

Spin Klin 6" Galaxy

6" Galaxy Spin Klin® Module Standard Automatic Backwash

General Information, Operation and Maintenance Manual

System Description

The filtration system is constructed of modules - groups of 6" Spin Klin filters that are built on common manifolds and are backwashed together.

In each 6" Spin Klin filter there are eight Spin Klin spines. The number of 6" Spin Klin filters in the module will range between 2 to 10 according to the needs of application, i.e. the flow rate, the quality of source water and the filtration grade.

The modules are installed in parallel to each other on main inlet and outlet headers. Each module is equipped with 2 automatic butterfly valves: Inlet valve and drain valve. An additional gear operated (manual) butterfly valve on the outlet port, for module isolation, is optional.

An electronic controller is responsible for the filtration and backwash cycles of the filtration system. It is equipped with solenoids to activate the backwash of each module in sequence.

Filtration Process

During filtration, water flows through the inlet header, to each module's inlet butterfly valve, to the module's inlet manifold, then to the filters and through the filtration discs of the Spin Klin spines. The filtrated water flows to the module's outlet manifold, through each module's outlet butterfly valve (if added) and to the outlet header. During filtration the drain valve is close.

The minimum working pressure of the Spin Klin system is the determined set point of the head loss, which triggers the system's backwash. If there is a requirement for a certain pressure after the Spin Klin system, then that pressure should be added to the Spin Klin head loss set point.

Backwash Process

The backwash process is initiated by a predefined command of the delta P gage to the control unit, according to the differential pressure between the inlet and outlet of the system, or time elapse between two backwash cycles (time backup).

The solenoid of the module No.1 transmits a command to the 2 automatic butterfly valves of the first module, so that simultaneously, the inlet valve closes and the drain valve opens.

Module No. 1 is now in backwash mode.

The eight Spin Klin spines in all of the filters of module No. 1, operate simultaneously, releasing their compressed discs. Tangential jets of water are sprayed against the discs, causing them to spin fast and free, flushing trapped solids out to the drain.

The contaminated water from the backwashed filters drains through module No 1's drain valve to the drainage manifold/canal.

Backwash time per module is 20 seconds. When backwash cycle time elapses the control unit stops the backwash signal to the solenoid. The solenoid releases the command to the two valves and all the Spin Klin spines return to filtration mode.

Once module No. 1 is in the filtration position again the control unit sends a command to begin the backwash process in module No. 2 and so on.

Spin Klin Technology- Spin Klin Spine Performance:

General:

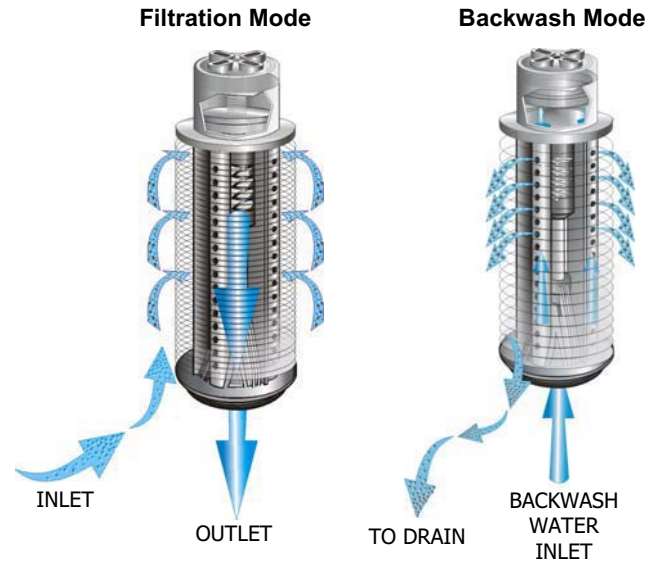
The Spin Klin discs are stacked on the Spin Klin spine. The discs are color-coded according to micron size, and are assembled according to customer's water filtration requirements. The spine assembly has a spring compression unit and an internal piston, which are used to alternately compress and release the discs during filtering and backwashing cycles.

Filtration Mode:

During the filtration process the filtration discs are tightly compressed together by the spring and the differential pressure, thus forcing the water to flow through the "crisscross grooves" of the discs.

Backwash Mode:

During backwash a counter pressure is formed, causing the piston to rise and release the tightened discs. Simultaneously multi-jet nozzles provide tangential spray on the loosened discs, causing them to spin, and release the retained solids, which are flushed out to the drain.



