

PFI

Closed circuit cooling towers



Key benefits

- Lowest energy consumption and total cost of ownership
- Year round reliable operation
- Ideal replacement unit with certified thermal performance



PFI characteristics

Counter flow, axial fan, induced draft

Capacity range

up to 1465 kW

Maximum entering fluid temperature

82°C

Typical applications

- Medium to large HVAC and industrial applications
- Dry operation requirement in winter time



Lowest energy consumption and total cost of ownership

- [Evaporative cooling](#) for system-wide energy saving at lower operating temperatures.
- The highly efficient **OptiCoil System** increases thermal performance **up to 30%** for the same coil volume lowering the installed fan power by up to 50%.
- Elimination of potentially excessive operating costs. PFI is **Eurovent-CTI certified** for both water and glycol. This guarantees thermal performance and it eliminates field thermal performance testing costs.
- **System pump** energy savings obtained through shorter coil circuits resulting in **lower coil pressure drops**.
- **Savings on maintenance and water treatment** because the **closed loop** in PFI cooling towers ensures a contaminant-free cooling circuit.
- **Lower installed costs**. PFI has a lower weight, reducing structural and vibration isolation costs. Less glycol is required to achieve the same or higher heat transfer.
- **Water and chemical savings up to 33%** because [Baltibond Hybrid Coating](#) allows higher cycles of concentration.

Year round reliable operation

- **Trouble free process operation** - The closed loop in PFI cooling towers protects the process fluid and equipment from external contaminations.
- The thermal performance of PFI closed circuit cooling towers is tested and [certified by Eurovent](#).
- For extremely cold weather operation, switch off the spray system during periods of reduced load and **operate dry**.
- **Optimal thermal performance** through lifetime. Lab tests have proven that the OptiCoil System reduces scale formation on the coil.
- **Minimum maintenance and downtime**- Complete and easy access to all critical components, including coil.
- Easy-clean and easy-inspect PFI towers **reduce hygiene risks** from bacteria (e.g. Legionella) or biofilm inside.
- Self-cleaning **cold water basin sloping** towards drain, to prevent sediment build up.
- **Combined inlet shields** block sunlight to prevent biological growth in the tower, filter the air and stop water splashing outside.

Ideal replacement unit with certified thermal performance

- **Same or higher capacity**. Ideal like-for-like solution, performing per published ratings. The PFI is independently Eurovent-CTI certified for various process fluids.

Low noise

- A variety of fans is available to offer the perfect solution for every sound challenge.
- [Water silencers](#) achieve noise levels close to those of crossflow towers. Water silencers come always with Whisper Quiet fans.



- Factory designed, tested and rated [sound attenuation](#) is available on the discharge for further noise reduction.

Easy to maintain

- The PFI closed circuit cooling tower is **easier to maintain than** other induced draft counterflow cooling towers.
- Optional coil **inspection hatches** allow complete and easy access to heat transfer section
- **BranchLok** water distribution - each branch removable for easy cleaning.
- **Combined inlet shields** for easy no-tool removal.
- **Motor adjusters**: externally accessible and locking wrench for easy motor alignment and belt tensioning.
- Full **cold water basin access** when removing the combined inlet shields.
- **Fans easy accessible** via sliding access door.
- Optional [clean out port](#) **helps remove** silt and sludge from the cooling tower basin.
- Removable **suction strainer** anti-vortex hood.

Ship and install PFI easily

- **Guide pins** mean swift PFI cooling tower on-site assembly. The guide pins help reduce section assembly time by up to 75 %!
- Compact PFI footprint – **perfect for confined spaces**.
- **Container shipment** often possible!

Interested in the PFI closed circuit cooling tower for cooling your process fluid? Contact your local [BAC representative](#) for more information.

Downloads

- [PFI closed circuit cooling tower](#)
- [PFI closed circuit cooling towers - brochure](#)
- [BAC - Eurovent Certification](#)
- [Operating and Maintenance PFI](#)
- [Rigging and Installation PFI](#)

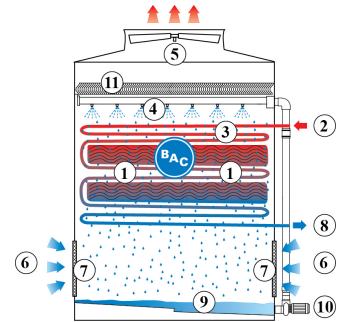


Principle of operation

Closed circuit cooling towers

Principle of operation

The PFI features the OptiCoil™ System, which includes the BAC **Versapak spray water cooling medium (1)**. This improves the overall cooling efficiency and ensures an optimal cooling of the warm **process fluid (2)** inside the **coil (3)**, which is wetted by the **spray system (4)**. The Versapak is inserted within the coil structure, engineered for easy inspection. The **axial fan (5)** draws ambient **air (6)** upwards through the tower. **Combined inlet shields (7)** protect the tower from debris being drawn into the unit. During operation, heat is transferred to the spray water, and then to the atmosphere as a portion of the water that evaporates. The cooled process fluid then **exits** the unit **(8)**. The **sloping sump (9)** or basin collects the remaining water. The **spray pump (10)** recirculates the cooled water to the top of the tower. The warm saturated air leaves the tower through **drift eliminators (11)** which remove water droplets from the air.



Interested in the PFI cooling tower to cool your process fluid?

Contact your local [BAC representative](#) for more information.

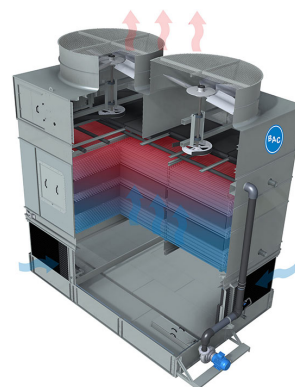
Construction details

Closed circuit cooling towers

Construction details

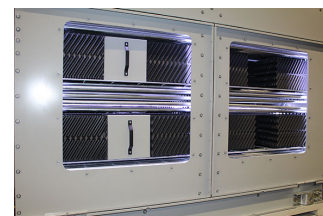
1. Material options

- Heavy-gauge hot-dip galvanized steel is used for external unit steel panels and structural elements featuring [Baltiplus Corrosion Protection](#).
- The unique [Baltibond hybrid coating](#) is an optional extra. A hybrid polymer coating for longer service life, applied pre-assembly to all hot-dip galvanized steel components of the unit.
- [Optional water contact stainless steel](#) panels and structural elements of type 304L or 316L for extreme applications.
- Or the economical alternative: a **water-contact stainless steel cold water basin**. Its key components and the basin itself are stainless steel. The rest is protected with the Baltibond hybrid coating.



2. Heat transfer media

- Our heat transfer media is a **cooling coil**. Its thermal performance is proven during comprehensive [lab thermal performance tests](#), and it offers you unrivalled system efficiency.
- **Coil only** version optionally available.
- The coil is constructed of continuous length of prime surface steel, hot-dip galvanized after fabrication. Designed for maximum 10 bar operating pressure according to PED.
- All hot dip galvanized and stainless steel coils are delivered with BAC's **Internal Coil Corrosion Protection**, to ensure an optimal internal corrosion protection and guaranteed quality.
- **Optional stainless steel coils** are in type 304L or 316L.
- **Versapak** in self-extinguishing **plastic**, which will not rot, decay or decompose.



