

# HOSE TECHNOLOGY

Sewer and industrial cleaning

Grünin **G+L** Oske

[www.gruelo.de](http://www.gruelo.de)



D-06/2018

Reliable, for sure!

★ friendly

★ flexible

★ fair

★ competent

★ reliable

5-STAR - SERVICE EVERY DAY!



For more than 60 years, Grünig & Loske GmbH has been standing for a successful combination of services and products in the business-to-business sector. Our declared intention is to turn our customers into delighted fans by our 5-Star-Service: friendly, flexible, fair, competent and reliable – from the first contact to on-time delivery!

Grünig & Loske GmbH has up to now been gaining practical experiences for decades and incorporated these into cooperation with selected vehicle manufacturers and users in the range of pipe and sewer cleaning. New and innovative products have been developed, resulting in a broad portfolio of products and services to meet your requirements and ease your daily work.

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**Enjoy our new range of products!**

Dirk Loske  
CEO



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## ACCESSIBILITY

- We are personally available from Monday to Thursday, 7:30 am to 4:30 pm, and Friday 7:30 am to 2:00 pm.
- You are welcome to make an appointment with your local sales representative.
- Detailed information can be found on [www.gruelo.de](http://www.gruelo.de) around the clock.

## SERVICES

- We deliver your goods on your requested date.
- Packaging is done according to your transport specifications.
- We also pack your orders neutrally and send them directly to your customer.
- We take care of customs formalities for your shipments abroad.
- We help you to plan and realise custom-made products and special fabrications.
- Feel free to arrange call or blanket orders with us.
- We assemble and test your hose lines in conformity with PED (Pressure Equipment Directive) and BetrSichV (German Operational Safety Regulations).

## DELIVERY OPTIONS

- Delivery throughout Germany within 24 hrs./48 hrs.
- Orders with express shipment can be delivered the next day.
- It is possible to pick up goods directly from our warehouse.

## CUSTOMISED LABELS

- Hoses with a specific label or couplings with your embossing can be produced for you.

## YOUR SALES DOCUMENTS

- We gladly create our sales documents with your corporate design.

## OUR LOCATION

- In addition to the office building, our company headquarters in Laatzen consists of two production areas and three warehouses with a total area of approx. 4,000 m<sup>2</sup>. Our storage area is equipped with the latest high-bay warehouse technology, to ensure the fastest possible processing of your order.



## THE G+L SERVICES PROGRAM

A high quality standard and our wide range of product-oriented services makes **Grüning & Loske** the supplier you trust.

Our workshops offer efficient and high-quality results in short time. Thanks to our broad range of materials, we are always able to provide you with customized results for various applications.

**Our aim is to reduce your process costs and thereby increase the productivity.**



## HOSE SERVICES Consultation and Assembly

Assembly is done under strong compliance with regulations applying to the manufacturing of complete hose lines (European Pressure Equipment Directive PED 2014/68/EU)

A safe operation of a hose line is only possible, if the correct operation conditions are considered. This includes resistance against the conducted media, working pressure, operating temperature, installation situation, bending frequency, duration and frequency of operation, environmental conditions and mechanical load.

All the advice and practical support you require for your individual operation purpose will be given by our skilled expert staff. The personnel in hose technology is "Qualified person pursuant to the Ordinance on Industrial Safety and Health for pressure tanks and piping" and additionally „certificated expert advisers for hose and fitting technology" (Certification through Trade Association).

### Our services:

- Assembly of hose lines / swaging of hose lines up to DN 300 mm, with clamps, bolted clamps and all customary hose coupling systems: e.g. Storz, Perrot, Bauer, Anfor, flange, Kamlok, GEKA
- Swaging of composite hoses up to DN 250 mm
- Assembly of hose packs and heatable hose lines
- Detailed advice by phone or personally on-site
- Management of hose lines
- Hose testing in conformity with European Pressure Equipment Directive PED 2014/68/EU as well as German BetrSichV (Occupational Safety Regulations)
- Labelling or marking of hoses
- Hose repair
- On-site mobile hose testing service
- Lasting security through maintenance contracts
- Hose recycling
- Hose winding and unwinding equipment



## HOSE TESTING

Hose lines are subject to special requirements, as they are partly under severe stress by the predominant operational conditions, transported media, operating pressure, temperature and external influences.

To minimise the risks at the operating hose lines, a constant inspection of the work capability is essential. A recurrent inspection of hose lines is even regulated by law. Grüning & Loske inspects your hose lines pursuant to the Ordinance on Industrial Safety and Health and Pressure Equipment Directive PED PED 2014/68/EU.

Following the inspection each hose line gets an identification number which is permanently attached to the line by a marking strip. We hand out a certification report after inspection. Furthermore we keep records of all inspections we accomplished. Through the given identification number we can recall your master and test data any time.

Our mobile testing unit enables us to inspect your hose lines on-site without any circumstances.

**Take advantage of this Grüning & Loske service. It saves you time and effort - and thus lowers your costs!**

### Our services:

- Hose line testing according to European Pressure Equipment Directive PED 2014/68/EU:
  - Inspection
  - External and internal testing (visual examination)
  - Electrical conductivity test
  - Pressure test (strength test) up to 2.800 bar
  - Vacuum test
- Individual labeling
- Documentation by itemised report according to EN 10204
- Consultancy on CE-identification marks
- Variant inspections conforming to your works standard specification
- Repair on-site through our mobile testing and installation service
- Supervision of your inspection dates and punctual email reminder



## MANUFACTURING COMPONENTS

We produce almost all types of screwing components, cast and welded assemblies as well as outsourced assemblies for you. Thus, you avoid the costly storage of articles, obtain the desired components in a consistent high quality at the desired date and at low costs. As component production specialists we always guarantee optimum project development in terms of quality, scheduling and logistics.



## CORROSION AND WEAR PROTECTION

**GrüloCoat Systeme - the solution for high-quality surface protection.** Use our knowledge advantage and our experience to protect your surfaces against various negative influences such as mechanical abrasion, chemical influences and corrosion in the long term. Successful coatings result from the interaction of many factors. As a specialist company for high-quality wear protection for the most diverse demands, we offer you extremely resistant and high-quality coating systems made of **polyurea**, **polyurethane**, **rubber** or **ceramics**.



## SANDBLAST AND FINISHING TECHNIC

Before and after coating we directly continue processing your steel parts in our sandblasting and painting unit. Thus, we provide you with a ready-to-install end product.



## CONVEYOR TECHNOLOGY

In materials handling technology, we have decades of experience in the design, maintenance composition and assembly of rubber and PVC / PU conveyor belts. In addition, we stock common repair materials and technical accessories in our extensive stock. In case you cannot find what you need in our program, we gladly manufacture or procure it according to your requirements. And if quick solutions are necessary: our team provides a fast response service and is at your disposal around the clock.

- Calculation and optimisation of material handling equipment
- 24-hour maintenance and installation services
- Assembly of rubber and PVC / PU conveyor and processing belts
- Production of corrugated edge belts (applying cleats and corrugated edges)
- Drum and roller rubber coatings
- Preparation and vulcanization of elastomer profiles and customized moulded parts
- Conveyor belt splicing and repairing by hot vulcanization, cold bonding or mechanical processing
- Manufacturing of Para hoses, concrete outlet hoses, rubber sleeves, seals, compensators, as well as inflatable seals for dosing systems



## PRESSROOM AND PLOTTING SERVICE

Individual sealing solutions in nearly any rubber or plastic quality and geometry can be manufactured by our stamping press. We plan and implement alike. Whether individual pieces or series production – no problem for us.

As an additional service we offer you your individual seal design.



## CONSTRUCTIONAL STEELWORK

In our metal construction and special engineering workshop we manufacture our own machines, winding brackets and turntables for winding and unwinding hoses. Furthermore, we process sheet metal of all kinds and round bars.



## C-PARTS MANAGEMENT

C-Parts do not cost a lot themselves, but the sourcing effort is very high. In times of high requirements coordinating stockpile and reorders of these small parts is difficult to cope with. Reduce your costs of replacement by a successful C-Parts management together with the supplier you can rely on.





## Do you know these problems?

**Two men = One hour!**

**Use GrüloReelTec ...**

...and find out how easy and quick changing your sewer cleaning hose is possible. Use our reeling and unwinding unit **GrüloReelWinder**, save time and costs by a significant lower workload.



### What is GrüloReelTec?

The deployment of our winding and reeling unit **GrüloReelWinder** or using one of our services **GrüloReelTec** will considerably ease the exchange of your sewer cleaning hoses!

Our specifically constructed **GrüloReelWinder** makes reeling and unwinding a snap. Therefore our staff needs only about

one hour to exchange a hose of 32mm nominal size and 180m length.

**You know yourself how much time this takes normally!**

To use the machine we deliver our sewer cleaning hoses - be they of plastic or rubber - on a reel.



## GrüloReelTec Overview of our services

### GrüloReelLocal

Within a radius up to 200 km radius of Hannover we offer our service **GrüloReelLocal**. We come to you, deliver the ordered hose and exchange the used one. This is done quickly and without any problems directly on your doorstep.

### GrüloReelBase

Quick and convenient is our local service **GrüloReelBase** in Laatzen. After a prior made appointment come along with your sewer cleaning vehicle and let us do the work. Our staff undertakes the rewinding of your hose and of course we take care of the disposal.

### GrüloReelRent

Use **GrüloReelRent** and we deliver one of our reel winding units **GrüloReelEngine**. With the same shipment you get the newly ordered hose mounted on a reel. You exchange the sewer cleaning hose at your vehicle on site yourself. After usage you simply return the machine to us!



## HOSE RECYCLING

We dispose your old, disused sewer cleaning hoses - be they of plastic or rubber. Buy a new sewer cleaning hose out of our range or make use of our **GrüloReelTec** services: we take back the disused hose and dispose it properly.

## GrüloJet 200 *flexx*

### Highly flexible PU sewer cleaning hose

**GrüloJet 200 *flexx*** is a PU sewer jetting hose showing an outstanding flexibility. With a pressure carrier made of twofold highly tear-resistant synthetic fibres and an extremely abrasion- and cut-resistant polyurethane cover as well as a working pressure over 200 bar **GrüloJet 200 *flexx*** is perfectly suitable for equipping most sewer cleaning vehicles. Its extremely smooth lining enables a lower pressure drop compared to commercial rubber sewer cleaning hoses.

#### Technical characteristics

Temperature range: -40 °C to +55 °C  
 Standard Length: 80 m, 100 m, 120 m, 160 m, 180 m, 200 m, 220 m, 240 m | further lengths on request  
 Colour: Yellow-orange



All hoses are assembled with BSP female/male and ferrules. Delivery takes place with test certificate on each assembled hose.

#### Construction

**Construction:** Polyurethane, cut- and abrasion resistant  
**Reinforcement:** Double layer of highly tear-resistant textile fibre braids  
**Lining:** Polyurethane  
**Marking:** DN [...] | WP [...] bar | BP [...] bar | [lot no.] | [year of production]

Inner mm	Inner Inch	Wall mm	WP bar	BP bar	BR mm	Weight kg/m	Article no.
13	1/2	4,70	275	690	75	0,305	11063-013
16	5/8	5,25	210	525	100	0,402	11063-016
19	3/4	5,30	210	525	120	0,474	11063-019
25	1	5,85	207	518	150	0,629	11063-025
32	1 1/4	7,00	207	518	220	0,948	11063-032

## GrüloJet 250 *ultraflexx*

### Premium PU sewer cleaning hose for highest demands

This premium cleaning hose redefines technological standards! By its innovative hose construction and its continuously aramid reinforcement the **GrüloJet 250 *ultraflexx*** offers all positive characteristics of a professional highpressure sewer cleaning hose. Its extremely abrasion resistant, ultra flexible, floatable, top cut resistant, kink resistant and scores with a 20% smaller bending radius compared to all actual products on the market.



**GrüloJet 250 *ultraflexx*** is a high-flexible PU sewer cleaning hose with a pressure carrier made of superior aramidic fibres and an outstanding abrasion- and cut-resistant polyurethane cover. Problems as delamination of the cover or developing bubbles do not occur because of the homogeneous connection between cover and lining.

Through its extremely smooth lining made of a special Polyether-Polyurethane **GrüloJet 250 *ultraflexx*** shows a lower pressure drop compared to commercial rubber sewer cleaning hoses. Furthermore it features a lower weight compared to rubber hoses and guarantees a longer service life as other products available on the market at the moment.

All hoses are assembled with BSP female/male and ferrules. Delivery takes place with test certificate on each assembled hose.

#### Technical characteristics

Temperature range: -40 °C to +60 °C  
 Standard Length: 80 m, 100 m, 120 m, 160 m, 180 m, 200 m, 220 m, 240 m | further lengths on request  
 Max. production length: 500 m  
 Colour: Dark green

#### Construction

**Cover:** Polyurethane  
**Reinforcement:** One or two braids of Aramid fibre  
**Lining:** Polyether-Polyurethane  
**Marking:** DN [...] | WP [...] bar | BP [...] bar | [lot no.] | [year of production]

Inner mm	Inner Inch	Wall mm	WP bar	BP bar	BR mm	Weight kg/m	Article no.
13	1/2	3,95	275	1.100	80	0,350	11189-013
19	3/4	5,00	250	625	125	0,500	11189-019
25	1	5,60	250	625	150	0,650	11189-025
32	1 1/4	7,10	250	625	250	1,100	11189-032

# GrüloKan 250

## RUBBER SEWER CLEANING HOSE

The **GrüloKan 250** offers you all benefits of a professional rubber sewer cleaning hose. The specially developed rubber compound guarantees a long operating life, high abrasion resistance and extreme flexibility. **GrüloKan 250** is characterized by its easy handling, light weight and excellent pressure resistance. In addition **GrüloKan 250** has a very small bending radius. The hose cover is resistant to abrasion and cut exposure, aging and weather resistant.

All hoses are assembled with BSP female/male and ferrules. Delivery takes place with test certificate on each assembled hose. On demand we also offer other connections.

### GrüloKan 250 Classical cleaning hose



GrüloLine

#### Technical characteristics

Temperature range: -40 °C to +70 °C  
 Standard length: 60 m, 80 m, 120 m, 160 m, 180 m, 200 m, 240 m  
 further lengths on request  
 Availability: 10 m up to 240 m, from DN 32 up to 200 m  
 Colour: Black

#### Construction

Cover: NR/SBR, highly abrasion resistant  
 Reinforcement: Twofold braided synthetic fibres  
 Lining: NR/SBR, black, smooth  
 Transfer tape: G+L Ellipse GrüloKan 250 bar DN [...]

