Water Filtration Systems

PRODUCT INFORMATION

Lubron's range of pressure filter systems is readily configured for removing both particulates and various dissolved species in effluent, ground, process and surface waters.

The filters are based on an extensive range of high quality steel vessels, built to the latest European standards, with excellent internal access. The manifolds, available in PVC or, to special order, stainless steel, incorporate pneumatic or motorised backwash control valves, which are governed by a dedicated programmable microprocessor unit.

The most common applications include

- for iron and manganese removal from borehole water
- for the removal of particulates in effluent, process and surface waters
- for elimination of organics, such as pesticides and chlorine.

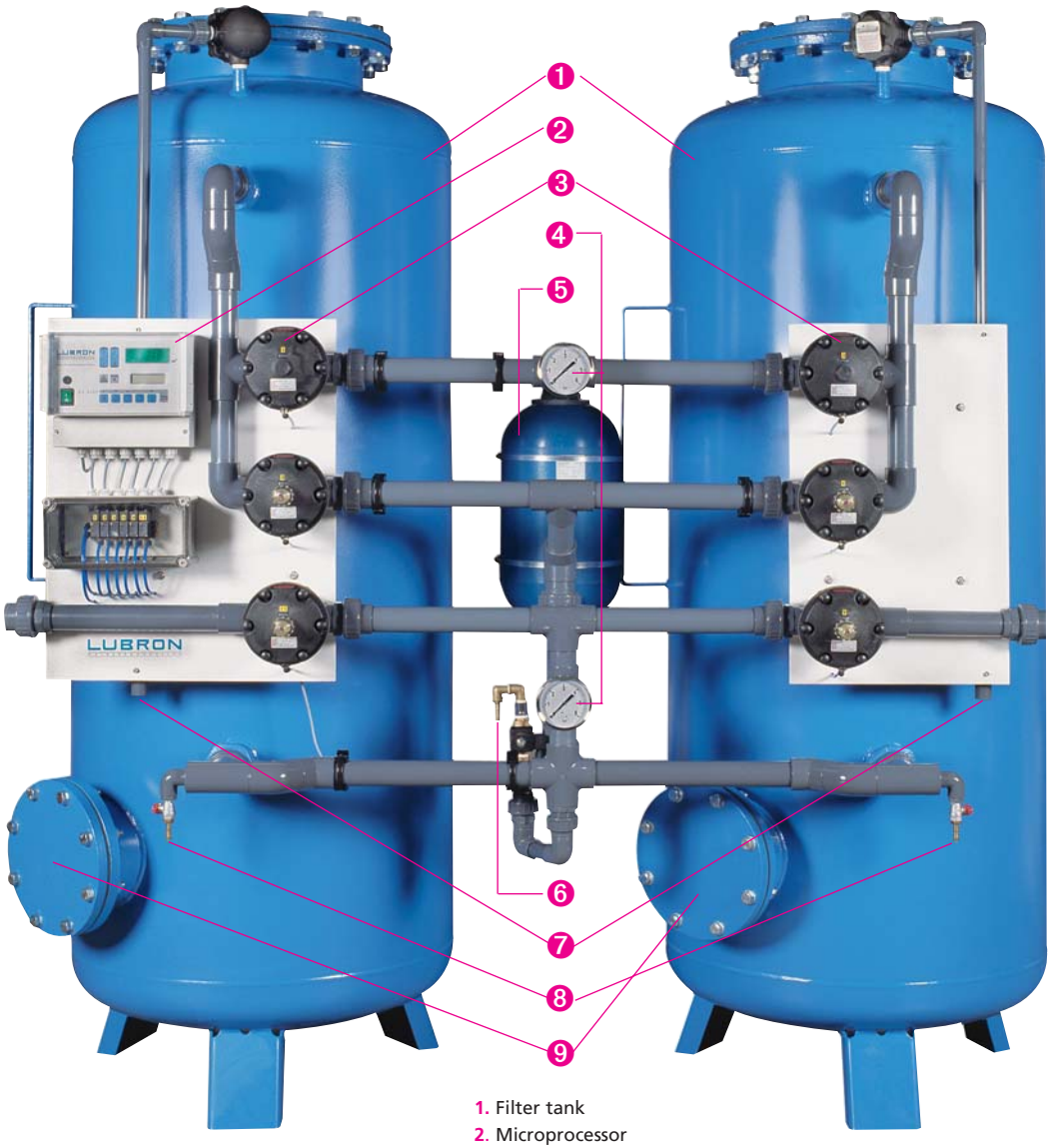
Iron removal from groundwater and borehole supplies calls for a knowledge of both the chemical reactions involved and how to engineer systems to ensure these can work effectively. Un-aerated groundwater usually contains dissolved iron salts. Introducing oxygen or air to the water causes the iron to oxidise and precipitate. Under correct conditions it can be filtered and removed from the water.

