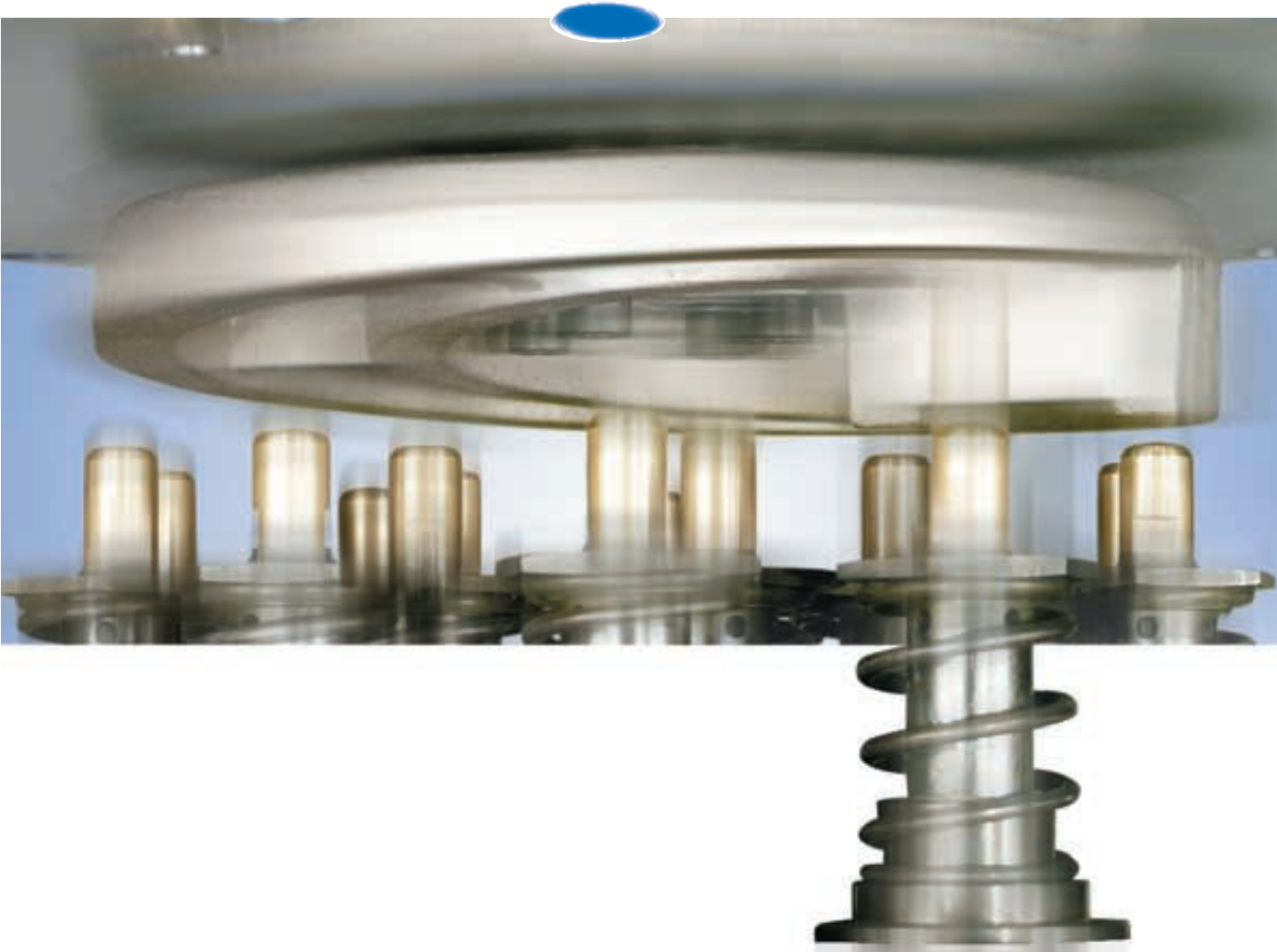
BOLLFILTER
Protection Systems

Safety needs quality.

