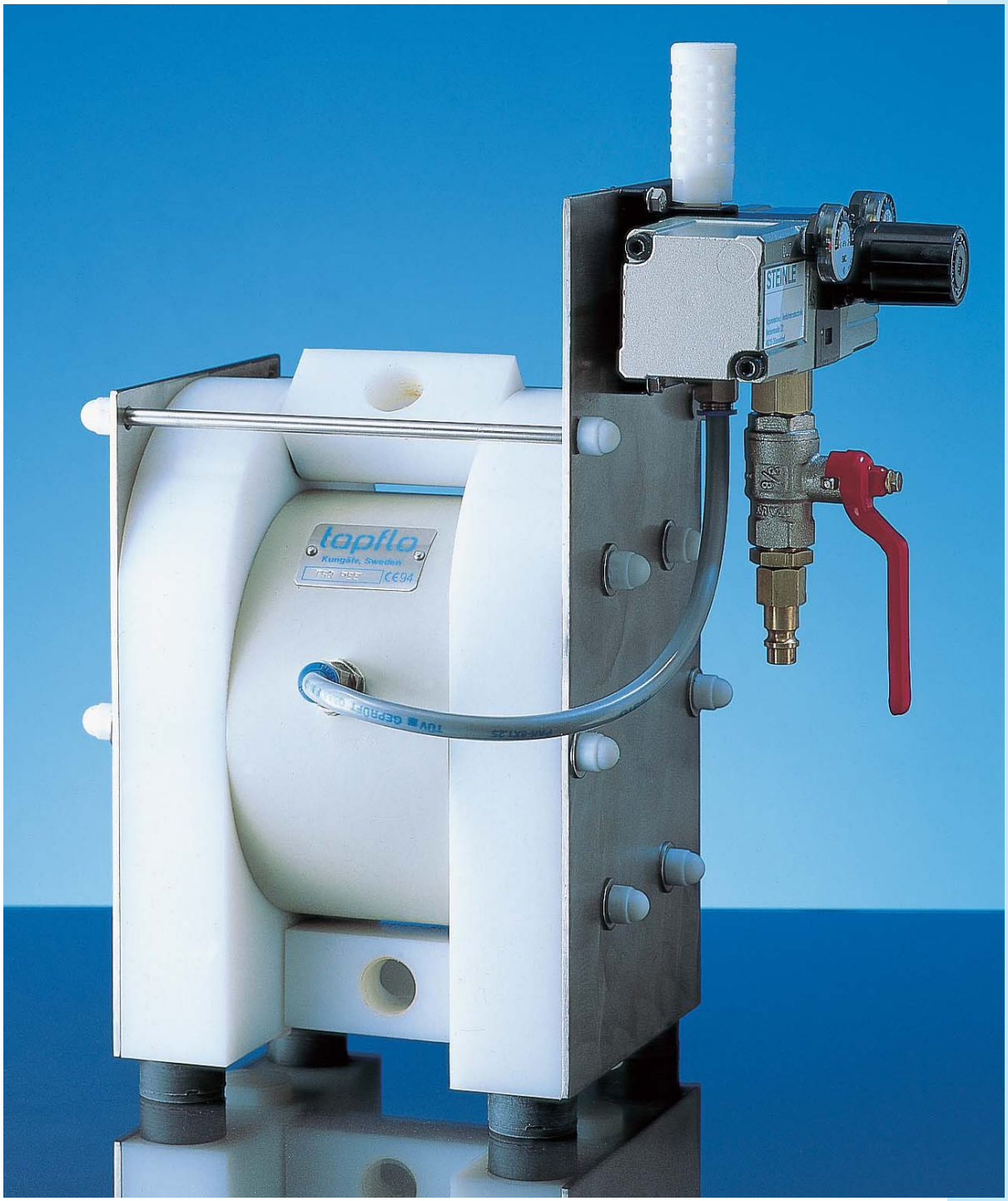
Filter Press Pump

Series TF



Pressure transmitted to 1 : 2

STEINLE
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STEINLE

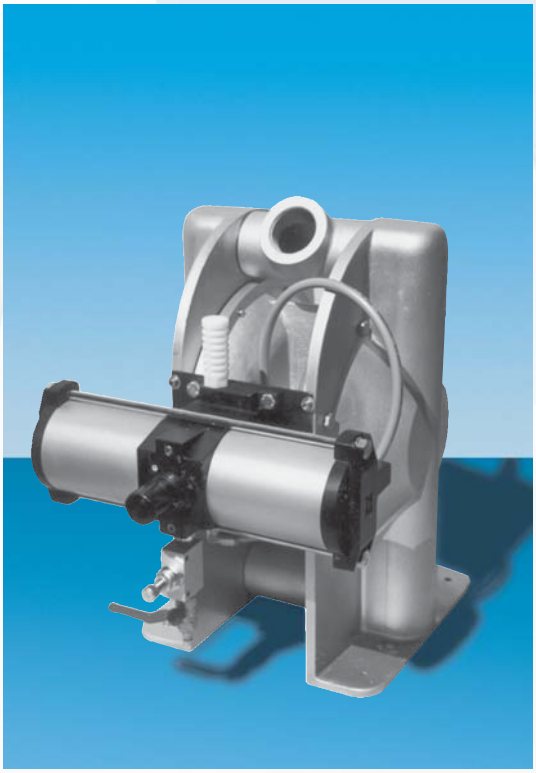
The compact pump for feeding filter presses

Compact

The STEINLE pump for filter presses is a very compact unity that can be mounted directly to the filter press. It is qualified by technical specifications allowing to the user a straightforward pressing of slurries. Pressure regulater and needle valve are already mounted to the pump.

All-round and Multiple

These pumps are based on the approved Tapflo air operated diaphragm pumps which are specifically qualified for this task. The extensive product range of Tapflo allows an adapting of the stations to almost every application. An extern pressure booster doubles the delivery pressure.



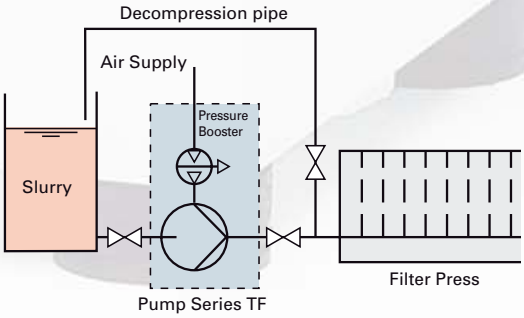
Properties

Particular advantages result from the specific construction:

- **can run dry**
- **self priming**
- **self-regulating**
- **few single parts**
- **high pressure transmission to 1 : 2**
- **easy to maintain**
- **pressure regulator included**
- **compact**
- **stroke sensor available**
- **no need for lubrication of the air supply**
- **pressure balanced diaphragm**
- **smooth operation**
- **PTFE-diaphragm for solvents available**
