

Flat Suction Cups SAOF (Oval)

Suction area (LxW) from 50 x 16 mm to 140 x 70 mm



Suitability for Industry Specific Applications

Applications

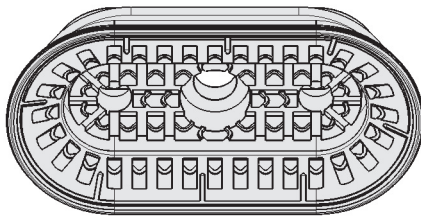
- Oval, flat suction cup for dynamic handling of metal sheets with short cycle times
- Handling of thin steel sheets and aluminum sheets without deformation or deep-drawing
- For use e.g. in feeder systems for press lines in the automotive industry
- Handling of long, narrow metal sheet parts, e.g. reinforcing ribs and plates
- Groove on the bottom prevents oily sheets from slipping and permits precise positioning in stamping presses etc.



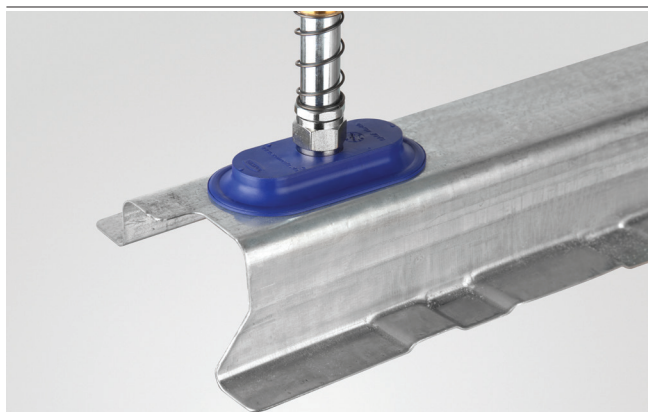
Flat Suction Cups SAOF (Oval)

Design

- Robust, wear-resistant oval suction cup SAOF made of NBR with single sealing lip, special groove and inner support
- Connection nipple glued to the suction cup with a reinforcing element (very high strength)
- Suction cup available with various connection types
- Available in two material hardness values (45 Shore, 60 Shore)



System Design Flat Suction Cups SAOF (Oval)



Flat suction cups SAOF being used for handling pressed sheet-metal parts

Our Highlights...

- Wide range of sizes
- Large, structured inner support
- Flat, oval suction cup
- Soft and flexible sealing lip

Your Benefits...

- For a wide range of workpiece sizes and shapes
- No deep-drawing of the workpiece; capable of handling high lateral forces, even on oily metal sheets
- Handling of long, narrow workpieces (sections, tubes) or flat workpieces with bars
- Good sealing

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- Gripping Systems
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Suction Cups for Handling Sheet Metal

Flat Suction Cups SAOF (Oval)



Suction area (LxW) from 50 x 16 mm to 140 x 70 mm

Designation Code Flat Suction Cups SAOF (Oval)



1 – Abbreviated designation

Code	Version
SAOF	Flat, oval

2 – Suction area

Code	LxW in mm
50x16...140x70	50x16 to 140x70

3 – Material

Code	Material
NBR-45	Nitrile caoutchuc
NBR-60	Nitrile caoutchuc

4 – Connection

Code	Connection
G1/4-AG	G1/4-AG (AG = male (M))
G1/4-IG	G1/4-IG (IG = female (F))
G3/8-IG	G3/8-IG
M10-AG	M10-AG
M14x1.5-AG	M14x1.5-AG
RA	Rectangular adapter

Suction cup SAOF, available in various diameters, is delivered with connection nipple vulcanized to elastomer part.

Ordering Data Flat Suction Cups SAOF (Oval)

