








Suction cups, complete ESS and suction cups ESV



Suction cups, complete ESS



Product range overview

FESTO

Type	Suction cup \varnothing	Suction cup holder	Mounting thread	Nominal size	Food approval as per directive FDA	Materials						→ Page/ Internet			
						[mm]	Size	[mm]	Fluoro rubber	Nitrile rubber	Nitrile rubber, antistatic		Silicone	Polyurethane	Vulkollan®
Standard, round ESS-...-S...		2	1	\varnothing 3	0.6	■	■	■	■	■	■	-	7		
		4			1.2	■	■	■	■	■	■	-			
		6	2	\varnothing 4	2.0	■	■	■	■	■	■	-			
		8				■	■	■	■	■	■	-			
		10	3	M4x0.7	2.0	■	■	■	■	■	■	-	7		
		15				■	■	■	■	■	■	-			
		20	4	M6x1	3.0	■	■	■	■	■	■	-			
		30				■	■	■	■	■	-				
		40				■	■	■	■	■	-				
		50				■	■	■	■	■	-				
		60	5	M10x1.5	6.0	■	■	■	■	■	■	-			
		80				■	■	■	■	■	-				
		100				■	■	■	■	■	-				
		150				■	■	■	■	■	-				
200	6	M20x2	10.0	■	■	■	■	■	■	-					
Round, extra deep ESS-...-E...		15	3	M4x0.7	2.0	-	■	■	-	■	■	-	11		
		20	4	M6x1	3.0	-	■	■	-	■	■	-			
		30				■	■	-	■	■	-				
		40				■	■	-	■	■	-				
		50				■	■	-	■	■	-				
		60	5	M10x1.5	6.0	-	■	■	-	■	■	-			
		80				■	■	-	■	■	-				
		100				■	■	-	■	■	-				
100	■	■				-	■	■	-						
Bellows, round, 1.5 convolutions ESS-...-B...		10	3	M4x0.7	2.0	-	-	■	-	■	■	-	14		
		20	4	M6x1	3.0	-	-	■	-	■	■	-			
		30				■	-	■	■	-					
		40				■	-	■	■	-					
		50	5	M10x1.5	6.0	-	-	■	-	■	■	-			
80	■	-				■	■	-							
Bellows, round, 1.5 convolutions ESS-...-BT...	 	40	4	M6	2.5	-	-	-	-	-	-	■	16		
				M10											
				G $\frac{3}{4}$ -I											
				G $\frac{3}{4}$											
		50	4	M6	2.5	-	-	-	-	-	-	-		-	■
				M10											
				G $\frac{3}{4}$ -I											
				G $\frac{3}{4}$											
		80	5	M10	2.5	-	-	-	-	-	-	-		■	
				G $\frac{3}{4}$ -I											
G $\frac{3}{4}$															
Bellows, round, 3.5 convolutions ESS-...-C...		10	3	M4x0.7	2.0	-	-	■	-	■	-	-	18		
		20	4	M6x1	3.0	-	-	■	-	■	-	-			
		30				■	-	■	-	-					
		40				■	-	■	-	-					
		50				■	-	■	-	-					

Suction cups, complete ESS





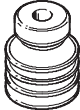

Product range overview

Type	Suction cup \varnothing or suction cup size	Suction cup holder	Mounting thread	Nominal size	Materials		→ Page/ Internet	
					Nitrile rubber	Vulkollan®		
	[mm]	Size		[mm]				
Oval suction cup ESS-...-0...		4x10	4	M6x1	3.0	■	-	20
		4x20						
		6x10						
		6x20						
		8x20						
		8x30						
		10x30						
		15x45	5	M10x1.5	6.0	■	-	
		20x60						
		25x75						
30x90								
Bell-shaped ESS-...-GT-...		30	4	M6	2.5	-	■	22
		M10						
		G $\frac{1}{8}$ -I						
		G $\frac{1}{8}$						
		40	4	M6	2.5	-	■	
		M10						
		G $\frac{1}{4}$ -I						
			4	G $\frac{1}{4}$	2.5	-	■	
		50						
		M6						
			5	M10	2.5	-	■	
		60						
		G $\frac{1}{8}$ -I						
			5	G $\frac{1}{8}$	5.5	-	■	
		80						
		M10						
			5	G $\frac{1}{4}$ -I	5.5	-	■	
		100						
G $\frac{1}{4}$								
		G $\frac{1}{4}$						

Suction cups ESV

Product range overview

FESTO

Type	Suction cup Ø [mm]	Suction cup holder Size	Mounting thread	Food approval as per directive FDA	Materials						→ Page/ Internet	
					Fluoro rubber	Nitrile rubber	Nitrile rubber antistatic	Silicone	Polyurethane	Vulkollan®		
Standard, round ESV-...-S...		20	4	M6x1	■	■	■	■	■	■	-	7
		30			■	■	■	■	■	-		
		40			■	■	■	■	■	-		
		50			■	■	■	■	■	-		
	60	5	M10x1.5	■	■	■	-	■	■	-		
	80			■	■	-	■	■	-			
	100			■	■	-	■	■	-			
	150	6	M20x2	■	■	■	-	■	■	-		
200	■			■	-	■	■	-				
Round, extra deep ESV-...-E...		20	4	M6x1	-	■	■	-	■	■	-	11
		30			■	■	-	■	■	-		
		40			■	■	-	■	■	-		
		50	5	M10x1.5	-	■	■	-	■	■	-	
		60			■	■	-	■	■	-		
		80			■	■	-	■	■	-		
100	■	■	-	■	■	-						
Bellows, round, 1.5 convolutions ESV-...-B...		20	4	M6x1	-	-	■	-	■	■	-	14
		30			-	-	■	-	■	■	-	
		40			-	-	■	-	■	■	-	
		50			-	-	■	-	■	■	-	
80	5	M10x1.5	-	-	■	-	■	■	-			
Bellows, round, 1.5 convolutions ESV-...-BT-...		40	4	-	-	-	-	-	-	■	16	
		50		-	-	-	-	-	-	■		
		80	5	-	-	-	-	-	-	■		
Bellows, round, 3.5 convolutions ESV-...-C...		20	4	M6x1	-	-	■	-	■	-	-	18
		30			-	-	■	-	■	-	-	
		40			-	-	■	-	■	-	-	
		50	5	M10x1	-	-	■	-	■	-	-	
Bell-shaped ESV-...-GT-...		30	4	-	-	-	-	-	-	■	22	
		40		-	-	-	-	-	-	■		
		50		-	-	-	-	-	-	■		
		60	5	-	-	-	-	-	-	-		■
		80			-	-	-	-	-	-		■
		100			-	-	-	-	-	-		■

Suction cups, complete ESS/suction cups ESV

Type code

ESS – 10 – S – N – M6


Type	
ESS	Suction cup, complete
ESV	Suction cup

Suction cup Ø or suction cup size [mm]	
2...200	Round
4x10	Oval
4x20	Oval
6x10	Oval
6x20	Oval
8x20	Oval
8x30	Oval
10x30	Oval
15x45	Oval
20x60	Oval
25x75	Oval
30x90	Oval

Suction cup design	
S	Standard, round
E	Extra deep
B	Bellows, round, 1.5 convolutions
C	Bellows, round, 3.5 convolutions
O	Oval
G	Bell-shaped

Materials	
F	Fluoro rubber
N	Nitrile rubber
NA	Nitrile rubber, antistatic
S	Silicone
U	Polyurethane
T	Vulkollan®

Connection sizes	
M6	M6 thread
M10	M10 thread
G ¹ / ₈	G ¹ / ₈ thread
G ¹ / ₄	G ¹ / ₄ thread
G ¹ / ₈ -I	G ¹ / ₈ -I female thread
G ¹ / ₄ -I	G ¹ / ₄ -I female thread

 - Note
Possible combinations can be found in the ordering data.

