



TOTAL ENGINEERED SOLUTIONS

**CSG PROCESS
FILTER MODEL
CL19-1200**

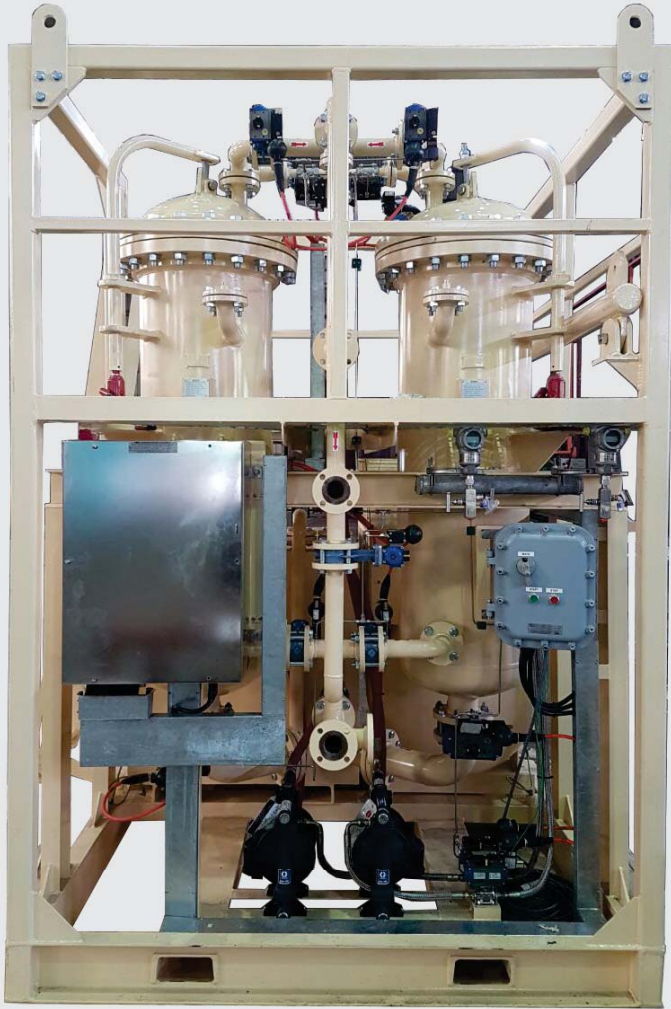


INTRODUCTION

One of the major problems occurring in the CSG industry is dealing with large volumes of water containing coal fines, debris and silica which is often deposited in pipelines and the wellhead separator adding cost and diminishing process efficiency.

The **Clisby CL19-1200** is a solid-liquid separation unit that removes particulate matter by screening larger than 50 microns from Coal Seam Gas (CSG) water at flows up to eight cubic metres per hour (8m³/hr), is self-cleaning and operates unmanned.

The package comprises two large pressure vessels designed to 10barg surrounded within the crash frame by an Australian-compliant elevated work station with access ladder. All piping and fittings are 150lb rated to ASME B31.3. The process flow pumps are a pneumatic diaphragm type operating at a maximum pressure of 8.6 barg. The twin tower filter function is controlled by a PLC control system interfacing with pneumatic actuator valves at the inlet, outlet, backwash and drains of each filter vessel. The air supply for the controls system is supplied from a 10hp heavy duty Clisby reciprocating air compressor with pressure control and automatic stop/start functions.



All electrical fittings including the air compressor motor, pressure control and the waste collection bin level sensor, are explosion proof, Zone 2 in accordance with AS3000 electrical specifications.

Internal inspection is performed from the upper section accessed by the working platform. Vessel Tower 1 & 2 are identical in design. The vessel design incorporates a complete flange section at the top of the vessel, (to enable removal of the filter bundles) complete with a hydraulically operated davit arm.

The filter bundles have a removable filter plate supporting 19 filter elements with an outer layer of filter cloth. Above the filter element support plate is the vessel head, or the filtered water chamber from which the filtrate exits.

PROCESS DESCRIPTION

The feed stream enters the Filtration Vessel 1 under pressure (typically up to 5bar) through the feed nozzle located on the lower section of the vessel where particulates in the feed stream are removed by the filter and gradually form a cake on the outer layer of the filter elements. Depending on the concentration and physical nature of the solid material in the feed stream, the filtration stage of the process cycle may last between several hours to several days.

The Filtration cycle is determined by the change in pressure drop across the filter elements or by timer. Upon completion of a cycle the feed stream is shut off and the backwash stage begins simultaneously, closing the feedline in Filtration Vessel 1 as the feedline in Filtration Vessel 2 opens with no interruption to the filtration process.



To activate the backwash, filtered water is pumped from the Filtration Vessel into the filtrate nozzle. The backwash drain valve on the bottom head of the vessel opens allowing the backwash slurry to be transferred to the backwash waste collection bin. The backwash cycle runs for a pre-determined time and on completion the backwash pump stops and the backwash waste valve closes.

