

SIGMA[®] TRANSPORT SYSTEM

THE ORIGINAL SUCTION AND
DELIVERY HOSE FOR THE
TRANSPORT OF ABRASIVE MEDIA



SEMPERIT

The Austrian Semperit AG is an international group of companies for highly specialized rubber products. As leading European manufacturer of **industrial hoses**, the **Semperflex Industrial** segment develops and distributes products from highest quality standards for a wide range of applications since 1872.

SIGMA® TRANSPORT SYSTEM

The next generation of the extremely abrasion resistant Semperit SIGMA® transport system for the hydraulic and pneumatic transport of abrasive material now encompasses three different products.

The return of the original SIGMA®

The original product range was revised and important, innovative changes were made for the further development of the original hoses.

With its substantially improved quality, the **premium SIGMA® plus FS 3320** hose replaces the former FS 3320 product and represents the perfect addition to the already known and highly trusted **SIGMA® black FS 3325** and **SIGMA® white FS 3340** hose.

The new SIGMA® plus FS 3320 has been equipped with a **high-quality MSHA cover**, a **thicker inner liner** as well as a **colored wear indicator** for the early detection of abrasion. Placed in the premium segment, the especially robust and flexible hose finds its application in the transport of abrasive material such as cement, sand, phosphates, quartz, dolomite, glass splinters, dry mixed animal food, grain, bark, wood shavings.

The same applications are covered by our **SIGMA® black FS 3325** which is the comparable **standard product** to the hoses from the major market players **in terms of quality**.

Flexibility

Thanks to its **modular design**, the specially developed SIGMA® transport system can be used **extremely flexibly**. The integration into existing systems is easy, which leads to **minimal installation times** and thus **less downtimes** and sustainable **cost savings**. The correct selection of the elements of the SIGMA® system enables the transportation of a wide range of media.

Easy assembling

SIGMA® has a specific coupling system that consists of a gasket and 2 aluminum flanges (DIN EN1092-1 PN10) and is mounted on the outside of the hose. This assures the full flow of the transported medium.

All elements are **easy to assemble** which common work tools and by following the general assembling instructions. If an exchange is nevertheless required, the **metallic flange couplings** can be **reused**.

Long Lasting

The exceptionally long service life can even be optimized and extended by various factors:

System components can be individually tailored to the material being conveyed;

On the couplings, the hose can be rotated around the longitudinal axis, which prevents one-sided wear, especially when conveying abrasives.

Reduced Noise Level

Noise caused by dry goods transmitting through steel pipes can be significantly reduced when converting to the SIGMA® system. The rubber liner absorbs a large part of the sound-energy and reduces the noises – especially in indoor applications where noise is retained within the building.

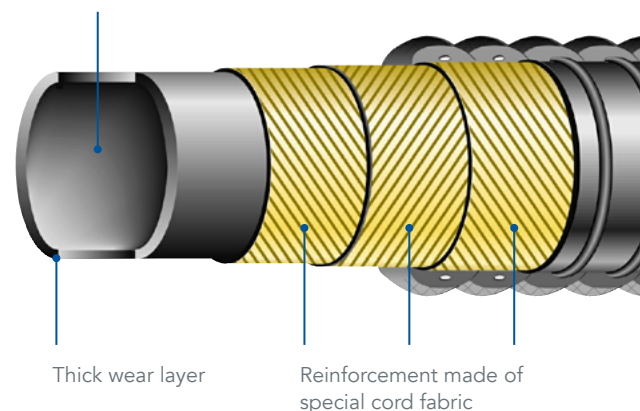
CONSTRUCTION AND TECHNICAL DATA OF THE SIGMA® TRANSPORT SYSTEM

The construction warrants diameter stability with pressure, suction, and gravity transport.

WORKING PRESSURE: max.10 bar

VACUUM RESISTANCE: up to -0,9 bar

Wear indicator



Thick wear layer

Reinforcement made of special cord fabric

SIGMA® PLUS FS 3320

Pneumatic and hydraulic transport of abrasive materials with wear indicator



APPLICATION: Premium suction and delivery hose for the pneumatic and hydraulic transport of abrasive material such as cement, sand, phosphates, quartz, dolomite, glass splinters, dry mixed animal food, grain, bark, etc.