3. Air movement system

- **PFI fan system** features two aluminium sheaves and belts. Together with the heavy duty fan shaft bearings and the BAC **Impervix** motor (external for units up to 2,4 m wide), this guarantees optimal and year-round operational efficiency.
- **Low kW axial fan(s)** in corrosion resistant aluminum, encased in fan cylinder with removable fan guard. Easy accessible via **sliding access door**. To reduce noise even further, choose for a [Whisper Quiet fan](#) with minimal impact on thermal performance.
- **Extended lubrication lines** with easily accessible grease fittings to **lubricate** fan shaft bearings.
- **Our drift eliminators** come in UV-resistant plastic, which will not rot, decay or decompose and their performance is tested and **certified by Eurovent**. They are assembled in **easily handled and removable sections**, for optimal internal access.
- Easy removable UV-resistant plastic **combined inlet shields** at air inlet. Sunlight block to prevent biological growth in tower, air filter and water splash-out stop.



4. Water distribution system

These consist of:

- The exclusive **BranchLok system**, including spray branches, external header clean out ports and non-clog plastic nozzles secured by rubber grommets. Unmatched cleaning system: **tool free branch removal** for easy inspection and flushing.
- Easy accessible **sloped cold water basin**, including anti-vortexing strainers, make up and **overflow** connection.
- Close coupled, bronze fitted centrifugal **spray pump** with totally enclosed fan cooled (TEFC) motor.
- Bleed line with metering valve installed from pump discharge to overflow.



Interested in the PFI closed circuit cooling tower? Contact your local [BAC representative](#).

Options and accessories

Closed circuit cooling towers

Options and accessories

Below is a listing of the main PFI options and accessories. If your required option or accessory is not listed, look no further than your [local BAC representative](#).



Sound attenuation

Reducing noise at air **discharge** brings use closer to silent cooling equipment.



Whisper Quiet fan

Reduce fan noise even more with **very low sound factory-tested fans**.



Water silencers

Water silencers in the basin **reduce the noise** of the water falling into the basin.



Remote sump connection

The best way to **prevent a sump freezing** is to use the auxiliary remote variety within a heated area. Shutting off the circulating pump allows all the water in the water distribution, as well as that in suspension and the sump to drain freely to the auxiliary sump.



Basin heater package

Thanks to our factory-installed heaters, the water stays at 4°C and **never freezes**, even during equipments downtime and however cold it gets outside.



Platforms, ladders, safety cage and handrail

To inspect and maintain the unit more **easily and safely**, platforms, a ladder, safety cage and handrails can be installed.



Motor removal davit

For **easy removal or lifting** of the side motor.



Electric water level control package

For **perfectly precise water level control**, replace the standard mechanical valve with our electrical water level controller.



Vibration cut out switch

When excessive vibration occurs, this switch shuts down the fan, ensuring your cooling equipment **operates safely**.



Water treatment equipment

Devices to control water treatment are needed to ensure proper **cooling tower water care**. Not only does this help protect the components and fill pack, controlling corrosion, scaling and fouling, it also avoids the proliferation of harmful bacteria, including **legionella**, in the recirculating water.



Filter

Separators and media filters efficiently **remove suspended solids** in the recirculating water, reducing system cleaning costs and optimizing water treatment results. Filtration helps you keep the recirculating water clean.



Sump sweeper piping

Sump sweeper piping **prevents sediment collecting in the cold water basin** of the unit. A complete piping system, including nozzles, is installed in the basin of the tower **for connection to side stream filtration** equipment.



Clean out port

Clean out port **makes it easy to eliminate silt and sludge** from the cooling tower basin when cleaning and flushing the sump.



Flanges

Flanges facilitate **pipng connections** on-site.



PFI 0709E - 0718E

Closed circuit cooling towers

Engineering data

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[PFI cooling tower performance at standard conditions - 30% EG](#)

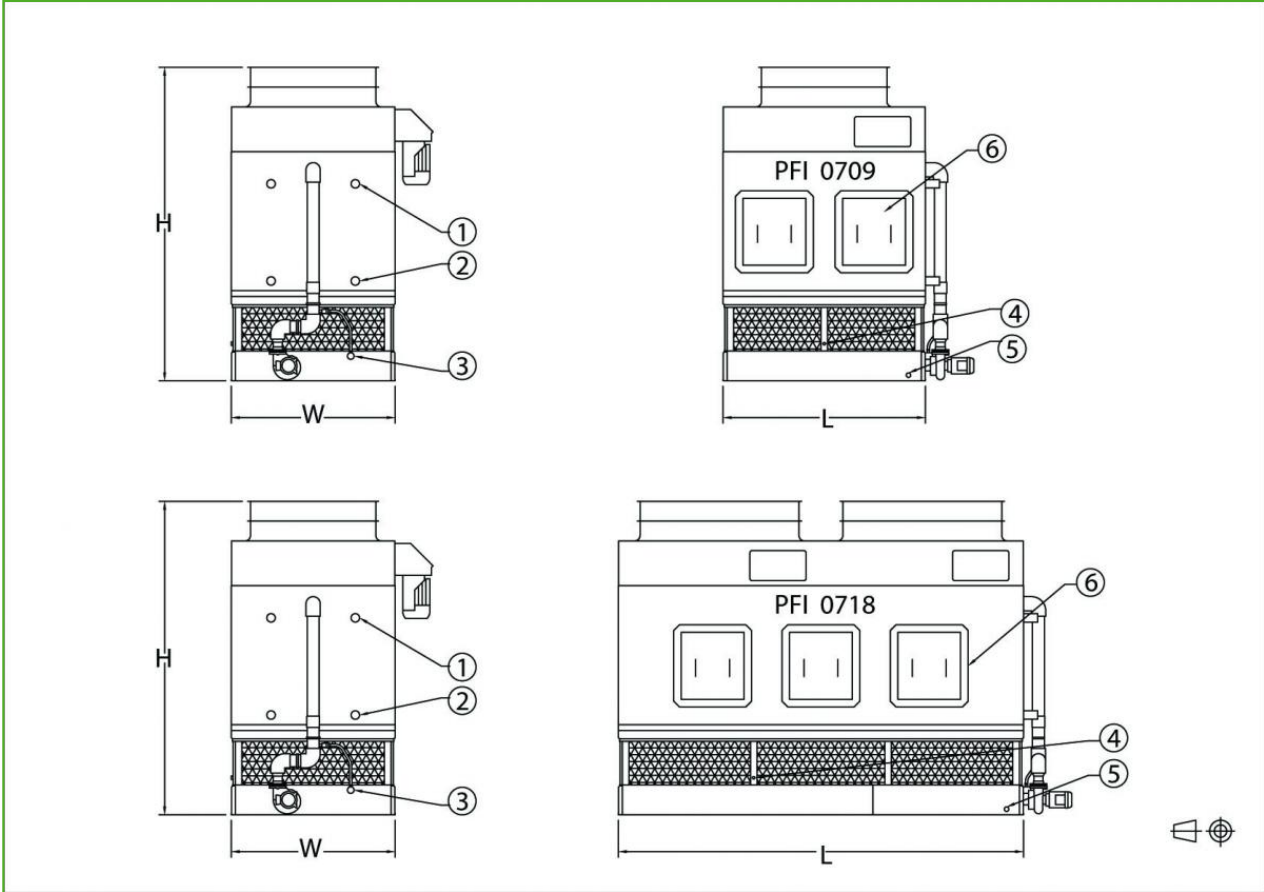
[PFI cooling tower performance at standard conditions - 30% PG](#)

