

## Bell-Shaped Suction Cups SAOXM (Oval)

Suction area (LxW) 60 x 20 mm to 100 x 40 mm



### Suitability for industry specific applications

#### Applications

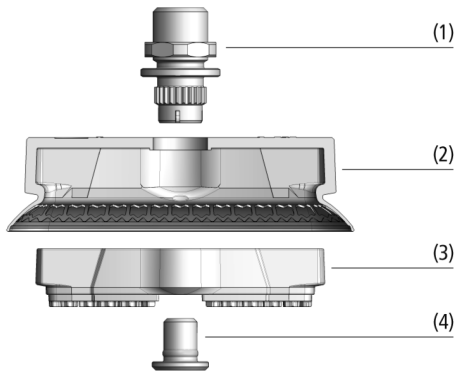
- Oval high-speed suction cup for applications with demands for highest holding forces and shear forces especially for narrow metal sheets and car body parts
- Handling of long workpieces, workpieces with internal ribbing and reinforcing plates
- Handling of workpieces with oily surfaces
- Loading and unloading CNC metal and laser cutting machines
- Handling of workpieces with convex surfaces



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#### Design

- Oval bell-shaped suction cup (2) with flexible sealing lip and optimum inner structure
- Made of wear-proof material Elastodur of suction cup (ED-85) and friction disc (ED-65)
- Insert (3) with friction disc for reinforcing the suction cup
- Two-part, reusable connection element consisting of an upper part (1) and a lower part (4)
- Upper part of the connector with anti-rotation guard
- Lower part of the connector with anti-loosening guard



System design Bell-Shaped Suction Cups SAOXM (Oval)



Suction cups SAOXM when handling formed sheet metal parts

#### Product highlights

- Very high suction cup stroke for optimum adaptation to the most varied workpiece contours
- Special inner structure for maximum holding force at high accelerations, especially on oily sheets
- Large, structured inner support prevents deep drawing even with thin sheets
- Large-area, structured inner support prevents deep drawing even with thin sheets
- Extremely wear-resistant material Elastodur, resistant to ozone and aggressive drawing oils

## Bell-Shaped Suction Cups SAOXM (Oval)

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### Designation code Bell-Shaped Suction Cups SAOXM (Oval)

<b>SAOXM</b>	–	<b>60x20</b>	–	<b>ED-85</b>	–	<b>G1/4-IG</b>
<b>1</b>		<b>2</b>		<b>3</b>		<b>4</b>

#### 1 – Abbreviated designation

Code	Version
SAOXM	Bell-shaped, oval

#### 2 – Suction area

Code	LxW in mm
60x20...100x40	60x20 to 100x40

#### 3 – Material

Code	Material
ED-85	Elastodur

#### 4 – Connection

Code	Connection
G1/4-IG	G1/4-IG (IG = female (F))
G1/4-AG	G1/4-AG (AG = male (M))
G3/8-IG	G3/8-IG
G3/8-AG	G3/8-AG
M10-AG	M10-AG
M14x1.5-AG	M14x1.5-AG
NPT3/8-IG	NPT3/8-IG
RA	Rectangular adapter

Bell-shaped suction cup SAOXM (elastomer part with insert including friction disc + connection element) is delivered assembled. The assembly consists of:

- Bell-shaped suction cup of type SAOXM – elastomer part, available in various dimensions
- Insert – including moulded friction disc
- Connector upper part – available with various threads
- Connector lower part

Available spare parts: suction cup SAOXM, Schmalz-Connector-Insert, Schmalz-Connector upper part (Schmalz-Connector-Adapter), Schmalz-Connector lower part (Schmalz-Connector-Screw)

### Ordering data Bell-Shaped Suction Cups SAOXM (Oval)

Type	Vacuum connection:								
		G1/4"-F	G1/4"-M	G3/8"-F	G3/8"-M	M10-M	M14x1.5-M	NPT3/8-F	Rectangular adapter
SAOXM 60x20		10.01.24.00013	10.01.24.00033	10.01.24.00017	10.01.24.00036	10.01.24.00025	10.01.24.00029	10.01.24.00042	10.01.24.00021
SAOXM 80x30		10.01.24.00014	10.01.24.00034	10.01.24.00018	10.01.24.00037	10.01.24.00026	10.01.24.00030	10.01.24.00043	10.01.24.00022
SAOXM 100x40		10.01.24.00015	10.01.24.00035	10.01.24.00019	10.01.24.00038	10.01.24.00027	10.01.24.00031	10.01.24.00044	10.01.24.00023