- **reliability**
- **long service life**

Installation

As these pumps work self-regulating, an additional device for regulating the flow quantity is not neccessary. Just mount it to the filter press, connect it – ready. Even the pressure regulator and the needle valve for the air supply are included. For watching the filling-level of the filter press, stroke sensors and stroke counters are available.



Pump Code System

Example: TF A 100 P E E - N

Filter press pump

TF	=	Standard
TXF	=	ATEX-authorization

Addition

A	=	Aluminium central block
M	=	Special connections

Pump size

50	PE, PTFE
70	Alu, GG 40, SS 316L
80	SS 316 L polished
95	PE, PTFE
100	PE, PTFE
120	Alu, GG 40, SS 316L
125	SS 316 L polished
200	PE, PTFE
220	Alu, GG 40, SS 316L
225	SS 316 L polished
400	PE, PTFE
420	Alu, GG 40, SS 316L

Material of the pump housing

P	=	Polyethylen (PE)
T	=	PTFE
A	=	Aluminium
C	=	Grey Iron
S	=	SS 316 L

Material of the diaphragms

E	=	EPDM
N	=	NBR
T	=	PTFE

Material of the valve balls

E	=	EPDM
N	=	NBR (Buna N)
T	=	PTFE
S	=	SS 316
V	=	FKM
P	=	PP (Polypropylen)
U	=	PUR (Polyurethan)
K	=	Ceramics

Special equipment

N	=	with Stroke sensor

Pump types

Like all Tapflo pumps also the TF-pumps can be adapted to any task in question. Drum-pumps, seperate connections and a variety of special executions are at disposal.

