

THINK > Filter Technology



SIKA-B



Since 1759

> 260 years of exceptional engineering

GKN Sinter Metals Filters, the leading manufacturer of porous sinter metal products, offers a variety of solutions to fulfil customer requirements.

We are familiar with various applications in almost every industrial branch.

Our products are applied in gas- and liquid filtration, dampening, sparging, sensor protection, bulk handling and many more. We offer solutions for high temperature and corrosive environments.

Sintered filter elements made of stainless steels, bronze, nickel based alloys, titanium and several special alloys can be manufactured seamless up to 1,600 mm length and 320 mm OD. Larger elements will be assembled in our certified in-house welding shop.

Our most innovative product for the chemical industry is the patented metallic membrane SIKA-R...AS.

The filter cartridges equipped with this state-of-the-art technology offer a flow rate up to 4 times higher compared to conventional sinter metal filter cartridges. Furthermore an excellent back flush performance is guaranteed. The filter active membrane layer with filter grades down to 0.1 µm absolute has a thickness of only 200 µm and is made of the same alloy as the coarse support material. The membrane is sinter bonded to the support and therefore cannot peel off.

Another innovation introduced by GKN is the sinter bonded joint of porous parts with solid fittings in order to avoid welding seams – the weak spot of all sintered cartridges of our competitors.

All sintered materials of GKN offer a self-supporting structure with high mechanical strength.

We manufacture various filter grades with specified pore sizes and flow rates in order to have the appropriate solution for your requirements.



SIKA-B

SIKA-B, is a brand name for GKN Sinter Metals' high porosity sintered elements from spherical Bronze powder.

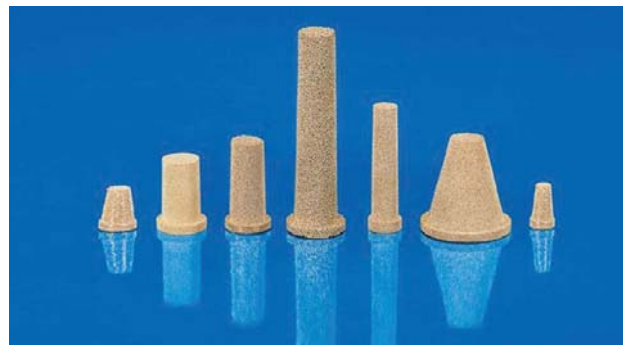
SIKA-B... materials are used as self-supporting structural elements.

The pores are mechanically fixed with respect to both size and position after the sintering process.

Properties

The characteristics of SIKA-B products result in the following important properties:

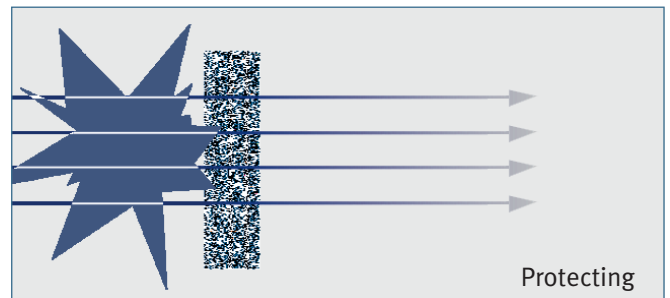
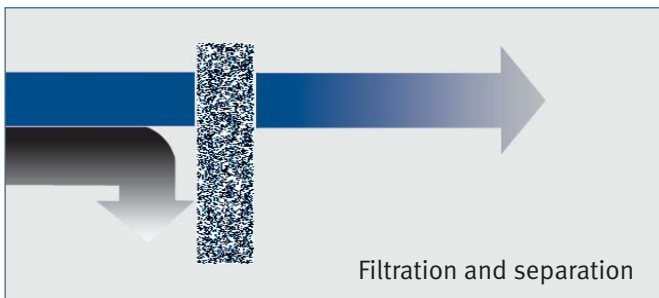
- Shape/-stability i.e. selfsupporting structural elements suitable for high differential pressures
- Particularly good properties when under compression, vibration and changing conditions or with high sudden pressures peaks
- High heat resistance and thermal stability
- Defined permeability and filtration properties because the pore size and distribution are exact and uniform
- Backflushing and easy cleaning with superheated steam, chemical solvents, thermal processes or ultrasonically
- The variety of materials used can be welded and machined