TEMPERATURE: -35°C / +80°C

TUBE: NR/BR/SBR, black, electrically conductive, abrasion-resistant, colored wear indicator, average wear of the tube 50 mm³ (according to DIN ISO 4649:2021)

REINFORCEMENT: Textile, wrapped, zinc plated wire helix

COVER: EPDM/SBR MSHA approved, black, corrugated, electrically conductive, resistant to abrasion, weather, cloth impression, flame resistant acc. to MSHA approved cover: IC-08/24

IDENTIFICATION: Continuous tape, blue: „SEMPERIT S SIGMA® plus FS 3320 S&D WP 10 bar ////“

SIGMA® BLACK FS 3325

Pneumatic and hydraulic transport of abrasive materials



APPLICATION: Suction and delivery hose for the pneumatic and hydraulic transport of abrasive material such as cement, sand, phosphates, quartz, dolomite, glass splinters, dry mixed animal food, grain, bark, etc.

TEMPERATURE: -35°C / +70°C

TUBE: NR/BR/SBR, black, antistatic, abrasion resistant, average wear of the tube 70 mm³ (according to DIN ISO 4649:2021)

REINFORCEMENT: Textile, wrapped, zinc plated wire helix

COVER: EPDM/SBR, black, corrugated, electrically conductive, resistant to abrasion, weather, cloth impression

IDENTIFICATION: Continuous tape, black: „SEMPERIT S SIGMA® black FS 3325 S&D WP 10 bar ////“

SIGMA® WHITE FS 3340

Pneumatic and hydraulic transport of solid and dust-like food



APPLICATION: Suction and delivery hose for the pneumatic and hydraulic transport of solid and dust-like food such as animal feed, silo products, grain, light colored plastic granulates and oil-laden substances...