BOLL Added-media Pre-coat Filter with dry Discharge
TOPSYSTEMS TYPE 8.35

BOLL Own-media Pre-coat Filter with dry Discharge
TOPSYSTEMS TYP 8.36



sequential, pulsating, efficient

BOLL & KIRCH Filterbau GmbH

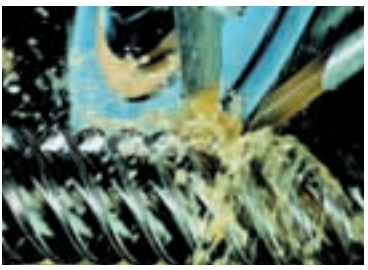
THE TASK

Regeneration of process fluids

Economical operation and conservation of expensive coolants used in the machine tool industry requires high quality of filtration. Correct maintenance and care of the coolant in central supply and dedicated supply systems has a direct influence on the service life of the coolant and on production costs. To achieve optimum results, filters must:

- have precision that will guarantee a specific degree of cleanliness of the liquids to be treated,
- have reliability that will ensure uninterrupted and trouble-free operation of the whole plant
- help keep operating costs low with long intervals between maintenance and long service lives.

The BOLL Pre-coat and Candle Pressure Filters, TOP-SYSTEMs TYPE 8.35 and 8.36 meet these requirements perfectly. They achieve the finest filtration results and can be integrated as components into all the usual plant configurations without problems, thanks to their new cleaning actuating mechanism.



Grinding
Grinding and honing of motor and gear components

Cold forming
Metal working, such as rolling and pressing

CNC processing
Care of coolant used in mechanical processing

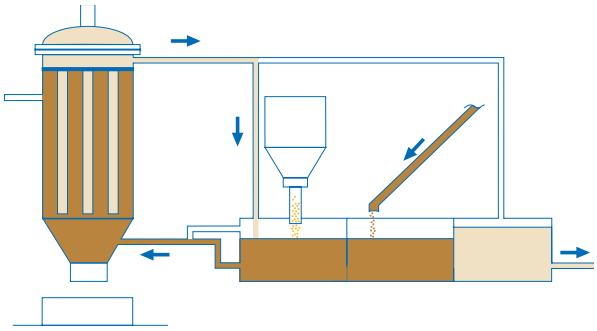
THE SOLUTION

Using cake forming particles to achieve the finest filtration

BOLL Pre-coat and Candle Pressure Filters operate in main supply or secondary circuits which are buffered against the regeneration process by means of service tanks, so that, although the filter process is intermittent, the machinery can operate without interruption. The filters are modular in construction and are thus available both for individual machines and central plants. Their cylindrical filter housing can hold many filter candles which means that large filtering surfaces can be accommodated in a small area.

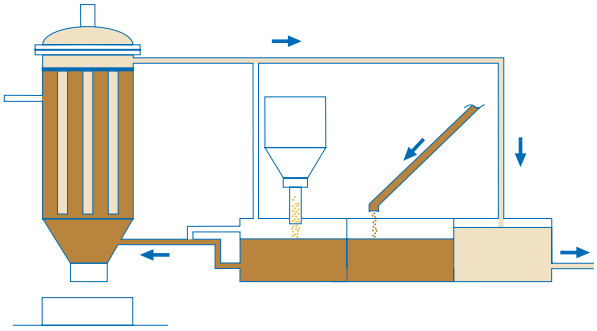
The filters function in a four-phase cycle, whose control is dependent on differential pressure.

