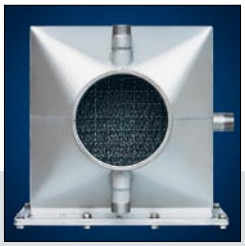
Rupture Disks
Static Mixers
Heat Exchangers
Demister



STRIKO®

Verfahrenstechnik

Company

STRIKO Verfahrenstechnik has been a reliable partner for plant engineering and construct on including the chemical, petrochemical, pharmaceutical, food and process engineering industry for over 35 years.

Our high-quality products and engineering services guarantee highest plant and process safety as a result of the long-term experience of our employees and design of pressure vessels according to effective rules and standards.

Project-related drawings are generated in a 2D/3D CAD system. Product-related parameters like required minimum net flow area of rupture disks, pressure drop and mixing quality of static mixers, heating- or cooling performance of heat exchangers as well as deposition rate of demisters are calculated and the results will be tested in our in-house test facility if required. An extensive warehouse and flexible manufacturing processes provide a high level of availability of products, which are often custom-made.

From our head office in Wiehl-Bomig we advise and supply well-known chemical companies and numerous medium-sized companies from all branches. We also deliver customised solutions to complement our standard programme of services.

We will definitely find a solution for you, because our strengths are:

INNOVATION – QUALITY – RELIABILITY

So why not put us to the test!

Rupture Disks

STRIKO-rupture disks are pressure relief devices, what typically comprises a rupture disk, i.e. a pressure-containing and at the same time pressure-sensitive element and a rupture disk holder assembly.

Our diverse rupture disk variants made of metal or non-metal materials cover a comprehensive range of nominal widths, bursting pressures and temperatures. STRIKO rupture disks can therefore guard against overpressure or a vacuum condition when used in pressure devices (pressurised containers, pipelines, reactors or other closed pressurised systems).

Rupture disks are designed to burst open and relieve an overpressure or vacuum condition on reaching a predetermined differential pressure and, more importantly, do not re-close it, thus providing protection for the personnel, plant, and environment.

Rupture discs must be replaced after bursting at a specific predetermined differential pressure and temperature and so you always have a brand-new and virtually leak-free pressure relief device in use in your plant. This is an essential advantage compared to safety valve devices, which have higher leaking rates and also create higher costs in purchasing and maintenance.

The legal guidelines and safety demands are seen as the absolutely minimum requirements for STRIKO Verfahrenstechnik. STRIKO bursting safety devices are used and can be counted on wherever devices or plants require safeguarding such as, for example, in the chemicals, food engineering and process engineering industry. Our engineers will determine the best solution for the safety of your plant according to your specifications.

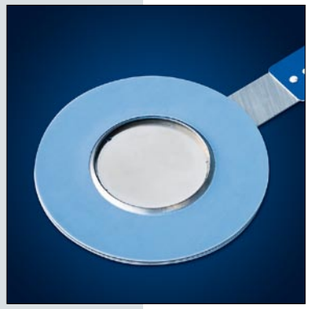
STRIKO bursting safety devices are an economical alternative to safety relief valves - and they are especially easy to install, too! Our rupture disks are, however, perfect for protecting the safety relief valves you've already had installed at great expense from highly corrosive materials. Our rupture discs are custom-made of stainless steel, graphite and special materials like e.g. Tantal, Hastelloy® or Inconel® to suit exactly what you need.

STRIKO rupture disks provide:

- exact response for pressure relief
- leak-free seal
- high-quality materials, yet still remaining reasonably priced due to low material usage
- system relief after a few milliseconds
- no maintenance required, disk is replaced every time after bursting with a brand-new bursting disk
- short changeover times

Product Range Rupture Disks

Rupture Disks, made of metal

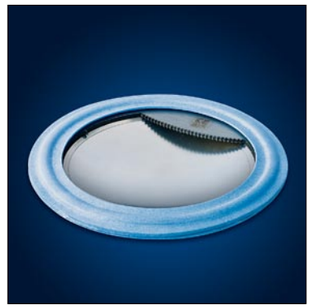


STRIKO Flat Rupture Disks
Types: SF-M / SF-MV / SF-MD

- flat rupture disks, applicable without holder directly between flanges
- vacuum-sealed with vacuum support
- operating ratio: 80%
- preferred use at static pressures
- minimal fragmenting

