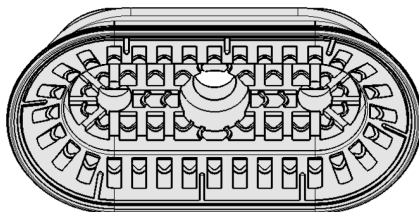


## Flat Suction Cups SAOF (Oval)

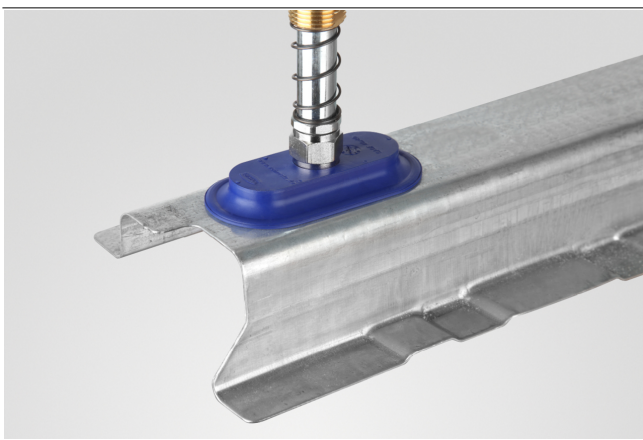
Suction area (LxW) from 50 x 16 mm to 140 x 70 mm



Flat Suction Cups SAOF (Oval)



System design Flat Suction Cups SAOF (Oval)



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

### 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
- Displacement-free handling of oiled sheets due to special slot on the underside of the suction cup e.g. for precise positioning in punching machines etc.

#### Design

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

#### Product highlights

- Wide range of diameters for a large selection of different workpieces
- Large, structured inner support prevents deformation and withstands the highest lateral forces even on oily sheets
- Flat suction cups in oval design for long workpieces (profiles, pipes) or flat workpieces with webs
- Soft, flexible sealing lip seals optimally

## 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)

<b>SAOF</b>	-	<b>80x40</b>	-	<b>NBR-60</b>	-	<b>G1/4-IG</b>
1		2		3		4

#### 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:							Rectangular adapter	
	G1/4"-F	G1/4"-M	G3/8"-F	M10-M	M14x1.5-M				
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

### Technical data Flat Suction Cups SAOF (Oval)

Type	Suction force (-600 mbar) [N]*	Lateral force [N]**	Lateral force oily surface [N]***	Volume [cm <sup>3</sup> ]	Workpiece radius min. (convex) [mm]	Hose diameter (recom.) d [mm]****
SAOF	50x16	31	24	12	2.3	4
SAOF	60x23	57	37	33	3.9	4
SAOF	80x40	140	110	100	11.7	4
SAOF	100x50	217	181	121	21.8	6
SAOF	120x60	312	254	170	39.9	6
SAOF	140x70	425	344	230	57.3	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, smooth, flat workpiece surface. Depending on the workpiece surface and its quality, the actual values may deviate from these values.

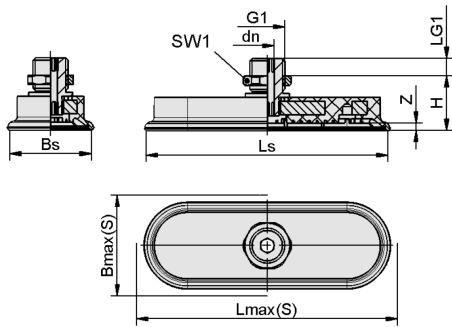
\*\*\*The specified lateral forces are values measured at a vacuum of -0.6 bar with a dry or oiled and smooth, flat workpiece surface. Depending on the workpiece surface and its quality the actual values may deviate from these values.

\*\*\*\*The recommended hose diameter is based on a hose length of approx. 2 m

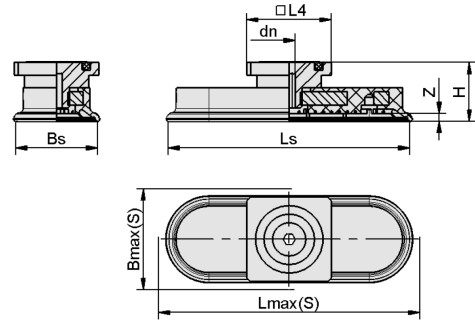
# Flat Suction Cups SAOF (Oval)

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

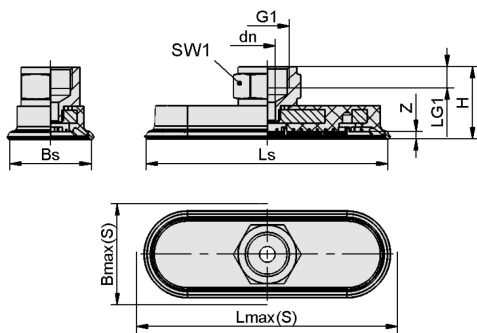
Design data Flat Suction Cups SAOF (Oval)



SAOF AG



SAOF RA



SAOF IG

## Flat Suction Cups SAOF (Oval)

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

### 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 E3

\*\*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