

# Industrial and Suction Hoses



Synthetic Spiral Hoses  
Rubber Spiral Hoses  
Water Hoses  
Air Hoses  
Fittings  
Accessories



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**Entry into the Commercial Register**

Registration Court: Amtsgericht Düsseldorf  
Registration number: HRB 45421

**Tax ID number**

According to §27a UStG  
DE 121 387 379



# Hugo Frauenthor





Dear business partner,

welcome to the product offering at Hugo Frauenhof GmbH!

We are a family-run enterprise with a tradition of more than 130 years, selling products for technical wholesale and industrial needs worldwide. Our core business is characterized by environmental technology and, in particular, hose technology. There is a good reason to focus on two directions:

### The past and the future.

Since the beginning of our journey in 1887, we have been moving on with both a sense of tradition and a love for innovation. Once started as a family business in Hilden, Germany, we achieved scale and have become a flexible, growing, and global company with the highest quality standards for our products and ourselves. This is what we have internalized in our DNA and codified in our mission statement. Feel free to take a look at it!

Our success is based upon a formula that combines entrepreneurial foresight and experience over several generations: The ability to change, the willingness to take risks, continuity and commercial discretion. We are proud of our achievements!

However, this success neither had been possible in the past nor will be possible in the future without the intensive and long-term cooperation with our trusty and loyal customers, suppliers and employees.

We look forward to maintaining our long-standing relationships with commercial partners and establishing new ones in the future!

Thank you very much for your trust!



Petra Osten-Laschet



Walter Laschet



Sascha-Dominique Laschet



Fabio-Yannick Laschet



# Introducing Ourselves

Highest Quality Since 1887  
Our Mission Statement  
Our Services for You

01

## Synthetic Spiral Hoses

Group 10  
Arizona  
Buna  
AbrasiveFlex  
PUR Hoses



14



## Rubber Spiral Hoses

Construction Hose  
Superflex  
Oilflex  
Chemical Hose UHMWPE  
Succer  
Suction Dredge Hoses

34

## Water Hoses

Starkler  
Semperit Supreme  
Goldschlange  
Flat Hoses



46



## Air Hoses

Colored Air Hoses  
Quatroflex  
Breathing Air Hoses

52

My Process Walkthrough at HFH  
Application Notes

57



## Fittings

Perrot Fittings  
TW Fittings  
HF Flange System  
Storz Fittings  
Geka Fittings  
Compressed Air Fittings  
Breathing Air Fittings

60

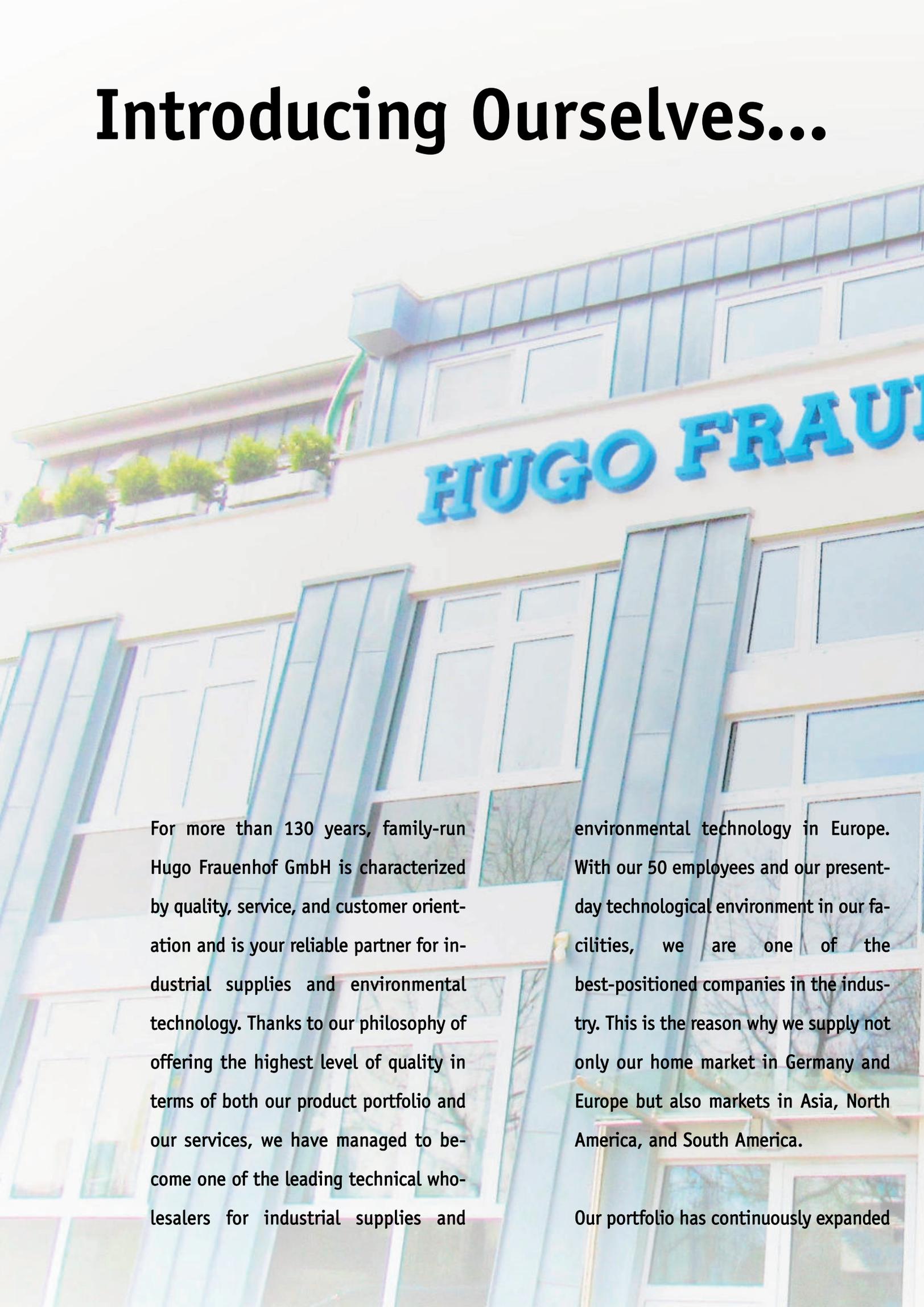
## Accessories

Hose Clamps  
Mikalor Hose Clamps  
PA-RI Hose Clamps  
Stainless Steel Bands  
Storz Coupling Keys



74

# Introducing Ourselves...



**HUGO FRAUENHOF**

For more than 130 years, family-run Hugo Frauenhof GmbH is characterized by quality, service, and customer orientation and is your reliable partner for industrial supplies and environmental technology. Thanks to our philosophy of offering the highest level of quality in terms of both our product portfolio and our services, we have managed to become one of the leading technical wholesalers for industrial supplies and

environmental technology in Europe. With our 50 employees and our present-day technological environment in our facilities, we are one of the best-positioned companies in the industry. This is the reason why we supply not only our home market in Germany and Europe but also markets in Asia, North America, and South America.

Our portfolio has continuously expanded



# ENHOF

and become more differentiated over the course of time. Sewer cleaning technology, hose technology and ultra high pressure technology define the core of our services. These services are moreover enriched by sewer rehabilitation, air handling systems accessories and occupational safety. With our highly diversified assortment and our utmost focus on quality, it is our motivation to work out customer-specific solutions for your

problems and, in doing so, providing you with a competitive advantage. Along the whole process, our highly qualified and well trained team is happy to be at your side and support you with your needs and wishes.

Our portfolio includes...

## Sewer and pipe cleaning technology

Sewer cleaning hoses  
Cassette boom hoses  
nozzles  
Sewer cleaning accessories

## Hose and coupling technology

Suction and pressure hoses  
Tank truck and chemical hoses  
Flat hoses  
Air conveyor system hoses  
Couplings

## Ultra high pressure technology

Thermoplastic ultra high pressure hoses  
Ultra high pressure rubber hoses  
Adapters and connectors  
Protective clothing  
Occupational safety  
Accessories

Our location in Hilden is close to the German Autobahn A3 and A46 and characterized by its comprehensive warehouse. With a storage area of more than 2,600 m<sup>2</sup>, a fast delivery is guaranteed, enabling us to support you even in short-term cases of need, so that you can continue your activities without a major loss of downtime.



## Sewer rehabilitation and testing

Sewer rehabilitation  
Resins  
Fiberglass material  
Inversion lining systems and sites  
Renovation packers  
Test pipe sealing cushions  
Sewer testing systems  
Equipment

## Air conveyor system technology

Rubber hoses  
PVC hoses  
PU hoses  
Blowing hoses  
Coupling systems

## Personal protective equipment (PPE)

Protective clothing  
Occupational safety  
Barriers / Job site safety  
Respiratory protective equipment  
Gas measurement technology/Self protection  
Entry protection devices  
Lamps



As a family-run enterprise with a flat hierarchical structure, we are able to respond to your questions and requests quickly and with great flexibility. The ongoing dialogue and exchange with our customers, suppliers and business partners provides both you and us with a strong foundation of future success and progress. In order to ensure sustainable success and progress, investments in the most recent and particularly resource-saving technologies are indispensable. Hence, we do not only invest in continuously advancing our technical equipment and facilities, but also cover most of our energy supply with renewable energies, such as photovoltaic systems.

# Highest Quality



Mr. Theodor Hugo Frauenhof founds the company, by name "Feingeberei und Schäftefabrik"



Mr. Gottfried Osten joins the company

With Susanne Frauenhof as general partner and Mr. Gottfried Osten as limited partner, the company operates as Frauenhof KG

1887

1957

1965

Sole takeover of the owner's shares by Mr. Osten

1992

1945

The company expands into technical wholesale and industrial supplies

1958

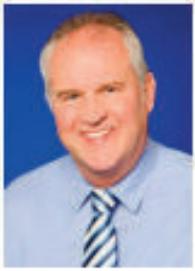
The company expands into environmental technology, including the sale of hoses, armatures, and assembly of hose lines

1995

Construction of a new office and warehouse building with a storage area of 1000m<sup>2</sup> in Hilden, the company's current location



# since 1887



Ms. Ingrid Osten and Mr. Walter Laschet become part of the company's management

1998



Today's majority shareholder Ms. Petra Osten-Laschet becomes part of the company's management. With the construction of a third warehouse, an additional 420m<sup>2</sup> of storage space is added.

2007



Ms. Petra Osten-Laschet becomes the majority shareholder; termination of our business activities in the area of shoemaker supplies (2013)

2013



Expansion of the photovoltaic system, including an industrial storage system and expansion of the storage area

2018

2001

Construction of a second warehouse, adding 1100m<sup>2</sup> of storage area



2012

At its 125<sup>th</sup> anniversary, the company changes its appearance and returns to the roots "red / black becomes blue / silver again"

2014

Completion and initial operation of a photovoltaic system meeting the company's whole energy demand



# Our Mission Statement

## Customers

„**Customers** are the focal point of all our actions. To satisfy our customers’ needs and wishes, we provide them with a maximum of **product quality** as well as **safety, responsibility** and services.

It is our ambition to understand our customers better than the competition does. This is the only way to guarantee our exceptional service.“

## Quality Leadership

„It is our ambition to provide our customers with a maximum of **quality**. Our definition of quality requests to exceed our customers’ expectations and hence goes beyond merely satisfying their needs, expectations, and requests.

Our objective is to assume the role of the **quality leader** in the market.

Quality is what we are known for.“

## Being Exceptional is Our Benchmark

„We are not satisfied with standard solutions. We are strongly committed to adjust our products to our customers’ needs. Providing our customers with **individual** and **customized** solutions is the only way to satisfy their needs.

There is no customer request that is too **special** for us to deal with.“

## Flexibility and Agility

„Due to our flat hierarchical structure, we are able to make decisions and find solutions **quickly**. Being able to react to new problems and requirements with great **flexibility**, we achieve the optimal solutions for our customers.“

## Individualism and Team Mentality

„Our employees stand out due to their **professional competencies, qualification** and **motivation**. Yet, they can provide our customers with an optimal service level if and only if they work together as a **team**. Hence, our success is based on a strong team characterized by **individual** personalities.“

## Trust and Responsibility

„We **value, challenge** and **develop** our employees. We treat one another with **dignity, respect** and **trust**. To secure the success of our company, we expect each employee to act responsibly and show a strong commitment.“

## Passion and Pride

„Every day, our employees show strong **dedication** and **passion** to ensure the well-being of our customers. Our employees are characterized by a strong commitment and motivation. They represent our company with **pride** and **pleasure**.“

## A Tradition of Being Innovative

„Stagnancy has no place in our company, as it a step backwards. Our tradition of more than 125 years has always been characterized by an orientation towards the future. Always focused on **innovation** and application of the **most recent technologies**, we want to provide our customers with optimal solutions. Hence, we invest in new technical systems and operational structures.“

## Sustainability

„We are committed to using natural and financial resources responsibly in order to ensure the company's **future** success. We establish sustainable solutions in the areas of **environmental protection** and **finance**. Our environment is highly important to us. To protect the environment, we invest in sustainable and energy-saving technologies.“

## Ethics and Integrity

„We commit ourselves to actions that are **morally** right and curate our **values**. **Integrity** is focal to our understanding of morality and ethics. **Respect, tolerance** and **acceptance** of human beings, irrespective of gender, origin, and religion is a matter of course for us and defines the foundation of our actions. For this reason, we are highly committed to create **social** value.“

## Suppliers

„We choose our **suppliers** based on our understanding of honesty, fairness, partnership and integrity. This is the only way to adhere to our strong **quality standards** to a high degree.“

## Data Protection

„**Protecting** and handling your personal data in a responsible and confidential way is our duty that we conform to without restriction. We apply the guidelines of the **General Data Protection Regulation (GDPR)** to the full extent.“

# Our Services for You

As one of our customers at Hugo Frauenhof GmbH, you enjoy our services to the full extent. Thanks to our extensive storage capacity and huge workforce, we respond to your needs and wishes as quickly as possible.

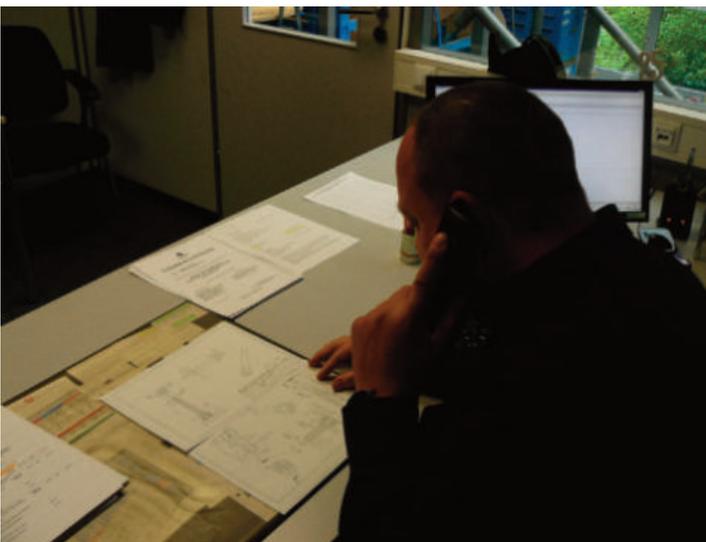
## Readiness for Delivery

Due to our logistic partners and own delivery vehicles, we are capable of delivering in less than 24 hours and respond to cases of need immediately. If you are interested, you also have the option to pick up your goods at our location. On request, we send your order to your customers immediately. In case of deliveries abroad, we are happy to handle customs clearance for you at no additional cost.



## Sales

Always happy to answer your questions and support you with offers and requests, our internal sales staff is available for you from Monday to Thursday (8:00 a.m. - 5:00 p.m.) and on Fridays (8:00 a.m. to 2:30 p.m.). In case you need personal advice on site, our field staff will be happy to assist you.