Inner mm	Inner Inch	Wall mm	WP bar	BP bar	BR mm	Weight kg/m	Article no.
13	1/2	6,00	250	625	70	0,450	10066-013
19	3/4	6,00	250	625	90	0,600	10066-019
25	1	7,00	250	625	105	0,810	10066-025
32	1 1/4	7,50	250	625	140	1,080	10066-032
38	1 1/2	8,00	250	625	160	1,250	10066-038

### GrüloKan 250 Premium

#### Outstanding abrasion resistance

**GrüloKan 250 Premium** offers you much more than all common rubber sewer cleaning hoses. The especially developed composite bilayers structure of the cover enables a very high abrasion resistance. This guarantees a long lifetime at equal flexibility in comparison to our classic **GrüloKan 250**. Therefore our **GrüloKan 250 Premium** can be used in any situation, where all others fail.



GrüloLine

#### Technical characteristics

Norm: EN ISO 6945  
 Temperature range: -40 °C to +70 °C  
 Standard length: 60 m, 80 m, 120 m, 160 m, 180 m, 200 m, 240 m  
 further lengths on request  
 Availability: 10 m up to 240 m, DN 32 up to 200 m  
 Colour: Black

#### Construction

Cover: Composite bi-layers structure with outstanding abrasion resistance  
 Reinforcement: Twofold braided synthetic fibres  
 Lining: NR/SBR, black, smooth  
 Transfer tape: G+L Ellipse GrüloKan Premium 250 bar DN [...]

Inner mm	Inner Inch	Wall mm	WP bar	BP bar	BR mm	Weight kg/m	Article no.
13	1/2	6,00	250	625	80	0,430	10866-013
19	3/4	6,50	250	625	100	0,555	10866-019
25	1	7,00	250	625	110	0,775	10866-025
32	1 1/4	8,00	250	625	140	1,095	10866-032



## GrüloKan 250 PROtect

### For your own safety

**GrüloKan 250 PROtect** offers all the benefits of our classical rubber sewer cleaning hose **GrüloKan 250**. The yellow protection layer underneath the cover allows you to handle a high pressure hose in accordance with the requirements of working safety. As soon as the cover gets thinner – in consequence of rough operating conditions – the yellow protection layer becomes visible signaling that it is time to change the hose. So you and your staff members are always on the safe side.



GrüloLine

#### Technical characteristics

**Temperature range:** -40 °C to +70 °C  
**Standard length:** 60 m, 80 m, 120 m, 160 m, 180 m, 200 m, 240 m  
 further lengths on request  
**Availability:** 10 m up to 240 m, DN 32 up to 200 m  
**Colour:** Black

#### Construction

**Cover:** NR/SBR, highly abrasion resistant, smooth  
**Protection layer:** SBR/EPDM, yellow  
**Reinforcement:** Twofold braided synthetic fibres  
**Lining:** NR/SBR, black, smooth  
**Transfer tape:** G+L Ellipse GrüloKan PROtect 250 bar DN [..]

Inner mm	Inner Inch	Wall mm	WP bar	BP bar	BR mm	Weight kg/m	Article no.
25	1	7,50	250	625	100	0,880	10766-025
32	1 1/4	8,50	250	625	130	1,190	10766-032

## GrüloKan 250 Inliner

### Saves you money

**GrüloKan 250 Inliner** offers an extremely smooth polyamide inliner, which guarantees a significant lower pressure drop. This minimisation of the pressure drop leads to a reduced engine speed which means considerable savings in fuel costs. **GrüloKan 250 Inliner** is recommended especially for water conditioning and water recycling vehicles.



GrüloLine

#### Technical characteristics

**Temperature range:** -40 °C to +70 °C  
**Standard length:** 60 m, 80 m, 120 m, 160 m, 180 m, 200 m, 240 m  
 further lengths on request  
**Availability:** 10 m up to 240 m  
**Colour:** Black

#### Construction

**Cover:** NR/SBR, highly abrasion resistant, smooth  
**Inliner:** Polyamide, white  
**Reinforcement:** Twofold braided synthetic fibres  
**Lining:** NR/SBR, black, smooth  
**Transfer tape:** G+L Ellipse GrüloKan Inliner 250 bar DN [..]

Inner mm	Inner Inch	Wall mm	WP bar	BP bar	BR mm	Weight kg/m	Article no.
25	1	7,00	250	625	100	0,830	10666-025



## PRESS COUPLINGS FOR SEWER JETTING HOSES



High pressure press couplings for use in case of repair of thermoplastic or rubber sewer cleaning hoses up to a working pressure of 250 bar. Consisting of one piece press coupling BSP female, BSP male and ferrule, steel plated finish.

### IMPORTANT!

The press diameters only apply to new hoses. For used hoses or in case of repair the correct press diameters have to be determined individually again!

GrüloJet		Press couplings			
DN mm	DN Inch	Part	Thread Inch	Press Ø mm	Article no.
13	1/2	Male AGR	R 1/2	-	20464-04-013
		Female DKR		-	20463-04-013
		Ferrule		25,3	20465-04-013
16	5/8	Male AGR	R 5/8	-	20464-05-016
		Female DKR		-	20463-05-016
		Ferrule		29,0	20465-05-016
19	3/4	Male AGR	R 3/4	-	20464-06-019
		Female DKR		-	20463-06-019
		Ferrule		33,5	20465-06-019
25	1	Male AGR	R 1	-	20464-10-025
		Female DKR		-	20463-10-025
		Ferrule		41,0	20465-10-025
32	1 1/4	Male AGR	R 1 1/4	-	20464-12-032
		Female DKR		-	20463-12-032
		Ferrule		51,0	20465-12-032

GrüloJet 250 ultraflexx		Press couplings			
DN mm	DN Inch	Part	Thread Inch	Press Ø mm	Article no.
13	1/2	Male AGR incl. Ferrule	R 1/2	24	20564-04-013
		Female AGR incl. Ferrule		24	20563-04-013
19	3/4	Male AGR incl. Ferrule	R 3/4	33	20564-06-019
		Female AGR incl. Ferrule		33	20563-06-019
25	1	Male AGR incl. Ferrule	R 1	41	20564-10-025
		Female AGR incl. Ferrule		41	20563-10-025
32	1 1/4	Male AGR incl. Ferrule	R 1 1/4	54	20564-12-032
		Female AGR incl. Ferrule		54	20563-12-032

GrüloKan 250		Press couplings			
DN mm	DN Inch	Part	Thread Inch	Press Ø mm	Article no.
13	1/2	Male AGR	R 1/2	-	20481-04-013
		Female DKR		-	20480-04-013
		Ferrule		27,5	20482-04-013
19	3/4	Male AGR	R 3/4	-	20481-06-019
		Female DKR		-	20480-06-019
		Ferrule		33,8	20482-06-019
25	1	Male AGR	R 1	-	20481-10-025
		Female DKR		-	20480-10-025
		Ferrule		41,2	20482-10-025
32	1 1/4	Male AGR	R 1 1/4	-	20481-12-032
		Female DKR		-	20480-12-032
		Ferrule		51,8	20482-12-032

# SEWER CLEANING HOSE DUCT

## FOR A LONGER LIFETIME!

### Polyethylene disposal hoses **ToiVrac N**

Heavy weight and flexible polyethylene ducting hose. Our recommendation: Use **ToiVrac N** as a protection hose for the sewer cleaning during the insertion into the sewer tunnel to prevent abrasion and premature wear.

The protection set consists of one length of polyethylene disposal hose with black synthetic cuffs on both sides, a 5m or 10m betalone line, fixed with shrinkdown plastic tubing out of polyolefins.



#### Technical characteristics

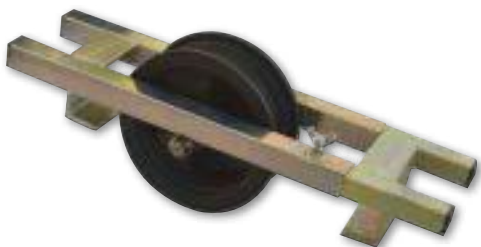
Temperature range: -40 °C to +60 °C

Standard length: 100 cm, 120 cm | further lengths on request

Colour: Black-yellow

Material: Polyethylene

Inner mm	Inner Inch	Material mm	Vacuum bar	BR mm	Weight kg/m	Article no.
51	2	1,40	0,95	85	0,950	12200-051
76	3	1,40	0,95	125	1,400	12200-076
102	4	1,40	0,95	165	1,800	12200-102



### Return pulley, upper edge

Return pulley, upper edge, galvanised steel.  
Diameter of roller 225 mm.  
**Material:** Galvanised steel  
**Article no.:** 80002

### Return pulley, bottom edge

Essential for the fight against abrasion and wear of the sewer jetting hose. The return pulley, bottom edge is suitable for hoses with **ND 19 to 32 mm**. With three rollers (Ø 73 mm), snap hook and 6 m-line with wrist strap.  
**Material:** Galvanised steel  
**Article no.:** 80001-019-032



### Return slide, bottom edge with plastic insert

Available for hoses in 3/4", 1" and 1 1/4", with snap hook on one side, Frame in stainless steel, plastic slide in black.  
**Material:** Frame made of VA with plastic sliding insert  
**Article no.:** 80010



### Return slide, bottom edge with Polyurea insert

For hoses up to 1", with carabiner on one side and 6 m rope with eyelet. The Polyurea insert is a many times more stable than a conventional PE insert and therefore does not have to be replaced constantly.  
**Material:** Frame made of VA with PUA sliding insert (beige).  
**Article no.:** 80010-025-PUA

# HIGH PRESSURE HOSES

## WATER JETTING HOSES

New in our product range are the efficient and powerful high pressure water jetting hoses out of the **WATERSHOOTER**-series. Available in different types, these hoses grant a high abrasion resistance and durability at low weight. **WATERSHOOTER** are designed for work under very high pressure with water-based cleaning fluids and for the use on water jet systems. The programme is completed by the polyurethane high pressure hose **GrüloJet POWER** - **Reliable, for sure!**

### WATERSHOOTER plus

Water jetting hose up to 1100 bar

#### Technical characteristics

Temperature range: -10 °C to +70 °C  
 Standard length: 10 m, 20 m | further lengths on request  
 Colour: Black



#### Construction

Cover: SBR, oil-, abrasion- and weather resistant  
 Reinforcement: 4 spiral inlays of high tensile steel wire  
 Lining: SBR, black, oil resistant

Inner mm	Inner Inch	Ø Braid mm	Wall mm	WP bar	BP bar	BR mm	Weight kg/m	Article no.
12,7	1/2	21,6	6,00	1100	2750	230	1,215	11517-013
19	3/4	29,0	6,50	1100	2750	250	1,855	11517-019

### WATERSHOOTER 6S

Water jetting hose up to 1450 bar

#### Technical characteristics

Temperature range: -10 °C to +70 °C  
 Standard length: 10 m, 20 m | further lengths on request  
 Colour: Black



#### Construction

Cover: SBR, oil-, abrasion- and weather resistant  
 Reinforcement: 6 spiral inlays of high tensile steel wire  
 Lining: SBR, black, oil resistant

Inner mm	Inner Inch	Ø Braid mm	Wall mm	WP bar	BP bar	BR mm	Weight kg/m	Article no.
12,7	1/2	24,6	7,50	1450	3625	250	1,815	11516-012
19	3/4	32,1	8,20	1350	3375	280	2,640	11516-019

### GrüloJet POWER

Water jetting hose up to 1120 bar

#### Technical characteristics

Temperature range: -40 °C to +55 °C  
 Standard length: 40 m, 60 m, 80 m, 120 m  
 Colour: Orange



#### Construction

Cover: PU, abrasion resistant  
 Reinforcement: Aramidic fibre braids and one high tensile steel braid  
 Lining: Thermoplastic polymer

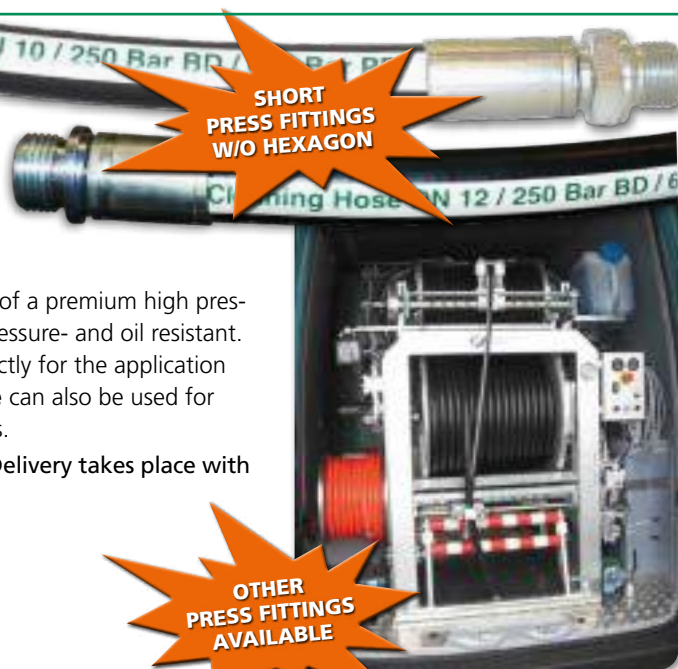
Inner mm	Inner Inch	Wall mm	WP bar	BP bar	BR mm	Weight kg/m	Article no.
3,5	1/8	3,85	1120	2800	25	0,180	10079-003
4,8	3/16	3,25	800	2000	30	0,167	10079-004
6,4	1/4	4,00	1120	2800	40	0,253	10079-006
8,0	5/16	4,00	1000	2500	50	0,292	10079-008
9,5	3/8	4,65	1120	2800	90	0,389	10079-009
13,0	1/2	6,10	1040	2600	150	0,516	10079-013

## GrüloPipe

### THE PROFESSIONAL

**GrüloPipe** out of our product line GrüloLine offers all benefits of a premium high pressure rubber hose. **GrüloPipe** is extremely flexible, abrasion-, pressure- and oil resistant. With its working pressure of 250 bar **GrüloPipe** is suited perfectly for the application on jetting lances used for the cleaning of manholes. **GrüloPipe** can also be used for the provisional sewer cleaning in the area of house connections.

All hoses are assembled with BSP female/male and ferrules. Delivery takes place with test certificate on each assembled hose.