## Bell-Shaped Suction Cups SAOXM (Oval)

Suction area (LxW) 60 x 20 mm to 100 x 40 mm

### Ordering data Spare parts Bell-Shaped Suction Cups SAOXM (Oval)

Type	Spare parts			Part no.
SAOXM	60x20	Bell suction cup (oval)	SAOXM 60x20 ED-85 SC045-AR	10.01.24.00001
SAOXM	80x30	Bell suction cup (oval)	SAOXM 80x30 ED-85 SC045-AR	10.01.24.00002
SAOXM	100x40	Bell suction cup (oval)	SAOXM 100x40 ED-85 SC055-AR	10.01.24.00003

Type	Spare parts			Part no.
SAOXM	60x20	Schmalz-Connector-Insert	SC-I 045 AR-FDC	10.01.24.00009
SAOXM	80x30	Schmalz-Connector-Insert	SC-I 045 AR-FDC	10.01.24.00010
SAOXM	100x40	Schmalz-Connector-Insert	SC-I 055 AR-FDC	10.01.24.00011

Type	Spare parts		Part no.
SAOXM 60x20 ED-85 G1/4-IG	Schmalz-Connector-Adapter	SC-A 045-AR G1/4-IG L	10.01.06.03130
SAOXM 60x20 ED-85 G1/4-AG	Schmalz-Connector-Adapter	SC-A 045-AR G1/4-AG L	10.01.06.03131
SAOXM 60x20 ED-85 G3/8-IG	Schmalz-Connector-Adapter	SC-A 045-AR G3/8-IG L	10.01.06.03132
SAOXM 60x20 ED-85 G3/8-AG	Schmalz-Connector-Adapter	SC-A 045-AR G3/8-AG L	10.01.06.03133
SAOXM 60x20 ED-85 M10-AG	Schmalz-Connector-Adapter	SC-A 045-AR M10-AG L	10.01.06.03136
SAOXM 60x20 ED-85 M14x1.5-AG	Schmalz-Connector-Adapter	SC-A 045-AR M14x1.5-AG L	10.01.06.03137
SAOXM 60x20 ED-85 NPT3/8-IG	Schmalz-Connector-Adapter	SC-A 045-AR NPT3/8-IG L	10.01.06.03140
SAOXM 60x20 ED-85 RA	Schmalz-Connector-Adapter	SC-A 045-AR RA L	10.01.06.03135
SAOXM 80x30 ED-85 G1/4-IG	Schmalz-Connector-Adapter	SC-A 045-AR G1/4-IG L	10.01.06.03130
SAOXM 80x30 ED-85 G1/4-AG	Schmalz-Connector-Adapter	SC-A 045-AR G1/4-AG L	10.01.06.03131
SAOXM 80x30 ED-85 G3/8-IG	Schmalz-Connector-Adapter	SC-A 045-AR G3/8-IG L	10.01.06.03132
SAOXM 80x30 ED-85 G3/8-AG	Schmalz-Connector-Adapter	SC-A 045-AR G3/8-AG L	10.01.06.03133
SAOXM 80x30 ED-85 M10-AG	Schmalz-Connector-Adapter	SC-A 045-AR M10-AG L	10.01.06.03136
SAOXM 80x30 ED-85 M14x1.5-AG	Schmalz-Connector-Adapter	SC-A 045-AR M14x1.5-AG L	10.01.06.03137
SAOXM 80x30 ED-85 NPT3/8-IG	Schmalz-Connector-Adapter	SC-A 045-AR NPT3/8-IG L	10.01.06.03140
SAOXM 80x30 ED-85 RA	Schmalz-Connector-Adapter	SC-A 045-AR RA L	10.01.06.03135
SAOXM 100x40 ED-85 G1/4-IG	Schmalz-Connector-Adapter	SC-A 055-AR G1/4-IG L	10.01.06.03164
SAOXM 100x40 ED-85 G1/4-AG	Schmalz-Connector-Adapter	SC-A 055-AR G1/4-AG L	10.01.06.03165
SAOXM 100x40 ED-85 G3/8-IG	Schmalz-Connector-Adapter	SC-A 055-AR G3/8-IG L	10.01.06.03166
SAOXM 100x40 ED-85 G3/8-AG	Schmalz-Connector-Adapter	SC-A 055-AR G3/8-AG L	10.01.06.03167
SAOXM 100x40 ED-85 M10-AG	Schmalz-Connector-Adapter	SC-A 055-AR M10-AG L	10.01.06.03170
SAOXM 100x40 ED-85 M14x1.5-AG	Schmalz-Connector-Adapter	SC-A 055-AR M14x1.5-AG L	10.01.06.03171
SAOXM 100x40 ED-85 NPT3/8-IG	Schmalz-Connector-Adapter	SC-A 055-AR NPT3/8-IG L	10.01.06.03174
SAOXM 100x40 ED-85 RA	Schmalz-Connector-Adapter	SC-A 055-AR RA L	10.01.06.03169

