



- For accurate and gentle transportation
- Lightweight and sturdy
- 6 suction cup designs in various sizes
- Suction cup diameters 2 – 100 mm
- Long service life







# Suction cups, complete ESS

Product range overview





Suction grippers

2.1

Type	Suction cup Ø  [mm]	Suction cup holder  Size	Mounting thread	Nominal size  [mm]	Materials						→ Page		
					Viton	Nitrile rubber	Nitrile rubber, antistatic	Silicone	Polyurethane	Vulkollan			
Standard, round ESS-...-S...		2	1	Ø 3	0.6	■	■	■	■	■	-	6 / 2.1-53	
		4				■	■	■	■	■	-		
		6	2	Ø 4	2.0	■	■	■	■	■	-		
		8				■	■	■	■	■	-		
		10	3	M4x0.7	2.0	■	■	■	■	■	-	6 / 2.1-53	
		15				■	■	■	■	■	-		
		20				4	M6x1	3.0	■	■	■		■
		30	■	■	■				■	■	-		
		40	■	■	■				■	■	-		
		50	■	■	■				■	■	-		
		60	5	M10x1.5	6.0	■	■	■	■	■	-		
		80				■	■	■	■	■	-		
		100				■	■	■	■	■	-		
		150				6	M20x2	10.0	■	■	■		■
200	■	■	■	■	■				-				
Round, extra deep ESS-...-E...		15	3	M4x0.7	2.0	■	■	-	■	■	-	6 / 2.1-57	
		20	4	M6x1	3.0	■	■	-	■	■	-		
		30				■	■	-	■	■	-		
		40				■	■	-	■	■	-		
		50	5	M10x1.5	6.0	■	■	-	■	■	-		
		60				■	■	-	■	■	-		
		80				■	■	-	■	■	-		
100	■	■	-	■	■	-							
Bellows, round, 1.5 convolutions ESS-...-B...		10	3	M4x0.7	2.0	-	■	-	■	■	-	6 / 2.1-60	
		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	-	-	-	-	-	■	6 / 2.1-62	
				M10		-	-	-	-	-	■		
				G <sup>1</sup> / <sub>4</sub> -I		-	-	-	-	-	■		
				G <sup>1</sup> / <sub>4</sub>		-	-	-	-	-	■		
		50	4	M6	2.5	-	-	-	-	-	-		■
				M10		-	-	-	-	-	■		
	G <sup>1</sup> / <sub>4</sub> -I			-		-	-	-	-	■			
	G <sup>1</sup> / <sub>4</sub>			-		-	-	-	-	■			
	80	5	M10	2.5	-	-	-	-	-	-	■		
					G <sup>1</sup> / <sub>4</sub> -I	-	-	-	-	-	■		
					G <sup>1</sup> / <sub>4</sub>	-	-	-	-	-	■		
					G <sup>1</sup> / <sub>4</sub>	-	-	-	-	-	■		
Bellows, round, 3.5 convolutions ESS-...-C...		10	3	M4x0.7	2.0	-	■	-	■	-	-	6 / 2.1-64	
		20	4	M6x1	3.0	-	■	-	■	-	-		
		30				■	■	-	■	-	-		
		40				■	■	-	■	-	-		
		50	5	M10x1	3.0	-	■	-	■	-	-		

# Suction cups, complete ESS

Product range overview

Type	Suction cup $\varnothing$ or suction cup size	Suction cup holder	Mounting thread	Nominal size	Materials		→ Page	
					Nitrile rubber	Vulkollan		
	[mm]	Size		[mm]				
Oval suction cup ESS-...-0...		4	M6x1	3.0	4x10	■	-	6 / 2.1-66
					4x20			
					6x10			
					6x20			
					8x20			
					8x30			
					10x30			
		5	M10x1.5	6.0	15x45	■	-	
		20x60						
		25x75						
30x90								
Bell-shaped ESS-...-GT-...		4	M6	2.5	-	■	6 / 2.1-68	
			M10					
			G $\frac{1}{8}$ -l					
			G $\frac{1}{8}$					
		4	M6	2.5	-	■		
								M10
								G $\frac{1}{4}$ -l
								G $\frac{1}{4}$
		4	M6	2.5	-	■		
								M10
								G $\frac{1}{8}$ -l
								G $\frac{1}{8}$
		5	M10	2.5	-	■		
								G $\frac{1}{4}$ -l
								G $\frac{1}{4}$
		5	M10	5.5	-	■		
								G $\frac{1}{4}$ -l
								G $\frac{1}{4}$
5	M10	5.5	-	■				
					G $\frac{1}{4}$ -l			
					G $\frac{1}{4}$			