#### Technical characteristics

Norm: EN 853 1 SN (R1 AT)  
 Temperature range: -40 °C to +90 °C  
 Standard length: 40 m, 60 m, 80 m, 100 m, 120 m  
 Availability: 40 m up to 240 m

#### Construction

Cover: SBR, very smooth, black  
 Reinforcement: Highly tear resistant steel wire braid  
 Lining: SBR, black, smooth

Inner mm	Inner Inch	Wall mm	WP bar	BP bar	BR mm	Weight kg/m	Article no.
10	3/8	4,00	250	640	130	0,320	10550-009
13	1/2	4,00	250	640	180	0,420	10550-013
16	5/8	4,00	250	640	210	0,520	10550-016
19	3/4	4,00	200	600	240	0,710	10550-019

## GrüloPipe Flex 1SC EN 857

### Streak-free

In addition to all benefits of a premium high pressure rubber hose the **GrüloPipe Flex 1SC EN 857** leaves no streaks. The hose is extremely flexible, abrasion-, pressure- and oil resistant. The **GrüloPipe Flex 1SC EN 857** is perfect for the application on jetting lances, used in the food industry for cleaning of slaughterhouses, hallways etc.

All hoses are assembled with ferrules on both sides in accordance with their respective requirements. Delivery takes place with test certificate to EN 10 204.3.1 B on each assembled hose.



#### Technical characteristics

Norm: EN 857  
 Temperature range:  
 -40 °C to +100 °C for hydraulic oils mineral-based  
 -40 °C to +70 °C for hydraulic oils water-based  
 ±0 °C to +70 °C for water  
 Standard length: 40 m, 60 m, 80 m, 120 m

#### Construction

Cover: SBR, smooth, grey  
 Reinforcement: Steel wire braid  
 Lining: SBR, smooth  
 Marking: G+L EN 857 1 SC DN [...] WP 200 bar

Inner mm	Inner Inch	Wall mm	WP bar	BP bar	BR mm	Weight kg/m	Article no.
10	3/8	3,50	200	900	60	0,260	12550-010
13	1/2	4,00	200	800	70	0,350	12550-013
16	5/8	3,70	130	650	90	0,430	12550-016
19	3/4	4,00	105	520	100	0,510	12550-019

## GrüloPipe 300 DIAMOND

### I PASS ALL ELBOWS!

**GrüloPipe 300 DIAMOND** is a flexible, pressure and oil resistant rubber sewer cleaning hose. Due to its UHMWPE-coating the **GrüloPipe 300 DIAMOND** is extremely smooth. It is suited perfectly for the application on jetting lances. Remarkable is the high working pressure of 345 bar which exceeds the requirements of EN 857.

As additional service we offer you various connection options.

#### Technical characteristics

Norm: EN 857, ISO 6743-4

Temperature range: -40 °C to +100 °C

Standard length: 40 m, 60 m, 80 m, 100 m, 120 m  
further lengths on request



#### Construction

Cover: SBR, extremely smooth, black, MSHA authorization

Reinforcement: Twofold highly tear resistant steel wire braid

Lining: SBR, black, oil resistant

Inner mm	Inner Inch	Wall mm	WP bar	BP bar	BR mm	Weight kg/m	Article no.
12	1/2	4,60	345	1380	90	0,500	10651-012

## GrüloPipe 300

### Light pipe cleaning hose up to 300 bar

**GrüloPipe 300** is a lightweight rubber sewer cleaning hose with one wire braid reinforcement. It is extremely flexible with an excellent abrasion resistance and dimensional stability. **GrüloPipe 300** is suited perfectly for the application on jetting lances, used for the cleaning of manholes and for industrial cleaning services.

As additional service we offer you various connection options.

#### Technical characteristics

Norm: ISO 7751

Temperature range: -40 °C to +70 °C

Standard length: 40 m, 60 m, 80 m, 100 m, 120 m  
further lengths on request



#### Construction

Cover: Special HARC-rubber, black

Reinforcement: Steel wire braid

Lining: ACN, black, smooth, abrasion resistant

Inner mm	Inner Inch	Wall mm	WP bar	BP bar	BR mm	Weight kg/m	Article no.
12,7	1/2	4,00	360	900	130	0,420	10750-013

## FlexiPipe 300 Professional

### For indoor pipe cleaning

**FlexiPipe 300 Professional** has been developed for water applications in the medium pressure range. The plastic hose with a high tensile steel braid is suited for the application on jetting lances and for applications in the field of house connections.

As additional service we offer you various connection options.

#### Technical characteristics

Temperature range: -40 °C to +70 °C

Standard length: 10 m, 20 m | further lengths on request



#### Construction

Cover: PU, magenta, antiabrasion, UV resistant

Reinforcement: High tensile steel wire braid

Lining: Thermoplastic elastomer

Inner mm	Inner Inch	Wall mm	WP bar	BP bar	BR mm	Weight kg/m	Article no.
6,4	1/4	2,75	300	1200	40	0,170	12551-006

## GrüloJet 175

### PU jetting hose, 175 bar

GrüloJet 175 is a thermoplastic cleaning hose with a working pressure up to 175 bar. It is suited perfectly for cleaning in the range of house connections.

All hoses are assembled with BSP female/male and ferrules. Delivery takes place with test certificate on each assembled hose.

#### Technical characteristics

Temperature range: -40 °C to +55 °C

Standard length: 80 m, 100 m, 120 m | further lengths on request

Colour: Dark green



#### Construction

Cover: Polyurethane, extreme cut- and abrasion resistant

Reinforcement: Highly tear resistant double textile fibre braids

Lining: Thermoplastic elastomer

Inner mm	Inner Inch	Wall mm	WP bar	BP bar	BR mm	Weight kg/m	Article no.
9,7	3/8	3,15	175	437	90	0,132	10064-010

## GrüloJet 400

### PU sewer jetting hose up to 400 bar

GrüloJet 400 is a thermoplastic sewer cleaning hose with a working pressure of up to 400 bar. The pressure carrier, consisting of double-braided highly tearproof aramid- and synthetic fibres, guarantees long endurance and therefore decreases your expenses.

All hoses are assembled with BSP female/male and ferrules. Delivery takes place with test certificate on each assembled hose.

#### Technical characteristics

Temperature range: -40 °C to +55 °C

Standard length: 80 m, 100 m, 120 m, 150 m, 180 m, 200 m, 250 m

Colour: Red-orange



#### Construction

Cover: Polyurethane, highly cut and abrasion resistant

Reinforcement: Highly tear resistant synthetic fibres

Lining: Thermoplastic elastomer

Inner mm	Inner Inch	Wall mm	WP bar	BP bar	BR mm	Weight kg/m	Article no.
9,7	3/8	3,40	345	862	75	0,157	10065-010
13	1/2	4,70	345	862	100	0,292	10065-013

# PRESS COUPLINGS FOR PIPE CLEANING HOSES

Press couplings for pipe cleaning hoses up to max. 250 bar. Consisting of BSP female (DKR 60° cone / BSP), BSP male (AGR 60° inner cone / BSP) and ferrule (1 SN), steel plated finish.

Also available in other versions!



GrüloPipe		Press couplings			
DN mm	DN Inch	Part	Thread Inch	Press Ø mm	Article no.
6,4	1/4	Male AGR	1/4	-	20470-02-006
		Female DKR		-	20471-02-006
		Ferrule		16,4	20472-02-006
9,5	3/8	Male AGR	3/8	-	20470-03-010
		Female DKR		-	20471-03-010
		Ferrule		20,1	20472-03-010
12,8	1/2	Male AGR	1/2	-	20470-04-013
		Female DKR		-	20471-04-013
		Ferrule		24,2	20472-04-013
16,0	5/8	Male AGR	3/4	-	20470-06-016
		Female DKR		-	20471-06-016
		Ferrule		26,4	20472-05-016

## VACUMASTER FOR **ALL** VEHICLE MANUFACTURERS

Out of our product line **GrüloLine** we present the cassette hoses **VACUMASTER NR** and the oil resistant quality **VACUMASTER OIL**. Developed together with the producer and optimised in accordance with prominent vehicle manufacturers a unique cassette hose was developed. The **VACUMASTER** convinces due to its outstanding operating characteristics in currently common cassettes and reels of sewer cleaning vehicles of the leading manufacturers. A maximum of flexibility and handling is enabled by the construction of the hose.



Fig. courtesy of KROLL Fahrzeugbau - Umwelttechnik GmbH

### **VACUMASTER NR** premium

#### Abrasion resistant cassette hose

**VACUMASTER NR premium** is characterised by its excellent flexibility even at low temperatures. Due to its high abrasion resistant lining and cover, **VACUMASTER NR premium** guarantees a long operating life. Furthermore **VACUMASTER NR premium** is dimensionally stable and has an excellent bending radius.

With extended cuff on one side | other versions available.

#### Technical characteristics

Temperature range: -35 °C to +80 °C  
Standard length: 20 m, 25 m, 30 m  
Colour: Black



THE BEST  
CASSETTE-  
HOSE!

#### Construction

Cover: SBR, with fabric impressions  
Reinforcement: Textile wrapped, reinforced spring wire spiral  
Lining: NR/SBR/BR, smooth, antistatic, abrasion resistant

Inner mm	Inner Inch	Wall mm	Cuff mm	WP bar	Vacuum bar	BR mm	Weight kg/m	Article no.
102	4	8,00	110	6	0,9	400	4,700	11513-102
127	5	9,50	133	6	0,9	600	6,400	11513-127
152	6	10,00	160	6	0,9	720	7,500	11513-152

### **VACUMASTER OIL** premium

#### Oil resistant cassette hose

**VACUMASTER OIL premium** convinces by its excellent operation properties on all established sewer cleaning vehicles. The construction allows a maximum amount of flexibility even at low temperatures. Due to its high abrasion resistant lining and cover, **VACUMASTER OIL premium** guarantees a long operating life. Furthermore it is dimensionally stable, antistatic, oil resistant and has an excellent bending radius.

With extended cuff on one side | other versions available.

#### Technical characteristics

Temperature range: -35 °C to +80 °C  
Standard length: 20 m, 25 m, 30 m  
Electrical resistance: Cover  $R \leq 10^6 \Omega/m$   
Colour: Black



#### Construction

Cover: SBR, with fabric impressions  
Reinforcement: Textile wrapped, reinforced spring wire spiral  
Lining: NBR, black, smooth, antistatic, abrasion resistant

Inner mm	Inner Inch	Wall mm	Cuff mm	WP bar	Vacuum bar	BR mm	Weight kg/m	Article no.
102	4	8,00	110	6	0,9	400	4,700	11523-102
127	5	9,50	133	6	0,9	600	6,400	11523-127
152	6	10,00	160	6	0,9	720	7,500	11523-152



## OptiVrac ABR

### Flexible suction hose

**OptiVrac ABR** is a highly flexible and corrugated hose which is ideally suited for the use on sewer cleaning vehicles. Its abrasion resistant inner lining is specially developed for suction excavators with mechanical arm for high abrasive materials as well as for industrial cleaning purposes.

#### Technical characteristics

Temperature range: -30 °C to +70 °C

Standard length: 20 m, 25 m, 30 m

Colour: Black



**EXTREMELY  
ROBUST  
TURRET HOSE**

#### Construction

**Cover:** Synthetic rubber, corrugated, with fabric impressions, weathering and abrasion resistant

**Reinforcement:** High strength synthetic cord, embedded steel wire helix

**Lining:** Synthetic rubber compound, black, smooth, abrasion resistant, antistatic

**Marking:** Transfer tape orange, [G+L-Ellipse] - OptiVrac ABR

Inner mm	Inner Inch	WP bar	BP bar	Vacuum bar	BR mm	Weight kg/m	Article no.
102	4	3	9	0,9	310	2,630	12514-102
127	5	3	9	0,9	380	3,950	12514-127
152	6	3	9	0,9	460	4,490	12514-152
203	8	3	9	0,9	610	9,980	12514-203
254	10	3	9	0,9	950	18,400	12514-254

## OptiVrac OIL

### Flexible and oil resistant suction hose

**OptiVrac OIL** is a highly flexible and corrugated hose which is ideally suited for the use on sewer cleaning vehicles. Its abrasion resistant inner lining is specially developed for suction excavators with mechanical arm for high abrasive materials as well as for industrial cleaning purposes.

#### Technical characteristics

Temperature range: -20 °C to +70 °C

Standard length: 20 m, 25 m, 30 m

Electrical resistance: Cover  $R \leq 10^6 \Omega/m$

Colour: Black



#### Construction

**Cover:** Synthetic rubber, corrugated, with fabric impressions, weathering and abrasion resistant

**Reinforcement:** High strength synthetic cord and helix wire

**Lining:** Synthetic rubber compound, black, smooth, abrasion resistant, antistatic

**Marking:** Transfer tape yellow, [G+L-Ellipse] - OptiVrac OIL

Inner mm	Inner Inch	WP bar	BP bar	Vacuum bar	BR mm	Weight kg/m	Article no.
80	-	3	9	0,90	320	2,500	11524-080
102	4	3	9	0,90	410	3,810	11524-102
110	-	3	9	0,90	440	4,390	11524-110
125	-	3	9	0,90	500	4,980	11524-125
152	6	3	9	0,90	610	7,540	11524-152

**CASSETTE AND REEL HOSES FOR ALL VEHICLE MANUFACTURERS:**

**MÜLLER UMWELT, FFG,  
KROLL, ASSMANN,  
WIEDEMANN ENVIRO TEC,  
KAISER, CAPPELOTTO...**



## ROOF GRAVELLING AND MOBILE AIR CONVEYING SYSTEMS



Fig. courtesy of UMTEC GmbH & Co. KG

### SuperSucker Professional

#### Suction Hose with spiral-free cuffs

Rubber spiral suction and delivery hose, spiral-free cuffs on both sides. Particularly suitable for suction and discharging of abrasive materials like sand and gravel. Wear layer with an excellent abrasion resistance in para-quality. Electrically conductive  $R \leq 10^6 \Omega/m$ .

Delivery occurs with spiral-free cuffs, on request available with widened ends or by metre.