STRIKO Aseptic Rupture Disks
Types: SF-M-S / SZ-X-S / SU-C-S

- flat, forward acting or reverse acting design
- applicable between Tri-clamps and screw-connections
- full opening non-fragmenting design
- operating ratio: depending on selected bursting disk type up to 90%



STRIKO Forward Acting Rupture Disks
Types: SZ-X / SZ-M / SZ-MV

- non-fragmenting bursting
- can be used as a stand-alone component or in combination with a safety relief valve
- operating ratio: up to 90%
- fail-safe mechanism: incorrect installation causes the SZ-X to burst at or below the actual bursting pressure

STRIKO Extruder Rupture Disks
Types: S-EB / S-EB-SVT

- available in different sizes / lengths
- operating ratio: 80%
- a purely passive safety device beside pressure- and temperature-measurement equipment
- S-EB-SVT with integrated burst indicator
- use at high pressure- and temperature-applications

STRIKO Reverse Acting Rupture Disks
Types: SU-R / SU-C / SU-X

- back pressures up to 1.4 times rated burst pressure possible
- non-fragmenting bursting
- can be used as a stand-alone component or in combination with a safety relief valve
- for testing safety relief valves without having to remove them
- operating ratio: 90%
- high resistance against alternating pressures
- ideal for materials, which tend to adhere and „cake"

STRIKO One-Way Units
Type: S-EW

- use for example in hydraulic machines
- full opening non-fragmenting design
- short changeover times
- can be used as a stand-alone component or in combination with a safety relief valve
- operating ratio: up to 90%

Product Range Rupture Disks

Rupture Disks, made of graphite

STRIKO Series **G2**

- flat graphite rupture disks
- to be assembled in holder HG2
- excellent corrosion resistance
- vacuum-sealed with optional vacuum support
- operating ratio: 80%
- dimensions: DN 25 up to DN 600

STRIKO Series **G3M / G3A**

- monobloc-graphite rupture disks
- useable directly between flanges without holder
- excellent corrosion resistance
- vacuum-sealed with optional vacuum support
- operating ratio: 80%
- dimensions: DN 25 up to DN 600
- G3A with stainless steel armour

Special Equipment

- with sintered Teflon-surface usage up to 260°C possible
- PTFE-Liner available at product side
- can be combined with all usual gasket materials
- holder HG2 for bursting disks of Series G2 is available in graphite, stainless steel 1.4571 or special materials like Hastelloy®, Tantal or with PTFE-Liner

Rupture Disk Holders

STRIKO Standard Holder Types: SHF / SHZ / SHU

- for all STRIKO-rupture disks made from metal
- holders are available in stainless steel 1.4571 or special materials like Hastelloy®, Tantal or with PTFE-Liner
- dimensions from DN 20 up to DN 250, depending on combined rupture disk type

STRIKO Pre-loaded Holder Types: SHF Pro / SHZ Pro / SHU Pro

- for all STRIKO-rupture disks made from metal
- holders are available in stainless steel 1.4571 or special materials like Hastelloy® or Tantal
- dimensions from DN 20 up to DN 150, depending on combined rupture disk type

STRIKO Screw Type Unit Type: F-ST

- for all STRIKO-rupture disks made from metal
- units are available in stainless steel 1.4571 or special materials like Hastelloy®, Inconel®, Monel® or Tantal
- dimensions from ⅛" up to 1"
- protection of high pressure vessels
- cost-efficient solution due to small dimensions
- in combination with burst indicator SVT F-ST for efficient burst indication