# Suction cups ESV

Product range overview



Suction grippers

2.1


Type	Suction cup $\varnothing$ [mm]	Suction cup holder Size	Mounting thread	Materials						Page	
				Viton	Nitrile rubber	Nitrile rubber antistatic	Silicone	Polyurethane	Vulkolan		
Standard, round ESV-...-S...		20	4	M6x1	■	■	■	■	■	-	6 / 2.1-53
		30			■	■	■	■	■	-	
		40			■	■	■	■	■	-	
		50			■	■	■	■	■	-	
		60	5	M10x1.5	■	■	-	■	■	-	
		80			■	■	-	■	■	-	
		100			■	■	-	■	■	-	
150	6	M20x2	■	■	-	■	■	-			
200			■	■	-	■	■	-			
Round, extra deep ESV-...-E...		20	4	M6x1	■	■	-	■	■	-	6 / 2.1-57
		30			■	■	-	■	■	-	
		40			■	■	-	■	■	-	
		50			■	■	-	■	■	-	
		60	5	M10x1.5	■	■	-	■	■	-	
		80			■	■	-	■	■	-	
		100			■	■	-	■	■	-	
Bellows, round, 1.5 convolutions ESV-...-B...		20	4	M6x1	-	■	-	■	■	-	6 / 2.1-60
		30			■	■	-	■	■	-	
		40	5	M10x1.5	-	■	-	■	■	-	
		50			■	■	-	■	■	-	
Bellows, round, 1.5 convolutions ESV-...-BT...		40	4	-	-	-	-	-	■	6 / 2.1-62	
		50	5	-	-	-	-	-	■		
		80			-	-	-	-	-		■
Bellows, round, 3.5 convolutions ESV-...-C...		20	4	M6x1	-	■	-	■	-	-	6 / 2.1-64
		30			■	■	-	■	■	-	
		40	5	M10x1	-	■	-	■	-	-	
		50			■	■	-	■	■	-	
Bell-shaped ESV-...-GT...		30	4	-	-	-	-	-	-	■	6 / 2.1-68
		40			■	■	-	■	■	-	
		50			■	■	-	■	■	-	
		60	5	-	-	-	-	-	-	■	
		80			■	■	-	■	■	-	
		100			■	■	-	■	■	-	

# Suction cups, complete ESS/suction cups ESV

Type code

FESTO

ESS		10	S	N	M6
<b>Type</b>					
ESS	Suction cup, complete				
ESV	Suction cup				
<b>Suction cup <math>\varnothing</math> or suction cup size [mm]</b>					
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				
<b>Suction cup design</b>					
S	Standard, round				
E	Extra deep				
B	Bellows, round, 1.5 convolutions				
C	Bellows, round, 3.5 convolutions				
O	Oval				
G	Bell-shaped				
<b>Materials</b>					
F	Viton				
N	Nitrile rubber				
NA	Nitrile rubber, antistatic				
S	Silicone				
U	Polyurethane				
T	Vulkollan				
<b>Connection sizes</b>					
M6	M6 thread				
M10	M10 thread				
G $\frac{1}{8}$	G $\frac{1}{8}$ thread				
G $\frac{1}{4}$	G $\frac{1}{4}$ thread				
G $\frac{1}{8}$ -I	G $\frac{1}{8}$ -I female thread				
G $\frac{1}{4}$ -I	G $\frac{1}{4}$ -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	Viton	Nitrile rubber	Nitrile rubber, antistatic	Silicone	Polyurethane	Vulkollan
Shore hardness	60±5	50±5	50±5	50±5	60±5	72±5
Colour	Grey	Black	Black with white dot	Transparent	Blue	Reddish brown
Material note	PWIS-free (free of paint wetting impairment substances)			Contains PWIS		
	Free of copper, PTFE and silicone → Ordering data					

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 <sup>1)</sup>	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 grippers

2.1

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

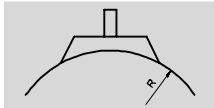


Technical data

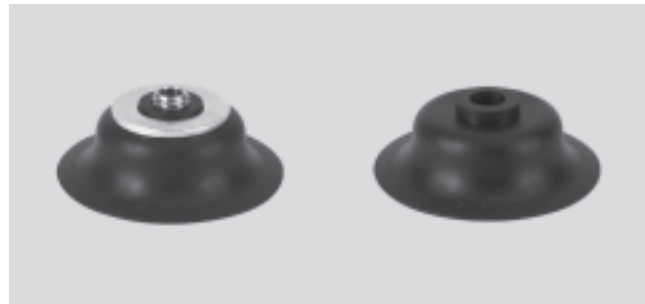
ESS-...-S...  
ESV-...-S...

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

Function



- - Diameter  
2 ... 200 mm



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 <sup>3)</sup> [cm <sup>3</sup> ]	Min. radius R <sup>2)</sup> of workpiece [mm]	Weight	
							ESS [g]	ESV [g]
2	Size 1	$\varnothing$ 3 <sup>1)</sup>	1.4	0.1	0.002	10	0.1	-
4			3.3	0.4	0.008	10	0.1	-
6	Size 2	$\varnothing$ 4 <sup>1)</sup>	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 $\mu$ 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	-

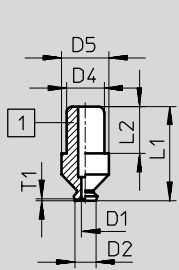
# Suction cups, complete ESS/suction cups ESV, standard round