#### Technical characteristics

Temperature range: -30 °C to +70 °C

Standard length: 5 m | further lengths on request

Electrical resistance: Cover  $R \leq 10^6 \Omega/m$

Colour: Black



#### Construction

Cover: NR/BR, corrugated, fabric impressions, electrically conductive

Reinforcement: Textile cord, steel spiral, copper litz wire

Lining: NR/BR, black, smooth, electrically conductive

Wear layer: Para, black, 4 mm

Inner mm	Inner Inch	Wall mm	Cuff mm	WP bar	BP bar	BR mm	Weight kg/m	Article no.
80	-	8,00	150	3	9	240	3,260	11132-080-005
102	4	9,00	180	2	6	306	4,510	11132-102-005
127	5	9,00	180	2	6	381	6,000	11132-127-005
152	6	9,00	200	2	6	456	7,110	11132-152-005

### GrüloElastic PU

#### PVC/PU suction and discharge hose

Due to its PVC-lining reinforced with PU **GrüloElastic PU** has a much better abrasion resistance as common PVC hoses. Furthermore this hose is highly flexible and has a good weather resistance. **GrüloElastic PU** is very suitable as suction and discharge hose for heavy applications: for abrasive media, water and wastewater as well as for the extension of suction lines on dredgers and sewer cleaning vehicles.

All technical data refer to a temperature of 20 °C.

#### Technical characteristics

Temperature range: -25 °C to +50 °C

Standard length: 30 m | from DN 152: 20 m

Colour: Grey



GrüloLine

#### Construction

Cover: PVC, corrugated

Reinforcement: Hard-PVC spiral, impact and pressure resistant

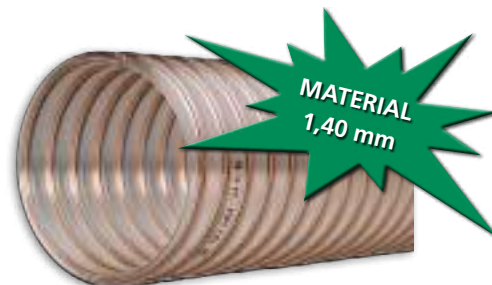
Lining: PVC with PU-inliner, yellow

Inner mm	Inner Inch	Outer mm	WP bar	Vacuum bar	BR mm	Weight kg/m	Article no.
51	2	63	5,0	0,90	260	1,100	10126-051
76	3	90	4,5	0,90	340	1,650	10126-076
80	-	94	4,5	0,90	350	1,860	10126-080
102	4	118	3,0	0,85	420	2,700	10126-102
127	5	145	3,0	0,80	520	3,600	10126-127
152	6	173	3,0	0,80	650	5,000	10126-152

## GrüloFlex PUR M

### For medium duty applications

Moderate weight and flexible polyurethane spiral hose for suction and discharging of abrasive granules with a material thickness of 1,4 mm. **GrüloFlex PUR M** is resistant to oil and petrols, non toxic and food proved according to FDA and EU-regulations. It is free of halogen and softeners with an excellent abrasion resistance. All technical information refer to a temperature of 25 °C.



#### Technical characteristics

Temperature range: -40 °C to +100 °C

Standard length: 10 m, 15 m

#### Construction

Material: Polyether-polyurethane with copper plated steel wire helix

Inner mm	Inner Inch	Material mm	WP bar	Vacuum bar	BR mm	Weight kg/m	Article no.
51	2	1,40	1,90	0,60	75	0,670	11033-051
76	3	1,40	1,20	0,50	113	0,980	11033-076
80	-	1,40	1,20	0,45	120	1,090	11033-080
102	4	1,40	1,10	0,40	150	1,360	11033-102
127	5	1,40	0,80	0,25	188	1,540	11033-127
152	6	1,40	0,70	0,20	225	1,820	11033-152
203	8	1,40	0,50	0,15	300	2,920	11033-203

## GrüloFlex PUR S

### For heavy duty applications

Heavy weight and flexible polyurethane spiral hose for suction and discharging of abrasive granules with a material thickness of 2 mm. **GrüloFlex PUR S** is resistant to oil and petrols, non toxic and food proved according to FDA and EU-regulations. It is free of halogen and softeners with an excellent abrasion resistance.

All technical information refer to a temperature of 25 °C.



#### Technical characteristics

Temperature range: -40 °C to +100 °C

Standard length: 10 m, 15 m

#### Construction

Material: Polyether-polyurethane with copper plated steel wire helix

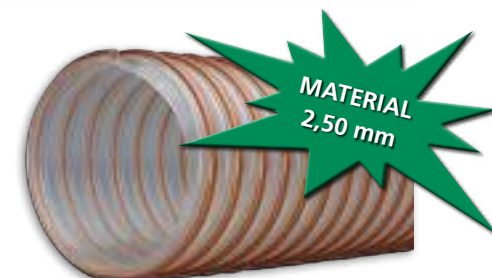
Inner mm	Inner Inch	Material mm	WP bar	Vacuum bar	BR mm	Weight kg/m	Article no.
51	2	2,00	3,80	0,95	200	1,000	11003-051
76	3	2,00	2,70	0,95	300	1,510	11003-076
80	-	2,00	2,40	0,90	320	1,610	11003-080
102	4	2,00	1,90	0,90	400	2,130	11003-102
127	5	2,00	1,45	0,90	500	2,560	11003-127
152	6	2,00	1,25	0,85	600	4,080	11003-152
203	8	2,00	0,95	0,85	800	5,450	11003-203

## GrüloFlex PUR H

### For extreme heavy duty applications

Very heavy PU hose for suction and transport of abrasive materials, specially designed for use as a head tube to suction trucks, conveying of roof gravel or substrate.

All technical information refer to a temperature of 25 °C.



#### Technical characteristics

Temperature range: -40 °C to +100 °C

Standard length: 10 m

#### Construction

Material: Polyether-polyurethane with copper plated steel wire helix

Inner mm	Inner Inch	Material mm	WP bar	Vacuum bar	BR mm	Weight kg/m	Article no.
51	2	2,50	3,25	0,85	125	1,350	11007-051
76	3	2,50	2,50	0,80	188	1,950	11007-076
80	-	2,50	2,20	0,80	200	2,080	11007-080
102	4	2,50	1,65	0,70	250	2,590	11007-102
127	5	2,50	1,40	0,65	313	3,150	11007-127
152	6	2,50	1,15	0,55	375	3,720	11007-152
203	8	2,50	0,85	0,41	500	4,400	11007-203

## HYDROVATOR™

### Special hose for vacuum excavators

Very flexible special hose for vacuum excavators, because of its Goodyear SURVIVOR® tube the hose is high abrasion- and cut resistant. **HYDROVATOR™** has a outstanding crush resistance and low dimensional change under full rated vacuum.



#### Technical characteristics

Temperature range: -25 °C to +82 °C  
 Standard length: 5 m  
 Colour: Black

#### Construction

Cover: SBR/BR  
 Lining: Special rubber mixture, high abrasion and cut resistant

Inner mm	Inner Inch	Outer mm	Vacuum bar	BR mm	Weight kg/m	Article no.
152,6	6	180,3	0,90	300	9,520	11043-152
203,5	8	231,1	0,90	400	12,500	11043-203
253,9	10	281,9	0,90	500	17,560	11043-253



**HOSES FOR  
 ABRASIVE MEDIA  
 ARE OUR BUSINESS!  
 CONTACT US!**

## GrüloFlat PUR Pro

### For the long haul

**GrüloFlat Pur Pro** is a flat hose for heavy applications, especially for abrasive media in construction industry, agriculture, disposal and mining. Because of his superior abrasion resistance and robustness the hose can also be used for suction dredgers for the long way. **GrüloFlat Pur Pro** is durable, oil-, petrol-, and chemical resistant with an extremely high tensile strength.



#### Technical characteristics

Temperature range: -50 °C to +75 °C (water)  
 Standard length: 100 m, 200 m  
 Colour: Orange

#### Construction

Reinforcement: High tenacity polyester yarn, circular woven  
 Material: Thermoplastic Polyether Polyurethane, very smooth inside and outside

Inner mm	Inner Inch	Wall mm	WP bar	BP bar	Weight kg/m	Article no.
90	3 1/2	3,50	14	42	1,150	11042-090
102	4	3,50	14	42	1,400	11042-102
127	5	3,50	12	36	1,600	11042-127
152	6	3,50	12	36	1,900	11042-152

Specifications apply only for the hose (medium water, 20 ° C). At hoses with couplings the possible working pressure can be lower than indicated.

## GrüloElastic SE

### PVC suction and discharge hose

**GrüloElastic SE** is a suction and discharge hose for irrigation, sink- and canal cleaning as well as for agricultural purposes as a slurry hose. It is weatherproof, dimensionally stable and smooth inside. Due to its special synthetic formula, **GrüloElastic SE** stays flexible even at temperatures below zero.

All technical data refer to a temperature of 20 °C.

#### Technical characteristics

Norm: ISO 1307  
 Temperature range: -25 °C to +60 °C  
 Standard length: 50 m  
 Colour: Silver-grey

#### Construction

Cover: PVC/NBR, corrugated  
 Reinforcement: Hard-PVC spiral, impact and pressure resistant  
 Lining: PVC/NBR, smooth



Inner mm	Inner Inch	WP bar	BP bar	Vacuum bar	BR mm	Weight kg/m	Article no.
51	2	5	15	0,9	200	0,975	10201-051
76	3	4	13	0,9	310	1,700	10201-076
80	-	4	13	0,9	320	1,800	10201-080
102	4	4	12	0,8	410	2,600	10201-102
127	5	3	9	0,7	520	3,650	10201-127
152	6	2	8	0,7	610	5,100	10201-152



GrüloLine

## GrüloFaekaFlex

### Flexible PVC suction and discharge hose

Very elastic suction and delivery hose with rigid PVC spiral for the use in communal applications, for irrigation and on the agricultural sector. Very good flexibility at low temperatures, high resistance against abrasion and many chemicals.

All technical data refer to a temperature of 20 °C.

#### Technical characteristics

Temperature range: -25 °C to +60 °C  
 Standard length: 50 m | from DN 127: 30 m, from DN 152: 20 m, from DN 203: 10 m  
 Colour: Grey, red spiral strip

#### Construction

Cover: PVC, slightly corrugated  
 Reinforcement: Rigid PVC spiral, impact and pressure resistant  
 Lining: PVC, smooth

Inner mm	Inner Inch	WP bar	BR mm	Weight kg/m	Article no.
51	2	6,0	250	1,030	12072-051
76	3	5,0	375	1,750	12072-076
80	-	4,5	400	1,845	12072-080
102	4	4,5	500	2,650	12072-102
127	5	3,5	625	3,540	12072-127
152	6	3,0	750	5,000	12072-152
203	8	2,5	1200	8,400	12072-203
254	10	2,0	1500	10,300	12072-254



GrüloLine

## Arizona Superelastic

### Highly flexible suction and delivery hose

The high quality PVC-helix hose **Arizona Superelastic** is abrasion- and cold-resistant. It is highly flexible and suitable for municipal vehicles and irrigation plants. Only recommended as a suction hose.

All technical data refer to a temperature of 20 °C.

#### Technical characteristics

Temperature range: -25 °C to +55 °C  
 Standard length: 50 m | from DN 75: 30 m, from DN 110: 20 m  
 Colour: Grey with green PVC spiral

#### Construction

Cover: PVC  
 Reinforcement: Shock resistant hard-PVC spiral  
 Lining: PVC, smooth

Inner mm	Inner Inch	Outer mm	WP bar	Vacuum bar	BR mm	Weight kg/m	Article no.
50	2	61	5,0	0,9	200	1,050	10073-050
76	3	88,8	4,0	0,9	300	1,700	10073-076
80	-	92,56	3,0	0,9	320	1,850	10073-080
102	4	116,4	3,0	0,9	400	2,700	10073-102
127	5	143,6	2,5	0,9	510	3,900	10073-127
150	-	168	2,0	0,9	610	5,000	10073-150

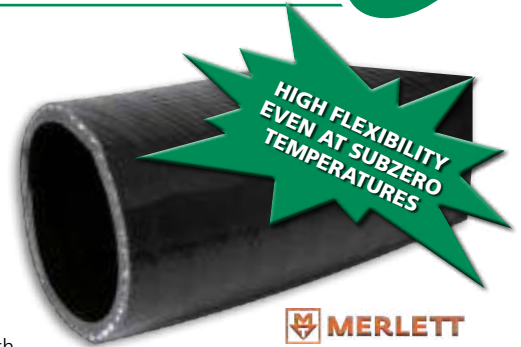


MERLETT

## Vacupress® Flex

### Highly flexible suction and delivery hose

Even at temperatures below 0 °C highly flexible all-purpose hose for discharge and suction of liquids and lightly abrasive media like cement. Good weather- and abrasion resistance. Due to its outstanding flexibility **Vacupress® Flex** is ideally suited as suction and discharge hose for sewer cleaning vehicles and silo trucks.



#### Technical characteristics

Temperature range: -25 °C to +60 °C  
 Standard length: 60 m | from DN 38: 30 m, from DN 127: 20 m  
 Colour: Black

#### Construction

Cover: PVC, smooth  
 Reinforcement: Embedded steel wire spiral, polyester yarn  
 Lining: PVC, black, smooth



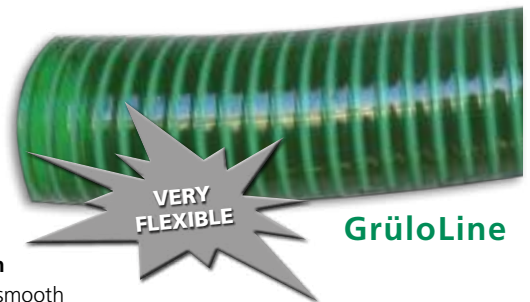
Inner mm	Inner Inch	Wall mm	WP bar	BP bar	Vacuum bar	BR mm	Weight kg/m	Article no.
50	2	6,50	12	36	0,90	150	1,600	10053-050
76	3	8,00	12	36	0,90	210	2,970	10053-076
102	4	8,50	10	30	0,90	300	4,150	10053-102
127	5	9,00	7	22	0,90	370	5,950	10053-127
152	6	9,50	5	15	0,90	480	7,050	10053-152

## GrüloAgriFlex SE

### Particularly suitable for use as drag hose

Flexible PVC spiral hose for suction and discharge of liquids and granules with a smooth interior and exterior. The **GrüloAgriFlex** is particularly suitable for light-duty applications in industry, agriculture and irrigation.

All technical data refer to a temperature of 23 °C.



GrüloLine

#### Technical characteristics

Temperature range: -40 °C to +50 °C  
 Standard length: 50 m  
 Colour: Green transparent with a white spiral inside

#### Construction

Cover: PVC, smooth  
 Reinforcement: PVC spiral, shockproof  
 Lining: PVC, smooth

Inner mm	WP bar	Vacuum bar	BR mm	Weight kg/m	Article no.
38	3	0,76	125	0,585	10051-038
40	3	0,76	130	0,600	10051-040
45	3	0,76	150	0,740	10051-045
50	3	0,76	165	0,880	10051-050

## Super Heliflex

### PVC-BUNA suction- and discharge hose

This suction and discharge hose can be used for sprinkling, cesspool- and canal cleaning purposes as well as for liquid manure hoses in agriculture.