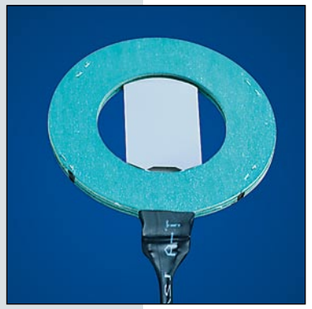
Product Range Burst Indicators

Burst Indicator SVT 02

- basic / effective tool to detect response of rupture disks
- in dimensions DN 25 up to DN 600
- installation behind rupture disk (outlet side)
- combination with rupture disks made from metal or graphite, also with products made by other vendors and safety relief valves
- slotted PEEK-foil with vacuum-metallised conductor path from silver
- closed circuit with max. 20Ω and max. 50mA
- two-core, Teflon-coated cable, length 2m
- continuous use at temperatures from -30°C up to +220°C
- usual dimensions on stock - delivery ready for installation

Leakage Sensor SVT 05

- advancement of burst indicator SVT 02
- in dimensions DN 25 up to DN 300
- is responding due to additional PTFE-foil at product-side already at lowest volume flows (e.g. caused by leaking bursting disks due to pitting corrosion or hairline crack)
- enabled fast detection of a breakdown
- combination with rupture disks made from metal or graphite, also with products made by other vendors and safety relief valves
- usual dimensions on stock - delivery ready for installation



Full-Metal Burst Indicator SVT AM

- Full-Metal burst indicator DN 25 up to DN 600
- operation temperature from -30°C up to +370°C (in combination with gasket made from Klingersil C-4400)
- burst indicator with metal-membrane made from stainless steel 1.4310, Hastelloy®, Tantal, Silver
- available gaskets: Klingersil C-4400, PTFE, Garlock Gylon blau
- special design SVT AM-L for low response pressures (from 10mbar)
- combination with rupture disks made from metal or graphite, also with products made by other vendors and safety relief valves
- delivery ready for installation

Safety Device Definitions

Rupture Disks

minimum net flow area:	minimum net flow area for discharge
operating ratio:	ratio of operating pressure to bursting pressure in percent
max. operating pressure:	maximum pressure, at which the rupture disk used achieves its longest service life lower burst tolerance * operating ratio
bursting temperature:	the temperature assigned to a bursting pressure, which complies with the expected temperature of the rupture disk at the time of activation
bursting pressure:	differential pressure between the inlet side and outlet side, at which the rupture disk opens
concave rupture disk:	rupture disc, whereby the pressure builds up against the concave side of the rupture disk
convex rupture disk:	rupture disc (also „reverse acting rupture disk“) whereby the pressure builds up against the convex side of the rupture disk

Overview

Rupture Disks and Equipment

Series	Description	Nominal Width	poss. Bursting Pressure in bar (g)	Tolerance	Operating Ratio	Illustration	Installation Position	poss. Operating Temperatures (depending on materials)	Necessary Holder Assembly	Available with Vacuum Support?	Can be installed with safety relief valve?
SF-M SF-MV SF-MD	flat, multi-part rupture disks for direct installation between flanges (SF-M) with vacuum support (SF-MV) double acting (SF-MD)	DN 15 up to DN 800	0,02 to 6,0	from +/-5%	80%			-120°C up to +260°C	optional applicable in holder types SHF / SHF Pro	yes	yes
SZ-X SZ-M SZ-MV	forward acting, pre-bulged rupture disks X-shaped scored (SZ-X) multi-part (SZ-M) multi-part, vacuum-resistant (SZ-MV)	DN 15 up to DN 800	0,02 to 250	from +/- 5%	90%			-200°C up to +480°C	SHZ / SHZ Pro	yes	yes
SU-R SU-C SU-X	reverse acting bursting disk with shear-ring (SU-R) C-shaped scored (SU-C) X-shaped scored (SU-X)	DN 15 up to DN 250	0,5 to 75	from +/-5%	90%			-200°C up to +480°C	SHU / SHU Pro	not necessary	yes
SF-M-S SZ-X-S SU-C-S	aseptic rupture disks for installation directly between clamps / screw connections	DN 25 up to DN 100	0,1 to 8,5	from +/-5%	80% - 90%		in dependence of rupture disk type	-80°C up to +230°C	directly between clamps or screw type connections	in dependence of rupture disk type	yes
S-EB S-EB-SVT	extruder rupture disk (S-EB) with integrated burst indicator (S-EB-SVT)	3⁄16“, other on request	70 to 1200	from +/-5%	80%			based on application, up to max. 480°C	-	not necessary	-
S-EW	housing-/ rupture disk combination for fast changeover	¼ “ up to 1“	1,0 to 75	from +/-5%	80%		in dependence of rupture disk type	-200°C up to +480°C	-	yes	yes
G2	phenolic resin impregnated graphite rupture disk	DN 25 up to DN 600	0,07 to 28,0	from +/- 10%	80%			-50°C up to +180°C	HG2	yes	no
G3M G3A	phenolic resin impregnated graphite rupture disk, monobloc - type	DN 25 up to DN 600	0,07 to 83,0	from +/- 10%	80%			-50°C up to +180°C	-	yes	no
SVT 02	burst indicator for monitoring rupture disk relief	DN 25 up to DN 600	-	-	-			-30°C up to +220°C	-	-	yes
SVT 05	leakage sensor for monitoring rupture disk relief	DN 25 up to DN 300	-	-	-			-30°C up to +220°C	-	-	yes
SVT AM	full-metal sensor for monitoring rupture disk relief	DN 25 up to DN 600	-	-	-			-30°C up to +370°C	-	-	yes
SVT AM-L	burst indicator for monitoring rupture disk relief, with lowest response pressure	DN 25 up to DN 600	from 10mbar response pressure	-	-			-30°C up to +220°C	-	-	yes
SVT F-ST	burst indicator for monitoring rupture disk relief, in combination with holder F-ST	DN 8 up to DN 15	-	-	-		in dependence of rupture disk type	-25°C up to +100°C	-	-	yes