The final stage of the cycle is the waste supernatant return, which occurs during the filtration stage where the liquid sitting above the solids in the backwash waste collection bin is pumped into the feed line through a check valve. The operation of the waste supernatant pump is by a switch/level sensor.

The process system is programmable and can be adjusted to suit variable process conditions. In the event a process or emergency shutdown occurs the filtration unit is fitted with a bypass-actuated valve, which is “fail safe open” and will allow normal water flow to continue through the unit from the wellhead water pump. This fail safe operation is also used during the unit/s start-up.



Pressure transmitters located at the inlet and outlet of each vessel monitor the pressure differential within the system. In the case of a high-pressure differential, indicating a saturated/full filter unit, the “change vessel” function will operate and change the cycle to the standby vessel. This alternate change-over function is in addition to a preset timing function which can be varied.

The accumulated waste in the collection bin can be emptied by vacuum extraction or bin removal. The level alarm signal will be transmitted via telemetry.

TECHNICAL INFORMATION DATASHEET

FILTRATION UNIT

Model	CL19-1200	
Sand/Particulate in water	mg/l	200 - 500
Particulate removal	μ	≥ 50

CONNECTION SIZE

Inlet	2" ANSI 150#
Outlet	2" ANSI 150#

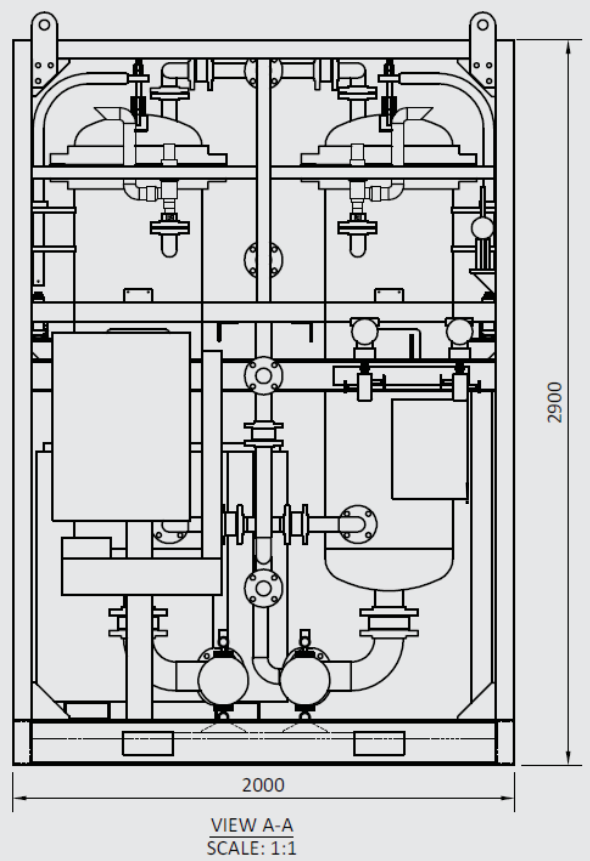
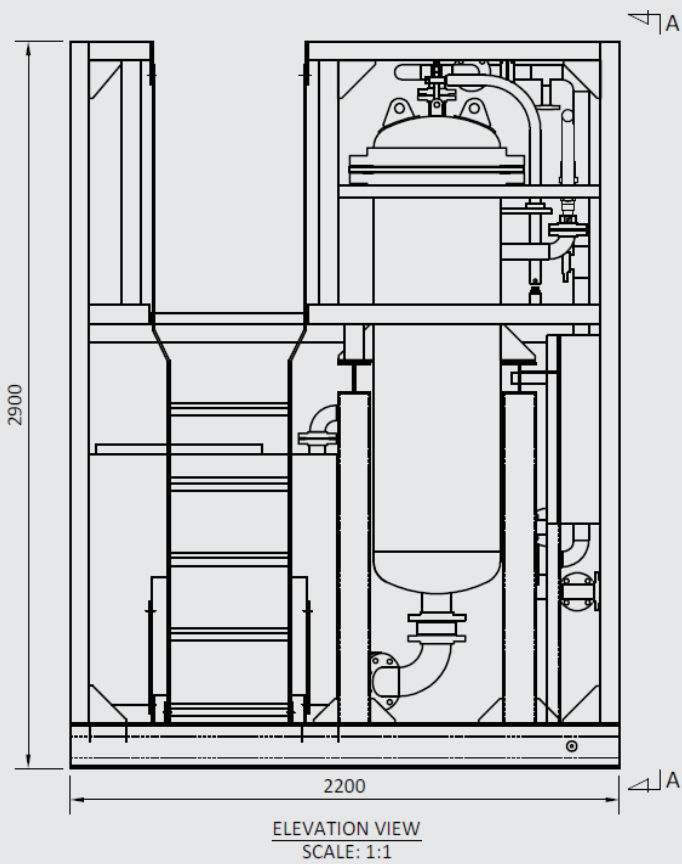
WEIGHT AND DIMENSIONS DATASHEET