## Service in the Area of Ultra High Pressure

Thanks to our three ultra-high-pressure test stands, we are able to inspect ultra-high-pressure lines up to 6,000 bar and issue you a test certificate. Certificates about all HFH-manufactured hoses are saved in-house and can be made available to you at a later date upon request. At your request, our in-house laser furthermore allows us to engrave ultra-high-pressure lines.

Moreover, our highly-skilled and experienced staff is happy to offer training in the area of ultra-high-pressure solutions.



## Advisory & Problem Solving

With more than 130 years of experience, we are happy to be by your side as a competent partner. As accepting every challenge is part of our long-standing tradition, we are happy and look forward to managing individual problems together with you and providing you with custom-made solutions.



# Industrial and Suction Hoses



When disposing liquid and nonliquid media, suction and pressure hoses need to meet high requirements. Hence, hose reliability is an absolute necessity for you and a surety in daily use. As our hoses need to pass the most diligent product selection process, they meet the highest quality standards in terms of wear resistance, abrasion resistance, shape stability, resistance to weather and durability. Depending on their application, these hoses must not only have a highly abrasion-resistant inner tube and an electrically conductive and wear-resistant cover but also ensure maximum flexibility and an optimal weight.

The combination of these features and the HF gland coupling system, that we helped to develop, is the reason why our hose lines for abrasive matter claim the position of quality leadership.

Relying on our constant dialogue with our customers, we have assembled an assortment that meets all the requirements stated above and is presented to you on the following pages.

# Legend



**Outside diameter**



**Inside diameter**



**Burst pressure**



**Weight**



**Working pressure**



**Screw thread**



**Bend radius**



**Length**



# Synthetic Spiral Hoses

Group 10

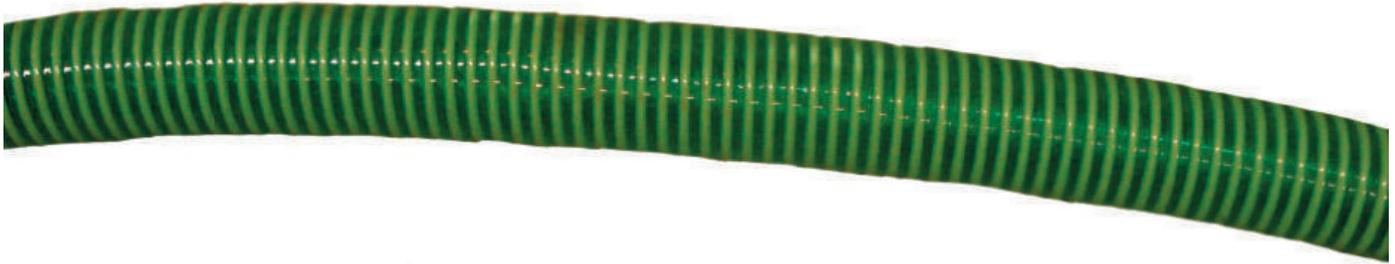
Arizona

Buna

AbrasiveFlex

PUR Hoses

# PVC SD Hose Group 10



## Scope of application

Suction and pressure hose for purposes of conducting water, acids, bases and lyes for a broad variety of industry domains, irrigation and drainage projects in agriculture and distribution of fertilizers.

## Properties

- Flexible suction and pressure hose
- Chemical resistance: see list for chemical resistance PVC
- Color: green-transparent with white spiral, other colors on request

## Construction

- Smooth PVC hose with inner hard PVC spiral, soft on the in- and outside

## Temperature range

- -5°C to +60°C

Whereas working under conditions of excess pressure results in a length increase, working under conditions of negative pressure results in a length decrease.

This information needs to be taken into account during assembly.

Article no.		Wall thickness				
281 578	13 mm	2.1 mm	0.135 kg/m	55 mm	7 bar	Goods sold by the meter
280 900	19 mm	2.4 mm	0.2 kg/m	80 mm	7 bar	Goods sold by the meter
280 903	25 mm	2.5 mm	0.25 kg/m	110 mm	7 bar	Goods sold by the meter
280 905	32 mm	2.8 mm	0.32 kg/m	140 mm	7 bar	Goods sold by the meter
280 907	38 mm	3.2 mm	0.42 kg/m	180 mm	6 bar	Goods sold by the meter
281 579	50 mm	3.4 mm	0.64 kg/m	240 mm	5 bar	Goods sold by the meter

# Arizona Superelastic



## Scope of application

Application appropriate for medium-heavy use in many branches of industry, disposal and agriculture. Is applicable inter alia as agricultural manure hose, communal vehicles or irrigation systems.

## Properties

- PVC suction / pressure hose that is flexible at low temperature
- Smooth on the inside

## Construction

- Comes with a shock-resistant, hard PVC spiral, overlaying to the outside as green abrasion protection

## Temperature range

- -25°C to +60°C

Article no.		Wall thickness					
	25 mm	4.4 mm	0.5 kg/m	100 mm	7 bar	21 bar	50 m
	32 mm	4.4 mm	0.6 kg/m	130 mm	6 bar	18 bar	50 m
	38 mm	4.4 mm	0.7 kg/m	150 mm	6 bar	18 bar	50 m
	45 mm	5.0 mm	0.9 kg/m	180 mm	5.5 bar	16.5 bar	50 m
<b>280380</b>	50 mm	5.5 mm	1.05 kg/m	200 mm	5 bar	15 bar	50 m
	60 mm	5.6 mm	1.25 kg/m	240 mm	4.5 bar	13.5 bar	50 m
	63 mm	6.0 mm	1.39 kg/m	250 mm	4.5 bar	13.5 bar	50 m
	75 mm	6.5 mm	1.7 kg/m	300 mm	4 bar	12 bar	50 m
<b>280383</b>	76 mm	6.5 mm	1.7 kg/m	300 mm	4 bar	12 bar	50 m
<b>280390</b>	80 mm	6.5 mm	1.85 kg/m	320 mm	3.5 bar	10.5 bar	50 m
	89 mm	6.7 mm	2.25 kg/m	360 mm	3.5 bar	10.5 bar	50 m
<b>280385</b>	90 mm	6.7 mm	2.25 kg/m	360 mm	3.5 bar	10.5 bar	50 m
	100 mm	7.4 mm	2.7 kg/m	400 mm	3 bar	9 bar	50 m
<b>280386</b>	102 mm	7.3 mm	2.7 kg/m	400 mm	3 bar	9 bar	50 m
<b>280387</b>	110 mm	7.5 mm	3.1 kg/m	440 mm	3 bar	9 bar	20 m
	120 mm	8.0 mm	3.6 kg/m	480 mm	2.5 bar	7.5 bar	20 m
	125 mm	8.3 mm	3.9 kg/m	500 mm	2.5 bar	7.5 bar	20 m
<b>280388</b>	127 mm	8.3 mm	3.9 kg/m	510 mm	2.5 bar	7.5 bar	20 m
	130 mm	8.5 mm	4.1 kg/m	520 mm	2.5 bar	7.5 bar	20 m
	133 mm	8.5 mm	4.2 kg/m	550 mm	2 bar	7 bar	20 m
	150 mm	9.0 mm	5.0 kg/m	600 mm	2 bar	6 bar	20 m
<b>280389</b>	152 mm	9.0 mm	5.0 kg/m	610 mm	2 bar	6 bar	20 m
	160 mm	9.4 mm	5.6 kg/m	640 mm	2 bar	6 bar	20 m
<b>281621</b>	200 mm	13.0 mm	10.0 kg/m	800 mm	1.5 bar	4.5 bar	-

# PVC/NBR-Buna Group 144



## Scope of application

New generation of synthetic suction and pressure hoses for process water, liquid manure and mineral oil when cleaning and discharging, e.g. oil separator, fat separator.

## Properties

- Particularly flexible at low temperature
- Vacuum: 9mWs

## Construction

- Layout: PVC / NBR mixture grey, including a PVC spiral on the inside

## Temperature range

- -30°C to +65°C

Article no.		Wall thickness				
281502	51 mm	5.2 mm	0.98 kg/m	153 mm	5.0 bar	50 m
281504	63 mm	5.6 mm	1.2 kg/m	189 mm	4.5 bar	50 m
281505	76 mm	6.0 mm	1.6 kg/m	228 mm	4.0 bar	50 m
281506	80 mm	6.1 mm	1.7 kg/m	240 mm	3.0 bar	50 m
281508	102 mm	7.0 mm	2.4 kg/m	306 mm	3.0 bar	50 m
281510	127 mm	8.0 mm	3.3 kg/m	381 mm	2.0 bar	20 m
281511	152 mm	8.6 mm	4.2 kg/m	456 mm	2.0 bar	20 m

# HFH AbrasiveFlex PVC/PU



## Scope of application

Application particularly in the areas of graveling and gravel removal of flat roofs and the transport of abrasive media in general.

## Properties

- Good resistance towards chemicals and hydrolysis
- Bacteria-resistant
- On request, antistatic with copper strand
- Highly abrasion-resistant, vacuum steadiness
- Light and flexible
- Robust and resistant
- Smooth surface for favorable flow characteristics

## Construction

- Outside cover: PVC, slightly wavy
- Pressure carrier / reinforcement: impact-proof hard PVC spiral
- Inner tube: highly abrasion-resistant polyurethane, smooth, strength 2.2 – 2.4 mm

## Temperature range

- -25 °C to +60 °C

Article no.		Wall thickness	 kg					Vacuum
282352	76 mm	5.6 mm	2.0 kg/m	470 mm	4.5 bar	13.5 bar	50 m	10 mWS
282353	102 mm	7.0 mm	3.4 kg/m	600 mm	4.0 bar	12 bar	30 m	9.5 mWS
282354	127 mm	7.2 mm	4.4 kg/m	750 mm	3.5 bar	10.5 bar	30 m	9.5 mWS
282355	152 mm	9.2 mm	6.7 kg/m	900 mm	3.0 bar	9 bar	20 m	9.5 mWS

# foxiGarant PUR H-EL



## Scope of application

For abrasive, coarse-grained solids in Ex-proof areas as well as devices with high vacuum steadiness. For the transport of flammable dusts / bulk materials (zone 20, 21, 22 inside), for aspiration of flammable and nonflammable dusts (none or zone 22 inside), for transport of gases and flammable liquids (zone 0, 1, 2 inside), for transport of gases and flammable liquids (zone 0, 1, 2 outside).

## Properties

- Electrically conducting suction and blower hose
- With smooth interior wall
- In accordance with ATEX 2014/34/EU and TRGS 727
- The metallic spiral needs to be grounded on both sides

## Construction

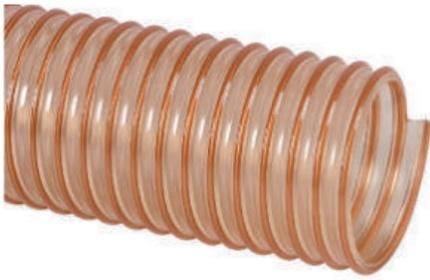
- Highly abrasion-resistant polyester polyurethane
- Electrically conducting with surface resistivity  $R_0 \leq 10^3 \text{ Ohm}$  and specific resistance  $\rho < 10$  to the power of  $4 \text{ } \Omega \cdot \text{m}$
- Spring steel spiral

## Temperature range

- -40°C to +90°C, for a short time up to +125°C

		Minimum pressure				
80 mm	2.00 bar	0.588 bar	137 mm	91 mm	1.25 kg/m	Goods sold by the meter
100 mm	1.50 bar	0.441 bar	170 mm	112 mm	1.48 kg/m	Goods sold by the meter
125 mm	1.30 bar	0.306 bar	208 mm	138 mm	1.96 kg/m	Goods sold by the meter
150 mm	1.05 bar	0.245 bar	247 mm	163 mm	2.29 kg/m	Goods sold by the meter
200 mm	0.75 bar	0.184 bar	326 mm	215 mm	3.30 kg/m	Goods sold by the meter

# foxiGarant PUR HS



## Scope of application

Specific feed hose with extremely abrasive and sharp-edged solids (gravel, grain, blasting media)

- For fodder transport
- For silo filling and discharging purposes
- Working hose for dry suction vehicles
- For silo trucks and loading operators
- Cleaning in glass factories
- For both liquid and gaseous media

## Properties

- Targeted material reinforcement below the wire
- Flexible blower hose
- Highly robust design (wall thickness approx. 2.5 mm)
- Extremely abrasion-resistant
- Smooth on the inside
- In accordance with TRBS 2153 (zone 1, 21) for nonflammable dusts / bulk materials and gases / liquids with low conductivity for dissipating electrostatic charges if the spiral is earthed on both sides

## Construction

- Spiral ingrained in the hose wall in a torque-proof and nonshiftable way
- Wall thickness between the spirals approx. 2.5 mm
- Material reinforcement below the wire

## Materials

- Spiral: spring steel wire, copper-coated
- Wall: highly abrasion-resistant polyester polyurethane
- Color: transparent

Article no.			Minimum pressure				
284005	100 mm	1.77 bar	0.580 bar	187 mm	111 mm	1.92 kg/m	10 m o. 15 m
284006	125 mm	1.54 bar	0.429 bar	230 mm	137 mm	2.38 kg/m	10 m o. 15 m
284007	150 mm	1.26 bar	0.355 bar	275 mm	162 mm	2.58 kg/m	10 m o. 15 m
284019	200 mm	0.87 bar	0.245 bar	375 mm	215 mm	4.05 kg/m	10 m o. 15 m
-	250 mm	0.70 bar	0.162 bar	450 mm	275 mm	4.75 kg/m	10 m o. 15 m

# foxiGarant PUR HS-Conduct



## Scope of application

Electrically conductive feed hose for dry suction vehicles, flexible working hose for roof graveling, can be used as a discharge hose in construction industry or for cleaning power plants. Permitted for pneumatic transport of flammable dusts / bulk materials (zone 20, 21, 22 inside), for aspiration of flammable dusts (zone 20, 21, 22 inside) and nonflammable dust (none or zone 22 inside), for transport of gases and flammable liquids (zone 1 and zone 2 outside).

## Properties

- Permanently antistatic with surface resistivity  $R_0 < 10^9$  Ohm and specific resistivity  $\rho < 2,5 \cdot 10^8 \Omega \cdot m$
- Abrasion resistance
- Smooth on the inside
- Pressure resistance
- Vacuum resistance
- Highly flexible and abrasion-resistant

## Construction

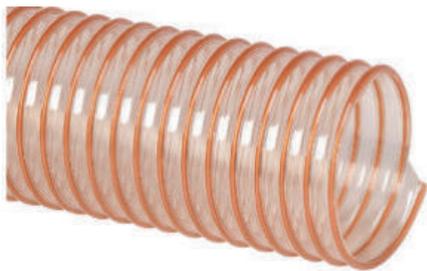
- Highly abrasion-resistant polyester polyurethane
- Material reinforcement below the wire
- Wall thickness: approx. 2.5 mm
- Spiral: spring steel wire, copper-coated, supplementary with circumferential braid

## Temperature range

- -40°C to +90°C, for a short time up to +125°C

Article no.			Minimum pressure				
284040-10	102 mm	1.8 bar	0.580 bar	230 mm	111 mm	2.35 kg/m	10 m
284040-20	102 mm	1.8 bar	0.580 bar	230 mm	111 mm	2.35 kg/m	20 m
284040-R	102 mm	1.8 bar	0.580 bar	230 mm	111 mm	2.35 kg/m	Goods sold by the meter
284041-10	127 mm	1.5 bar	0.429 bar	290 mm	137 mm	3.26 kg/m	10 m
284041-20	127 mm	1.5 bar	0.429 bar	290 mm	137 mm	3.26 kg/m	20 m
284041-R	127 mm	1.5 bar	0.429 bar	290 mm	137 mm	3.26 kg/m	Goods sold by the meter
284042-10	152 mm	1.3 bar	0.355 bar	400 mm	162 mm	3.95 kg/m	10 m
284042-20	152 mm	1.3 bar	0.355 bar	400 mm	162 mm	3.95 kg/m	20 m
284042-R	152 mm	1.3 bar	0.355 bar	400 mm	162 mm	3.95 kg/m	Goods sold by the meter
284043-10	203 mm	0.9 bar	0.245 bar	600 mm	215 mm	4.42 kg/m	10 m
284043-20	203 mm	0.9 bar	0.245 bar	600 mm	215 mm	4.42 kg/m	20 m
284043-R	203 mm	0.9 bar	0.245 bar	600 mm	215 mm	4.42 kg/m	Goods sold by the meter
284044-10	250 mm	0.7 bar	0.162 bar	800 mm	263 mm	5.52 kg/m	10 m
284044-20	250 mm	0.7 bar	0.162 bar	800 mm	263 mm	5.52 kg/m	20 m
284044-R	250 mm	0.7 bar	0.162 bar	800 mm	263 mm	5.52 kg/m	Goods sold by the meter

# foxiGarant PUR H



## Scope of application

Universally usable suction and blower hose, particularly in the area of coarse-grained / sharp-edged media with high flow-rate (blasting materials , chips , paper). Applicable for usage as standard hose for industrial vacuum cleaners, for granule conveyors (abrasive synthetic materials), for suction of paper fibers, for gaseous and liquid media or suction at vacuum pumps.

