-EF**
			100 mm	440.8 N	254.5 N	**189365**	**ESS-100-EF**
		Size 4	20 mm	17 N	15.5 N	**189341**	**ESS-20-EF**
			30 mm	37.2 N	18.5 N	**189345**	**ESS-30-EF**
			40 mm	67.6 N	22 N	**189349**	**ESS-40-EF**
			50 mm	103.6 N	60 N	**189353**	**ESS-50-EF**
		Size 3	15 mm	9.8 N	14.5 N	**189337**	**ESS-15-EF**
	Nitrile rubber	Size 5	60 mm	162.5 N	130 N	**189354**	**ESS-60-EN**
			80 mm	275 N	216 N	**189358**	**ESS-80-EN**
			100 mm	440.8 N	351 N	**189362**	**ESS-100-EN**
		Size 4	20 mm	17 N	14 N	**189338**	**ESS-20-EN**
			30 mm	37.2 N	24.5 N	**189342**	**ESS-30-EN**
			40 mm	67.6 N	53 N	**189346**	**ESS-40-EN**
			50 mm	103.6 N	115 N	**189350**	**ESS-50-EN**
		Size 3	15 mm	9.8 N	9 N	**189334**	**ESS-15-EN**
	Silicone	Size 5	60 mm	162.5 N	63.5 N	**189356**	**ESS-60-ES**
			80 mm	275 N	107.5 N	**189360**	**ESS-80-ES**
			100 mm	440.8 N	150 N	**189364**	**ESS-100-ES**
		Size 4	20 mm	17 N	13 N	**189340**	**ESS-20-ES**
			30 mm	37.2 N	21.5 N	**189344**	**ESS-30-ES**
			40 mm	67.6 N	28.5 N	**189348**	**ESS-40-ES**
			50 mm	103.6 N	42.5 N	**189352**	**ESS-50-ES**
		Size 3	15 mm	9.8 N	10 N	**189336**	**ESS-15-ES**
	Polyurethane	Size 5	60 mm	162.5 N	134 N	**189355**	**ESS-60-EU**
			80 mm	275 N	136.5 N	**189359**	**ESS-80-EU**
			100 mm	440.8 N	352.5 N	**189363**	**ESS-100-EU**
		Size 4	20 mm	17 N	16 N	**189339**	**ESS-20-EU**
			30 mm	37.2 N	41.5 N	**189343**	**ESS-30-EU**
			40 mm	67.6 N	46.5 N	**189347**	**ESS-40-EU**
			50 mm	103.6 N	62 N	**189351**	**ESS-50-EU**
		Size 3	15 mm	9.8 N	15 N	**189335**	**ESS-15-EU**

ESS-...-B... (round, protective bellows 1.5 convolutions)

	Material	Correlation to suction-cup holder	Suction cup diameter	Holding force at nominal operating pressure	Lateral force at nominal operating pressure	Part no.	Type
	Nitrile rubber	Size 5	80 mm	213.6 N	199.5 N	**189394**	**ESS-80-BN**
		Size 4	20 mm	12.9 N	9.5 N	**189378**	**ESS-20-BN**
			30 mm	26.2 N	24.5 N	**189382**	**ESS-30-BN**
			40 mm	52.3 N	32.5 N	**189386**	**ESS-40-BN**
			50 mm	72.6 N	55.5 N	**189390**	**ESS-50-BN**
		Size 3	10 mm	4.7 N	4.5 N	**189374**	**ESS-10-BN**
	Silicone	Size 5	80 mm	213.6 N	93 N	**189396**	**ESS-80-BS**
		Size 4	20 mm	12.9 N	8 N	**189380**	**ESS-20-BS**
			30 mm	26.2 N	16 N	**189384**	**ESS-30-BS**
			40 mm	52.3 N	32.5 N	**189388**	**ESS-40-BS**
			50 mm	72.6 N	38 N	**189392**	**ESS-50-BS**
		Size 3	10 mm	4.7 N	2.5 N	**189376**	**ESS-10-BS**
	Polyurethane	Size 5	80 mm	213.6 N	132.5 N	**189395**	**ESS-80-BU**

Ordering data

ESS-...-B... (round, protective bellows 1.5 convolutions)