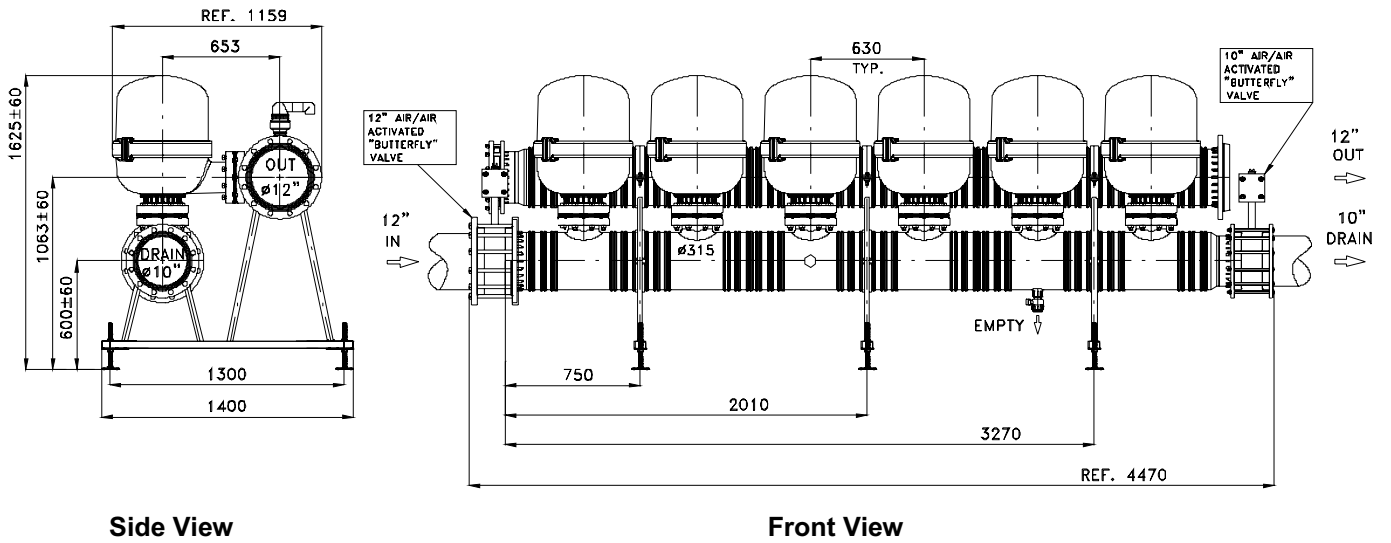
Technical Data - Galaxy 6" Spin Klin Filter

Maximum pressure	8 bar	115 PSI
Minimum backwash pressure	2.8 bar	40 PSI
Backwash flow rate per filter	80 m ³ /hr	350 GPM
Water volume per backwash per filter	450 liter	120 gallons
Maximum temperature	60°C	140°F
Filtration surface area per filter	7,040 cm ²	1,100 inch ²
Filtration volume per filter	10,560 cm ³	645 inch ³

Recommended Flow Rates in Average Water Quality, per 6" Spin Klin Filter

Grey (20μ)	Green (55μ)	Black (100μ)	Red (130μ)	Yellow (200μ)	Blue (400μ)
40 m ³ /hr	80 m ³ /hr	100 m ³ /hr	110 m ³ /hr	120 m ³ /hr	120 m ³ /hr
175 GPM	350 GPM	440 GPM	480 GPM	530 GPM	530 GPM