Static Mixers

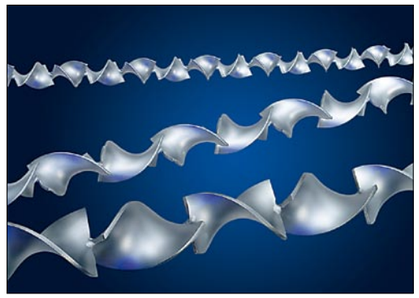
STRIKO static mixers are successfully applied to a wide range of process operations in various industrial branches including mixing, dispersion, emulsion, reaction and heat exchange.

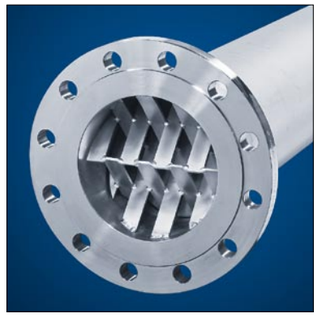
The use of static mixers signifies extremely low investments and operating costs, which, among other factors, are also achieved by the fact that the low energy requirement for the mixing procedure is taken from the product flow.

Static mixers guarantee continuous operation in closed piping systems. They contain no moving parts and are therefore virtually free from wear. Static mixers are maintenance-free, can be cleaned, sterilised and steamed inline, yet also easily dismantled on request.

Heat exchangers are also often installed with STRIKO mixing elements. The constant movement of the fluid being moved from the pipe centre to the pipe walls and each fluid direction change causes an increase in the heat transfer, thus saving on the length of a construction project.

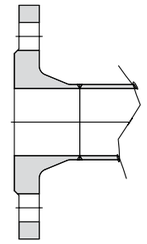
Our experts at STRIKO Verfahrenstechnik would be happy to offer you a personal and detailed consultation.



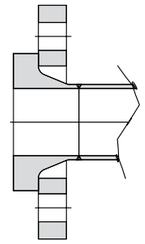


Connections

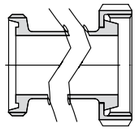
STRIKO is offering unlimited possibilities regarding used connections of static mixers - always based on customer request and demand. Beside flanges and screw connections, clamps or welding preparation STRIKO can prepare special solutions in a flexible and easy way.