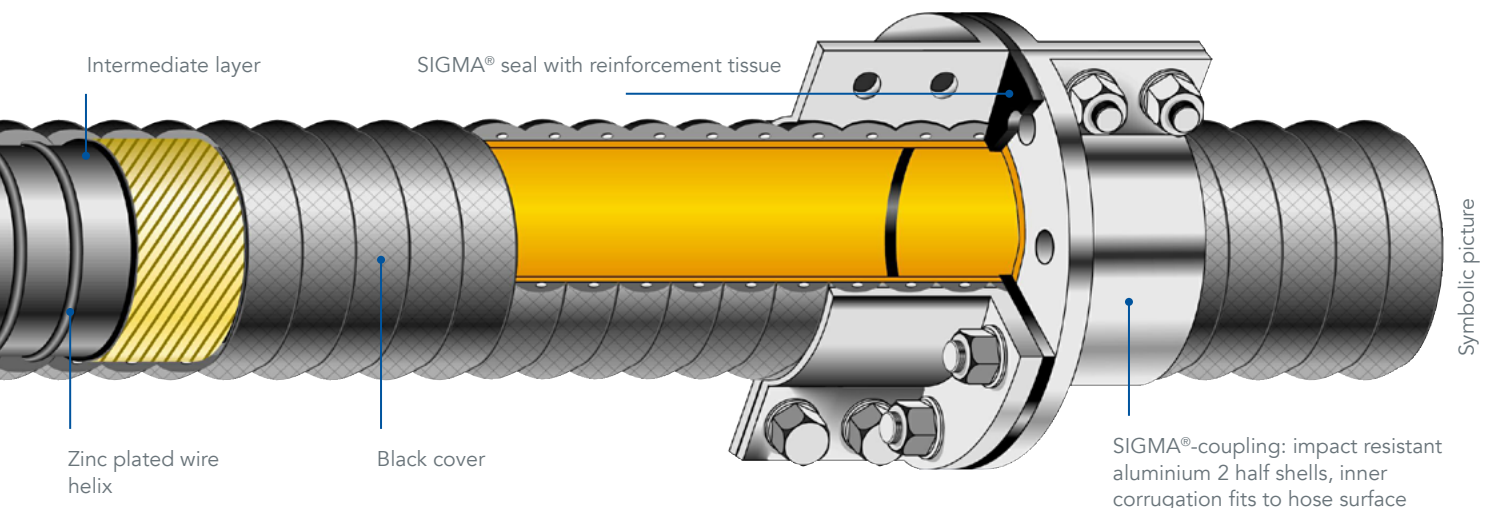
TEMPERATURE: -35°C / +80°C

TUBE: NBR/PVC, white, antistatic, abrasion resistant, food quality acc. to BfR XXI (category 4), average wear of the tube 140 mm³ (according to DIN ISO 4649:2021)

REINFORCEMENT: Textile, wrapped, zinc plated wire helix

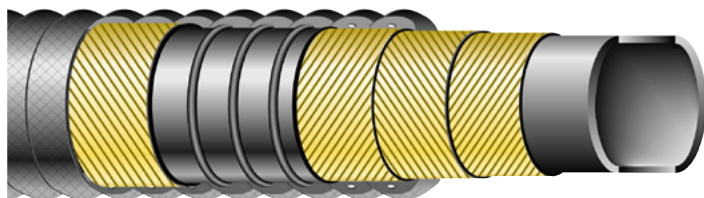
COVER: CR, black, corrugated, electrically conductive, resistant to abrasion, oil, weather, cloth impression

IDENTIFICATION: Continuous tape, white: „SEMPERIT S SIGMA® white FS 3340 S&D WP 10 bar ////“

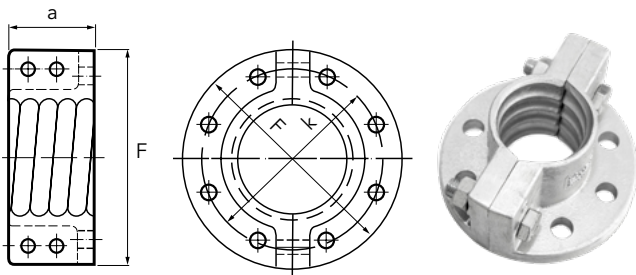


BASIC ELEMENTS

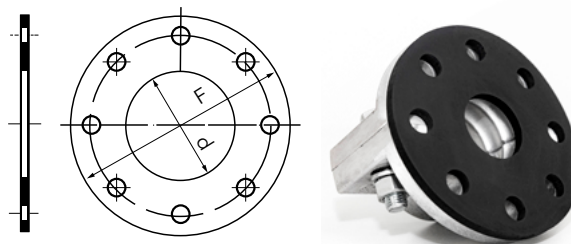
1 SIGMA® suction and delivery hose



2 Coupling KU 3311



2 Gasket DI 3312



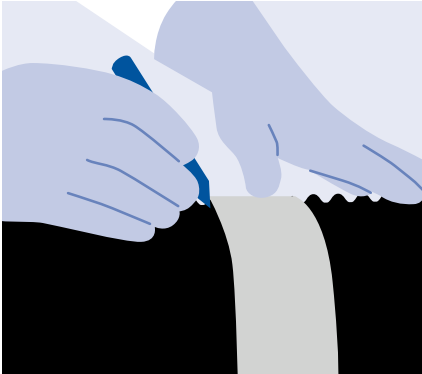
SIGMA® General Data			1 Suction and delivery hose FS 3320, 3325, 3340				2 Coupling KU3311 Gasket DI3312 DIN EN 1092-1		
Inner diameter mm	inch	Length m	DA mm	S mm	Radius mm	Weight kg/m	F mm	k mm	z x h Stk. x mm
50,8	2	40	74,8	6	250	3,0	165	125	8 x 18
63,5	2 1/2	40	87,5	6	300	4,0	185	145	8 x 18
76,2	3	40	114,2	11	350	8,0	200	160	8 x 18
101,6	4	40	132,6	8	500	8,0	220	180	8 x 18
127,0	5	20	162,0	7	650	12,4	250	210	8 x 18
152,4	6	20	188,4	8	750	14,3	285	240	8 x 22
203,2	8	20	241,2	9	1250	18,8	340	295	8 x 22