**Super Heliflex** is ozon- and UV resistant, dimensionally stable, interiorly smooth and highly flexible due to its special plastic recipe.

All technical data refer to a temperature of 20 °C.



#### Technical characteristics

Temperature range: -40 °C to +60 °C  
 Standard length: 50 m | from DN 127: 25 m, from DN 152: 20 m  
 Colour: Silver-grey with white spiral

#### Construction

Cover: PVC BUNA  
 Reinforcement: Hard-PVC spiral  
 Lining: PVC BUNA, smooth



Inner mm	Inner Inch	Wall mm	WP bar	Vacuum bar	BR mm	Weight kg/m	Article no.
51	2	4,80	5	0,9	170	1,050	10072-051
76	3	5,90	4	0,9	240	1,750	10072-076
80	-	6,20	3	0,9	250	1,950	10072-080
102	4	6,30	3	0,9	320	2,700	10072-100
127	5	7,80	2	0,9	620	3,600	10072-127
152	6	8,20	2	0,9	680	4,500	10072-152

## Synthetic building hose Standard Synthetic flat hose with Storz couplings

Efficient layflat hose - german quality - with Storz suction couplings for water support. Professional binding with hose clamps.  
Delivery with binding on demand.

### Technical characteristics

Temperature range: -30 °C to +100 °C | information valid for water  
Standard length: 20 m | further lengths on request  
Colour: White

### Construction

Material: Polyester yarn, circular woven in twill weave  
Lining: EPDM rubber

Inner mm	Inner Inch	WP bar	BP bar	Weight Unit kg	Article no.
C/52	2	16	50	8,000	90002-052-020
B/75	3	16	50	11,500	90002-075-020
A/102	4	12	36	14,000	90002-102-020
F/152	6	10	30	27,000	90002-152-020



## GrüloDur Multipurpose hose

Flat hose for the delivery of liquid media - as well as hot water and compressed air. Hardwearing and abrasion resistant, robust and long-lasting. Resistance to oil, petrol and chemicals. Lightweight and very flexible compared to mandril built hoses.

All technical data refer to a temperature of 20 °C.

### Technical characteristics

Temperature range: -15 °C to +100 °C  
Standard length: 100 m | further lengths on request  
Colour: Black

### Construction

Cover: NBR/PVC compound, ribbed  
Material: Polyester, circular woven  
Inside/outside layer: NBR/PVC compound

Inner mm	Inner Inch	Wall mm	WP bar	BP bar	Weight kg/m	Article no.
52	2	2,30	20	60	0,470	10009-052
75	3	2,40	17	50	0,750	10009-075
102	4	2,60	15	50	1,070	10009-102
152	6	3,00	13	40	1,700	10009-152



## GrüloDur PU Multipurpose layflat hose in PU

Layflat hose for the delivery of liquids under pressure and for transport of abrasive materials, superior abrasion resistance, extremely hardwearing and durable for long service life, resistance to oil, fuel and a wide range of chemicals, excellent flexibility at low temperature.

All technical data refer to a temperature of 20 °C.

### Technical characteristics

Temperature range: -50 °C to +75 °C | information valid for water  
Standard length: 100 m | further lengths on request  
Colour: Black

### Construction

Cover: Polyether polyurethane, smooth  
Reinforcement: High-strength polyester yarn, round woven  
Lining: Polyether polyurethane, smooth

Inner mm	Inner Inch	Wall mm	WP bar	BP bar	Weight kg/m	Article no.
52	2	2,60	20	60	0,500	10023-052
76	3	2,80	16	50	0,750	10023-076
102	4	3,00	14	42	1,150	10023-102
127	5	3,00	10	30	1,400	10023-127
152	6	3,00	10	30	1,650	10023-152



## GrüloFlat H PVC layflat hose, heavy duty

Flat hose for heavy duty discharge of water, light chemicals and other liquids in agriculture and industry.

All technical data refer to a temperature of 20 °C.

### Technical characteristics

Temperature range: -10 °C to +60 °C | information valid for water  
Standard length: 100 m | further lengths on request  
Colour: Brown

### Construction

Cover: Soft PVC  
Reinforcement: Polyester yarn  
Lining: Soft PVC

Inner mm	Inner Inch	Wall mm	WP bar	BP bar	Weight kg/m	Article no.
52	2	2,10	10	30	0,420	10303-052
76	3	2,20	9	27	0,660	10303-076
102	4	2,50	9	27	1,000	10303-102
152	6	2,90	7	21	1,700	10303-152
203	8	2,90	5	15	2,200	10303-203



## Water S/D 10

### Rubber suction and delivery hose

Water hose for suction and discharge purposes in tough applications such as in industry, agriculture and construction. The tube is suited for water, sewage, liquid manure, drilling mud and low abrasive materials. The cover is abrasion and weather resistant.

Available in lengths of 3 or 5 m and with spiral free cuffs!

#### Technical characteristics

Temperature range: -25 °C to +70 °C

Standard length: 40 m | further lengths on request

Colour: Black



GrüloLine

#### Construction

Cover: SBR, smooth, with fabric impression

Reinforcement: Synthetic textile, steel wire spiral

Lining: SBR, black, smooth

Inner mm	Inner Inch	Wall mm	WP bar	Vacuum bar	BP bar	BR mm	Weight kg/m	Article no.
51	2	5,50	10	0,9	30	306	1,738	10056-051
76	3	6,50	10	0,9	30	458	2,845	10056-076
102	4	6,50	10	0,9	30	610	3,930	10056-102
152	6	8,50	10	0,9	30	915	7,850	10056-152

## ToiVrac N

### Polyethylene sanitary hose

Heavy weight and flexible PE ducting. For suction and transport of liquids and materials, especially in sanitary and agricultural pumping systems, sewer cleaning, industrial vacuum cleaners, cable conduit. Smooth bore, crush recoverable, good chemical resistance, excellent vacuum resistance, rot-proof.

Delivery occurs optional with tight welded cuffs on both sides. Separate cuffs for replacement are also available.

#### Technical characteristics

Temperature range: -40 °C to +60 °C

Standard length: 10 m, 15 m, 20 m | further lengths on request

Colour: Yellow-black | special colors on request



#### Construction

Material: Polyethylene

Inner mm	Inner Inch	Material mm	Vacuum bar	BR mm	Weight kg/m	Article no.
51	2	1,40	0,95	85	0,950	12200-051
76	3	1,40	0,95	125	1,400	12200-076
102	4	1,40	0,85	165	1,800	12200-102

## GrüloFlex TPE 20

### TPE compression air hose 20 bar

GrüloFlex TPE 20 shows similar properties like a rubber hose due to its special Thermorub® composite material. It is very flexible even at low temperatures and oil resistant. Due to the high-strength textile fabric **GrüloFlex TPE 20** is especially suitable as compression air or water hose. Ideal for filling stop-off bags!

#### Technical characteristics

Norm: ISO 1307

Temperature range: -10 °C to +60 °C

Standard length: 40 m

Colour: Black with orange stripes



GrüloLine

#### Construction

Cover: TPE, abrasion-, ozone- and weather resistant

Reinforcement: Two high-strength synthetic textile fabric

Lining: TPE, partly oil resistant black

Inner mm	Inner Inch	Wall mm	WP bar	BP bar	BR mm	Weight kg/m	Article no.
13	1/2	4,00	20	60	180	0,335	12228-013
19	3/4	5,00	20	60	240	0,565	12228-019
25	1	5,50	20	60	300	0,790	12228-025



## GrüloFlex EPDM 20

### The water hose for professionals

EPDM hose in extruded execution, for dosing, filling and emptying of aqueous lyes and solutions. Especially suitable for heavy purposes. Ideal for outdoors, due to ozone resistance.

#### Technical characteristics

Temperature range: -40 °C to +95 °C  
 Standard length: 40 m  
 Colour: Black with four yellow stripes



GrüloLine

#### Construction

Cover: EPDM, smooth  
 Reinforcement: Synthetic woven fabric reinforcement  
 Lining: EPDM, black, smooth

Inner mm	Inner Inch	Wall mm	WP bar	BP bar	BR mm	Weight kg/m	Article no.
13	1/2	3,50	20	60	100	0,300	10030-013
19	3/4	4,00	20	60	120	0,420	10030-019
25	1	4,50	20	60	150	0,600	10030-025

## GrüloVin

### PVC suction hose, transparent

Robust, flexible and abrasion resistant PVC hose, usable as suction hose for water, foodstuff, beverages to 28 Vol.-% of alcohol, potable water, for vacuum pumps and groundwater drawdown. Very good chemical resistance.

All technical data refer to a temperature of 20 °C.

#### Technical characteristics

Temperature range: -5 °C to +60 °C  
 Standard length: 30 m  
 Colour: Green transparent



GrüloLine

#### Construction

Cover: Soft PVC, smooth  
 Reinforcement: Embedded steel wire spiral  
 Lining: Soft PVC, smooth

Inner mm	Inner Inch	WP bar	BP bar	Vacuum bar	BR mm	Weight kg/m	Article no.
51	2	3	9	0,8	125	1,200	10248-050
76	3	2	6	0,7	195	2,500	10248-075
80	-	2	6	0,7	220	2,700	10248-080
102	4	2	6	0,6	300	3,400	10248-100
127	5	2	6	0,6	385	4,700	10248-125
152	6	2	6	0,6	460	6,350	10248-152

## GrüloLine Aqua

### PVC potable water hose

GrüloLine Aqua meets the requirements of the potable water regulations. Applicable in water utility companies, beverage counters, fair arrangements, folk festivals and other open-air events. Resistant to pressure, abrasion and UV. Neutral to taste and odour.

#### Technical characteristics

Approval: KTW A, DVGW-W270  
 Temperature range: -15 °C to +50 °C  
 Standard length: 50 m  
 Colour: Blue



GrüloLine

#### Construction

Cover: Soft-PE  
 Reinforcement: Polyester yarn  
 Lining: Polyethylene, food quality



Inner mm	Inner Inch	Wall mm	WP bar	BP bar	BR mm	Weight kg/m	Article no.
13	1/2	3,50	20	60	140	0,161	10014-013
19	3/4	4,00	20	60	215	0,254	10014-019
25	1	4,75	20	60	295	0,394	10014-025

## GrüloElastic Oil AS

### Tank truck hose

Highly flexible, antistatic and cold resistant tank truck hose, with shock and pressure resistant PVC-spiral. **GrüloElastic Oil AS** is especially suitable as suction and discharge hose for tank trucks.

All technical data refer to a temperature of 20 °C.

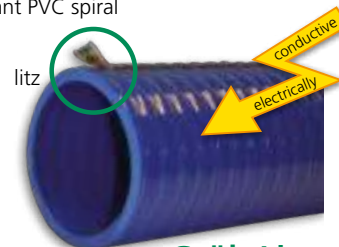
#### Technical characteristics

Norm: ISO 1307  
 Temperature range: -25 °C to +60 °C  
 Standard length: 50 m | from DN 80: 30 m

#### Construction

Cover: PVC/NBR, corrugated, outer copper wire  
 Reinforcement: Shock and pressure resistant PVC spiral  
 Lining: PVC/NBR, smooth

Inner mm	Inner Inch	BP bar	Vacuum bar	BR mm	Weight kg/m	Article no.
51	2	20	0,9	200	1,150	10571-051
76	3	17	0,9	250	1,910	10571-076
80	-	15	0,9	280	2,100	10571-080
102	4	13	0,9	350	3,250	10571-102



GrüloLine

## Ölflex

### Antistatic tank truck hose

Tank truck hose suitable for hydrocarbons with max. 50% aromatic contents. Lining and cover are electrically conductive ( $R \leq 10^6 \Omega/m$ ).

#### Technical characteristics

Temperature range: -20 °C to +80 °C  
 Standard length: 40 m | further lengths on request

#### Construction

Cover: SBR, corrugated, electrically conductive  
 Reinforcement: Highly tear resistant textile fibres, steel wire helix, copper litz wire  
 Lining: NBR, black, electrically conductive

Inner mm	Inner Inch	Wall mm	WP bar	Vacuum bar	BR mm	Weight kg/m	Article no.
32	1 1/4	4,00	9	0,9	60	0,650	10419-032
38	1 1/2	4,00	9	0,9	80	0,850	10419-038
52	2	5,00	9	0,9	100	1,375	10419-052
76	3	7,50	9	0,9	150	1,900	10419-076



GrüloLine

## GrüloTank L

### Light weight tank truck hose

Light weight tank truck hose according to EN 12115 for heavy applications. The cover of **GrüloTank L** is resistant to weather, oil and abrasion. For filling and discharging petrol tank trucks and rail tank wagons.

Lining and cover are electrically conductive ( $R \leq 10^6 \Omega/m$ ).

#### Technical characteristics

Temperature range: -30 °C to +90 °C  
 Standard length: 40 m | further lengths on request

#### Construction

Cover: CR, corrugated, fabric impressions  
 Reinforcement: Textile wrapped, copper wire, zinc plated double steel wire helix  
 Lining: NBR, black, smooth

Inner mm	Inner Inch	Wall mm	WP bar	Vacuum bar	BR mm	Weight kg/m	Article no.
32	1 1/4	6,00	10	0,9	55	0,800	10108-032
38	1 1/2	6,50	10	0,9	70	1,200	10108-038
50	2	7,50	10	0,9	80	1,850	10108-050
75	3	7,50	10	0,9	100	3,000	10108-075
100	4	8,00	10	0,9	150	3,500	10108-100



GrüloLine

## GrüloTank SP

### Tank truck hose with helix

Tank truck hose with spiral according EN 12115. Suitable for hydrocarbons up to max. 55% aromatic contents. Oil, weather and ozone resistant cover.

Electrically conductive ( $R \leq 10^6 \Omega/m$ ).