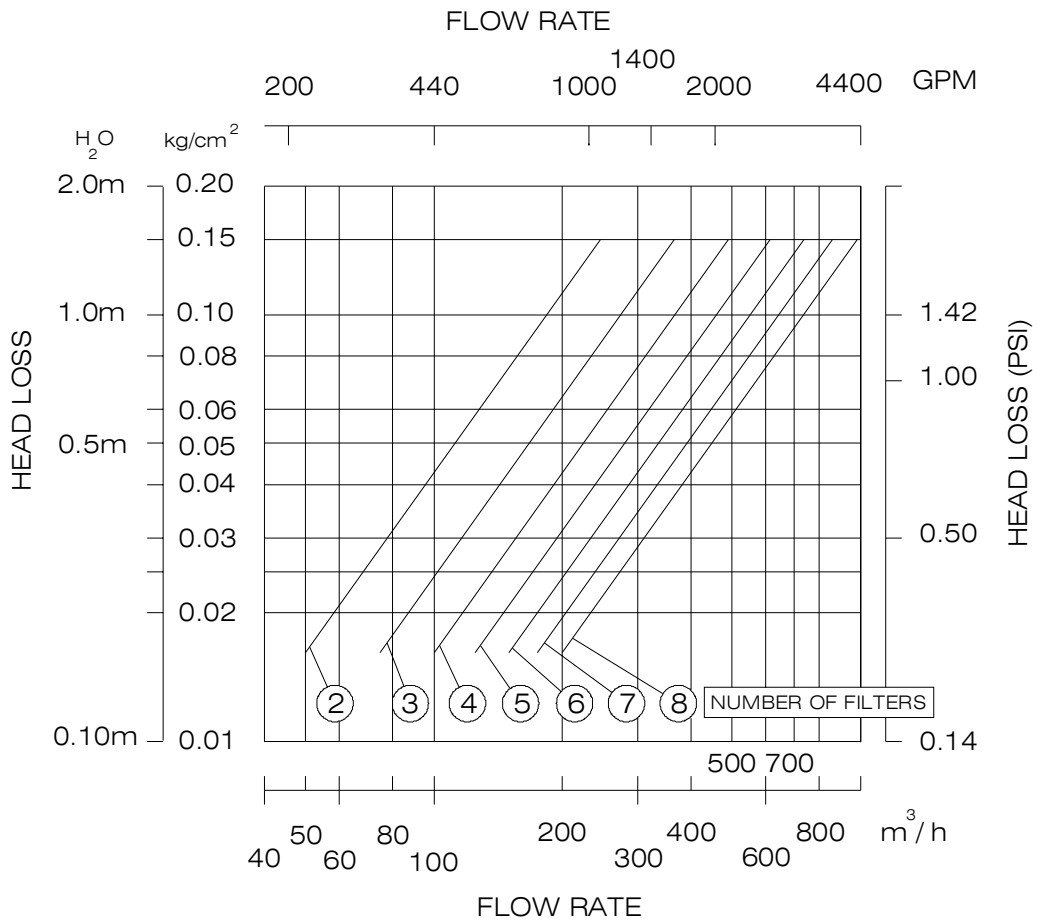
Single Module Dimensions



Side View

Front View

Head Loss in Clean State for 6" Galaxy Modules, 130µ Discs



Installation

- A. Make sure that the inlet and outlet orientation is correct (shown by arrows on the module manifold).
- B. Prior to start-up check for any transport damage to the unit (system operates under pressure!).
- C. Connect backwash drainage lines (to a pipe line with diameter not smaller than Arkal's drainage lines).
- D. Ensure that the cover clamps are securely closed.
- E. Connect air pressure to the activated butterfly valves and solenoids.

Start-up Operation

Start the backwash cycle, making sure that all system components function correctly.

Filter Load-up During Start-up

- Close the downstream (flow control) valve (if available).
- Run a few backwash cycles until clean.
- Slowly reopen the downstream valve.
- If the pressure difference remains high, check and see if the flow rate is too high. An excessive flow rate through the filter causes excessive pressure loss.