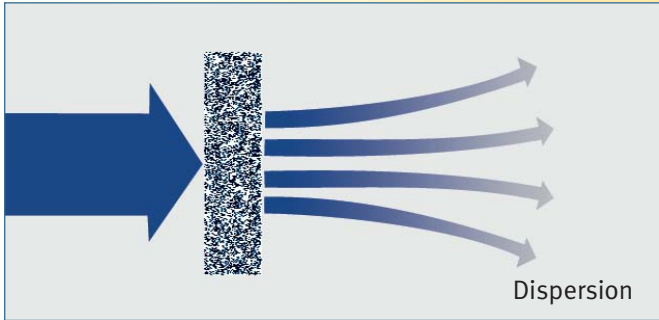


Application Examples

- Autogenous welding (as flame arrestors) / Explosion protection
 - Polymer filtration
 - Gas- and Liquid filtration
 - Silencing
 - Sparging
 - Fluidization (handling of bulk material)
 - Sensor and valve protection
 - Flow restriction
- as well as various further applications in industries like:
- chemical
 - semiconductor
 - scientific instrumentation
 - pharmaceutical

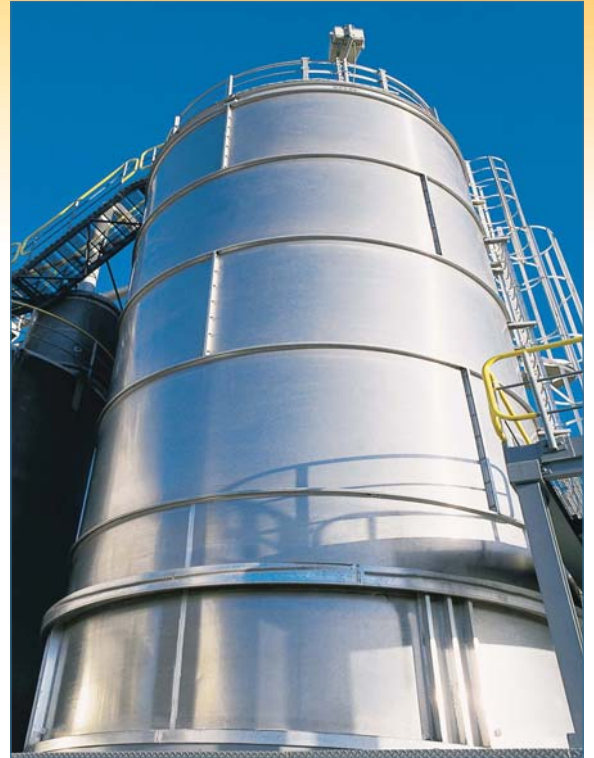


Oil filter in an oil burner nozzle



Aeration pads for Bulk Handling:

Ideal aftermarket solution due to easy installation!





Manufacturing of SIKA-B... Products

Moulding

Shape, size and distribution of the powder particles are important parameters which affect the properties of a high porosity sintered Bronze product.

By varying the parameters of the powder-production process, it is possible to produce spherical powder particles in a wide range of particle sizes.

SIKA-B filters are produced by gravity sintering technique.

The powder is filled into moulds and then sintered inside of these moulds.



Sintering

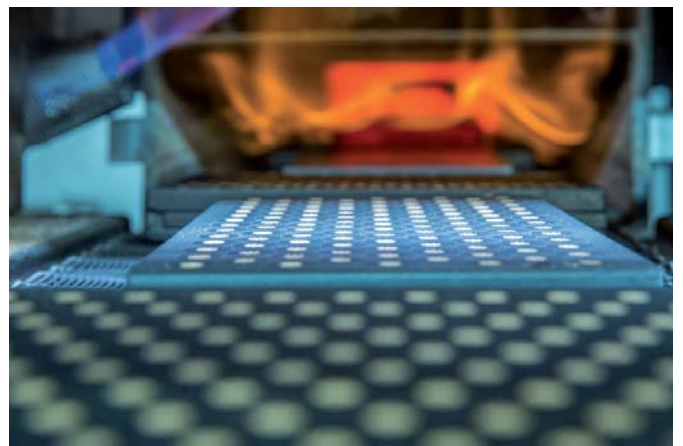
Sintering, the fundamental processing step for all P/M products, means bonding of powder particles through fusion at temperatures well below the melting point.

The structure, after sintering, shows that the grain boundaries run over the original particle boundaries.

Sintering gives the high porosity material its shape-stability and properties of a strong metal component.

SIKA-B materials are used as self-supporting structural elements.

The pores are mechanically fixed regarding size and position after sintering.





