

ROLLING OIL CLARIFICATION USING ABSORPTION FILTER TECHNOLOGY

Many rolling applications require the use of light oil in place of the typical water-soluble coolant. Traditionally clarification of the roll oils has been done with disposable cartridge filters or diatomaceous earth filters. These methods, while effective, are maintenance intensive and require disposable guard filters.

To address these issues, Filtertech has developed the Model ABS Absorption Filter that is fully automatic and eliminates the need for any precoating or use of disposable filters. The Model ABS Absorption Filter incorporates a unique filter element design that removes even the finest particles and at the same time is self-cleaning using semi-permanent filter elements.

The Model ABS Absorption Filter is available in a wide variety of configurations to meet the needs of various applications including engineered system design when required.



Model ABS Absorption Filter

EQUIPMENT FEATURES

Standard

- Heavy-duty steel construction.
- Multiple chamber design for flexible operation and online cleaning without filtration interruption.
- Removable manifold design for easy filter element maintenance.
- Automatic filter element backflush cleaning feature.
- Virtually no pressure drop to prevent filter element fouling.
- PLC control and touchscreen operator interface.

Optional

- Stainless steel construction.
- Dirty oil recovery system.

MODE OF OPERATION

The ABS Filter System utilizes special filter candles designed to allow oil flow through the candles from outside to inside. The extremely fine particulate is captured on the outer surface of the filter element. Flow through the candles is accomplished by absorption instead of pressure. The extremely low differential allows the filter elements to be cleaned easily, by back flowing low-pressure air through the elements.

Most large flow rate systems utilize multiple filter vessels to achieve the required filtration levels. Each ABS filter vessel is designed with multiple filter compartments. Each compartment is completely isolated from the others. A typical vessel may have as many as eight independent compartments. Each compartment has a series of candle housings mounted on

TYPICAL APPLICATIONS

- **Stainless Steel Cold Rolling**
- **Aluminum Cold Rolling**
- **Brass and Copper Cold Rolling**
- **Honing Operations**



Each filter element manifold assembly is easily accessible for maintenance.

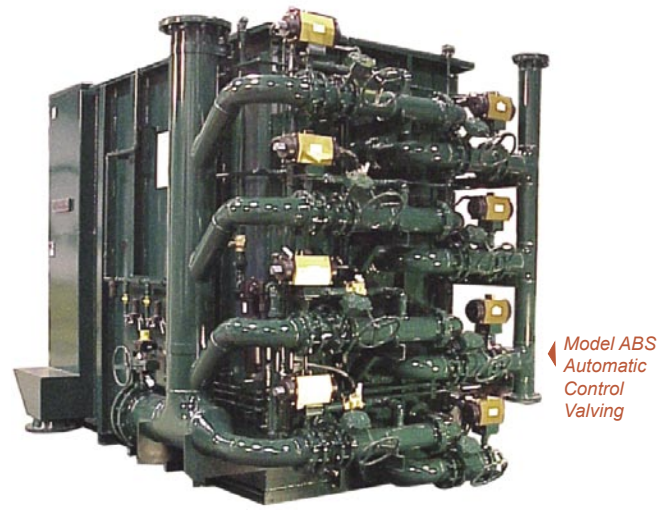
removable tracks for easy removal of the filter candles without taking the remaining compartments offline. This concept also permits only one compartment to be offline at a time for filter cleaning. Additional filter vessels are not needed for full flow filtration while in cleaning mode because only a small percentage of the total system filter flow is offline at any given time.

Dirty oil is transferred from the dirty system reservoir to the individual chambers in the filter vessel. Each chamber of each vessel utilizes an automatic dirty inlet valve, air inlet valve, clean outlet valve, and dirty oil purge valve. During the cleaning cycle of a compartment, the dirty inlet, clean outlet and purge