Suction cups, complete ESS/suction cups ESV

Technical data

General technical data						
Type	ESS/ESV-...					
	F	N	NA	S	U	T
Operating medium	Atmospheric air					
Mounting position	Any					
Material	Fluoro rubber	Nitrile rubber	Nitrile rubber, antistatic	Silicone	Polyurethane	Vulkollan®
Shore hardness	60±5	50±5 (60±5) ¹⁾	50±5	50±5	60±5	72±5
Colour	Grey	Black	Black with white dot	Transparent	Blue	Reddish brown
Note on materials	RoHS-compliant					
	PWIS-free (free of paint wetting impairment substances)			Contains PWIS		PWIS-free (free of paint wetting impairment substances)
	Free of copper and PTFE → Ordering data					

1) Value in brackets applies to suction cups ESS-...-SN, suction cups Ø 10 ... 100 mm and suction cups ESS-...-EN.

Ambient conditions						
Type	ESS/ESV-...					
	F	N	NA	S	U	T
Ambient temperature [°C]	-10 ... +200	-10 ... +70	-10 ... +70	-30 ... +180	-20 ... +60	-10 ... +80
Corrosion resistance CRC ¹⁾	1					2

1) Corrosion resistance class 1 according to Festo standard 940 070
 Components requiring low corrosion resistance. Transport and storage protection. Parts that do not have primarily decorative surface requirements, e.g. in internal areas that are not visible or behind covers.
 Corrosion resistance class 2 according to Festo standard 940 070
 Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a surrounding industrial atmosphere or media such as cooling or lubricating agents.

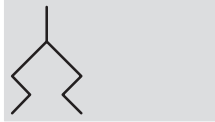
Suction cups, complete ESS/suction cups ESV, standard round

Technical data

ESS-...-S...
ESV-...-S...

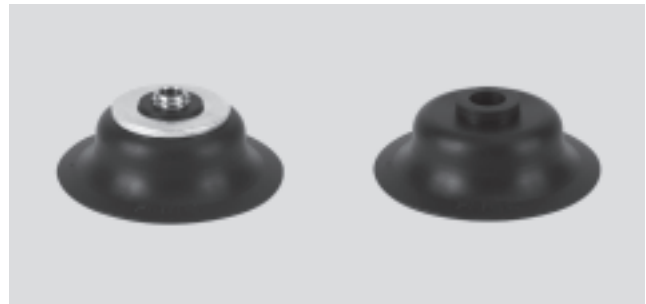
-  - Temperature range
-30 ... +200 °C

Function



-  - Diameter
2 ... 200 mm

Food approval as per
directive FDA



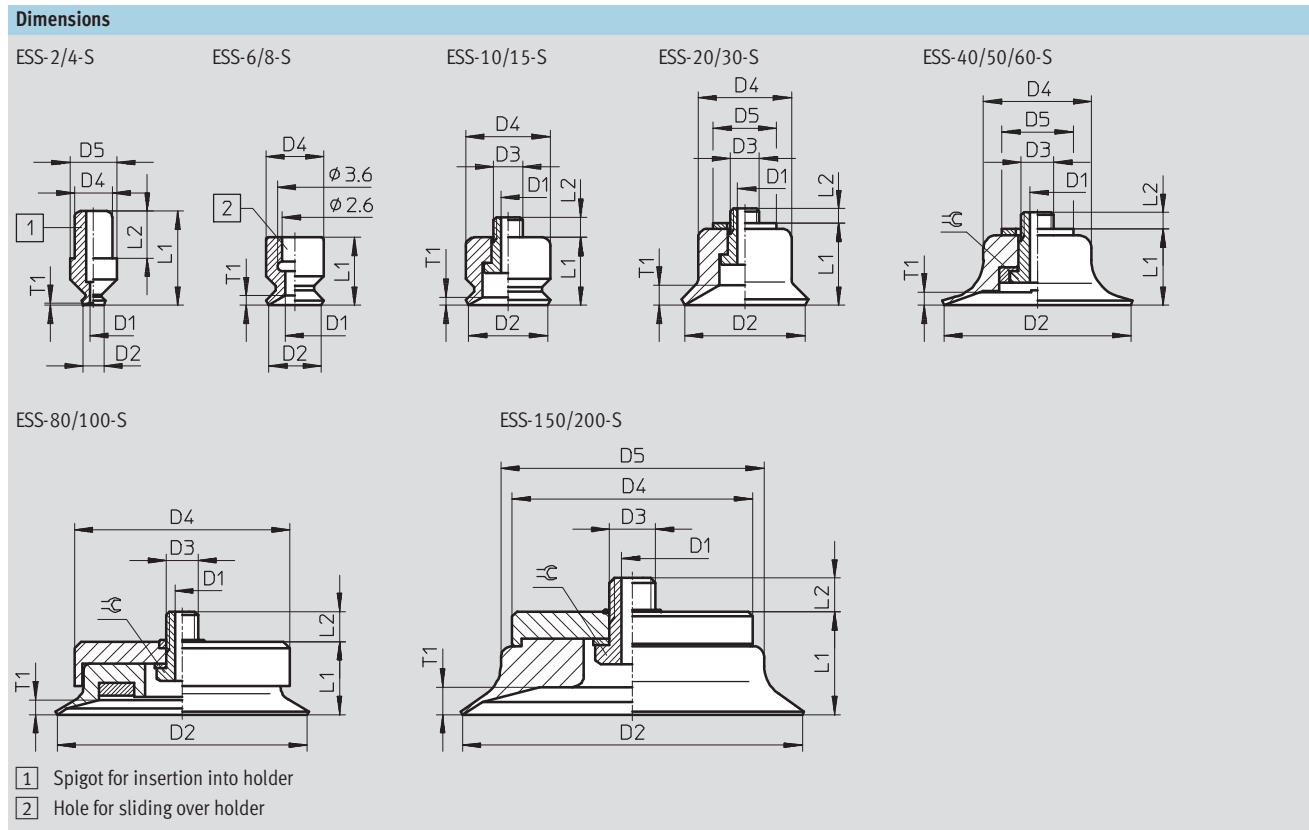
General technical data								
Suction cup \varnothing [mm]	Suction cup holder fits	Mounting thread	Effective suction cup \varnothing [mm]	Breakaway force at -0.7 bar [N]	Suction cup volume ³⁾ [cm ³]	Min. radius R ²⁾ of workpiece [mm]	Weight	
							ESS [g]	ESV [g]
2	Size 1	\varnothing 3 ¹⁾	1.4	0.1	0.002	10	0.1	-
4			3.3	0.4	0.008	10	0.1	-
6	Size 2	\varnothing 4 ¹⁾	5.2	1.1	0.015	15	0.2	-
8			7.2	2.3	0.030	20	0.2	-
10	Size 3	M4x0.7	8.3	3.9	0.050	30	1.5	-
15			13.5	8.5	0.208	35	1.9	-
20	Size 4	M6x1	17.6	16.3	0.318	60	6.4	1.6
30			18.4	40.8	0.867	110	9	2.7
40			26.5	69.6	1.566	230	16.3	7.4
50			33.3	105.8	2.387	330	22	11.2
60	Size 5	M10x1.5	42.0	166.1	3.953	350	49	22
80			57.8	309.7	19.312	400	133	33
100			75.2	503.6	29.779	460	222	59
150	Size 6	M20x2	114.3	900	173.826	480	719	361
200			151.7	1,610	245.454	680	1,198	840