[PFI cooling tower performance at standard conditions - water](#)

[PFI cooling tower - pressure drop](#)

Last update: 01/06/2023

PFI 0709E - 0718E



1. Fluid in; 2. Fluid out; 3. Overflow; 4. Make up; 5. Drain; 6. Coil Inspection Hatches.



Model	Weights (kg)			Dimensions (mm)			Air Flow (m ³ /s)	Fan Motor (kW)	Water Flow (l/s)	Pump Motor (kW)	Coil Volume (L)
	Oper. Weight (kg)	Ship. Weight(kg)	Heaviest Section (kg)	L	W	H					
PFI 07 09E-2D 3DS-H	4635	3123	2059	2737	2216	4535	14.6	(1x) 4.0	11.0	(1x) 1.5	(2x) 189
PFI 07 09E-3D 1DS-K	4899	3311	2218	2737	2216	4535	18.1	(1x) 7.5	11.0	(1x) 1.5	(2x) 226
PFI 07 09E-3D 1ES-H	5117	3519	2454	2737	2216	4916	13.9	(1x) 4.0	11.0	(1x) 1.5	(2x) 231
PFI 07 09E-3D 2DS-K	5048	3415	2322	2737	2216	4535	17.6	(1x) 7.5	11.0	(1x) 1.5	(2x) 248
PFI 07 09E-3D 2ES-L	5362	3719	2567	2737	2216	4916	19.3	(1x) 11.0	11.0	(1x) 1.5	(2x) 253
PFI 07 09E-3D 3DS-K	5198	3524	2431	2737	2216	4535	16.9	(1x) 7.5	11.0	(1x) 1.5	(2x) 270
PFI 07 09E-3D 4DS-M	5434	3717	2540	2737	2216	4535	20.1	(1x) 15.0	11.0	(1x) 1.5	(2x) 292
PFI 07 09E-4D 1DS-L	5471	3750	2599	2737	2216	4726	19.4	(1x) 11.0	11.0	(1x) 1.5	(2x) 293
PFI 07 09E-4D 1ES-H	5434	3705	2835	2737	2216	5107	13.2	(1x) 4.0	11.0	(1x) 1.5	(2x) 297
PFI 07 09E-4D 2DS-M	5698	3918	2740	2737	2216	4726	20.6	(1x) 15.0	11.0	(1x) 1.5	(2x) 322
PFI 07 09E-4D 2ES-K	5670	3880	2980	2737	2216	5107	16.1	(1x) 7.5	11.0	(1x) 1.5	(2x) 327
PFI 07 09E-4D 3ES-J	5870	4023	3130	2737	2216	5107	14.0	(1x) 5.5	11.0	(1x) 1.5	(2x) 356
PFI 07 09E-4D 4DS-J	6006	4113	3025	2737	2216	4726	13.9	(1x) 5.5	11.0	(1x) 1.5	(2x) 380
PFI 07 09E-5D 1ES-M	6252	4388	3207	2737	2216	5272	19.6	(1x) 15.0	11.0	(1x) 1.5	(2x) 363
PFI 07 09E-5D 2DS-M	6261	4336	3157	2737	2216	4916	19.6	(1x) 15.0	11.0	(1x) 1.5	(2x) 395
PFI 07 09E-5D 2ES-K	6420	4486	3388	2737	2216	5272	15.3	(1x) 7.5	11.0	(1x) 1.5	(2x) 400
PFI 07 09E-5D 3ES-L	6728	4719	3565	2737	2216	5272	16.6	(1x) 11.0	11.0	(1x) 1.5	(2x) 437
PFI 07 09E-5D 4DS-K	6669	4602	3506	2737	2216	4916	14.3	(1x) 7.5	11.0	(1x) 1.5	(2x) 467
PFI 07	6533	4546	3366	2737	2216	5107	19.4	(1x)	11.0	(1x)	(2x)



09E-6D 1DS-M								15.0		1.5	425
PFI 07 09E-6D 1ES-M	6765	4770	3588	2737	2216	5462	18.9	(1x) 15.0	11.0	(1x) 1.5	(2x) 430
PFI 07 09E-6D 2DS-J	6733	4660	3570	2737	2216	5107	13.8	(1x) 5.5	11.0	(1x) 1.5	(2x) 469
PFI 07 09E-6D 2ES-L	7037	4956	3801	2737	2216	5462	16.7	(1x) 11.0	11.0	(1x) 1.5	(2x) 474
PFI 07 18E-2D 1DS-L	8662	5797	3166	5480	2216	4751	44.4	(2x) 11.0	23.0	(1x) 4.0	(2x) 297
PFI 07 18E-2D 2DS-K	8758	5833	3316	5480	2216	4751	38.2	(2x) 7.5	23.0	(1x) 4.0	(2x) 326
PFI 07 18E-2D 3DS-K	8967	5983	3465	5480	2216	4751	36.8	(2x) 7.5	23.0	(1x) 4.0	(2x) 356
PFI 07 18E-2D 3ES-L	9352	6361	3729	5480	2216	4942	40.3	(2x) 11.0	23.0	(1x) 4.0	(2x) 361
PFI 07 18E-2D 4ES-M	9625	6569	3883	5480	2216	4942	42.8	(2x) 15.0	23.0	(1x) 4.0	(2x) 391
PFI 07 18E-3D 1DS-J	9421	6287	3783	5480	2216	4751	33.3	(2x) 5.5	23.0	(1x) 4.0	(2x) 432
PFI 07 18E-3D 1ES-L	9924	6779	4146	5480	2216	5132	39.9	(2x) 11.0	23.0	(1x) 4.0	(2x) 436
PFI 07 18E-3D 2DS-K	9738	6514	3996	5480	2216	4751	35.6	(2x) 7.5	23.0	(1x) 4.0	(2x) 476
PFI 07 18E-3D 2ES-H	10056	6825	4364	5480	2216	5132	27.4	(2x) 4.0	23.0	(1x) 4.0	(2x) 481
PFI 07 18E-3D 3DS-M	10206	6895	4209	5480	2216	4751	42.3	(2x) 15.0	23.0	(1x) 4.0	(2x) 520
PFI 07 18E-3D 4DS-M	10506	7109	4423	5480	2216	4751	40.6	(2x) 15.0	23.0	(1x) 4.0	(2x) 564
PFI 07 18E-4D 1ES-H	10161	6748	4867	5480	2216	5323	26.7	(2x) 4.0	23.0	(1x) 4.0	(2x) 571
PFI 07 18E-4D 2DS-J	10810	7291	4785	5480	2216	4942	30.7	(2x) 5.5	23.0	(1x) 4.0	(2x) 625
PFI 07 18E-4D 2ES-M	10792	7261	5153	5480	2216	5323	40.4	(2x) 15.0	23.0	(1x) 4.0	(2x) 630
PFI 07 18E-4D 3DS-M	11391	7754	5067	5480	2216	4942	39.6	(2x) 15.0	23.0	(1x) 4.0	(2x) 684
PFI 07 18E-4D 4DS-M	11786	8031	5343	5480	2216	4942	37.9	(2x) 15.0	23.0	(1x) 4.0	(2x) 742
PFI 07 18E-5D	11949	8265	5575	5480	2216	5488	39.7	(2x) 15.0	23.0	(1x) 4.0	(2x) 706