Total Package Weight	kg	3020
Overall dimension (W x L x H)	mm	2000 x 2200 x 2900

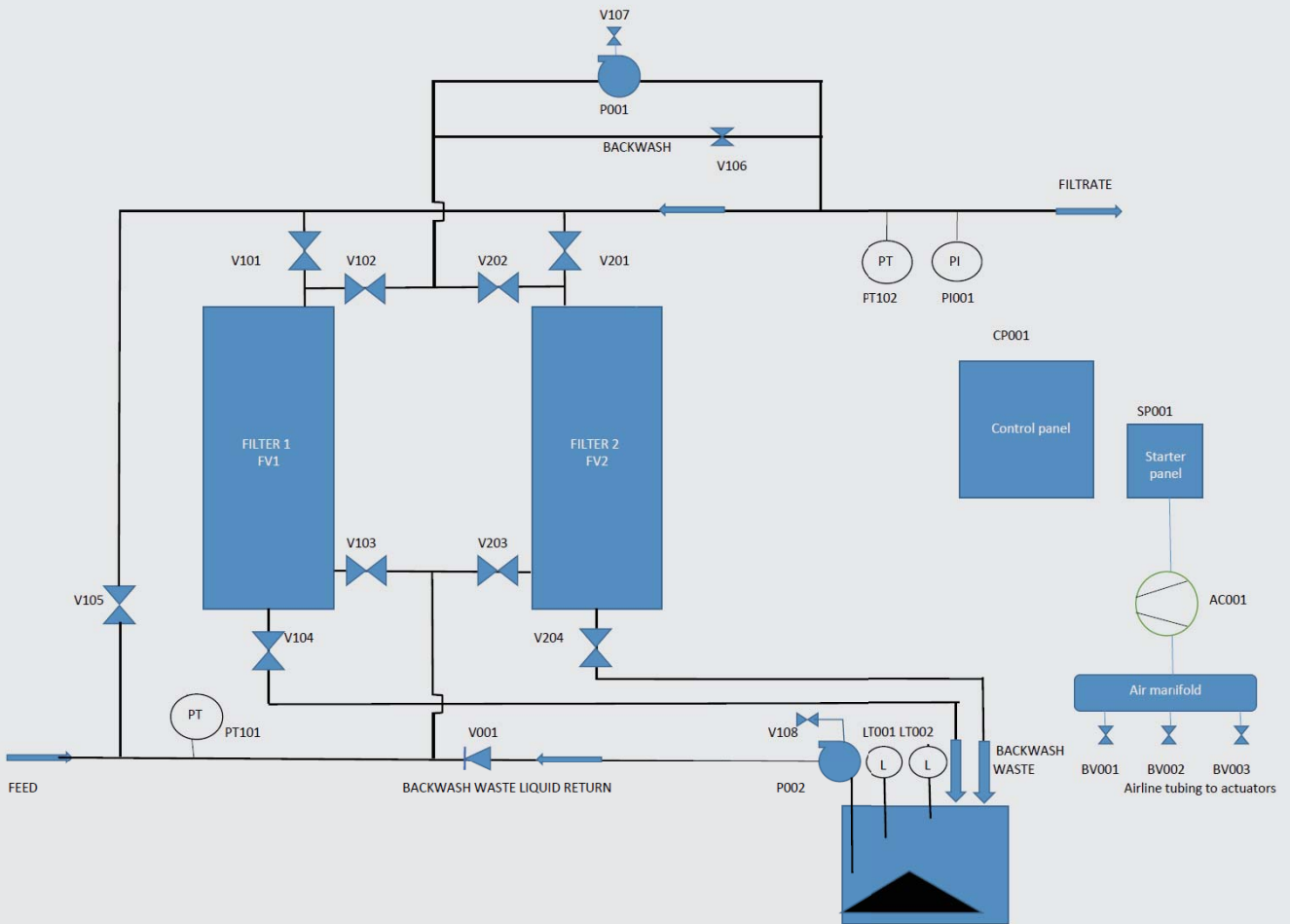
CL 19-1200 FILTRATION SYSTEM CONSISTS OF :

Skid and crash frame inclusive of forklift slots, spreader bar, step ladder and platform to AS
Pressure vessels designed to AS1210 Registration with Approved Work Safe
Main control panel and start up panel for controls
Electrical to AS3000 and Explosion Proof Zone 2
Flange fitting for easy interconnecting and bypass
Air compressor system for pneumatic controls of valves and pumps
1000 liters Backwash Waste bin for backwash collection
Water and particulate level sensors
Bypass sequence for continuous supply in case of maintenance and shutdown
Telemetry Digital Signal monitoring for remote installation

GENERAL ARRANGEMENT DRAWING



PROCESS FLOW DIAGRAM





CONTACTS

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