1



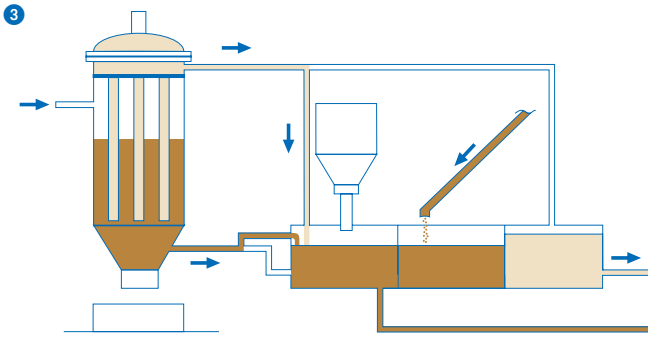
In phase 1, before the actual filtration, a homogenous, porous filter cake, 3-4 mm thick, is deposited on the dirty side of the filter candles. Various filter aids, such as cellulose products, maize husk waste, diatomite etc. can be used, as in the case of TYPE 8.35. The filter cake can however also be constructed solely from the solid components of the liquid to be cleaned, as in the case of TYPE 8.36.

2



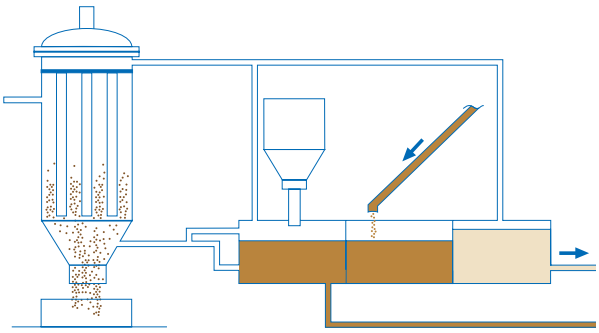
In phase 2, the actual filter-operation phase, the liquid is pumped from the dirty tank through the filter and from there to the clean tank, with the deposited filter cake acting as the primary filtration layer. Depending on the filter aid, a grade of filtration as fine as 5 µm can be achieved. The retained dirt particles additionally narrow the pores of the filter cake and thus improve the filtration result. During the filtration process, filter aids can be added if required, to prolong the duration of this phase.

3



Phase 3 is started automatically, once the differential pressure shows that the filter cake is saturated. The filter housing is then emptied by feeding in compressed air and the filter cake on the candles is dried until it becomes firm. The filter cake is dried directly on the filter candles, obviating the need to provide separate sludge processing facilities.

4



In phase 4 the filter candles are cleaned off, using a completely new type of actuating mechanism developed by BOLL & KIRCH (patent pending). The automatic opening of the discharge flap in the bottom of the filter housing, through which the dirt which has been filtered out, together with a small amount of residual moisture, is discharged into the bin. The whole regeneration of the filter candles lasts no longer than with conventional pre-coat filter systems. The next filter cycle then begins again with Phase 1.