Technical data

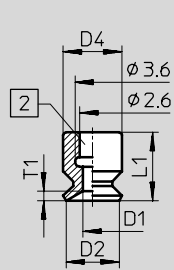


## Dimensions

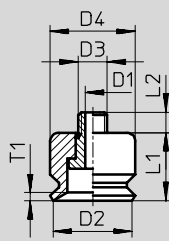
ESS-2/4-S



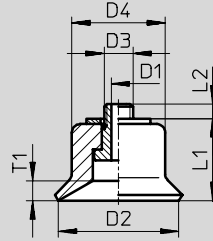
ESS-6/8-S



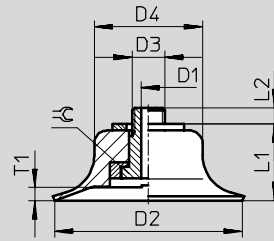
ESS-10/15-S



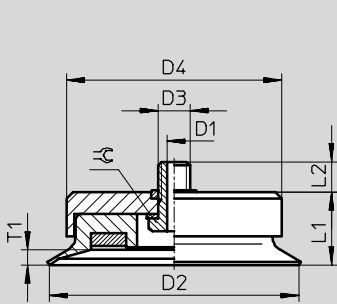
ESS-20/30-S



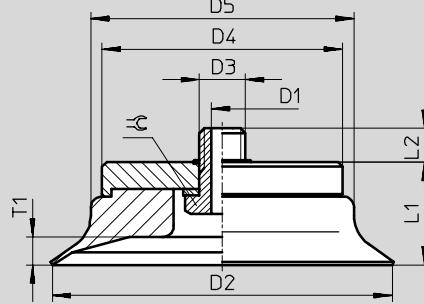
ESS-40/50/60-S



ESS-80/100-S



ESS-150/200-S



- 1 Spigot for insertion into holder
- 2 Hole for sliding over holder

Suction grippers

2.1

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



# 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
<b>Viton F</b>			
2	189 267	ESS-2-SF <sup>1)</sup>	–
4	189 272	ESS-4-SF <sup>1)</sup>	–
6	189 277	ESS-6-SF <sup>1)</sup>	–
8	189 282	ESS-8-SF <sup>1)</sup>	–
10	189 287	ESS-10-SF <sup>1)</sup>	–
15	189 292	ESS-15-SF <sup>1)</sup>	–
20	189 297	ESS-20-SF <sup>1)</sup>	190 982 ESV-20-SF
30	189 302	ESS-30-SF <sup>1)</sup>	190 987 ESV-30-SF
40	189 307	ESS-40-SF <sup>1)</sup>	190 992 ESV-40-SF
50	189 312	ESS-50-SF <sup>1)</sup>	190 997 ESV-50-SF
60	189 317	ESS-60-SF <sup>1)</sup>	191 002 ESV-60-SF
80	189 321	ESS-80-SF <sup>1)</sup>	191 006 ESV-80-SF
100	189 325	ESS-100-SF <sup>1)</sup>	191 010 ESV-100-SF
150	189 329	ESS-150-SF <sup>1)</sup>	191 014 ESV-150-SF
200	189 333	ESS-200-SF <sup>1)</sup>	191 018 ESV-200-SF
<b>Nitrile rubber N</b>			
2	189 264	ESS-2-SN <sup>1)</sup>	–
4	189 269	ESS-4-SN <sup>1)</sup>	–
6	189 274	ESS-6-SN <sup>1)</sup>	–
8	189 279	ESS-8-SN <sup>1)</sup>	–
10	189 284	ESS-10-SN <sup>1)</sup>	–
15	189 289	ESS-15-SN <sup>1)</sup>	–
20	189 294	ESS-20-SN <sup>1)</sup>	190 979 ESV-20-SN
30	189 299	ESS-30-SN <sup>1)</sup>	190 984 ESV-30-SN
40	189 304	ESS-40-SN <sup>1)</sup>	190 989 ESV-40-SN
50	189 309	ESS-50-SN <sup>1)</sup>	190 994 ESV-50-SN
60	189 314	ESS-60-SN <sup>1)</sup>	190 999 ESV-60-SN
80	189 318	ESS-80-SN <sup>1)</sup>	191 003 ESV-80-SN
100	189 322	ESS-100-SN <sup>1)</sup>	191 007 ESV-100-SN
150	189 326	ESS-150-SN <sup>1)</sup>	191 011 ESV-150-SN
200	189 330	ESS-200-SN <sup>1)</sup>	191 015 ESV-200-SN
<b>Nitrile rubber, antistatic NA</b>			
2	189 268	ESS-2-SNA <sup>1)</sup>	–
4	189 273	ESS-4-SNA <sup>1)</sup>	–
6	189 278	ESS-6-SNA <sup>1)</sup>	–
8	189 283	ESS-8-SNA <sup>1)</sup>	–
10	189 288	ESS-10-SNA <sup>1)</sup>	–
15	189 293	ESS-15-SNA <sup>1)</sup>	–
20	189 298	ESS-20-SNA <sup>1)</sup>	190 983 ESV-20-SNA
30	189 303	ESS-30-SNA <sup>1)</sup>	190 988 ESV-30-SNA
40	189 308	ESS-40-SNA <sup>1)</sup>	190 993 ESV-40-SNA
50	189 313	ESS-50-SNA <sup>1)</sup>	190 998 ESV-50-SNA

1) Free of copper, PTFE and silicone

 Core Range

# 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
<b>Silicone S</b>				
2	189 266	ESS-2-SS	-	
4	189 271	ESS-4-SS	-	
6	189 276	ESS-6-SS	-	
8	189 281	ESS-8-SS	-	
10	189 286	ESS-10-SS	-	
15	189 291	ESS-15-SS	-	
20	189 296	ESS-20-SS	190 981	ESV-20-SS
30	189 301	ESS-30-SS	190 986	ESV-30-SS
40	189 306	ESS-40-SS	190 991	ESV-40-SS
50	189 311	ESS-50-SS	190 996	ESV-50-SS
60	189 316	ESS-60-SS	191 001	ESV-60-SS
80	189 320	ESS-80-SS	191 005	ESV-80-SS
100	189 324	ESS-100-SS	191 009	ESV-100-SS
150	189 328	ESS-150-SS	191 013	ESV-150-SS
200	189 332	ESS-200-SS	191 017	ESV-200-SS
<b>Polyurethane U</b>				
2	189 265	ESS-2-SU	-	
4	189 270	ESS-4-SU	-	
6	189 275	ESS-6-SU	-	
8	189 280	ESS-8-SU	-	
10	189 285	ESS-10-SU	-	
15	189 290	ESS-15-SU	-	
20	189 295	ESS-20-SU	190 980	ESV-20-SU
30	189 300	ESS-30-SU	190 985	ESV-30-SU
40	189 305	ESS-40-SU	190 990	ESV-40-SU
50	189 310	ESS-50-SU	190 995	ESV-50-SU
60	189 315	ESS-60-SU	191 000	ESV-60-SU
80	189 319	ESS-80-SU	191 004	ESV-80-SU
100	189 323	ESS-100-SU	191 008	ESV-100-SU
150	189 327	ESS-150-SU	191 012	ESV-150-SU
200	189 331	ESS-200-SU	191 016	ESV-200-SU


