

TowerClean Systems

*Packaged Separator Systems for Cooling Towers and Remote Sumps
Designed to remove solids efficiently from liquids*

Eliminate Basin Cleaning!



Energy Efficient, Environmentally Friendly Designs

- **Save energy, water and money**
- Reduce biofouling and the risk of Legionnaires Disease
- Eliminate manual basin cleaning
- Minimize maintenance & downtime
- Virtually eliminate underdeposit corrosion
- Protect the environment and natural resources
- Optimize the effectiveness of water treatment programs
- Maximize equipment life
- Increase thermal performance of your heat exchanger or chiller

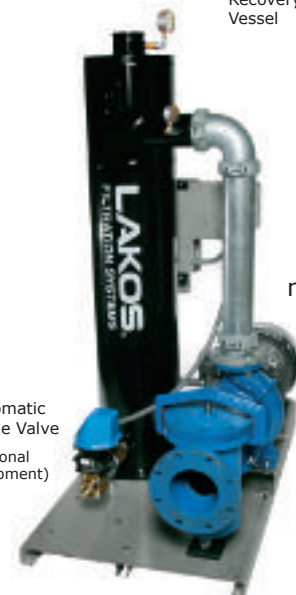


LAKOS is a proud member of ASHRAE, BOMA and the U.S. Green Building Council

Flow Range:	Standard Pressure Rating:
30-1100 U.S. gpm* (7-250 m ³ /hr)	150 psi on TCX/TCI (10.34 bar)

*Contact LAKOS for higher flow rate options

TCX Series
with accessible
separators



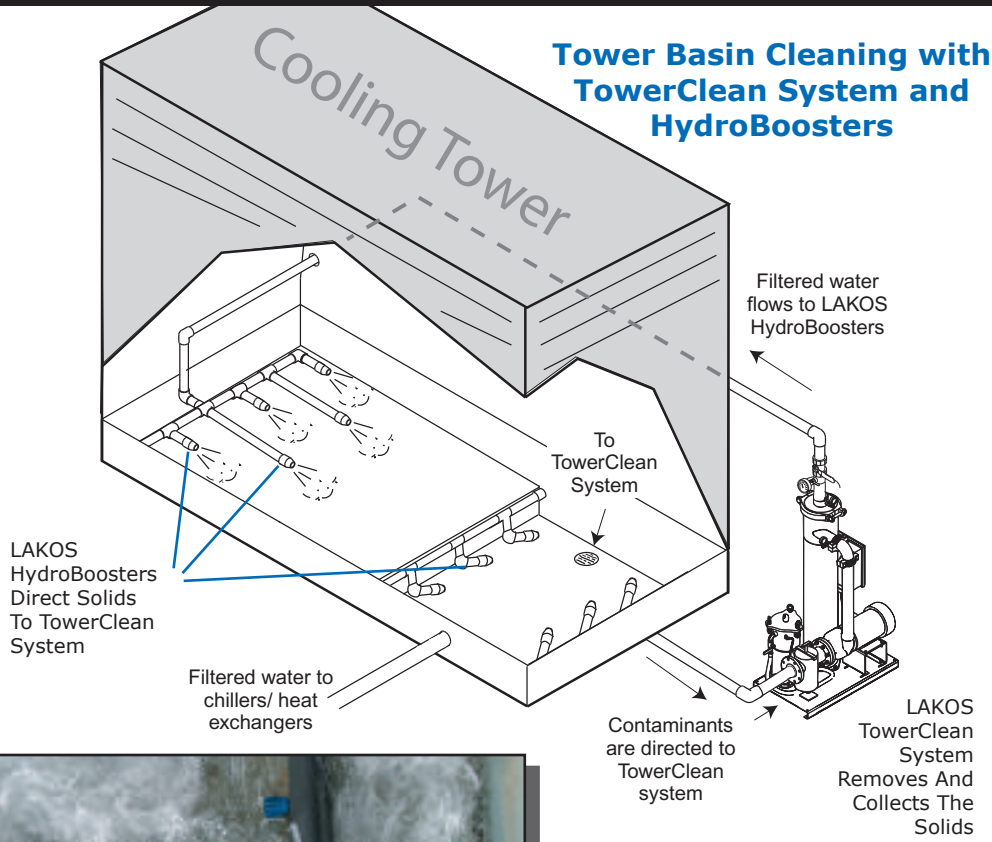
TCI Series
with
non-accessible
separators