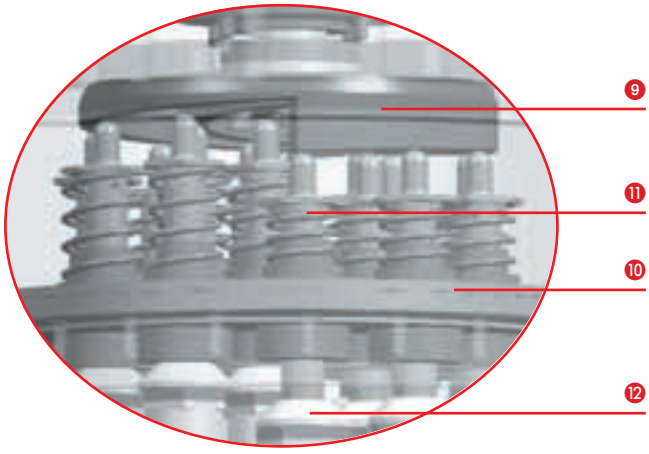
THE CONCEPT

Optimum performance achieved by sequential cleaning of individual candles

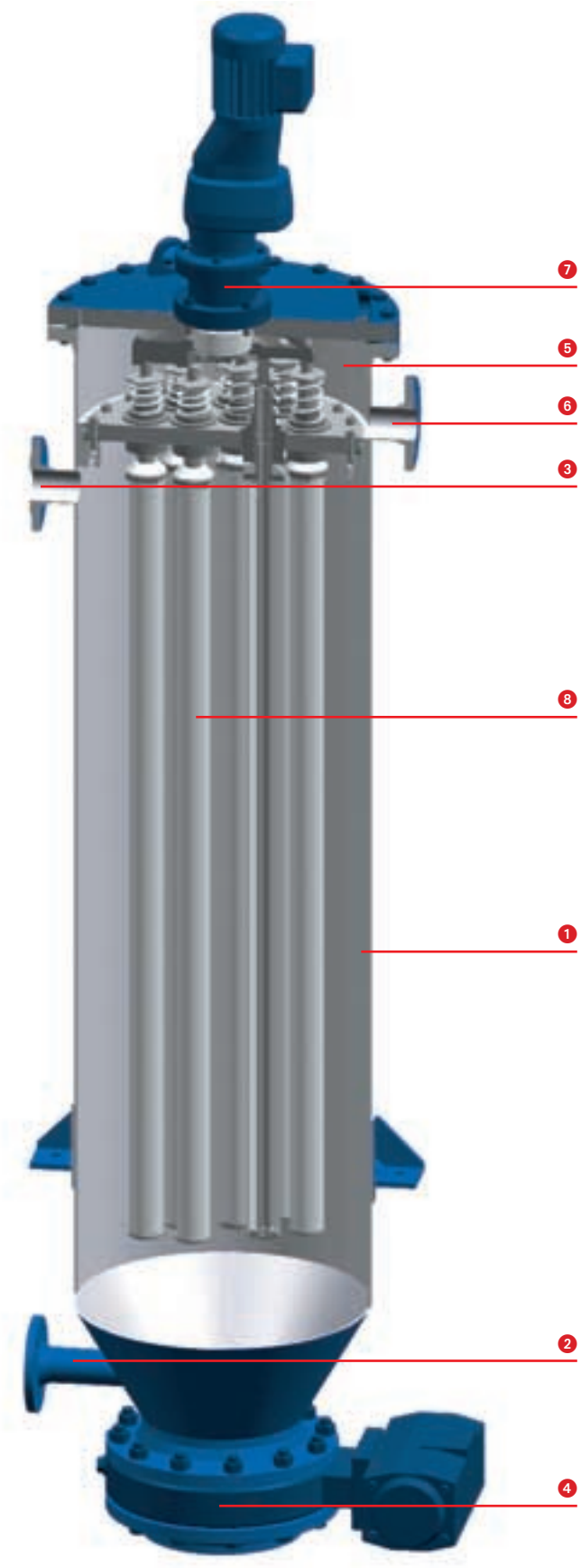
A perfect filter result combined with optimum performance is what makes BOLLFILTER type 8.35 and 8.36 superior.

The lower "dirt" chamber ❶ of the filter housing, which is designed for minimal pressure-loss, has the connection for the liquid inlet ❷, air for emptying/vent connection ❸ and a discharge flap ❹ for the dried, saturated filter cake. The upper, "clean" chamber ❺ has the outlet connection for the filtrate ❻ and the filter cleaning actuating mechanism ❼. The filter candle support ❿ forms an impervious seal between the two chambers. The radial, wedge-wire filter candles ❽ through which the flow passes from the outside towards the inside.

The newly developed actuating mechanism functions by means of an electrically driven disc ❾, which rotates over the candle heads. The candles are fixed through the candle support ❿ allowing movement up and down. During rotation the helicoidal surface on underside of the disc presses down the filter candles sequentially. The candles are pre-tensioned by means of springs ⓫ As the candle heads pass the step edge of the disc, the candles shoot back into their original position.