## Properties

- Heavy design (wall thickness approx. 1.45 mm)
- Highly flexible
- Smooth on the inside
- Highly abrasion-resistant
- Higher resistance to pressure and vacuum
- Antistatic
- Bacteria-resistant and hydrolysis-stabilized
- Flame-resistant according to DIN 4102 B1

## Construction

- Highly abrasion-resistant polyester polyurethane
- Wall thickness: approx. 1.45 mm
- Spiral: spring steel wire, copper-coated

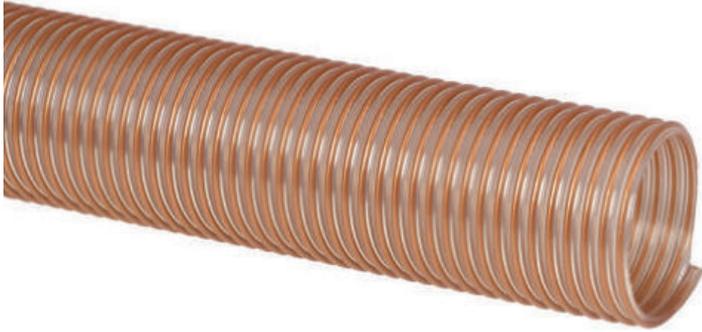
## Temperature range

- approx. -40°C to approx. +90°C, for a short time up to approx. +125°C

Other nominal widths are available on request.

Article no.			Minimum pressure				
284000	80 mm	2.00 bar	0.588 bar	132 mm	91 mm	1.11 kg/m	10 m, 15 m, 20 m
284001	100 mm	1.50 bar	0.441 bar	165 mm	112 mm	1.48 kg/m	10 m, 15 m, 20 m
284002	125 mm	1.30 bar	0.306 bar	203 mm	138 mm	1.91 kg/m	10 m, 15 m, 20 m
284003	150 mm	1.05 bar	0.245 bar	242 mm	163 mm	2.29 kg/m	10 m, 15 m, 20 m
284004	200 mm	0.75 bar	0.184 bar	321 mm	215 mm	3.30 kg/m	10 m, 15 m, 20 m

# foxiGarant PUR XL



## Scope of application

Specific suction and feed hose in case of high demands on abrasion resistance, for example with extremely chiseled solids (e.g. broken glass), as a feed hose in shipyards and glass factories, as granule feed hose for fiberglass-reinforced synthetic materials or as a suction hose on vacuum pumps.

## Properties

- Extremely heavy design (wall thickness approx. 2.5 mm)
- Good flexibility
- Smooth on the inside
- Extremely abrasion-resistant
- Very high resistance to pressure and vacuum

## Construction

- Spiral ingrained in the hose wall in a torque-proof and nonshiftable way
- Flow-optimized hose wall
- Wall thickness between the spirals approx. 2.5 mm

## Materials

- Spiral: cotton-coated spring steel wire
- Wall: polyester polyurethane

## Temperature range

- -40°C to +90°C, for a short time up to +125°C

Article no.			Minimum pressure			
-	32 mm	4.85 bar	0.941 bar	80 mm	42 mm	0.66 kg/m
-	38 mm	4.39 bar	0.941 bar	95 mm	48 mm	0.78 kg/m
-	40 mm	4.27 bar	0.941 bar	100 mm	50 mm	0.83 kg/m
-	45 mm	4.10 bar	0.941 bar	115 mm	55 mm	0.92 kg/m
-	50 mm	4.00 bar	0.941 bar	125 mm	61 mm	1.04 kg/m
-	60 mm	3.60 bar	0.892 bar	150 mm	70 mm	1.20 kg/m
-	65 mm	3.30 bar	0.892 bar	165 mm	75 mm	1.29 kg/m
-	70 mm	3.15 bar	0.892 bar	175 mm	80 mm	1.38 kg/m
-	75 mm	2.92 bar	0.892 bar	190 mm	87 mm	1.50 kg/m
<b>284008</b>	80 mm	2.77 bar	0.892 bar	200 mm	93 mm	1.93 kg/m
<b>284009</b>	100 mm	2.10 bar	0.873 bar	250 mm	115 mm	2.60 kg/m
-	110 mm	1.95 bar	0.873 bar	275 mm	124 mm	2.82 kg/m
-	120 mm	1.65 bar	0.873 bar	300 mm	134 mm	3.07 kg/m
<b>284010</b>	125 mm	1.65 bar	0.873 bar	315 mm	140 mm	3.44 kg/m
-	130 mm	1.65 bar	0.838 bar	325 mm	143 mm	3.54 kg/m
-	140 mm	1.50 bar	0.830 bar	350 mm	153 mm	3.81 kg/m
<b>284011</b>	150 mm	1.50 bar	0.821 bar	450 mm	167 mm	4.13 kg/m
-	160 mm	1.35 bar	0.812 bar	500 mm	175 mm	4.81 kg/m
-	175 mm	1.20 bar	0.794 bar	650 mm	190 mm	5.25 kg/m
-	180 mm	1.20 bar	0.768 bar	700 mm	195 mm	5.40 kg/m
<b>284012</b>	200 mm	1.05 bar	0.662 bar	950 mm	220 mm	6.43 kg/m
-	225 mm	0.90 bar	0.583 bar	1150 mm	241 mm	7.11 kg/m
-	250 mm	0.90 bar	0.512 bar	1300 mm	267 mm	7.91 kg/m
-	275 mm	0.75 bar	0.468 bar	1450 mm	292 mm	8.68 kg/m
-	300 mm	0.60 bar	0.424 bar	1600 mm	317 mm	9.45 kg/m

# foxiGarant PUR XL-Conduct



## Scope of application

Electrically conducting suction and feed hose for extremely abrasive solids, such as glass fiber reinforced plastic, gravel, sand, stones, blasting media. Applicable as silo and loading hoses, for cleaning power plants and suction vehicles as well as application in explosive areas. Permitted for pneumatic transport of flammable dusts / bulk materials (zone 20, 21, 22 inside), for aspiration of flammable dusts (zone 20, 21, 22 inside) and nonflammable dusts (zone or zone 22 inside), for transport of gases and flammable liquids (zone 1 and zone 2 outside).

## Properties

- Permanently antistatic with surface resistivity  $R_0 < 10^9 \text{ Ohm}$  and specific resistivity  $\rho < 2,5 \cdot 10^8 \text{ } \Omega \cdot \text{m}$
- Abrasion resistance
- Smooth on the inside
- Pressure resistance
- Vacuum resistance
- Highly flexible and abrasion-resistant

## Construction

- Highly abrasive-resistant polyester polyurethane
- Wall thickness: approx. 2.5 mm
- Spiral: spring steel wire, copper-coated, supplementary with circumferential braid

## Temperature range

- -40°C to +90°C, for a short time up to +125°C

Article no.			Minimum pressure				
284045-10	102 mm	2.1 bar	0.873 bar	250 mm	115 mm	2.85 kg/m	10 m
284045-20	102 mm	2.1 bar	0.873 bar	250 mm	115 mm	2.85 kg/m	20 m
284045-R	102 mm	2.1 bar	0.873 bar	250 mm	115 mm	2.85 kg/m	Goods sold by the meter
284046-10	127 mm	1.7 bar	0.873 bar	315 mm	140 mm	3.89 kg/m	10 m
284046-20	127 mm	1.7 bar	0.873 bar	315 mm	140 mm	3.89 kg/m	20 m
284046-R	127 mm	1.7 bar	0.873 bar	315 mm	140 mm	3.89 kg/m	Goods sold by the meter
284047-10	152 mm	1.5 bar	0.821 bar	450 mm	167 mm	4.53 kg/m	10 m
284047-20	152 mm	1.5 bar	0.821 bar	450 mm	167 mm	4.53 kg/m	20 m
284047-R	152 mm	1.5 bar	0.821 bar	450 mm	167 mm	4.53 kg/m	Goods sold by the meter
284048-10	203 mm	1.1 bar	0.635 bar	950 mm	220 mm	6.43 kg/m	10 m
284048-20	203 mm	1.1 bar	0.635 bar	950 mm	220 mm	6.43 kg/m	20 m
284048-R	203 mm	1.1 bar	0.635 bar	950 mm	220 mm	6.43 kg/m	Goods sold by the meter
284049-1,7	250 mm	0.9 bar	0.515 bar	1300 mm	267 mm	7.91 kg/m	1.7 m
284049-5	250 mm	0.9 bar	0.515 bar	1300 mm	267 mm	7.91 kg/m	5 m

# foxiGarant PUR XXS



## Scope of application

For the pneumatic transport of flammable dusts and bulk materials (zone 20, 21, 22 inside), for aspiration of flammable dusts (zone 20, 21, 22 inside) and nonflammable dusts. For transport of gases and flammable liquids.

## Properties

- Inside: extremely smooth
- More abrasion-resistant than common PU hoses
- Highly flexible
- Highly resistant to vertex pressure
- Good handling
- Wall thickness: approx. 2.5 mm
- Conductive
- Bacteria-resistant and hydrolysis-stabilized

## Materials

- 100% highly abrasion-resistant polyester PUR
- Spiral: spring steel wire, copper-coated

## Temperature range

- -40°C to +90°C

		Minimum pressure			
125 mm	2.15 bar	0.95 bar	350 mm	4.4 kg/m	10 m o. 15 m

# foxiPro PUR L



## Scope of application

- Suction and feed hose for abrasive solids
- Gaseous and liquid media
- Suction of paper and textile fibers
- Transport of fine-grained particles, such as dust and powder
- Suction of oil mist
- Protective hose for mechanical load

## Properties

- Highly abrasion-resistant
- Oil resistant and petrol resistant, gastight
- Good chemical resistance
- Unplasticized, free of halogens
- UV and ozone resistant
- Light, extremely flexible
- Lowest bend radii
- High tensile and tearing strength
- Inside: smooth, hence fluidically optimal
- Leakage of electrostatic charges according to ZH I/200 when the spiral is grounded

## Materials

- Wall: 100% pure polyester polyurethane (according to DIN 53516 about 30% more abrasion-resistant than comparable polyether polyurethane)
- Spiral: spring steel wire

## Temperature range

- -40°C to +90°C, for a short time up to +125°C

## Chemical resistance

- See resistance list register no. 15

## Delivery forms

Available for delivery from stock:

- DN 25 – DN 500
- Color: transparent

Available on request:

- Colored
- With customer imprint
- Special lengths
- Bacteria-resistant
- Hydrolysis-stabilized
- Electrically conducting

All the information refers to a media and ambient temperature of +20°C. Technical changes and color deviations reserved. Please take into account the technical appendix when selecting the hoses.

		Minimum pressure				
25 mm	3.22 bar	0.785 bar	31 mm	31 mm	0.25 kg/m	10 m o. 15 m
32 mm	2.52 bar	0.711 bar	40 mm	40 mm	0.35 kg/m	10 m o. 15 m
38 mm	2.10 bar	0.662 bar	46 mm	46 mm	0.39 kg/m	10 m o. 15 m
40 mm	2.10 bar	0.662 bar	48 mm	48 mm	0.40 kg/m	10 m o. 15 m
45 mm	1.84 bar	0.588 bar	53 mm	53 mm	0.42 kg/m	10 m o. 15 m
50 mm	1.68 bar	0.515 bar	58 mm	58 mm	0.45 kg/m	10 m o. 15 m
55 mm	1.54 bar	0.441 bar	63 mm	63 mm	0.51 kg/m	10 m o. 15 m
60 mm	1.40 bar	0.441 bar	68 mm	68 mm	0.53 kg/m	10 m o. 15 m
65 mm	1.26 bar	0.368 bar	73 mm	73 mm	0.64 kg/m	10 m o. 15 m
70 mm	1.12 bar	0.368 bar	78 mm	78 mm	0.68 kg/m	10 m o. 15 m
75 mm	1.12 bar	0.294 bar	84 mm	84 mm	0.72 kg/m	10 m o. 15 m
80 mm	0.98 bar	0.294 bar	88 mm	88 mm	0.76 kg/m	10 m o. 15 m
90 mm	0.84 bar	0.221 bar	99 mm	99 mm	0.88 kg/m	10 m o. 15 m
100 mm	0.84 bar	0.221 bar	110 mm	110 mm	0.95 kg/m	10 m o. 15 m
110 mm	0.70 bar	0.221 bar	119 mm	119 mm	1.03 kg/m	10 m o. 15 m
115 mm	0.70 bar	0.221 bar	124 mm	124 mm	1.06 kg/m	10 m o. 15 m
120 mm	0.70 bar	0.221 bar	129 mm	129 mm	1.12 kg/m	10 m o. 15 m
125 mm	0.70 bar	0.221 bar	135 mm	135 mm	1.18 kg/m	10 m o. 15 m
130 mm	0.56 bar	0.221 bar	139 mm	139 mm	1.20 kg/m	10 m o. 15 m
140 mm	0.56 bar	0.147 bar	149 mm	149 mm	1.38 kg/m	10 m o. 15 m
150 mm	0.56 bar	0.147 bar	161 mm	161 mm	1.48 kg/m	10 m o. 15 m
160 mm	0.56 bar	0.147 bar	170 mm	170 mm	1.74 kg/m	10 m o. 15 m
170 mm	0.42 bar	0.147 bar	180 mm	180 mm	1.80 kg/m	10 m o. 15 m
175 mm	0.42 bar	0.147 bar	185 mm	185 mm	1.85 kg/m	10 m o. 15 m
180 mm	0.42 bar	0.147 bar	190 mm	190 mm	1.90 kg/m	10 m o. 15 m
200 mm	0.42 bar	0.147 bar	214 mm	214 mm	2.30 kg/m	10 m o. 15 m
225 mm	0.28 bar	0.074 bar	235 mm	235 mm	2.55 kg/m	10 m o. 15 m
250 mm	0.28 bar	0.074 bar	260 mm	260 mm	3.02 kg/m	10 m o. 15 m
275 mm	0.28 bar	0.074 bar	284 mm	284 mm	3.11 kg/m	10 m
280 mm	0.28 bar	0.066 bar	290 mm	290 mm	3.14 kg/m	10 m
300 mm	0.25 bar	0.066 bar	310 mm	310 mm	3.20 kg/m	10 m
315 mm	0.25 bar	0.066 bar	325 mm	325 mm	3.32 kg/m	10 m
325 mm	0.25 bar	0.066 bar	335 mm	335 mm	3.40 kg/m	10 m
350 mm	0.13 bar	0.066 bar	360 mm	360 mm	3.60 kg/m	10 m
400 mm	0.13 bar	0.051 bar	410 mm	411 mm	4.45 kg/m	10 m
450 mm	0.13 bar	0.051 bar	460 mm	461 mm	5.06 kg/m	10 m
500 mm	0.13 bar	0.051 bar	510 mm	511 mm	5.70 kg/m	10 m

