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# SPRING

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## Liquid Purification

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### Self-cleaning drum filtration system





克普典科技股份有限公司  
Captain Science Corporation

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[www.capind.com.tw](http://www.capind.com.tw)

## 聯絡方式

[citb@ms11.hinet.net](mailto:citb@ms11.hinet.net)

Line ID : @vsh6593b



### 北區

地址：10057台北市中正區信義路二段61號2樓

電話：（02）2351-7107 轉 16 或 1

傳真：（02）2396-4950

### 中、南區

地址：台中市神岡區中山路667巷26弄18號

電話：（04）2561-0236 轉 11 或 18

傳真：（04）2561-0010

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# Spring

Spring is a self-cleaning drum filtration system with a fixed metal filter cloth, suitable for removing magnetic and non-magnetic particles from neat and emulsified oils.

It is available in 9 models with flow rates from 25 to 1000 l/min neat oil and 50 to 2,000 l/min emulsion. Drum filtration efficiency can be customised according to customer requirements.

Spring series self-cleaning filters are suitable for many types of machine tools such as: machining centres, deep drilling, transfers, grinding machines, lathes, machining with special high-pressure tools and combined machines.

This type of self-cleaning filter is especially suitable in the mechanical engineering and automotive industries, where there are machining operations involving chip removal with tools, abrasion removal, deformation and washing.

Losma guarantees that each purifier is individually tested through rigorous control procedures. A quality and functional test certificate is issued for each unit.





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# Spring Compact

Spring Compact is a self-cleaning drum filtration system capable of treating from 100 to 5000 l/min of neat oil or emulsion. Drum filtration efficiency can be customised according to customer requirements.

Spring Compact has the special feature that it only processes the amount of coolant required by the machine; the clean liquid collection tank is welded as a single block with the filter. Spring Compact works in real time, eliminating sludge deposits in the tank and thus guaranteeing zero deposits at the bottom of the machine.

**Given the characteristics of the filter, the system is designed and sized to the customer's specific requirements.**

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# Operation

The Spring and Spring Compact operating principle involves three phases:

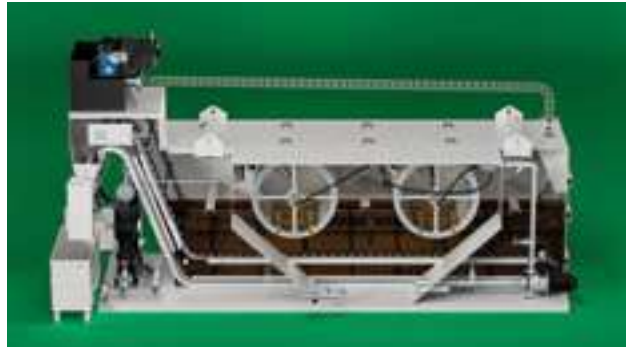
- The filter cloth covering the drum is perfectly clean. The dirty liquid passes through it, depositing the polluting parts, and it finds the drain opening while passing inside it. Here, the liquid falls into the clean collection tank, from where it is then sent back to the machine tools. During this phase, the drum does not rotate and the dredging system is stationary. The pollutant material that settles on the cloth forms the actual filter layer, which can be up to 10-15mm thick.
- The filter cloth becomes dirty and the liquid level rises. The dirty liquid continues to deposit pollutants on the surface of the drum, which does not rotate and the dredging system is stationary. The degree of filtration improves due to the thickness of the sludge deposited on the cloth.
- When the cloth clogging cycle is complete and the liquid can no longer pass through, the best possible degree of filtration is achieved. The longer the filter runs in this condition, the better the average filtration will be. When the liquid in the clean tank reaches the minimum level, the Autoclean cycle starts automatically and the drum rotates. At the end of this phase, the cleaning cycle starts again from the beginning.

Example sequence taken from  
product operation video

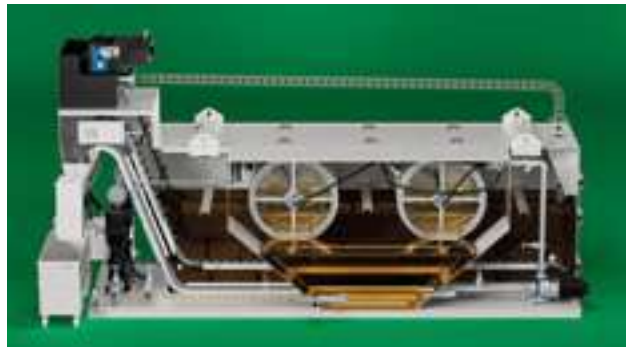
1.



2.



3.





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# Advantages

## **PERMANENT FILTER MATERIALS**

The Spring system uses a metal filter cloth which is cleaned by the Autoclean system. In this way, no consumable materials are used, significantly reducing maintenance and waste disposal costs.

## **AUTOCLEAN SYSTEM**

This is an automatic cleaning system for the wire cloth used for filtering liquids. Inside the filter is a sensor that rotates the drum when the maximum filter cloth clogging level is reached. During the rotation, a counter-current jet system washes the wire mesh, removing the residue while the dredging system scrapes the sludge from the bottom of the tank, transporting it to the outside.

## **DREDGING SYSTEM**

It is used for the evacuation of filtered and decanted sludge; it can also be in a magnetic version for ferro-magnetic residues.