Standard Powder Materials

Material	Name	Mat.-No.	SIKA-						Fe	Cr	Ni	C	Mo	Si	Miscellany	Max. Temperature °C		Keyword			
			R...			FIL	B	in weight- %											Reducing	Oxidizing	
			IS	AX	AS																
High alloyed material	AISI 304L	1.4306	x	x	x			Bal.	18.0-20.0	8.0-12.0	≤0.03	≤0.1	≤2.5	-	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	≤2.5	-	540	400					
						x									380	320					
	AISI 904L	1.4539	x	x	x			Bal.	19.0-21.0	24.0-26.0	≤0.03	4.0-5.0	≤2.3	Cu 1.0-2.0	600	500	Resistant against sulphuric, phosphoric and hydrochloric acid				
	AISI 310	1.4841				x		Bal.	24.0-26.0	19.0-22.0	≤0.20	-	≤2.5	-	800	600	Heat resistant				
Nickel based alloys*	Hastelloy C22	2.4602	x		x			2.0-6.0	20.0-22.5	Bal.	≤0.03	12.5-14.5	≤0.5	W 2.5-3.5 Co ≤2.5	650	650	Corrosion resistant with various aggressive media. Duration application at > 400 °C possible.				
	Hastelloy C 276	2.4819	x	x				4.0-7.0	14.5-16.5	Bal.	≤0.03	15.0-17.0	≤0.8	W 3.0-4.5 Co ≤2.5	650	650					
	Hastelloy X	2.4665	x	x				17.0-20.0	20.5-23.0	Bal.	≤0.15	8.0-10.0	≤1.0	W 0.2-1.0 Co 0.5-2.5	930	800					
	Inconel 600	2.4816	x	x	x			6.0-10.0	14.0-17.0	Bal.	≤0.03	-	≤2.5	-	700	600					
	Inconel 625	2.4856	x					≤4.00	20.0-24.0	Bal.	≤0.08	8.0-10.0	≤2.3	Nb 3.0-4.0	650	650					
	Monel 400	2.4360	x	x				≤1.0	-	≥63.0	≤0.05	-	≤1.0	Cu 28.0-34.0	500	500	Resistant against Cl-containing media				
Bronze	CuSn 11	2.1052 mod.					x	-	-	-	-	-	-	Sn 10.0-11.5 Cu bal.	300	250	Typically used for hydraulic and pneumatic				
Titanium	Ti	-	x	x				-	-	-	-	-	-	Ti > 99 %	500	500	Medicine, acids and electrolysis				
Other	Other materials on request																				

Not all raw materials are in stock. Materials for fittings on request.

Due to powder metallurgy process, there are slight deviations in the element composition compared to the material standards.

* Nickel based AX-products only after consultation. Not all dimensions feasible.

Filter Elements SIKA-B

Our various high porosity sintered metal filter elements can be manufactured in the following standard geometries:

- SIKA-Discs
- SIKA-Cylinders
- SIKA-Cones
- SIKA-Plates
- SIKA-Silencers

Seamless construction up to 300 mm diameter.

We also manufacture to customer-specified dimensions.

Bigger elements can be welded at our certified in-house welding shop.

All specifications are subject to change.

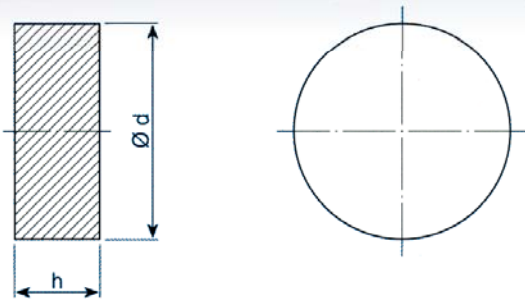
GKN Filter Grades

SIKA-B	8
SIKA-B	12
SIKA-B	20
SIKA-B	30
SIKA-B	45
SIKA-B	60
SIKA-B	80
SIKA-B	100
SIKA-B	120
SIKA-B	150
SIKA-B	200



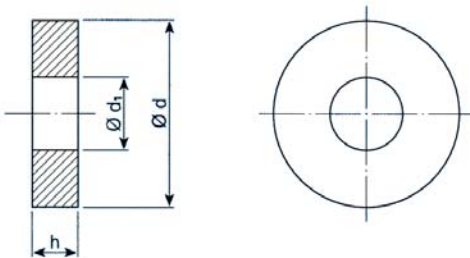
Standard Geometries

SIKA-B-Discs and -Plugs of sintered Bronze



- $\varnothing d$ 1 mm to $\varnothing d$ 300 mm seamless
- $\varnothing d$ from 300 mm welded from sections
- up to h 100 mm