The candle impacts against the underside of the candle support, where a damping element ⓬ prevents metallic contact. Conversion of the kinetic energy into an impulse releases the filter cake. Because of the unique actuating mechanism, cleaning one candle at a time, the release of energy is concentrated, thorough and highly efficient. This concentration of energy results in almost silent and vibration-free operation, preventing adverse influences on adjacent plant and machinery that other impacting, knocking or vibrating types of pre-coat filters may have.



THE DETAILS

Data and facts summarised

	TOPSYSTEMS, Typ 8.35 Pre-coat filter with dry discharge	TOPSYSTEMS, Typ 8.36 Candle pressure filter
Areas of application	Low-viscosity cutting oil, grinding oil, rolling oil,	Coolants/lubricants in processes with cake-for-
	honing oil, grinding coolants, petroleum washes, oils	ming solids (coarse and medium grinding)
	for gears, steel-hardening oils, dielectrics	
Operating pressures	5 - 10 bar (high pressures on request)	5 - 10 bar (high pressures on request)
Max. differential pressure	up to operating pressure	up to operating pressure
Operating temperature	up to 120°C	up to 120°C
Housing material	cast iron, steel, stainless steel	Cast iron, steel, stainless steel
Flange connections	DN 50 - DN 150	DN 50 - DN 150
Max. flow rate	3,000 l/min	5,000 l/min
Max. grade of filtration	5 micron	5 - 10 micron
Max. filter surface	30 m^2	5 m^2
Filter aids	e.g. diatomite, cellulose, rice ash or maize waste	---
Filter cake thickness	6 - 12 mm	8 - 20 mm
With additional dosing	basic deposit from 3 mm	
filter candle type	candles made from CrNi steel	candles made from CrNi steel
Filter type	Radial wedge wire	Radial wedge wire
Cake removal method	sequential cleaning of individual candles	sequential cleaning of individual candles
Control of cleaning interval	dependent on differential pressure	dependent on differential pressure
Regeneration time	15 minutes	5 - 15 minutes

THE COMPLETE RANGE

Quality through specialisation

BOLL & KIRCH concentrate exclusively the design and manufacture of liquid solid separation filters. Most BOLLFILTERs are the result of our own research and development and are protected by patents. Customers can take advantage of our knowledge by involving our technicians and engineers in the early phases of their projects. Focussing the knowledge of both partners in simultaneous engineering ensures a perfect result.

The global presence of BOLL & KIRCH in all important industrial centers guarantees customers world-wide reliability and service expected of a supplier of technologically advanced filter systems. Service includes dispatching BOLLFILTER genuine parts all over the world within 24 hours.

Commercial production on CNC and DNC controlled machine tools.

Various storage and logistics systems support smooth and effective production.

BOLLFILTER genuine parts leave the central warehouse within 24 hours.

THE ADVANTAGES

Showing the way, economically and ecologically

In economic terms, the best is always the result of "as much as possible" for "as little as necessary". Where the use of cooling lubricant is concerned, this means: consistent, precise filtration and regeneration of the coolant with minimal losses. This is a requirement for forward-looking business. Capital expenditure on a high quality filter plant becomes more cost-effective with increased service life and improved quality of finished product. In many cases it is possible to replace existing, outdated pre-coat filters with the new Boll dry-cake discharge model, with minimum disruption.

BOLLFILTERs consistently remove dirt particles from contaminated liquid and recycle it back into the process. They help to ensure the plant's operational safety continuously over a long period. This saves resources, protects the environment and reduces costs.

BOLLFILTERs are the best insurance for the product and the process. They increase the opportunities for re-investment, promoting growth and progress.

Special advantages of BOLL Pre-coat filters and candle pressure filters

- High filtration result
- Large filter area
- Low pressure losses
- Long process time
- Sequential cleaning of individual candles
- Low-vibration, low-noise mechanism
- Automatic dry discharge of dirt saturated filter cake
- Short regeneration time
- Compact, modular construction
- Simple to operate
- Low maintenance costs
- Long service life
- Low operating costs

BOLLFILTER
Protection Systems

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