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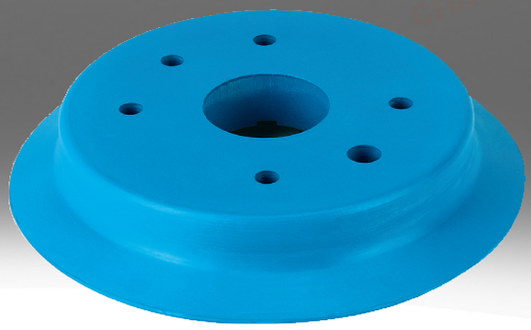
Suction cup without connector ESV



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Characteristics

At a glance Link esv

- Wearing part for suction cup ESS
- Easy to replace
- Suction cup volume: 0.318 ... 245 cm³
- Min. workpiece radius: 10 ... 680 mm

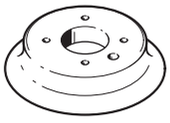
For allocating the suction cups with connection ESS, see downloadable additional document.

Additional documents Link esv

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

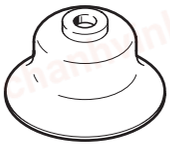
[S] Round, standard



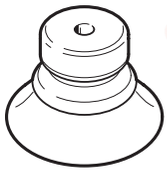
[G] Round, bell shape



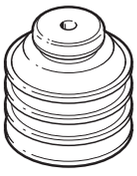
[E] Round, extra-deep



[B] Round, bellows, 1.5 convolutions



[C] Round, bellows, 3.5 convolutions



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Type code

001	Series	
ESV	Vacuum suction cup	

002	Suction cup size	
20	20 mm diameter	
30	30 mm diameter	
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	
S	Round, standard	

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

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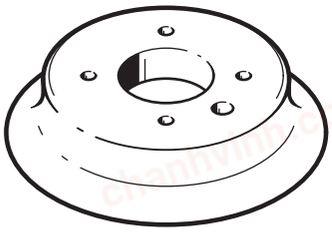
Datasheet

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



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

Suction cup diameter	20 mm	30 mm	40 mm	50 mm
Suction cup shape	Round, flat			
Position of connection	On top			
Mounting position	Any			
Holding force at nominal operating pressure	16.3 N	40.8 N	69.6 N	105 N
Suction cup volume	0.318 cm³	0.867 cm³	1.566 cm³	2.387 cm³
Min. workpiece radius	–	110 mm	230 mm	330 mm
Product weight	1.6 g	2.7 g	7.4 g	11.2 g

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

Suction cup diameter	60 mm	80 mm	100 mm	150 mm	200 mm
Suction cup shape	Round, flat				
Position of connection	On top				
Mounting position	Any				
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	22 g	33 g	59 g	361 g	840 g

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

Material suction cup	Fluoro rubber	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
Special characteristics	–	Antistatic	–	
Suitable for use with food [2]	See supplementary material information			

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

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

Material suction cup	Fluoro rubber	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
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

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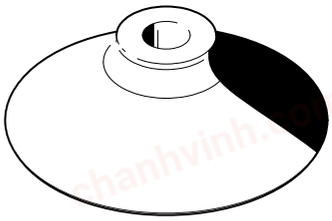
Datasheet

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



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

Suction cup diameter	30 mm	40 mm	50 mm
Height compensator for suction-cup holder	3.5 mm	5.5 mm	8 mm
Suction cup shape	Round deep		
Type of mounting	Via vacuum port		
Mounting position	Any		
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	4.2 g	5.7 g	9.2 g

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

Suction cup diameter	60 mm	80 mm	100 mm
Height compensator for suction-cup holder	6	7.5	9
Suction cup shape	Round deep		
Type of mounting	Via vacuum port		
Mounting position	Any		
Holding force at nominal operating pressure	134 N	245 N	100 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
Product weight	10.7 g	30.9 g	58.9 g

Operating and environmental conditions – ESV-...-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