Control

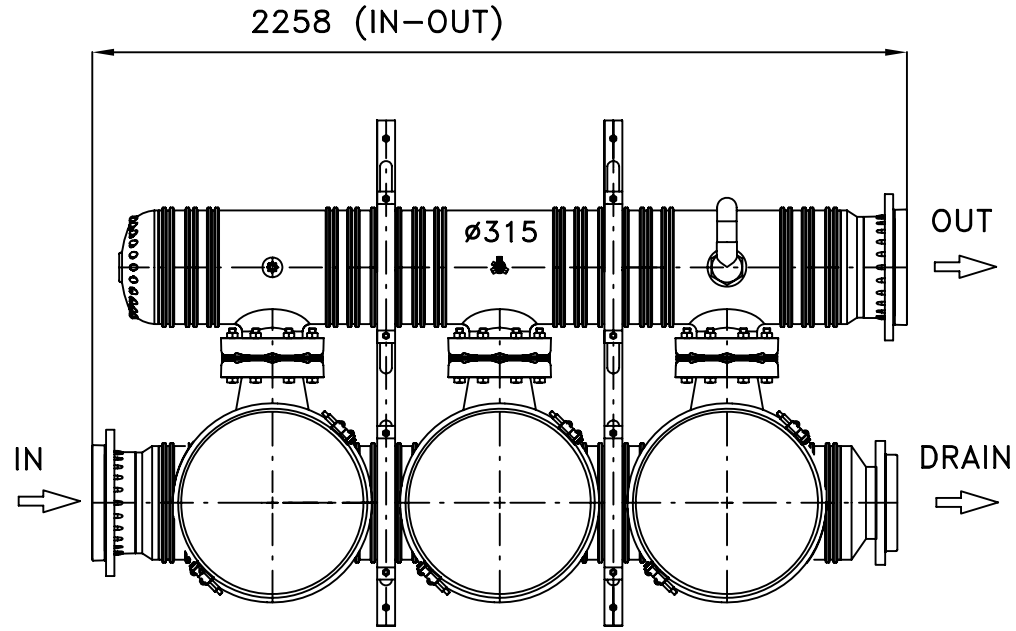
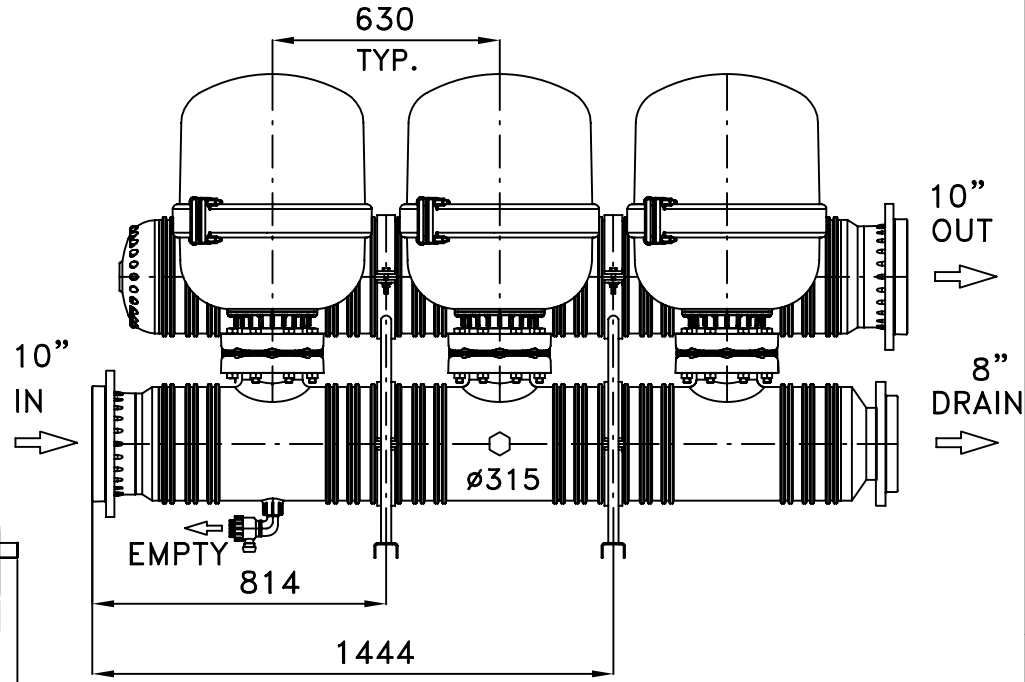
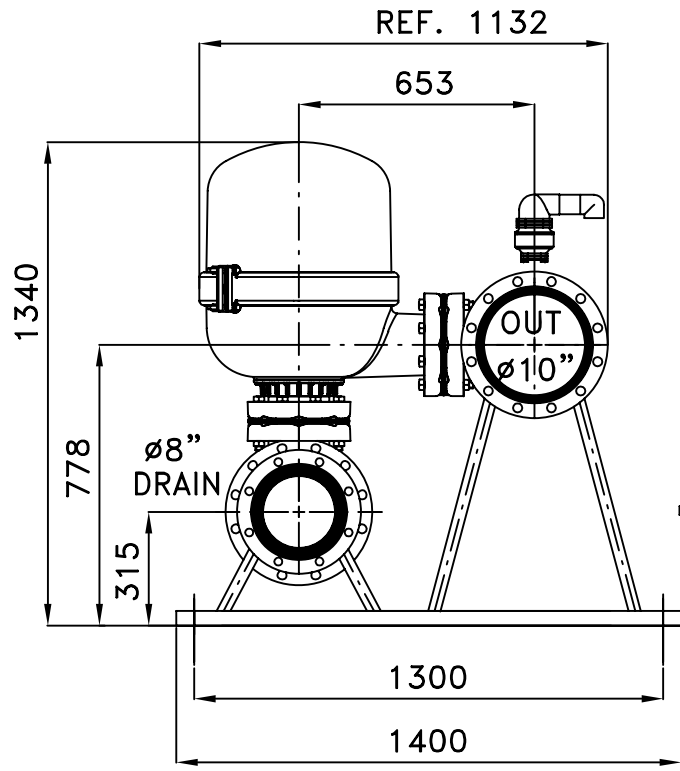
- Refer to the manufacturer's handbook before installing the controller.
- Make sure that the voltage of both the solenoid unit and controller are correct.
- Check that the ΔP hydraulic switch HIGH and LOW pressure lines are correctly connected to the appropriate ports.
- Set the starting backwash switch to the required ΔP (Recommended ΔP will range between 2.5 – 6 m, 3.5-8 PSI according to site conditions).
- Set the controller to a flush time of 20 seconds and a dwell time of 10 seconds. These settings may require adjustment to conform to local water conditions. Typically, a 1 to 3 hour interval between backwashes is recommended.


