

SIKA-B

Filter Technology





*Since 1759*

## **> 250 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 1500 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.**

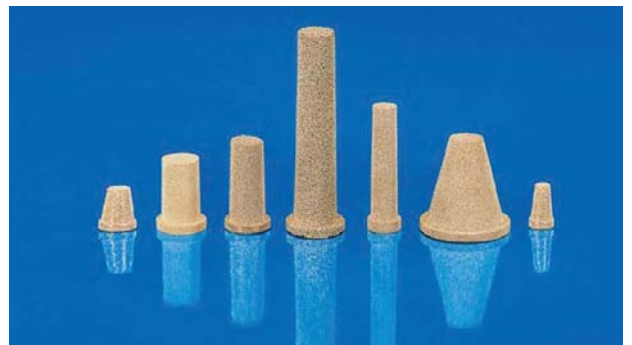
SIKA-B... materials are used as self-supporting structural elements.

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:

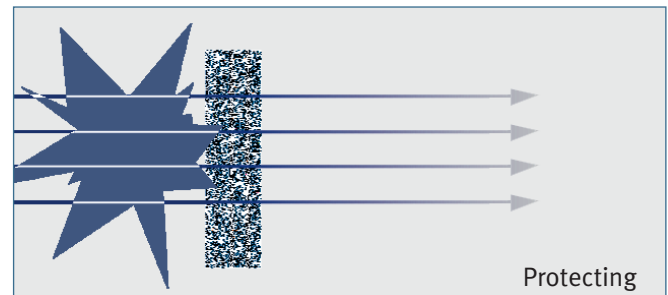
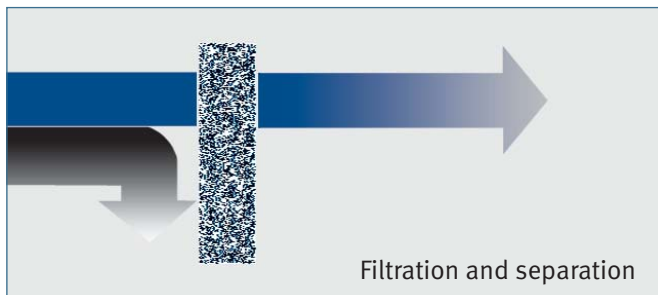
- Shape/-stability i.e. selfsupporting structural elements suitable for high differential pressures
- Particularly good properties when under compression, vibration and changing conditions or with high sudden pressures peaks
- High heat resistance and thermal stability
- Defined permeability and filtration 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



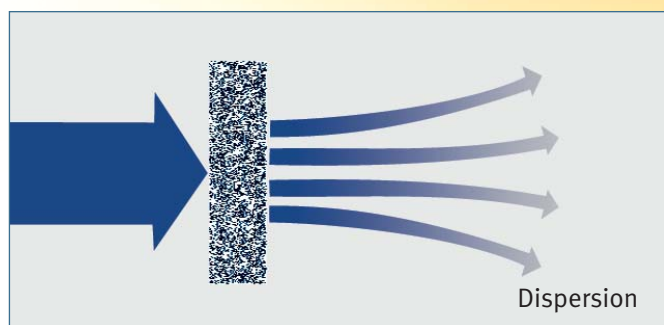


## Application Examples

- 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

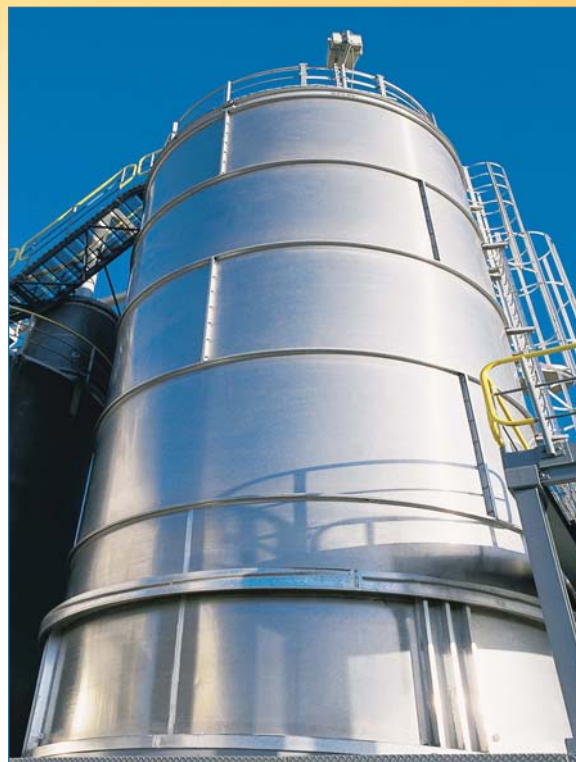


Oil filter in an oil burner nozzle



Aeration pads for Bulk Handling:

Ideal aftermarket solution due to easy installation!