Type	Spare parts			Part no.
SAOXM	60x20	Schmalz-Connector-Screw	SC-S 045 L	10.01.06.02740
SAOXM	80x30	Schmalz-Connector-Screw	SC-S 045 L	10.01.06.02740
SAOXM	100x40	Schmalz-Connector-Screw	SC-S 055 L	10.01.06.02746

### Technical data Bell-Shaped Suction Cups SAOXM (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]****	
SAOXM	60x20	56	44	62	5	10	4
SAOXM	80x30	105	110	134	13	20	4
SAOXM	100x40	173	135	156	24	32	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 oiled and smooth, flat workpiece surface. Depending on the workpiece surface and its quality the actual values may deviate from these values.

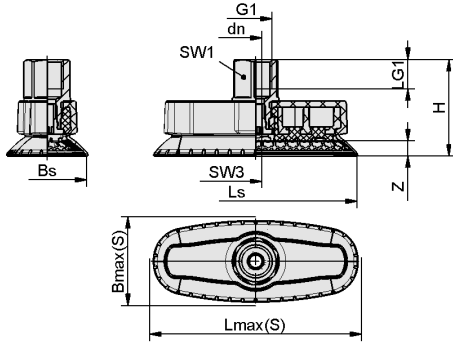
\*\*\*The specified lateral forces are values measured at a vacuum of -0.6 bar with a dry or oiled and smooth, flat workpiece surface. Depending on the workpiece surface and its quality the actual values may deviate from these values.

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

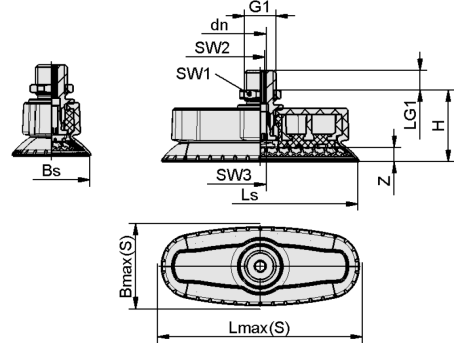
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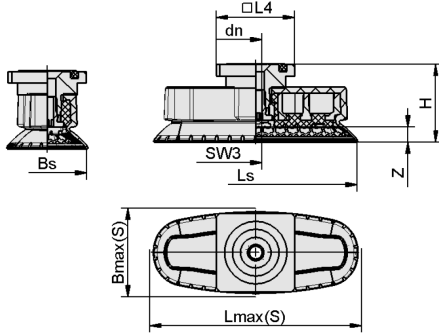
Design data Bell-Shaped Suction Cups SAOXM (Oval)



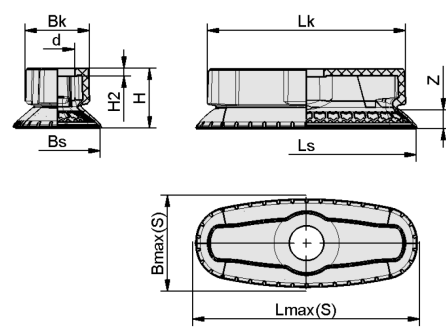
SAOXM IG



SAOXM AG



SAOXM RA



SAOXM

## Bell-Shaped Suction Cups SAOXM (Oval)

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### Design data Bell-Shaped Suction Cups SAOXM (Oval)