Suction grippers

2.1

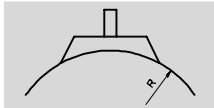
# Suction cups, complete ESS/suction cups ESV, round, extra deep


Technical data

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

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

Function



-  - Diameter  
15 ... 100 mm



General technical data								
Suction cup Ø [mm]	Suction cup holder fits	Mounting thread	Effective suction cup Ø [mm]	Breakaway force at -0.7 bar [N]	Suction cup volume <sup>2)</sup> [cm <sup>3</sup> ]	Min. radius R <sup>1)</sup> 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 µm				
Suction cup Ø [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

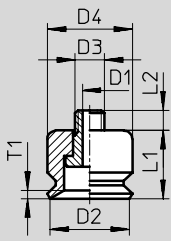
# Suction cups, complete ESS/suction cups ESV, round, extra deep

Technical data

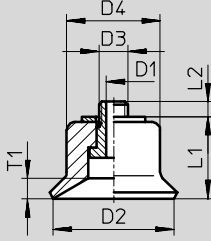
FESTO

## Dimensions

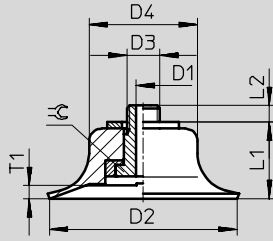
ESS-15-E



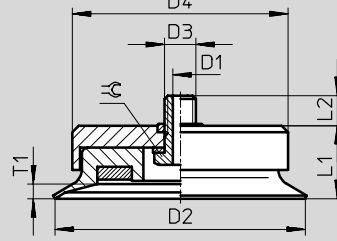
ESS-20/30-E



ESS-40/50/60-E



ESS-80/100-E



Type Suction cup	For Suction gripper	D1 ∅ ND	D2 ∅	D3	D4 ∅	L1	L2	T1	⊕
ESS-15-E...	ESG-15-E...	2	15	M4x0.7	11	10	3	2.8	-
ESS-20-E...	ESG-20-E...	3	20	M6x1	15	12.6	2.4	3	-
ESS-30-E...	ESG-30-E...	3	30	M6x1	17	15.6	3.4	4.5	-
ESS-40-E...	ESG-40-E...	3	40	M6x1	25	19.1	3.2	4.5	-
ESS-50-E...	ESG-50-E...	3	50	M6x1	30	21.1	3.7	6.5	-
ESS-60-E...	ESG-60-E...	6	60	M10x1.5	40	27.6	5.4	9.5	14
ESS-80-E...	ESG-80-E...	6	80	M10x1.5	68	33	9.4	8.6	14
ESS-100-E...	ESG-100-E...	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
<b>Viton F</b>			
15	189 337	ESS-15-EF <sup>1)</sup>	–
20	189 341	ESS-20-EF <sup>1)</sup>	191 026 ESV-20-EF
30	189 345	ESS-30-EF <sup>1)</sup>	191 030 ESV-30-EF
40	189 349	ESS-40-EF <sup>1)</sup>	191 034 ESV-40-EF
50	189 353	ESS-50-EF <sup>1)</sup>	191 038 ESV-50-EF
60	189 357	ESS-60-EF <sup>1)</sup>	191 042 ESV-60-EF
80	189 361	ESS-80-EF <sup>1)</sup>	191 046 ESV-80-EF
100	189 365	ESS-100-EF <sup>1)</sup>	191 050 ESV-100-EF
<b>Nitrile rubber N</b>			
15	189 334	ESS-15-EN <sup>1)</sup>	–
20	189 338	ESS-20-EN <sup>1)</sup>	191 023 ESV-20-EN
30	189 342	ESS-30-EN <sup>1)</sup>	191 027 ESV-30-EN
40	189 346	ESS-40-EN <sup>1)</sup>	191 031 ESV-40-EN
50	189 350	ESS-50-EN <sup>1)</sup>	191 035 ESV-50-EN
60	189 354	ESS-60-EN <sup>1)</sup>	191 039 ESV-60-EN
80	189 358	ESS-80-EN <sup>1)</sup>	191 043 ESV-80-EN
100	189 362	ESS-100-EN <sup>1)</sup>	191 047 ESV-100-EN
<b>Silicone S</b>			
15	189 336	ESS-15-ES	–
20	189 340	ESS-20-ES	191 025 ESV-20-ES
30	189 344	ESS-30-ES	191 029 ESV-30-ES
40	189 348	ESS-40-ES	191 033 ESV-40-ES
50	189 352	ESS-50-ES	191 037 ESV-50-ES
60	189 356	ESS-60-ES	191 041 ESV-60-ES
80	189 360	ESS-80-ES	191 045 ESV-80-ES
100	189 364	ESS-100-ES	191 049 ESV-100-ES
<b>Polyurethane U</b>			
15	189 335	ESS-15-EU	–
20	189 339	ESS-20-EU	191 024 ESV-20-EU
30	189 343	ESS-30-EU	191 028 ESV-30-EU
40	189 347	ESS-40-EU	191 032 ESV-40-EU
50	189 351	ESS-50-EU	191 036 ESV-50-EU
60	189 355	ESS-60-EU	191 040 ESV-60-EU
80	189 359	ESS-80-EU	191 044 ESV-80-EU
100	189 363	ESS-100-EU	191 048 ESV-100-EU

1) Free of copper, PTFE and silicone


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

FESTO

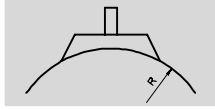
Technical data


ESS-...-B...

ESV-...-B...