- 1) Is plugged onto or into the suction cup holder
- 2) Minimum arc radius of the workpiece to be gripped
- 3) Volume to be evacuated

Lateral force F [N] at pu = -0.7 bar; Ra = 7 μ m					
Suction cup \varnothing [mm]	ESS-...-SN	ESS-...-SS	ESS-...-SU	ESS-...-SF	ESS-...-SNA
2	0.5	0.5	0.5	0.5	0.5
4	0.5	0.5	0.5	0.5	0.5
6	3.5	2.5	3	1.5	2
8	9.5	3.5	5	3.5	4
10	3.5	4	7	4.5	7.5
15	10.5	6.5	9	10.5	13.5
20	11.5	10.5	23	15.5	14.5
30	19.5	23.5	19	22	20
40	60	25	83	25	49
50	135	84	130	69.5	81.5
60	136	85	151	117.5	-
80	315	104	295	139.5	-
100	600	130	482.5	299	-
150	675	400	1,000	480	-
200	850	425	1,000	500	-

Suction cups, complete ESS/suction cups ESV, standard round

Technical data



Type Suction cup	For Suction gripper	D1 ND	D2 Ø	D3	D4 Ø	D5 Ø	L1	L2	T1	≈C
ESS-2-S...	ESG-2-S...	Ø 0.6	2	-	3.2	4	8	4	0.2	-
ESS-4-S...	ESG-4-S...	Ø 1.2	4	-	3.2	4	8	4	0.6	-
ESS-6-S...	ESG-6-S...	Ø 2	6	-	6	-	7	-	1	-
ESS-8-S...	ESG-8-S...	Ø 2	8	-	6	-	5.5	-	1.1	-
ESS-10-S...	ESG-10-S...	≈C 2	10	M4x0.7	10	-	8	3	1	-
ESS-15-S...	ESG-15-S...	≈C 2	15	M4x0.7	11	-	9	3	2.4	-
ESS-20-S...	ESG-20-S...	≈C 3	20	M6x1	15	18	11.6	2.4	1.8	-
ESS-30-S...	ESG-30-S...	≈C 3	30	M6x1	17	18	12.6	3.4	2	-
ESS-40-S...	ESG-40-S...	≈C 3	40	M6x1	25	22	15.6	3.2	1.9	-
ESS-50-S...	ESG-50-S...	≈C 3	50	M6x1	30	22	16.6	3.2	1.6	-
ESS-60-S...	ESG-60-S...	Ø 6	60	M10x1.5	40	-	20.6	4.5	2.6	14
ESS-80-S...	ESG-80-S...	Ø 6	80	M10x1.5	68	-	23	9.4	4.7	14
ESS-100-S...	ESG-100-S...	Ø 6	100	M10x1.5	85	-	25	8.4	5.5	14
ESS-150-S...	ESG-150-S...	Ø 10	150	M20x2	105	115	45	13	12	27
ESS-200-S...	ESG-200-S...	Ø 10	200	M20x2	105	160	50	13	15	27

Suction cups, complete ESS/suction cups ESV, standard round

Technical data

Ordering data			
Suction cup Ø [mm]	ESS		ESV
	Part No.	Type	Part No. Type
Fluoro rubber F			
2	189267	ESS-2-SF ¹⁾	–
4	189272	ESS-4-SF ¹⁾	–
6	189277	ESS-6-SF ¹⁾	–
8	189282	ESS-8-SF ¹⁾	–
10	189287	ESS-10-SF ¹⁾	–
15	189292	ESS-15-SF ¹⁾	–
20	189297	ESS-20-SF ¹⁾	190982 ESV-20-SF
30	189302	ESS-30-SF ¹⁾	190987 ESV-30-SF
40	189307	ESS-40-SF ¹⁾	190992 ESV-40-SF
50	189312	ESS-50-SF ¹⁾	190997 ESV-50-SF
60	189317	ESS-60-SF ¹⁾	191002 ESV-60-SF
80	189321	ESS-80-SF ¹⁾	191006 ESV-80-SF
100	189325	ESS-100-SF ¹⁾	191010 ESV-100-SF
150	189329	ESS-150-SF ¹⁾	191014 ESV-150-SF
200	189333	ESS-200-SF ¹⁾	191018 ESV-200-SF
Nitrile rubber N			
2	189264	ESS-2-SN ¹⁾	–
4	189269	ESS-4-SN ¹⁾	–
6	189274	ESS-6-SN ¹⁾	–
8	189279	ESS-8-SN ¹⁾	–
10	189284	ESS-10-SN ¹⁾	–
15	189289	ESS-15-SN ¹⁾	–
20	189294	ESS-20-SN ¹⁾	190979 ESV-20-SN
30	189299	ESS-30-SN ¹⁾	190984 ESV-30-SN
40	189304	ESS-40-SN ¹⁾	190989 ESV-40-SN
50	189309	ESS-50-SN ¹⁾	190994 ESV-50-SN
60	189314	ESS-60-SN ¹⁾	190999 ESV-60-SN
80	189318	ESS-80-SN ¹⁾	191003 ESV-80-SN
100	189322	ESS-100-SN ¹⁾	191007 ESV-100-SN
150	189326	ESS-150-SN ¹⁾	191011 ESV-150-SN
200	189330	ESS-200-SN ¹⁾	191015 ESV-200-SN
Nitrile rubber, antistatic NA			
2	189268	ESS-2-SNA ¹⁾	–
4	189273	ESS-4-SNA ¹⁾	–
6	189278	ESS-6-SNA ¹⁾	–
8	189283	ESS-8-SNA ¹⁾	–
10	189288	ESS-10-SNA ¹⁾	–
15	189293	ESS-15-SNA ¹⁾	–
20	189298	ESS-20-SNA ¹⁾	190983 ESV-20-SNA
30	189303	ESS-30-SNA ¹⁾	190988 ESV-30-SNA
40	189308	ESS-40-SNA ¹⁾	190993 ESV-40-SNA
50	189313	ESS-50-SNA ¹⁾	190998 ESV-50-SNA