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

Material suction cup	VULKOLLAN
Shore hardness	72 +/-5
Colour	Reddish brown
Note on materials	RoHS compliant
LABS (PWIS) conformity	VDMA24364-A1-L

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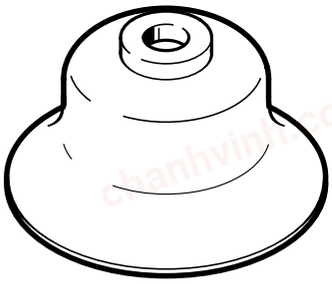
Datasheet

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



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

Suction cup diameter	30 mm	40 mm	50 mm	60 mm	80 mm
Suction cup shape	Round extra deep				
Mounting position	Any				
Nominal operating pressure	-0.7 bar				
Holding force at nominal operating pressure	37.2 N	67.6 N	103.6 N	162.5 N	275 N
Suction cup volume	1.952 cm³	3.733 cm³	8.168 cm³	14.445 cm³	44.18 cm³
Min. workpiece radius	50 mm	80 mm	100 mm	120 mm	160 mm
Product weight	2.9 g	8 g	12.6 g	21 g	41 g

Operating and environmental conditions – ESV-...-C... (round, extra deep)

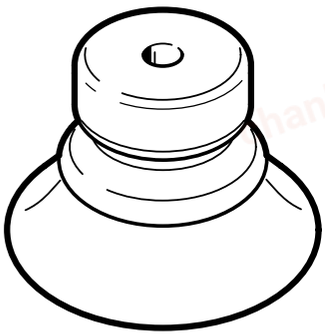
Material suction cup	Fluoro rubber	NBR	PUR	VMQ (silicone)
Operating pressure	-95 ... 0 kPa			
Operating pressure	-0.95 ... 0 bar			
Operating pressure	-13.775 ... 0 psi			
Nominal operating pressure	-70 kPa			
Nominal operating pressure	-0.7 bar			
Nominal operating pressure	-10.15 psi			
Operating medium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

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

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

Material suction cup	Fluoro rubber	NBR	PUR	VMQ (silicone)
Shore hardness	60 +/-5			50 +/-5
Colour	Grey	Black	Blue	Transparent
Material screwed plug	–			
Note on materials	RoHS compliant			
LABS (PWIS) conformity	VDMA24364-A1-L		VDMA24364 zone III	

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



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Datasheet

General technical data – ESV-...-B... (round, protective bellows 1.5 convolutions)

Suction cup diameter	20 mm	30 mm	40 mm	50 mm	80 mm
Height compensator for suction cup	6 mm	8 mm	9.5 mm	11 mm	10 mm
Suction cup shape	Round protective bellows 1.5-fold				
Type of mounting	–		Via vacuum port		
Position of connection	On top				
Mounting position	Any				
Nominal operating pressure	-0.7 bar				
Holding force at nominal operating pressure	12.9 N	26.2 N	52.3 ... 59 N	72.6 ... 100 N	213.6 ... 237 N
Suction cup volume	1.6 cm^3	4.07 cm^3	9.8 ... 11.699 cm^3	14.23 ... 17.6 cm^3	59.1 ... 63.9 cm^3
Min. workpiece radius	40 mm	80 mm	35 ... 90 mm	40 ... 150 mm	100 ... 430 mm
Product weight	1.9 g	3.6 g	9.8 ... 10.5 g	13.9 ... 16.2 g	39 ... 57.2 g

Operating and environmental conditions – ESV-...-B... (round, protective bellows 1.5 convolutions)