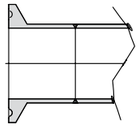
e.g. fixed flange acc. to DIN EN 1092-1 Type 11



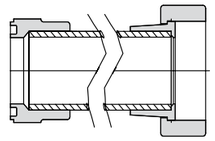
e.g. loose flange acc. to DIN EN 1092-1 Type 04



e.g. GF screw connections for PVC (also for other plastics)



e.g. Clamp stub acc. to ISO 2852

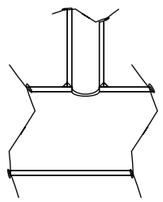


e.g. screw connection acc. to DIN 11851

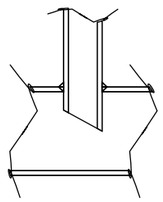
welding preparation for e.g. big dimensions

Dosing Points

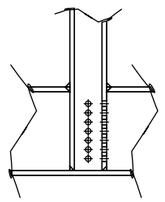
Also in the area of dosing points STRIKO offers a wide range of possibilities. In dependence of each application the selection of the right variant is very important. The main target - to get the best mixing quality at lowest pressure drop - is just achievable with the best combination of mixing element type and dosing point. Therefore the whole system of static mixer has to be analysed.



T-fitting



Centerline



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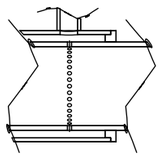


ring dosing

Product Range Static Mixers

EREstat® - The "Food Mixer"

EREstat® by STRIKO is a self-cleaning static mixer for the carbonation and air injection of fluids and for mixing various media. Main range of application is in the food industry, even if this is pending on detail of application.

Materials:
all usual stainless steels, carbon steels, plastics, special materials

Dimensions:
DN 15 up to DN 500

Application field:
- Production of ice-cream
- Mixing of fruit pieces into yoghurt
- CO2 carbonation into various types of drinks
- Air injection into hair gel, air bubble injection

STX - The "Viscosity Mixer"

The static mixer type STX is designed to mix media with high viscosity, even if the use to aerate different fluids is also possible. At dimensioning of STX it is very important to control the flow velocity of the fluids, because geometrically related increases in shearing forces occur - is taken into consideration in customised design.

Materials:
all usual stainless steels, carbon steels, plastics, special materials

Dimensions:
DN 15 up to DN 2000

Application field:
- mixing of ammoniac into pea starch
- processed cheese manufacture
  (mixing of spices / ingredients)
- inking of silicon
- tempering of plastics
- aroma / colour addition into bonbon-mass

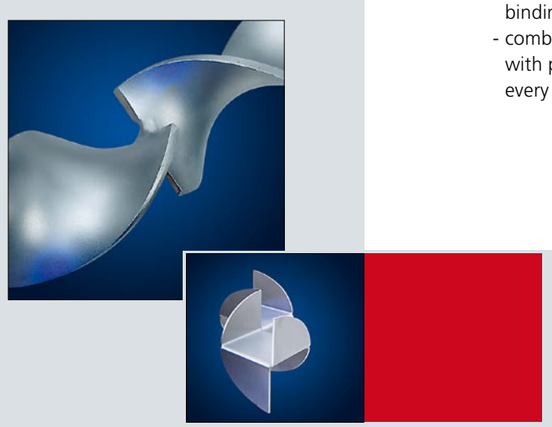
Helical and K-Helical - The "Universal Mixer"

Helical / K-Helical by STRIKO are statically working inline mixers to mix low-viscosity media (fluids and gases). The area of applications has a wide range, starting from e-polished lab mixer up to heavy duty application in the petroleum industry.

Materials:
all usual stainless steels, carbon steels, plastics, special materials

Dimensions:
Helical: DN 3 up to DN 125
K-Helical: DN 125 up to DN 2000

Application field:
- sterile applications
  (use of soldered-on mixer elements)
  production of insulin
- food sector
  homogenization of mayonnaise
- plastic processing
  in combination with heat exchangers for homogenization and tempering of mixing goods prior to injection moulding
- mixing of fluids like, for example, paint
- can be combined with other mixing element types for further applications



STV - The "Gas Mixer"

STV is mainly used to mix big volume flows of gases. Also excellent mixing results can be realised at the production of emulsions and foams, even if these are special applications to be calculated in a detailed way.