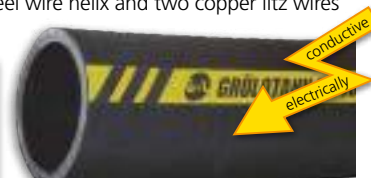
#### Technical characteristics

Temperature range: -30 °C to +80 °C  
 Standard length: 40 m

#### Construction

Cover: CR  
 Reinforcement: Synthetic fibres with steel wire helix and two copper litz wires  
 Lining: NBR, black, smooth

Inner mm	Inner Inch	Wall mm	WP bar	Vacuum bar	BR mm	Weight kg/m	Article no.
51	2	8,00	16	0,9	120	2,100	10191-051
76	3	8,00	16	0,9	175	3,000	10191-076
102	4	8,00	16	0,9	250	4,400	10191-102



GrüloLine

# Multi-layer foil hoses

## COMPOSITE HOSES

New in the product range of Grüning & Loske are multi-layer foil hoses or composite hoses for flexible transport of products from the oil- and chemistry industry. These tubes are produced according to EU standards EN 13765 and/or BS 5848, BS 3491, PED 97/23/CE, ATEX/94/9/EC. Besides an assortment of standards individual solutions on demand are available. Production and assembly are made according to ISO 9001 and DRGL. Convince yourself once more of our know-how and 5-star service.

### CompoOIL 10 GGE

#### Multilayer hose 10 bar

**CompoOIL 10 GGE** is suitable as suction and discharge hose for the transfer of petrol and oil from tank to truck or truck to tank. Also available in other versions.

##### Technical characteristics

Temperature range: -20 °C to +100 °C

Standard length: max. 30 m

Safety factor: 5:1



##### Construction

Cover: PVC, PP on request

Inner wire spiral: Galvanized Steel

Outer wire spiral: Galvanized Steel

Lining: Polypropylene



Inner mm	Inner Inch	WP bar	BP bar	BR mm	Weight kg/m	Article no.
51	2	10	50	190	2,010	10324-051
76	3	10	50	290	3,400	10324-076
102	4	10	50	320	5,950	10324-102

### CompoCHEM 10 EGE

#### Mehrlagenfolienschlauch 10 bar

**CompoOIL 10 GGE** is suitable as suction and discharge hose for the transfer of chemicals from tank to truck or truck to tank. Highly flexible and lightweight.

Also available in other versions.

##### Technical characteristics

Temperature range: -20 °C to +100 °C

Standard length: max. 30m

Safety factor: 5:1



##### Construction

Cover: PVC, PP on request

Inner wire spiral: Polypropylene

Outer wire spiral: Galvanized Steel

Lining: Polypropylene



Inner mm	Inner Inch	WP bar	BP bar	BR mm	Weight kg/m	Article no.
51	2	10	50	190	2,010	10326-051
76	3	10	50	290	3,400	10326-076
102	4	10	50	320	5,950	10326-102



## GrüloChem SP EPDM

### EPDM Chemical hose

Suitable as suction and discharge hose in the chemical industry as well as for sea water and industrial waste water. Cover and lining are electrically conductive ( $R \leq 10^6 \Omega/m$ ).

#### Technical characteristics

Norm: EN 12115  
 Temperature range: -20 °C to +100 °C  
 Standard length: 40 m  
 Colour: Black



#### Construction

Cover: CR, black, fabric impressions  
 Reinforcement: Textile cord with two steel spirals and two copper litz wires  
 Lining: EPDM, black  
 Marking: GrüloChem SP EPDM EN 12115

Inner mm	Inner Inch	Wall mm	WP bar	Vacuum bar	BP bar	BR mm	Weight kg/m	Article no.
51	2	8,00	16	0,9	64	300	2,203	10164-051
76	3	8,00	16	0,8	64	450	3,159	10164-076
102	4	8,00	16	0,8	64	650	4,360	10164-102

## GrüloChem SP UPE

### UPE Chemical hose

GrüloChem SP UPE is a highly flexible chemical hose with a conductive UPE liner. Suitable for the transport of acids, alkalis, salts, organic compounds incl. aromatic substances, chlorinated hydrocarbons and oxidising acids. Cover and lining are electrically conductive ( $R \leq 10^6 \Omega/m$ ).

#### Technical characteristics

Norm: EN 12115:2011, TRbF 131/2:1992  
 Temperature range: -35 °C to +100 °C depending on medium  
 Standard length: 40 m  
 Colour: Black



#### Construction

Cover: EPDM, fabric impressions, electrically conductive  
 Reinforcement: Textile wrapped, rubber foil, two crossed copper wires, steel wire helix  
 Lining: UPE, black, smooth  
 Marking: GrüloChem SP UPE EN 12115 WP 16 bar  $\Omega$

Inner mm	Wall mm	WP bar	Vacuum bar	BP bar	BR mm	Weight kg/m	Article no.
50	8,00	16	0,9	64	275	1,600	10163-050
75	8,00	16	0,9	64	350	2,600	10163-075
100	8,00	10	0,9	40	450	4,000	10163-100

## Resist P FEP

### FEP Chemical hose

Premium chemical hose with teflon lining, suitable for transporting nearly all chemicals used in the chemical industry. Cover and lining are electrically conductive ( $R \leq 10^6 \Omega/m$ ).

#### Technical characteristics

Norm: EN 12115:2011, TRbF 131/2:1992  
 Temperature range: -20 °C to +150 °C depending on medium  
 Standard length: 40 m | from DN 75: 20 m  
 Colour: Black



#### Construction

Cover: CR, fabric impressions  
 Reinforcement: Textile wrapped, 2 copper wires, zinc plated steel wire helix  
 Lining: FEP, smooth, isolating  
 Marking: SEMPERIT S Resist-P-Chemie FEP

Inner mm	Inner Inch	Wall mm	WP bar	Vacuum bar	BR mm	Weight kg/m	Article no.
25	1	6,00	16	0,9	225	0,900	11162-025
38	1 1/2	6,50	16	0,9	340	1,350	11162-038
50	2	8,00	16	0,9	415	1,900	11162-050
75	-	8,00	16	0,9	525	3,250	11162-075

# ABRASION AND CORROSION

## The problem: Abrasion!

During production container, conveyer belts and mixing plants in raw and building material industries are exposed to extreme conditions around the clock. At this increased wear, high abrasion and corrosion or even chemical attack through aggressive media occurs.

The resulting damages lead to high repair costs, considerable machine down-times and thus to high economic loss.

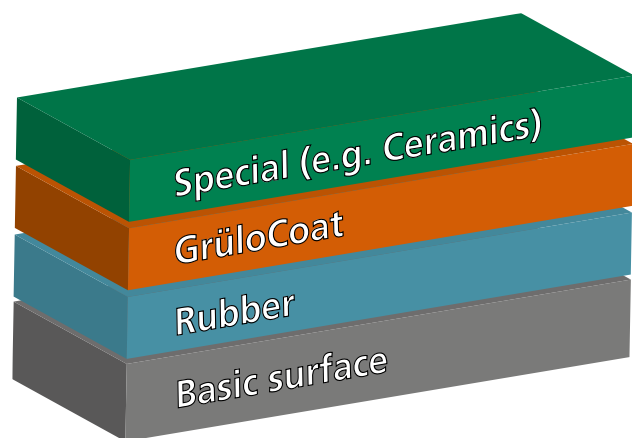
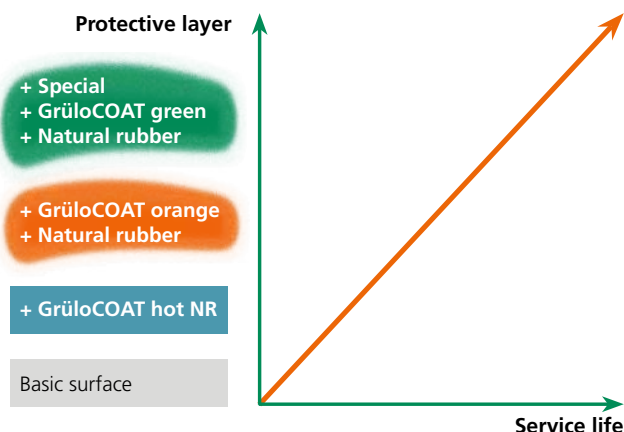


## The Solution: GrüloCOAT Systeme!

**GrüloCoat System** is the newly developed and therefore unique technology in surface coating.

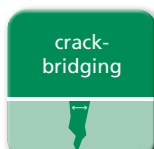
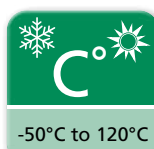
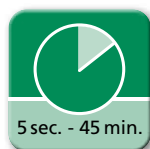
Use our lead in knowledge and experience to protect your surfaces long-term against numerous negative influences as mechanical abrasion, chemical destruction and corrosion. Successful coatings result from an interaction of many factors. Experienced staff out of our application technology as well as research and development ensure constant alignment of critical parameters. So the best solution for your wear problem can be achieved.

As a specialist company in high-quality wear protection for various loads we offer you high resistant and high-quality coating systems in **rubber, ceramics** and **liquid plastic**.



### APPLICATION AREAS:

- bends, suction pipes and -funnels, deflector plates/metal sheets, troughs, case linings
- interior tank coating
- inner/outer pipe lining
- conveyer and transport systems
- hose couplings, Storz and Perrot
- cylinder friction lining
- working- and storage area
- sewage cleaning plant
- and many other possible applications



## GrüloCOAT Systeme Casting and Spraying Procedure

Applied in low or high pressure/grouting procedure the coating with liquid plastic is to be processed within 5 sec to 45 min. It is short-term accessible and loadable and offers a number of advantages over traditionally cold applied coatings. The adhesion to the respective basic surface – no matter whether it is metal, concrete, stone, wood, rubber, etc. – always is excellent. Therefore no weak points are present, from which delaminating of material could reveal.

Caused by the extremely short potlife of such as seven seconds geometrics can be layered where conventional methods fail: vertical surfaces, merging radii, complex shapes: the coating follows the surface and covers it with the required thickness. Inner lining of pipelines and bends or conveying hose couplings are possible as well. Furthermore a lasting solution is provided for media container such as tanks, ponds and basins.

You need a certain colour? Following the RAL colours we can use the desired shade for your coating project.

### CHARACTERISTICS

- quick reaction times
- resistant against mechanical load
- resistant against chemical exposure
- authorised for a range of applications
- combinable with different primer
- thermally stable
- waterproof and resistant to roots
- crack-bridging

### ADVANTAGES

- short downtimes
- excellent wear resistance
- corrosion protection
- applicable on nearly any surface

### YOUR BENEFIT

- permits a rapid start-up
- protection of base against wear
- saves costs and time
- longer lifetimes and less maintenance intervals
- for every application an appropriate system



Numerous applications



On any base



Mobile coating on-site



Immediately walkable and loadable



Any shape possible to coat



Thermal stability from -50°C to 120°C



From ANTI-stick to ANTI-slip



High chemical and microbiological resistance



## Competence in Rubber Coating

### Soft Rubber Coating - Wear Protection

Rubber as protection against wear is an optimal cover for machines and plants. It is most suitable for coating of transport- and storage containers, chutes, gutters or funnels due to high tensile strength and elasticity.

We process natural rubber (NR) of 2, 5, 7 and 10 mm thickness in soft rubber coating. On demand we offer to choose between highly wear resistant 40° Shore A in blue or highly abrasion resistant 60° Shore A in black.

#### ADVANTAGES OF RUBBER COATING

- wear protection
- noise protection
- vibration protection
- higher lifetime
- lower caking

#### APPLICATION AREAS

- road sweeper parts
- suction dredge wear parts
- engine pumps
- crushing plants
- lining for sandblast cabins
- gutters and chutes
- spiral pump shafts
- truck mixer gutters/-chutes
- gravel excavator pumps
- deflection plates and deflector metal sheets
- pipe coating for sand- and gravel industry
- ventilation cases

### Hard Rubber Coating - Protection against corrosion (acc. to EN 14879-1)

The material characteristics of synthetic rubber – high ageing and weather resistance as well as an outstanding chemical resistance – offer optimal protection against aggressive media inside industrial plants.

Mostly a hard rubber coating with the materials Butyl rubber or Hypalon® is used, furthermore IR, BR, SBR, IIR, CR and NBR .

#### APPLICATION AREAS

- flue gas desulfurisation plants
- pipe coating
- basins/tanks for chemicals
- basins for electroplating and much more

After coating we gladly varnish your parts with a 2-component finish in our in-house paint shop.



From shore A 40 to hard rubberlining



From individual item to large-scale production



Freehanded rubber coating on nearly every surface

# SECURITY HANDLE FOR HOSE

## HOSES AND PIPES FROM 2" TO 6"

The **HoseLifter** makes working with hoses and pipes safer and more efficient. An easy mechanism enables fixing the hose in a flowing movement without physical effort. The **HoseLifter** is produced from highly durable and wearable Nylon and shows good thermal-insulation properties.

