




Pharma & Food





Markert Group: 90 years of experience in process filtration and hose technology

Since 1929, we have been devoted to hose, coupling and filter technology with our two ISO-certified (9001/14001) companies Alfons Markert + Co. GmbH and Otto Markert & Sohn GmbH. At present, both of our companies are among the market leaders in Europe.

Our company group is based in Germany. Our products are produced in our factories in Neumünster, near Hamburg. Here, we maintain the most modern production sites of each sector.

With our proven brands **marsoflex**® and **marsyntex**®, we are a successful partner in the food and pharmaceutical industries.

Our products exemplify three principles:

- Integrity
- Optimisation
- Innovation

The information provided in the following will give you an impression of our product portfolio.

Get in touch with us directly.
We look forward to hearing from you.

marsoflex®
Hose and coupling technology

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Type SIL-C

Ultra-pure silicone hose



- Clean-room produced in accordance with ISO 14644-1 class 7
- For the strictest requirements for cleanliness and hygiene in the pharmaceutical and biotechnological industries

Liner properties:

- Ultra-pure, platinum-cured silicone
- Ultra-flexible
- High temperature resistance
- Can be sterilised and autoclaved
- Odourless and tasteless
- Physiologically harmless
- extractables study – Proof of suitability for the highest requirements

Technical specification:

- FDA 21 CFR 177.2600
- USP Class VI
- European Pharmacopoeia 3.1.9.
- (EC) no. 1935/2004
- BfR XV. Silicone

Connections:

- Aseptic fittings
- Pressed stainless-steel fittings
- ReLock® reusable screw fitting

Product name	marsoflex® Type SIL-C
Description	Our ultra-pure silicone hose is suitable for the strictest requirements for cleanliness and hygiene in the pharmaceutical and biotechnological industries. The clean-room production of this silicone hose complies with ISO class 7. This ultra-flexible silicone hose has a high temperature stability and transfers neither odour nor taste to the fluids transported within. The silicone hose has all certifications in accordance with the strict requirements of the pharmaceutical industry.
Hose tube	Silicone, translucent, smooth
Hose cover	Silicone, smooth, translucent, resistant to heat, ageing, ozone and abrasion, glossy
Temperature range	-50 °C to +170 °C

Order number	ID [mm]	OD [mm]
SILC06X3	6	12
SILC08X3	8	14
SILC10X3	10	16
SILC13X3	13	19
SILC15X3	15	21
SILC19X3	19	25
SILC25X4	25	33


Other nominal diameters on request



Type SIL-R

Textile-reinforced silicone hose



Product name	 marsoflex ® Type SIL-R
Description	Our textile-reinforced silicone hose is highly flexible and suitable for applications involving high pressure. It is suitable for the strictest requirements for cleanliness and hygiene in the pharmaceutical and biotechnological industries. The clean-room production of this silicone hose complies with ISO class 7. This silicone hose has a high temperature stability and transfers neither odour nor taste to the fluids transported within. The silicone hose has all certifications in accordance with the strict requirements of the pharmaceutical industry.
Hose tube	Silicone, translucent, smooth
Reinforcement	High temperature-resistant textile reinforcement
Hose cover	Silicone, smooth, translucent, resistant to heat, ageing, ozone and abrasion, glossy
Temperature range	-50 °C to +170 °C

Order number	ID [mm]	OD [mm]	Operating pressure [bar]	Bending radius [mm]
SILR10X6	10	22	6	50
SILR13X6	13	25	6	60
SILR16X6	16	28	5	65
SILR19X6	19	31	5	65

Other nominal diameters on request

- Clean-room produced in accordance with ISO 14644-1 class 7
- For the strictest requirements for cleanliness and hygiene in the pharmaceutical and biotechnological industries

Liner properties:

- High pressure resistance
- Excellent flexibility
- Can be sterilised and autoclaved
- Odourless and tasteless
- extractables study – Proof of suitability for the highest requirements

Technical specification:

- FDA 21 CFR 177.2600
- USP Class VI
- European Pharmacopoeia 3.1.9.
- (EC) no. 1935/2004
- BfR XV. Silicone

Connections:

- Aseptic fittings
- Pressed stainless-steel fittings
- ReLock® reusable screw fitting



Type SIL-W

Wire-reinforced silicone hose



- Clean-room produced in accordance with ISO 14644-1 class 7
- For the strictest requirements for cleanliness and hygiene in the pharmaceutical and biotechnological industries

Liner properties:

- High pressure resistance
- Vacuum resistance
- Can be sterilised and autoclaved
- Odourless and tasteless
- extractables study – Proof of suitability for the highest requirements

Technical specification:

- FDA 21 CFR 177.2600
- USP Class VI
- European Pharmacopoeia 3.1.9.
- (EC) no. 1935/2004
- BfR XV. Silicone

Connections:

- Aseptic fittings
- Pressed stainless-steel fittings
- ReLock® reusable screw fitting

Product name	marsoflex® Type SIL-W
Description	Our silicone hose consists of multi-layered textile reinforcement and a stainless-steel wire spiral. This gives it unrivalled flexibility while maintaining pressure resistance with full vacuum stability. It is suitable for the strictest requirements for cleanliness and hygiene in the pharmaceutical and biotechnological industries. The clean-room production of this silicone hose complies with ISO class 7. This silicone hose has a high temperature stability and transfers neither odour nor taste to the fluids transported within. The silicone hose has all certifications in accordance with strict requirements of the pharmaceutical industry.
Hose tube	Silicone, translucent, smooth
Reinforcement	Textile reinforcement resistant to high temperatures, stainless-steel wire spiral
Hose cover	Silicone, smooth, translucent, resistant to heat, ageing, ozone and abrasion, glossy
Temperature range	-60 °C to +170 °C

Order number	ID [mm]	OD [mm]	Operating pressure [bar]	Bending radius [mm]
SILW12.7X5.9	12.70	24.50	10	50
SILW15.8X5.9	15.80	27.60	10	65
SILW19.05X5.9	19.05	30.85	10	75
SILW25.4X5.9	25.40	37.20	10	90
SILW31.75X5.9	31.75	43.55	10	130
SILW38.1X5.9	38.10	49.90	10	130
SILW50.8X6.1	50.80	63.00	8.5	200


Other nominal diameters on request



Type SIL100

Ultra-pure silicone hose



Product name	 marsoflex® Type SIL100
Description	The ultra-pure silicone hose is suitable for use in processes of the cosmetics and pharmaceutical industries as well as in biotechnology. The silicone hose withstands extreme temperatures, ozone, radiation, humidity, compression, weather and chemical influence and transfers neither odour nor taste to the fluids transported in it. The type SIL100 withstands repeated autoclaving and prevents the adherence of blood products and other pharmaceutical fluids.
Hose tube	Silicone, translucent, smooth
Hose cover	Silicone, smooth, translucent, resistant to heat, ageing, ozone and abrasion, glossy
Temperature range	-60 °C to +200 °C

Order number	ID [mm]	OD [mm]	Bending radius [mm]
SIL1006X3	6	12	80
SIL1008X3	8	14	100
SIL10010X3	10	16	120
SIL10013X3	13	19	150
SIL10015X3	15	21	170
SIL10019X3	19	25	200
SIL10025X4	25	33	230

Coloured versions are available.
Other nominal diameters on request

Liner properties:

- Ultra-pure silicone
- Ultra-flexible
- Can be autoclaved and sterilised
- Tasteless and odourless

Technical specification:

- FDA 21 CFR 177.2600
- USP Class VI
- BfR XV. Silicone
- ISO 10993
- 3A Sanitary Standard

Connections:

- Aseptic fittings
- Pressed stainless-steel fittings



Type SIL200

Textile-reinforced silicone hose



Liner properties:

- Non-toxic
- Temperature stable for CIP and SIP cycles
- Hydrophobic
- Saturated steam stable

Technical specification:

- FDA 21 CFR 177.2600
- USP Class VI
- European Pharmacopoeia 3.1.9.
- (EC) no. 1935/2004
- BfR XV. Silicone
- ISO 10993
- 3A Sanitary Standard

Connections:

- Aseptic fittings
- Pressed stainless-steel fittings
- ReLock® reusable screw fitting

Product name	marsoflex® Type SIL200
Description	Our marsoflex® type SIL200 with textile-reinforcement is a highly flexible, pure silicone hose for applications under high pressure. It is suitable for use in processes of the cosmetics and pharmaceutical industries as well as in biotechnology. Not suitable for use with blood and other body fluids.
Hose tube	Silicone, translucent, smooth
Reinforcement	High temperature-resistant textile reinforcement
Hose cover	Silicone, smooth, translucent, resistant to heat, ageing, ozone and abrasion, glossy
Temperature range	-60 °C to +200 °C