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

Function



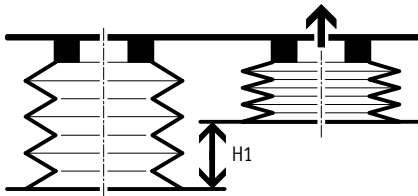
-  - Diameter  
10 ... 80 mm



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 <sup>2)</sup> [cm <sup>3</sup> ]	Min. radius R <sup>1)</sup> 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	Size 5	M10x1.5	31.8	72.6	14.230	150	11	24.7	13.9
80			55	213.6	63.900	430	10	139	39

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

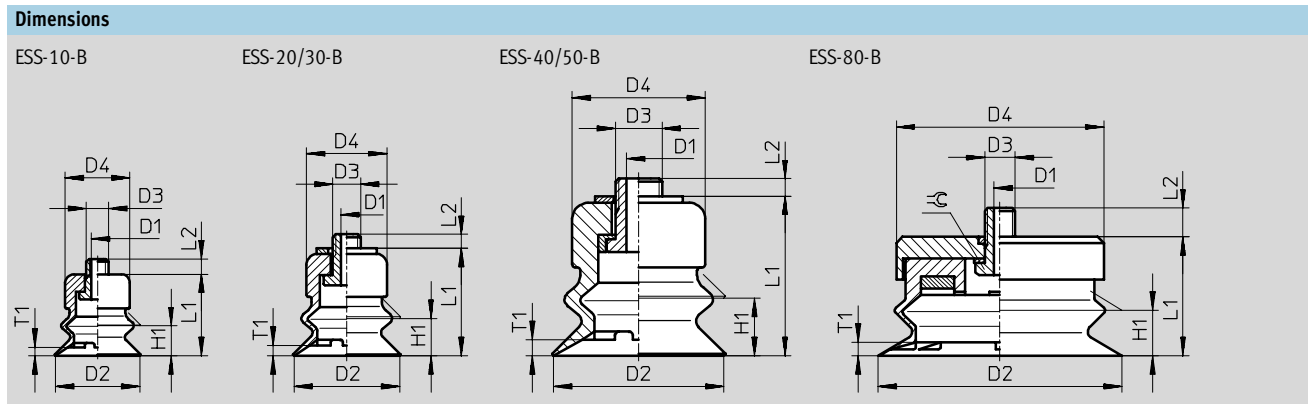
Max. height compensation H1



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 Suction cup	For Suction gripper	D1 Ø ND	D2 Ø	D3	D4 Ø	H1	L1	L2	T1	⊕
ESS-10-B...	ESG-10-B...	2	15	M4x0.7	10	4	16	3	1	-
ESS-20-B...	ESG-20-B...	3	20	M6x1	15	6	20.6	2.4	2	-
ESS-30-B...	ESG-30-B...	3	30	M6x1	17	8	24.6	3.4	2.5	-
ESS-40-B...	ESG-40-B...	3	40	M6x1	25	9.5	31.6	3.2	4	-
ESS-50-B...	ESG-50-B...	3	50	M6x1	30	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 Ø [mm]	ESS		ESV
	Part No.	Type	Part No. Type
<b>Nitrile rubber N</b>			
10	189 374	ESS-10-BN <sup>1)</sup>	-
20	189 378	ESS-20-BN <sup>1)</sup>	191 054 ESV-20-BN
30	189 382	ESS-30-BN <sup>1)</sup>	191 057 ESV-30-BN
40	189 386	ESS-40-BN <sup>1)</sup>	191 060 ESV-40-BN
50	189 390	ESS-50-BN <sup>1)</sup>	191 063 ESV-50-BN
80	189 394	ESS-80-BN <sup>1)</sup>	191 066 ESV-80-BN
<b>Silicone S</b>			
10	189 376	ESS-10-BS	-
20	189 380	ESS-20-BS	191 056 ESV-20-BS
30	189 384	ESS-30-BS	191 059 ESV-30-BS
40	189 388	ESS-40-BS	191 062 ESV-40-BS
50	189 392	ESS-50-BS	191 065 ESV-50-BS
80	189 396	ESS-80-BS	191 068 ESV-80-BS
<b>Polyurethane U</b>			
10	189 375	ESS-10-BU	-
20	189 379	ESS-20-BU	191 055 ESV-20-BU
30	189 383	ESS-30-BU	191 058 ESV-30-BU
40	189 387	ESS-40-BU	191 061 ESV-40-BU
50	189 391	ESS-50-BU	191 064 ESV-50-BU
80	189 395	ESS-80-BU	191 067 ESV-80-BU

1) Free of copper, PTFE and silicone


Core Range

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

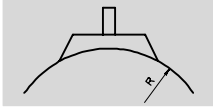



Technical data

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

-  - Temperature range  
-10 ... +80 °C

Function



-  - Diameter  
40 ... 80 mm



## General technical data

Suction cup $\varnothing$ [mm]	Suction cup holder fits	Mounting thread	Breakaway force at -0.7 bar [N]	Min. radius R <sup>1)</sup> of workpiece [mm]	Volume [cm <sup>3</sup> ]	Weight	
						ESS [g]	ESV [g]
40	Size 4	M6x1	59	35	9.70	18	10.5
	Size 5	M10x1.5			9.71	19	
	-	G $\frac{3}{4}$ -I female thread			10.00	19	
	-	G $\frac{3}{4}$ 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 $\frac{3}{4}$ -I female thread			17.80	25	
	-	G $\frac{3}{4}$ male thread			17.53	26	
80	Size 5	M10x1.5	237	100	58.50	84.5	57.2
	-	G $\frac{3}{4}$ -I female thread			58.50	87.5	
	-	G $\frac{3}{4}$ male thread			58.50	85.5	