1ES-M											
PFI 07 18E-6D 1DS-H	12358	8414	5951	5480	2216	5323	25.5	(2x) 4.0	23.0	(1x) 4.0	(2x) 837
PFI 07 18E-6D 1ES-L	12889	8938	6300	5480	2216	5678	34.8	(2x) 11.0	23.0	(1x) 4.0	(2x) 841
PFI 07 18E-6D 2DS-M	13171	9055	6364	5480	2216	5323	37.8	(2x) 15.0	23.0	(1x) 4.0	(2x) 924
PFI 07 18E-6D 2ES-M	13538	9410	6718	5480	2216	5678	36.9	(2x) 15.0	23.0	(1x) 4.0	(2x) 929



PFI 0809E - 0818E

Closed circuit cooling towers

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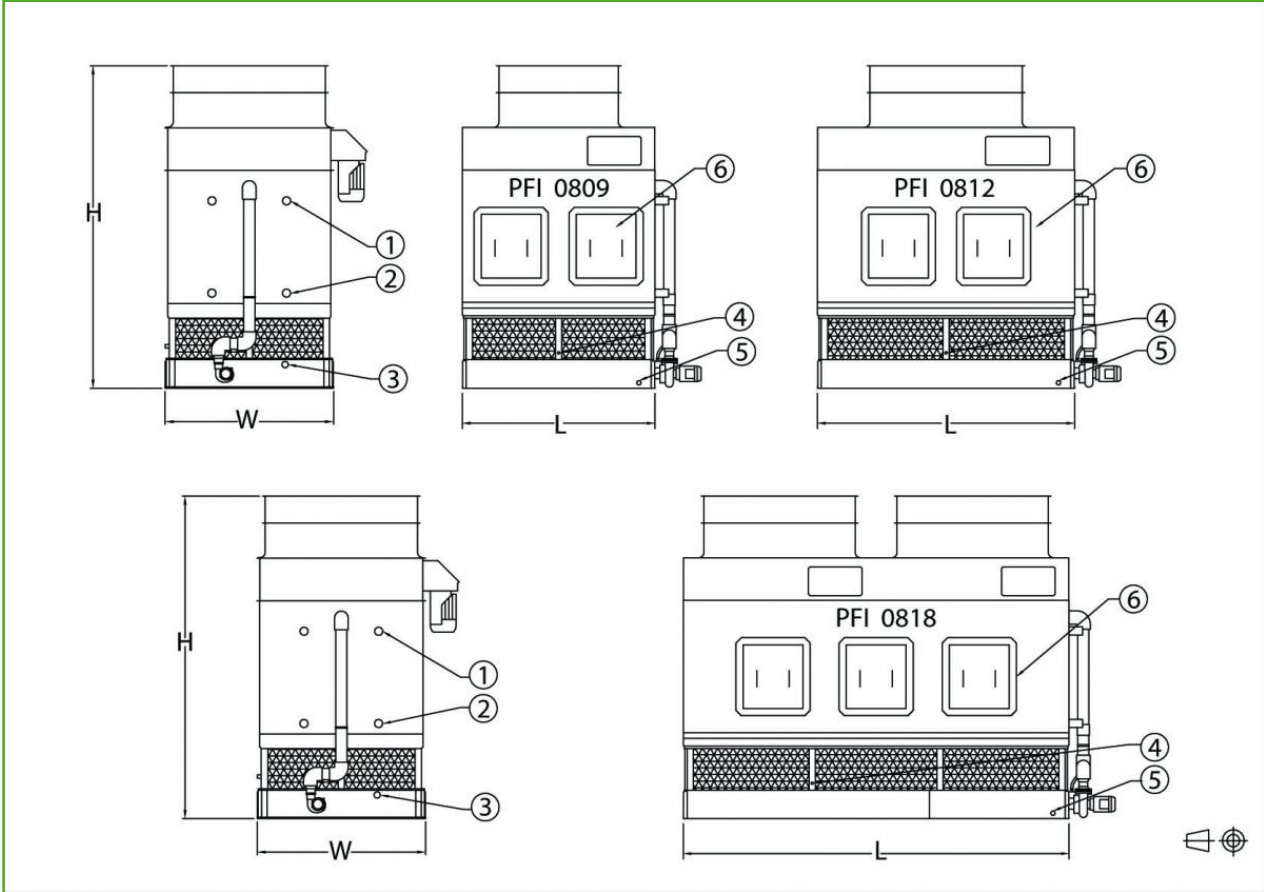
[PFI cooling tower performance at standard conditions - 30% PG](#)

[PFI cooling tower performance at standard conditions - water](#)

[PFI cooling tower - pressure drop](#)

Last update: 01/06/2023

PFI 0809E - 0818E



1. Fluid in; 2. Fluid out; 3. Overflow; 4. Make up; 5. Drain, 6. Coil Inspection Hatches.



Model	Weights (kg)			Dimensions (mm)			Air Flow (m ³ /s)	Fan Motor (kW)	Water Flow (l/s)	Pump Motor (kW)	Coil Volume (L)
	Oper. Weight (kg)	Ship. Weight(kg)	Heaviest Section (kg)	L	W	H					
PFI 08 09E-2D 4BS-L	5030	3312	2177	2737	2394	4535	23.5	(1x) 11.0	12.0	(1x) 1.5	(2x) 226
PFI 08 09E-2D 4DS-M	5198	3480	2318	2737	2394	4535	23.7	(1x) 15.0	12.0	(1x) 1.5	(2x) 226
PFI 08 09E-2D 4ES-L	5371	3639	2504	2737	2394	4726	20.8	(1x) 11.0	12.0	(1x) 1.5	(2x) 232
PFI 08 09E-3D 1BS-M	5144	3389	2227	2737	2394	4535	25.8	(1x) 15.0	12.0	(1x) 1.5	(2x) 243
PFI 08 09E-3D 1DS-M	5285	3530	2368	2737	2394	4535	23.7	(1x) 15.0	12.0	(1x) 1.5	(2x) 243
PFI 08 09E-3D 3BS-M	5498	3643	2481	2737	2394	4535	24.0	(1x) 15.0	12.0	(1x) 1.5	(2x) 294
PFI 08 09E-3D 4BS-M	5698	3784	2622	2737	2394	4535	23.2	(1x) 15.0	12.0	(1x) 1.5	(2x) 323
PFI 08 09E-3D 4DS-M	5843	3929	2767	2737	2394	4535	21.8	(1x) 15.0	12.0	(1x) 1.5	(2x) 323
PFI 08 09E-3D 4ES-L	6097	4172	3035	2737	2394	4916	19.4	(1x) 11.0	12.0	(1x) 1.5	(2x) 330
PFI 08 09E-4D 1DS-M	5834	3939	2776	2737	2394	4726	22.4	(1x) 15.0	12.0	(1x) 1.5	(2x) 314
PFI 08 09E-4D 2BS-M	5961	3989	2826	2737	2394	4726	23.8	(1x) 15.0	12.0	(1x) 1.5	(2x) 352
PFI 08 09E-4D 2DS-M	6102	4130	2966	2737	2394	4726	22.3	(1x) 15.0	12.0	(1x) 1.5	(2x) 352
PFI 08 09E-4D 3BS-M	6161	4130	2966	2737	2394	4726	22.3	(1x) 15.0	12.0	(1x) 1.5	(2x) 381
PFI 08 09E-4D 4BS-M	6424	4316	3152	2737	2394	4726	21.5	(1x) 15.0	12.0	(1x) 1.5	(2x) 420
PFI 08 09E-4D 4DS-M	6569	4461	3298	2737	2394	4726	20.5	(1x) 15.0	12.0	(1x) 1.5	(2x) 420
PFI 08 09E-4D 4ES-M	6851	4731	3565	2737	2394	5107	20.0	(1x) 15.0	12.0	(1x) 1.5	(2x) 427
PFI 08 09E-5D 1DS-M	6383	4349	3184	2737	2394	4916	21.4	(1x) 15.0	12.0	(1x) 1.5	(2x) 385
PFI 08 09E-5D 2DS-M	6719	4585	3420	2737	2394	4916	21.2	(1x) 15.0	12.0	(1x) 1.5	(2x) 433
PFI 08	6973	4831	3665	2737	2394	5272	20.7	(1x)	12.0	(1x)	(2x)