# foxiGarant PE L-EL



## Scope of application

Specific suction and blower hose for aggressive media, particularly in danger zones requiring electric conductivity (explosion-prone areas), such as

- Extraction systems
- Industrial vacuum cleaners

## Properties

- Electrically conductive
- Highly flexible
- Smooth on the inside
- Very high chemical resistance
- Very high resistance towards acids and lyes
- Abrasion-resistant

## Construction

- Spiral ingrained in the hose wall in a torque-proof and nonshiftable way
- Wall thickness between the spirals approx. 0.75 mm

## Materials

- Spiral: encapsulated spring steel wire
- Wall: polyethylene (PE), electrically conductive
- Color: black

## Temperature range

- -35°C to +80°C

		Minimum pressure				
50 mm	0.70 bar	0.650 bar	58 mm	58 mm	0.45 kg/m	10 m o. 15 m
55 mm	0.66 bar	0.550 bar	63 mm	63 mm	0.51 kg/m	10 m o. 15 m
60 mm	0.60 bar	0.530 bar	68 mm	68 mm	0.53 kg/m	10 m o. 15 m
65 mm	0.53 bar	0.470 bar	73 mm	73 mm	0.64 kg/m	10 m o. 15 m
70 mm	0.47 bar	0.470 bar	78 mm	78 mm	0.68 kg/m	10 m o. 15 m
75 mm	0.49 bar	0.350 bar	84 mm	84 mm	0.72 kg/m	10 m o. 15 m
80 mm	0.41 bar	0.350 bar	88 mm	88 mm	0.76 kg/m	10 m o. 15 m
100 mm	0.37 bar	0.260 bar	110 mm	110 mm	0.95 kg/m	10 m o. 15 m
110 mm	0.30 bar	0.260 bar	119 mm	119 mm	1.03 kg/m	10 m o. 15 m
120 mm	0.30 bar	0.260 bar	129 mm	129 mm	1.12 kg/m	10 m o. 15 m
125 mm	0.29 bar	0.260 bar	135 mm	135 mm	1.18 kg/m	10 m o. 15 m
140 mm	0.23 bar	0.170 bar	149 mm	149 mm	1.38 kg/m	10 m o. 15 m
150 mm	0.22 bar	0.170 bar	161 mm	161 mm	1.48 kg/m	10 m o. 15 m
160 mm	0.22 bar	0.170 bar	170 mm	170 mm	1.74 kg/m	10 m o. 15 m
175 mm	0.19 bar	0.170 bar	185 mm	185 mm	1.85 kg/m	10 m o. 15 m
180 mm	0.19 bar	0.170 bar	190 mm	190 mm	1.90 kg/m	10 m o. 15 m
200 mm	0.19 bar	0.170 bar	214 mm	214 mm	2.30 kg/m	10 m o. 15 m
225 mm	0.15 bar	0.100 bar	235 mm	235 mm	2.55 kg/m	10 m o. 15 m
250 mm	0.15 bar	0.095 bar	260 mm	260 mm	3.02 kg/m	10 m o. 15 m
275 mm	0.15 bar	0.095 bar	284 mm	284 mm	3.11 kg/m	10 m o. 15 m
300 mm	0.09 bar	0.095 bar	310 mm	310 mm	3.20 kg/m	10 m o. 15 m
315 mm	0.09 bar	0.070 bar	325 mm	325 mm	3.32 kg/m	10 m o. 15 m
325 mm	0.09 bar	0.070 bar	335 mm	335 mm	3.40 kg/m	10 m o. 15 m
350 mm	0.06 bar	0.060 bar	360 mm	360 mm	3.60 kg/m	10 m o. 15 m
400 mm	0.05 bar	0.060 bar	410 mm	410 mm	4.45 kg/m	10 m o. 15 m

# foxiGarant PUR L-EL



## Scope of application

Special suction and blower hose for abrasive solids, particularly in danger zones, where electric conductivity is required (areas subject to explosion hazards), such as

- Transportation of fine-grained powder and dust
- Suction of granules, chips, fibers
- Industrial vacuum cleaners
- Suction of liquid and gaseous media

## Properties

- Electrically conductive, surface resistivity  $\leq 10^9$  Ohm
- Simple application (approx. 0.75 mm wall thickness)
- Highly flexible
- Smooth on the inside
- Abrasion-resistant

## Construction

- Spiral ingrained in the hose wall in a torque-proof and nonshiftable way
- Wall thickness between the spirals approx. 0.75 mm

## Materials

- Wall: highly abrasion-resistant polyester polyurethane, electrically conducting  $\leq 10^9$  Ohm
- Spiral: encapsulated spring steel wire
- Color: black

## Temperature range

- -40°C to +90°C, for a short time up to +125°C

		Minimum pressure				
38 mm	2.10 bar	0.662 bar	46 mm	46 mm	0.39 kg/m	10 m o. 15 m
40 mm	2.10 bar	0.662 bar	48 mm	48 mm	0.40 kg/m	10 m o. 15 m
45 mm	1.84 bar	0.588 bar	53 mm	53 mm	0.42 kg/m	10 m o. 15 m
50 mm	1.68 bar	0.515 bar	58 mm	58 mm	0.45 kg/m	10 m o. 15 m
55 mm	1.54 bar	0.441 bar	63 mm	63 mm	0.51 kg/m	10 m o. 15 m
60 mm	1.40 bar	0.441 bar	68 mm	68 mm	0.53 kg/m	10 m o. 15 m
65 mm	1.26 bar	0.368 bar	73 mm	73 mm	0.64 kg/m	10 m o. 15 m
70 mm	1.12 bar	0.368 bar	78 mm	78 mm	0.68 kg/m	10 m o. 15 m
75 mm	1.12 bar	0.294 bar	84 mm	84 mm	0.72 kg/m	10 m o. 15 m
80 mm	0.98 bar	0.294 bar	88 mm	88 mm	0.76 kg/m	10 m o. 15 m
100 mm	0.84 bar	0.221 bar	110 mm	110 mm	0.95 kg/m	10 m o. 15 m
110 mm	0.70 bar	0.221 bar	119 mm	119 mm	1.03 kg/m	10 m o. 15 m
120 mm	0.70 bar	0.221 bar	129 mm	129 mm	1.12 kg/m	10 m o. 15 m
125 mm	0.70 bar	0.221 bar	135 mm	135 mm	1.18 kg/m	10 m o. 15 m
140 mm	0.56 bar	0.147 bar	149 mm	149 mm	1.38 kg/m	10 m o. 15 m
150 mm	0.56 bar	0.147 bar	161 mm	161 mm	1.48 kg/m	10 m o. 15 m
160 mm	0.56 bar	0.147 bar	170 mm	170 mm	1.74 kg/m	10 m o. 15 m
175 mm	0.42 bar	0.147 bar	185 mm	185 mm	1.85 kg/m	10 m o. 15 m
180 mm	0.42 bar	0.147 bar	190 mm	190 mm	1.90 kg/m	10 m o. 15 m
200 mm	0.42 bar	0.147 bar	214 mm	214 mm	2.30 kg/m	10 m o. 15 m
225 mm	0.28 bar	0.074 bar	235 mm	235 mm	2.55 kg/m	10 m o. 15 m
250 mm	0.28 bar	0.074 bar	260 mm	260 mm	3.02 kg/m	10 m o. 15 m
275 mm	0.28 bar	0.074 bar	284 mm	284 mm	3.11 kg/m	10 m o. 15 m
300 mm	0.25 bar	0.066 bar	310 mm	310 mm	3.20 kg/m	10 m o. 15 m
315 mm	0.25 bar	0.066 bar	325 mm	325 mm	3.32 kg/m	10 m o. 15 m
325 mm	0.25 bar	0.066 bar	335 mm	335 mm	3.40 kg/m	10 m o. 15 m
350 mm	0.13 bar	0.066 bar	360 mm	360 mm	3.60 kg/m	10 m o. 15 m
400 mm	0.13 bar	0.051 bar	410 mm	410 mm	4.45 kg/m	10 m o. 15 m
450 mm	0.13 bar	0.051 bar	460 mm	460 mm	5.06 kg/m	10 m o. 15 m
500 mm	0.13 bar	0.051 bar	510 mm	510 mm	5.70 kg/m	10 m o. 15 m



# Rubber Spiral Hoses

Rubber Spiral Hose / Construction Hose

Superflex

Oilflex

Chemical Hose UHMWPE

Succer

Suction Dredge Hoses



# Rubber Spiral Hose / Construction Hose



## Scope of application

For purposes of suction and transportation of process water and liquid manure

## Construction

- Inner tube: SBR, black, smooth
- Outside cover: SBR, black, fabric-textured
- Insertion: with steel wire spiral

## Temperature range

- -30°C to +80°C

Article no.	∅			Minimum pressure	
280414	50 mm	10 bar	30 bar	-0.8 bar	40 m
280415	75 mm	10 bar	30 bar	-0.8 bar	40 m
280416	90 mm	10 bar	30 bar	-0.8 bar	40 m
280417	100 mm	10 bar	30 bar	-0.8 bar	40 m
280418	125 mm	10 bar	30 bar	-0.8 bar	20 m
280419	150 mm	10 bar	30 bar	-0.8 bar	20 m

# Tank Truck Hose Superflex ( $\Omega$ /T)



## Scope of Application

Custom-built suction and pressure hose, suitable for loading and unloading tank vehicles.

## Properties

- Highly flexible
- With low flexural force
- For mineral oil products with maximum aromatic content of 50%
- EN 12115
- Resistance through the wall  $\leq 10^9$  Ohm
- $\Omega$ /T: Designed for the highest safety requirements, entire hose structure with conductive rubber mix, and  $10^9$   $\Omega$  through the wall. Suitable for explosive mixtures inside, for use in potentially explosive areas (i.e. hose line wholly or for the greater part in an Ex zone) and / or in case the media to be pumped is categorized into a higher group than IIA (IIB or IIC). Also suitable for critical, non-conductive chemicals, such as toluol.

## Construction

- Inner tube: NBR, black, smooth
- Pressure carrier: synthetic textile fiber with concealed steel spiral and copper strand for electric conductivity
- Cover: NBR/SBR, black, fabric-textured, abrasion-resistant, antistatic ( $R < 1$  M/m), mineral-oil resistant, fuel-resistant and weather-resistant

## Temperature range

- -25°C to +80°C, for oil up to 100°C

Article no.		Tolerance	Minimum pressure			 kg	
	19 mm	$\pm 0.5$ mm	-0.9 bar	10 bar	40 bar	0.77 kg/m	60 mm
	25 mm	$\pm 0.5$ mm	-0.9 bar	10 bar	40 bar	0.92 kg/m	75 mm
	32 mm	$\pm 0.5$ mm	-0.9 bar	10 bar	40 bar	1.14 kg/m	100 mm
	38 mm	$\pm 0.5$ mm	-0.9 bar	10 bar	40 bar	1.50 kg/m	120 mm
282094	50 mm	$\pm 0.7$ mm	-0.9 bar	10 bar	40 bar	2.70 kg/m	150 mm
	63.5 mm	$\pm 0.8$ mm	-0.9 bar	10 bar	40 bar	2.72 kg/m	190 mm
282095	75 mm	$\pm 0.8$ mm	-0.9 bar	10 bar	40 bar	3.22 kg/m	225 mm
282096	100 mm	$\pm 0.8$ mm	-0.9 bar	10 bar	40 bar	4.90 kg/m	300 mm

# Tank Truck Hose Oilflex (Ω/T)



## Scope of application

The hose is suitable for suction and pressure conveying of mineral oil products and fats, particularly for emptying the tank wagon and tank truck.

## Properties

- Corresponds to DIN2823 / EN12115 including the appendix which was erstwhile valid for Germany with regards to compliance with the maximum resistance through the wall of  $10^9$  Ohm  $\cong$  10 gigaohm
- Versatile use
- Suitable for insertions with maximum aromatic content of 50%
- High mechanical strength
- Convenient handling due to high pliability and low bend radii
- Perfectly smooth interior wall / fabric-textured, smooth exterior wall
- Behaves excellently towards aging, weather conditions, and ozone influence due to its co-existing abrasion-resistant and corrosion-resistant hose cover
- Electric conductivity  $R < 10^6 \Omega \cong$  10 megaohm
- Comes with two crossed copper strands
- Ω/T: Designed for the highest safety requirements, entire hose structure with conductive rubber mix, and  $10^9 \Omega$  through the wall. Suitable for explosive mixtures inside, for use in potentially explosive areas (i.e. hose line wholly or for the greater part in an Ex zone) and / or in case the media to be pumped is categorized into a higher group than IIA (IIB or IIC). Also suitable for critical, non-conductive chemicals, such as toluol.

## Construction

- Inner tube: NBR, black, oil-resistant and fuel-resistant
- Casing: synthetic textile braid respectively textile cord insertion characterized by high tearing strength with inwrought spring steel spiral, copper strand
- Cover: NBR, conducting, flame-resistant according to TrbF 131-part 2 § 5.5

## Temperature range

- -25°C to +80°C

Article no.		Wall thickness					Minimum pressure	
	19 mm	6.0 mm	0.7 kg/m	125 mm	16 bar	64 bar	-0.9 bar	40 m
	25 mm	6.0 mm	0.9 kg/m	150 mm	16 bar	64 bar	-0.9 bar	40 m
	32 mm	6.0 mm	1.2 kg/m	175 mm	16 bar	64 bar	-0.9 bar	40 m
	38 mm	6.5 mm	1.5 kg/m	225 mm	16 bar	64 bar	-0.9 bar	40 m
<b>280208</b>	50 mm	8.0 mm	2.0 kg/m	300 mm	16 bar	64 bar	-0.9 bar	40 m
<b>280209</b>	75 mm	8.0 mm	3.1 kg/m	450 mm	16 bar	64 bar	-0.9 bar	40 m
<b>280210</b>	100 mm	8.0 mm	4.4 kg/m	600 mm	12 bar	48 bar	-0.9 bar	40 m

# Chemical Hose UHMWPE



## Scope of application

For purposes of suction and pressure conveying of aggressive media, such as acids in higher concentration or hydrocarbons with a benzene percentage of up to 100%. Suitable for emptying tank trucks and tank wagons as well as the equipment of mobile and stationary facilities in the chemical industry

## Properties

- Corresponds to all the items of EN 12115
- Versatile use, suitability for most chemicals
- High mechanical strength
- Convenient handling due to high pliability and low bend radii
- Perfectly smooth interior wall, hence cleaning the hose is made simple when using vapor (up to 30 minutes at a maximum at 130°C)
- Behaves excellently towards aging, weather conditions, and ozone influence due to its co-existing abrasion-resistant and corrosion-resistant hose cover
- Electric conductivity  $R < 1$  megaohm

## Construction

- Inner tube: ultra-high-molecular-weight polyethylene (UHMWPE), black, smooth
- Casing: synthetic textile braid respectively textile cord insertion characterized by high tearing strength with inwrought spirals made of spring steel wire, additionally two crossed copper strands

## Temperature range

- -40°C to +100°C

Article no.								Minimum pressure
280463	25 mm	37 mm	0.9 kg/m	150 mm	16 bar	64 bar	40 m	-0.9 bar
280464	32 mm	44 mm	1.07 kg/m	175 mm	16 bar	64 bar	40 m	-0.9 bar
	38 mm	51 mm	1.32 kg/m	225 mm	16 bar	64 bar	40 m	-0.9 bar
280465	50 mm	66 mm	1.85 kg/m	275 mm	16 bar	64 bar	40 m	-0.9 bar
280466	75 mm	91 mm	3.23 kg/m	350 mm	16 bar	64 bar	40 m	-0.9 bar
280467	100 mm	116 mm	4.89 kg/m	500 mm	12 bar	48 bar	40 m	-0.9 bar

# HF-Super-Succer Working Head Hose



## Scope of application

Suitable for the disposal of industrial plants as well as the pneumatic suction conveying of powdery respectively granular goods and liquid media, with the exception of A1 substances (e.g. acids, lyes, solvents or oils).