	Material	Correlation to suction-cup holder	Suction cup diameter	Holding force at nominal operating pressure	Lateral force at nominal operating pressure	Part no.	Type
	Polyurethane	Size 4	20 mm	12.9 N	9.5 N	**189379**	**ESS-20-BU**
			30 mm	26.2 N	21.5 N	**189383**	**ESS-30-BU**
			40 mm	52.3 N	33 N	**189387**	**ESS-40-BU**
			50 mm	72.6 N	47 N	**189391**	**ESS-50-BU**
		Size 3	10 mm	4.7 N	3 N	**189375**	**ESS-10-BU**

ESS-...-C... (round, protective bellows 3.5 convolutions)

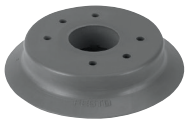
	Material	Correlation to suction-cup holder	Suction cup diameter	Holding force at nominal operating pressure	Lateral force at nominal operating pressure	Part no.	Type
	Nitrile rubber	Size 4	20 mm	8.2 N	6.5 N	**189400**	**ESS-20-CN**
			30 mm	20.8 N	11.5 N	**189402**	**ESS-30-CN**
			40 mm	42.4 N	47.5 N	**189404**	**ESS-40-CN**
			50 mm	63.4 N	49 N	**189406**	**ESS-50-CN**
		Size 3	10 mm	3.9 N	1.5 N	**189398**	**ESS-10-CN**
	Silicone	Size 4	20 mm	8.2 N	7 N	**189401**	**ESS-20-CS**
			30 mm	20.8 N	11 N	**189403**	**ESS-30-CS**
			40 mm	42.4 N	13 N	**189405**	**ESS-40-CS**
			50 mm	63.4 N	45.5 N	**189407**	**ESS-50-CS**
		Size 3	10 mm	3.9 N	1 N	**189399**	**ESS-10-CS**

ESS-...-O... (oval, flat)

	Correlation to suction-cup holder	Suction cup size	Holding force at nominal operating pressure	Horizontal lateral force at nominal operating pressure	Vertical lateral force at nominal operatin pressure	Part no.	Type
	Size 5	15x45 mm	32 N	43 N	35 N	**189415**	**ESS-15X45-ON**
		20x60 mm	62.8 N	116 N	63 N	**189416**	**ESS-20X60-ON**
		25x75 mm	92.5 N	125.5 N	115 N	**189417**	**ESS-25X75-ON**
		30x90 mm	134.4 N	201 N	134.5 N	**189418**	**ESS-30X90-ON**
	Size 4	10x30 mm	15.2 N	23 N	16 N	**189414**	**ESS-10X30-ON**
		4x10 mm	2 N	3.5 N	5 N	**189408**	**ESS-4X10-ON**
		4x20 mm	3.4 N	4.5 N	11 N	**189409**	**ESS-4X20-ON**
		6x10 mm	2.9 N	7.5 N	12 N	**189410**	**ESS-6X10-ON**
		6x20 mm	5.9 N	9 N	12.5 N	**189411**	**ESS-6X20-ON**
		8 x 20 mm	8 N	11 N	13 N	**189412**	**ESS-8X20-ON**
		8x30 mm	10.9 N	17 N	13.5 N	**189413**	**ESS-8X30-ON**

Accessories

ESV-...-S... (round, flat)