09E-5D 2ES-M								15.0		1.5	438
PFI 08 09E-5D 4BS-L	7128	4825	3688	2737	2394	4916	18.6	(1x) 11.0	12.0	(1x) 1.5	(2x) 517
PFI 08 09E-6D 1BS-M	6796	4617	3452	2737	2394	5107	21.7	(1x) 15.0	12.0	(1x) 1.5	(2x) 456
PFI 08 09E-6D 1DS-M	6942	4763	3597	2737	2394	5107	20.5	(1x) 15.0	12.0	(1x) 1.5	(2x) 456
PFI 08 09E-6D 1ES-M	7187	5000	3833	2737	2394	5462	20.0	(1x) 15.0	12.0	(1x) 1.5	(2x) 461
PFI 08 12E-2D 4BS-M	6243	3967	2540	3651	2394	4650	31.6	(1x) 15.0	17.0	(1x) 2.2	(2x) 293
PFI 08 12E-2D 4DS-M	6424	4149	2722	3651	2394	4650	29.2	(1x) 15.0	17.0	(1x) 2.2	(2x) 293
PFI 08 12E-2D 4ES-M	6651	4359	2930	3651	2394	4840	28.1	(1x) 15.0	17.0	(1x) 2.2	(2x) 299
PFI 08 12E-3D 1BS-M	6370	4044	2617	3651	2394	4650	31.8	(1x) 15.0	17.0	(1x) 2.2	(2x) 316
PFI 08 12E-3D 1DS-L	6529	4203	2803	3651	2394	4650	26.6	(1x) 11.0	17.0	(1x) 2.2	(2x) 316
PFI 08 12E-3D 2DS-M	6819	4417	2989	3651	2394	4650	29.1	(1x) 15.0	17.0	(1x) 2.2	(2x) 355
PFI 08 12E-3D 3BS-M	6837	4376	2948	3651	2394	4650	29.8	(1x) 15.0	17.0	(1x) 2.2	(2x) 384
PFI 08 12E-3D 4BS-M	7101	4562	3134	3651	2394	4650	28.8	(1x) 15.0	17.0	(1x) 2.2	(2x) 423
PFI 08 12E-3D 4DS-M	7287	4748	3320	3651	2394	4650	27.1	(1x) 15.0	17.0	(1x) 2.2	(2x) 423
PFI 08 12E-3D 4ES-M	7586	5036	3606	3651	2394	5031	26.3	(1x) 15.0	17.0	(1x) 2.2	(2x) 430
PFI 08 12E-4D 1DS-M	7264	4749	3320	3651	2394	4840	27.7	(1x) 15.0	17.0	(1x) 2.2	(2x) 412
PFI 08 12E-4D 2BS-M	7432	4813	3384	3651	2394	4840	29.5	(1x) 15.0	17.0	(1x) 2.2	(2x) 463
PFI 08 12E-4D 2DS-M	7614	4994	3565	3651	2394	4840	27.6	(1x) 15.0	17.0	(1x) 2.2	(2x) 463
PFI 08 12E-4D 2ES-M	7900	5273	3842	3651	2394	5221	26.8	(1x) 15.0	17.0	(1x) 2.2	(2x) 469
PFI 08 12E-4D 3BS-M	7695	4999	3570	3651	2394	4840	27.8	(1x) 15.0	17.0	(1x) 2.2	(2x) 502
PFI 08 12E-4D	8040	5244	3815	3651	2394	4840	26.9	(1x) 15.0	17.0	(1x) 2.2	(2x) 554



4BS-M											
PFI 08 12E-4D 4DS-M	8226	5430	4001	3651	2394	4840	25.5	(1x) 15.0	17.0	(1x) 2.2	(2x) 554
PFI 08 12E-5D 2DS-K	8322	5488	4141	3651	2394	5031	21.3	(1x) 7.5	17.0	(1x) 2.2	(2x) 572
PFI 08 12E-5D 2ES-M	8685	5841	4409	3651	2394	5386	25.7	(1x) 15.0	17.0	(1x) 2.2	(2x) 577
PFI 08 12E-5D 4BS-M	8985	5926	4495	3651	2394	5031	25.3	(1x) 15.0	17.0	(1x) 2.2	(2x) 685
PFI 08 12E-6D 1BS-M	8494	5600	4169	3651	2394	5221	27.1	(1x) 15.0	17.0	(1x) 2.2	(2x) 603
PFI 08 12E-6D 1DS-M	8680	5786	4354	3651	2394	5221	25.6	(1x) 15.0	17.0	(1x) 2.2	(2x) 603
PFI 08 12E-6D 1ES-M	8953	6046	4613	3651	2394	5577	25.0	(1x) 15.0	17.0	(1x) 2.2	(2x) 608
PFI 08 18E-2D 4BS-M	9679	6288	3665	5480	2394	4751	51.8	(2x) 15.0	25.0	(1x) 4.0	(2x) 427
PFI 08 18E-2D 4DS-M	9947	6556	3933	5480	2394	4751	47.8	(2x) 15.0	25.0	(1x) 4.0	(2x) 427
PFI 08 18E-2D 4ES-M	10251	6847	4223	5480	2394	4942	46.2	(2x) 15.0	25.0	(1x) 4.0	(2x) 433
PFI 08 18E-3D 2BS-L	10215	6633	4064	5480	2394	4751	47.1	(2x) 11.0	25.0	(1x) 4.0	(2x) 522
PFI 08 18E-3D 2DS-L	10483	6901	4332	5480	2394	4751	43.5	(2x) 11.0	25.0	(1x) 4.0	(2x) 522
PFI 08 18E-3D 2ES-M	10941	7352	4726	5480	2394	5132	46.0	(2x) 15.0	25.0	(1x) 4.0	(2x) 527
PFI 08 18E-3D 3BS-M	10569	6901	4277	5480	2394	4751	48.6	(2x) 15.0	25.0	(1x) 4.0	(2x) 565
PFI 08 18E-3D 4BS-M	10969	7182	4559	5480	2394	4751	46.9	(2x) 15.0	25.0	(1x) 4.0	(2x) 624
PFI 08 18E-3D 4DS-M	11237	7450	4826	5480	2394	4751	44.1	(2x) 15.0	25.0	(1x) 4.0	(2x) 624
PFI 08 18E-3D 4ES-M	11663	7865	5239	5480	2394	5132	42.9	(2x) 15.0	25.0	(1x) 4.0	(2x) 631
PFI 08 18E-4D 2BS-M	11459	7551	4926	5480	2394	4942	48.0	(2x) 15.0	25.0	(1x) 4.0	(2x) 685
PFI 08 18E-4D 2DS-M	11727	7819	5194	5480	2394	4942	45.0	(2x) 15.0	25.0	(1x) 4.0	(2x) 685
PFI 08 18E-4D 2ES-M	12135	8216	5588	5480	2394	5323	43.7	(2x) 15.0	25.0	(1x) 4.0	(2x) 691