Materials:
all usual stainless steels, carbon steels, plastics, special materials

Dimensions:
DN 25 up to DN 2000

Application field:
- after-treatment of exhaust gases, NOx removal
- spraying of finely dispersed fluids in strong gas flows
  binding of particles in exhaust gas flows
- combination of various mixer types possible in connection with permitted drop in pressure and required mixing quality every times according to customised design

Product Range Heat Exchangers

For high viscous media

Double-jacket and multi-tube heat exchangers

Double-jacket and multi-tube heat exchangers from STRIKO are designed to temper media with high viscosity. Thereby the product tubes are equipped with mixing elements Helical type which prevent a „fouling“ of the product at the surface of the tubes due to constant mixing also with low one-digit Reynold numbers.

The mixing elements can be either be pressed or shrunk and soldered on. Soldering not only prevents any gaps between mixing elements and pipe, but also offers a high overall heat transfer co-efficient and axial resistance. The area of application for multi-tube / double jacket heat exchangers with integrated mixing elements covers a range of 50,000mPas.

Materials:
all usual stainless steels, special materials like Duplex or Hastelloy®

Dimensions:
DN 15 up to DN 800 (further dimensions on request)

Heating- / Cooling-performance
depending on design up to 2.500kW

Application field:
- cooling down of silicon, bitumen, hexane
- trace heating at static mixer (double jacket for chocolate mass)
- tempering of plastic melt

For aggressive media

Graphite-Heat Exchanger

The main application area for Graphite-Heat Exchanger is beside the organic and inorganic chemistry the electroplating industry because Graphite has an excellent resistance against acids, bases and solvents. They were used as gas cooling unit, heater, condenser and evaporator.

These systems excel even though in extreme operations by their excellent thermal conductivity and show a very high resistance to thermal shocks. Impregnated graphite is impervious to fluids and gases and has also a low thermal expansion. Based on these characteristics graphite is qualified for the most heat- and material exchange with aggressive media.

The block construction of our heat exchanger has got a high mechanical strength whereupon the cubic design allows large exchange areas in a small space. The Heat Exchanger will be designed in relation to their flow rate and pressure drop, individual and in reference to their application. Therefore they can align at operating conditions without difficulty. It can be realized an operating pressure of maximal 21 bar with an operating temperature of maximal 200°C, but the specified cubic Graphite-Block Heat Exchanger with PTFE Impregnation can work with an operating temperature of maximal 230°C. The Graphite-Block Heat Exchanger is available in a cubic or a round design and also as a Tube Heat Exchanger, it is easy to assemble and to maintain.

Thermo plates-Heat Exchange Systems

Range of application:
Tempering of vessels and components

In lot applications of chemistry and petro chemistry, the food-, pharmaceutical-, textile-, and galvanising industry as well as creameries the effective thermal transfer of the Thermo plates-Heat Exchange Systems will be used. This thermal transfer will be generated through the direct contact of the thermo plates with the medium or with the vessels. The different systems of Thermo plates (two plates of different wall thickness, profiled on one side /two plates of the same wall thickness, profiled on both sides) will be used to heat or to cool gases and fluids as well as for condensation, vaporization and evaporation.

Advantage of these Heat Exchange Systems is the compact, space-saving construction, which are used for immerse in fluids and clamp-on container constructions, these applications are realized with the two plates of the same wall thickness. The two plates of different wall thickness are used in the machine and container construction also for production facilities, buckets, process tanks and components for conveying.

The high heat transfer and pressure drop during to flow through the Thermo plates characterized both standard types. Thermo plates-Heat Exchange Systems are available in different forms and sizes in materials as high grade steel, nickel and special materials as Hastelloy® or Titan. If so required, we offer locally repairs, maintenance, and assembling by our trained personnel.

Wire Mesh Droplet Separator

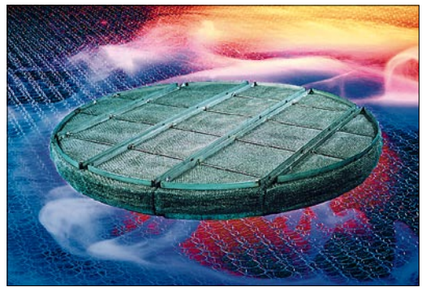
DEMISTER Mist Eliminators provide high separation efficiency at the lowest installed lost. They can be supplied with – or without housing.

