

SILVERBACK™ System

SIEMENS

The SILVERBACK™ is designed to continuously purify aqueous cleaner baths by utilizing a ceramic microfiltration/ultrafiltration membrane in a cross-flow mode of operation. The membrane is impervious to nearly all chemicals except for phosphoric and hydrofluoric acids. Temperatures up to 200 degrees Fahrenheit can be tolerated. Contaminated cleaner is pumped from the cleaning line to the SILVERBACK™ system. A feed valve, which is controlled by a level sensor, maintains a constant volume of cleaner in the process compartment. The contaminated cleaner is pumped through a bag filter and into a settling compartment where free oils and sludges are removed. From the middle of the settling compartment, the fluid flows into the process chamber. The solution is pumped through the membrane at a high recirculation rate. The contaminants are separated from the cleaner solution and concentrated. The purified cleaner solution flows back to the cleaner line.

SILVERBACK™ Model 900



SILVERBACK™ Membrane Module



FEATURES

- Stainless steel construction
- Durable, chemically inert ceramic membranes
- No solid hazardous waste disposal or costs due to membrane replacement
- Membrane life expectancy of 10 plus years
- Negligible oil drag-out into plating bath, finishing line or downstream processes
- Consistently cleaner parts

SILVERBACK™ System

PUMPS

Model Number	Silverback 150	Silverback 300	Silverback 900	Silverback 1800	Silverback 2600
Number of Pumps	One	One	One	One	One
Manufacturer	G&L	G&L	G&L	G&L	Goulds 3196
Type	Horizontal Centrifugal	Horizontal Centrifugal	Horizontal Centrifugal	Horizontal Centrifugal	Horizontal Centrifugal
Material of Construction	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
Capacity	45 gpm @ 115' head 10.2 m ³ /hr @ 344 kPa	45 gpm @ 115' head 10.2 m ³ /hr @ 344 kPa	100 gpm @ 160' head 22.7 m ³ /hr @ 478 kPa	100 gpm @ 160' head 22.7 m ³ /hr @ 478 kPa	150 gpm @ 190' head 34.8 m ³ /hr @ 568 kPa
Motor	3 HP, 460/3/60, TEFC	3 HP, 460/3/60, TEFC	10 HP, 460/3/60, TEFC	10 HP, 460/3/60, TEFC	15 HP, 460/3/60, TEFC

VALVES AND PIPING

Inlet Connection	½" NPT	½" NPT	½" NPT	½" NPT	½" NPT
Discharge Connection	¼" NPT	¼" NPT	¼" NPT	¼" NPT	¼" NPT

INSTRUMENTS

Pressure	Inlet, Outlet and Permeate Pressure Gauge	Inlet, Outlet and Permeate Pressure Gauge	Inlet, Outlet and Permeate Pressure Gauge	Inlet, Outlet and Permeate Pressure Gauge	Inlet, Outlet and Permeate Pressure Gauge
Flowmeter	Rotometer	Rotometer	Rotometer	Rotometer	Rotometer
Level Control	Probe	Probe	Probe	Probe	Probe

SKID

Mounting	Pumps and piping mounted on a carbon steel base	Pumps and piping mounted on a carbon steel base	Pumps and piping mounted on a carbon steel base	Pumps and piping mounted on a carbon steel base	Pumps and piping mounted on a carbon steel base
Paint	Blue	Blue	Blue	Blue	Blue
Dimensions (L x W x H)	45" x 36" x 76" 1,143 x 914 x 1,930 mm	72" x 46" x 48" 1,829 x 1,168 x 1,219 mm	60" x 36" x 80" 1,524 x 914 x 2,032 mm	60" x 36" x 110" 1,524 x 914 x 2,794 mm	123" x 39" x 96" 3,124 x 991 x 2,438 mm
Shipping Weight	500 lbs 227 kg	700 lbs 318 kg	900 lbs 408 kg	950 lbs 431 kg	1,200 lbs 544 kg

OPERATING PARAMETERS

Design Flow Rate	0.10 gpm 0.023 m ³ /hr	0.20 gpm 0.045 m ³ /hr	0.625 gpm 0.14 m ³ /hr	1.28 gpm 0.29 m ³ /hr	1.80 gpm 0.41 m ³ /hr
Membrane Description	(1) 1P19-60	(2) 1P19-60	(1) 7P19-40	(2) 7P19-40	(2) 7P37-30
Cathodes Per Cell	3.8 ft ² 0.35 m ²	7.6 ft ² 0.71 m ²	18 ft ² 1.7 m ²	36 ft ² 3.3 m ²	54 ft ² 5.0 m ²

The information provided in this literature contains merely general descriptions or characteristics of performance which in actual case of use do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of the contract.

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