PFI 08 18E-4D 3BS-M	11854	7832	5207	5480	2394	4942	45.2	(2x) 15.0	25.0	(1x) 4.0	(2x) 744
PFI 08 18E-4D 3DS-M	12122	8100	5475	5480	2394	4942	42.7	(2x) 15.0	25.0	(1x) 4.0	(2x) 744
PFI 08 18E-4D 4BS-M	12385	8205	5579	5480	2394	4942	43.5	(2x) 15.0	25.0	(1x) 4.0	(2x) 822
PFI 08 18E-4D 4DS-M	12653	8473	5847	5480	2394	4942	41.4	(2x) 15.0	25.0	(1x) 4.0	(2x) 822
PFI 08 18E-4D 4ES-M	13080	8887	6260	5480	2394	5323	40.5	(2x) 15.0	25.0	(1x) 4.0	(2x) 828
PFI 08 18E-5D 2ES-L	13257	9011	6436	5480	2394	5488	38.3	(2x) 11.0	25.0	(1x) 4.0	(2x) 855
PFI 08 18E-5D 4BS-M	13802	9227	6600	5480	2394	5132	41.0	(2x) 15.0	25.0	(1x) 4.0	(2x) 1019
PFI 08 18E-6D 1BS-M	13057	8729	6101	5480	2394	5323	43.9	(2x) 15.0	25.0	(1x) 4.0	(2x) 897
PFI 08 18E-6D 1DS-K	13152	8824	6364	5480	2394	5323	33.6	(2x) 7.5	25.0	(1x) 4.0	(2x) 897
PFI 08 18E-6D 1ES-M	13702	9366	6736	5480	2394	5678	40.5	(2x) 15.0	25.0	(1x) 4.0	(2x) 901



PFI 1009E - 1012E

Closed circuit cooling towers

Engineering data

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[PFI cooling tower performance at standard conditions - 30% EG](#)

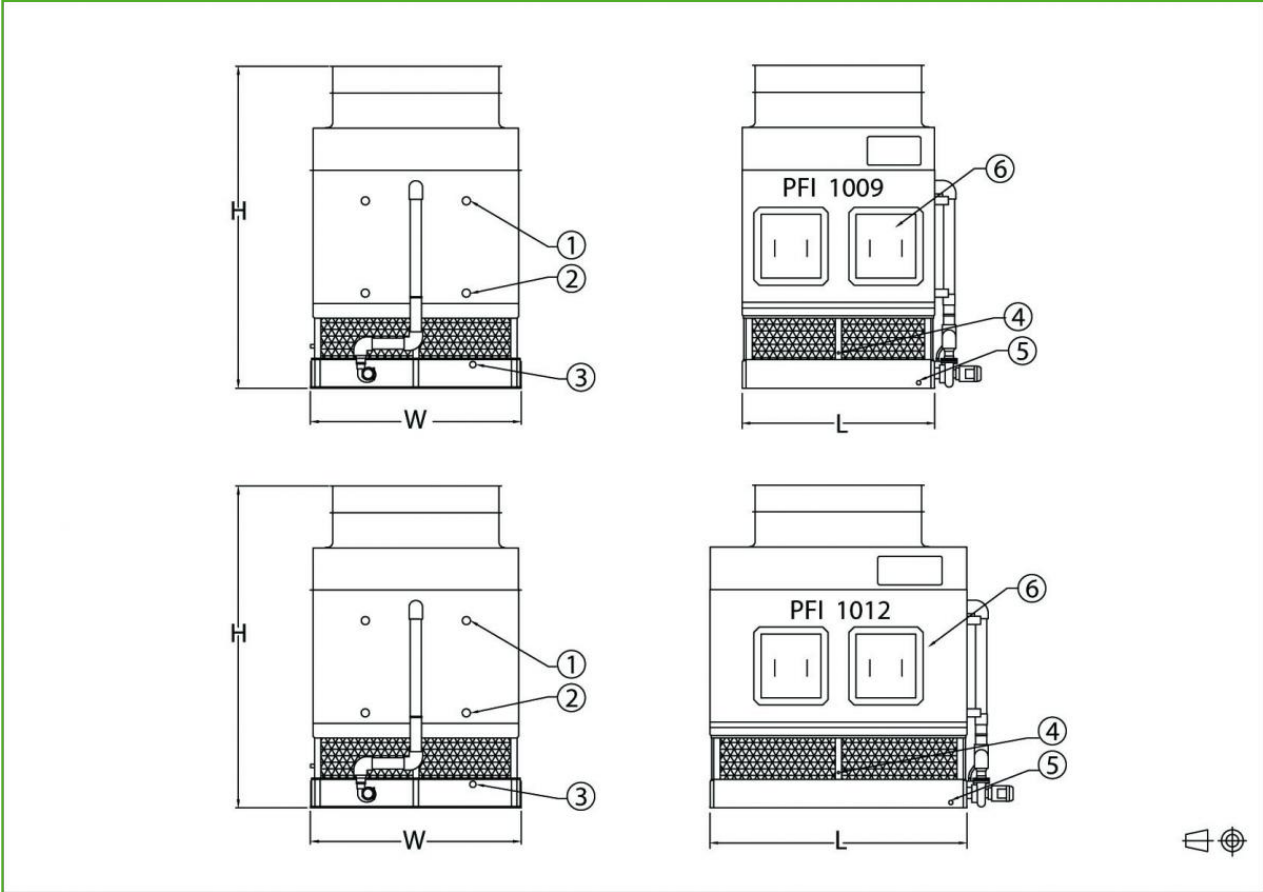
[PFI cooling tower performance at standard conditions - 30% PG](#)

[PFI cooling tower performance at standard conditions - water](#)

[PFI cooling tower - pressure drop](#)