## Manufacturing of SIKA-B... Products

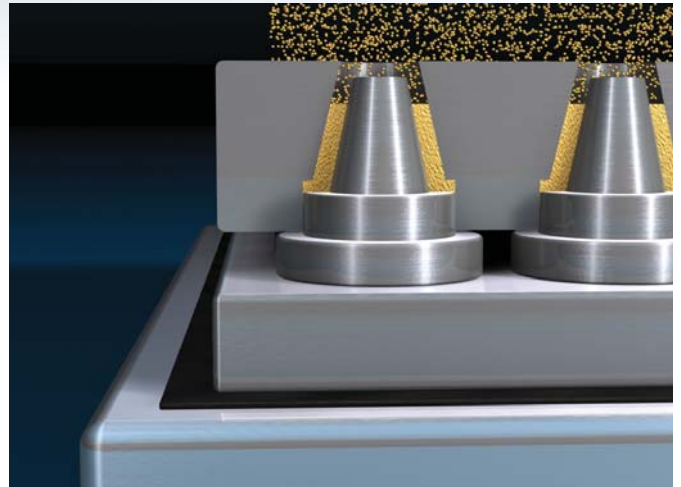
### Moulding

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

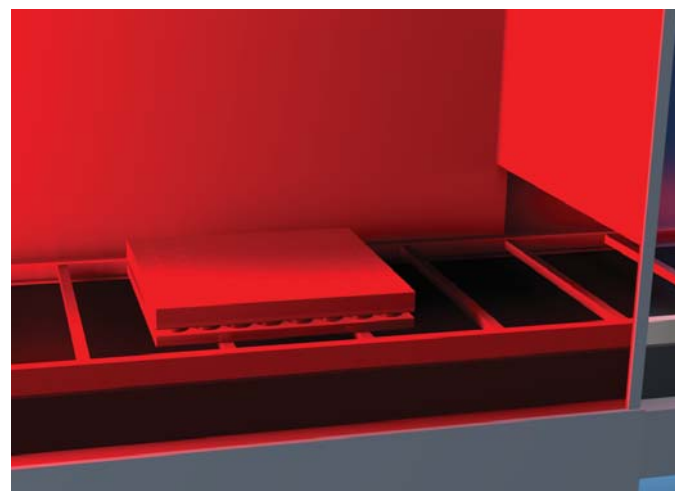
Sintering, the fundamental processing step for all P/M products, means bonding of powder particles through fusion at temperatures well below the melting point.

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 Materials

Material	Name	Mat.-No.	SIKA-					Fe	Cr	Ni	C	Mo	Miscellany	Max. Temperature °C		Keyword	
			R...			FIL	B							in Gewichts-% / in weight- %	Reduzierend Reducing		Oxidierend 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 hydrochloric acid	
	AISI 310	1.4841	x				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	1000		
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 aggressive 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	CuSn 11	2.1052					x	-	-	-	-	-	-	300	250	Typically used for hydraulic & pneumatic	
Titanium**	Ti	-	x	x				-	-	-	-	-	Ti > 99 %	500	500	Medicine, acid, electrolysis	
Other	Other materials on request																

\* Nickel based AX-products only after consultation. Not all dimensions feasible. \*\*Not all raw materials are in stock. Typical Iron or Nickel elements e.g. Si, Mn, P, S according to the literature.