SIKA-B-Rings and Hollow cylinder of sintered Bronze



- $\varnothing d$ 4 mm to $\varnothing d$ 300 mm, seamless
- $\varnothing d$ from 300 mm, welded from sections
- up to h 900 mm

and according to diameter, either seamless or welded from sections

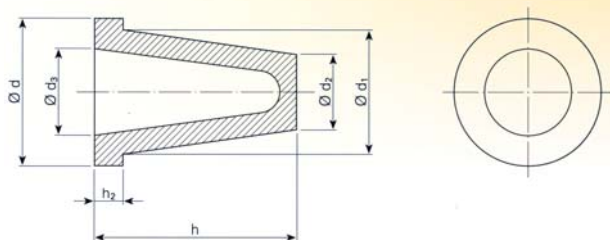
SIKA-B-Plates of sintered Bronze



- l up to 1200 mm
- b up to 300 mm up to h 100 mm
- h up to 70 mm
- larger dimensions welded from sections

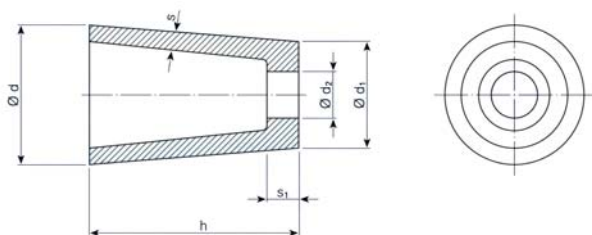


SIKA-B conical moulds with or without flange of sintered Bronze



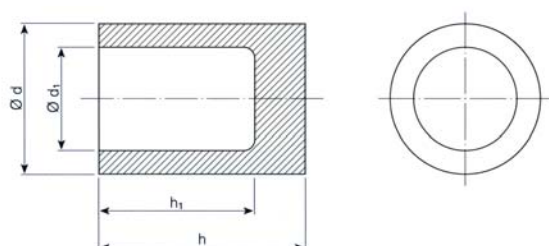
- $\varnothing d$ 4 mm to $\varnothing d$ 100 mm
- h 8 mm to h 200 mm

SIKA-B conical moulds of sintered Bronze



- $\varnothing d$ 4 mm to $\varnothing d$ 100 mm
- h 5 mm to h 200 mm up to h 900 mm

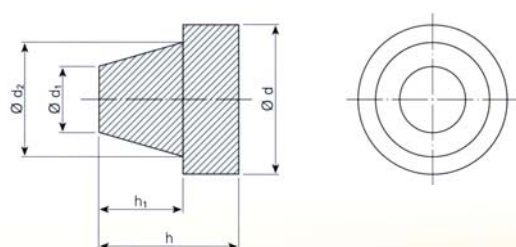
SIKA-B-Moulds of sintered Bronze



- $\varnothing d$ 4 mm to $\varnothing d$ 100 mm, seamless
- $\varnothing d$ from 500 mm welded from sections up to h 900 mm

and according to diameter, either seamless or welded from sections

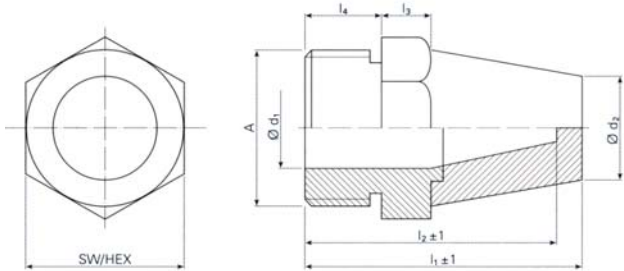
SIKA-B-Cones with flange of sintered Bronze



- $\varnothing d$ 2 mm to $\varnothing d$ 100 mm
- h 2 mm to h 100 mm

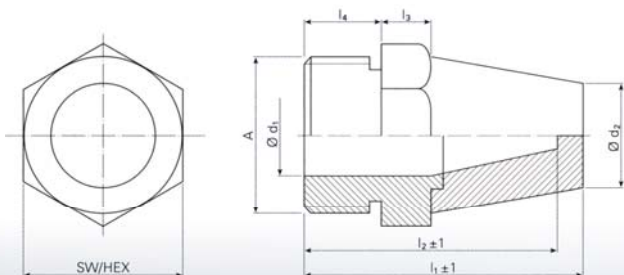


Silencer made of sintered bronze with a hexagon



A	Ø d ₁ mm	Ø d ₂ mm	l ₁ mm	l ₂ mm	l ₃ mm	l ₄ mm	SW HEX	Tool No.
G 1/8"	4	8	28	24	4	6	13	540001
G 1/4"	6	12	34	30	4	8	17	540002
G 3/8"	9	15	36	32	5	10	22	540003
G 1/2"	12	19	44	40	7	12	27	540004
G 1/2"	12	17	65	60	7	12	22	540021
G 3/4"	16	22	54	48	10	14	32	540005
G 1"	22	28	66	60	10	16	41	540006
G 1 1/2"	36	-	70	63	10	16	55	540011
G 2"	48	50	75	68	10	16	70	540010
M 30 x 1,5	22	28	66	60	10	16	41	540019