Drawings

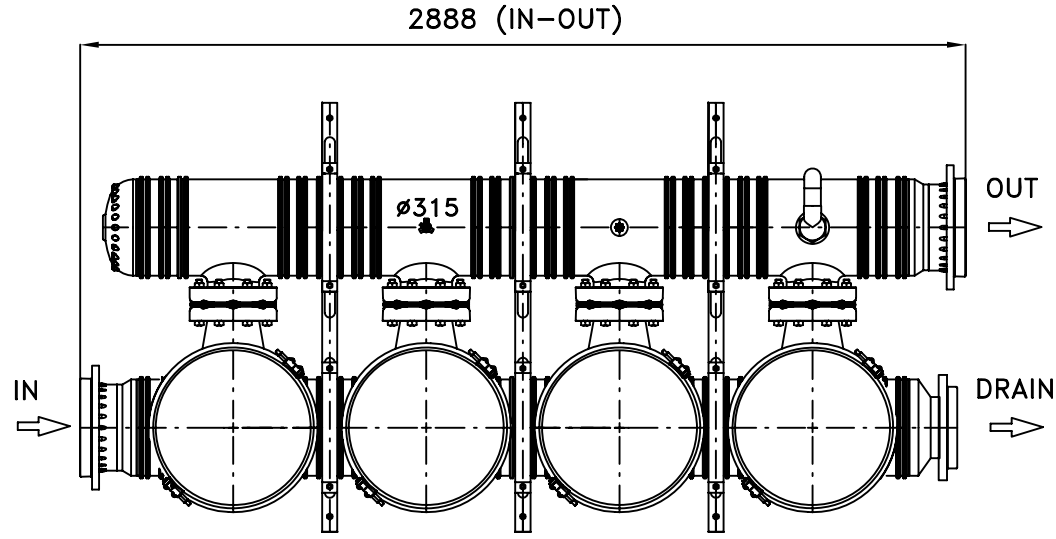
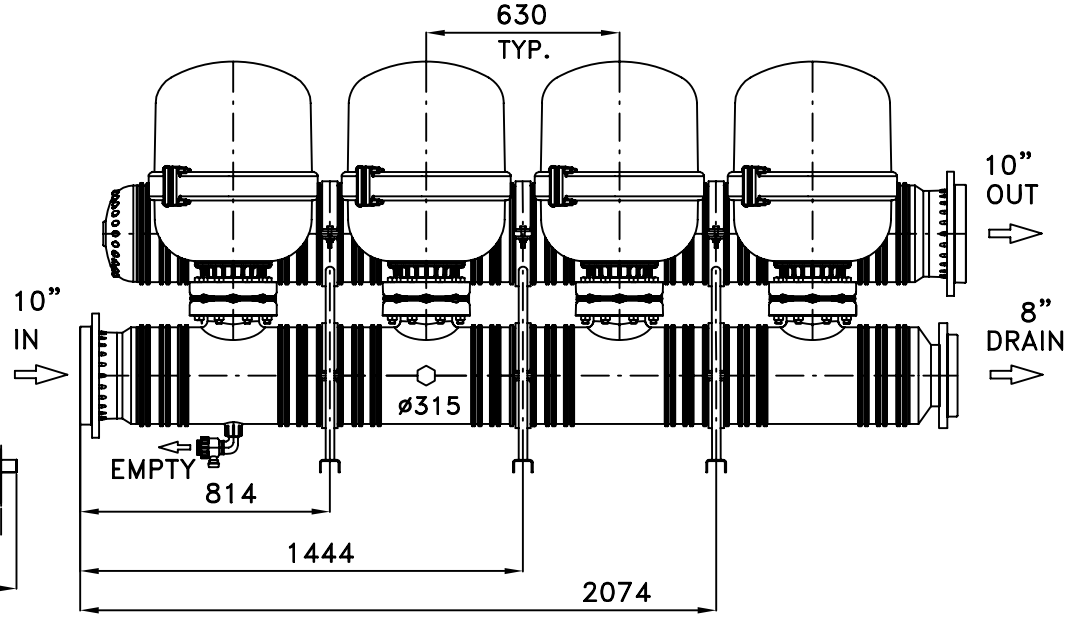
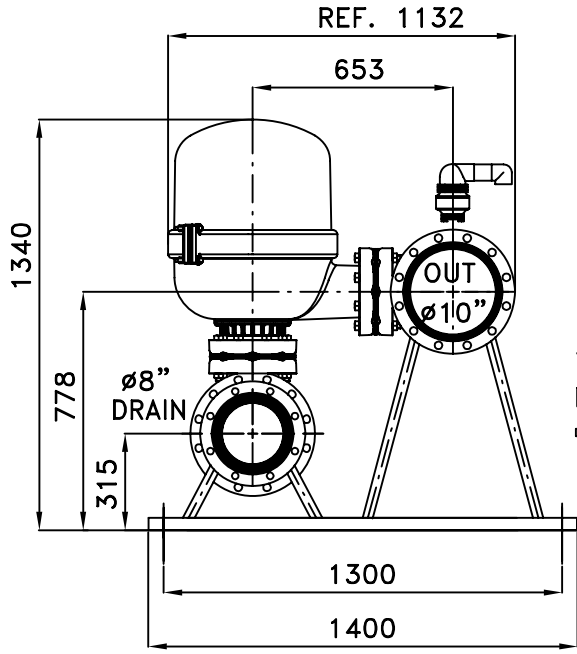
6" Spin Klin