Type	Vacuum connection:							
	G1/4-F	G1/4-M	G3/8-F	M10-M	M14x1.5-M	Rectangular adapter		
SAOF 50x16 NBR 45	10.01.05.00551	10.01.05.00550	10.01.05.00553	10.01.05.00555	10.01.05.00556	10.01.05.00554		
SAOF 50x16 NBR 60	10.01.05.00511	10.01.05.00521	10.01.05.00518	10.01.05.00527	10.01.05.00530	10.01.05.00515		
SAOF 60x23 NBR 45	10.01.05.00560	10.01.05.00559	10.01.05.00562	10.01.05.00564	10.01.05.00565	10.01.05.00563		
SAOF 60x23 NBR 60	10.01.05.00367	10.01.05.00376	10.01.05.00370	10.01.05.00382	10.01.05.00385	10.01.05.00373		
SAOF 80x40 NBR 45	10.01.05.00578	10.01.05.00577	10.01.05.00579	10.01.05.00581	10.01.05.00582	10.01.05.00580		
SAOF 80x40 NBR 60	10.01.05.00269	10.01.05.00314	10.01.05.00293	10.01.05.00329	10.01.05.00344	10.01.05.00299		
SAOF 90x30 NBR 45	10.01.05.00569	10.01.05.00568	10.01.05.00570	10.01.05.00572	10.01.05.00573	10.01.05.00571		
SAOF 90x30 NBR 60	10.01.05.00266	10.01.05.00311	10.01.05.00290	10.01.05.00326	10.01.05.00341	10.01.05.00296		
SAOF 100x50 NBR 45	10.01.05.00587	10.01.05.00586	10.01.05.00588	10.01.05.00590	10.01.05.00591	10.01.05.00589		
SAOF 100x50 NBR 60	10.01.05.00281	10.01.05.00317	10.01.05.00272	10.01.05.00332	10.01.05.00347	10.01.05.00302		
SAOF 120x60 NBR 45	10.01.05.00595	10.01.05.00594	10.01.05.00596	10.01.05.00598	10.01.05.00599	10.01.05.00597		
SAOF 120x60 NBR 60	10.01.05.00284	10.01.05.00320	10.01.05.00275	10.01.05.00335	10.01.05.00350	10.01.05.00305		
SAOF 140x70 NBR 45	10.01.05.00604	10.01.05.00603	10.01.05.00605	10.01.05.00607	10.01.05.00608	10.01.05.00606		
SAOF 140x70 NBR 60	10.01.05.00287	10.01.05.00323	10.01.05.00278	10.01.05.00338	10.01.05.00353	10.01.05.00308		



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Suction area (LxW) from 50 x 16 mm to 140 x 70 mm

Technical Data Flat Suction Cups SAOF (Oval)

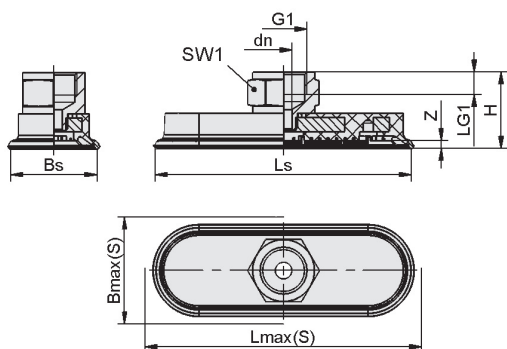
Type	Suction force [N]*	Lateral force [N]**	Lateral force oily surface [N]	Volume [cm³]	Workpiece radius min. (convex) [mm]	Hose diameter (recom.) d [mm]***
SAOF 50x16	31	24	12	2.3	8	4
SAOF 60x23	57	37	33	3.9	20	4
SAOF 80x40	140	110	100	11.7	50	4
SAOF 100x50	217	181	121	21.8	75	6
SAOF 120x60	312	254	170	39.9	75	6
SAOF 140x70	425	344	230	57.3	90	6

*The specified suction forces are theoretical values at a vacuum of -0.6 bar and with a smooth, dry workpiece surface - they do not include a safety factor

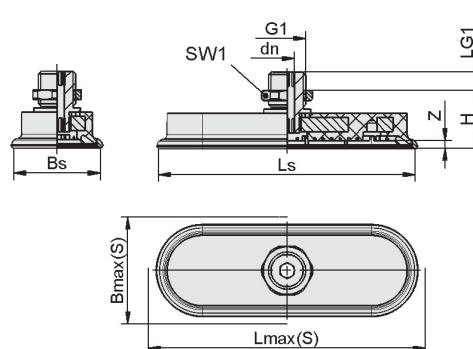
**The specified lateral forces are values measured at a vacuum of -0.6 bar with a dry or oily, smooth, flat workpiece surface. Depending on the workpiece surface and its quality, the actual values may deviate from these values.

***The recommended hose diameter refers to a hose length of approx. 2 m

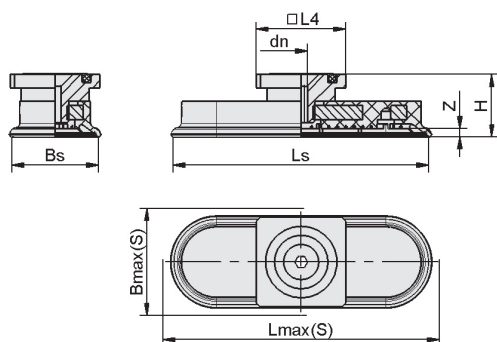
Design Data Flat Suction Cups SAOF (Oval)



SAOF IG



SAOF AG



SAOF RA

Suction Cups for Handling Sheet Metal

Flat Suction Cups SAOF (Oval)



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Design Data Flat Suction Cups SAOF (Oval)