## 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.

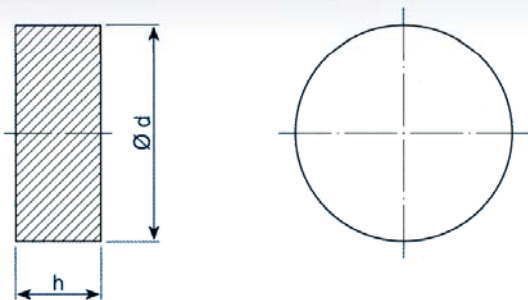
## GKN Filter Grades

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



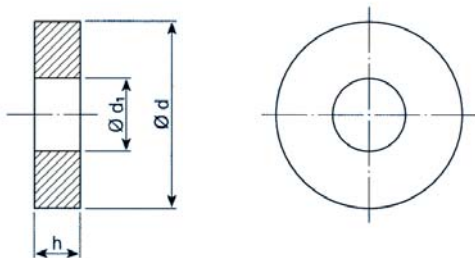
## Standard Geometries

### 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

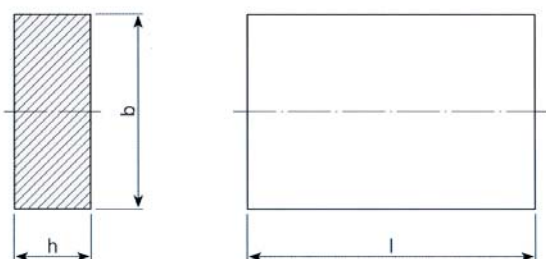
### SIKA-B-Rings and Hollow cylinder of sintered Bronze



- $\varnothing d$  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

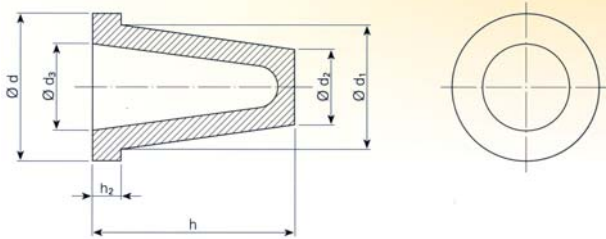


- $l$  up to 1200 mm
- $b$  up to 300 mm up to  $h$  100 mm
- $h$  up to 70 mm
- larger dimensions welded from sections



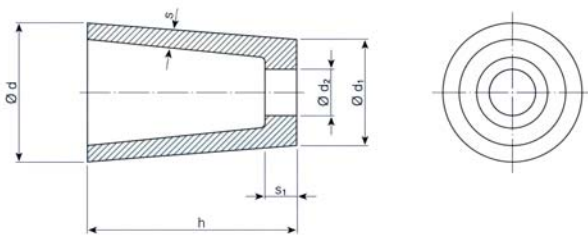


### SIKA-B conical moulds with or without flange of sintered Bronze



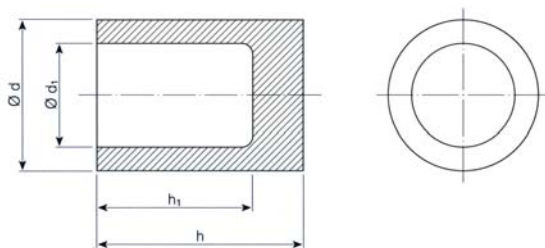
- Ø d 4 mm to Ø d 100 mm
- h 8 mm to h 200 mm

### SIKA-B conical moulds of sintered Bronze



- Ø d 4 mm to Ø d 100 mm
- h 5 mm to h 200 mm up to h 900 mm

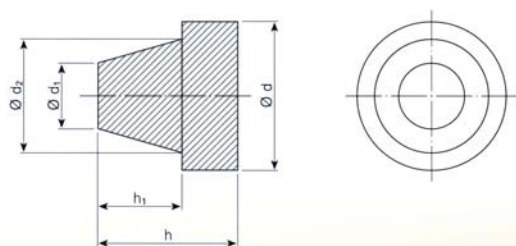
### SIKA-B-Moulds of sintered Bronze



- Ø d 4 mm to Ø d 100 mm, seamless
- Ø d from 500 mm welded from sections up to h 900 mm

and according to diameter, either seamless or welded from sections

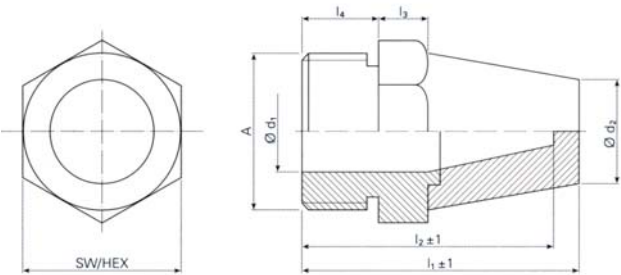
### SIKA-B-Cones with flange of sintered Bronze



