GKN SINTER METALS

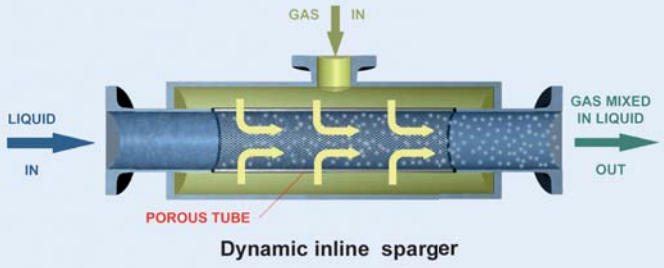
THINK > Filter Technology

Sparger

ENGINEERING > THAT MOVES THE WORLD

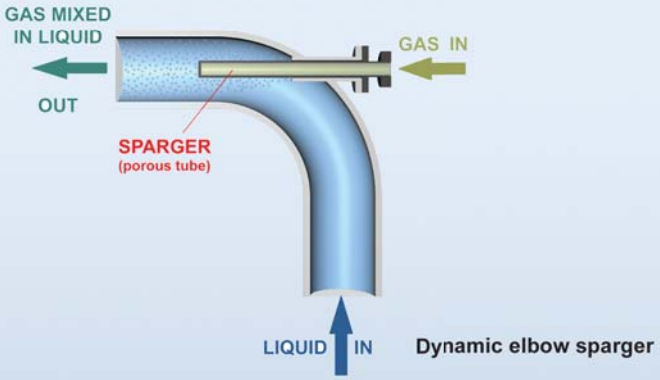
GKN SINTER METALS

GKN Sinter Metals Filters, the leading manufacturer of porous sinter metal products, offers a variety of solutions to fulfill customer requirements.
We are familiar with various applications in almost every industrial branch.



Dynamic inline sparger

The GKN filters are produced by an Isostatic compacting process, which results in outstanding homogeneous pore size distribution with excellent burst and collapse resistance, based on seamless design. The high mechanical strength is leading to complete self-supporting structures.



Dynamic elbow sparger

We offer solutions for a cryogenic as well as hot gas application in a high variety of alloys. Filter can be produced seamless up to 1,500 mm length and 320 mm OD. Larger elements (like for cross flow or triad design application) will be assembled in our certified in-house welding shop.

Stainless and Ni-based alloys can be supplied including a metallic membrane (SIKA-R AS), which offers retention rates down to 0.1 m in liquid. The membrane is available in different grades. Membrane coated filter offers initially an up to 4x higher flow, compared with completive single layer metallic filters. GKN Double Open End (DOE) and Hex-Nippel (HN) filters are 1:1 interchangeable with most other suppliers media.

GKN porous media will be beneficial to various other applications besides filtration, such as sparging, a term that describes the distribution of gas into liquids.
The rate of saturation will be much higher compared to conventional solutions due to the fine and uniform pore structure of GKN's materials.

We offer custom made solutions that may be fitted into your existing plant without any modifications.

Instrumentation-, medical- and mechanical industry is benefiting from GKN Filters large tool park. The innovative, weld free design of connection between porous body and fitting opens new horizons in assembly and design.

Further information – including 3D laser sintering – are available on GKN's homepage www.gkn.com/filters.

GKN SINTER METALS

Fastening solutions: clamp or thread

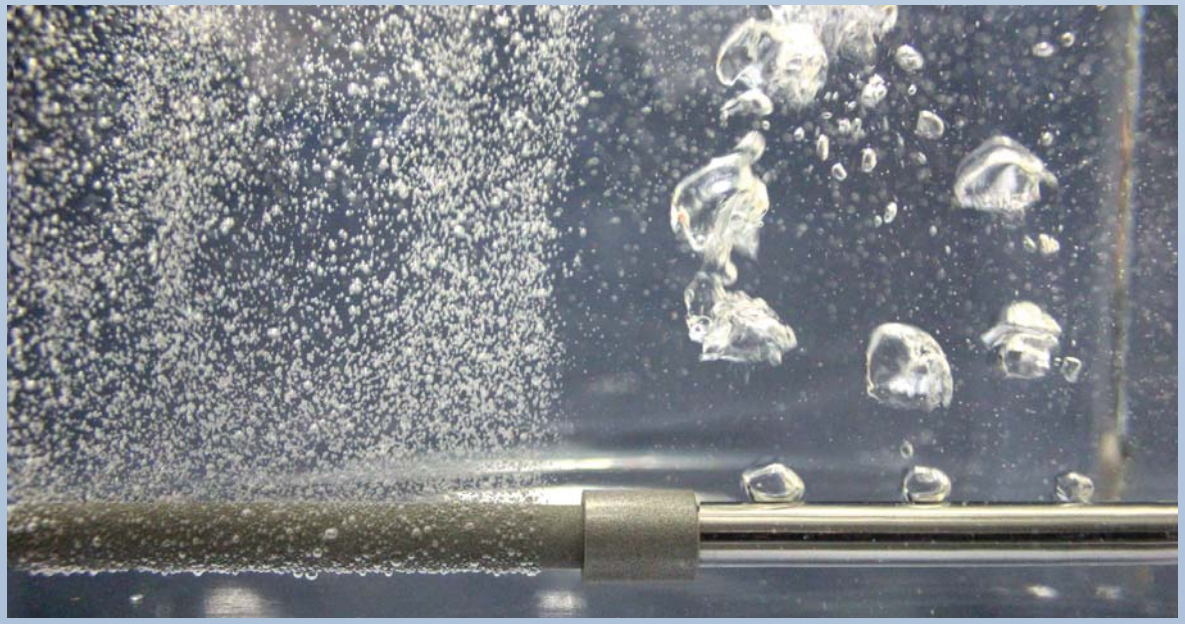
Industries

- Pharmaceutical
- Chemical
- Food
- Beverage
- Aqua farming
- Environmental
- ...