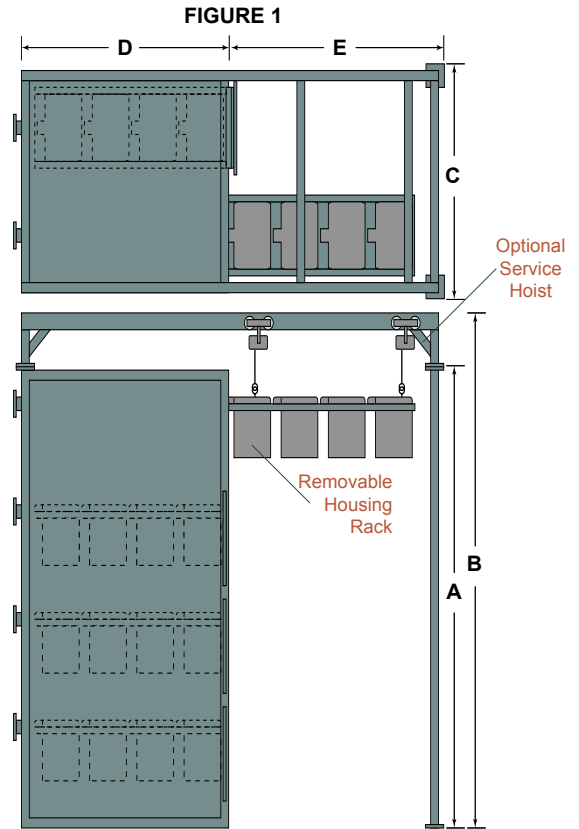
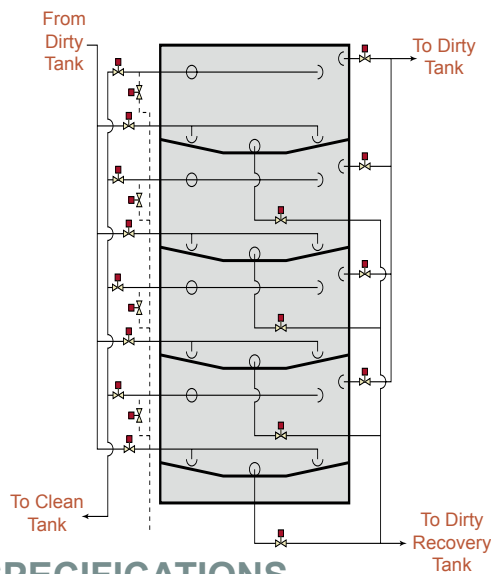
valves are closed. The automatic air inlet valve is opened. Low-pressure air flows back through the candles to release dirt from the filter surface. After a period of blow-down time, the dirty oil purge valve opens to remove all or a partial amount of dirty oil from the compartment. Because of the compartmentalized vessel design, a minimum amount of dirty oil is transferred to the recovery filter system. The resulting recovery filter flow rate is extremely low allowing efficient filtration and high clarity of rolling oil.

A typical recovery system for the ABS system utilizes two cone bottom tanks, one for accumulation of dirty oil from the backwash of the ABS filter compartments, and one to act as a clean reservoir for the filtered recovery oil. An automatic indexing filter is used for recirculative filtering at a very low feed rate of the recovery oil. The filter utilizes disposable filter media to allow a dry discharge of the removed solids from the entire ABS system. Once clean oil is accumulated, a clean transfer pump sends the clean oil back to the main system reservoirs after passing through a secondary high clarity filter.

Each vessel and its compartments are controlled via a PLC. The PLC control allows complete flexibility for setting cleaning cycle increments, blow-down times, purge times, and compartment settling times.



Model ABS Automatic Control Valving



SPECIFICATIONS

Model†	Dimensions in (cm)					Number of Chambers	Flow rate* GPM (lpm)	Est. Dry Weight Lbs. (kgs)
	A	B	C	D	E			
ABS141-400	36 (92)	74 (188)	43 (109)	100 (254)	96 (244)	1	30-50 (115-190)	1,450 (650)
ABS142-800	70 (178)	108 (274)	43 (109)	100 (254)	96 (244)	2	60-100 (230-380)	1,950 (870)
ABS143-1200	102 (259)	140 (356)	43 (109)	100 (254)	96 (244)	3	90-150 (345-570)	2,450 (1,000)
ABS144-1600	130 (330)	168 (427)	43 (109)	100 (254)	96 (244)	4	120-200 (460-760)	2,950 (1,350)
ABS242-1600	70 (178)	108 (274)	80 (203)	100 (254)	96 (244)	2	120-200 (460-760)	12,100 (5,450)
ABS243-2400	102 (259)	140 (356)	80 (203)	100 (254)	96 (244)	3	170-300 (645-1,140)	12,600 (5,670)
ABS244-3200	130 (330)	168 (427)	80 (203)	100 (254)	96 (244)	4	230-400 (870-1,515)	13,100 (5,900)
ABS246-4800	200 (508)	238 (605)	80 (203)	100 (254)	96 (244)	6	340-600 (1,290-2,270)	23,000 (10,350)
ABS248-6400	260 (660)	298 (757)	80 (203)	100 (254)	96 (244)	8	460-800 (1,740-3,030)	24,000 (10,800)
ABS276-8400	200 (508)	238 (605)	80 (203)	160 (406)	154 (391)	6	600-1,100 (2,270-4,170)	39,000 (17,550)
ABS278-11200	260 (660)	298 (757)	80 (203)	160 (406)	154 (391)	8	800-1,500 (3,030-5,680)	40,000 (18,000)