- Ø d 2 mm to Ø d 100 mm
- h 2 mm to h 100 mm

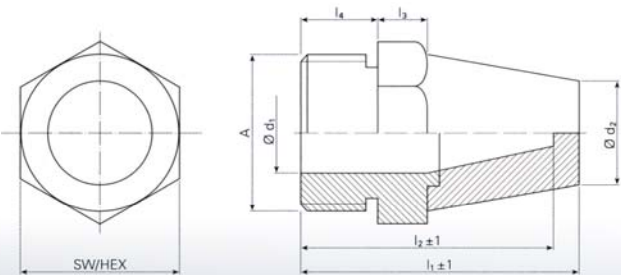


Silencer made of sintered bronze with a hexagon



A	Ø d <sub>1</sub> mm	Ø d <sub>2</sub> mm	l <sub>1</sub> mm	l <sub>2</sub> mm	l <sub>3</sub> mm	l <sub>4</sub> 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 2"	48	50	75	68	10	16	70	540010
M 30 x 1,5	22	28	66	60	10	16	41	540019

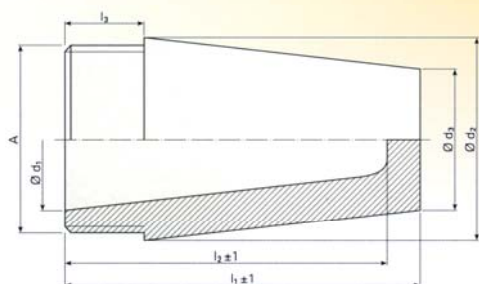
Silencer made of sintered bronze sintered together with a solid brass hexagon



A	Ø d <sub>1</sub> mm	Ø d <sub>2</sub> mm	l <sub>1</sub> mm	l <sub>2</sub> mm	l <sub>3</sub> mm	l <sub>4</sub> 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

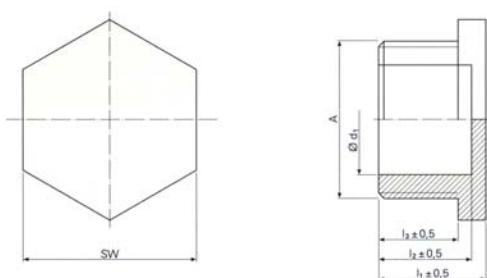


### Silencer made of sintered bronze



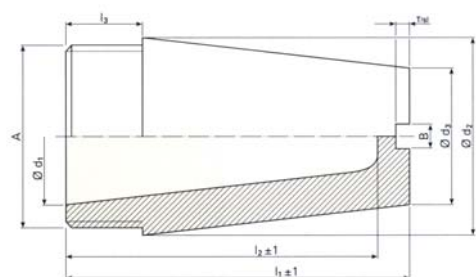
A	Ø d <sub>1</sub> mm	Ø d <sub>2</sub> mm	Ø d <sub>3</sub> mm	l <sub>1</sub> mm	l <sub>2</sub> mm	l <sub>3</sub> mm	Tool No.
G 1/8"	4	11	8	21	17	5,5	541001
G 1/4"	6	14	10	27	20	8,5	541002
G 3/8"	10	18	15	36	30	11	541003
G 1/2"	11	24	19	44	37	11	541004
G 3/4"	18	30	20	63	55	13	541005
G 1"	22	36	25	75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

### Vent plug made of sintered bronze



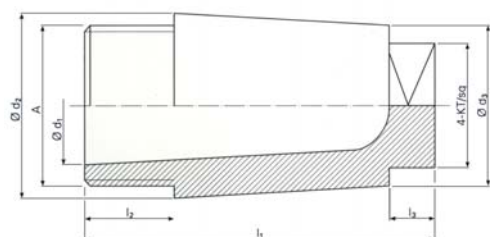
A	Ø d <sub>1</sub> mm	l <sub>1</sub> mm	l <sub>2</sub> mm	l <sub>3</sub> mm	SW HEX	Tool No.
G 1/8"	15,2	8,4	4,7	5,3	11	540035
G 1/4"	7	12	9	8,5	15	540030
G 3/8"	9	15	12,5	11	19	540031
G 1/2"	13	15	12,5	11	22	540008
G 3/4"	16	17	14	13	29	540032
G 1"	22	19	16	15	36	540036