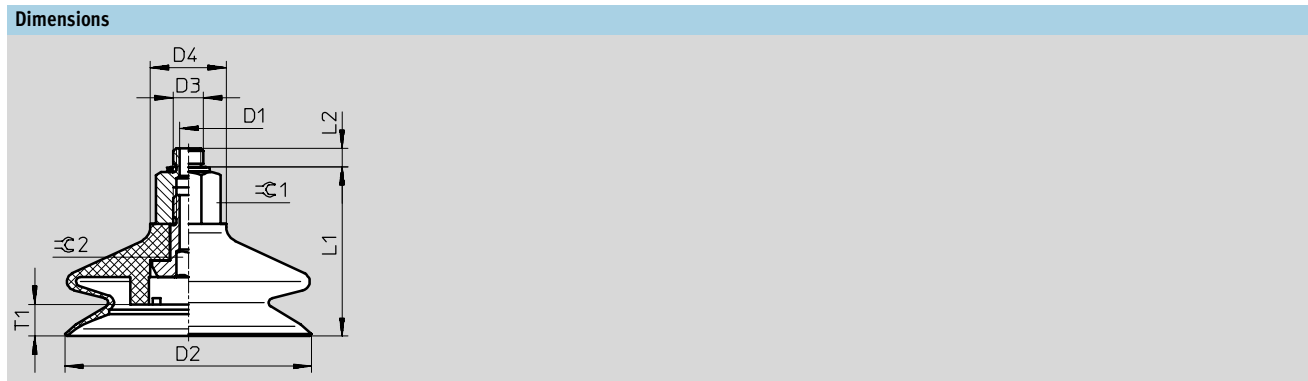
1) Minimum arc radius of the workpiece to be gripped



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



Technical data



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
ESS-40-BT-I			M10		36.3	6.2		17	
ESS-50-BT			G $\frac{1}{4}$		48.3	-		15	
ESS-50-BT-I	2.5	50	M6	20	38.05	3.45	8	15	4
ESS-50-BT			M10		38.3	6.2		17	
ESS-80-BT			G $\frac{1}{4}$		50.3	-		17	
ESS-80-BT-I	2.5	80	M10	20	53.3	6.2	10.5	17	8
ESS-50-BT			G $\frac{1}{4}$		60.8	5.8			
ESS-80-BT-I			G $\frac{1}{4}$		-				

Ordering data					
Suction cup ∅ [mm]	Connection	ESS		ESV	
		Part No.	Type	Part No.	Type
40	M6	525 989	ESS-40-BT-M6 <sup>1)</sup>	-	-
	M10	525 990	ESS-40-BT-M10 <sup>1)</sup>	-	-
	G $\frac{1}{4}$ female thread	525 991	ESS-40-BT-G $\frac{1}{4}$ -I <sup>1)</sup>	-	-
	G $\frac{1}{4}$	525 992	ESS-40-BT-G $\frac{1}{4}$ <sup>1)</sup>	-	-
	-	-	-	526 006	ESV-40-BT <sup>1)</sup>
50	M6	525 993	ESS-50-BT-M6 <sup>1)</sup>	-	-
	M10	525 994	ESS-50-BT-M10 <sup>1)</sup>	-	-
	G $\frac{1}{4}$ female thread	525 995	ESS-50-BT-G $\frac{1}{4}$ -I <sup>1)</sup>	-	-
	G $\frac{1}{4}$	525 996	ESS-50-BT-G $\frac{1}{4}$ <sup>1)</sup>	-	-
	-	-	-	526 007	ESV-50-BT <sup>1)</sup>
80	M10	525 997	ESS-80-BT-M10 <sup>1)</sup>	-	-
	G $\frac{1}{4}$ female thread	525 998	ESS-80-BT-G $\frac{1}{4}$ -I <sup>1)</sup>	-	-
	G $\frac{1}{4}$	525 999	ESS-80-BT-G $\frac{1}{4}$ <sup>1)</sup>	-	-
	-	-	-	526 008	ESV-80-BT <sup>1)</sup>

1) Free of copper, PTFE and silicone

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

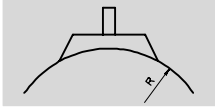


Technical data

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

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

Function



- - Diameter  
10 ... 50 mm



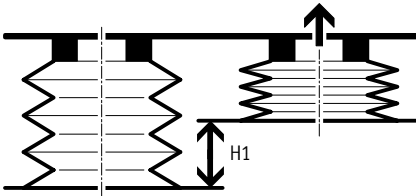
General technical data									
Suction cup Ø [mm]	Suction cup holder fits	Mounting thread	Effective suction cup Ø [mm]	Breakaway force at -0.7 bar [N]	Suction cup volume <sup>2)</sup> [cm <sup>3</sup> ]	Min. radius R <sup>1)</sup> of workpiece [mm]	Max. height compensation H1 [mm]	Weight	
								ESS [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