Advantages GKN-Sparger

- Pore sizes of 0.5 - 200 µm available
  ▶ recommended for sparger 3 - 10 µm
- High specific reaction surface
- Improved gas transfer rate
- Customized fittings
- Standard-designs available
- “Easy mounting” solution possible

Comparison GKN Sparger / Conventional aeration tube



GKN Sparger

Conventional aeration tube

GKN spargers are made of sintered Powder Metal. Therefore they feature thousands of micro-pores in the range of 1-20 µm (left-hand side) instead of simple drill-holes of 2-6mm (right-hand side). This will increase the gas surface for reaction by a factor up to 1000.
As a benefit for our customers, process times will be reduced significantly.

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Standard Materials

Material	Name	Mat.-No.	SIKA-					Fe	Cr	Ni	C	Mo	Miscellany	Max. Temperature °C		Keyword
			R...			FIL	B	in weight- %						Reducing	Oxidizing	
			IS	*AX*	*AS*											
High alloyed material	AISI 304 L	1.4306	x	x	x			Bal.	18.0-20.0	8.0-12.0	<=0.03	0.5	N<=0.1	600	500	Standard for food application
	AISI 316 L	1.4404	x	x	x			Bal.	16.0-18.0	10.0-14.0	<=0.03	2.0-3.0	N<=0.1	540	400	
						x								380	320	
	AISI 904 L	1.4539	x	x	x			Bal.	19.0-21.0	24.0-26.0	<=0.02	4.0-5.0	N<=0.15 Cu 1.2-2.0	600	500	Resistant against sulphuric acid, phosphoric and hydro-chloric acid
	AISI 310	1.4841				x		Bal.	24.0-26.0	19.0-22.0	<=0.25	-	-	800	600	Heat resistant
	FeCrAl	1.4767 Mod.				x		Bal.	19.0-22.0	-	<0.10	-	Al 5.0-6.5 with rare earth elements	unfit	900	
Nickel based alloys*	Hastelloy C 22	2.4602	x					2.0-6.0	20.0-22.5	Bal.	<0.02	12.0-14.5	W 2.0-3.5 Co 2.5	650	650	Corrosion resistant with various agressive media. Duration application at > 400 °C possible.
	Hastelloy C 276	2.4819	x	x				4.0-7.0	14.0-16.0	Bal.	<0.02	15.0-17.0	W 3.0-4.5	650	650	
	Hastelloy X	2.4665	x	x				17.0-20.0	20.5-23.0	Bal.	<0.15	8.0-10.0	Co 0.5-2.5 W 0.2-1.0	930	800	
	Inconel 600	2.4816	x	x	x			6.0-10.0	14.0-17.0	>=72.0	<0.15	-	-	700	600	
	Inconel 625	2.4856	x		x			<=5.00	20.0-23.0	>=58.0	<0.10	8.0-10.0	Nb 3.15-4.15	650	650	
	Monel 400	2.4360	x	x	x			<2.0	-	>=63.0	<0.30	-	Cu 28.0-34.0	500	500	Resistant against Cl-containing media
Bronze**	89/11 AK	-					x	-	-	-	-	-	Sn 9-11 < 2 % others Rest Cu	300	250	Typically used for hydraulic & pneumatic
Titanium	Ti	-	x	x				-	-	-	-	-	Ti > 99 %	500	500	Medicine. acid. electrolysis
PE	PE (Polyethylene)													60	60	Food safe, resistant against many acids
Other	Other materials on request. Not all raw materials are in stock. Typical Iron or Nickel elements e.g. Si, Mn, P, S according to the literature. * Nickel based *AX*-products only after consultation. Not all dimensions feasible. ** Nickel plating possible															

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Basic information for designing a sparger

1. Customer's Information

Enquiry date:
Company name:
Contact name:
Street address:
ZIP:
Town, US State:
Country:

Email:
Phone:
Mobile:

2. Type of sparging

static ☐ dynamic ☐ ring ☐ tube ☐ integrated inside pipework ☐ integral part of pipework ☐

3. Process parameters - please also specify units

Medium inside vessel:
Medium density:
Medium temperature:
Rpm of agitator, if applicable:
Diameter of agitator, if applicable:
Required gas flow:
Liquid volume inside vessel:
Liquid column inside vessel:
Dimensions of the sparger:
Type of fastening (thread / clamp):
For tube sparger - diameter / length:
For ring sparger - ring OD:
Quantity:

4. Short description of the process:

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GKN Locations

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