1) Free of copper and PTFE

Suction cups, complete ESS/suction cups ESV, standard round

FESTO


Technical data

Ordering data			
Suction cup Ø [mm]	ESS		ESV
	Part No.	Type	Part No. Type
Silicone S			
2	189266	ESS-2-SS	–
4	189271	ESS-4-SS	–
6	189276	ESS-6-SS	–
8	189281	ESS-8-SS	–
10	189286	ESS-10-SS	–
15	189291	ESS-15-SS	–
20	189296	ESS-20-SS	190981 ESV-20-SS
30	189301	ESS-30-SS	190986 ESV-30-SS
40	189306	ESS-40-SS	190991 ESV-40-SS
50	189311	ESS-50-SS	190996 ESV-50-SS
60	189316	ESS-60-SS	191001 ESV-60-SS
80	189320	ESS-80-SS	191005 ESV-80-SS
100	189324	ESS-100-SS	191009 ESV-100-SS
150	189328	ESS-150-SS	191013 ESV-150-SS
200	189332	ESS-200-SS	191017 ESV-200-SS
Polyurethane U			
2	189265	ESS-2-SU	–
4	189270	ESS-4-SU	–
6	189275	ESS-6-SU	–
8	189280	ESS-8-SU	–
10	189285	ESS-10-SU	–
15	189290	ESS-15-SU	–
20	189295	ESS-20-SU	190980 ESV-20-SU
30	189300	ESS-30-SU	190985 ESV-30-SU
40	189305	ESS-40-SU	190990 ESV-40-SU
50	189310	ESS-50-SU	190995 ESV-50-SU
60	189315	ESS-60-SU	191000 ESV-60-SU
80	189319	ESS-80-SU	191004 ESV-80-SU
100	189323	ESS-100-SU	191008 ESV-100-SU
150	189327	ESS-150-SU	191012 ESV-150-SU
200	189331	ESS-200-SU	191016 ESV-200-SU

Suction cups, complete ESS/suction cups ESV, round, extra deep

Technical data

ESS-...-E...
ESV-...-E...

-  - Temperature range
-30 ... +200 °C

Function



-  - Diameter
15 ... 100 mm



General technical data								
Suction cup \varnothing [mm]	Suction cup holder fits	Mounting thread	Effective suction cup \varnothing [mm]	Breakaway force at -0.7 bar [N]	Suction cup volume ²⁾ [cm ³]	Min. radius R ¹⁾ of workpiece [mm]	Weight	
							ESS [g]	ESV [g]
15	Size 3	M4x0.7	13.8	9.8	0.350	20	1.9	-
20	Size 4	M6x1	17.2	17	0.840	30	6.4	1.6
30			20.9	37.2	2.120	50	9.2	2.9
40			28.1	67.6	4.040	80	16.9	8
50			36.9	103.6	7.900	100	23.4	12.6
60	Size 5	M10x1.5	40.5	162.5	19.770	120	48	21
80			62.7	275	51.610	160	141	41
100			78.5	440.8	84.660	200	228	65

1) Minimum arc radius of the workpiece to be gripped

2) Volume to be evacuated

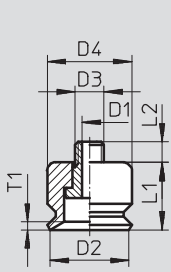
Lateral force F [N] at pu = -0.7 bar; Ra = 7 μ m				
Suction cup \varnothing [mm]	ESS-...-EN	ESS-...-ES	ESS-...-EU	ESS-...-EF
15	9	10	15	14.5
20	14	13	16	15.5
30	24.5	21.5	41.5	18.5
40	53	28.5	46.5	22
50	115	42.5	62	60
60	130	63.5	134	62.5
80	216	107.5	136.5	148.5
100	351	150	352.5	254.5

Suction cups, complete ESS/suction cups ESV, round, extra deep

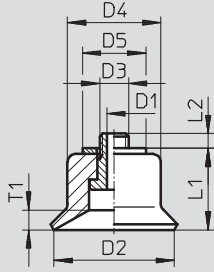
Technical data

Dimensions

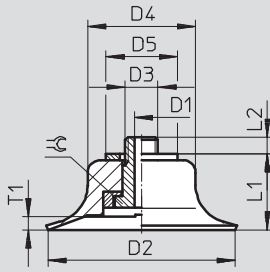
ESS-15-E



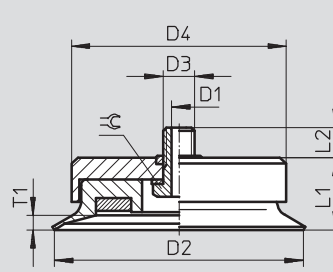
ESS-20/30-E



ESS-40/50/60-E



ESS-80/100-E



Type Suction cup	For Suction gripper	D1 ND	D2 Ø	D3	D4 Ø	D5 Ø	L1	L2	T1	⊖
ESS-15-E...	ESG-15-E...	⊖ 2	15	M4x0.7	11	-	10	3	2.9	-
ESS-20-E...	ESG-20-E...	⊖ 3	20	M6x1	15	18	12.6	2.4	3	-
ESS-30-E...	ESG-30-E...	⊖ 3	30	M6x1	17	18	15.6	3.4	4.5	-
ESS-40-E...	ESG-40-E...	⊖ 3	40	M6x1	25	22	19.1	3.2	4.5	-
ESS-50-E...	ESG-50-E...	⊖ 3	50	M6x1	30	22	21.1	3.9	6.5	-
ESS-60-E...	ESG-60-E...	Ø 6	60	M10x1.5	40	-	27.6	5.4	9.5	14
ESS-80-E...	ESG-80-E...	Ø 6	80	M10x1.5	68	-	33	9.4	8.6	14
ESS-100-E...	ESG-100-E...	Ø 6	100	M10x1.5	85	-	33	8.4	10.7	14

Suction cups, complete ESS/suction cups ESV, round, extra deep

Technical data

Ordering data			
Suction cup Ø [mm]	ESS		ESV
	Part No.	Type	Part No. Type
Fluoro rubber F			
15	189337	ESS-15-EF ¹⁾	–
20	189341	ESS-20-EF ¹⁾	191026 ESV-20-EF
30	189345	ESS-30-EF ¹⁾	191030 ESV-30-EF
40	189349	ESS-40-EF ¹⁾	191034 ESV-40-EF
50	189353	ESS-50-EF ¹⁾	191038 ESV-50-EF
60	189357	ESS-60-EF ¹⁾	191042 ESV-60-EF
80	189361	ESS-80-EF ¹⁾	191046 ESV-80-EF
100	189365	ESS-100-EF ¹⁾	191050 ESV-100-EF
Nitrile rubber N			
15	189334	ESS-15-EN ¹⁾	–
20	189338	ESS-20-EN ¹⁾	191023 ESV-20-EN
30	189342	ESS-30-EN ¹⁾	191027 ESV-30-EN
40	189346	ESS-40-EN ¹⁾	191031 ESV-40-EN
50	189350	ESS-50-EN ¹⁾	191035 ESV-50-EN
60	189354	ESS-60-EN ¹⁾	191039 ESV-60-EN
80	189358	ESS-80-EN ¹⁾	191043 ESV-80-EN
100	189362	ESS-100-EN ¹⁾	191047 ESV-100-EN
Silicone S			
15	189336	ESS-15-ES	–
20	189340	ESS-20-ES	191025 ESV-20-ES
30	189344	ESS-30-ES	191029 ESV-30-ES
40	189348	ESS-40-ES	191033 ESV-40-ES
50	189352	ESS-50-ES	191037 ESV-50-ES
60	189356	ESS-60-ES	191041 ESV-60-ES
80	189360	ESS-80-ES	191045 ESV-80-ES
100	189364	ESS-100-ES	191049 ESV-100-ES
Polyurethane U			
15	189335	ESS-15-EU	–
20	189339	ESS-20-EU	191024 ESV-20-EU
30	189343	ESS-30-EU	191028 ESV-30-EU
40	189347	ESS-40-EU	191032 ESV-40-EU
50	189351	ESS-50-EU	191036 ESV-50-EU
60	189355	ESS-60-EU	191040 ESV-60-EU
80	189359	ESS-80-EU	191044 ESV-80-EU
100	189363	ESS-100-EU	191048 ESV-100-EU


1) Free of copper and PTFE

Suction cups, complete ESS/suction cups ESV, bellows, round 1.5 convolutions

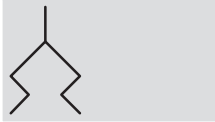
FESTO

Technical data

ESS-...-B...
ESV-...-B...