Suction grippers

## 2.1

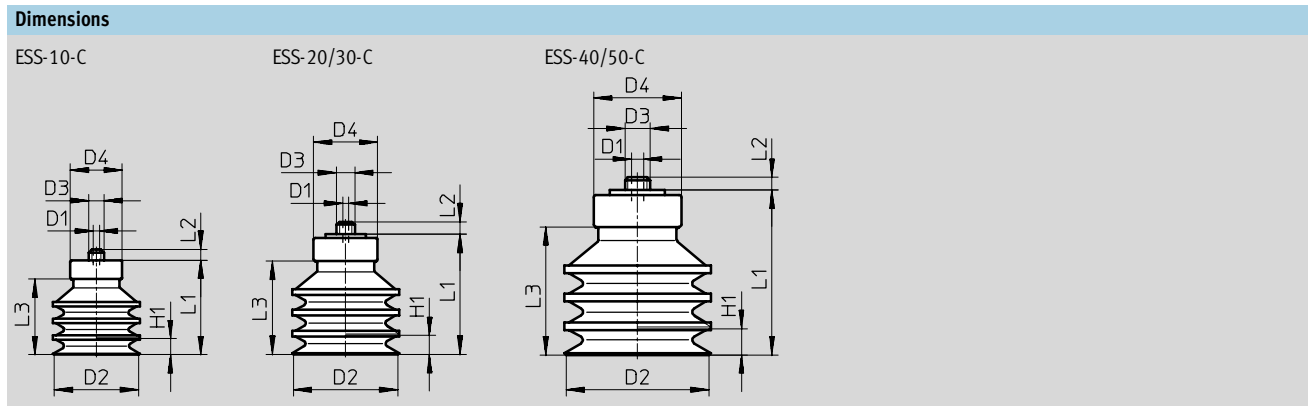
### Max. height compensation H1



Lateral force F [N] at pu = -0.7 bar; Ra = 7 µm		
Suction cup Ø [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	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	7	23	2.4	16.4
ESS-30-C...	ESG-30-C...	3	30	M6x1	18	10.5	34.3	3.4	26.2
ESS-40-C...	ESG-40-C...	3	40	M6x1	25	12.8	39.6	3.2	31
ESS-50-C...	ESG-50-C...	3	50	M6x1	30	17.5	48	3.2	39.4

Ordering data				
Suction cup ∅ [mm]	ESS		ESV	
	Part No.	Type	Part No.	Type
<b>Nitrile rubber N</b>				
10	189 398	ESS-10-CN <sup>1)</sup>	-	-
20	189 400	ESS-20-CN <sup>1)</sup>	191 071	ESV-20-CN
30	189 402	ESS-30-CN <sup>1)</sup>	191 073	ESV-30-CN
40	189 404	ESS-40-CN <sup>1)</sup>	191 075	ESV-40-CN
50	189 406	ESS-50-CN <sup>1)</sup>	191 077	ESV-50-CN
<b>Silicone S</b>				
10	189 399	ESS-10-CS	-	-
20	189 401	ESS-20-CS	191 072	ESV-20-CS
30	189 403	ESS-30-CS	191 074	ESV-30-CS
40	189 405	ESS-40-CS	191 076	ESV-40-CS
50	189 407	ESS-50-CS	191 078	ESV-50-CS

1) Free of copper, PTFE and silicone

Core Range

# Suction cup ESS, oval

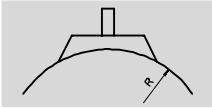
Technical data



ESS-...-0...

- - Temperature range  
-10 ... +70 °C

Function



General technical data						
Suction cup size [mm]	Suction cup holder fits	Mounting thread	Effective suction cup ∅ [mm]	Breakaway force at -0.7 bar [N]	Suction cup volume <sup>1)</sup> [cm <sup>3</sup> ]	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

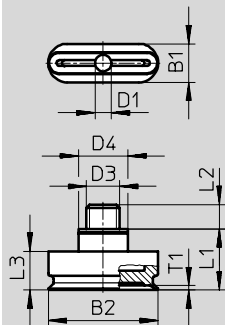
Lateral force F [N] at pu = -0.7 bar and Ra = 7 µm		
Suction cup size [mm]	horizontal	vertical
4x10	3.5	5
4x20	4.5	11
6x10	8.5	12
6x20	9	12.5
8x20	11	13
8x30	17	13.5
10x30	23	16
15x45	43	35
20x60	116	63
25x75	125.5	115
30x90	201	134.5

# Suction cup ESS, oval

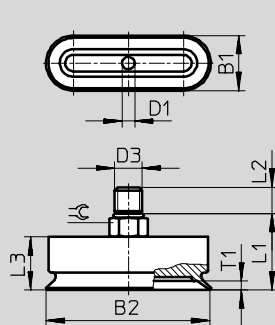
Technical data

## Dimensions

ESS-4x10 ... 10x30-0



ESS-15x45 ... 30x90-0



Type	For Suction gripper	B1	B2	D1 ∅ ND	D3	D4 ∅	L1	L2	L3	T1	⊖
ESS-4x10-0...	ESG-4x10-0...	4	10	3	M6x1	9	11.1	4.4	7	0.8	-
ESS-4x20-0...	ESG-4x20-0...	4	20	3	M6x1	9	11.1	4.4	7	0.8	-
ESS-6x10-0...	ESG-6x10-0...	6	10	3	M6x1	9	11.1	4.4	7	1	-
ESS-6x20-0...	ESG-6x20-0...	6	20	3	M6x1	9	11.1	4.4	7	1	-
ESS-8x20-0...	ESG-8x20-0...	8	20	3	M6x1	9	11.1	4.4	7	1	-
ESS-8x30-0...	ESG-8x30-0...	8	30	3	M6x1	9	11.1	4.4	7	1	-
ESS-10x30-0...	ESG-10x30-0...	10	30	3	M6x1	9	11.1	4.4	7	1.1	-
ESS-15x45-0...	ESG-15x45-0...	15	45	6	M10x1.5	-	25.5	8.5	18.5	2.5	12
ESS-20x60-0...	ESG-20x60-0...	20	60	6	M10x1.5	-	26.3	8.5	19.3	3.2	12
ESS-25x75-0...	ESG-25x75-0...	25	75	6	M10x1.5	-	28	8.5	21	3.7	12
ESS-30x90-0...	ESG-30x90-0...	30	90	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	189 408	ESS-4X10-ON <sup>1)</sup>
4x20	189 409	ESS-4X20-ON <sup>1)</sup>
6x10	189 410	ESS-6X10-ON <sup>1)</sup>
6x20	189 411	ESS-6X20-ON <sup>1)</sup>
8x20	189 412	ESS-8X20-ON <sup>1)</sup>
8x30	189 413	ESS-8X30-ON <sup>1)</sup>
10x30	189 414	ESS-10X30-ON <sup>1)</sup>
15x45	189 415	ESS-15X45-ON <sup>1)</sup>
20x60	189 416	ESS-20X60-ON <sup>1)</sup>
25x75	189 417	ESS-25X75-ON <sup>1)</sup>
30x90	189 418	ESS-30X90-ON <sup>1)</sup>