Additional Components

1. Manifold
2. Branch
3. Reducer
4. Adapter
5. Flange adapter ring
6. Shut-off valve

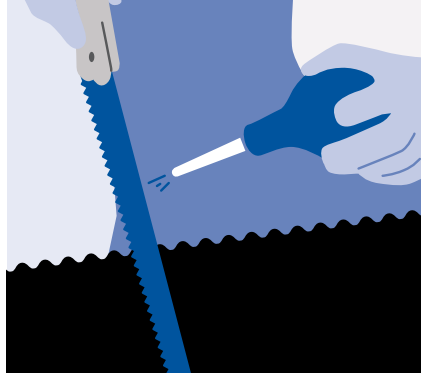
 For technical details, please contact your Semperit team.

ASSEMBLY INSTRUCTIONS



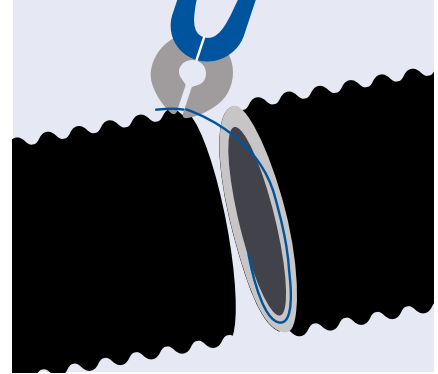
1. MEASURING AND MARKING

Marking with a silver point pen; a metal sheet can be used as device or the half shells of the coupling can be placed provisionally on the hose.



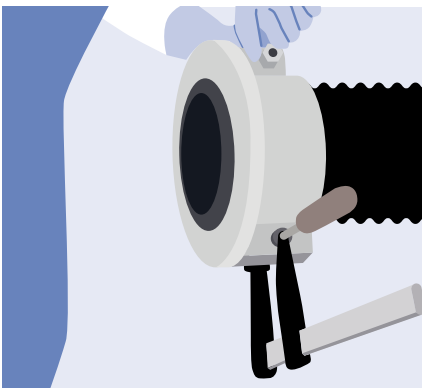
2. CUTTING UP TO THE STEEL WIRE HELIX

With a sharp, moistened cutting tool at the marked point, **incise straight at a 90° angle to the hose longitudinal axis!**



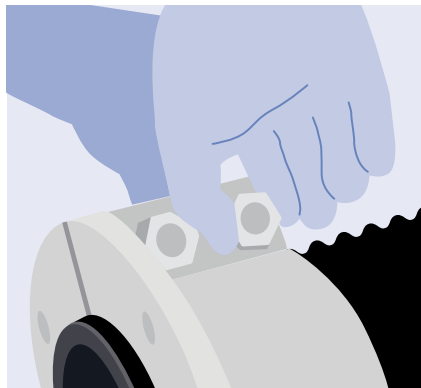
3. PULLING THE STEEL WIRE HELIX

Pull the hose halves apart; pull the steel wire helix from the cut surface and cut it with a hack-saw or cable cutter at the center of the hose – **the spiral must never tower above the cut surface and must not stick out of the rubber!**



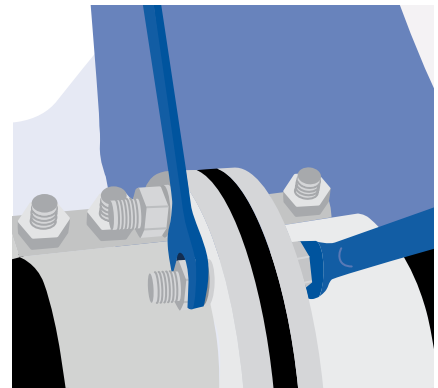
4. FITTING THE COUPLING

Put both half shells of the coupling on the hose; inner corrugation must lie exactly on the corrugation of the hose (e.g. with screw clamp); **hose end must overtop the flange by 3-5 mm!**



5. SCREWING TOGETHER

Screw both half shells together up to the point where the inside of the hose shows slightly corrugated deformations; an equally large gap must remain between the two halves. A too tight or too loose assembly may reduce the service life of the system significantly.