## Properties

- Extremely flexible design with low minimum bend radii
- Extremely abrasion-resistant rubber mixture
- In addition to cover and inner tube, conducting via copper strand
- Good film strength due to ribbed hose cover
- Resistance  $R < 1$  megaohm
- Standard lengths 5 respectively 20 m / maximum manufacturing length 40 m
- 5 m lengths come with spiral-free muffs on both sides, partly with extension

## Construction

- Inner tube: special natural rubber mixture, electrically conductive
- Insertions: fabric lining with inwrought steel spiral and copper strand
- Cover: NBR rubber, waved, electrically conductive

## Temperature range

- $-20^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$ , for a short time up to  $100^{\circ}\text{C}$

Article no.			Wall thickness			Vacuum			
282384	80 mm	2 bar	8 mm	295 mm	92 mm	8 mWS	6 bar	2.2 kg/m	4,9 m
282392	80 mm	2 bar	8 mm	295 mm	92 mm	8 mWS	6 bar	2.2 kg/m	20 m
282389	102 mm	2 bar	8 mm	395 mm	118 mm	8 mWS	6 bar	3.6 kg/m	5 m
282391	102 mm	2 bar	8 mm	395 mm	118 mm	8 mWS	6 bar	3.6 kg/m	20 m
282386	127 mm	2 bar	8 mm	495 mm	143 mm	8 mWS	6 bar	4.4 kg/m	5 m
282400	127 mm	2 bar	8 mm	495 mm	143 mm	8 mWS	6 bar	4.4 kg/m	20 m
282385	152 mm	2 bar	8 mm	595 mm	168 mm	8 mWS	6 bar	4.8 kg/m	5 m
282390	152 mm	2 bar	8 mm	595 mm	168 mm	8 mWS	6 bar	4.8 kg/m	20 m
282387	204 mm	2 bar	8 mm	795 mm	220 mm	8 mWS	6 bar	6.9 kg/m	5 m

# HF-Succer Installation Hose



## Scope of application

Suitable for disposal of damp and above all dry abrasive media for purposes of equipping mobile and stationary industrial cleaners and suction systems. Suitable for disposal of granular goods and application at station wagon in dry areas. For the most part, the hose is combined with our patented HFH gland coupling system.

## Properties

- Electrically conductive thanks to integrated copper strand and conductive inner soul and cover (resistance  $R < 1$  megaohm)
- Vacuum-tight up to 9 mH<sub>2</sub>O
- Great mobility and comfortable handling due to the square ribbed reflex design or waved design
- Highly abrasion-resistant due to the hose core characterized by a conductive special rubber mixture and by particular thickness
- Great buckling resistance

## Construction

- Inner tube: highly abrasion-resistant, extra thick (4mm) inner-liner, black, electrically conductive
- Insertions: reinforced steel wire spiral and fabric insertions
- Cover: rubber material 2 mm strong with additional fabric reinforcement, cord ribbed or waved, conductive

## Temperature range

- -20°C to +80°C, for a short time up to 100 °C

Available in variable lengths up to 40 m, with or without spiral-free muff and without extension. The standard length of 5 m comes with spiral-free muffs on both sides with extension, enabling the transportation of goods with minimum turbulence.

Article no.	Dimension		Design	
281638	DN 50 x 5	2 bar	Cord ribbed	4.9 m
281655	DN 50 x 5	2 bar	Cord ribbed	10 m
281656	DN 50 x 5	2 bar	Cord ribbed	20 m
281639	DN 80 x 6	2 bar	Cord ribbed	4.9 m
281657	DN 80 x 6	2 bar	Cord ribbed	10 m
281658	DN 80 x 6	2 bar	Cord ribbed	20 m
281640	DN 100 x 8	2 bar	Cord ribbed	4.9 m
281659	DN 100 x 8	2 bar	Cord ribbed	10 m
281660	DN 100 x 8	2 bar	Cord ribbed	20 m
281641	DN 127 x 8	2 bar	Cord ribbed	4.9 m
281661	DN 127 x 8	2 bar	Cord ribbed	10 m
281662	DN 127 x 8	2 bar	Cord ribbed	20 m
281642	DN 150 x 8	2 bar	Cord ribbed	4.9 m
281663	DN 150 x 8	2 bar	Cord ribbed	20 m
281643	DN 200 x 10	2 bar	Cord ribbed	4.9 m

Article no.	Dimension		Design	
281644	DN 50 x 5	2 bar	Waved	4.9 m
281664	DN 50 x 5	2 bar	Waved	10 m
281665	DN 50 x 5	2 bar	Waved	20 m
281645	DN 80 x 6	2 bar	Waved	4.9 m
281666	DN 80 x 6	2 bar	Waved	10 m
281667	DN 80 x 6	2 bar	Waved	20 m
281646	DN 100 x 8	2 bar	Waved	4.9 m
281668	DN 100 x 8	2 bar	Waved	10 m
281669	DN 100 x 8	2 bar	Waved	20 m
281647	DN 127 x 8	2 bar	Waved	4.9 m
281670	DN 127 x 8	2 bar	Waved	10 m
281671	DN 127 x 8	2 bar	Waved	20 m
281648	DN 150 x 8	2 bar	Waved	4.9 m
281672	DN 150 x 8	2 bar	Waved	20 m
281649	DN 200 x 10	2 bar	Waved	4.9 m

# HF Suction Dredge Hose



## Scope of application

Suitable for the transport and pneumatic suction conveying of dry, powdered or granular goods as well as aqueous media, such as mud, sand, stones, soil, blasting media, etc. Exceptions are A1 products (e.g. acids, lyes, solvents, mineral oils).

## Properties

- Flexible design suited to the application
- Extremely abrasion-resistant rubber mixtures
- Electrically conductive thanks to an extra wide copper strand in addition to a conductive cover
- Antistatic with resistance  $R < 1$  megaohm
- Standard length 6.85 m / other lengths available on request
- Spiral-free muffers on both sides with a length of 9 cm and protruding copper strand

## Construction

- Inner tube: special natural rubber mixture NR / BR, black, smooth, 8 mm thick
- Insertions: highly tear-resistant textile cord insertion with twofold steel wire spiral and copper strand
- Cover: NR / SBR – rubber mixture, flatly-waved, fabric-textured, electrically conductive

Article no.								Wall thickness	Vacuum
282637	252 mm	290 mm	25.02 kg/m	1008 mm	3 bar	9 bar	6.85 m	19 mm	9 mWS

# Suction Dredge Hose TRELLVAC



## Scope of application

Special working hose for suction excavator use.

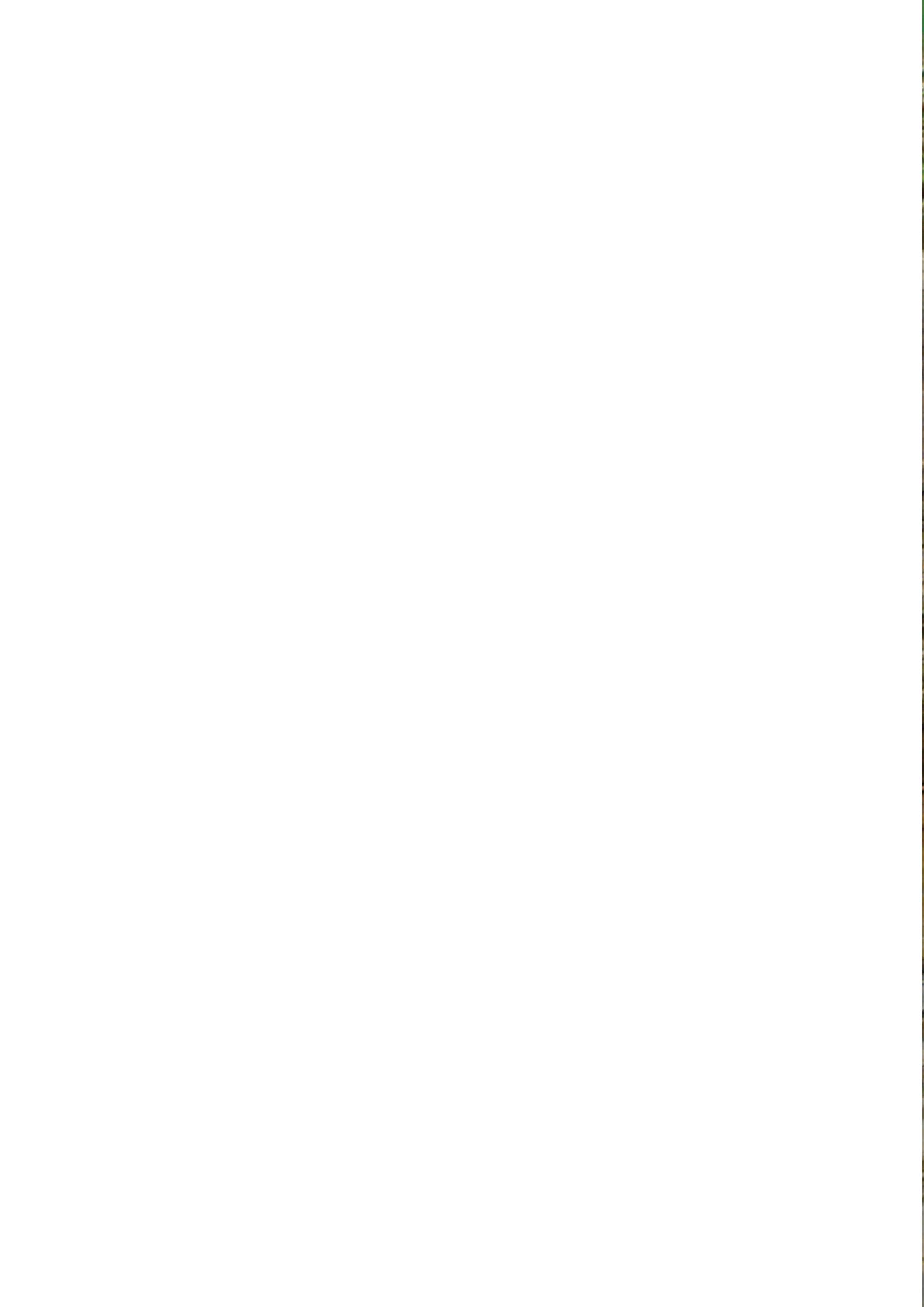
## Properties

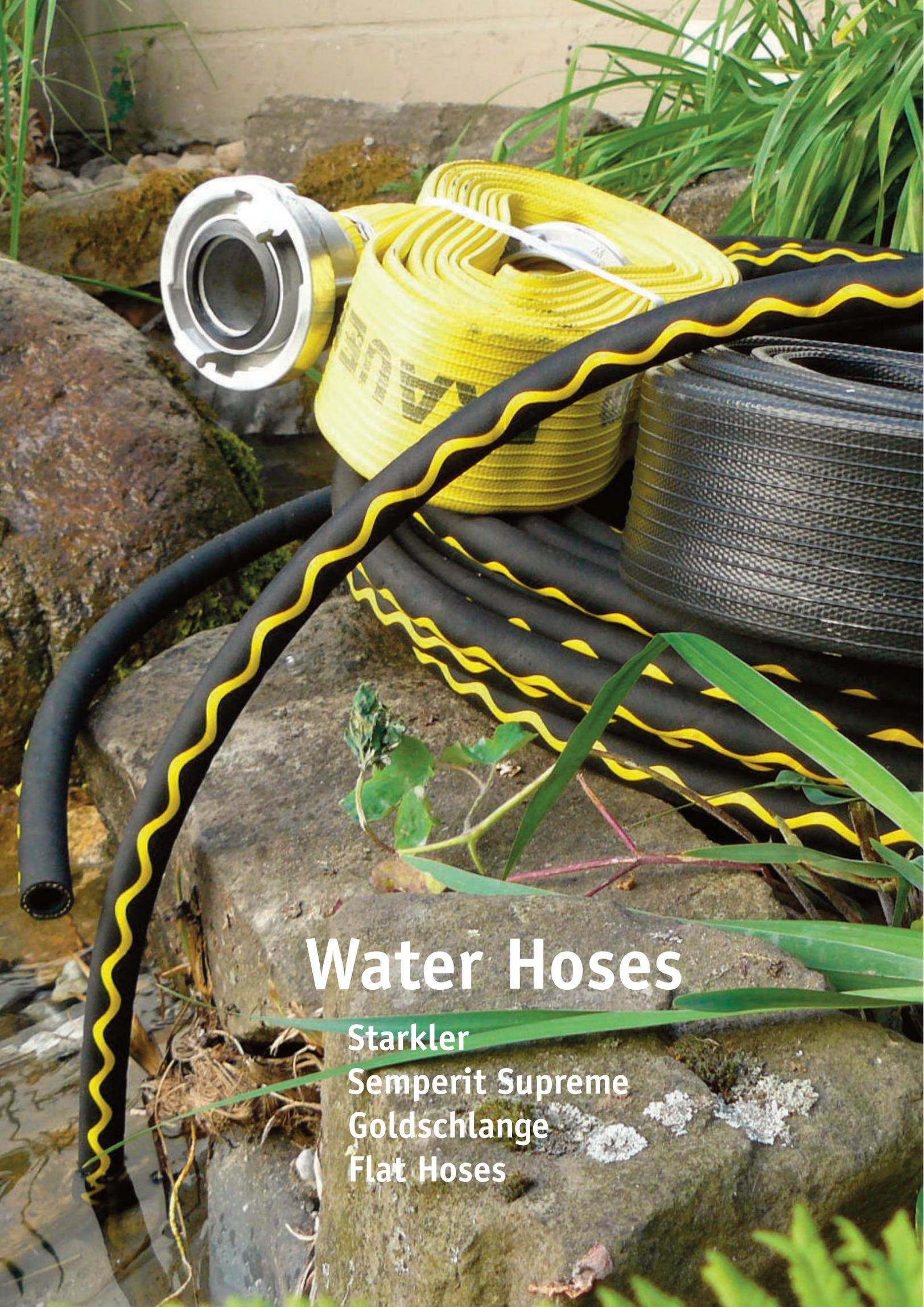
- Standard length 6.90 m / other lengths available on request
- Spiral-free muffs on both sides
- Long service life thanks to the high-quality NR inner tube and the appropriate thickness
- light weight
- High flexibility

## Construction

- Inner tube: Abrasion-resistant natural rubber NR, red, smooth
- Reinforcement: Synthetic braid with embedded steel helix
- Cover: NR / SBR, black, corrugated
- Temperature range: -30°C to +80°C

Article no.						Sleeve length	Sleeve extension	Max. Vacuum
-	254 mm	307 mm	164 kg	500 mm	5.3 m	70 mm	254 mm	0.9 bar
283311	254 mm	300 mm	196 kg	500 mm	6.9 m	70 mm	254 mm	0.9 bar
283312	254 mm	300 mm	195 kg	500 mm	6.9 m	120 mm	264 mm	0.9 bar
-	254 mm	300 mm	225 kg	500 mm	7.9 m	70 mm	254 mm	0.9 bar





# Water Hoses

Starkler  
Semperit Supreme  
Goldschlange  
Flat Hoses

# Starkler



## Scope of application

For purposes of ultra high pressure conveying of cold respectively hot water as well as multiple other liquids. For cleaning and other purposes in a wide variety of workstreams: industry, construction, agriculture, etc.

## Properties

- Exceptional resistance to weather and aging
- Outstanding strength values
- Constantly high performance values over the long term
- Two synthetic textile insertions

## Construction

- Inner tube: EPDM, black, smooth
- Cover: EPDM, black

## Temperature range

- -30°C to +100°C

Artikel no.		Wall thickness					
280118	12.7 mm	4 mm	20.7 mm	20 bar	60 bar	55 mm	0.27 kg/m
280119	19.4 mm	4.5 mm	28.4 mm	20 bar	60 bar	85 mm	0.43 kg/m
280120	25.4 mm	4.8 mm	35.0 mm	20 bar	60 bar	100 mm	0.58 kg/m

# Semperit Supreme



## Scope of application

Designed for the application in highly diverse demanding multi-purpose applications, such as construction, agriculture or industrial plants (e.g. in energy chain).