-  - Temperature range
-30 ... +180 °C

Function



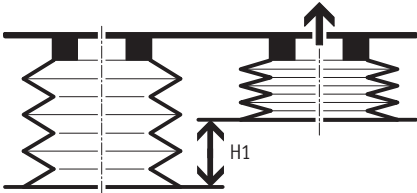
-  - Diameter
10 ... 80 mm



General technical data									
Suction cup Ø [mm]	Suction cup holder fits	Mounting thread	Effective suction cup Ø [mm]	Breakaway force at -0.7 bar [N]	Suction cup volume ²⁾ [cm ³]	Min. radius R ¹⁾ of workpiece [mm]	Max. height compensation H1 [mm]	Weight	
								ESS [g]	ESV [g]
10	Size 3	M4x0.7	7.4	4.7	0.380	20	4	1.8	-
20	Size 4	M6x1	14.3	12.9	1.600	40	6	6.7	1.9
30			20.3	26.2	4.070	80	8	9.9	3.6
40			25.2	52.3	8.870	90	9.5	18.7	9.8
50			31.8	72.6	14.230	150	11	24.7	13.9
80	Size 5	M10x1.5	55	213.6	63.900	430	10	139	39

- 1) Minimum arc radius of the workpiece to be gripped
2) Volume to be evacuated

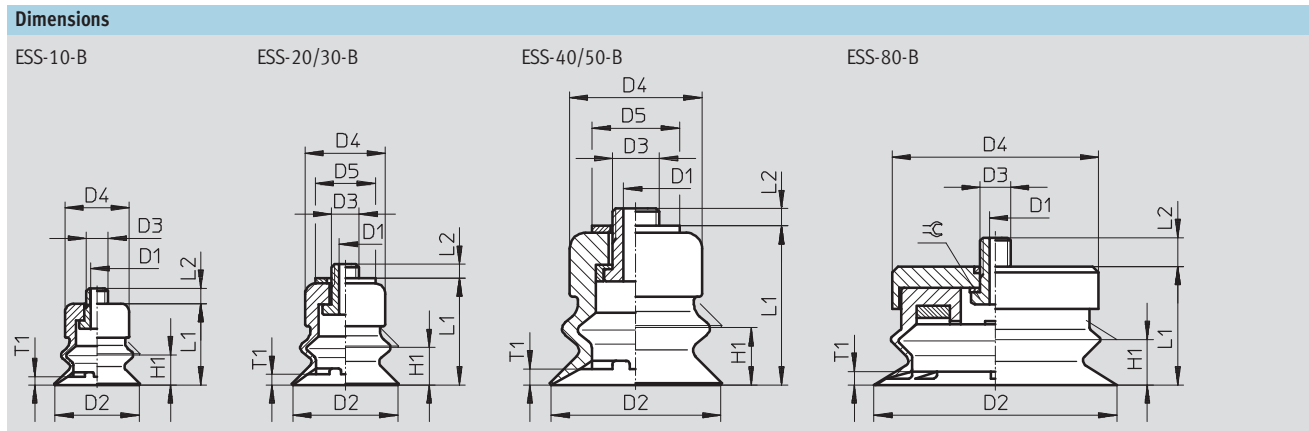
Max. height compensation H1



Lateral force F [N] at pu = -0.7 bar; Ra = 7 µm			
Suction cup Ø [mm]	ESS-...-BN	ESS-...-BS	ESS-...-BU
10	4.5	2.5	3
20	9.5	8	9.5
30	24.5	16	21.5
40	32.5	32.5	33
50	55.5	38	47
80	199.5	93	132.5

Suction cups, complete ESS/suction cups ESV, bellows, round 1.5 convolutions

Technical data



Type	For	D1	D2	D3	D4	D5	H1	L1	L2	T1	⊕
Suction cup	Suction gripper	ND	∅		∅	∅					
ESS-10-B...	ESG-10-B...	⊕ 2	10	M4x0.7	10	-	4	16	3	1	-
ESS-20-B...	ESG-20-B...	⊕ 3	20	M6x1	15	18	6	20.6	2.4	2	-
ESS-30-B...	ESG-30-B...	⊕ 3	30	M6x1	17	18	8	24.6	3.4	2.5	-
ESS-40-B...	ESG-40-B...	⊕ 3	40	M6x1	25	22	9.5	31.6	3.2	4	-
ESS-50-B...	ESG-50-B...	⊕ 3	50	M6x1	30	22	11	33.6	3.2	4	-
ESS-80-B...	ESG-80-B...	∅ 6	80	M10x1.5	68	-	10	39	9.4	2	14

Ordering data			
Suction cup ∅ [mm]	ESS		ESV
	Part No.	Type	Part No. Type
Nitrile rubber N			
10	189374	ESS-10-BN ¹⁾	-
20	189378	ESS-20-BN ¹⁾	191054 ESV-20-BN
30	189382	ESS-30-BN ¹⁾	191057 ESV-30-BN
40	189386	ESS-40-BN ¹⁾	191060 ESV-40-BN
50	189390	ESS-50-BN ¹⁾	191063 ESV-50-BN
80	189394	ESS-80-BN ¹⁾	191066 ESV-80-BN
Silicone S			
10	189376	ESS-10-BS	-
20	189380	ESS-20-BS	191056 ESV-20-BS
30	189384	ESS-30-BS	191059 ESV-30-BS
40	189388	ESS-40-BS	191062 ESV-40-BS
50	189392	ESS-50-BS	191065 ESV-50-BS
80	189396	ESS-80-BS	191068 ESV-80-BS
Polyurethane U			
10	189375	ESS-10-BU	-
20	189379	ESS-20-BU	191055 ESV-20-BU
30	189383	ESS-30-BU	191058 ESV-30-BU
40	189387	ESS-40-BU	191061 ESV-40-BU
50	189391	ESS-50-BU	191064 ESV-50-BU
80	189395	ESS-80-BU	191067 ESV-80-BU


1) Free of copper and PTFE

Suction cups, complete ESS/suction cups ESV, bellows, round 1.5 convolutions

FESTO

Technical data

ESS-...-BT-...
ESV-...-BT

—  — Temperature range
-10 ... +80 °C

Function



—  — Diameter
40 ... 80 mm



General technical data							
Suction cup Ø [mm]	Suction cup holder fits	Mounting thread	Breakaway force at -0.7 bar [N]	Min. radius R ¹⁾ of workpiece [mm]	Volume [cm ³]	Weight	
						ESS [g]	ESV [g]
40	Size 4	M6x1	59	35	9.70	18	10.5
	Size 5	M10x1.5			9.71	19	
	—	G ³ / ₄ -I female thread			10.00	19	
	—	G ³ / ₄ male thread			9.73	20.5	
50	Size 4	M6x1	100	40	17.50	24	16.2
	Size 5	M10x1.5			17.51	25	
	—	G ³ / ₄ -I female thread			17.80	25	
	—	G ³ / ₄ male thread			17.53	26	
80	Size 5	M10x1.5	237	100	58.50	84.5	57.2
	—	G ³ / ₄ -I female thread			58.50	87.5	
	—	G ³ / ₄ male thread			58.50	85.5	