Type*	Bmax(S) [mm]**	Bs [mm]	dn [mm]	G1	H [mm]	LG1 [mm]	Lmax(S) [mm]***	Ls [mm]	L4 [mm]	SW1 [mm]	SW2 [mm]	SW3 [mm]	Z (Stroke) [mm]
SAOXM 60x20 ED-85 G1/4- IG	24.0	19	5.1	G1/4"-F	38.5	12	67	62	-	17	-	5	5
SAOXM 60x20 ED-85 G1/4- AG	24.0	19	4.1	G1/4"-M	29.8	8	67	62	-	17	4	5	5
SAOXM 60x20 ED-85 G3/8- IG	24.0	19	5.1	G3/8"-F	38.5	12	67	62	-	22	-	5	5
SAOXM 60x20 ED-85 G3/8- AG	24.0	19	4.1	G3/8"-M	29.8	8	67	62	-	19	4	5	5
SAOXM 60x20 ED-85 M10- AG	24.0	19	4.1	M10-M	31.3	8	67	62	-	16	4	5	5
SAOXM 60x20 ED-85 M14x1.5- AG	24.0	19	4.1	M14x1.5-M	31.3	8	67	62	-	22	4	5	5
SAOXM 60x20 ED-85 NPT3/8-IG	24.0	19	5.1	NPT3/8"-F	38.5	14	67	62	-	22	-	5	5
SAOXM 60x20 ED-85 RA	24.0	19	5.1	-	30.8	-	67	62	32	-	-	5	5
SAOXM 80x30 ED-85 G1/4- IG	41.5	32	5.1	G1/4"-F	39.1	12	88	83	-	17	-	5	6
SAOXM 80x30 ED-85 G1/4- AG	41.5	32	4.1	G1/4"-M	30.3	8	88	83	-	17	4	5	6
SAOXM 80x30 ED-85 G3/8- IG	41.5	32	5.1	G3/8"-F	39.1	12	88	83	-	22	-	5	6
SAOXM 80x30 ED-85 G3/8- AG	41.5	32	4.1	G3/8"-M	30.3	8	88	83	-	19	4	5	6
SAOXM 80x30 ED-85 M10- AG	41.5	32	4.1	M10-M	31.8	8	88	83	-	16	4	5	6
SAOXM 80x30 ED-85 M14x1.5- AG	41.5	32	4.1	M14x1.5-M	31.8	8	88	83	-	22	4	5	6

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Type*	Bmax(S) [mm]**	Bs [mm]	dn [mm]	G1	H [mm]	LG1 [mm]	Lmax(S) [mm]***	Ls [mm]	L4 [mm]	SW1 [mm]	SW2 [mm]	SW3 [mm]	Z (Stroke) [mm]
SAOXM 80x30 ED-85 NPT3/8-IG	41.5	32	5.1	NPT3/8"-F	39.1	14	88	83	-	22	-	5	6
SAOXM 80x30 ED-85 RA	41.5	32	5.1	-	31.4	-	88	83	32	-	-	5	6
SAOXM 100x40 ED-85 G1/4- IG	51.0	42	6.1	G1/4"-F	45.7	12	109	102	-	17	-	6	8
SAOXM 100x40 ED-85 G1/4- AG	51.0	42	5.1	G1/4"-M	37.7	8	109	102	-	17	5	6	8
SAOXM 100x40 ED-85 G3/8- IG	51.0	42	6.1	G3/8"-F	45.7	12	109	102	-	22	-	6	8
SAOXM 100x40 ED-85 G3/8- AG	51.0	42	5.1	G3/8"-M	37.7	8	109	102	-	19	5	6	8
SAOXM 100x40 ED-85 M10- AG	51.0	42	4.1	M10-M	37.7	8	109	102	-	16	4	6	8
SAOXM 100x40 ED-85 M14x1.5- AG	51.0	42	5.1	M14x1.5-M	39.2	8	109	102	-	22	5	6	8
SAOXM 100x40 ED-85 NPT3/8-IG	51.0	42	6.1	NPT3/8"-F	45.7	15	109	102	-	22	-	6	8
SAOXM 100x40 ED-85 RA	51.0	42	6.1	-	38.2	-	109	102	32	-	-	6	8

\*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

Type*	Bk [mm]	Bmax(S) [mm]**	Bs [mm]	d [mm]	H [mm]	H2 [mm]	Lk [mm]	Lmax(S) [mm]***	Ls [mm]	Z (Stroke) [mm]
SAOXM 60x20 ED-85 SC045- AR	20.0	24.0	18.7	12.8	21.9	3	60.0	67	61.8	5
SAOXM 80x30 ED-85 SC045- AR	24.1	41.5	31.9	12.8	22.4	3	74.3	88	82.1	6
SAOXM 100x40 ED-85 SC055- AR	32.3	51.0	41.6	15.2	29.3	4	89.9	109	101.8	8

\*Acceptable dimensional tolerances for rubber parts concerning to DIN ISO 3302-1 E3

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