Conductive PE or polished stainless steel - all Tapflo pump types are also applicated in the TF-Series.

STEINLE

The Tapflo - Pump

Quality for Filter Presses

The company Tapflo AB was founded in Kungälv (north of Gothenburg) 1985 and has been working with the design and manufacture of air operated diaphragm pumps since that time. These pumps are especially qualified for applications in the high pressure domain. The company Steinle therefor exclusivly employs Tapflo pumps in the TF-series for filter press charging.

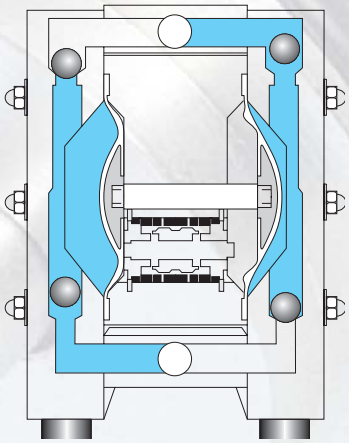
Air valve

The air valve provides for the reliable switching over of the strokes . It consists of brass and is equipped with self-lubricating seals. It does not require any kind of lubrication and reliably switches over from any position to another. The air valve is maintainance free and, when inquired, also available in stainless steel.

Double-acting diaphragm pump

The Tapflo air operated diaphragm pumps belong to the group of displacement pumps. They are driven by compressed air.

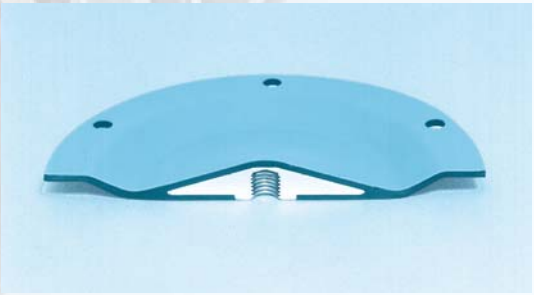
Two diaphragms, connected by a shaft, are being pushed back and forth by alternatingly pressurizing the air chambers behind the diaphragms by means of an automatically cycling air valve system. The air valve switches over as soon as one diaphragm has reached the end position.



While one diaphragm transmits the force from the air pressure onto the liquid in the housing, the opposite pressure-relieved diaphragm creates a suction action when being pulled back from the housing. Therefor the slurry flows into the chambers and gets driven out by the next stroke. The chamber is alternatingly opened and closed by valve balls. During each cycle the air pressure on the back of the discharging diaphragm is equal to the head pressure on the slurry side. This is the reason for the long life time of the diaphragms even at high pressure applications.

Long-Life-Diaphragms

The sandwich PTFE diaphragm does not require any external plate. Its surface is perfectly smooth. It can be applied up to 120°C and is consistent against almost all chemicals. The EPDM and NBR diaphragms show particular mechanical qualities. Applicable up to 120°C EPDM and 90°C NBR.



Filter presses with STEINLE-pump station

Automatic adaption

When slurry is transfered to a chamber filter press, first the chambers get filled while the pressure tends to zero. Under an increasing filling-level the solids assemble at the filter cloths. This requires a pressure that continiously rises with the increasing content of solids. Under an constant flow quantity the pressure would rise extremly fast.

The drive of the Steinle charging pump by compressed air causes a diminution of the flow quantity according to the increasing counter-pressure in the filter press. This produces a soft filtration curve, automatically self-regulating according to the filling-level of the filter press. This is independent from the properties of the slurry. No pressure tank nor pressure transmitter nor speed control are required. The complete pump works without electric energy.