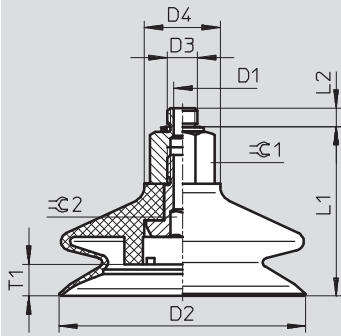
1) Minimum arc radius of the workpiece to be gripped

Suction cups, complete ESS/suction cups ESV, bellows, round 1.5 convolutions

FESTO

Technical data

Dimensions



Type	D1 ∅ ND	D2 ∅	D3	D4 ∅	L1	L2	T1	∅ 1	∅ 2
ESS-40-BT	2.5	40	M6	20	36	3.45	9	15	4
			M10						
			G $\frac{1}{4}$						
ESS-40-BT-I			G $\frac{1}{4}$						
ESS-50-BT	2.5	50	M6	20	38.05	3.45	8	15	4
			M10						
			G $\frac{1}{4}$						
ESS-50-BT-I			G $\frac{1}{4}$						
ESS-80-BT	2.5	80	M10	20	53.3	6.2	10.5	17	8
			G $\frac{1}{4}$						
			G $\frac{1}{4}$						
ESS-80-BT-I			G $\frac{1}{4}$						

Ordering data

Suction cup ∅ [mm]	Connection	ESS		ESV	
		Part No.	Type	Part No.	Type
40	M6	525989	ESS-40-BT-M6 ¹⁾	-	-
	M10	525990	ESS-40-BT-M10 ¹⁾	-	-
	G $\frac{1}{4}$ female thread	525991	ESS-40-BT-G $\frac{1}{4}$ -I ¹⁾	-	-
	G $\frac{1}{4}$	525992	ESS-40-BT-G $\frac{1}{4}$ ¹⁾	-	-
	-	-	-	526006	ESV-40-BT ¹⁾
50	M6	525993	ESS-50-BT-M6 ¹⁾	-	-
	M10	525994	ESS-50-BT-M10 ¹⁾	-	-
	G $\frac{1}{4}$ female thread	525995	ESS-50-BT-G $\frac{1}{4}$ -I ¹⁾	-	-
	G $\frac{1}{4}$	525996	ESS-50-BT-G $\frac{1}{4}$ ¹⁾	-	-
	-	-	-	526007	ESV-50-BT ¹⁾
80	M10	525997	ESS-80-BT-M10 ¹⁾	-	-
	G $\frac{1}{4}$ female thread	525998	ESS-80-BT-G $\frac{1}{4}$ -I ¹⁾	-	-
	G $\frac{1}{4}$	525999	ESS-80-BT-G $\frac{1}{4}$ ¹⁾	-	-
	-	-	-	526008	ESV-80-BT ¹⁾


1) Free of copper and PTFE

Suction cups, complete ESS/suction cups ESV, bellows, round 3.5 convolutions

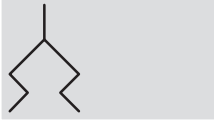
FESTO

Technical data

ESS-...-C...
ESV-...-C...

-  - Temperature range
-30 ... +180 °C

Function



-  - Diameter
10 ... 50 mm

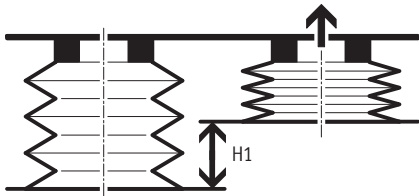


General technical data									
Suction cup ∅ [mm]	Suction cup holder fits	Mounting thread	Effective suction cup ∅ [mm]	Breakaway force at -0.7 bar [N]	Suction cup volume ²⁾ [cm ³]	Min. radius R ¹⁾ of workpiece [mm]	Max. height compensation H1 [mm]	Weight	
								ESS [g]	ESV [g]
10	Size 3	M4x0.7	6.9	3.9	0.290	25	3.3	1.6	-
20	Size 4	M6x1	14.5	8.2	2.750	50	7	6.9	2.1
30			20.9	20.8	9.470	80	10.5	12.2	5.8
40			28.2	42.4	19.720	100	12.8	21.9	13
50			32.8	63.4	38.920	180	17.5	32.1	21.3

1) Minimum arc radius of the workpiece to be gripped

2) Volume to be evacuated

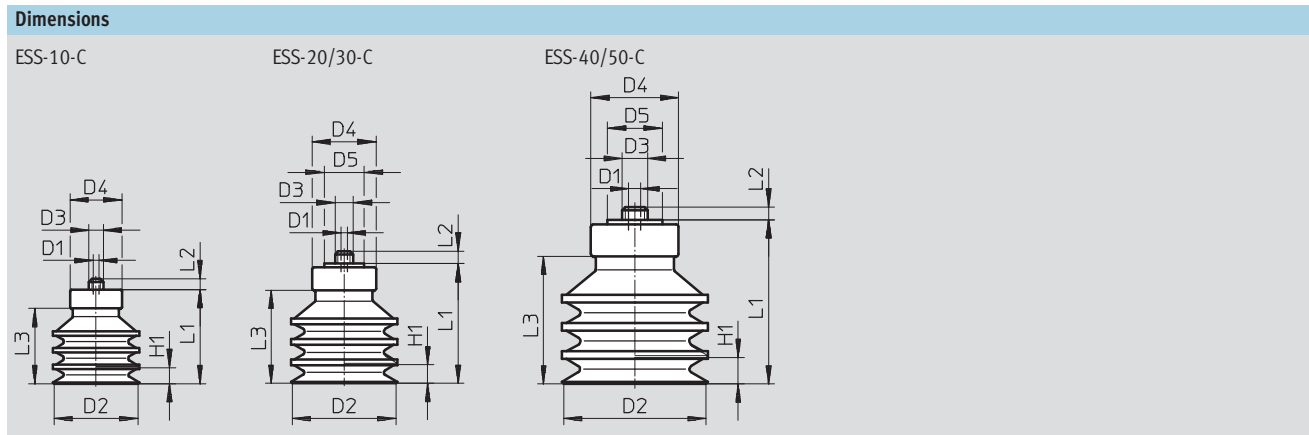
Max. height compensation H1



Lateral force F [N] at pu = -0.7 bar; Ra = 7 µm		
Suction cup ∅ [mm]	ESS-...-CN	ESS-...-CS
10	1.5	1
20	6.5	7
30	11.5	11
40	47.5	13
50	49	45.5

Suction cups, complete ESS/suction cups ESV, bellows, round 3.5 convolutions

Technical data



Type	For	D1	D2	D3	D4	D5	H1	L1	L2	L3
Suction cup	Suction gripper	ND	∅		∅	∅				
ESS-10-C...	ESG-10-C...	2	10	M4x0.7	10	-	3.3	12.7	3	8.7
ESS-20-C...	ESG-20-C...	3	20	M6x1	15	18	7	23	2.4	16.4
ESS-30-C...	ESG-30-C...	3	30	M6x1	18	18	10.5	34.3	3.4	26.2
ESS-40-C...	ESG-40-C...	3	40	M6x1	25	22	12.8	39.6	3.2	31
ESS-50-C...	ESG-50-C...	3	50	M6x1	30	22	17.5	48	3.2	39.4