Order number	ID [mm]	OD [mm]	Operating pressure [bar]	Bending radius [mm]
SIL20010X6	10	22	16	70
SIL20013X6	13	25	15	80
SIL20016X6	16	28	14	100
SIL20019X6	19	31	13	150
SIL20025X6	25	37	10	185
SIL20032X6	32	44	8	220
SIL20038X6	38	50	7	260
SIL20051X6	51	63	6	350
SIL20063.5X6.5	63.5	76.5	5	—
SIL20076X6.5	76	89	4	—
SIL200102X6.5	102	115	3	—



Other nominal diameters on request



Type SIL300

Wire-reinforced silicone hose



Product name	 marsoflex® Type SIL300
Description	Our  marsoflex® type SIL300 consists of several layers of textile reinforcement and a stainless-steel wire spiral. This gives it unrivalled flexibility while maintaining pressure resistance with full vacuum stability. It is suitable for use in both vacuum and pressure processes in the cosmetics and pharmaceutical industries as well as in biotechnology. Not suitable for use with blood and other body fluids.
Hose tube	Silicone, translucent, smooth
Reinforcement	Textile reinforcement resistant to high temperatures, stainless-steel wire spiral
Hose cover	Silicone, smooth, translucent, resistant to heat, ageing, ozone and abrasion, glossy
Temperature range	-60 °C to +200 °C

Order number	ID [mm]	OD [mm]	Operating pressure [bar]	Bending radius [mm]
SIL30013X6	13	25	15	60
SIL30016X6	16	28	14	70
SIL30019X6	19	31	13	80
SIL30025X6	25	37	10	100
SIL30032X6	32	44	8	130
SIL30038X6.5	38	51	7	155
SIL30051X6.5	51	64	6	210
SIL30063.5X7.5	63.5	78.5	5	260
SIL30076X7.5	76	91	4	310
SIL300102X7.5	102	117	3	420

Other nominal diameters on request

Liner properties:

- Non-toxic
- Temperature stable for CIP and SIP cycles
- Hydrophobic
- Saturated steam stable
- High pressure and vacuum resistance

Technical specification:

- FDA 21 CFR 177.2600
- USP Class VI
- European Pharmacopoeia 3.1.9.
- (EC) no. 1935/2004
- BfR XV. Silicone
- ISO 10993
- 3A Sanitary Standard

Connections:

- Aseptic fittings
- Pressed stainless-steel fittings
- ReLock® reusable screw fitting



Type G, GA, GC PTFE smooth hose

PTFE smooth hose system for the highest process requirements



The **marsoflex**® PTFE smooth hose is the result of the consistent further development of the PTFE corrugated tube hose. Its smooth hose tube ensures a particularly low level of flow resistance and makes cleaning very easy. This means that the PTFE liner fulfils the highest requirements of the food and pharmaceutical industry. As with the smooth hose, the tube consists of highly temperature-resistant and seamlessly extruded Teflon® T-62 from DuPont in virginal or black (electrically conductive) versions and is resistant against almost all chemical influences.*

Continuously even wall thickness ensures a particularly long lifespan while the spiral guarantees extremely high vacuum stability and superior resistance against kinks. The product conforms with the FDA in accordance with 21 CFR § 177.1550.

*With the exception of halogens.

All advantages at a glance:

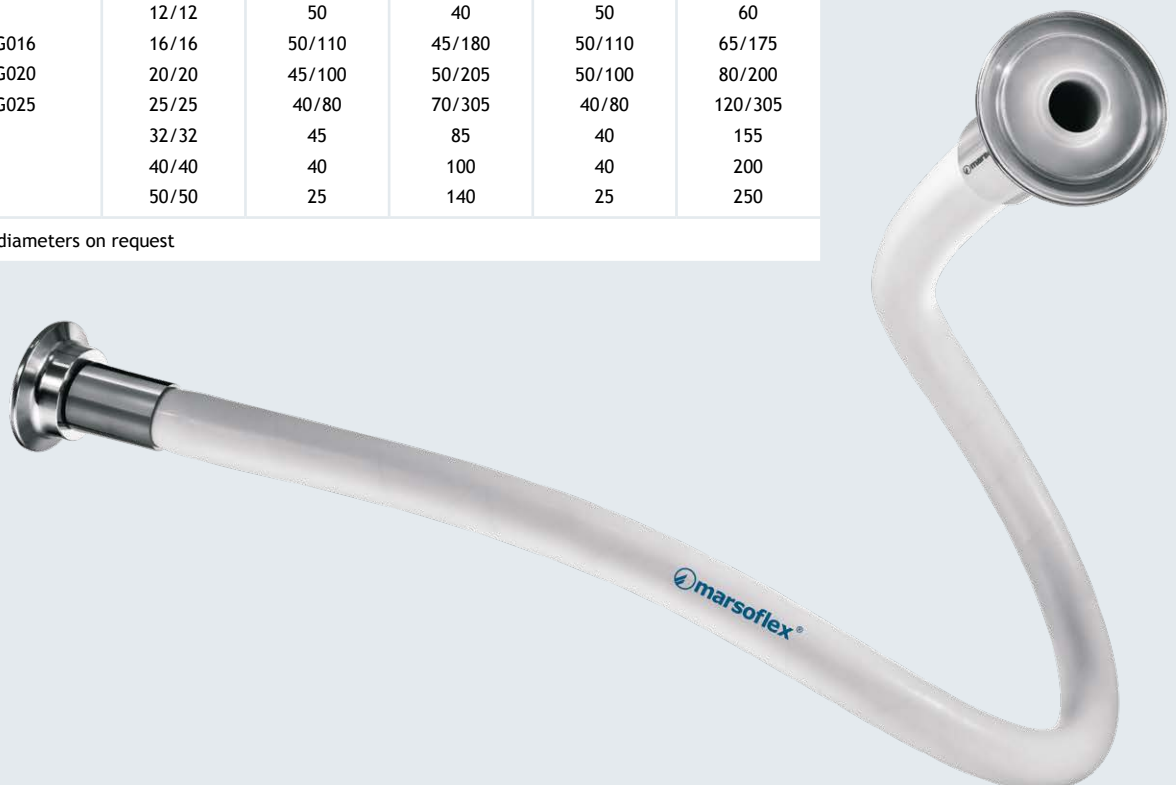
- extremely resistant against:
 - chemical influences
 - temperatures from -60 °C to +260 °C
 - weather and ageing processes
- Versions in accordance with DIN EN 16643
- very easy to clean
- minimum flow resistance
- low friction coefficient (no stick-slip effect)
- particularly anti-adhesive
- hydrophobic material
- barely thermally conductive
- highly flame resistant (UL 94 [for 1.5 mm]: VO, LOI index: 95%)
- present no risk to health (FDA and BfR compliant)
- suitable for vacuum operation
- available in three versions:
 - GC, with high electrical insulation capacity + vacuum spiral
 - GA, anti-static + vacuum spiral
 - G, with high electrical insulation capacity
- special version: Proof of suitability for the highest requirements for cleanliness
 - extractables study -





Order number	Nominal diameter*	Max. operating pressure in bar (20 °C)			
	ID [mm]	B1 Mesh [bar (20 °C)]	Bending radius [mm]	B1 sil-cover [bar (20 °C)]	Bending radius [mm]
G05	5	260	65	*	*
G06	6	220	80	220	75
G08	8	205	105	205	100
G010	10	180	135	180	130
G012	12	160	150	160	150
GA013-GC013	12/12	50	40	50	60
GA016-GC016/G016	16/16	50/110	45/180	50/110	65/175
GA020-GC020/G020	20/20	45/100	50/205	50/100	80/200
GA025-GC025/G025	25/25	40/80	70/305	40/80	120/305
GA032-GC032	32/32	45	85	40	155
GA040-GC040	40/40	40	100	40	200
GA050-GC050	50/50	25	140	25	250