QUIT
COOLING
DIRT

LAKOS
Separators and Filtration Solutions

Typical Installations

Tower Basin Cleaning with TowerClean System and HydroBoosters



Download Our HVAC Return On Investment Software



See How Filtration Helps You Save Water and Energy!
www.LAKOS.com

Model Selection

Since active and directed circulation of basin/sump liquids is required for effective solids removal, model selection for the TowerClean system is based upon the size of the basin or remote sump. This is best determined with these calculations:

For Packaged Cooling Towers

$$\text{Flow Rate} = \frac{\text{Length of Basin (feet)}}{\text{Width of Basin (feet)}} \times 1$$

For Remote Sumps With Water Depth Greater Than 3 ft**

$$\text{Flow Rate} = \frac{\text{Length of Basin (feet)}}{\text{Width of Basin (feet)}} \times 1.5$$



After determining the required Flow Rate, refer to the Max Basin Size column in the Performance section on the next page. Select the model

that has an equal or next larger Flow Rate. For Flow Rates larger than those shown, two or more systems are needed or a custom system must be configured. Please consult the factory.

**Please confirm system selection with factory.

HydroBoosters

Directed turbulence maximizes cleaning efficiency in the tower basin/remote sump. LAKOS HydroBoosters provide that turbulence with patented vortexing action as shown. Swivel clips are available as shown in the picture below. Many cooling tower manufacturers offer factory-installed basin sweeping piping. Please consult LAKOS for proper equipment selection.

Model	Connection Size (inches)	Extension Size (minimum)	Input Flow and Output Effect
HB-10-K	3/4" male NPT	3/4"	10 US gpm and 60 US gpm (2 m ³ /hr and 12 m ³ /hr)
HB-18-K	3/4" male NPT	1"	18 US gpm and 108 US gpm (4 m ³ /hr and 24 m ³ /hr)
HB-35-K	1" male NPT	1 1/4"	35 US gpm and 210 US gpm (8 m ³ /hr and 48 m ³ /hr)
*TSN-0025-B	1/4" male NPT	--	4.2 US gpm (1 m ³ /hr)

NOTE: These flow rates are based on an input pressure of 20 psi (1.4 bar) Minimum water level above centerline of HydroBooster should be 2 inches

* This is a flat-fan spray nozzle (brass) for use in applications with a shallow deck in the basin. May be combined with HydroBoosters

1 US gpm enters through HydroBooster
Flow boosted to 6 US gpm through HydroBooster



Video of actual operation is available



HydroBooster with swivel clips

General Specifications

Performance

TCI or TCX Model	Separator Model		Flow US gpm	Flow m3/hr	Inlet (flanged)	Outlet (grooved)	Inlet Piping To Use*	TCI / Weight Empty		TCX / Weight Empty		Pump HP	Max Basin (sq ft)	Full Load Amperage		
	TCI	TCX						(lbs)	(kg)	(lbs)	(kg)			230V	460V	575V
0030-SRV	ILB-0100	HTX-0016	30	7	1 1/2" thd	1"	2"	311	141	320	145	1	30	4.2	2.1	1.7
0065-SRV	ILB-0150	HTX-0038	65	15	2" thd	1 1/2"	2 1/2"	352	160	424	192	3	65	9.6	4.8	3.9
0100-SRV	ILB-0200	HTX-0060	100	23	3"	2"	3"	477	217	577	262	5	100	15.2	7.6	6.1
0145-SRV	ILB-0250	HTX-0085	145	33	3"	2 1/2"	4"	480	218	631	286	5	145	15.2	7.6	6.1
0200-SRV	ILB-0300	HTX-0130	200	45	3"	3"	4"	547	248	662	300	7.5	200	22	11	9
0280-SRV	ILB-0350	HTX-0200	280	64	4"	4"	6"	656	298	820	372	10	280	28	14	11
0400-SRV	HTH-0285	HTX-0285	400	91	6"	4"	6"	1065	483	1153	523	15	400	42	21	17
0525-SRV	HTH-0285	HTX-0285	525	119	6"	4"	8"	1235	560	1318	598	20	525	54	27	22
0600-SRV	HTH-0450	HTX-0450	600	136	6"	6"	6"	1535	696	1580	717	25	600	57	28	23
0825-SRV	HTH-0450	HTX-0450	825	187	8"	6"	8"	1793	787	1771	803	30	825	80	40	32
1100-SRV	HTH-0500	HTX-0500	1100	250	8"	6"	10"	1794	815	1847	838	40	1100	104	52	41