	Material	Suction cup diameter	Holding force at nominal operating pressure	Product weight	Part no.	Type
	Fluoro rubber	20 mm	16.3 N	1.6 g	**190982**	**ESV-20-SF**
		30 mm	40.8 N	2.7 g	**190987**	**ESV-30-SF**
		40 mm	69.6 N	7.4 g	**190992**	**ESV-40-SF**
		50 mm	105 N	11.2 g	**190997**	**ESV-50-SF**
		60 mm	166.1 N	22 g	**191002**	**ESV-60-SF**
		80 mm	309.7 N	33 g	**191006**	**ESV-80-SF**
		100 mm	503.6 N	59 g	**191010**	**ESV-100-SF**
		150 mm	900 N	361 g	**191014**	**ESV-150-SF**
		200 mm	1,610 N	840 g	**191018**	**ESV-200-SF**
	Nitrile rubber	20 mm	16.3 N	1.6 g	**190979**	**ESV-20-SN**
					190983	**ESV-20-SNA**
		30 mm	40.8 N	2.7 g	**190984**	**ESV-30-SN**
					190988	**ESV-30-SNA**
		40 mm	69.6 N	7.4 g	**190989**	**ESV-40-SN**
					190993	**ESV-40-SNA**
		50 mm	105 N	11.2 g	**190994**	**ESV-50-SN**
					190998	**ESV-50-SNA**
		60 mm	166.1 N	22 g	**190999**	**ESV-60-SN**
		80 mm	309.7 N	33 g	**191003**	**ESV-80-SN**
		100 mm	503.6 N	59 g	**191007**	**ESV-100-SN**
		150 mm	900 N	361 g	**191011**	**ESV-150-SN**
		200 mm	1,610 N	840 g	**191015**	**ESV-200-SN**
	Silicone	20 mm	16.3 N	1.6 g	**190981**	**ESV-20-SS**
		30 mm	40.8 N	2.7 g	**190986**	**ESV-30-SS**
		40 mm	69.6 N	7.4 g	**190991**	**ESV-40-SS**
		50 mm	105 N	11.2 g	**190996**	**ESV-50-SS**
		60 mm	166.1 N	22 g	**191001**	**ESV-60-SS**
		80 mm	309.7 N	33 g	**191005**	**ESV-80-SS**
		100 mm	503.6 N	59 g	**191009**	**ESV-100-SS**
		150 mm	900 N	361 g	**191013**	**ESV-150-SS**
		200 mm	1,610 N	840 g	**191017**	**ESV-200-SS**
	Polyurethane	20 mm	16.3 N	1.6 g	**190980**	**ESV-20-SU**
		30 mm	40.8 N	2.7 g	**190985**	**ESV-30-SU**
		40 mm	69.6 N	7.4 g	**190990**	**ESV-40-SU**
		50 mm	105 N	11.2 g	**190995**	**ESV-50-SU**
		60 mm	166.1 N	22 g	**191000**	**ESV-60-SU**
		80 mm	309.7 N	33 g	**191004**	**ESV-80-SU**
		100 mm	503.6 N	59 g	**191008**	**ESV-100-SU**
		150 mm	900 N	361 g	**191012**	**ESV-150-SU**
		200 mm	1,610 N	840 g	**191016**	**ESV-200-SU**

ESV-...-G... (round, bell-shaped)

	Material	Suction cup diameter	Holding force at nominal operating pressure	Lateral force at nominal operating pressure	Product weight	Part no.	Type
	Polyurethane high-performance elastomer	30 mm	36 N	13 N	4.2 g	**526000**	**ESV-30-GT**
		40 mm	64 N	20 N	5.7 g	**526001**	**ESV-40-GT**
		50 mm	97 N	30 N	9.2 g	**526002**	**ESV-50-GT**
		60 mm	134 N	37 N	10.7 g	**526003**	**ESV-60-GT**
		80 mm	245 N	99 N	30.9 g	**526004**	**ESV-80-GT**
		100 mm	100 N	183 N	58.9 g	**526005**	**ESV-100-GT**

Accessories

ESV-...-E... (round, extra deep)

	Material	Suction cup diameter	Holding force at nominal operating pressure	Product weight	Part no.	Type
	Fluoro rubber	30 mm	37.2 N	2.9 g	**191030**	**ESV-30-EF**
		40 mm	67.6 N	8 g	**191034**	**ESV-40-EF**
		50 mm	103.6 N	12.6 g	**191038**	**ESV-50-EF**
		60 mm	162.5 N	21 g	**191042**	**ESV-60-EF**
		80 mm	275 N	41 g	**191046**	**ESV-80-EF**
	Nitrile rubber	30 mm	37.2 N	2.9 g	**191027**	**ESV-30-EN**
		40 mm	67.6 N	8 g	**191031**	**ESV-40-EN**
		50 mm	103.6 N	12.6 g	**191035**	**ESV-50-EN**
		60 mm	162.5 N	21 g	**191039**	**ESV-60-EN**
		80 mm	275 N	41 g	**191043**	**ESV-80-EN**
	Silicone	30 mm	37.2 N	2.9 g	**191029**	**ESV-30-ES**
		40 mm	67.6 N	8 g	**191033**	**ESV-40-ES**
		50 mm	103.6 N	12.6 g	**191037**	**ESV-50-ES**
		60 mm	162.5 N	21 g	**191041**	**ESV-60-ES**
		80 mm	275 N	41 g	**191045**	**ESV-80-ES**
	Polyurethane	30 mm	37.2 N	2.9 g	**191028**	**ESV-30-EU**
		40 mm	67.6 N	8 g	**191032**	**ESV-40-EU**
		50 mm	103.6 N	12.6 g	**191036**	**ESV-50-EU**
		60 mm	162.5 N	21 g	**191040**	**ESV-60-EU**
		80 mm	275 N	41 g	**191044**	**ESV-80-EU**

