



Tower System Media Filtration Systems: CTS SERIES

Sample Specifications

Filtration Type & Performance

The removal of specific unwanted contaminants from a pumped/pressurized fluid flow system shall be accomplished with a sand media filtration package.

Performance shall be prescribed for matter as fine as 2 microns, based on the specific sand media employed.

Filtration System Design & Function

System shall be designed/sized for a maximum flow rate of 20 gallons per square foot of filter media surface area.

A system-matched pump directs the fluid through a butterfly valve into the side inlet of a sand media filter tank. Flow is evenly distributed across the sand media bed via a dispersion manifold, allowing the fluid to pass through the sand media and capturing the contaminants on the surface and upper layer of the sand media. Fluid flow continues through the sand media to the filter tank's integral underdrain, directing water to the filter system's outlet.

The underdrain shall feature a full-size manifold with complete coverage removal laterals to ensure that filter flow and backwash flow are uniform across and throughout the sand media bed.

Each unit shall be equipped with a man-way located on the top of the unit, and on the tank side. A pressure gauge and air relief assembly shall also be provided.

Backwashing/Contaminant Removal

The accumulation of contaminants on the sand media surface shall be monitored via pressure differential from inlet to outlet. At a prescribed pressure differential or a given period of time or operator discretion, the filter system shall backwash the captured contaminants to desired waste. This function shall be a) automatically controlled via a pressure differential gauge and clock timer, or b) manual, monitored and initiated by an operator.

The butterfly valve at the inlet shall be actuated pneumatically or electrically to interrupt system flow and provide a backwash discharge outlet. Backwash flow shall come from either a) the system flow, redirected through filter tank's outlet and underdrain, or b) a separate flow source, such as city water, directed through the filter tank's outlet and underdrain.

Backwash flow and pressure shall be sufficient to fluidize the sand media bed and cause the surface contaminants to rise in suspension and discharge via the flanged butterfly valve to desired waste.

Upon completion of the backwashing cycle, the inlet's butterfly valve shall again return to its operating position, allowing system flow to enter the filter tank and simultaneously interrupting backwash discharge. This allows the sand media bed to again settle, forming the filtration surface for further contaminant removal.

Filter System Details

- A. Inlet shall be flanged 150# or grooved rated size: _____
- B. Outlet shall be flanged 150# or grooved rated connection, size: _____
- C. Backwash discharge outlet shall be flanged 150# or groove rated connection, size: _____
- D. Backwash supply line (if not using redirected system flow) shall be flanged 150# or groove rated connection, size: _____
- E. The filter system shall operate at a flow rate of: _____

Filter System Construction

Filter tank – ASTM-carbon-steel, all welded construction, with flanged inlet / outlet, threaded drain and air release connections. Tank shall be suitable for a working pressure of 50 psi / 3.5 bar (higher pressure rating and/or ASME Code available as an option). The tank will be provided with an epoxy interior lining and two coats of enamel paint on the exterior.

Overdrain/Underdrain – Schedule 80 PVC pipe.

Piping:

CTS-48" and smaller – Galvanized steel with grooved couplings.

CTS-54" and larger – Carbon steel welded.

Pump – End-suction, single stage; TEFC motor; cast iron housing; iron impeller; bronze shaft sleeve; BUNA-N mechanical shaft seal. Pump to be rated for 20 gallons per square foot of filter surface area at 50' TDH nominal. Flooded suction required.

Backwash valves – Butterfly valves (lug style); Ductile iron bodies; EPDM valve seats; 416 series stainless steel shaft; Nickel plated ductile iron disc; Valves shall be mechanically linked via heavy duty linkage rods.

Actuators are as follows:

Pneumatic – Actuators shall be driven by floating stem pneumatic actuator with spring return diaphragm for fail safe operation (CTS-54 & larger). A minimum 15 psi air supply is required for operation.

Electrical – Actuators shall be electric and shall incorporate an electric back-drive (CTS-42 & CTS-48). *Option:* Electric actuator for larger systems (CTS-54 & larger) are available. Please consult the factory for this option.

Pressure Gauges – The filter shall have inlet and outlet pressure gauges. The gauges shall be minimum 2.5” diameter and shall be glycerin filled.

Control Panel – IEC starter with overload module; HOA selector switch; NEMA-4X enclosure; UL listed; re-set/disconnect/trip switch; 120 volt, single phase control voltage; manual backwash switch; pressure differential switch (factory set to backwash filter); backwash cycle timer; 24-hour backwash clock.

Filter media:

Single Media (standard CTS-48” & smaller) - Uniformly graded silica sand media. Filtration efficiency of 90% removal by volume of particles 5 micron and larger.

Multi Media (standard CTS-54” & larger) – Filtration efficiency of 90% removal by volume of particles 5 micron and larger (MediaGem 475 + MediaGem 55)

Multi Media (optional) – Filtration down to 0.5 micron. Consult factory for system design/selection based on specific application and filtration efficiency.

Skid (pump) – Carbon steel with epoxy coating (CTS-54 & larger).

Stainless steel – 3/16-inch minimum thickness (CTS-42 & CTS-48).

PLC Option – Allen Bradley “Pico” PLC (Standard)

- Programmable logic relay
- Pre-programmed at factory
- Can be programmed for multiple Operating/monitoring functions

Filtration System Source & Identification

The filter system shall be manufactured by LAKOS Filtration Systems, a division of Claude Laval Corporation in Fresno, California USA. Specific model designation is: _____