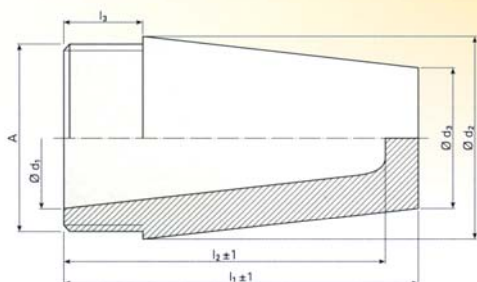
Silencer made of sintered bronze sintered together with a solid fitting hexagon



A	Ø d ₁ mm	Ø d ₂ mm	l ₁ mm	l ₂ mm	l ₃ mm	l ₄ mm	SW HEX	Tool No.
G 1/8"	4	8	28	24	4	6	13	546001
G 1/4"	6	12	34	30	4	8	17	546002
G 3/8"	9	15	36	32	5	10	22	546003
G 1/2"	12	19	44	40	7	12	27	546021
G 3/4"	16	22	54	48	10	14	32	546005
G 1"	22	28	66	60	10	16	41	546006

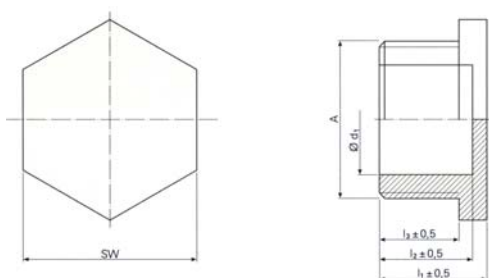


Silencer made of sintered bronze



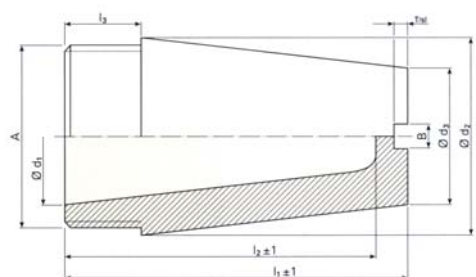
A	Ø d ₁ mm	Ø d ₂ mm	Ø d ₃ mm	l ₁ mm	l ₂ mm	l ₃ mm	Tool No.
G 1/8"	4	11	8	21	17	5,5	541001
G 1/4"	6	14	10	27	20	8,5	541002
G 3/8"	10	18	15	36	30	11	541003
G 1/2"	11	24	19	44	37	11	541004
G 3/4"	18	30	20	63	55	13	541005
G 1"	22	36	25	75	67	15	541006
G 1 1/2"	39	54	20	75	67	15	541007

Vent plug made of sintered bronze



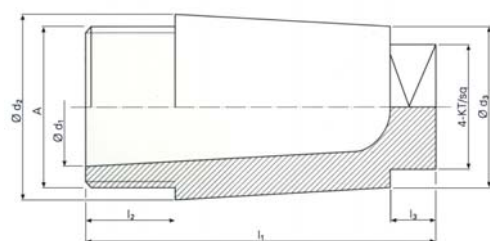
A	Ø d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	SW HEX	Tool No.
G 1/8"	5,2	8,4	4,7	5,3	11	540035
G 1/4"	7	12	9	8,5	15	540030
G 3/8"	9	15	12,5	11	19	540031
G 1/2"	13	15	12,5	11	22	540008
G 3/4"	16	17	14	13	29	540032
G 1"	22	19	16	15	36	540036

Silencer made of sintered bronze with a slot



A	Ø d ₁ mm	Ø d ₂ mm	Ø d ₃ mm	l ₁ mm	l ₂ mm	l ₃ mm	B mm	T sl	Tool No.
G 1/8"	4	11	8	21	17	5,5	1,5	2	543001
G 1/4"	6	14	10	27	20	8,5	1,5	2	543002
G 3/8"	10	18	15	36	30	11	2	2	543003
G 1/2"	11	24	19	44	37	11	2	3	543004
G 3/4"	17	29	20	65	53	12	2	3,5	543005
G 1"	22	35	26	75	66	15	3,5	4	543006