### Advantages:

- increased safety and efficiency
- reduced contact with dangerous substances
- maintenance-friendly and easy to handle
- solid, safe grip
- easily to fix to hoses and pipes without damage
- applicable in any climate and anywhere
- to use in mud, cold, rain and snow

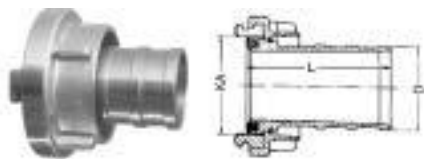


Size	Description	Weight/Unit kg	Article no.
2"	For Pipe OD from 1,5" to 2,5"	0,75	14001-20
3"	For Pipe OD from 2,5" to 3,5"	0,80	14001-30
3"	For Pipe OD from 3" to 3,75"	1,15	14000-30
4"	For Pipe OD from 4" to 4,75"	1,25	14000-40
5"	For Pipe OD from 5" to 5,75"	1,40	14000-50
6"	For Pipe OD from 6" to 6,75"	1,50	14000-60





## Suction hose coupling



### Technical characteristics

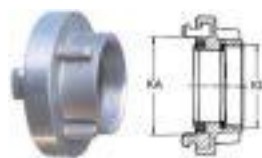
**Material:** Aluminium | also available in stainless steel or brass

**Seal:** Nitrile rubber, black | also available in white

**WP:** 16 bar

Storz	Lug mm	D mm	L mm	Remark	Weight/unit kg	Article no.
25-D	31	25	53	DIN 14301	0,090	21015-025-025-01
52-C	66	52	90	DIN 14321	0,370	21015-052-052-01
75-B	89	75	125	DIN 14322	0,710	21015-075-075-01
100	115	100	150	-	1,150	21015-100-100-01
110-A	133	110	170	DIN 14323	1,660	21015-110-110-01
125	148	125	200	-	2,020	21015-125-125-01
150	160	150	180	-	2,900	21015-150-150-01

## Adapter with female thread



### Technical characteristics

**Material:** Aluminium | also available in stainless steel or brass

**Seal:** Nitrile rubber, black | also available in white

**Thread:** DIN ISO 228

**WP:** 16 bar

Storz	Lug mm	IG Zoll	Remark	Weight/unit kg	Article no.
25-D	31	1	DIN 14306	0,080	21020-025-10-01
52-C	66	2	DIN 14307	0,280	21020-052-20-01
75-B	89	2 1/2	DIN 14308	0,420	21020-075-24-01
75-B	89	3	-	0,420	21020-075-30-01
100	115	4	-	0,850	21020-100-40-01
110-A	133	4 1/2	DIN 14309	1,090	21020-110-44-01
125	148	5	-	1,380	21020-125-50-01
150	160	6	-	1,820	21020-150-60-01

## Adapter with male thread



### Technical characteristics

**Material:** Aluminium | also available in stainless steel or brass

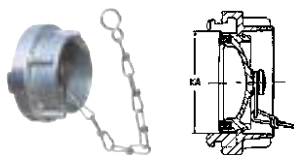
**Seal:** Nitrile rubber, black | also available in white

**Thread:** DIN ISO 228

**WP:** 16 bar

Storz	Lug mm	AG Zoll	Remark	Weight/unit kg	Article no.
52-C	66	1 1/2	-	0,250	21021-052-14-01
52-C	66	2	-	0,210	21021-052-20-01
75-B	89	2 1/2	-	0,360	21021-075-24-01
75-B	89	3	-	0,390	21021-075-30-01
100	115	4	-	0,710	21021-100-40-01
110-A	133	4	-	1,010	21021-110-40-01
125	148	5	with nipple	1,810	21021-125-50-01
150	160	6	with nipple	2,340	21021-150-60-01

## Blank caps with chain



### Technical characteristics

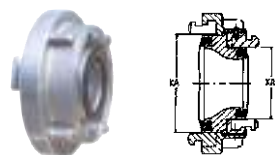
**Material:** Aluminium | also available in stainless steel or brass

**Seal:** Nitrile rubber, black | also available in white

**WP:** 16 bar

Storz	Lug mm	Remark	Weight/unit kg	Article no.
52-C	66	DIN 14311	0,380	21030-052-01
75-B	89	DIN 14312	0,560	21030-075-01
110-A	133	DIN 14313	1,340	21030-110-01
125	148	-	1,700	21030-125-01
150	160	-	2,140	21030-150-01

## Reducer Storz to Storz



### Technical characteristics

**Material:** Aluminium | also available in stainless steel or brass

**Seal:** Nitrile rubber, black | also available in white

**WP:** 16 bar

Storz zu Storz	Lug mm	Remark	Weight/unit kg	Article no.
75-B / 52-C	89 / 66	DIN 14342	0,600	21040-075-052-01
110-A / 75-B	133 / 89	DIN 14343	1,570	21040-110-075-01
125 / 100	148 / 115	-	3,960	21040-125-100-01
150 / 125	160 / 148	-	3,960	21040-150-125-01

## Suction hose coupling with security collar



### Technical characteristics

**Material:** Aluminium | also available in stainless steel or brass

**Seal:** Nitrile rubber, black | also available in white

Storz	Lug mm	D mm	Remark	Weight/unit kg	Article no.
25-D	31	25	DN 25	0,110	21018-025-025-01
52-C	66	50	DN 50	0,410	21018-052-050-01
75-B	89	75	DN 80	0,700	21018-075-080-01
75-B	89	75	tailpiece steel	1,580	21018-075-080-01ST
100	115	100	DN 100	1,390	21018-100-100-01
110-A	133	100	DN 100	1,670	21018-110-100-01
125	148	125	DN 125	2,340	21018-125-125-01
150	160	150	DN 150	3,610	21018-150-150-01



## Suction hose coupling with serrated profile



### Technical characteristics

Material: Aluminium | also available in stainless steel or brass

Seal: Nitrile rubber, black | also available in white

WP: 16 bar

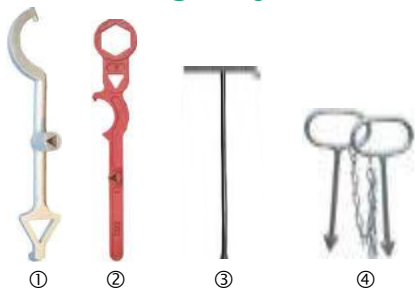
Storz	Lug mm	D mm	L mm	Weight/unit kg	Article no.
52-C	66	51	90	0,370	21017-052-051-01
75-B	89	76	125	0,800	21017-075-076-01
110-A	133	102	170	1,800	21017-110-102-01
150	160	152	180	3,700	21017-150-152-01

## Coupling spanners



Storz	Remark	Fig.	Weight/unit kg	Article no.
D	Steel	①	0,160	21060-025-04
65 / 38	Malleable cast iron	②	0,300	21060-065-038-04
B C	Malleable cast iron	③	0,430	21060-075-052-05
B C	Steel (plastic handle)	④	0,300	21060-075-052-04
A B C	Malleable cast iron	⑤	0,780	21060-110-052-05
A B C	Steel (plastic handle)	⑥	0,730	21060-110-052-04
150 / 125	Steel (plastic handle)	⑦	0,720	21060-150-125-04

## Actuating Keys



Remark	Material	Fig	Weight/unit kg	Article no.
For pillar hydrants DIN 3223 A	Malleable cast iron	①	1,350	21061-05
For pillar hydrants DIN 3223 B	Modular iron	②	2,100	21061-06
For underground hydrants DIN 3223 C	Steel	③	5,510	21063-04
Hydrant bar with chain	Malleable cast iron	④	0,500	21064

# UNIVERSAL COUPLING SYSTEM PERROT

## QUICK-COUPLING SYSTEM STEEL

Originally designed for use in irrigation systems cardan couplings have been used in a broad range of application within the last decades: in agriculture, horticulture, industry, building industry, tunnel- and road construction, water table drawdown, sewage treatment plants, transport of sewage or in environmental protection. The most important conveyed media are water, compressed air, mortar, bitumen, oil, steam, fuels, gas and hot water. The couplings are manufactured from high quality steel and can be delivered black or hot-galvanized. The matching sealing ring can be obtained in different qualities.

## QUICK-COUPLING SYSTEM STAINLESS STEEL

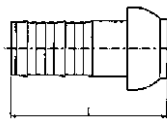
The proven cardan coupling made from steel is also available in stainless steel quality. The various advantages of cardan couplings thereby enable other application areas as filling and transferring of spirits, beverages, edible oils, wine, acids, alkalis, refinery products, chemical substances and aggressive free-flowing materials.

We offer you stainless steel couplings in two variants:

**SUPRA:** Cup of M-part and F-part in stainless steel – lever apparatus and ring on female part from steel, galvanised

**OPTIMA:** Cup of M-part and F-part as well as lever apparatus and ring from stainless steel

## Cardan-male coupling with rolled hose tail | galvanised



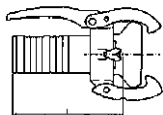
### Technical characteristics

Material: Steel, galvanised | also available in stainless steel



DN mm	Hose shank mm	Weight/unit kg	Article no.
50	50	0,420	23300-050-050-04
89	75	1,040	23300-089-075-04
108	100	1,620	23300-108-100-04
133	125	2,040	23300-133-125-04
159	150	2,700	23300-159-150-04

## Cardan-female coupling with rolled hose tail | galvanised



### Technical characteristics

Material: Steel, galvanised | also available in stainless steel

Seal: Material according to requirements



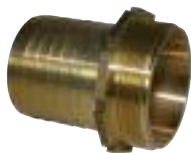
DN mm	Hose shank mm	Weight/unit kg	Article no.
50	50	0,980	23301-050-050-04
89	75	1,600	23301-089-075-04
108	100	2,820	23301-108-100-04
133	125	4,020	23301-133-125-04
159	150	8,080	23301-159-150-04

## WE STOCK THE COMPLETE CARDAN COUPLING PROGRAM!

Please contact us!



## Male threaded with serrated hose shank



### Technical characteristics

Thread: EN ISO 228-1  
 Material: Brass | also available in stainless steel  
 WP: 16 bar

DN Inch	DN mm	For hose mm	Thread Inch	SW mm	Weight/unit kg	Article no.
2	50	50	G 2	65	0,500	24424-20-050-02
3	80	75	G 3	100	1,000	24424-30-075-02
4	100	100	G 4	125	1,890	24424-40-100-02

## Male threaded with smooth hose shank



### FOR SAFETY CLAMP ASSEMBLY

### Technical characteristics

Norm: EN 14420-5 / DIN 2817  
 Thread: EN ISO 228-1, BSP | ANSI B1.20.1 NPT  
 Material: Brass | also available in stainless steel  
 WP: 16 bar

DN Inch	DN mm	For hose mm	Thread Inch	SW mm	Weight/unit kg	Article no.
2	50	50	G 2	65	0,460	24421-050-20-02
3	80	75	G 3	100	0,910	24421-075-30-02
4	100	100	G 4	125	1,930	24421-100-40-02

## TW coupling - Male part with female thread



### Technical characteristics

Norm: EN 14420-6 / DIN 28450  
 Thread: EN ISO 228-1, BSP  
 Material: Brass  
 Seal Thread: PU  
 WP: 25 bar



### Technical characteristics

Norm: EN 14420-6 / DIN 28450  
 Thread: EN ISO 228-1, BSP  
 Material: Stainless steel  
 Seal Thread: PTFE  
 WP: 25 bar

DN Inch	DN mm	Thread Inch	Brass Weight/unit kg	Brass Article no.	Stainless steel Weight/unit kg	Stainless steel Article no.
2	50	G 2	0,300	24454-050-20-02	0,320	24454-050-20-03
3	80	G 3	0,780	24454-080-30-02	0,740	24454-080-30-03
4	100	G 4	1,220	24454-100-40-02	1,250	24454-100-40-03

## TW coupling - Female part with female thread and lever



### Technical characteristics

Norm: EN 14420-6 / DIN 28450  
 Thread: EN ISO 228-1, BSP  
 Material: Brass  
 Seal Coupling: NBR  
 Seal Thread: PU  
 WP: 25 bar



### Technical characteristics

Norm: EN 14420-6 / DIN 28450  
 Thread: EN ISO 228-1, BSP  
 Material: Stainless steel  
 Seal Coupling: CSM  
 Seal Thread: PTFE  
 WP: 25 bar

DN Inch	DN mm	Thread Inch	Brass Weight/unit kg	Brass Article no.	Stainless steel Weight/unit kg	Stainless steel Article no.
2	50	G 2	0,740	24455-050-20-02	0,630	24455-050-20-03
3	80	G 3	1,460	24455-080-30-02	1,300	24455-080-30-03
4	100	G 4	2,710	24455-100-40-02	2,160	24455-100-40-03

## TW coupling - Crown part with female thread



**Technical characteristics**  
 Norm: EN 14420-6 / DIN 28450  
 Thread: EN ISO 228-1, BSP  
 Material: Brass  
 Seal Coupling: NBR  
 Seal Thread: PU  
 WP: 25 bar



**Technical characteristics**  
 Norm: EN 14420-6 / DIN 28450  
 Thread: EN ISO 228-1, BSP  
 Material: Stainless steel  
 Seal Coupling: CSM  
 Seal Thread: PTFE  
 WP: 25 bar

DN Inch	DN mm	Thread Inch	Brass Weight/unit kg	Brass Article no.	Stainless steel Weight/unit kg	Stainless steel Article no.
2	50	G 2	0,230	24456-20-02	0,200	24456-20-03
3	80	G 3	0,550	24456-30-02	0,490	24456-30-03

## TW coupling - Locking ring with lever for crown part



**Technical characteristics**  
 Norm: EN 14420-6 / DIN 28450  
 Material: Brass  
 WP: 25 bar



**Technical characteristics**  
 Norm: EN 14420-6 / DIN 28450  
 Material: Stainless steel  
 WP: 25 bar

DN Inch	DN mm	Thread Inch	Brass Weight/unit kg	Brass Article no.	Stainless steel Weight/unit kg	Stainless steel Article no.
2	50	G 2	0,510	24457-20-02	0,430	24457-20-03
3	80	G 3	0,930	24457-30-02	0,910	24457-30-03

## TW coupling - Dust cap for male part



**Technical characteristics**  
 Material: Brass | also available in Aluminium  
 Seal: NBR



**Technical characteristics**  
 Material: Stainless steel  
 Seal: CSM

DN Inch	DN mm	Brass Weight/unit kg	Brass Article no.	Stainless steel Weight/unit kg	Stainless steel Article no.
2	50	0,370	24458-050-02	0,350	24458-050-03
3	80	0,880	24458-080-02	0,810	24458-080-03

## TW coupling - Dust plug for female part



**Technical characteristics**  
 Material: Brass | also available in Aluminium



**Technical characteristics**  
 Material: Stainless steel

DN Inch	DN mm	Brass Weight/unit kg	Brass Article no.	Stainless steel Weight/unit kg	Stainless steel Article no.
2	50	0,360	24459-050-02	0,300	24459-050-03
3	80	0,890	24459-080-02	0,710	24459-080-03

# Brass-garden couplings – *for service water*

## Hose coupling


**Technical characteristics**

Material: Forging brass

Seal: NBR

Claw distance: 40 mm

DN Inch	DN mm	Weight/unit kg	Article no.
1/2	13	0,094	25010-04-02
3/4	19	0,102	25010-06-02
1	25	0,123	25010-10-02

## Female thread coupling


**Technical characteristics**

Material: Forging Brass

Seal: NBR

Claw distance: 40 mm

DN Inch	DN mm	Weight/unit kg	Article no.
1/2	13	0,094	25011-04-02
3/4	19	0,096	25011-06-02
1	25	0,098	25011-10-02

## Male thread coupling


**Technical characteristics**

Material: Forging Brass

Seal: NBR

Claw distance: 40 mm

DN Inch	DN mm	Weight/unit kg	Article no.
1/2	13	0,088	25012-04-02
3/4	19	0,090	25012-06-02
1	25	0,092	25012-10-02

## Blind coupling


**Technical characteristics**

Material: Forging Brass

Seal: NBR

Claw distance: 40 mm

Sizes	Article no.
Fits all sizes	25013-02

**FOR EVERY APPLICATION THE APPROPRIATE SOLUTION!**



## Sewer Nozzle

### The solid nozzle for everyday use

Sewer Nozzle utilizing the patented fluid mechanics and two different jet angles is primarily designed for day to day all around pipe cleaning. It is made of special hardened stainless steel and also boasts replaceable nozzle inserts.

Patented fluid mechanics.