Galaxy

Batteries

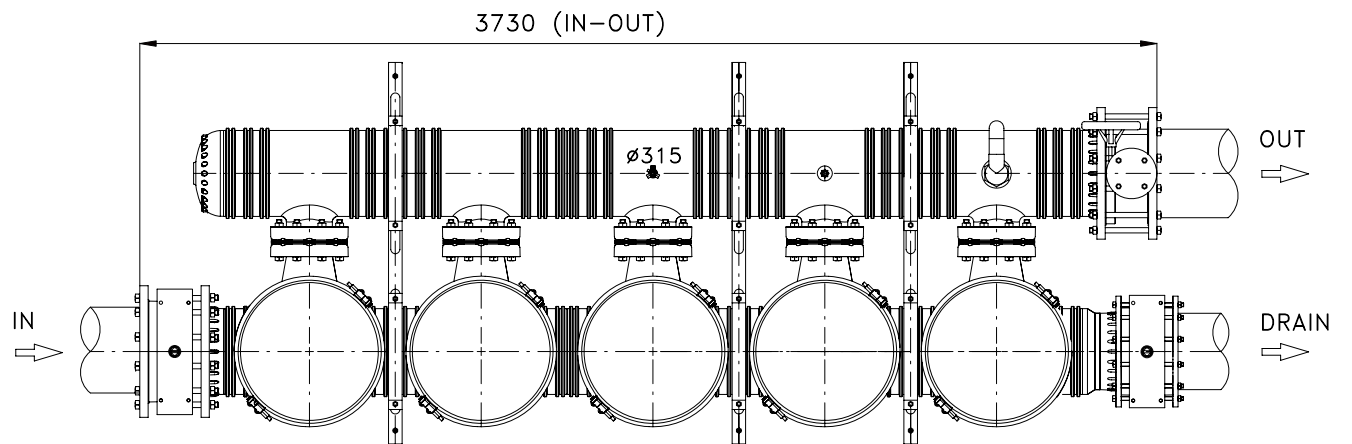
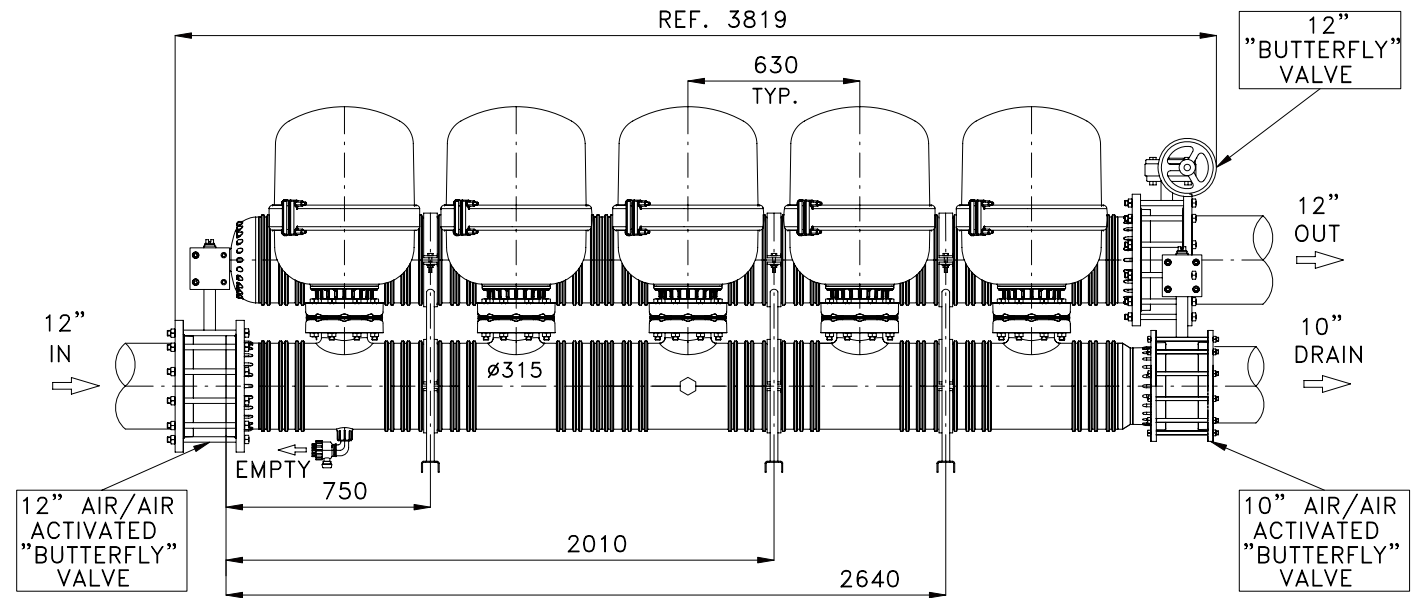
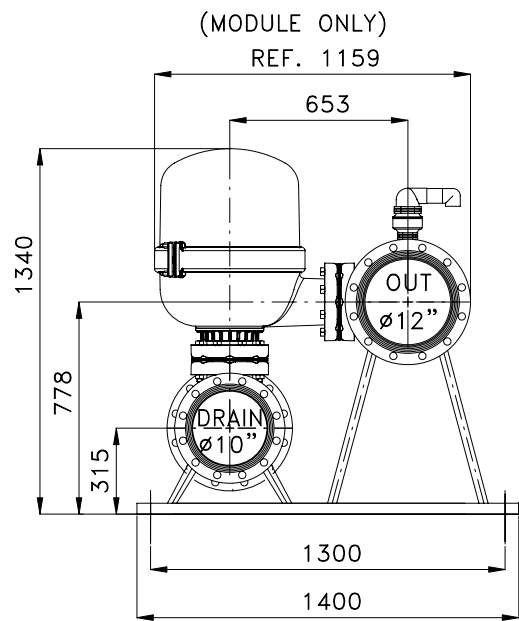