The efficiency of the process is dependent on many factors such as pH, level of oxygenation, operating pressure, media selection. filtration rate, etc. Also, because the process is catalysed by the presence of precipitated and filtered iron, new filters require a 'running in' period during which the optimum conditions are established.

Uniquely, the precipitation and filtration process occurs within the filter bed - not just on the surface - increasing the capacity over other manufacturers' designs.

Manganese removal is effected in a similar manner, but the chemical and physical conditions for efficient precipitation and filtration are different to that of iron.

Lubron's own technical team of qualified chemists and engineers understand these requirements, as proven by their numerous successful installations, and are always pleased to provide recommendations and advice for specific treatment projects.



1. Filter tank
2. Microprocessor
3. Membrane connectors
4. Pressure gauge
5. Aeration tank
6. Air line
7. Vent cock
8. Test cock
9. Manhole

Great care has been taken to design all filter systems to use only the absolute minimum of backwash water by employing the following techniques

- fully programmable backwash cycles with user-friendly interface
- air scour - standard on all systems
- multiplexed installation can use 'just filtered' water from one vessel to backwash another
- raw water may be used for backwashing by incorporating a 'service direction to drain' final stage
- backwashing can be programmed to initiate on head loss or time basis.

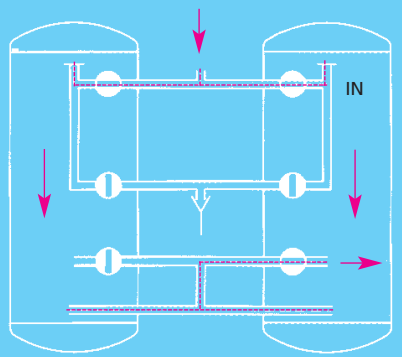
Filter Options Summary

- internal/external coatings to meet project requirements
- manifold and valve materials and control systems
- single, duplex, triplex or quadruplex installations as standard
- dedicated or customer specified plc steering
- fully automatic or manual backwash initiation
- filter media selected for specific filtrates
- all necessary backwash tanks and transfer pump systems can be included in proposals
- ancillary chemical dosing and air systems provided if required
- from supply only to full project fulfillment and management.