Silencer made of sintered bronze with a square



A	Ø d ₁ mm	Ø d ₂ mm	Ø d ₃ mm	l ₁ mm	l ₂ mm	l ₃ mm	4-KT sq	Tool No.
G 1/8"	5	12	8,5	22	5,5	4,5	7	544001
G 1/4"	6,2	14	11,5	27	7	4,5	9	544002
G 3/8"	9	18	15,5	35	9	6	13	544003
G 1/2"	13	24	20,5	43	10	7	17	544004
G 3/4"	20	30	25	55	14	7	19	544005
G 1"	25	38	30	69	15	8	24	544006

A	Ø d ₁ mm	Ø d ₂ mm	Ø d ₃ mm	l ₁ mm	l ₂ mm	l ₃ mm	4-KT sq	Tool No.
M 10 x 1	5	12	8,5	22	5,5	4,5	7	545001
M 12 x 1,5	6,2	14	11,5	27	7	4,5	9	545002
M 14 x 1,5	6,2	16	11,5	27	7	4,5	9	545003
M 16 x 1,5	9	18	15,5	35	9	6	13	545004
M 22 x 1,5	13	24	20,5	43	10	7	17	545005
M 27 x 2	20	30	25	55	14	7	19	545006
M 33 x 2	25	38	30	69	15	8	24	545007



Additional Applications of GKN Filters...