Ordering data			
Suction cup ∅ [mm]	ESS		ESV
	Part No.	Type	Part No. Type
Nitrile rubber N			
10	189398	ESS-10-CN ¹⁾	-
20	189400	ESS-20-CN ¹⁾	191071 ESV-20-CN
30	189402	ESS-30-CN ¹⁾	191073 ESV-30-CN
40	189404	ESS-40-CN ¹⁾	191075 ESV-40-CN
50	189406	ESS-50-CN ¹⁾	191077 ESV-50-CN
Silicone S			
10	189399	ESS-10-CS	-
20	189401	ESS-20-CS	191072 ESV-20-CS
30	189403	ESS-30-CS	191074 ESV-30-CS
40	189405	ESS-40-CS	191076 ESV-40-CS
50	189407	ESS-50-CS	191078 ESV-50-CS

1) Free of copper and PTFE

Suction cups ESS, oval

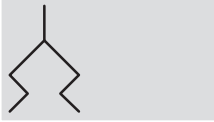
Technical data

FESTO

ESS-...-0...

Temperature range
-10 ... +70 °C

Function



General technical data						
Suction cup size [mm]	Suction cup holder fits	Mounting thread	Effective suction cup Ø [mm]	Breakaway force at -0.7 bar [N]	Suction cup volume ¹⁾ [cm ³]	Weight [g]
4x10	Size 4	M6x1	0.29	2	0.064	2
4x20			0.57	3.4	0.112	2.5
6x10			0.35	2.9	0.106	2
6x20			0.74	5.9	0.196	2.5
8x20			0.89	8	0.256	2.5
8x30			1.36	10.9	0.376	3
10x30			2.23	15.2	0.350	2.9
15x45	Size 5	M10x1.5	4.84	32	1.570	23.8
20x60			9.12	62.8	3.690	30.8
25x75			14.67	92.5	6.700	46.8
30x90			21.83	134.4	10.170	55.3

1) Volume to be evacuated

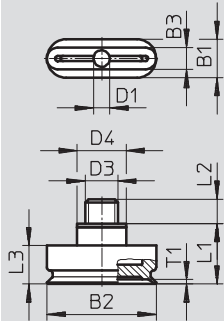
Lateral force F [N] at pu = -0.7 bar and Ra = 7 µm		
Suction cup size [mm]	horizontal	vertical
4x10	3.5	5
4x20	4.5	11
6x10	8.5	12
6x20	9	12.5
8x20	11	13
8x30	17	13.5
10x30	23	16
15x45	43	35
20x60	116	63
25x75	125.5	115
30x90	201	134.5

Suction cups ESS, oval

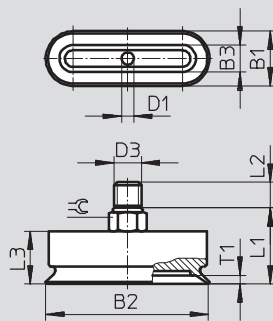
Technical data

Dimensions

ESS-4x10 ... 10x30-0



ESS-15x45 ... 30x90-0



Type	For Suction gripper	B1	B2	B3	D1 ∅ NW	D3	D4 ∅	L1	L2	L3	T1	⊖
ESS-4x10-0...	ESG-4x10-0...	7	10	4	2.5	M6x1	9	11.1	4.4	7	0.8	-
ESS-4x20-0...	ESG-4x20-0...	7	20	4	2.5	M6x1	9	11.1	4.4	7	0.8	-
ESS-6x10-0...	ESG-6x10-0...	7	10	6	2.5	M6x1	9	11.1	4.4	7	1	-
ESS-6x20-0...	ESG-6x20-0...	7	20	6	2.5	M6x1	9	11.1	4.4	7	1	-
ESS-8x20-0...	ESG-8x20-0...	7	20	8	2.5	M6x1	9	11.1	4.4	7	1	-
ESS-8x30-0...	ESG-8x30-0...	7	30	8	2.5	M6x1	9	11.1	4.4	7	1	-
ESS-10x30-0...	ESG-10x30-0...	10	30	7	2.5	M6x1	9	11.1	4.4	7	1.1	-
ESS-15x45-0...	ESG-15x45-0...	15	45	15	6	M10x1.5	-	25.5	8.5	18.5	2.5	12
ESS-20x60-0...	ESG-20x60-0...	20	60	20	6	M10x1.5	-	26.3	8.5	19.3	3.2	12
ESS-25x75-0...	ESG-25x75-0...	25	75	25	6	M10x1.5	-	28	8.5	21	3.7	12
ESS-30x90-0...	ESG-30x90-0...	30	90	30	6	M10x1.5	-	28.5	8.5	21.5	3.7	12

Ordering data


Suction cup size [mm]	ESS	
	Part No.	Type
Nitrile rubber N		
4x10	189408	ESS-4X10-ON ¹⁾
4x20	189409	ESS-4X20-ON ¹⁾
6x10	189410	ESS-6X10-ON ¹⁾
6x20	189411	ESS-6X20-ON ¹⁾
8x20	189412	ESS-8X20-ON ¹⁾
8x30	189413	ESS-8X30-ON ¹⁾
10x30	189414	ESS-10X30-ON ¹⁾
15x45	189415	ESS-15X45-ON ¹⁾
20x60	189416	ESS-20X60-ON ¹⁾
25x75	189417	ESS-25X75-ON ¹⁾
30x90	189418	ESS-30X90-ON ¹⁾

1) Free of copper and PTFE

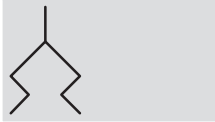
Suction cups, complete ESS/suction cups ESV, bell-shaped

Technical data

ESS-...-GT-...
ESV-...-GT

-  - Temperature range
-10 ... +80 °C

Function



-  - Diameter
30 ... 100 mm



General technical data							
Suction cup Ø [mm]	Suction cup holder fits	Mounting thread	Breakaway force at -0.7 bar [N]	Min. radius R ¹⁾ of workpiece [mm]	Volume [cm ³]	Weight	
						ESS [g]	ESV [g]
30	Size 4	M6x1	36	26	2.3	12	4.2
	Size 5	M10x1.5				13	
	-	G ³ / ₈ -I female thread				14	
	-	G ³ / ₈ male thread				13	
40	Size 4	M6x1	64	35	5.1	14	5.7
	Size 5	M10x1.5				15	
	-	G ¹ / ₄ -I female thread			5.4	14.5	
	-	G ¹ / ₄ male thread			5.1	16	
50	Size 4	M6x1	97	40	11.2	17	9.2
	Size 5	M10x1.5				18	
	-	G ¹ / ₄ -I female thread			11.5	18	
	-	G ¹ / ₄ male thread			11.2	21	
60	Size 5	M10x1.5	134	75	12.3	20	10.7
	-	G ¹ / ₄ -I female thread				19.5	
	-	G ¹ / ₄ male thread				21	
80	Size 5	M10x1.5	245	100	28.0	28	30.9
	-	G ¹ / ₄ -I female thread				61	
	-	G ¹ / ₄ male thread				60	
100	Size 5	M10x1.5	375	135	53.2	86.5	58.9
	-	G ¹ / ₄ -I female thread				89.5	
	-	G ¹ / ₄ male thread				87.5	