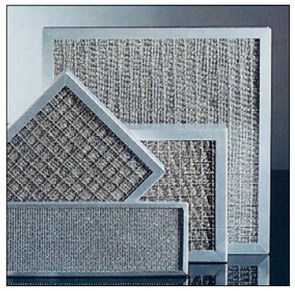
Application:

- Air Pollution Prevention
- Evaporator
- Vacuum pumps
- Desalination plants
- Distillation and gas absorption
- Steam Drum
- Scrubber
- Oil separation
- Coalescer

In every case, efficient mist eliminator, designed especially for the job in hand. STRIKO offer an exceptionally large range of demister elements with over 99 % removal efficient at a pressure drop usually of less than 0,25 mbar.

Wire diameter in general use is 0,12 mm to 0,5 mm. They can be made in a wide variety of materials to meet corrosive conditions and to any size and any shape including top and bottom grids.





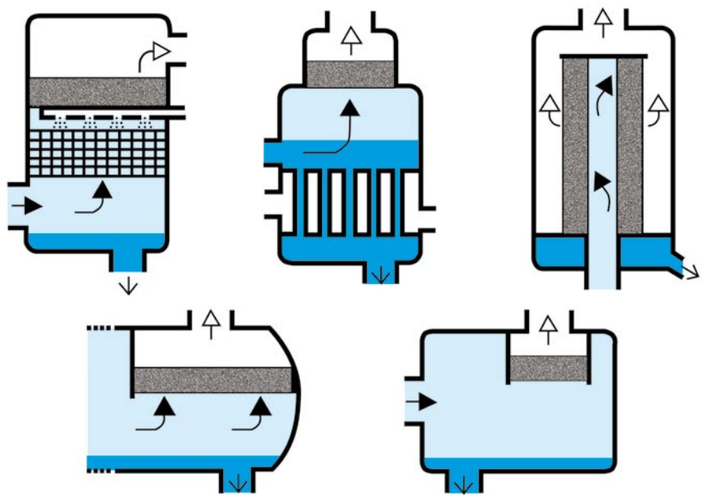
Type	Application	Density kg/m³	Freevolume	Surface m²/m
9145-0,28	Standard purpose media	145	98,1%	265
9175-0,28	Standard dirty service	175	97,8%	320
9192-0,28	High efficiency	192	97,5%	350

Further on request

Product Range

Demister - Housing

The design and the production of custom-made demister with housing is a substantial part of our operation. The housing and the vessels are designed in accordance with the standards of internationally accredited inspection agencies.



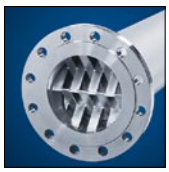
STRIKO offer a wide range of materials such as Stainless Steel, Polypropylen, PTFE, PVDF, Monel®, Hastelloy®. Other materials on request.

All demisters are usually supplied with support grids and fastening bolts. STRIKO can design spray systems for flashing the pad, and often be done during operation-CIP. Easy installation and minimal maintenance are in the spotlight.

Contact

Sales / Marketing
marketing@striko.de
+49 2261 9855-14

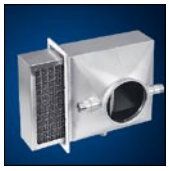
Rupture Disks
rupturedisk@striko.de
+49 2261 9855-26



Static Mixers
mixer@striko.de
+49 2261 9855-18

Heat Exchangers
(Double-jacket and
multi-tube heat exchangers)
multitube@striko.de
+49 2261 9855-18

Heat Exchangers
(Graphite-Heat Exchanger and
Thermo plates-Heat Exchange)
graphite@striko.de
+49 2261 9855-10



Demister
demister@striko.de
+49 2261 9855-21

STRIKO® Verfahrenstechnik

STRIKO Verfahrenstechnik
W. Strikfeldt & Koch GmbH

STRIKO Verfahrenstechnik
Vertriebs GmbH

Fritz-Kotz-Str. 14
D-51674 Wiehl-Bomig
Fon: +49 (0) 2261 9855-0
Fax: +49 (0) 2261 7 24 88
E-Mail: info@striko.de
www.striko.de

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