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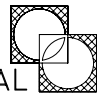


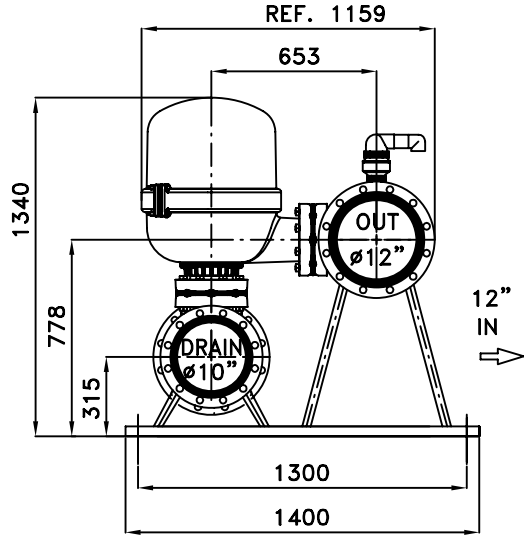
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		CHECKED NIKOLAY	DATE 03.05.07
		APPROVED ZALI	DATE 03.05.07
		PALET-410(5201 5917)	DRAWER N: 7010


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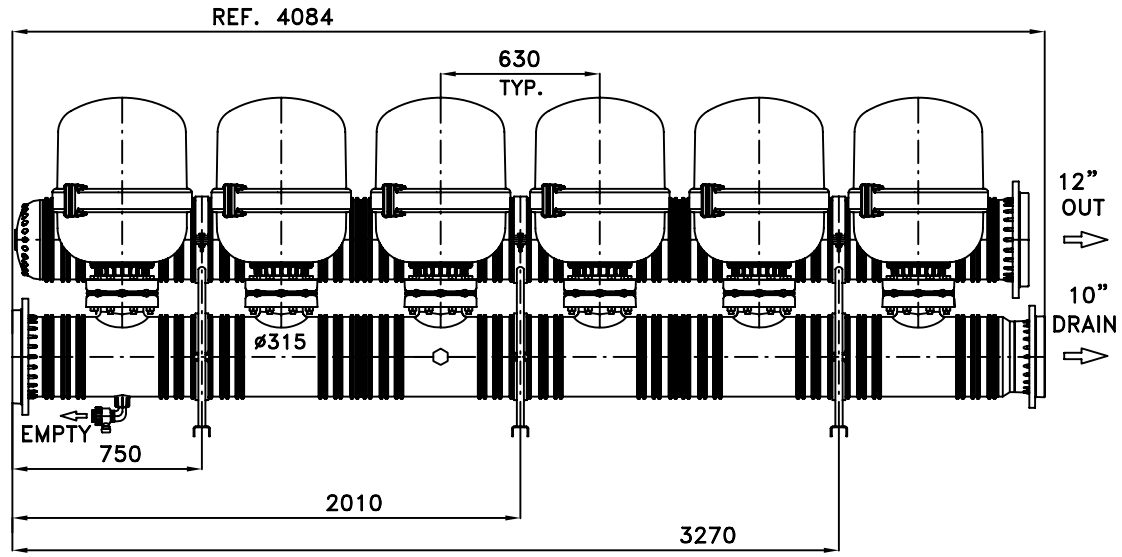


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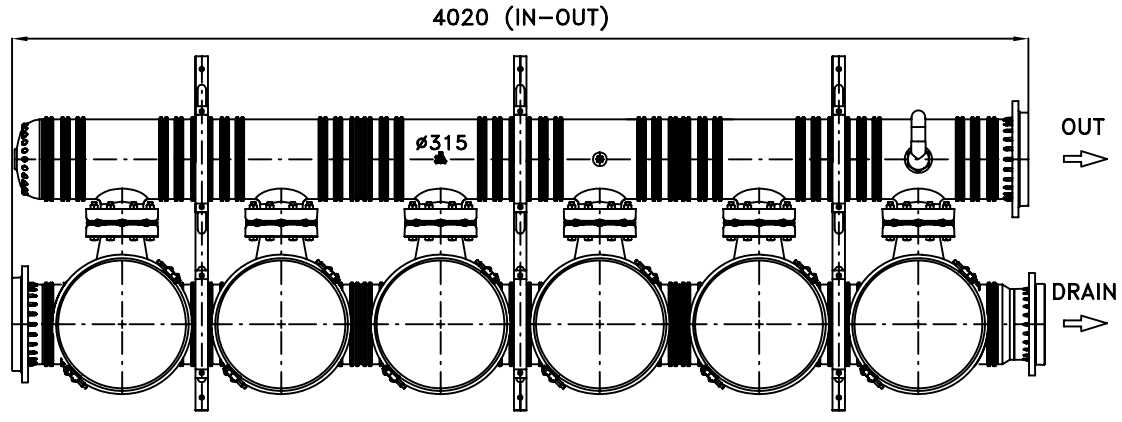
12"
IN