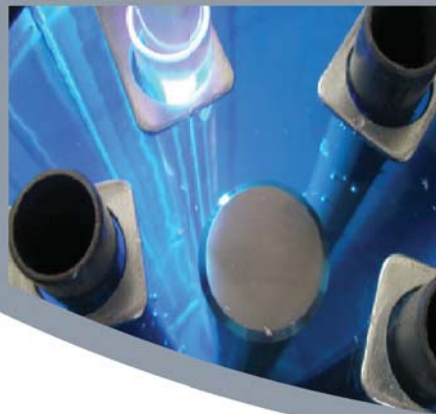
Catalyst recovery

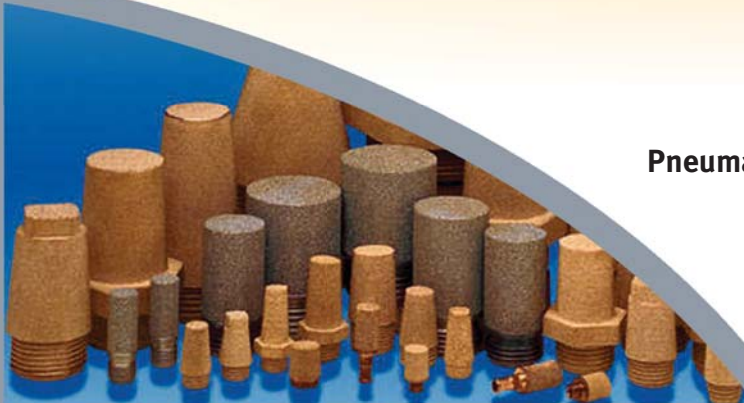


Refinery

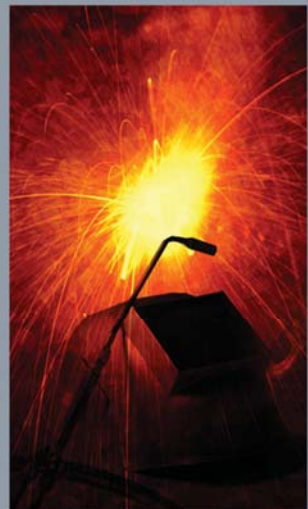


Water treatment





Pneumatic valves



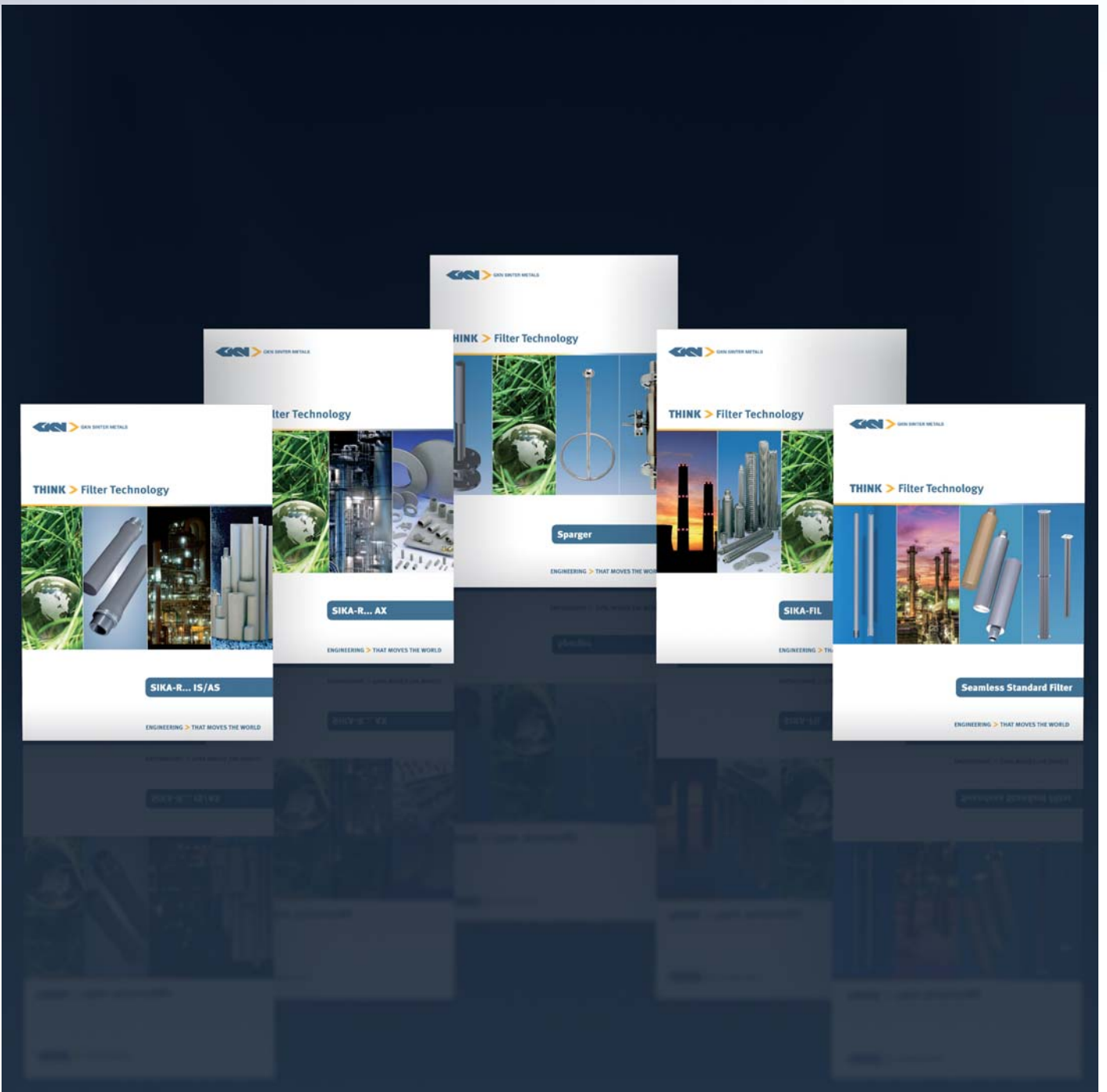
Ex-protection



Food shaping



Further Brochures Available



Basic Information for Designing a Filter

1. Customer's information

Enquiry date:	<input type="text"/>	
Company name:	<input type="text"/>	
Contact name:	<input type="text"/>	
Street address:	<input type="text"/>	
ZIP:	<input type="text"/>	Email: <input type="text"/>
Town, US State:	<input type="text"/>	Phone: <input type="text"/>
Country:	<input type="text"/>	Mobile: <input type="text"/>

2. The planned application of the SIKA element?

Filtration <input type="checkbox"/>	Equalizing <input type="checkbox"/>	Fluidising <input type="checkbox"/>	Others <input type="text"/>
Separation <input type="checkbox"/>	Silencing <input type="checkbox"/>	Sparging <input type="checkbox"/>	<input type="text"/>
Throttling <input type="checkbox"/>	Protecting <input type="checkbox"/>	Degassing <input type="checkbox"/>	<input type="text"/>

3. What kind of gas or liquid will flow through the SIKA element?

Medium specification	<input type="text"/>
Operation density	<input type="text"/>
Dynamic viscosity	<input type="text"/>
Operation temperature	<input type="text"/>
Operation flow rate	<input type="text"/>
Absolute pressure before the SIKA element	<input type="text"/>
Wanted or permissible pressure drop of clean filter	<input type="text"/>
Max permissible pressure drop of used filter	<input type="text"/>