Last update: 01/06/2023

PFI 1009E - 1012E



1. Fluid in; 2. Fluid out; 3. Overflow; 4. Make up; 5. Drain; 6. Coil Inspection Hatches



Model	Weights (kg)			Dimensions (mm)			Air Flow (m ³ /s)	Fan Motor (kW)	Water Flow (l/s)	Pump Motor (kW)	Coil Volume (L)
	Oper. Weight (kg)	Ship. Weight(kg)	Heaviest Section (kg)	L	W	H					
PFI 10 09E-2D 4BS-N	6129	4137	2508	2737	2997	5089	32.1	(1x) 18.5	16.0	(1x) 1.5	(2x) 287
PFI 10 09E-2D 4DS-L	6261	4268	2681	2737	2997	5089	25.3	(1x) 11.0	16.0	(1x) 1.5	(2x) 287
PFI 10 09E-2D 4ES-N	6533	4523	2894	2737	2997	5280	28.7	(1x) 18.5	16.0	(1x) 1.5	(2x) 295
PFI 10 09E-3D 1DS-K	6361	4311	2781	2737	2997	5089	22.6	(1x) 7.5	16.0	(1x) 1.5	(2x) 315
PFI 10 09E-3D 4BS-N	6946	4709	3080	2737	2997	5089	29.2	(1x) 18.5	16.0	(1x) 1.5	(2x) 410
PFI 10 09E-3D 4DS-N	7114	4877	3248	2737	2997	5089	27.4	(1x) 18.5	16.0	(1x) 1.5	(2x) 410
PFI 10 09E-3D 4ES-K	7337	5080	3547	2737	2997	5470	20.0	(1x) 7.5	16.0	(1x) 1.5	(2x) 418
PFI 10 09E-4D 1BS-N	6978	4746	3116	2737	2997	5280	30.8	(1x) 18.5	16.0	(1x) 1.5	(2x) 407
PFI 10 09E-4D 1DS-N	7151	4918	3289	2737	2997	5280	28.7	(1x) 18.5	16.0	(1x) 1.5	(2x) 407
PFI 10 09E-4D 2BS-N	7246	4937	3307	2737	2997	5280	29.8	(1x) 18.5	16.0	(1x) 1.5	(2x) 446
PFI 10 09E-4D 3BS-N	7582	5173	3543	2737	2997	5280	28.5	(1x) 18.5	16.0	(1x) 1.5	(2x) 495
PFI 10 09E-4D 3DS-N	7754	5345	3715	2737	2997	5280	27.0	(1x) 18.5	16.0	(1x) 1.5	(2x) 495
PFI 10 09E-4D 3ES-N	8059	5637	4005	2737	2997	5661	26.3	(1x) 18.5	16.0	(1x) 1.5	(2x) 502
PFI 10 09E-4D 4BS-N	7845	5359	3729	2737	2997	5280	27.1	(1x) 18.5	16.0	(1x) 1.5	(2x) 533
PFI 10 09E-5D 1DS-M	7832	5414	3797	2737	2997	5470	25.6	(1x) 15.0	16.0	(1x) 1.5	(2x) 500
PFI 10 09E-5D 1ES-M	8108	5679	4060	2737	2997	5826	24.9	(1x) 15.0	16.0	(1x) 1.5	(2x) 506
PFI 10 09E-5D 4BS-N	8749	6018	4386	2737	2997	5470	25.5	(1x) 18.5	16.0	(1x) 1.5	(2x) 657
PFI 10 09E-6D 1BS-N	8372	5769	4137	2737	2997	5661	27.8	(1x) 18.5	16.0	(1x) 1.5	(2x) 592
PFI 10	8544	5942	4309	2737	2997	5661	26.4	(1x)	16.0	(1x)	(2x)



09E-6D 1DS-N								18.5		1.5	592
PFI 10 09E-6D 1ES-N	8821	6207	4572	2737	2997	6016	25.7	(1x) 18.5	16.0	(1x) 1.5	(2x) 599
PFI 10 12E-2D 2ES-L	7650	5117	3329	3651	2997	5356	31.3	(1x) 11.0	21.0	(1x) 2.2	(2x) 319
PFI 10 12E-2D 4ES-K	8018	5364	3633	3651	2997	5356	26.2	(1x) 7.5	21.0	(1x) 2.2	(2x) 380
PFI 10 12E-3D 1DS-N	8068	5357	3529	3651	2997	5166	37.3	(1x) 18.5	21.0	(1x) 2.2	(2x) 410
PFI 10 12E-3D 2DS-O	8363	5570	3719	3651	2997	5166	38.3	(1x) 22.0	21.0	(1x) 2.2	(2x) 449
PFI 10 12E-3D 2ES-N	8685	5881	4051	3651	2997	5547	34.9	(1x) 18.5	21.0	(1x) 2.2	(2x) 456
PFI 10 12E-3D 3BS-L	8408	5520	3733	3651	2997	5166	32.3	(1x) 11.0	21.0	(1x) 2.2	(2x) 498
PFI 10 12E-3D 3DS-N	8671	5783	3955	3651	2997	5166	35.1	(1x) 18.5	21.0	(1x) 2.2	(2x) 498
PFI 10 12E-3D 4BS-O	8735	5770	3919	3651	2997	5166	38.1	(1x) 22.0	21.0	(1x) 2.2	(2x) 537
PFI 10 12E-3D 4DS-L	8894	5929	4141	3651	2997	5166	28.8	(1x) 11.0	21.0	(1x) 2.2	(2x) 537
PFI 10 12E-3D 4ES-O	9325	6344	4491	3651	2997	5547	34.7	(1x) 22.0	21.0	(1x) 2.2	(2x) 546
PFI 10 12E-4D 1BS-O	8785	5825	3973	3651	2997	5356	40.7	(1x) 22.0	21.0	(1x) 2.2	(2x) 535
PFI 10 12E-4D 1DS-O	9007	6048	4196	3651	2997	5356	37.7	(1x) 22.0	21.0	(1x) 2.2	(2x) 535
PFI 10 12E-4D 2BS-O	9134	6070	4218	3651	2997	5356	38.9	(1x) 22.0	21.0	(1x) 2.2	(2x) 586
PFI 10 12E-4D 2DS-K	9234	6173	4441	3651	2997	5356	25.7	(1x) 7.5	21.0	(1x) 2.2	(2x) 586
PFI 10 12E-4D 2ES-N	9421	6341	4776	3651	2997	5737	33.2	(1x) 18.5	21.0	(1x) 2.2	(2x) 593
PFI 10 12E-4D 3BS-O	9570	6379	4527	3651	2997	5356	37.3	(1x) 22.0	21.0	(1x) 2.2	(2x) 651
PFI 10 12E-4D 3ES-N	9865	6659	5094	3651	2997	5737	32.2	(1x) 18.5	21.0	(1x) 2.2	(2x) 659
PFI 10 12E-4D 4BS-O	9924	6629	4776	3651	2997	5356	35.4	(1x) 22.0	21.0	(1x) 2.2	(2x) 703
PFI 10 12E-4D	10247	6936	5348	3651	2997	5737	32.7	(1x) 22.0	21.0	(1x) 2.2	(2x) 711



4ES-O											
PFI 10 12E-5D 2DS-O	10356	7020	5166	3651	2997	5547	34.6	(1x) 22.0	21.0	(1x) 2.2	(2x) 723
PFI 10 12E-5D 3BS-L	10615	7115	5325	3651	2997	5547	28.5	(1x) 11.0	21.0	(1x) 2.2	(2x) 804
PFI 10 12E-5D 4BS-K	10991	7363	5629	3651	2997	5547	24.0	(1x) 7.5	21.0	(1x) 2.2	(2x) 869
PFI 10 12E-6D 1BS-O	10615	7157	5302	3651	2997	5737	36.9	(1x) 22.0	21.0	(1x) 2.2	(2x) 783
PFI 10 12E-6D 1DS-N	10814	7357	5525	3651	2997	5737	32.8	(1x) 18.5	21.0	(1x) 2.2	(2x) 783
PFI 10 12E-6D 1ES-O	11164	7695	5838	3651	2997	6093	33.8	(1x) 22.0	21.0	(1x) 2.2	(2x) 790
PFI 10 12E-6D 3DS-O	12004	8201	6346	3651	2997	5737	31.9	(1x) 22.0	21.0	(1x) 2.2	(2x) 957



PFI 1212E - 1218E

Closed circuit cooling towers

Engineering data

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[PFI cooling tower performance at standard conditions - 30% EG](#)