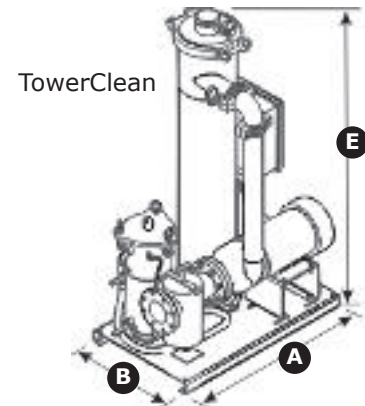
*LAKOS recommended inlet pipe size

All TowerClean systems are rated for 150 psi (10.3 bar) maximum pressure

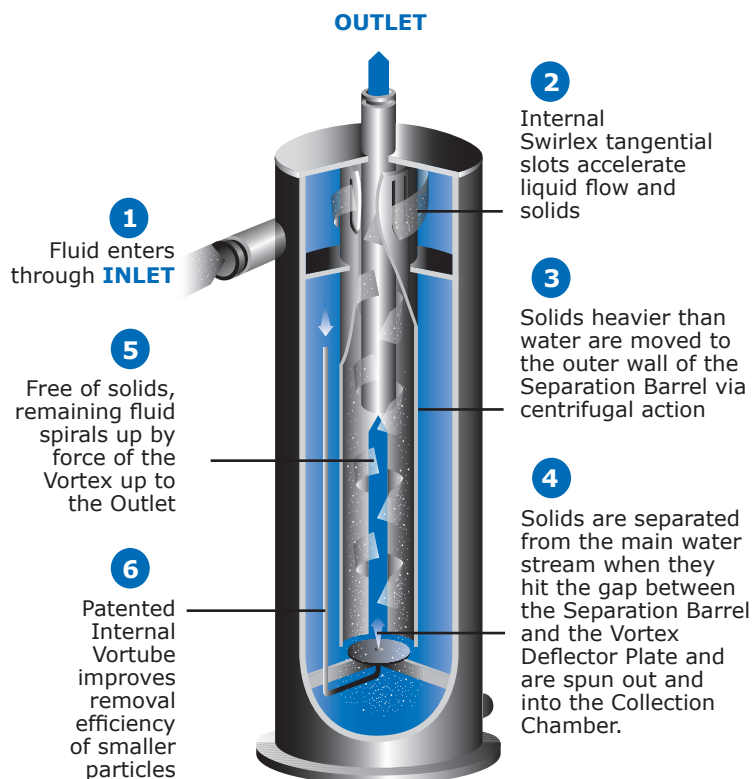
Dimensions

TCI or TCX Model	Dim A		Dim B		Dim E - TCI		Dim E - TCX	
	inches	mm	inches	mm	inches	mm	inches	mm
0030-SRV	39 3/4	1010	24	610	44 5/16	1125	46 1/8	1172
0065-SRV	39 3/4	1010	24	610	44 1/16	1119	46 1/8	1172
0100-SRV	39 3/4	1010	24	610	47	1194	48 1/8	1222
0145-SRV	39 3/4	1010	24	610	47 1/2	1207	49 3/8	1254
0200-SRV	39 3/4	1010	24	610	50 1/12	1283	51 3/8	1305
0280-SRV	39 3/4	1010	24	610	62	1575	67 1/16	1703
0400-SRV	48	1219	30	762	69 3/16	1757	69 3/16	1757
0525-SRV	48	1219	30	762	69 3/16	1757	69 3/16	1757
0600-SRV	60	1524	36	914	84 15/16	2157	84 15/16	2157
0825-SRV	60	1524	36	914	84 15/16	2157	85 1/16	2161
1100-SRV	60	1524	36	914	84 15/16	2157	85 1/16	2161

More detailed CAD drawings and CSI specifications are available at www.lakos.com



LAKOS Separators: How It Works



System Components

- LAKOS Separator (different units for different configurations, see "Performance" chart above)
- Centrifugal Pump w/silicon carbide/Viton® seals, rated for 100 ft. TDH (nominal)
- Basket Strainer
- LAKOS Solids Recovery Vessel (SRV) with Indicator Package (SRI)