6. SEALING

Lay the seal between both flange couplings as concentrically as possible and screw them tightly together; the imperviousness of the system is only maintained by pressing both hose ends against the seal



Safety warning: The installation must only be carried out by **qualified specialists with suitable tools and appropriate protective equipment**. Assembly information is provided without guarantee of completeness and correctness.

SERVICE, MAINTENANCE AND STORAGE

Hoses are subject to a limited service life and the user must be alert to warnings of a pending hose failure, especially when the conditions under which the hose is used require a high working pressure and/or the hose is used to convey dangerous substances.



Safety warning: If the **manufacturer's recommendations** regarding service, maintenance and storage of the hose in question are **not followed**, this may **lead to the hose's failure to function** correctly, which in turn may **lead to damage of property or serious bodily injury**.

The complete instructions for the correct storage of hoses can be found online on the Semperit website:
<https://hoses.semperitgroup.com/info-center/technical-information-industrial-hoses/>

HANDLING GUIDELINES

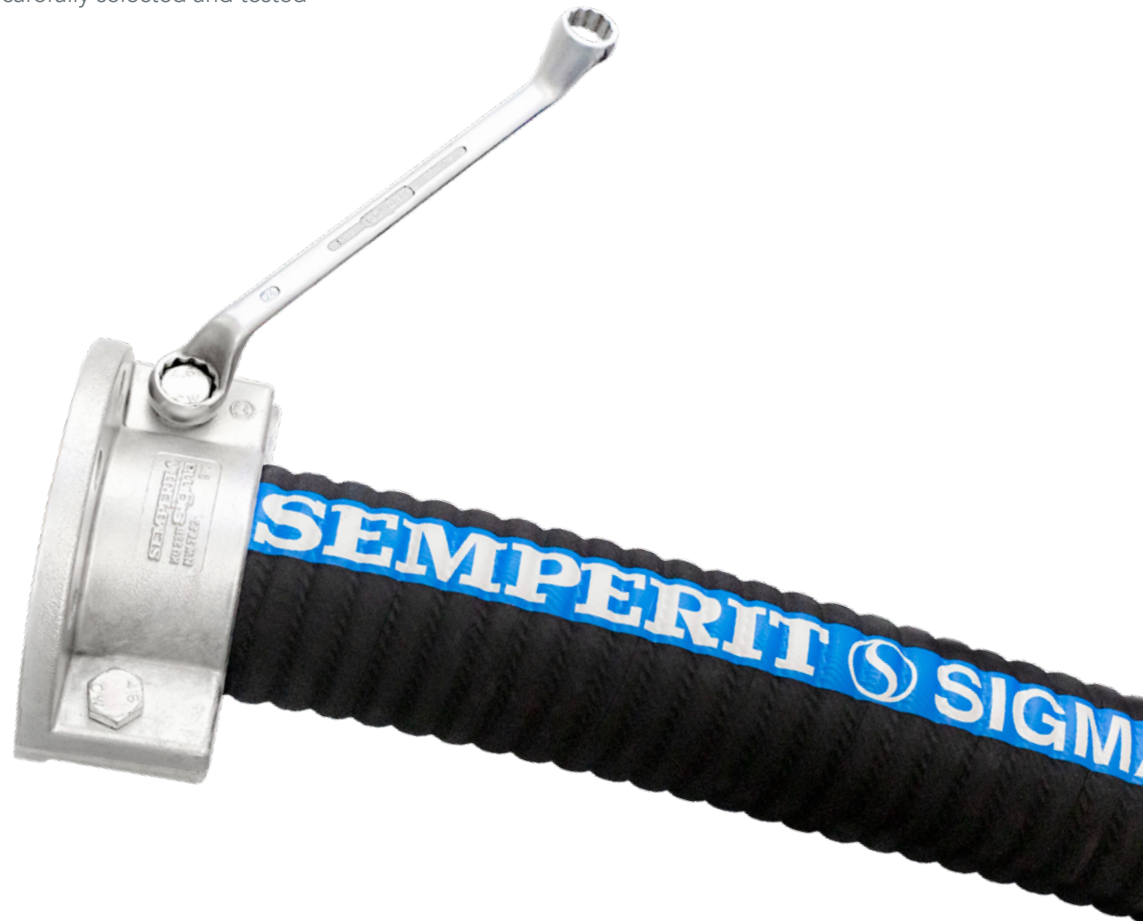
In addition to the general handling guidelines for rubber hoses, it is important to observe the following points when using SIGMA® materials handling hose system due to their large physical dimensions and measurements:

- In principle, SIGMA® hoses are to be handled on pallets regardless of delivery method to prevent any damage to the hose.
- When delivered straight, it is recommended that the hoses be handled by two fork lifts.
- A hoisting eye must be used if individual hoses or hose bundles must be moved by forklifts without the use of pallets.
- When transporting the hoses, they must be sufficiently secured every time to prevent any damage during transport.
- SIGMA® hoses must not be dragged across the ground or over sharp-edged objects despite their size.
- At no time, neither during transport nor storage, may objects be placed on the SIGMA® hose; otherwise embedded wire helixes will be in danger of becoming permanently damaged. Only SIGMA® hoses may be stored on top of each other.
- It is very important to note that pressure sensitivity increases with the increasing nominal bore of the hose.
- Due to the high mass of the SIGMA® materials handling hose system, it is recommended that hoisting equipment and the like be used when handling the hoses for ergonomic reasons.

Attention: Each individual element of the SIGMA® system has been developed in close co-operation with our users over many decades and have carefully been matched with each other. The functioning of the system can only be expected if original SIGMA® parts are used (hose, coupling, seal, ...). The application conditions affect the service life of the system.

Our ISO 9001: 2015 certified quality management system ensures the same high level product quality in all stages of the manufacturing process. In accordance with ever-more demanding user requirements, the tubes and covers of our Semperit hoses are made from carefully selected and tested

rubber mixtures. We make state-of-the-art hoses combined with textile and metal reinforcements to meet the requirements for the application.



Attention: Please note that before using our products related to new or untested media or for applications not expressly mentioned in the product information, written information shall be obtained from a specialist dealer or a Semperit application engineer. For safety reasons, all products must be checked for their operational safety and replaced in case of damage or unusually heavy wear and tear, this refers in particular to the hose covers. All products must be stored, used, and maintained in accordance with all our applicable instructions and in accordance with DIN 7716:1982. As we are constantly developing and improving our products even after publication of the catalogue and/or the individual data sheets, unannounced changes to the information contained in our catalogue and data sheets are possible at any time. To ensure that you always have the latest product and safety information, please visit our website (www.semperflex.com) regularly or contact one of our specialist dealers or a Semperit application engineer. All contracts concluded with Semperflex are exclusively subject to our General Terms and Conditions (available at www.semperitgroup.com). Further important general information regarding the range, selection and safe use of our products, which must be observed without exception, can be found on our website (www.semperflex.com).

Important note: Our catalogue and the individual data sheets have been prepared with utmost care to provide you with all necessary information. The information contained therein is based on modern industrial technology at the current state of the art, years of experience and intensive testing. For products with a reference to this effect, we also confirm that the requirements regarding material resistance according to ISO TR 7620:2005(E) have been met. However, it should be noted that the respective storage, maintenance, and operating conditions have a decisive influence on the safe use and durability of the products concerned. The quality and safety of our products in accordance with the information in the catalogue or the individual data sheets is therefore exclusively subject to the constant strict compliance with all specifications and restrictions set out in our product information presented in writing, the relevant legal regulations and standards, in the specifications regarding chemical resistance and in our cleaning instructions. We decline all liability for safety problems or other negative consequences resulting from the selection of an unsuitable product, improper maintenance, or mishandling (e.g. crushing, tearing, overstretching, or filling with unauthorized media) and other failure to comply with the contents of this disclaimer and the instructions contained herein. The use of our products in airplanes or other aircraft is not permitted under any circumstances. Unless otherwise stated, all hoses are manufactured according to DIN EN ISO 1307:2008.

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