- Oil and fuel
- Air and water conveyance
- Light chemicals

## Properties

- Outstanding aging resistance
- Extremely high abrasion-resistance
- Abrasion-resistant
- Resistant to oil and fuel
- Ozone resistance and resistance to weather

## Construction

- Inner tube: quality rubber, black, electrically conductive
- Cover: quality rubber, electrically conductive, smooth

## Temperature range

- -40°C to +135°C, for a short time up to +160°C

	Wall thickness				
6 mm	3.5 mm	13 mm	20 bar	30 mm	0.16 kg/m
8 mm	3.5 mm	15 mm	20 bar	40 mm	0.20 kg/m
10 mm	3.5 mm	17 mm	20 bar	50 mm	0.23 kg/m
12 mm	3.5 mm	19 mm	20 bar	60 mm	0.26 kg/m
13 mm	4.0 mm	21 mm	20 bar	65 mm	0.31 kg/m
16 mm	4.0 mm	24 mm	20 bar	80 mm	0.39 kg/m
19 mm	4.5 mm	28 mm	20 bar	95 mm	0.51 kg/m
25 mm	5.0 mm	35 mm	20 bar	125 mm	0.72 kg/m
32 mm	6.0 mm	44 mm	20 bar	160 mm	1.05 kg/m

# Goldschlange



## Scope of application

The Goldschlange is the right hose for challenging applications. This hose is a water and cleaning hose for use on construction sites, outdoors, or on machines, devices, containers.

## Properties

- Robust
- Long-lasting
- Buckling and impact resistance (able to drive over)
- Black, non-porous, smooth EPDM inner layer
- Black, fabric-textured outer layer made of polycholoprene, resistant to ozone, weather, UV, oil, fat and chemicals, abrasion-resistant

## Temperature range

- -30°C to +100°C

Article no.		Wall thickness				
280 112	13 mm	3.9 mm	0.225 kg/m	50 mm	30 bar	Goods sold by the meter
280 113	19 mm	4.4 mm	0.385 kg/m	80 mm	25 bar	Goods sold by the meter
280 114	25 mm	4.5 mm	0.49 kg/m	160 mm	20 bar	Goods sold by the meter

# Flat Hoses



## Scope of application

Suitable for filling industrial plants and tanks as well as pneumatic pressure conveying of powdered respectively granular goods and liquid media. Exceptions are A1 substances (e.g. acids, lyes, solvents or oils).

## Properties

- Extremely flexible design with low minimum bend radii
- Extremely abrasion-resistant rubber or fabric mixture
- Great grip due to ribbed hose cover
- Resistance  $R < 1$  megaohm
- Fixed lengths with special Storz fittings
- All the flat hoses can be tailored to you needs

## Construction

- Inner tube: special natural rubber mixture, electrically conductive
- Cover: NBR rubber, electrically conductive

Article no.		Color / Material	 kg		
280479	D / 25 mm	Black / Rubber	0.21 kg/m	16 bar	20 m
281475	C / 50 mm	Black / Rubber	0.40 kg/m	16 bar	5 m
281539	C / 50 mm	Black / Rubber	0.40 kg/m	16 bar	10 m
281431	C / 50 mm	Black / Rubber	0.40 kg/m	16 bar	15 m
281432	C / 50 mm	Black / Rubber	0.40 kg/m	16 bar	20 m
281433	C / 50 mm	Black / Rubber	0.40 kg/m	16 bar	25 m
280292	C / 50 mm	White / Fabric	0.26 kg/m	16 bar	5 m
280891	C / 50 mm	White / Fabric	0.26 kg/m	16 bar	10 m
280293	C / 50 mm	White / Fabric	0.26 kg/m	16 bar	15 m
280294	C / 50 mm	White / Fabric	0.26 kg/m	16 bar	20 m
281650	C / 50 mm	Yellow / Rubber	0.40 kg/m	16 bar	5 m
281651	C / 50 mm	Yellow / Rubber	0.40 kg/m	16 bar	10 m
281652	C / 50 mm	Yellow / Rubber	0.40 kg/m	16 bar	15 m
281653	C / 50 mm	Yellow / Rubber	0.40 kg/m	16 bar	20 m
281654	C / 50 mm	Yellow / Rubber	0.40 kg/m	16 bar	25 m
281519	B / 75 mm	Black / Rubber	0.65 kg/m	16 bar	20 m
280296	B / 75 mm	White / Fabric	0.40 kg/m	16 bar	20 m
281611	A / 100 mm	Black / Rubber	1.00 kg/m	16 bar	20 m
280307	A / 100 mm	White / Fabric	0.64 kg/m	12 bar	25 m





# Air Hoses

Colored Air Hoses

Quatroflex

Breathing Air Hoses

# Air Hose Raufilam



## Scope of application

Pressure hose with general use in industrial applications, mainly for use on air pressure systems. Can be used in trailer and caravan construction as a water hose. Functions as a water hose in trailer and caravan construction in the cold water area if colored blue and hot water area if colored red. For application in welding technology, it can be used as cold water supply on Mig burners if colored blue and as a return hose if colored red. As a workshop hose, it is covered in blue and black and acts as a multi-functional compressed air hose. Advantageous for use in mechanical engineering, as individual hose lines are colored differently.

## Properties

- Convenient flexibility, constant coloring, great aging resistance, high sheathing density, great resistance towards chemicals
- Color: green-transparent, blue-transparent, blue-covered, black on the interior and exterior, - red
- Important to consider: ratio working pressure to burst pressure 4:1
- Special qualities: individualized print option (e.g. company logo, company name, diameter)

## Construction

- Color of PVC textile hose is sheathed diagonally in a technically correct way in a neutral angle of 54 degrees
- Highly resistant and tear-resistant synthetic fibers serve as sheathing material
- Free of cadmium, TÜV-certified
- Insertion with fittings

## Temperature range

- - 20°C to 65°C

Article no.			Wall thickness				Color
<b>280152</b>	4.0 mm	10.0 mm	3 mm	20 bar	80 bar	15 mm	Glass-clear
<b>280153</b>	6.0 mm	11.0 mm	3 mm	15 bar	60 bar	25 mm	Glass-clear
<b>280154</b>	8.0 mm	14.0 mm	3 mm	15 bar	60 bar	30 mm	Glass-clear
<b>280155</b>	9.0 mm	14.0 mm	3 mm	12 bar	48 bar	30 mm	Glass-clear
<b>281536</b>	9.0 mm	15.0 mm	3 mm	12 bar	48 bar	35 mm	Dark blue transparent
<b>281981</b>	9.0 mm	15.0 mm	3 mm	12 bar	48 bar	35 mm	Dark green transparent
<b>280359</b>	10.0 mm	16.0 mm	3 mm	10 bar	40 bar	40 mm	Glass-clear
<b>280360</b>	12.0 mm	18.0 mm	3 mm	10 bar	40 bar	55 mm	Glass-clear
<b>280157</b>	13.0 mm	20.0 mm	3.5 mm	8 bar	32 bar	72 mm	Glass-clear
<b>280158</b>	16.0 mm	24.0 mm	4 mm	10 bar	40 bar	75 mm	Glass-clear
<b>280159</b>	19.0 mm	26.0 mm	3.5 mm	7 bar	28 bar	130 mm	Glass-clear
<b>280160</b>	25.0 mm	34.0 mm	4.5 mm	7 bar	28 bar	220 mm	Glass-clear
<b>281455</b>	30.0 mm	38.0 mm	4 mm	5 bar	20 bar	250 mm	Glass-clear
<b>280161</b>	32.0 mm	42.0 mm	5 mm	6 bar	24 bar	310 mm	Glass-clear
<b>280162</b>	38.0 mm	48.0 mm	5 mm	5,5 bar	22 bar	420 mm	Glass-clear
<b>282873</b>	45.0 mm	55.0 mm	5 mm	3 bar	12 bar	550 mm	Glass-clear
<b>280164</b>	50.0 mm	60.0 mm	5 mm	3 bar	12 bar	650 mm	Glass-clear

# Quatreflex

## Type Tricotech

- Plastic water hose
- Inner tube: PVC, black, smooth
- Outer cover: PvC, yellow, smooth
- Inserts: Braided textile inserts
- Temperature range: -10°C to +60°C
- Color: yellow
- Roll length á 50 m



## Type Turboflex

- Structure 3-layer, 24-thread diagonal reinforcement
- Temperature range: -20°C to +60°C
- Abrasion resistant
- Light and ozone resistant
- Color: yellow
- Roll length á 100 m



Article no.	Description	Size		
280121	Tricotech	1/2"	10 bar	25 bar
280122	Tricotech	3/4"	10 bar	25 bar
280457	Tricotech	1"	10 bar	25 bar
280458	Tricotech	1 1/4"	10 bar	25 bar
280459	Tricotech	1 1/2"	10 bar	25 bar
282258	Tricotech	2"	10 bar	25 bar
280122-100	Turboflex	3/4"	13 bar	

# Breathing Air Hoses

## Scope of application

The hose is suited ideally for purposes of cleaning tanks or circumstances when the outer surface of the hose is exposed to adverse conditions.

## Properties

- Color: black
- Comes with two laminated green stripes according to EN 139
- Extremely high ozone resistance, extreme resistance against various chemicals



## Construction

- Abrasion-resistance due to a PVA cover
- Inner tube: NBR black
- Outer cover: NBR / PVC black
- Integrated with stainless brass or stainless steel couplings

## Temperature range

- -30°C to +100°C

Article no.		Wall thickness				 kg	
280102	9.5 mm	5 mm	10 bar	60 bar	78 mm	287 g/m	Goods sold by the meter
282311	9.5 mm	5 mm	10 bar	60 bar	78 mm	287 g/m	25 m
282508	9.5 mm	5 mm	10 bar	60 bar	78 mm	287 g/m	50 m

# My Process Walkthrough at HFH

After being manufactured at one of our trusted and quality-conscious suppliers, I am delivered to Fraunhofer by truck or by plane. Upon arrival, Fraunhofer immediately monitors whether I have survived the journey well and without damage.



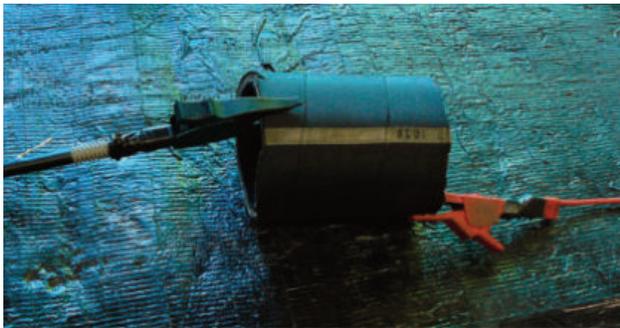
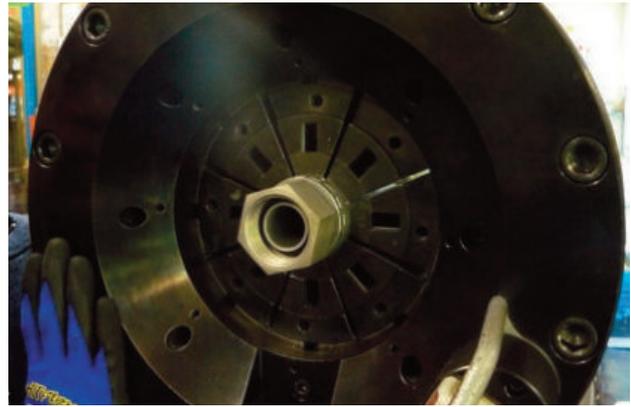
In case I withstood the monitoring process without any objections, I am placed into storage next to my innumerable number of fellows. I will stay at this place until a customer needs me. On customer request, I am consecutively numbered in order to ensure that I can always be identified..

Suitable fittings are mounted with the corresponding clamps that are provided with all the data relevant to identify me in the process. This is implemented using an embossing machine.



The Fraunhofer team made up of knowledgeable employees ensures that customers are provided with the correct length as requested. They measure off the desired length and mark the corresponding position. To carry out a precise cut, no machine is needed. A sharp knife is sufficient to cut the hose.

Next, my fittings are either grouted with up to 500 tons and corresponding die stocks or tied in with clamps to ensure that they cannot glide off anymore.



On customer request, I will be put through my paces before delivery. Examination procedures include both a pressure test, investigating my resilience at one and a half times the working pressure, and a test of electric conductivity. The latter is also available individually without performing the pressure test. To confirm my productive capacity to the customer, a certificate is issued about my electric conductivity.

Now, I am ready for delivery and just need to be packaged and shipped. Once arrived at the customer's site, I can give proof of my capabilities.

Please use the instructions that are made available to you to ensure that we can have the most successful relationship possible.



# General Application Notes

What to pay attention to ...

**Handle instructions about ultra-high-pressure hoses with extreme caution!**

## Inspection

I should be checked regularly for abrasion, rust, breaks or other damages. If my upper cover is threadbare or I am damaged otherwise, phase me out and do not use me anymore. You should moreover check the thread of my fittings for abrasion. We are also happy to do this check for you!

## Working Pressure

My manufacturer provides information about my maximum working pressure that must not be exceeded. Although I am tested with greater certainty, one must not assume that I can withstand this pressure in the long term.

## Bend Radius

My minimum bend radius must not be undercut as doing so can lead to a stress whitening in my inner tube or other damage. Under no circumstances should I be used if I have accidentally been cracked or twisted.

## Temperature

To ensure safe operation, the temperature range I was designed for should be taken into account.

## Damage

If you recognize a water leak, I must be put out of operation immediately and checked for damage.

Please always use filtered flow media to ensure my longevity.

Please do not use me if I have bubbles, pin holes, or kinks.

Please make sure that there is no high tensile or torsional load on me. To prevent any damages, you should always clean, dry and wind me up after using me.

**Use only those hose lines that have been assembled by an experienced and authorized dealer!!!**

All our recommendations conform to the requirements of EN1829-2.

In case you have any questions, please feel free to contact our sales team at any time.

## Complaints

We view ourselves as a service provider. As such, it is our job to provide you with greatest possible value through our services.

As a dealer with integrated assembly, we are part of a network of manufacturers and other service providers. At all those intersections, there are people taking care of your requests and needs.

In case there is any objection or complaint, please do not hesitate to contact us. In the ongoing dialogue with all the partners involved and you as our customer, we use our experience to give you the feeling that you are in good hands with us.

# Fittings

**Perrot Fittings**

**TW Fittings**

**HF Flange System**

**Storz Fittings**

**Geka Fittings**

**Compressed Air Fittings**

**Breathing Air Fittings**



# Perrot Fittings

We offer the original Perrot cardan joint fittings with a working pressure of up to 10 bar with a maximum possible angulation of up to 15° while maintaining the imperviousness.

The mother couplings already contain the integrated rubber seals upon delivery. The coupling parts are made of hot-dip galvanized steel by default. Two further stainless steel versions of different quality are available on request.