End of filtration process

When the filter press is filled with solids so far that no more slurry can be taken up, the pressing period is terminated. The air operation of the Tapflo pumps then reduces the flow rate to zero while the outlet pressure holds the required level compressing the filter cake. Excellent results in drying are obtained. At the end of the pressing period the pump simply stops.

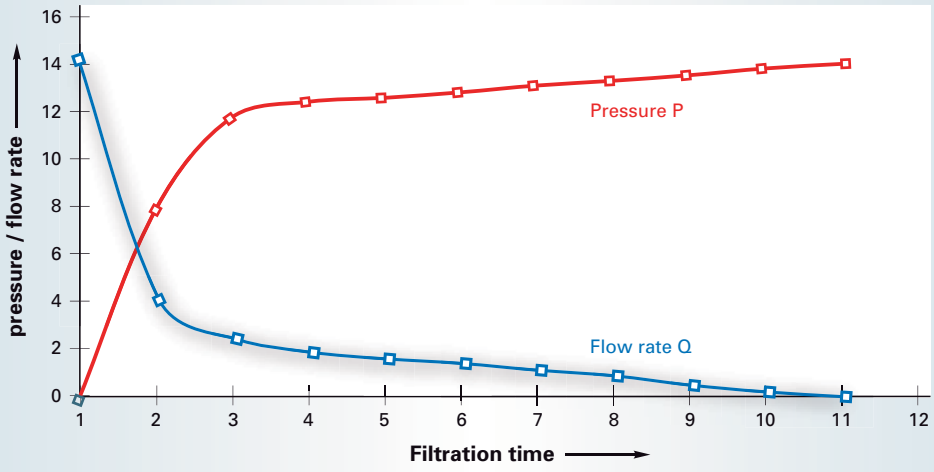
Pressure adjustment

The required pressure in the filter press is comfortably adjusted by the height of the air pressure supplying the charging pump. For a required pressure of 12 bar the pumps has to be supplied with 6 bar, when the type TF with a pressur transmission of 1:2 is applicated.

Low air consumption

The TF-pumps need the maximum air quantity only during the filling period. The more the press is filled, the more slowly the pump works. So the air consumption slowly reaches zero during progressing filtration.

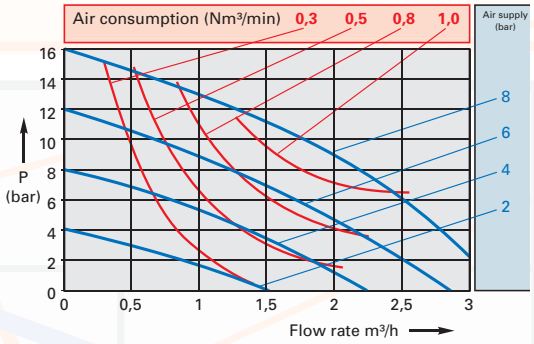
Typical graphic representation of a filter process



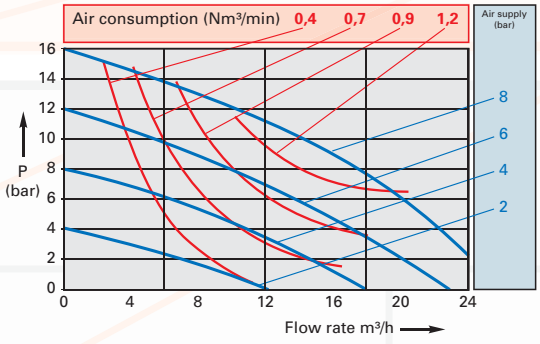
Accessories

- **Stroke Sensors**
- **Solenoid Valves**
- **High pressure Pulsation Dampener**
- **Air treatment Device**
- **Pneumatic Level Control Unit**