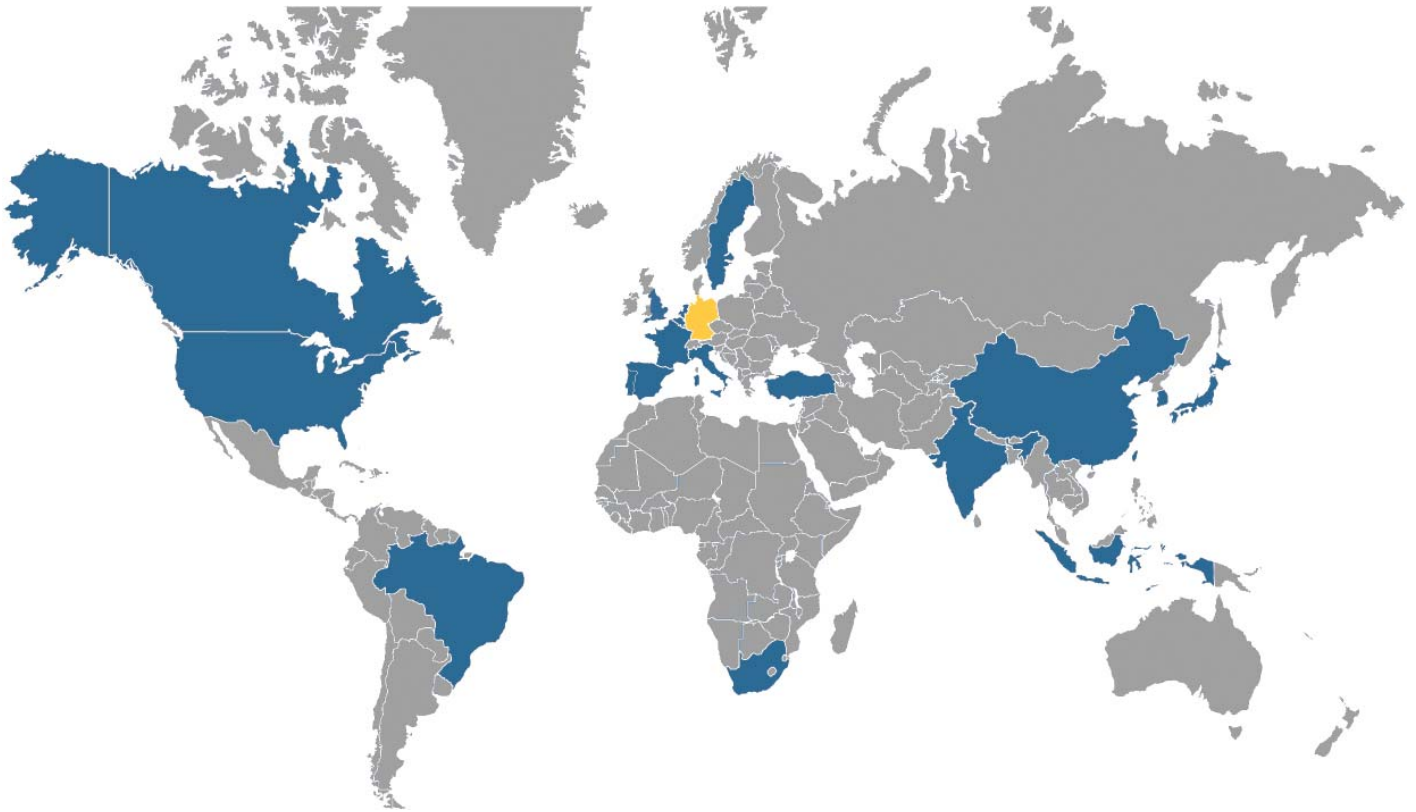
4. Which particles must be retained by a SIKA element?

Kind	<input type="text"/>
Size of the particle	<input type="text"/>
Shape of the particle	<input type="text"/>
Filter grade	<input type="text"/>


5. How will the SIKA element be applied?

Shape of the element	Tube <input type="checkbox"/>	Cartridge <input type="checkbox"/>	Sheet <input type="checkbox"/>
	Disc <input type="checkbox"/>	Other <input type="checkbox"/>	
Connecting element	Flange <input type="checkbox"/>	Thread <input type="checkbox"/>	Other <input type="checkbox"/>
Housing diameter	<input type="text"/>	Quantity	<input type="text"/>

6. Short description of the process:



Our locations:

 Head Quarter and Manufacturing

 Local Sales Partners

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