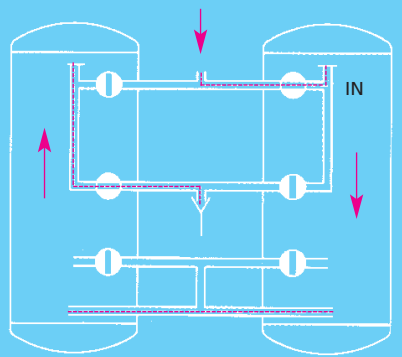
TECHNICAL DATA - IRON AND MANGANESE FILTERS

Model	Maximum service flow rate	Typical pressure drop*	Required backwash flow	Inlet	Outlet	Overall dimensions		
						Width	Depth	Height
	m^3/hr	bar	m^3/hr	mm	mm	mm	mm	mm
ZF/MF 1-800	5	0.38	12	40	40	1200	1200	2300
ZF/MF 1-900	7	0.49	16	50	50	1300	1450	2650
ZF/MF 1-1000	9	0.39	20	50	50	1400	1500	2750
ZF/MF 1-1250	14	0.47	31	65	50	1650	1850	3050
ZF/MF 1-1500	20	0.48	44	65	65	1900	2100	3200
ZF/MF 1-1600	24	0.50	50	80	65	2000	2300	3150
ZF/MF 1-1700•	27	0.40	57	80	65	2100	2500	3200
ZF/MF 1-1800•	30	0.43	64	80	65	2200	2450	3550
Twin vessels								
ZF/MF 2-800	10	0.55	12	40	40	2200	1200	2300
ZF/MF 2-900	14	0.45	16	50	50	2400	1400	2650
ZF/MF 2-1000	18	0.55	20	50	50	2600	1450	2750
ZF/MF 2-1250	28	0.45	31	65	65	3150	2000	3050
ZF/MF 2-1500	40	0.50	44	80	80	3800	2350	3200
ZF/MF 2-1600	48	0.57	50	100	100	4000	2250	3150
ZF/MF 2-1700•	54	0.65	57	100	100	4150	2400	3200
ZF/MF 2-1800•	60	0.48	64	100	100	4350	2400	3550

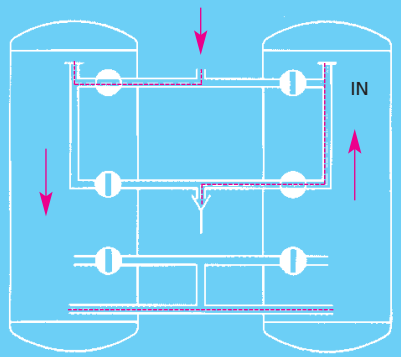
* After backwash • To special order Other sizes and combinations available



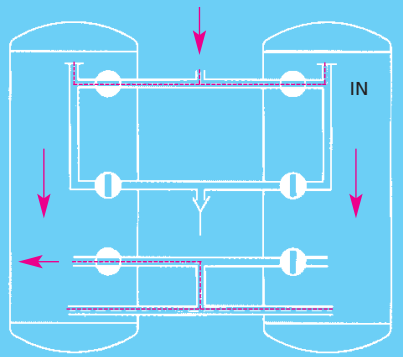
IN SERVICE



FLUSH FILTER A



FLUSH FILTER B



RUNNING IN

In Lubron's unique two-filter system, the filters are flushed through with water which has been pre-treated via one of the filters

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SAND FILTERS

Typical applications of Lubron's filters when configured with sand media are:

- removal of particulates from effluent water (primary or polishing)
- for filtering coagulated suspended solids (such as for algae or other debris)
- as a pre-treatment for any effluent or surface derived source.

It is always important to establish the appropriate effective chemical and flow conditions, either by trial or experimentation, and the programmable backwash is highly configurable to ensure thorough cleaning for any filtrate.

TECHNICAL DATA

Model	Maximum service flow rate	Typical pressure drop*	Required backwash capacity	Inlet	Outlet	Overall dimensions		
						Width	Depth	Height
	m^3/hr	bar	m^3/hr	mm	mm	mm	mm	mm
Single vessels								
WF 1-800	15	0.55	12	63	63	1200	1200	2300
WF 1-900	19	0.73	16	63	63	1300	1450	2650
WF 1-1000	24	0.53	20	75	75	1400	1500	2750
WF 1-1250	38	0.60	25	90	90	1650	1850	3050
WF 1-1500	53	0.77	28	90	90	1900	2100	3200
WF 1-1600	60	0.52	50	110	110	2000	2300	3150
WF 1-1700•	68	0.59	57	110	110	2100	2500	3200
WF 1-1800•	76	0.67	64	110	110	2200	2450	3550
Twin vessels								
WF 2-800	30	0.63	12	75	75	2200	1200	2300
WF 2-900	38	0.85	16	75	75	2400	1400	2650
WF 2-1000	48	0.62	20	90	90	2600	1450	2750
WF 2-1250	76	0.85	25	110	110	3150	2000	3050
WF 2-1500	106	0.94	44	110	110	3800	2350	3200
WF 2-1600	123	0.49	50	110	110	4000	2250	3150
WF 2-1700•	136	0.54	57	110	110	4150	2400	3200
WF 2-1800•	152	0.62	64	110	110	4350	2400	3550