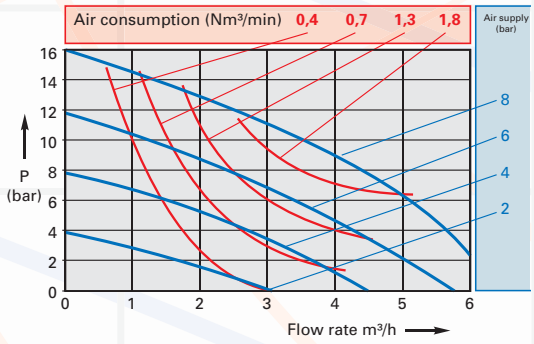
Flow rate



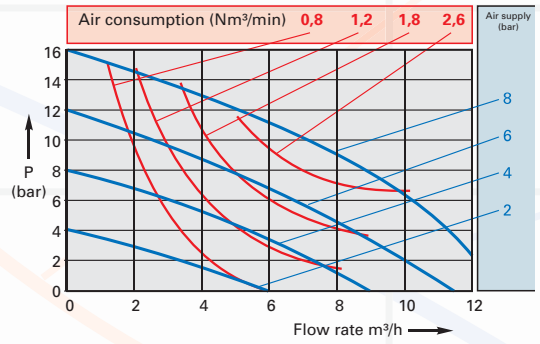
Performance curver station TF 50/70/80



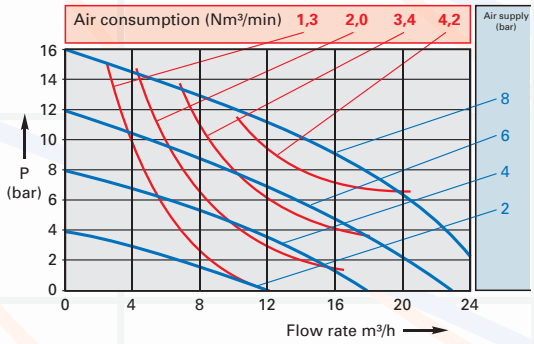
Performance curver Station TF 95



Performance curver station TF 100/120/125



Performance curver station TF 200/220/225



Performance curver Station TF 400/420

Example:

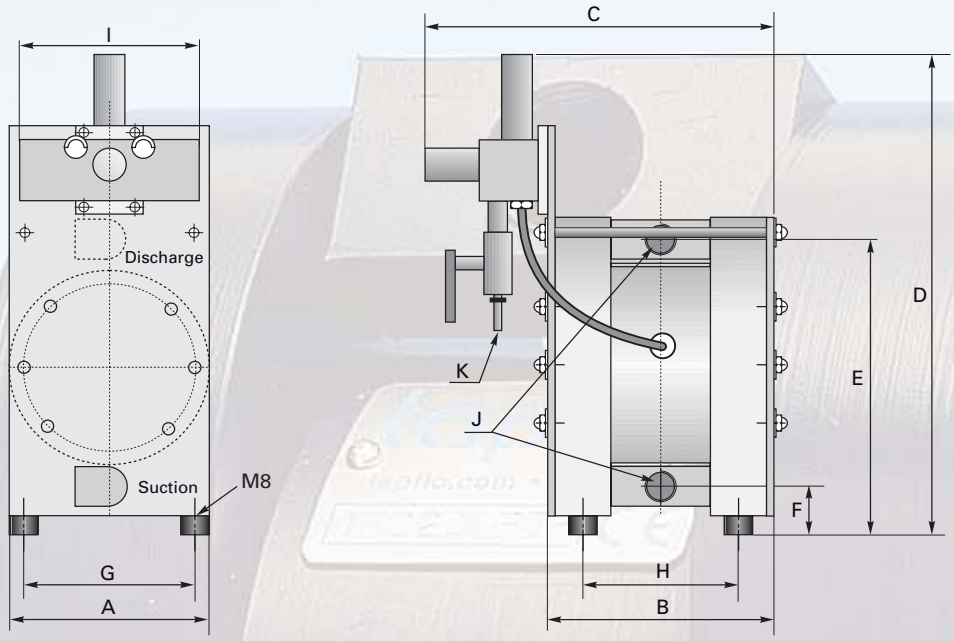
A flow rate of 6 m³/h is required and a pressure of 12 should be achieved.
A TF 100 (100 l/min = 6 m³/h) is recommended, which has to be supplied with 6 bar compressed air.
When 16 bar should be achieved, the same pump must have an air supply of 8 bar. A TFF 100 is recommended, when 8 bar air pressure are not available. In this case only 4 bar air pressure are suitable.