- Inlet/Outlet Pressure Gauges
- Fully Assembled On A Skid
- All Interconnecting Piping and Valves
- UL Listed/NEMA 4X Motor Starter and Controls

Optional Equipment:

- Inlet/Outlet Valve Kit (Recommended)
- Dry Electrical Contact (DEC) for Solids Recovery Vessel
- Indicator Package (SRI)
- Motorized Ball Valve or Fail-Safe Valve (in place of Solids Recovery Vessel) for Automated Purging
- PLC (programmable logic controller)
- Premium Efficiency Motor
- International voltages and 50 Hz
- Higher pressures available

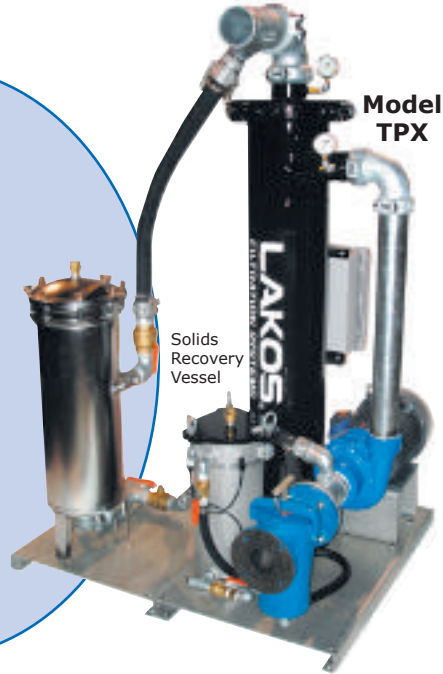
Viton® is a registered trademark of DuPont

TowerCleanPlus

Filters solids down to .35 micron



Plus Systems Include A Cartridge Filter



Includes Models TPI and TPX
TPX Models are accessible separators

Conversion Kits

Kits to convert a TowerClean system to a TowerCleanPLUS include a single or dual cartridge filter system on a skid (shown below) and instructions for conversion.



TC/TCX Model
TCI/TCX-0065
TCI/TCX-0100
TCI/TCX-0145
TCI/TCX-0200
TCI/TCX-0280
TCI/TCX-0400
*TCI/TCX-0525
*TCI/TCX-0825
*TCI/TCX-1100

Conversion Kit
PLUS-0065-TB/TC
PLUS-0100-TB/TC
PLUS-0145-TB/TC
PLUS-0200-TB/TC
PLUS-0280-TB/TC
PLUS-0400-TCI/TCX
PLUS-0525-TCI/TCX
PLUS-0825-TCI/TCX
PLUS-1100-TCI/TCX