* After backwash • To special order Other sizes and combinations available

FILTER VESSEL MANUFACTURING STANDARDS

Extreme care and quality control is observed throughout the filter and vessel manufacturing process. Along with ISO 9001 Quality Assurance procedures the following also apply:

Maximum Working Pressure

Standard working pressure of 5 bar, greater operating pressure to customer requirements. Pressure test carried out to 1.43x working pressure.

Materials

Steel plate thickness and construction code EN286/1.
Plate manufacture to EN10025 - S235JRG2.
Head and dished ends cold pressed to DN28011.
Flanges to DIN 2573/2576/2631/2632/2633.
Welding sockets to DIN 2986 (heavy type).

Construction and Welding

Manufacturing operatives qualified to EN287.
Welding procedures to EN288.

Test and Inspection

All vessels visually inspected prior to galvanising and individually pressure tested.
Fabricator qualified to European Directive 87/404/CE and 97/23/CE.

Finishing

All vessels are hot dipped galvanised to a thickness corresponding to local galvanising and drinking water standards.
Alternative approved coatings are also available - details on request.

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ACTIVATED CARBON FILTERS

When charged with the appropriate grades of activated carbon, Lubron's filter vessels are ideal for the removal of organic species, such as pesticides, or the elimination of chlorine residuals or chlorine dioxide or ozone.

The programmable backwash system allows for configuration of the appropriate media rinsing program in order to achieve the best performance with the minimum backwash water consuption.

The steel vessels are equipped with excellent media access, via both top and bottom manways, which ensures fast media extraction (by suction) and replacement, so that downtime and labour costs can be kept to an absolute minimum.

For potable or food industry applications all filters are available with approved internal and external finishes.

TECHNICAL DATA

Model	Maximum service flow rate (m^3/hr)	Typical pressure drop* (bar)	Required backwash capacity (m^3/hr)	Inlet (mm)	Outlet (mm)	Overall dimensions Width (mm)	Depth (mm)	Height (mm)
Single vessels								
AK 1-800	3	0.21	12	50	50	1200	1200	2300
AK 1-900	4	0.23	16	50	50	1300	1450	2650
AK 1-1000	5	0.20	20	63	63	1400	1500	2750
AK 1-1250	9	0.23	35	75	75	1650	1850	3050
AK 1-1500	12	0.27	44	75	75	1900	2100	3200
AK 1-1600	13	0.18	50	90	90	2000	2300	3150
AK 1-1700•	15	0.21	57	90	90	2100	2500	3200
AK 1-1800•	17	0.23	64	90	90	2200	2450	3550
Twin vessels								
AK 2-800	6	0.24	12	50	50	2200	1200	2300
AK 2-900	8	0.20	16	63	63	2400	1400	2650
AK 2-1000	10	0.22	20	63	63	2600	1450	2750
AK 2-1250	18	0.22	35	75	75	3150	2000	3050
AK 2-1500	24	0.19	44	90	90	3800	2350	3200
AK 2-1600	26	0.21	50	90	90	4000	2250	3150
AK 2-1700•	30	0.24	57	90	90	4150	2400	3200
AK 2-1800•	34	0.18	64	110	110	4350	2400	3550

* After backwash • To special order Other sizes and combinations available

the water marque

Lubron's in-house technical team of qualified chemists and engineers are renowned for their in-depth expertise and experience, and are always available to assist with water treatment problems or enquiries, from advising on possible solutions to providing complete designs, build and installation of projects, with on or off site training as appropriate.

Field support for customers is provided by a dedicated and trained service team operating throughout the United Kingdom and Europe.

Additional technical information is available on request.

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