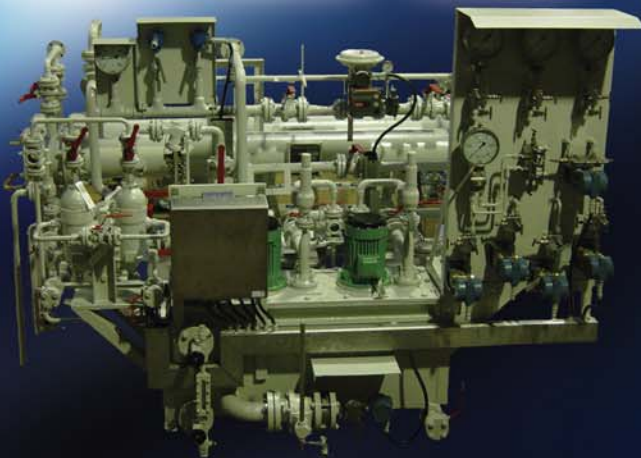




# RIVI

GRUPO TECNICO

## Oil Circulation System



### Overview

Oil circulation systems are chosen for multiple solutions in general industry.

A pump takes oil from the reservoir, and makes the oil pass through filters, heat exchangers, etc... until it reaches the flow meters which deal it proportionally & evenly to lube points. Later on, oil returns to the reservoir either by gravity or by means of pipe channels, in order to be recirculated again.

This system is mainly used in bearings for: lubricate, refrigerate and avoid pollution. Lubricants to be used are: oils

### Applications & Industrial areas:

- Hydrodynamic and hydrostatic bearings
- Turbines
- Steel rolling mills
- Gearboxes
- Pulp & paper machines
- Energy stations

Circulation systems can be classified in following groups:

- Hydraulic-by-Oil Flow Systems
- Lubrication Systems by means of Oil Circulation Flow.
- Blocking Systems (used to preserve separation between points, for example: at different pressure)
- Control & Regulation Oil Flow

Oil circulation systems differ from each other, depending on client specification and requirements. RIVI's expert engineers will always be ready to design a system which perfectly fits to the application requirements.

Here are explained five possibilities (and different versions) for oil distribution:

### 1.- Flow-strangle system.

#### a) Strangling pipes.

Flow control is adjusted proportionally to resistance value of strangle pipes. Flow per lube point can be from some  $\text{cm}^3$  up to several  $\text{Lts}/\text{min}$ . There is no monitoring of different points; only main line pressure is possible to be watched over. Economic system, with high functional safety.

#### b) Threaded strangles & metering strips with adjustable strangles.

Flow control is adjusted proportionally to resistance value of threaded strangles or adjustable metering strips. Flow can be from 0,2 to 230  $\text{cm}^3$  and from 0,3 to 1000  $\text{cm}^3$ . There is not monitoring of different points. Easy to plan and adjust oil flow.

#### c) Strangers with oil flow electrical control.

Flow control comes from strangles, proportionally to resistance values, which are placed just before electrical & visual control devices. Oil flow can be from 0,1 to 25  $\text{Lts}/\text{min}$ .

### 2.- Volumetric regulators.

Pump flow is distributed by these volumetric regulators, and then, by means of any strangling or progressive system. Oil flow can be from 0,1 to 12  $\text{Lts}/\text{min}$ .

### 3.- Progressive metering devices.

A metering device distributes the pump oil flow; later on, oil flow can be sub-distributed again by means of more metering devices. Being combined with volumetric regulators, it is possible to supply lubricant up to 100 lube points or even more.

Oil flow: from some  $\text{cm}^3$  up to 6  $\text{Lts}/\text{min}$ . Monitoring: optical & electrical, on metering devices. Breakages are not monitored. Exact adjusting, in spite of back-pressure.

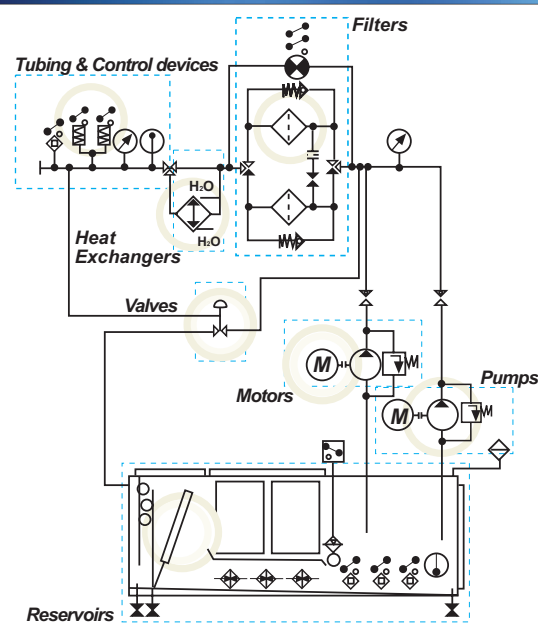
### 4.- Double line combined with progressive metering devices.

Two-line metering device doses the amount of lubricant to progressive metering devices, which is supplied to every lube point.

Electrical monitoring. Exact adjusting, in spite of back-pressure.

### 5.- Multiple outlets pumps (Multi-line system).

Multi-line pumps supply the lubricant directly to lube points. It is possible to include progressive metering devices, in order to monitor the operation.



### Reservoirs:

- Made of steel plate or stainless steel, from 3  $\text{Lts}$  to 50.000  $\text{Lts}$ , with structural shapes reinforcement.
- Superficial treatment with grit blasting
- Totally painted, with anti-oxidant priming:
  - Inside: oil-resistant paint
  - Outside: interlayer & finishing coat according to RAL specified by client
- Cleaning & inspection lid
- Visual & electrical level indication (maximum, minimum and alarm)
- Indirect heating
- Deaerating & breather filter
- Individual drain for each chamber
- Temperature monitoring (thermometers & temperature switches)
- Pre-Filtering unit at return line
- Magnetic uptaking
- Water detector available
- Floating suction kit available
- Parallel plates available
- Re-circulating board available
- Etc...

### Pumps:

- Up to 2000  $\text{Lts}/\text{min}$
- Screw pumps, Gear pumps, etc...
- Working pressure according to operation requirements
- Safety valves

### Motors:

- CA & VDC (voltages available)
- Power according to operation requirements

### Filters:

- Single / Double change-over at service
- Filtration degree: from 2 micron
- Flow: up to 2.000  $\text{Lts}/\text{min}$
- Filtering cartridges made of metal or paper, self-cleaning, etc...
- Clogging monitoring
- Etc...

### Heat exchangers:

- Water-Oil / Air-Oil
- Tubular beam / Stainless Steel Plates
- Etc...

### Valves:

- For temperature and pressure regulation
- Self-regulating, by pneumatic or electric control
- Etc...

### Control & Monitoring Devices:

- Pressure gauges / Pressure switches
- Thermometers & temperature switches
- Flowmeters
- Pressure & temperature transmitters (4 – 20 mA)
- Etc...