Hose connection Inch	Pipe Ø mm	Number of inserts	Length mm	Ø mm	Weight kg	Article no.
3/4	150 – 400	10	180	99	6,500	80807-06
1	150 – 500	10	180	99	6,500	80807-10
1 1/4	150 – 600	12	208	109	8,700	80807-12
1 1/2	150 – 600	12	208	109	8,700	80807-14

## Cleaning Nozzle

### The ideal tool for all-round cleaning smaller lines

The Cleaning Nozzle with two different jet angles is mainly used for all around pipe cleaning of specifically smaller pipe diameters. Due to its light design it will go round bends and can be successfully used for different applications. It is made of special hardened stainless steel and boasts replaceable nozzle inserts.

Patented fluid mechanics.



Hose connection Inch	Pipe Ø mm	Number of inserts	Length mm	Ø mm	Weight kg	Article no.
3/8	75 – 200	8	45	44	0,300	80808-03
1/2	75 – 200	8	45	44	0,300	80808-04
3/4	100 – 300	8	105	64	1,700	80808-06
1	100 – 400	8	125	74	2,700	80808-10

## Quattro nozzle with forward jet

### Special nozzle for blocked pipes and sewers

The front water jets loosen the blockages and the sharp edges provide additional assistance in clearing off obstructions.



Hose connection Inch	Pipe Ø mm	Number of inserts	Length mm	Ø mm	Weight kg	Article no.
1/4	ab 50	1	30	22	0,100	80814-02
3/8	ab 50	1	30	22	0,100	80814-03
1/2	ab 75	4	55	30	0,150	80814-04
3/4	ab 75	10	70	45	0,400	80814-06
1	ab 100	10	95	57	0,900	80814-10
1 1/4	ab 100	11	170	75	2,700	80814-12





## Standard Nozzle

### Standardised sewer cleaning nozzle

Standardised cleaning nozzle for different applications with and without front jet.



Hose connection Inch	Length mm	Ø mm	Weight kg	Article no.
1/8	15	15	0,020	80819-01* 80820-01+
1/4	24	20	0,030	80819-02* 80820-02+
3/8	24	24	0,080	80819-03* 80820-03+
1/2	50	30	0,200	80819-04* 80820-04+
3/4	60	40	0,300	80819-06* 80820-06+
1	80	50	0,600	80819-10* 80820-10+
1 1/4	93	60	1,000	80819-12* 80820-12+

\* Nozzle with front jet | + Nozzle without front jet

## Sewer Flush Nozzle

### Standardised sewer cleaning nozzle

The **Sewer Flush Nozzle** is a solid and reliable all-round nozzle made of wear-resistant, hardened material. 1/4" and 3/8" size are available with forward jet.



Hose connection Inch	Length mm	Ø mm	Weight kg	Article no.
1/4	50	30	0,250	80822-02* 80821-02+
3/8	60	38	0,500	80822-03* 80821-03+
1/2	60	38	0,500	80821-04+
3/4	98	65	1,500	80821-06+
1	148	88	4,600	80821-10+
1 1/4	178	98	6,200	80821-12+

\* Nozzle with front jet | + Nozzle without front jet

## HP Sviwel Joint

HP swivel joints serve to stabilize chain cutters, floor cleaners and other cleaning tools inside the pipe. Advantages: stabilize tools inside the pipe, facilitate the tool assembly.



Hose connection Inch	Weight kg	Article no.
1/2	0,300	80825-04
3/4	0,500	80825-06
1	0,900	80825-10
1 1/4	1,300	80825-12
1 1/2	1,700	80825-14



# GrüloSmellPad

## ODOUR NEUTRALIZATION IN SEWERAGE NETWORK

**Grüning & Loske GmbH** addresses the problem of unpleasant smells. Wherever disturbing smells occur there are ways to fight them. Following an onsite survey we develop a specific operational planning, support the application permanently and train yourself in the use of the product. The anti-smell plate **GrüloSmellPad** is particularly of use for sewer systems, treatment plants and waste disposal.

**Minimum effort – maximum benefit!**

- Polymer plate with specific formula for odour reducing ingredients
- Proven product against H<sub>2</sub>S, sulfuric components, Ammonia and compounds
- Release of ingredients over 3-4 months, 24h gas-to-gas treatment
- Affixing in manholes above sewage



# SmellMasterTruck

## ODOUR NEUTRALIZATION BY DRY STEAM-PROCEDURE

Using the **SmellMasterTruck-System** the originally fluid product is converted into dry, highly volatile microparticles. These can be conducted over pipelines or special tube systems to the collecting and disposal tank. A connection via tube elongation to the output of the vacuum pump is also possible. During the suction process resulting highly contaminated exhaust air can immediately be neutralized inside the SmellMaster system.

The **SmellMaster Truck-System** is applicable in permanent operation as well as in regular time intervals.



**STOP THE ODOUR!**



Unique in Europe

## WORKSHOP HOSE CRIMPERS

### Mobile and lubrication-free

Usable for all types of hose pipes and fittings. Slide bearing metal sheets at the pressing tool: higher efficiency due to less friction, no wear and no soiling by lubricants (lubrication-free), 20% less friction-loss.

### Hose Crimper S1M

**Package includes:** single-stage hand pump, handle B 14  
Pressing dies PB261 (Ø 17,020, 24)

#### Technical characteristics

Crimp force: 75t, up to DN 25 – 4P (1" R12)  
depending on tube and fitting  
SAE R 12 / 4 SP\* 1 piece fitting: 1"  
SAE R 12 / 4 SP\* 2 piece fitting: 1"  
Industrial: 1 1/4"  
90° Elbows: 1/2"  
Max. Crimping range: 52 mm  
Opening: +10 mm

Opening without dies: 52 mm  
Type of dies: 261  
Drive: Manuell  
Oil: 0,32 l  
LxWxH: 230x180x160 mm  
Weight: 15 kg  
Article no.: 13000-S1M



### Hose Crimper S2M

**Package includes:** two-stage hand pump (11,26 cm<sup>3</sup> / 2,47 cm<sup>3</sup>),  
Pressing dies PB263 (Ø 17, 20, 24, 28, 32, 40)

#### Technical characteristics

Crimp force: 90 t, to DN 25 – 4SH (1" R15)  
SAE R 12 / 4 SP\* 1 piece fitting: 1 1/4"  
SAE R 15 / 4 SH\* 2 piece fitting: 1"  
Industrial: 1 1/4"  
90° Elbow: 1"  
Max. Crimping range: 63 mm  
Opening: +22 mm

Opening without dies: 77 mm  
Type of dies: 263  
Drive: Manuell  
Oil: 0,75 l  
LxWxH: 500x420x440 mm  
Weight: 32 kg  
Article no.: 13000-S2M



### Hose Crimper S2A

**Package includes:** Pressing dies PB263 (Ø 17, 20, 24, 28, 32, 40)

#### Technical characteristics

Crimp force: 90 t, to DN 25 – 4SH (1" R15)  
SAE R 12 / 4 SP\* 1 piece fitting: 1 1/4"  
SAE R 15 / 4 SH\* 2 piece fitting: 1"  
Industrial: 1 1/4"  
90° Elbow: 1"  
Max. Crimping range: 63 mm  
Opening: +22 mm

Opening without dies: 77 mm  
Type of dies: 263  
Drive: electrical 230V-50Hz-1Ph,  
alternatively 12 od. 24 Volt DC  
Oil: 1,5 l  
LxWxH: 450x450x350 mm  
Weight: 41 kg  
Article no.: 13000-S2A



### Hose Crimper S2P

**Package includes:** Pressing dies PB263 (Ø 17, 20, 24, 28, 32, 40)

#### Technical characteristics

Crimp force: 90 t, to DN 25 – 4SH (1" R15)  
SAE R 12 / 4 SP\* 1 piece fitting: 1 1/4"  
SAE R 15 / 4 SH\* 2 piece fitting: 1"  
Industrial: 1 1/4"  
90° Elbow: 1"  
Max. Crimping range: 63 mm  
Opening: +22 mm

Opening without dies: 77 mm  
Type of dies: 263  
Drive: Compressed air  
Oil: 2 l  
LxWxH: 380x400x310 mm  
Weight: 33 kg  
Article no.: 13000-S2P



# ADALIT® L-3000

## Professional safety torch

**ADALIT® L-3000** displays all modern technical features as there are power management of battery packs with digital display, new revolutionary optical unit, LEDs and battery pack of the latest generation. The swiveling head enables a universal use as hand lamp or light source fixed to the holster.

### FEATURES:

- Lithium-Ion battery exchangeable by user
- Remaining time of light duration is indicated on the swivelling head in hours and minutes
- Warning/flashlight indicating low battery during the last 15 minutes
- Self-checking mode (in case of repair) and mode for charge and discharge cycle
- Fits to all ADALIT charging units in trade since 2004
- Swiveling luminaire head (0° / 45° / 90°)
- Torch case made of anti-static thermoplastic resin, highly resistant to chemicals, extreme temperatures and mechanical load.
- New revolutionary optical unit enables perfect illumination of visual field by two LED
- Different light adjustments, both LED (focus light beam and scattered light) operating at the same time, flashing light (in 5 frequencies adjustable), scattered light with focused power light
- Operating time of both LEDs (2 x 3 Watt LEDs = 200 Lumen) programmable to 4h, 6h or 8h.
- Excellent handling with gloves by new ergonomic push button
- Protection Class IP67, dust- and watertight
- Highest protection class for operating in zone 0 + 1 + 2 (gas atmospheres) and 20 + 21 + 22 (dust atmospheres)
- Complies with DIN 14649



### DELIVERY CONTAINS:

- lamp ADALIT L-3000
- battery pack

### TECHNICAL DATES:

- **Package:** cardboard box, with battery pack
- **Protection Class:** IP 67
- **ATEX certification gas:** II 1G Ex ia IIC T4 Ga IP67
- **ATEX certification Dust:** II 1D Ex ia IIC T85°C Da
- **Battery package:** Lithium-ion battery 3,7V / 4 Ah
- **Brightness:** 135 lm
- **Operation time:** 8h
- **Dimensions:** 70 x 225 mm

### CHARGING STATION:

All charging stations are equipped with an overcharging protection including automatic shutdown at the end of the charging process. Certified according EMV-specifications (TR 041 within 2m/4m tetra band Class 5) and EU regulations 72/245/EEC + 2006/28/EC.



Charger 220/240 V  
Loading space: 1  
Article no. 80300-240-1



Charger 220/240 V  
Loading space: 3  
Article no. 80300-240-3



Charger 220/240 V  
Loading space: 5  
Article no. 80300-240-5



Charger car 12/24 V  
Loading space: 1  
Art. no. 80300-1224-1



Charger car 12/24 V  
Loading space: 3  
Art. no. 80300-1224-3



Charger car 12/24 V  
Loading space: 5  
Article no. 80300-1224-5

### HOLSTER:

- Holster for attachment and protection of the torch
- Perfect attachment and directing of ADALIT L-3000
- Optional attachable to waist belt or shoulder straps of respirators.
- Position upside down in holster carried at shoulder straps enables illuminating the floor
- Reflective stripes for additional safety

Article no. 80300-7026



### BATTERY SET:

Lithium-ion battery + Seal (set)  
Article no. 80300-7328



## Personal Protection Equipment (PPE)

### Safety first!

**Grüning & Loske GmbH** cares about your safety at work - we provide personal protection equipment (PPE) from head to toe. A wide delivery range of products ensures the availability of high-quality trade-marked articles from different manufacturers. As system partners of industry (MRO) we offer out-sourcing concepts in occupational safety including scheduling and logistics in cooperation with your management for occupational safety and purchase.

In addition we advise you on the application of our products considering latest knowledge of occupational medicine as well as safety requirements. If required we carry out safety-related analysis followed by a sound consultancy service.

Our range of personal protection equipment covers everything: from gloves to chest wader, safety boots and helmets up to high visibility clothing.

**We find the appropriate equipment for your safety!**



## Accessories

### For demand-orientated sewer cleaning

Learn more under [www.gruelo.de](http://www.gruelo.de).



## Pipe plugs, pipe stoppers and rehabilitation packers

Quality and safety – Made in Germany!

Pipe stoppers, pipe plugs or flow-through plugs for all profiles: circle, square, egg-shaped, kite-shaped, mouth-shaped or open U-profiles: We guarantee quality and safety by products manufactured in Germany.

Your advantages in overview:

- All products are highly resistant to ageing and offer good chemical resistance
- The Pipe stoppers are repairable, easy and narrow foldable. Uncomplicated handling makes your work more efficient.
- Operating a device in different diameters saves you further acquisitions.
- We will be pleased to provide the necessary equipment as there are safety valves, filling hoses, pressure reducer...



**We repair your packer!**  
**Please feel free to contact us!**

## We stock all sewer cleaning products of RIS-Technik GmbH



# GrüloReelWinder

## MACHINE FOR WINDING AND UNWINDING OF HOSES

**GrüloReelWinder** facilitates the exchange of your sewer cleaning hoses and makes winding and unwinding extremely easy. We gladly offer an instruction on-site by our well-schooled staff.

**GrüloReelWinder** is available **with** (230 V / 380 V) or **without** engine. The motor-driven model has a preset rotation speed. This can be adapted on demand. For assembly and disassembly of the reel a crane, forklift or wheel loader should be available.

**GrüloReelWinder** is easy to move by means of a lift truck. Storage should be made dust-free and dry.

With CE-Label and electrically tested.

Manufactured in Germany.



### Technical information

**Material:** Steel, painted – also in your house color,  
on request also in stainless steel

**Dimensions:** W 180 cm x D 120 cm

**Height without reel:** 110 cm

**Height with reel:** to 165 cm

**Empty weight:** 190 kg

**Delivery time:** ca. 8 Weeks

# GrüloReelWrapper

## ALTERNATIVES FOR EVERYBODY

The manually operable reeler **GrüloReelWrapper (type 1)** and the **rotary plate (type 2)** simplify the work in exchange of hoses at your vehicles.


**For detailed informations please contact us!**



type 1



type 2



# OUR PRODUCT RANGE AT A GLANCE

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## HOSE TECHNOLOGY

technical advice, pressure testing,  
hose line assembly



## HOSE CONNECTION SYSTEMS

couplings, fittings



## FASTENING TECHNOLOGY

hose clamps



## WEAR PROTECTION AND CONVEYOR BELT ENGINEERING



## RUBBER- AND SEALING TECHNOLOGY



## PPE - PERSONAL PROTECTIVE EQUIPMENT



## MRO GOODS



## CHEMICAL PRODUCTS

adhesive and sealing material



[www.gruelo.de](http://www.gruelo.de)