Technical data

	connection	suction lift (mWS)		solid size	operating pressure	temperature max. (°C)			weight (kg)				
		dry	wet	max. (mm)	max. (bar)	PE	PTFE	NBR	Alu	GG40	1.4404	PE	PTFE
TF 50	1/2"	3	8	4	16	70	110					6	8
TF 70	3/4"	3	8	4	16		110	80	6	11	8		
TF 95	1"	4	8	6	16	70	110					11	18
TF 100	1"	4	8	6	16	70	110					12	19
TF 120	1"	4	8	6	16		110	80	10	18	17		
TF 200	1 1/2"	5	8	10	12	70	110					27	47
TF 220	1 1/2"	5	8	10	14		110	80	25	49	43		
TF 400	2"	5	8	15	12	70	110					49	95
TF 420	2"	5	8	15	14		110	80	54	83	73		

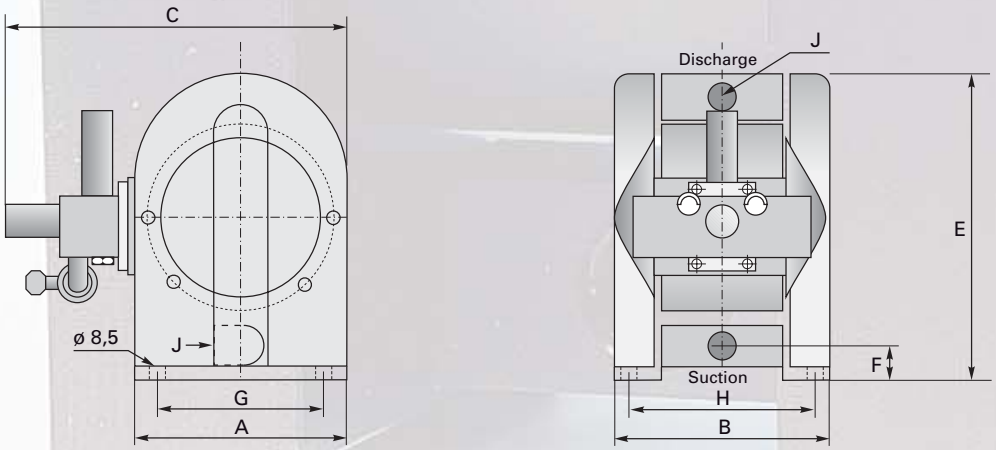
Dimensions

Plastic-pumps TF 50 – TF 400



	A	B	C	D	E	F	G	H	I	J	K
TF 50	150	166	264	360	220	36	115	130	150	1/2"	1/4"
TF 95	200	220	330	470	290	44	140	154	150	1"	1/4"
TF 100	200	220	376	522	290	44	140	154	300	1"	3/8"
TF 200	270	316	446	652	415	68	210	250	300	1 1/2"	3/8"
TF 400	350	386	564	802	530	80	290	320	400	2"	1/2"

Metal pumps TF 70 – TF 420



	A	B	C	D	E	F	G	H	J
TF 70	150	167	260	230	230	20	116	130	3/4"
TF 120	200	200	356	223	223	27	160	160	1"
TF 220	270	270	400	412	412	35	220	220	1 1/2"
TF 420	350	350	564	586	586	40	290	290	2"