**Mother coupling**



**Father coupling**



Article no.	Perrot M part with hose nozzle	Article no.	Perrot V part with hose nozzle
190586	50x50	190577	50x50
190587	89x75	190578	89x75
190588	89x80	190579	89x80
190589	89x90	190580	89x90
190590	108x100	190581	108x100
190592	133x125	190582	133x125
190593	159x150	190583	159x150
190594	216x200	190584	216x200

## Perrot reverse pieces

Article no.	Description
190470	Perrot reverse piece V part, KDVT 50
190471	Perrot reverse piece V part, KDVT 70
190472	Perrot reverse piece V part, KDVT 89
190473	Perrot reverse piece V part, KDVT 108
190474	Perrot reverse piece V part, KDVT 133
190475	Perrot reverse piece V part, KDVT 159
190477	Perrot reverse piece M part steel lever mechanism, KDMT 50
190478	Perrot reverse piece M part steel lever mechanism, KDMT 70
190479	Perrot reverse piece M part steel lever mechanism, KDMT 89
190480	Perrot reverse piece M part steel lever mechanism, KDMT 108
190481	Perrot reverse piece M part steel lever mechanism, KDMT 133
190482	Perrot reverse piece M part steel lever mechanism, KDMT 159



## Perrot transition pieces

Article no.	Description
190423	Perrot transition piece V-M steel lever mechanism, KKMGV 89 x 50
190432	Perrot transition piece V-M steel lever mechanism, KKMGV 108 x 89
190433	Perrot transition piece V-M steel lever mechanism, KKMGV 133 x 108
190434	Perrot transition piece V-M steel lever mechanism, KKMGV 159 x 133
190435	Perrot transition piece V-M steel lever mechanism, KG MKV 70 x 89
190436	Perrot transition piece V-M steel lever mechanism, KG MKV 108 x 89
190437	Perrot transition piece V-M steel lever mechanism, KG MKV 133 x 89
190438	Perrot transition piece V-M steel lever mechanism, KG MKV 133 x 108
190439	Perrot transition piece V-M steel lever mechanism, KG MKV 159 x 89
190440	Perrot transition piece V-M steel lever mechanism, KG MKV 159 x 133
190441	Perrot transition piece V-M steel lever mechanism, KG MKV 159 x 108
190448	Perrot transition piece V-M steel lever mechanism, KKMGV 108 x 70
190455	Perrot transition piece V-M steel lever mechanism, KKMGV 133 x 89
190462	Perrot transition piece V-M steel lever mechanism, KKMGV 159 x 108
190707	Perrot transition piece V-M steel lever mechanism, KKMGV 70 x 50
190708	Perrot transition piece V-M steel lever mechanism, KKMGV 89 x 70
190710	Perrot transition piece V-M steel lever mechanism, KG MKV 50 x 70
190711	Perrot transition piece V-M steel lever mechanism, KG MKV 70 x 108
190784	Perrot transition piece V-M steel lever mechanism, KG MKV 50 x 89
190804	Perrot transition piece V-M steel lever mechanism, KG MKV 50 x 108
190919	Perrot transition piece V-M steel lever mechanism, KKMGV 108 x 50



## Perrot end plugs

Article no.	Description
190442	Perrot end plugs M part steel lever mechanism, KMX 50
190443	Perrot end plugs M part steel lever mechanism, KMX 70
190444	Perrot end plugs M part steel lever mechanism, KMX 89
190445	Perrot end plugs M part steel lever mechanism, KMX 108
190446	Perrot end plugs M part steel lever mechanism, KMX 133
190447	Perrot end plugs M part steel lever mechanism, KMX 159
190885	Perrot end plugs M part steel lever mechanism, KMX 216
190449	Perrot end plugs V part, KVX 50
190450	Perrot end plugs V part, KVX 70
190451	Perrot end plugs V part, KVX 89
190452	Perrot end plugs V part, KVX 108
190453	Perrot end plugs V part, KVX 133
190454	Perrot end plugs V part, KVX 159
190031	Perrot end plugs V part, KVX 216



# TW Fittings

With the original tank truck fittings according to DIN 28450 / 2, you work at the highest quality level. These fitting can be used on tank trucks, hoses and suction stations.

## Technical Data

- Materials: hot-pressed brass or stainless steel 1.4408 (V4A)
- Nominal pressure: 16 bar (blindplug VB made of polyamide DN 50: 6 bar, DN 100: 2.5 bar)
- Includes seals made of Perbunan (black), Vulkollan (blue), Hypaton (green), Viton A (yellow)

**TW-MK Brass**



**TW-VK Brass**



**TW-MK VA**



**TW blind coupling father**



**TW blind coupling mother**



Article no.	Description	Thread size	Material	 kg
300148	MB 50	-	Brass	0.35 kg
300152	MB 80	-	Brass	1.05 kg
300147	MB 50	-	Aluminium	0.12 kg
300151	MB 80	-	Aluminium	0.30 kg
300154	MB 100	-	Aluminium	0.46 kg
300149	MB 50	-	Stainless steel	0.33 kg
300153	MB 80	-	Stainless steel	0.77 kg
300365	MB 100	-	Stainless steel	1.19 kg
300165	VK 50	2"	Brass	0.34 kg
300167	VK 80	3"	Brass	0.78 kg
300169	VK 100	4"	Brass	1.10 kg
300166	VK 50	2"	Stainless steel	0.32 kg
300168	VK 80	3"	Stainless steel	0.70 kg
300364	VK 100	4"	Stainless steel	1.13 kg
300157	VB 50	-	Brass	0.41 kg
300160	VB 80	-	Brass	0.63 kg
300156	VB 50	-	Aluminium	0.14 kg
300161	VB 80	-	Aluminium	0.27 kg
300164	VB 100	-	Aluminium	0.40 kg
300155	VB 50	-	Polyamide	0.04 kg
300159	VB 80	-	Polyamide	0.12 kg
300163	VB 100	-	Polyamide	0.16 kg
300158	VB 50	-	Stainless steel	0.29 kg
300162	VB 80	-	Stainless steel	0.72 kg
300323	VB 100	-	Stainless steel	1.15 kg
300170	MK 50	2"	Brass	0.70 kg
300172	MK 80	3"	Brass	1.54 kg
300174	MK 100	4"	Brass	2.71 kg
300171	MK 50	2"	Stainless steel	0.64 kg
300173	MK 80	3"	Stainless steel	1.39 kg
300366	MK 100	4"	Stainless steel	2.41 kg

**Note:**

On customer request, we are furthermore happy to assemble transition adapters and reduction adapters.

# HF Flange System

Developed together with sophisticated experts in industrial cleaning, the HF flange system is suitable for every application. Due to the coupling system's user-friendly design, you can handle every situation. With the aid of the HF notch clamping rings, quick and easy coupling of individual hose lines is ensured. With our safety cotter pins, you can be sure that our system does not turn its back on you even in the most difficult applications. Moreover, we offer a great variety of adapters, reducers, bends and pipes.

In pursuance of IPR number 20 2007 006 853.0

Please take into account that accuracy of fit among the parts can be ensured with original components only. Those components are labeled accordingly for identification purposes.

## HF Gland Nozzles

Article no.	Gland ring size	Hose diameter	
140224	100 mm	50 mm	60 mm
140223	100 mm	80 mm	90 mm
140053	100 mm	104 mm	120 mm
140212	125 mm	127 mm	120 mm
140054	150 mm	154 mm	170 mm
140055	200 mm	204 mm	185 mm



## Nut Clamping Rings

Article no.	
140063	100 mm
140064	125 mm/150 mm
140065	200 mm



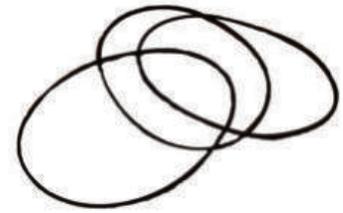
## Safety Cotter Pins

Article no.	
140067	100 mm/150 mm
140069	200 mm



## O-rings

Article no.	Ø
230130	100 mm
230131	150 mm
230232	200 mm



## HF Flange Distributor

Article no.	Description
140245	DN 200 on 2x DN 150
140246	DN 200 on 2x DN 100
140247	DN 150 on 2x DN 100
140341	DN 150 on 3x DN 100
140354	DN 200 on 3x DN 150
140355	DN 200 on 3x DN 100
140357	DN 150 on 2x DN 80
140363	DN 200 on 3x DN 80



## HF Flange Adapters

Article no.	Description
140230	Adapter DN 200 on Perrot M 216
140231	Adapter DN 200 on Perrot V 216
140232	Adapter DN 200 on Perrot V 159
140233	Adapter DN 150 on Perrot M 159
140234	Adapter DN 150 on Perrot V 159
140235	Adapter DN 150 on Perrot V 108
140236	Adapter DN 100 on Perrot M 108
140237	Adapter DN 100 on Perrot V 108
140238	Adapter DN 100 on TW MK 100 Ms.
140239	Adapter DN 100 on TW VK 100 Ms.
140240	Adapter DN 100 on Storz A Alu
140358	Adapter DN 150 on Storz A
140363	Adapter DN 100 on Storz Fest A Alu



## HF Flange Reducers

Article no.	Description
140059	Reduction from DN 200 to DN 150
140060	Reduction from DN 150 to DN 100
140223	Reduction from DN 100 to DN 80
140224	Reduction from DN 100 to DN 50



## HF Flange Bends

Article no.	Description	∅
140254	Bend 90°	100 mm
140255	Bend 45°	100 mm
140291	Bend 90°, extra long	150 mm
140252	Bend 90°	150 mm
140253	Bend 45°	150 mm
140151	Bend 90°, extra long	200 mm
140250	Bend 90°	200 mm
140251	Bend 45°	200 mm



## HF Flange Pipes

Article no.	∅	Length	Wall thickness
140268	100 mm	2 m	1 mm
140267	100 mm	3 m	1 mm
140266	100 mm	5 m	1 mm
140265	150 mm	2 m	2 mm
140264	150 mm	3 m	2 mm
140263	150 mm	5 m	2 mm
140262	200 mm	2 m	2 mm
140261	200 mm	3 m	2 mm
140260	200 mm	5 m	2 mm



## HF Deep Vacuum Pump

Article no.	∅	Length	Wall thickness
140359	100 mm	1,3 m	2 mm
140360	150 mm	1,3 m	2 mm



## HF Flange Wel-on Rings



## HF Flange Weld-on Nozzles



## HF Flange Blind Couplings



Article no.	Description	∅
140313	HF flange weld-on ring	125 mm
140100	HF flange weld-on ring	150 mm
140080	HF flange weld-on ring	200 mm
140056	HF flange weld-on nozzles	100 mm
140282	HF flange blind coupling	100 mm
140281	HF flange blind coupling	150 mm
140280	HF flange blind coupling	200 mm
140287	HF flange water ring nozzle	100 mm
140286	HF flange water ring nozzle	150 mm
140285	HF flange water ring nozzle	200 mm

## HF Flange Water Ring Nozzle



# Storz Fittings

We offer the original Storz fire brigade couplings with a nominal pressure of up to 16 bar in suction / pressure design.

Standard material: aluminium

Further materials: brass and stainless steel



Article no.	Suction couplings
100113	DN 25
100121	DN 50
100124	DN 75
100127	DN 100

Article no.	Blind couplings
100153	DN 25
100154	DN 50
100155	DN 75
100156	DN 100

Article no.	Fixed couplings (inner thread)	Article no.	Fixed couplings (outer thread)
100130	DN 25	100145	DN 25
100136	DN 50	100147	DN 50
100141	DN 75	100150	DN 75
100143	DN 100	100152	DN 100

# Geka Fittings

Water hose quick couplings made of hot-pressed brass, cam width: 40 mm, polished brass

Article no.	Size
100067	3/8"
100068	1/2"
100069	3/4"
100070	1"
100071	1 1/4"
100072	1 1/2"



Hose connectors with inside thread

Article no.	Size
100056	1/2"
100057	3/4"
100058	1"
100059	1 1/4"
100060	1 1/2"

Proper blind couplings, branch pieces and spare seals are available for all the hose and thread pieces.

Hose connectors with outer thread

Article no.	Size
100062	1/2"
100063	3/4"
100064	1"
100075	1 1/4"
100076	1 1/2"

# Compressed Air Fittings

## Scope of application

- Pneumatics, machine engineering and plant manufacturing
- Measurement and control technology
- Manufacturing industry
- Medical engineering
- Chemical and pharmaceutical industry
- Workshops, automotive industry

## Properties

- Medium and ambient temperature -20°C to +100°C
- Housing, sheath and valve insert: blank brass
- Spring, circlip: non-rusting steel
- Locking pins: non-rusting steel
- Sealing material : NBR

## Quick-connect coupling NW 7,2, blank brass, outer thread

Article no.	Type no.	Connection	Wrench size			
	243.00-E	G 1/8" exterior	21 mm	37.5 mm	24.6 mm	35 bar
290039	243.01-E	G 1/4" exterior	21 mm	39.0 mm	24.6 mm	35 bar
290020	243.02-E	G 3/8" exterior	21 mm	39.0 mm	24.6 mm	35 bar
290019	243.03-E	G 1/2" exterior	21 mm	40.5 mm	24.6 mm	35 bar

## Quick-connect coupling NW 7,2, blank brass, outer thread, with sealing thread coating

Type no.	Connection	Wrench size			
243.01-EB	G 1/4" exterior	21 mm	39.0 mm	24.6 mm	12 bar
243.02-EB	G 3/8" exterior	21 mm	39.0 mm	24.6 mm	12 bar
243.03-EB	G 1/2" exterior	21 mm	40.5 mm	24.6 mm	12 bar

## Quick-connect coupling NW 7,2, blank brass, inner thread

Article no.	Type no.	Connection	Wrench size			
290038	243.11-E	G 1/4" interior	21 mm	40.5 mm	24.5 mm	35 bar
290022	243.22-E	G 3/8" interior	21 mm	40.5 mm	24.5 mm	35 bar
290021	243.33-E	G 1/2" interior	21 mm	42.5 mm	24.5 mm	35 bar

### Quick-connect coupling NW 7,2, blank brass, with hose nozzle

Article no.	Type no.	Connection	Wrench size			
290013	243.44-E	Nozzle LW 6	-	54.0 mm	24.6 mm	35 bar
	243.47-E	Nozzle LW 8	-	54.0 mm	24.6 mm	35 bar
290014	243.45-E	Nozzle LW 9	-	54.0 mm	24.6 mm	35 bar
	243.49-E	Nozzle LW 10	-	54.0 mm	24.6 mm	35 bar
290015	243.46-E	Nozzle LW 13	-	53.5 mm	24.6 mm	35 bar

### Quick-connect coupling NW 7,2, blank brass

Article no.	Type no.	Connection	Wrench size			
290016	243.06	Nozzle LW 6	-	44.0 mm	12.0 mm	35 bar
	243.351	Nozzle LW 8	-	48.0 mm	12.0 mm	35 bar
290017	243.07	Nozzle LW 9	-	44.0 mm	12.0 mm	35 bar
	243.352	Nozzle LW 10	-	48.0 mm	12.0 mm	35 bar
290018	243.10	Nozzle LW 13	-	46.0 mm	11.9 mm	35 bar

### Nipple for couplings NW 7,2-NW 7,8, blank brass, outer thread

Article no.	Type no.	Connection	Wrench size			
290023	243.48	Nipple G 1/8" exterior	14 mm	31.0 mm	-	35 bar
290024	243.50	Nipple G 1/4" exterior	17 mm	32.0 mm	-	35 bar
290025	243.51	Nipple G 3/8" exterior	19 mm	33.0 mm	-	35 bar
290046	243.52	Nipple G 1/2" exterior	24 mm	35.0 mm	-	35 bar

### Nipple for couplings NW 7,2-NW 7,8, blank brass, outer thread, with sealing thread coating

Type no.	Connection	Wrench size			
243.50-EB	Nipple G 1/4" exterior	17 mm	32.0 mm	-	12 bar
243.51-EB	Nipple G 3/8" exterior	19 mm	33.0 mm	-	12 bar
243.52-EB	Nipple G 1/2" exterior	-	35.0 mm	-	12 bar

### Nipple for couplings NW 7,2-NW 7,8, blank brass, inner thread

Article no.	Type no.	Connection	Wrench size			
290026	243.54	Nipple G 1/8" interior	14 mm	31.0 mm	-	35 bar
290027	243.55	Nipple G 1/4" interior	17 mm	32.0 mm	-	35 bar
290028	243.56	Nipple G 3/8" interior	19 mm	32.0 mm	-	35 bar
290002	243.57	Nipple G 1/2" interior	24 mm	34.0 mm	-	35 bar