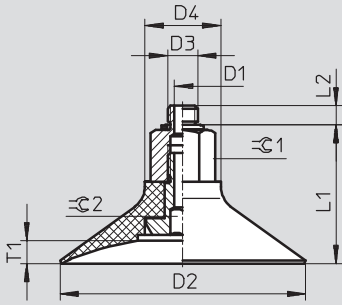
1) Minimum arc radius of the workpiece to be gripped

Suction cups, complete ESS/suction cups ESV, bell-shaped

Technical data

FESTO

Dimensions



Type	D1 Ø ND	D2 Ø	D3	D4 Ø	L1	L2	T1	⊙ 1	⊙ 2
ESS-30-GT	2.5	30	M6	20	27.55	3.45	3.5	15	4
ESS-30-GT-I			M10		27.8	6.2		17	
ESS-40-GT			G1/8		36.8	4.7		15	
ESS-40-GT-I			G1/8		42.2	-		17	
ESS-40-GT	2.5	40	M6	20	29.55	3.45	5.5	15	4
ESS-40-GT-I			M10		29.8	6.2		17	
ESS-50-GT			G1/4		30.2	5.8		15	
ESS-50-GT-I			G1/4		42.2	-		17	
ESS-50-GT	2.5	50	M6	20	32.05	3.45	8	15	4
ESS-50-GT-I			M10		32.3	6.2		17	
ESS-60-GT			G1/4		32.7	5.8		17	
ESS-60-GT-I			G1/4		44.7	-		17	
ESS-60-GT	5.5	60	M10	20	34.3	6.2	6	17	4
ESS-60-GT-I			G1/4		34.7	5.8			
ESS-80-GT			G1/4		45.7	-			
ESS-80-GT	5.5	80	M10	25	43.3	6.2	7.5	22	8
ESS-80-GT-I			G1/4		47.8	5.8			
ESS-100-GT			G1/4		54.7	-			
ESS-100-GT	5.5	100	M10	25	47.8	6.2	9	22	8
ESS-100-GT-I			G1/4		48.2	5.8			
ESS-100-GT-I			G1/4		59.2	-			

Suction cups, complete ESS/suction cups ESV, bell-shaped

FESTO

Technical data

Ordering data				
Suction cup ∅ [mm]	Connection	ESS		ESV
		Part No.	Type	Part No. Type
30	M6	525968	ESS-30-GT-M6 ¹⁾	–
	M10	525969	ESS-30-GT-M10 ¹⁾	–
	G ¹ / ₈ female thread	525970	ESS-30-GT-G ¹ / ₈ -I ¹⁾	–
	G ¹ / ₈	525971	ESS-30-GT-G ¹ / ₈ ¹⁾	–
	–	–	–	526000 ESV-30-GT ¹⁾
40	M6	525972	ESS-40-GT-M6 ¹⁾	–
	M10	525973	ESS-40-GT-M10 ¹⁾	–
	G ¹ / ₄ female thread	525974	ESS-40-GT-G ¹ / ₄ -I ¹⁾	–
	G ¹ / ₄	525975	ESS-40-GT-G ¹ / ₄ ¹⁾	–
	–	–	–	526001 ESV-40-GT ¹⁾
50	M6	525976	ESS-50-GT-M6 ¹⁾	–
	M10	525977	ESS-50-GT-M10 ¹⁾	–
	G ¹ / ₄ female thread	525978	ESS-50-GT-G ¹ / ₄ -I ¹⁾	–
	G ¹ / ₄	525979	ESS-50-GT-G ¹ / ₄ ¹⁾	–
	–	–	–	526002 ESV-50-GT ¹⁾
60	M10	525980	ESS-60-GT-M10 ¹⁾	–
	G ¹ / ₄ female thread	525981	ESS-60-GT-G ¹ / ₄ -I ¹⁾	–
	G ¹ / ₄	525982	ESS-60-GT-G ¹ / ₄ ¹⁾	–
	–	–	–	526003 ESV-60-GT ¹⁾
80	M10	525983	ESS-80-GT-M10 ¹⁾	–
	G ¹ / ₄ female thread	525984	ESS-80-GT-G ¹ / ₄ -I ¹⁾	–
	G ¹ / ₄	525985	ESS-80-GT-G ¹ / ₄ ¹⁾	–
	–	–	–	526004 ESV-80-GT ¹⁾
100	M10	525986	ESS-100-GT-M10 ¹⁾	–
	G ¹ / ₄ female thread	525987	ESS-100-GT-G ¹ / ₄ -I ¹⁾	–
	G ¹ / ₄	525988	ESS-100-GT-G ¹ / ₄ ¹⁾	–
	–	–	–	526005 ESV-100-GT ¹⁾

1) Free of copper and PTFE

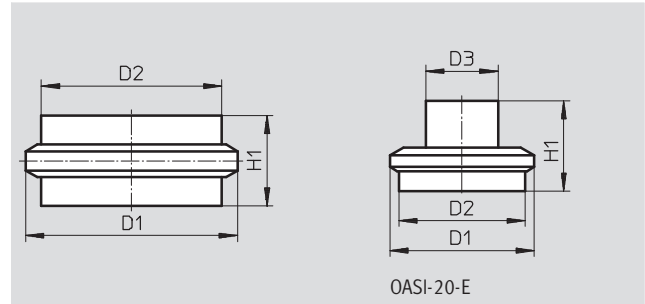
Suction cups ESS and ESV

Accessories

Suction cup insert OASI

for suction cups

Bellows with 3.5 convolutions



The suction cup insert is compatible with the ESG suction gripper range. It is suitable for bellows suction cups with 3.5 convolutions and is simply snapped into the bellows.

The support offered by the suction cup insert enables delicate and fragile workpieces to be transported.

Areas of application:

- Semiconductor industry (wafers, solar cells)
- Electronics industry (printed circuit boards, plastic film)
- Paper industry
- PE film



Note

The suction cup insert's location in the evacuation string means that it filters the intake air and consequently becomes contaminated. Like other filters, it must be replaced if it becomes contaminated.

Technical data						
Type	OASI-10	OASI-20	OASI-30	OASI-40	OASI-50	OASI-20-E
Operating pressure [bar]	-0.95 ... 0					
Operating medium	Atmospheric air					
Ambient temperature [°C]	5 ... 50					
Ejector pulse suitability [bar]	0	≤0.5	≤2	≤5		≤0.5
Type of mounting	Push-in					
Mounting position	Any			Inner recess		Inner trunnion
Food industry approval	FDA					
Material						
Suction cup insert	Polyethylene					
Note on materials	RoHS-compliant					

Dimensions and ordering data						
D1	D2	D3	H1	Weight [g]	Part No.	Type
7	6	-	3	0.1	1048645	OASI-10
16	14	-	6.5	0.6	1048877	OASI-20
16	14	8	10	0.6	1072015	OASI-20-E ¹⁾
23.5	20	-	10	2.1	1048880	OASI-30
33	27	-	12	2.9	1048881	OASI-40
40	32	-	15	5.9	1048884	OASI-50

1) Additional feature E: suction cup insert with stop