1) Free of copper, PTFE and silicone

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

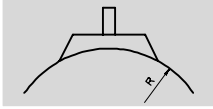
Technical data




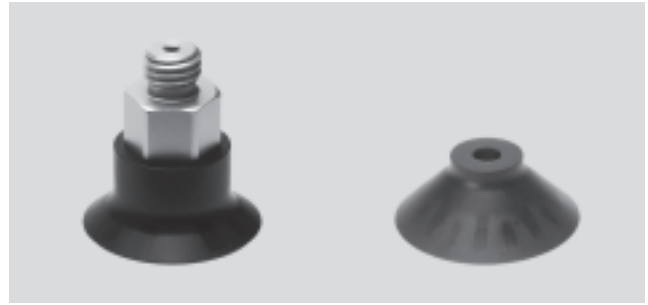
ESS-...-GT-...  
ESV-...-GT

-  - Temperature range  
-10 ... +80 °C

Function



-  - Diameter  
30 ... 100 mm



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

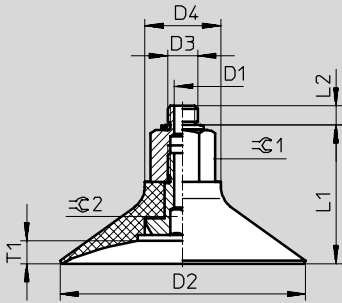
1) Minimum arc radius of the workpiece to be gripped

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

Technical data



## Dimensions



Type	D1 ∅ ND	D2 ∅	D3	D4 ∅	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		
			G $\frac{1}{8}$			4.7		15		
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		
			G $\frac{1}{4}$		30.2	5.8				
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		
			G $\frac{1}{4}$		32.7	5.8				
ESS-60-GT	5.5	60	M10	20	34.3	6.2	6	17	4	
ESS-60-GT-I			G $\frac{1}{4}$		34.7	5.8				
			G $\frac{1}{4}$		45.7	-				
ESS-80-GT	5.5	80	M10	25	43.3	6.2	7.5	22	8	
ESS-80-GT-I			G $\frac{1}{4}$			5.8				
			G $\frac{1}{4}$		54.7	-				
ESS-100-GT	5.5	100	M10	25	47.8	6.2	9	22	8	
ESS-100-GT-I			G $\frac{1}{4}$		48.2	5.8				
			G $\frac{1}{4}$		59.2	-				

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

Technical data

Ordering data					
Suction cup ∅ [mm]	Connection	ESS		ESV	
		Part No.	Type	Part No.	Type
30	M6	525 968	ESS-30-GT-M6 <sup>1)</sup>	-	
	M10	525 969	ESS-30-GT-M10 <sup>1)</sup>	-	
	G $\frac{1}{8}$ female thread	525 970	ESS-30-GT-G $\frac{1}{8}$ -I <sup>1)</sup>	-	
	G $\frac{1}{8}$	525 971	ESS-30-GT-G $\frac{1}{8}$ <sup>1)</sup>	-	
	-	-	-	526 000	ESV-30-GT <sup>1)</sup>
40	M6	525 972	ESS-40-GT-M6 <sup>1)</sup>	-	
	M10	525 973	ESS-40-GT-M10 <sup>1)</sup>	-	
	G $\frac{1}{4}$ female thread	525 974	ESS-40-GT-G $\frac{1}{4}$ -I <sup>1)</sup>	-	
	G $\frac{1}{4}$	525 975	ESS-40-GT-G $\frac{1}{4}$ <sup>1)</sup>	-	
	-	-	-	526 001	ESV-40-GT <sup>1)</sup>
50	M6	525 976	ESS-50-GT-M6 <sup>1)</sup>	-	
	M10	525 977	ESS-50-GT-M10 <sup>1)</sup>	-	
	G $\frac{1}{4}$ female thread	525 978	ESS-50-GT-G $\frac{1}{4}$ -I <sup>1)</sup>	-	
	G $\frac{1}{4}$	525 979	ESS-50-GT-G $\frac{1}{4}$ <sup>1)</sup>	-	
	-	-	-	526 002	ESV-50-GT <sup>1)</sup>
60	M10	525 980	ESS-60-GT-M10 <sup>1)</sup>	-	
	G $\frac{1}{4}$ female thread	525 981	ESS-60-GT-G $\frac{1}{4}$ -I <sup>1)</sup>	-	
	G $\frac{1}{4}$	525 982	ESS-60-GT-G $\frac{1}{4}$ <sup>1)</sup>	-	
	-	-	-	526 003	ESV-60-GT <sup>1)</sup>
80	M10	525 983	ESS-80-GT-M10 <sup>1)</sup>	-	
	G $\frac{1}{4}$ female thread	525 984	ESS-80-GT-G $\frac{1}{4}$ -I <sup>1)</sup>	-	
	G $\frac{1}{4}$	525 985	ESS-80-GT-G $\frac{1}{4}$ <sup>1)</sup>	-	
	-	-	-	526 004	ESV-80-GT <sup>1)</sup>
100	M10	525 986	ESS-100-GT-M10 <sup>1)</sup>	-	
	G $\frac{1}{4}$ female thread	525 987	ESS-100-GT-G $\frac{1}{4}$ -I <sup>1)</sup>	-	
	G $\frac{1}{4}$	525 988	ESS-100-GT-G $\frac{1}{4}$ <sup>1)</sup>	-	
	-	-	-	526 005	ESV-100-GT <sup>1)</sup>

1) Free of copper, PTFE and silicone