ESV-...-B... (round, protective bellows 1.5 convolutions)

	Material	Suction cup diameter	Holding force at nominal operating pressure	Lateral force at nominal operating pressure	Product weight	Part no.	Type
	Nitrile rubber	20 mm	12.9 N		1.9 g	**191054**	**ESV-20-BN**
		30 mm	26.2 N		3.6 g	**191057**	**ESV-30-BN**
		40 mm	52.3 N		9.8 g	**191060**	**ESV-40-BN**
		50 mm	72.6 N		13.9 g	**191063**	**ESV-50-BN**
		80 mm	213.6 N		39 g	**191066**	**ESV-80-BN**
	Silicone	20 mm	12.9 N		1.9 g	**191056**	**ESV-20-BS**
		30 mm	26.2 N		3.6 g	**191059**	**ESV-30-BS**
		40 mm	52.3 N		9.8 g	**191062**	**ESV-40-BS**
		50 mm	72.6 N		13.9 g	**191065**	**ESV-50-BS**
		80 mm	213.6 N		39 g	**191068**	**ESV-80-BS**
	Polyurethane high-performance elastomer	40 mm	59 N	22 N	10.5 g	**526006**	**ESV-40-BT**
		50 mm	100 N	39 N	16.2 g	**526007**	**ESV-50-BT**
		80 mm	237 N	102 N	57.2 g	**526008**	**ESV-80-BT**
	Polyurethane	20 mm	12.9 N		1.9 g	**191055**	**ESV-20-BU**
		30 mm	26.2 N		3.6 g	**191058**	**ESV-30-BU**
		40 mm	52.3 N		9.8 g	**191061**	**ESV-40-BU**
		50 mm	72.6 N		13.9 g	**191064**	**ESV-50-BU**
		80 mm	213.6 N		39 g	**191067**	**ESV-80-BU**

ESV-...-C... (round, protective bellows 3.5 convolutions)

	Material	Suction cup diameter	Holding force at nominal operating pressure	Product weight	Part no.	Type
	Nitrile rubber	20 mm	8.2 N	2.1 g	**191071**	**ESV-20-CN**

Accessories

ESV-...-C... (round, protective bellows 3.5 convolutions)

	Material	Suction cup diameter	Holding force at nominal operating pressure	Product weight	Part no.	Type
	Nitrile rubber	30 mm	20.8 N	5.8 g	**191073**	**ESV-30-CN**
		40 mm	42.4 N	13 g	**191075**	**ESV-40-CN**
		50 mm	63.4 N	21.3 g	**191077**	**ESV-50-CN**
	Silicone	20 mm	8.2 N	2.1 g	**191072**	**ESV-20-CS**
		30 mm	20.8 N	5.8 g	**191074**	**ESV-30-CS**
		40 mm	42.4 N	13 g	**191076**	**ESV-40-CS**
		50 mm	63.4 N	21.3 g	**191078**	**ESV-50-CS**

Suction cup insert OASI (for suction cups / Suction cups without connector 3,5-fold)

	Size [1]	Suitable for ejector pulse	Mounting position	Product weight	Part no.	Type
	10 mm	0 bar	optional	0.1 g	**1048645**	**OASI-10**
	20 mm	0.5 bar	Inner trunnion	0.6 g	**1072015**	**OASI-20-E**
			optional		**1048877**	**OASI-20**
	30 mm	2 bar		2.1 g	**1048880**	**OASI-30**
	40 mm	5 bar	Inner recess	2.9 g	**1048881**	**OASI-40**
	50 mm			5.9 g	**1048884**	**OASI-50**

1) Additional property E: Suction-cup insert with stop