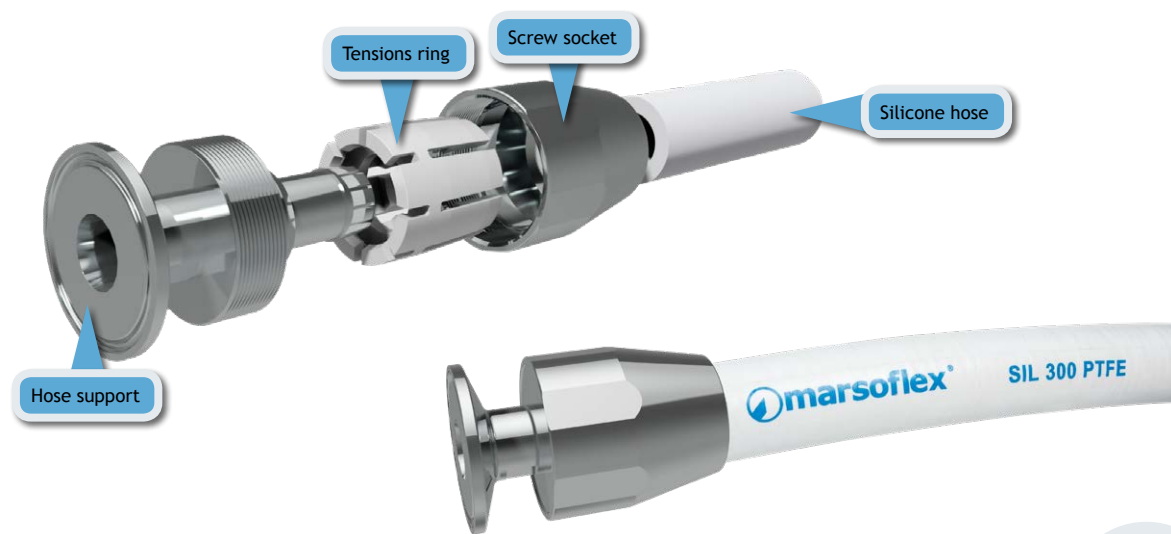
Other nominal diameters on request




ReLock[®]

Reusable screw fitting

Three-part reusable screw fitting
for our  **marsoflex**[®] hoses type SIL200,
SIL300, SIL300PTFE, SIL350PTFE



Our three-part screw fitting is a high-quality, reusable screw fitting for our  **marsoflex**[®] hoses type SIL200, SIL300, SIL300PTFE, SIL350PTFE, SIL-C, SIL-R and SIL-W. It was specially developed to meet the strict requirements of the pharmaceutical and biochemical industries.

They are ideal for expanding our product portfolio in the area of reusable fittings and are particularly suited for large nominal widths where a screw with our two-part fitting is no longer possible. The screw fitting is available in the dimensions DN 13, DN 20 to DN 50 in the standard version. It also has a weld-on fitting in accordance with DIN 11866 class B so that all standard screw connection types as well as customer-specific connections can be used.

- Particularly easy to clean
- Optimised for clean-room production
- Suitable for customer assembly
- No special tools needed

The medium-affected hose support is made from high-quality and highly-resistant stainless-steel 1.4404 or 1.4435. The tension ring is made from PVDF which is suitable for autoclaving. The screw socket is available in stainless-steel or PVDF. We recommend our silicone hoses for the three-part reusable screw fitting.

Fittings and aseptic screw connections

For the pharmaceutical, medical technology, cosmetics and food industries.

Suitable for 25 bar operating pressure (PN 25) in accordance with DIN EN 14420 and DIN 11851 or DIN 11864.


Hose support with aseptic screw connections in accordance with DIN 11864-1 with external thread or swivel nut.

Hose support with aseptic groove flange or aseptic nut flange in accordance with DIN 11864-2.

Groove clamp support and nut clamp support in accordance with DIN 11864-3.

Tri-clamp aseptic clamp connection in accordance with DIN 32676, BS 4825 and ISO 2852.

Other materials on request.

You can find more information in the  **marsoflex**® catalogue “couplings and connections”.



Hose support

with aseptic groove flange in accordance with DIN 11864-2



Tri-clamp aseptic clamp connection

in accordance with DIN 32676



Hose support

with aseptic thread connection with swivel nut in accordance with DIN 11864-1




Hose support

with milk threaded connection in accordance with DIN 11851



Linings and coatings

To protect the  marsoflex® PTFE hose connections against aggressive media, these are coated with plastics such as E-CTFE (Halar®), lined with PTFE (or PFA) or pulled through the PTFE hose and then crimped.

Coating

The medium-affected areas of the fitting or coupling are coated with E-CTFE or a similar plastic. This offers an effective corrosion protection against aggressive media.

Lining

A thick PTFE form is worked into all areas of the fitting which come into contact with the medium. This protects the fitting or coupling against the chemical corrosion by acids and lyes. Thanks to its excellent chemical resistance, PTFE offers a safe and economic alternative to more expensive special alloys such as Hastelloy.

Crimp

The PTFE is made malleable through heating. In this state, it is pulled through the fitting or coupling and crimped to the connection end correspondingly, i.e. adapted to the connection. The advantage of crimping is that no dead space is formed in the transition area between the fitting and hose where residual media could gather. This means that the best possible cleanliness is guaranteed for sensitive sectors such as the pharmaceutical and food industries. The use of a fully-automated system to crimp PTFE hoses also guarantees large quantities with a consistently high quality.



Surface quality DIN 11864-1 (Ra in µm)

Hygiene class	Inner layer	Outer layer
H3	< 0.8	< 1.0
H4	< 0.4	< 1.0