**LOSMA<sup>®</sup>**

**SPRING**

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# Optional

## **1. DEMAG**

Magnetic rotating disc pre-filtration system for separating magnetic pollutant particles from coolant.

## **2. MAGNETIC DREDGING PLATE**

To facilitate the evacuation of ferro-magnetic swarf.

## **3. ELECTRICAL PANEL**

For supplying all utilities, controlling and managing all signals

## **4. MUD COMPACTOR**

It is used to reduce the volume of sludge for disposal and to reduce the liquid it contains. However, the level of compaction that can be achieved depends on the type of sludge, the type of liquid and many other factors such as cycle times. Volume and moisture reduction is achieved by squeezing with static load. It has a volume reduction efficiency of 40% to 20% and liquid reduction efficiency of 30% to 10%.

## **5. DELIVERY PUMPS**

For clean liquid delivery from 0.1 bar to 100 bar.

## **6. SKIM**

Eliminator of superficial oils allowing the quality of coolants to be maintained for a long time and eliminates odours generated in the presence of anaerobic bacterial flora.

## **7. CONTAINMENT TANK**

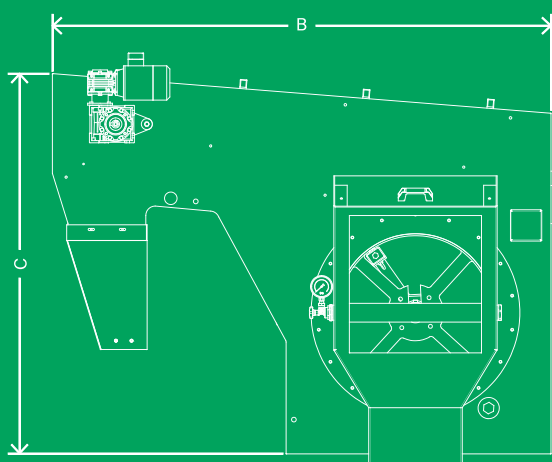
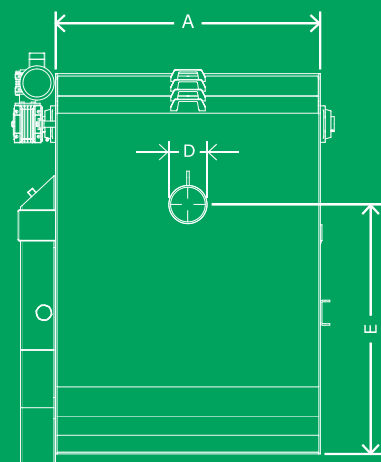
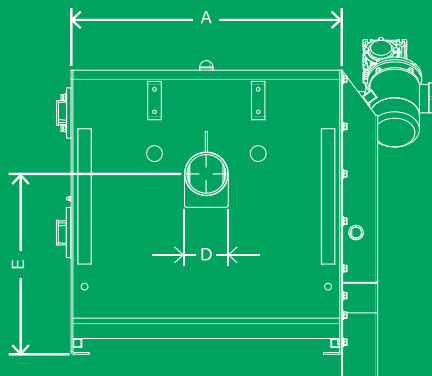
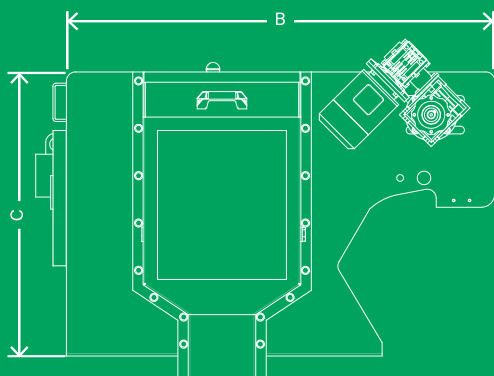
To collect the clean liquid to be returned to the machine tool.

## **8. BOOSTER TANK**

To collect dirty liquid for filter supply.



# Technical Data



Models	Dimentions (mm)				
	A	B	C	D	E
F1	400	950	630	2"	400
F2	500	950	630	2"	400
F3	600	950	630	3"	400

Master	Max emulsion flow rate (l/min)	Max neat oil flow rate (l/min)	Tank capacity (l)	Weight (filter only)
F1	50	25	170	100
F2	100	50	300	120
F3	150	75	460	140

Models	Dimentions (mm)				
	A	B	C	D	E
F4	600	1600	1220	4" G	800
F5	850	1600	1220	4" G	800
F6	1100	1600	1220	DN125-PN16	800
F7	1450	1600	1220	DN125-PN16	800
F8	1100	2400	1520	DN125-PN16	1100
F9	1450	2400	1520	DN125-PN16	1100

Master	Max emulsion flow rate (l/min)	Max neat oil flow rate (l/min)	Tank capacity (l)	Weight (filter only)
F4	300	150	1150	260
F5	600	300	2000	290
F6	900	450	3000	310
F7	1200	600	4000	350
F8	1600	800	5500	650
F9	2000	1000	7000	850

\* Nominal flow rate data refers to emulsion with a maximum oil concentration of 5% or neat oil with a maximum viscosity of 20cst at 40°C, and with a filter cloth with a nominal filtration degree of 100μ. The different characteristics of the liquid to be treated, the type of pollutant and its concentration can considerably affect the performance of the purifier. Our technical department is at your disposal to identify the most suitable solution for your needs.