### Silencer made of sintered bronze with a slot



A	Ø d <sub>1</sub> mm	Ø d <sub>2</sub> mm	Ø d <sub>3</sub> mm	l <sub>1</sub> mm	l <sub>2</sub> mm	l <sub>3</sub> 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 <sub>1</sub> mm	Ø d <sub>2</sub> mm	Ø d <sub>3</sub> mm	l <sub>1</sub> mm	l <sub>2</sub> mm	l <sub>3</sub> 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 <sub>1</sub> mm	Ø d <sub>2</sub> mm	Ø d <sub>3</sub> mm	l <sub>1</sub> mm	l <sub>2</sub> mm	l <sub>3</sub> 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...

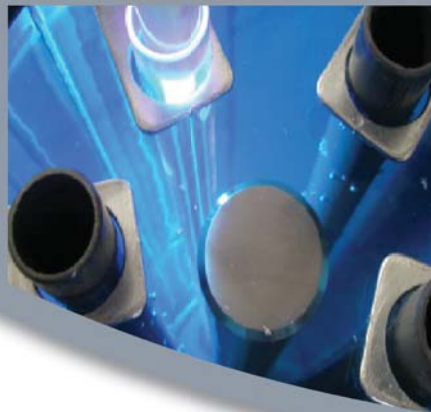
**Catalyst recovery**



**Refinery**



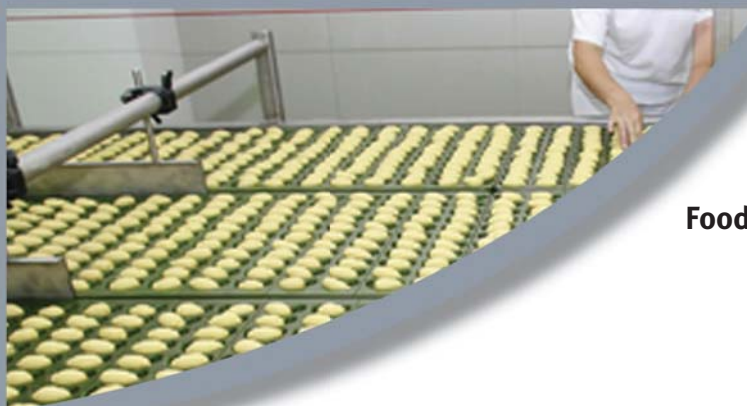
**Water treatment**







**Pneumatic valves**



**Food shaping**



## Basic Information for Designing a Filter

### Customer's Information

Enquiry date: \_\_\_\_\_

Company Name: \_\_\_\_\_

Contact Name: \_\_\_\_\_

Street Address: \_\_\_\_\_

ZIP: \_\_\_\_\_

Town, US State: \_\_\_\_\_

Country: \_\_\_\_\_

### 1. The planned application of the SIKA element?

Filtration ☐ Equalizing ☐ Fluidizing ☐

Separation ☐ Silencing ☐ Sparging ☐

Throttling ☐ Protecting ☐ Degassing ☐

Others \_\_\_\_\_

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

#### Medium Specification

Operation density \_\_\_\_\_

Dynamic viscosity \_\_\_\_\_

Operation temperature \_\_\_\_\_

Operating flow rate \_\_\_\_\_

Absolute operating pressure before SIKA-element \_\_\_\_\_

Wanted or permissible pressure drop of clean filter \_\_\_\_\_

Max permissible pressure drop of used filter \_\_\_\_\_

### 3. Which particles must be retained by a SIKA element?

Description \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Filter grade \_\_\_\_\_

### 4. How will the SIKA element be applied?

Shape of the element Tube ☐ Cartridge ☐ Sheet ☐

Disc ☐ Other ☐

Connecting Element Flange ☐ Thread ☐ Other ☐

Housing diameter \_\_\_\_\_

Quantity \_\_\_\_\_

### 4. Short description of the process:





## Further Brochures Available



**GKN Sinter Metals Filters GmbH**

Dahlienstraße 43

D-42477 Radevormwald

P.O. Box 1520

D-42464 Radevormwald

Phone: +49 (0) 2195-609-0

Fax: +49 (0) 2195-609-48

Email: [info@gkn-filters.com](mailto:info@gkn-filters.com)

[www.gkn-filters.com](http://www.gkn-filters.com)