References

References in extract

Chemical/Pulp and Paper

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BASF AG, Ludwigshafen
Bayer AG, Leverkusen
Boehringer Ingelheim Pharma KG
BNT Chemicals, Bitterfeld
Clariant Masterbatch, Ahrensburg
Degussa AG, Hanau
Deutsche Carbone AG, Frankfurt
Henkel KGaA, Herborn
Heraeus GmbH, Hanau
Hoechst AG, Knappsack
Hoffmann Laroche, Grenzach
Hüls Silicone GmbH, Nünchritz
Hans Kolb Wellpappe, Memmingen
Kappa Golf Karton, Pekela
Linde AG, Höllriegelskreuth
Merck KGaA, Gernsheim
Norddeutsche Affinerie, Hamburg
Organotin Chemie GmbH, Bitterfeld
Procter & Gamble, Mainz
Roche AG, Sisseln
Silhouette International, Linz
Stone Europa Carton, Lauenburg
Woellner Werke, Ludwigshafen

Elektronics

ABB Paint Automation GmbH, Butzbach
Accumulatorenwerke Hoppecke, Brilon
Amphenol-Tuchel Electronics, Heilbronn
Bauknecht Hausgeräte GmbH
Buchen Umweltservice, Köln
CDA Datenträger, Albrechts
DETA Akkumulatorenwerke, Bad Lauterberg

Ericsson Radio AB, Norköppin
Fuji Magnetics, Kleve
IBM Deutschland GmbH, Sindelfingen
Infineon Technologies AG, Regensburg
Loewe Opta GmbH, Kronach
Philips B.V. Eindhoven
Robert Bosch GmbH, Bamberg
Siemens AG, Augsburg

Mechanical and Process Engineering

Bosch Rexroth AG
Buchen Umweltservice, Köln
Dürr GmbH, Stuttgart
Eisenmann KG, Böblingen
Enviro Chemie GmbH, Roßdorf
Galvanotechnik Leipzig GmbH
Koralle Sanitärprodukte, Vlotho
MAN Plamag Druckmaschinen AG, Plauen
Mannesmann Demag, Mönchengladbach
Mannesmann Sachs, Schweinfurt
Poligrat GmbH, München
WMF AG, Geislingen
Züblin Umwelttechnik, Berlin

Porcellaine, Glas, Ceramics

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Annaburg Porzellan, Annaburg
Carl Zeiss GmbH, Jena
Fürstenberg Pozellan, Fürstenberg
Heinrich Porzellan, Selb
Hoechst CeramTec, Markdrewitz
ISPO GmbH, Kriftel
Limburger Glashütte, Limburg
Optische Werke Rodenstock, Regen
Porzellanambiente Reichenbach
Porzellanfabrik Hermsdorf GmbH, Hermsdorf

Quarzschmelze Ilmenau, Langwiesen
Rosenthal AG, Selb
Staatliche Porzellanmanufaktur, Meißen
Tridelta Magnetokeramik, Hermsdorf
Triptis Porzellan, Triptis
Villeroy & Boch, Torgau
Weimar Porzellan, Weimar

Filter Press Manufacturers

Bertrams Dehydrat AG, Delémont
Filox Filtrationstechnik GmbH, Blasweiler
Häcker Maschinenbau GmbH, Arzberg
J.K.F. Filtrationstechnik, Birkenfeld
MSE Filtrationstechnik Gmbh, Remchingen

Netzsch Filtrationstechnik GmbH, Selb
Pektus-Wutha GmbH, Wutha
Putsch GmbH, Hagen
Schenk Filterbau GmbH, Waldstetten
Simex-Sauer GmbH, Calw

Municipal

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Automotive

Alcoa Wheel Products, Szekesfehervar
Audi AG, Neckarsulm
BMW AG, München
Daimler-Chrysler, Bremen
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Eaton Automotive GmbH, Nordhausen
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STEINLE
INDUSTRIEPUMPEN GMBH
Varnhagenstr. 42 • D-40225 Düsseldorf • Tel. ++49 (0)211/30 20 55 0 • Fax ++49 (0)211/30 20 55 11
info@steinle-pumpen.de • http://www.steinle-pumpen.de