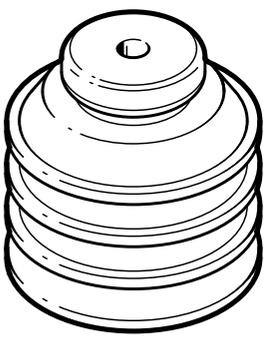
Material suction cup	NBR	PUR	VMQ (silicone)	VULKOLLAN
Operating pressure	-95 ... 0 kPa			–
Operating pressure	-0.95 ... 0 bar			
Operating pressure	-13.775 ... 0 psi			–
Nominal operating pressure	-70 kPa			–
Nominal operating pressure	-0.7 bar			
Nominal operating pressure	-10.15 psi			–
Operating medium	Atmospheric air based on ISO 8573-1:2010 [7:-:-]			
Ambient temperature	-10 ... 70°C	-20 ... 60°C	-30 ... 180°C	-10 ... 80°C
Suitable for use with food [2]	See supplementary material information			–

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

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

Material suction cup	NBR	PUR	VMQ (silicone)	VULKOLLAN
Shore hardness	50 +/-5	60 +/-5	50 +/-5	72 +/-5
Colour	Black	Blue	Transparent	Reddish brown
Note on materials	RoHS compliant			
LABS (PWIS) conformity	VDMA24364-A1-L	VDMA24364 zone III		VDMA24364-A1-L

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



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Datasheet

General technical data – ESV-...-C... (round, protective bellows 3.5 convolutions)				
Suction cup diameter	20 mm	30 mm	40 mm	50 mm
Height compensator for suction cup	7 mm	10.5 mm	12.8 mm	17.5 mm
Suction cup shape	Round protective bellows 3.5-fold			
Position of connection	On top			
Mounting position	Any			
Nominal operating pressure	-0.7 bar			
Holding force at nominal operating pressure	8.2 N	20.8 N	42.4 N	63.4 N
Suction cup volume	2.75 cm^3	9.47 cm^3	19.72 cm^3	38.92 cm^3
Min. workpiece radius	50 mm	80 mm	100 mm	180 mm
Product weight	2.1 g	5.8 g	13 g	21.3 g

Operating and environmental conditions – ESV-...-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
Suitable for use with food [2]	See supplementary material information	

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

Materials – ESV-...-C... (round, protective bellows 3.5 convolutions)		
Material suction cup	NBR	VMQ (silicone)
Shore hardness	50 +/-5	
Colour	Black	Transparent
Note on materials	RoHS compliant	
LABS (PWIS) conformity	VDMA24364-A1-L	VDMA24364 zone III

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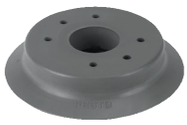
Ordering data

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**
	30 mm	40.8 N	2.7 g	**190984**	**ESV-30-SN**
	40 mm	69.6 N	7.4 g	**190989**	**ESV-40-SN**
	50 mm	105 N	11.2 g	**190994**	**ESV-50-SN**
	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**
Antistatic nitrile rubber	20 mm	16.3 N	1.6 g	**190983**	**ESV-20-SNA**
	30 mm	40.8 N	2.7 g	**190988**	**ESV-30-SNA**
	40 mm	69.6 N	7.4 g	**190993**	**ESV-40-SNA**
	50 mm	105 N	11.2 g	**190998**	**ESV-50-SNA**
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	Product weight	Part no.	Type
Polyurethane high-performance elastomer	30 mm	36 N	4.2 g	**526000**	**ESV-30-GT**
	40 mm	64 N	5.7 g	**526001**	**ESV-40-GT**
	50 mm	97 N	9.2 g	**526002**	**ESV-50-GT**
	60 mm	134 N	10.7 g	**526003**	**ESV-60-GT**

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Ordering data

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



Material	Suction cup diameter	Holding force at nominal operating pressure	Product weight	Part no.	Type
Polyurethane high-performance elastomer	80 mm	245 N	30.9 g	**526004**	**ESV-80-GT**
	100 mm	100 N	58.9 g	**526005**	**ESV-100-GT**

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	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**

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Ordering data

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



Material	Suction cup diameter	Holding force at nominal operating pressure	Product weight	Part no.	Type
Polyurethane high-performance elastomer	40 mm	59 N	10.5 g	**526006**	**ESV-40-BT**
	50 mm	100 N	16.2 g	**526007**	**ESV-50-BT**
	80 mm	237 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**
	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**