12"
OUT

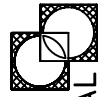
10"
DRAIN

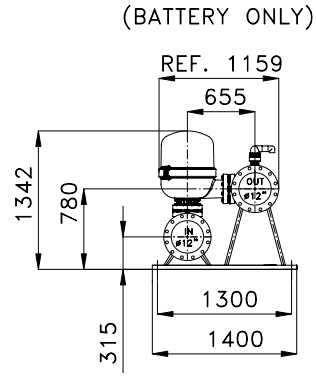
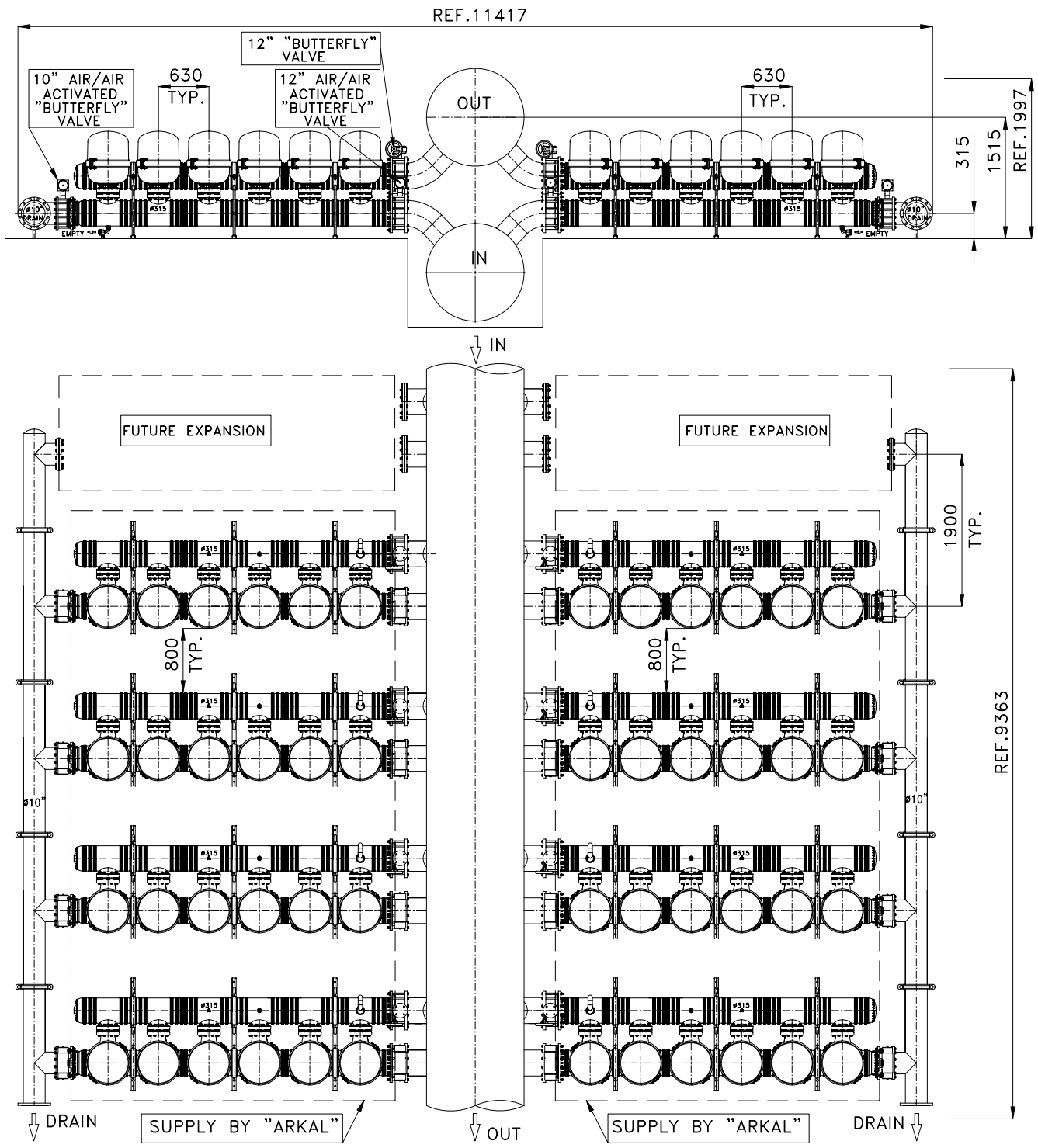
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


OUT

DRAIN

MODIFIC.	DATE	DESCRIPTION	SIGN.
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