## Nipple for couplings NW 7,2-NW 7,8, blank brass, suitable for hoses

Type no.	Connection	Wrench size			
243.216	Nipple for hose 6x4	12 mm	41.0 mm	12.0 mm	35 bar
243.217	Nipple for hose 8x6	14 mm	43.0 mm	12.0 mm	35 bar
243.218	Nipple for hose 10x8	16 mm	38.0 mm	12.0 mm	35 bar
243.219	Nipple for hose 12x9	17 mm	42.0 mm	12.0 mm	35 bar

## Nipple for couplings NW 7,2-NW 7,8, blank brass, suitable for hoses with screwcap and anti-kink spring

Type no.	Connection	Wrench size			
243.355	For hose 6x4 with screwcap and anti-kink spring	-	114.0 mm	12.0 mm	35 bar
243.356	For hose 8x6 with screwcap and anti-kink spring	-	121.0 mm	12.0 mm	35 bar
243.357	For hose 10x8 with screwcap and anti-kink spring	17 mm	129.0 mm	-	35 bar
243.358	For hose 12x9 with screwcap and anti-kink spring	17 mm	141.0 mm	-	35 bar

## Insertion angle for couplings NW 7,2-NW 7,8, blank brass

Type no.	Connection	Width	Height	
243.760	Insertion angle for hose 6x4	45.0 mm	26.0 mm	35 bar
243.761	Insertion angle for hose 8x6	48.0 mm	27.0 mm	35 bar
243.762	Insertion angle for hose 10x8	36.0 mm	33.0 mm	35 bar

# Breathing Air Fittings



Article no.	Description	Material
100385	M part AK 2	Nickel-plated brass 9,5 mm nozzle
100386	V part AK 2	Nickel-plated brass 9,5 mm nozzle
102096	M part AK 2	Nickel-plated brass 1/4" inner thread
102098	M part AK 2	Nickel-plated brass 1/4" exterior thread





# Accessories

Hose clamps

Mikalor Hose Clamps

PA-RI Hose Clamps

Stainless Steel Bands

Storz Coupling Keys

TW Construction Wrench

# Hose Clamps

Article no.	Clamping range	
280024	7-11 mm	galvanized
280025	8-12 mm	galvanized
280026	10-16 mm	galvanized
280027	12-20 mm	galvanized
280028	16-25 mm	galvanized
280029	20-32 mm	galvanized
280030	25-40 mm	galvanized
280031	32-50 mm	galvanized
280032	40-60 mm	galvanized
280033	50-70 mm	galvanized
280034	60-80 mm	galvanized
280035	70-90 mm	galvanized
280036	80-100 mm	galvanized
280037	90-110 mm	galvanized
280038	100-120 mm	galvanized
280039	110-130 mm	galvanized
280040	120-140 mm	galvanized
280041	130-150 mm	galvanized
280042	140-160 mm	galvanized
280043	150-170 mm	galvanized
280044	160-180 mm	galvanized
280045	170-190 mm	galvanized
280046	180-200 mm	galvanized
280047	190-210 mm	galvanized
280048	200-220 mm	galvanized
280049	210-230 mm	galvanized
280050	220-240 mm	galvanized
280051	230-250 mm	galvanized
280052	60-80 mm	MAXI galvanized
280053	70-90 mm	MAXI galvanized
280054	90-120 mm	MAXI galvanized
280055	105-130 mm	MAXI galvanized
280056	122-157 mm	MAXI galvanized
280057	142-177 mm	MAXI galvanized
280058	167-202 mm	MAXI galvanized
280335	10-16 mm	stainless steel
280336	12-20 mm	stainless steel
280337	16-25 mm	stainless steel
280338	20-32 mm	stainless steel
280339	25-40 mm	stainless steel
280340	32-50 mm	stainless steel
280341	40-60 mm	stainless steel
280342	50-70 mm	stainless steel
280343	60-80 mm	stainless steel
280344	70-90 mm	stainless steel
280345	80-100 mm	stainless steel

**Hose clamp galvanized**



**Hose clamp stainless steel**



# Mikalor Hose Clamps

Article no.	Clamping range	Strip width
281248	52 – 55 mm	20 mm
281250	56 – 59 mm	20 mm
281252	60 – 63 mm	20 mm
281254	64 – 67 mm	20 mm
281256	68 – 73 mm	25 mm
281258	74 – 79 mm	25 mm
281260	80 – 85 mm	25 mm
281262	86 – 91 mm	25 mm
281264	92 – 97 mm	25 mm
281266	98 – 103 mm	25 mm
281268	104 – 112 mm	25 mm
281270	113 – 121 mm	25 mm
281272	122 – 130 mm	25 mm
281274	131 – 139 mm	25 mm
281276	140 – 148 mm	25 mm
281278	149 – 161 mm	30 mm
281280	162 – 174 mm	30 mm
281282	175 – 187 mm	30 mm
281284	188 – 200 mm	30 mm
281286	201 – 213 mm	30 mm
281288	214 – 226 mm	30 mm
281290	227 – 239 mm	30 mm
281292	240 – 252 mm	30 mm



# PA-RI Hose Clamps

Article no.	Size	Clamping range	Width
210097	140	132 - 144 mm	30 mm
210098	170	162 - 174 mm	30 mm
210099	175	167 - 179 mm	25 mm
210101	174	166 - 178 mm	30 mm
210110	160	152 - 164 mm	30 mm
281885	145	137 - 149 mm	30 mm
281886	135	127 - 139 mm	30 mm
282506	310	302 - 314 mm	25 mm
282507	260	252 - 264 mm	30 mm
282599	235	227 - 239 mm	30 mm
282628	290	282 - 294 mm	30 mm
282671	280	271 - 280 mm	30 mm



# Stainless Steel Bands

Article no.	Description	∅	Width
112145	Band-It precreased clamps VA V 240	19 mm	6.4 mm
112146	Band-It precreased clamps VA V 242	25 mm	6.4 mm
112147	Band-It precreased clamps VA V 241	35 mm	6.4 mm
112148	Band-It precreased clamps VA V 252	38 mm	6.4 mm
112149	Band-It precreased clamps VA V 253	51 mm	6.4 mm
112150	Band-It precreased clamps VA V 256	70 mm	6.4 mm
112151	Band-It precreased clamps VA V 244	76 mm	6.4 mm
112152	Band-It precreased clamps VA V 257	89 mm	6.4 mm
112163	Band-It precreased clamps VA V 265	38 mm	9.5 mm
112153	Band-It precreased clamps VA V 245	48 mm	9.5 mm
112154	Band-It precreased clamps VA V 248	102 mm	9.5 mm
112155	Band-It precreased clamps VA V 203	25 mm	12.7 mm
112156	Band-It precreased clamps VA V 232	38 mm	12.7 mm
112157	Band-It precreased clamps VA V 236	45 mm	12.7 mm
112158	Band-It precreased clamps VA V 237	51 mm	12.7 mm
112159	Band-It precreased clamps VA V 230	70 mm	12.7 mm
112160	Band-It precreased clamps VA V 205	38 mm	16.0 mm
112161	Band-It precreased clamps VA V 207	51 mm	16.0 mm
112162	Band-It precreased clamps VA V 208	57 mm	16.0 mm
112164	Band-It precreased clamps VA V 227	51 mm	19.0 mm
112165	Band-It precreased clamps VA V 210	70 mm	19.0 mm
112166	Band-It precreased clamps VA V 211	76 mm	19.0 mm

Article no.	Description	
110657	Band-It fitting band VA AS211	40 m
110658	Band-It fitting band VA AS212	40 m
110659	Band-It fitting band VA AS213	40 m
110660	Band-It fitting band VA AS214	40 m
110661	Band-It fitting band VA AS215	40 m



# Storz Coupling Keys

Article no.	Description
100028	Coupling key 125-135-150 Storz
100180	Coupling key ABC, of TG
102105	Coupling key ABC, coated handle



# TW Construction Wrench

Article no.	Description
300314	TW construction wrench steel, KMS 50
300315	TW construction wrench steel, KMS 80
300462	TW coupling key UK/VK 100 brass



# Notes

# Notes

# Notes

# Notes

# Our General Terms and Conditions

## § 1 Application of Conditions

Our deliveries, services and offerings are carried out on the basis of these terms and conditions only. Therefore, they also apply to all future business relationships, even if they are not expressly declared again. These terms and conditions are considered as being accepted at latest at the moment goods and services are received. Confirmations to the contrary on the part of the buyer with reference to his business and purchasing conditions respectively are hereby rejected. Deviating from these terms and conditions is valid if and only if we confirm them in written form.

## § 2 Offer and Contract Conclusion

1. Our offers are nonobligatory and nonbinding. To be legally valid, declarations of acceptance as well as all the orders require our written or telex confirmation. The same applies to appendices, modifications, or additional agreements.
2. Drafts, illustrations, measurements, weights or other performance characteristics are valid if and only if expressly agreed on in written form.

## § 3 Prices

1. Unless stated otherwise, we commit ourselves to the prices specified in our offers for 30 days beginning with the quotation date. The prices explicitly stated in our order confirmation plus value-added tax are determinative of our pricing decision. Additional deliveries and services will be charged separately.
2. Unless otherwise agreed upon, our prices are calculated ex works Hilden, excluding packaging.
3. In the event of significant, unforeseeable increases in raw material, energy or production costs, we are entitled to adjust sales prices accordingly up to the delivery date. This includes unforeseeable price increases (Pre)suppliers included.

## § 4 Delivery Time and Time of Performance

1. Whether agreed upon bindingly or nonbindingly, term of delivery and date of delivery need to be made in writing.
2. We do not assume responsibility for delivery delays or delayed service provision due to force majeure and due to events that make delivery significantly more difficult or impossible for us – these include, in particular, strikes, lockouts, regulatory actions etc., irrespective of whether they occur with us, our suppliers, or our sub-suppliers – even if we agreed on deadlines and dates bindingly. In these cases, we are authorized to either (i) defer delivery or service provision by the number of days the obstruction took place plus a reasonable starting period or (ii) withdraw from the contract in whole or in part due to the part of delivery or service provision that has yet not been fulfilled.
3. If the obstruction lasts longer than three months, the buyer is entitled to withdraw from the part of the contract that has yet not been fulfilled after setting an adequate grace period. However, the buyer cannot derive any claims for damages if delivery time is extended or we are released from our obligation. We can appeal to these circumstances mentioned if and only if we give notice to the buyer immediately.
4. If we are responsible for a failure to comply with deadlines or dates we bindingly agreed upon or if we are in default, the buyer is entitled to insist upon compensation for delayed completion in the amount of 0.5% for each week completed after default, but in total up to 5% of the effective invoice amount of those deliveries and services that are affected by the default. Any further claims are ruled out, unless the default is based on at least gross negligence.
5. We are entitled to make partial delivery at any time.

## § 5 Passing of Risk

The risk demises to the buyer as soon as the shipment has been handed over to the person responsible for carrying out the transport or has left our warehouse for the purpose of shipment. If shipping is impossible independent of negligence on behalf of our side, the risk is demised to the buyer with the notice of readiness for shipment.

## § 6 Implied Warranty

1. We ensure that our products are not subject to manufacturing and material defects; warranty period is three months.
2. The warranty period begins with the date of delivery.
3. In case of defects, the buyer needs to inform us in written form immediately or, at the latest, one week after receiving the delivery item. Defects that are undetectable within this period, even in case of careful inspection, must be reported to us in written form immediately after they have been detected.
4. If the buyer communicates to us that our products do not comply with the warranty, then after having made a decision, we request that
  - a) defective pieces be sent to us for remedy and subsequent return or
  - b) the buyer keep ready the defective pieces for the purpose of inspection and, where appropriate, remedy by ourselves or a third party commissioned by us.
5. If the remedy fails after a reasonable period, the buyer has the choice to demand either rescission of pay or cancellation of the contract.
6. Liability for usual wear and tear is excluded.
7. Warranty claims against us are entitled to the direct buyer only and are not transferable.
8. The preceding paragraphs conclusively contain the warranty for our products and exclude other warranty claims of any kind. This applies in particular to the restitution of consequential harms caused by a defective product.

## § 7 Reservation of Proprietary Rights

1. Till conformance to all the accounts receivable (including all the current account balance claims), that are entitled to us against the buyer for any legal reason now or in the future, the following securities are available to us and will release upon request at our discretion, insofar as their value exceeds the claims by more than 20%.
2. The goods remain our property. Processing or transformation is carried out for us as the manufacturer, but without any obligation on our part. If our (joint) property expires as a result of combination, it is already stipulated that the buyer's (joint) property of the homogenous good demises to us in proportion to its invoice value. The buyer stores our (joint) property without valuable consideration. Goods to which we have (joint) ownership are referred to below as goods subject to retention of title.
3. The buyer is entitled to process and sell the goods subject to retention of title in the ordinary course of business, as long as the buyer is not in default. Pledging or chattel mortgage are prohibited. As a precaution, the buyer assigns to us the accounts receivable resulting from the resale or any other legal reason (insurance, tortious act) with regards to the goods subject to retention of title (including all the current balance claims) to their full extent. We precariously authorize the buyer to collect the receivables assigned to us for our account in their own name. This direct debit authority can be revoked if and only if the buyer does not meet their payment obligations in proper form.

4. If third parties access goods subject to retention of title, the buyer will point at our ownership and notify us immediately.
5. If the buyer acts contrary to contract – in particular default of payment – we are entitled to take back the goods subject to retention of title or, if necessary, call for assignment of the buyer's claims for restitution against third parties. Revoking or seizing the goods subject to retention of title by us does not constitute a withdrawal from the contract, unless the Abzahlungsgesetz applies.

## **§ 8 Payment**

1. In spite of contrary provisions of the buyer, we are entitled to initially offset payments against the buyer's older debts. If costs and interests have already accrued, we are entitled to offset the payment against the costs first, then against the interest and finally against the main service.
2. A payment is considered to have been made when we can dispose of the amount. In case of checks, the payment is considered to have been made when the check is cashed.
3. If the buyer is in default, we are entitled to charge interest at the rate calculated by the commercial banks for open overdrafts from the point of time the buyer is in default. They are to be set lower if the buyer can prove a lower burden.
4. If the buyer does not meet their payment obligations, in particular does not cash a check or suspends their payments, or if we become aware of other circumstances that call the buyer's creditworthiness into question, we are entitled to accelerate the entire remaining debt, even if we accepted checks. In this case, we are moreover entitled to request advance payment or a surety.
5. The buyer is entitled to offset, withhold, or reduce the price, even if notifications of defects or counterclaims are asserted, if and only if the counterclaims are legally binding or undisputed.

## **§ 9 Sales Return**

1. We charge a handling fee of 15% of the net value of the goods for the expenses in connection with a return delivery, which cannot be attributed to a fault on our part (e.g. wrong delivery, delivery of faulty or defective goods etc.). Expenses in connection with a return delivery include incoming goods inspection and testing, re-storage and return to the supplier.
2. Moreover, we charge any transport, freight and packaging costs associated with a return delivery in accordance with paragraph 1.
3. Costs associated with damages during goods' return transport must be borne by the buyer.

## **§ 10 Limitation of Liability**

Claims for damages based on impossibility of performance, positive violation of a contractual duty, culpa in contrahendo and tortious act are excluded both against us and against vicarious agents, unless intentional or grossly negligent conduct is involved.

## § 11 Applicable Law, Court of Jurisdiction, Partial Nullity

1. These terms and conditions and the entire legal relationship between the buyer and us are subject to the law of the Federal Republic of Germany. The applicability of the Uniform Law on the International Sale of Goods is excluded.
2. If the buyer is a registered trader within the meaning of the German Commercial Code, a corporate body under public law or public separate estate, Langenfeld is the exclusive place of jurisdiction for all the disputes arising from the contractual relationship directly or indirectly.
3. If a provision in these terms and conditions or a provision in the context of other agreements is or becomes ineffective, the validity of the other provisions or agreements is not affected.

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Publisher:

Hugo Fraunhofer GmbH

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# Frauenhof

*Gegründet 1887*