Type*	Bmax(S) [mm]**	Bs [mm]	dn [mm]	G1	H [mm]	L4 [mm]	LG1 [mm]	Lmax(S) [mm]***	Ls [mm]	SW1 [mm]	Z (Stroke) [mm]	
SAOF 50x16	G1/4-AG	18	15	5	G1/4"-M	26	-	8	52	48.6	17	3.0
SAOF 50x16	G1/4-IG	18	15	6	G1/4"-F	33	-	8	52	48.6	17	3.0
SAOF 50x16	G3/8-IG	18	15	6	G3/8"-F	34	-	9	52	48.6	22	3.0
SAOF 50x16	M10-AG	18	15	4	M10-M	26	-	10	52	48.6	16	3.0
SAOF 50x16	M14x1.5-AG	18	15	5	M14x1.5-M	28	-	10	52	48.6	22	3.0
SAOF 50x16	RA	18	15	4	-	29	32	-	52	48.6	-	3.0
SAOF 60x23	G1/4-AG	25	22	5	G1/4"-M	18	-	8	64	60.6	17	3.0
SAOF 60x23	G1/4-IG	25	22	6	G1/4"-F	26	-	8	64	60.6	17	3.0
SAOF 60x23	G3/8-IG	25	22	6	G3/8"-F	26	-	9	64	60.6	22	3.0
SAOF 60x23	M10-AG	25	22	4	M10-M	18	-	10	64	60.6	16	3.0
SAOF 60x23	M14x1.5-AG	25	22	5	M14x1.5-M	20	-	10	64	60.6	22	3.0
SAOF 60x23	RA	25	22	4	-	21	32	-	64	60.6	-	3.0
SAOF 80x40	G1/4-AG	43	39	5	G1/4"-M	20	-	8	85	80.6	17	4.0
SAOF 80x40	G1/4-IG	43	39	6	G1/4"-F	28	-	8	85	80.6	17	4.0
SAOF 80x40	G3/8-IG	43	39	6	G3/8"-F	28	-	9	85	80.6	22	4.0
SAOF 80x40	M10-AG	43	39	4	M10-M	20	-	10	85	80.6	17	4.0
SAOF 80x40	M14x1.5-AG	43	39	5	M14x1.5-M	22	-	10	85	80.6	22	4.0
SAOF 80x40	RA	43	39	4	-	23	32	-	85	80.6	-	4.0
SAOF 90x30	G1/4-AG	34	31	5	G1/4"-M	19	-	8	94	90.6	17	3.0
SAOF 90x30	G1/4-IG	34	31	6	G1/4"-F	26	-	8	94	90.6	17	3.0
SAOF 90x30	G3/8-IG	34	31	6	G3/8"-F	27	-	9	94	90.6	22	3.0
SAOF 90x30	M10-AG	34	31	4	M10-M	19	-	10	94	90.6	17	3.0
SAOF 90x30	M14x1.5-AG	34	31	5	M14x1.5-M	21	-	10	94	90.6	22	3.0
SAOF 90x30	RA	34	31	4	-	22	32	-	94	90.6	-	3.0
SAOF 100x50	G1/4-AG	54	49	6	G1/4"-M	22	-	8	106	101.1	17	5.0
SAOF 100x50	G1/4-IG	54	49	8	G1/4"-F	30	-	8	106	101.1	17	5.0
SAOF 100x50	G3/8-IG	54	49	8	G3/8"-F	31	-	9	106	101.1	22	5.0
SAOF 100x50	M10-AG	54	49	4	M10-M	22	-	10	106	101.1	17	5.0
SAOF 100x50	M14x1.5-AG	54	49	6	M14x1.5-M	24	-	10	106	101.1	22	5.0
SAOF 100x50	RA	54	49	6	-	25	32	-	106	101.1	-	5.0
SAOF 120x60	G1/4-AG	65	58	6	G1/4"-M	24	-	8	128	126.6	17	6.0
SAOF 120x60	G1/4-IG	65	58	8	G1/4"-F	32	-	8	128	126.6	17	6.0
SAOF 120x60	G3/8-IG	65	58	8	G3/8"-F	33	-	9	128	126.6	22	6.0
SAOF 120x60	M10-AG	65	58	4	M10-M	24	-	10	128	126.6	17	6.0
SAOF 120x60	M14x1.5-AG	65	58	6	M14x1.5-M	26	-	10	128	126.6	22	6.0
SAOF 120x60	RA	65	58	6	-	27	32	-	128	126.6	-	6.0
SAOF 140x70	G1/4-AG	76	68	6	G1/4"-M	25	-	8	149	140.6	17	7.0
SAOF 140x70	G1/4-IG	76	68	8	G1/4"-F	33	-	8	149	140.6	17	7.0
SAOF 140x70	G3/8-IG	76	68	8	G3/8"-F	34	-	9	149	140.6	22	7.0
SAOF 140x70	M10-AG	76	68	4	M10-M	25	-	10	149	140.6	17	7.0
SAOF 140x70	M14x1.5-AG	76	68	6	M14x1.5-M	27	-	10	149	140.6	22	7.0
SAOF 140x70	RA	76	68	6	-	28	32	-	149	140.6	-	7.0

*Acceptable dimensional tolerances for rubber parts concerning to DIN ISO 3302-1 M3

**External dimension of the suction cup when it is pressed against the workpiece by the vacuum

***External dimension of the suction cup when it is pressed against the workpiece by the vacuum

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