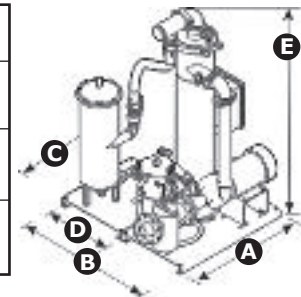
*These are dual cartridge filters

Dimensions

TPI or TPX Model	Dim A		Dim B		Dim C		Dim D		Dim E	
	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm
0065-SRV	39 3/4	1010	48	1219	24	610	24	610	47 13/16	1215
0100-SRV	39 3/4	1010	48	1219	24	610	24	610	51 7/16	1307
0145-SRV	39 3/4	1010	48	1219	24	610	24	610	53 1/2	1359
0200-SRV	39 3/4	1010	48	1219	24	610	24	610	56 1/2	1453
0280-SRV	39 3/4	1010	48	1219	24	610	24	610	69 1/4	1759
0400-SRV	48	1219	54	1372	24	610	24	610	77 1/8	1959
*0525-SRV	48	1219	54	1372	39 3/4	1010	24	610	77 1/8	1959
*0825-SRV	60	1524	60	1524	39 3/4	1010	24	610	93 5/8	2378
*1100-SRV	60	1524	60	1524	39 3/4	1010	24	610	93 5/8	2378

*These are dual cartridge filters

TowerCleanPLUS



More detailed CAD drawings available at www.LAKOS.com

Performance

TPI or TPX Model	Separator Model		Flow US gpm	Flow m3/hr	Cartridge**		Inlet (flanged)	Outlet (grooved)	Inlet Piping To Use*	TPI / Weight		TPX / Weight		Pump HP	Max Basin (sq ft)	Full Load Amperage		
	TPI	TPX			Flow US gpm	Flow m3/hr				Empty (lbs)	Empty (kg)	Empty (lbs)	Empty (kg)			230V	460V	575V
0065-SRV	ILB-0150	HTX-0038	65	15	10	2.3	2" thd	1 1/2"	2 1/2"	650	295	592	269	3	55	8.6	4.2	3.4
0100-SRV	ILB-0200	HTX-0060	100	23	20	4.5	3"	2"	3"	685	310	685	310	5	80	12.7	6.4	5
0145-SRV	ILB-0250	HTX-0085	145	33	30	6.8	3"	2 1/2"	4"	700	318	700	318	5	120	12.7	6.4	5
0200-SRV	ILB-0300	HTX-0130	200	45	30	6.8	3"	3"	4"	731	332	823	373	7.5	170	18.9	9.4	7.6
0280-SRV	ILB-0350	HTX-0200	280	64	50	11.4	4"	4"	6"	818	371	1045	474	10	230	24.1	12	9.6
0400-SRV	HTH-0285	HTX-0285	400	91	50	11.4	6"	4"	6"	1264	573	1350	612	15	350	36	17.9	14.3
0525-SRV	HTH-0285	HTX-0285	525	119	90	20.4	6"	4"	8"	2210	1002	1685	764	20	435	48	24	19
0825-SRV	HTH-0450	HTX-0450	825	187	90	20.4	8"	6"	8"	2535	1150	2535	1150	30	735	70	35	27.8
1100-SRV	HTH-0500	HTX-0500	1100	250	90	20.4	8"	6"	10"	3635	1649	3635	1649	40	1010	94	47	37.6

* LAKOS recommended inlet pipe size

** Cartridge filters available in 0.35, 1, 5 and 10 micron sizes

All TowerCleanPLUS systems are rated for 100 psi (6.9 bar) maximum pressure

LAKOS
Separators and Filtration Solutions

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LAKOS is the recognized leader in solids removal from liquids in the Heat Transfer Industry. With the most complete line of filtration, including separators, media and cartridge filtration, LAKOS can provide you with the best filtration solutions to your fouling problems. Choose LAKOS for customized solutions to your filtration needs.

Lakos Separators are manufactured and sold under one or more of the following U.S. Patents: 5,320,747; 5,338,341; 5,368,735; 5,425,876; 5,571,416; 5,578,203; 5,622,545; 5,653,874; 5,894,995; 6,090,276; 6,143,175; 6,167,960; 6,202,543; 7,000,782; 7,032,760 and corresponding foreign patents, other U.S. and foreign patents pending.

Form LS-710I (Rev. 11/11)