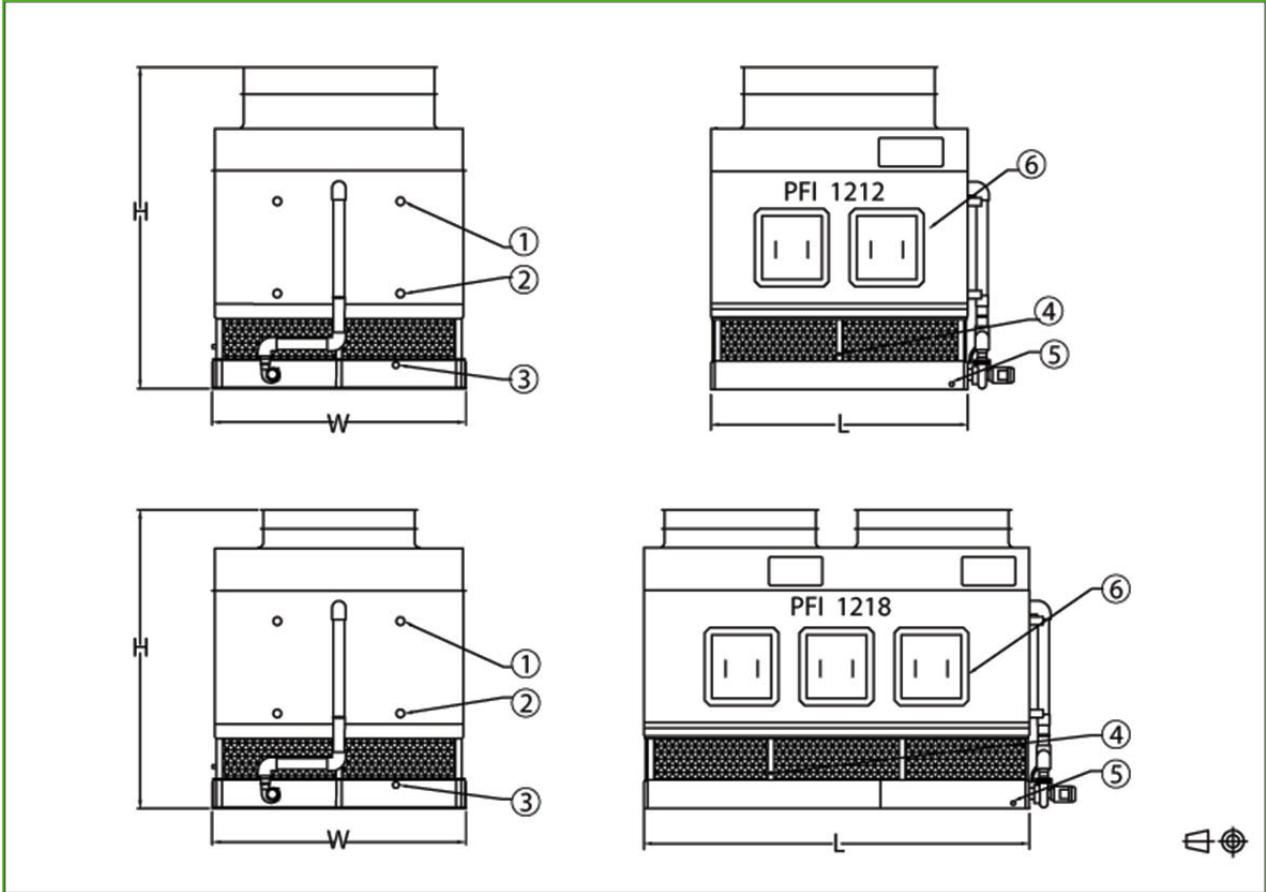
[PFI cooling tower performance at standard conditions - 30% PG](#)

[PFI cooling tower performance at standard conditions - water](#)

[PFI cooling tower - pressure drop](#)

Last update: 01/06/2023

PFI 1212E - 1218E



1. Fluid in; 2. Fluid out; 3. Overflow; 4. Make up; 5. Drain; 6. Coil Inspection Hatches.



Model	Weights (kg)			Dimensions (mm)			Air Flow (m ³ /s)	Fan Motor (kW)	Water Flow (l/s)	Pump Motor (kW)	Coil Volume (L)
	Oper. Weight (kg)	Ship. Weight(kg)	Heaviest Section (kg)	L	W	H					
PFI 12 12E-2D 3ES-L	9307	6297	4105	3651	3607	5535	35.2	(1x) 11.0	25.0	(1x) 4.0	(2x) 426
PFI 12 12E-2D 4DS-M	9307	6237	4019	3651	3607	5345	39.4	(1x) 15.0	25.0	(1x) 4.0	(2x) 456
PFI 12 12E-2D 4ES-O	9657	6565	4309	3651	3607	5535	43.2	(1x) 22.0	25.0	(1x) 4.0	(2x) 467
PFI 12 12E-3D 1DS-P	9688	6523	4196	3651	3607	5345	50.6	(1x) 30.0	25.0	(1x) 4.0	(2x) 504
PFI 12 12E-3D 2DS-P	10020	6759	4432	3651	3607	5345	48.7	(1x) 30.0	25.0	(1x) 4.0	(2x) 553
PFI 12 12E-3D 3DS-M	10247	6886	4667	3651	3607	5345	37.5	(1x) 15.0	25.0	(1x) 4.0	(2x) 602
PFI 12 12E-3D 3ES-N	10669	7292	5058	3651	3607	5726	38.9	(1x) 18.5	25.0	(1x) 4.0	(2x) 611
PFI 12 12E-3D 4DS-L	10619	7141	4949	3651	3607	5345	33.3	(1x) 11.0	25.0	(1x) 4.0	(2x) 660
PFI 12 12E-3D 4ES-P	11177	7678	5348	3651	3607	5726	43.9	(1x) 30.0	25.0	(1x) 4.0	(2x) 671
PFI 12 12E-4D 1DS-O	10728	7259	5003	3651	3607	5535	43.8	(1x) 22.0	25.0	(1x) 4.0	(2x) 657
PFI 12 12E-4D 1ES-O	10624	7140	5371	3651	3607	5916	42.3	(1x) 22.0	25.0	(1x) 4.0	(2x) 665
PFI 12 12E-4D 2DS-L	11105	7505	5312	3651	3607	5535	33.8	(1x) 11.0	25.0	(1x) 4.0	(2x) 722
PFI 12 12E-4D 2ES-P	11146	7530	5688	3651	3607	5916	44.6	(1x) 30.0	25.0	(1x) 4.0	(2x) 730
PFI 12 12E-4D 3DS-P	11677	7950	5620	3651	3607	5535	43.8	(1x) 30.0	25.0	(1x) 4.0	(2x) 787
PFI 12 12E-4D 4ES-N	12040	8134	6387	3651	3607	5916	35.7	(1x) 18.5	25.0	(1x) 4.0	(2x) 875
PFI 12 12E-5D 1DS-O	11840	8064	5806	3651	3607	5726	41.9	(1x) 22.0	25.0	(1x) 4.0	(2x) 810
PFI 12 12E-5D 1ES-L	12154	8361	6164	3651	3607	6082	32.6	(1x) 11.0	25.0	(1x) 4.0	(2x) 818
PFI 12 12E-5D 2ES-P	12839	8887	6554	3651	3607	6082	42.6	(1x) 30.0	25.0	(1x) 4.0	(2x) 899
PFI 12	13003	8904	6573	3651	3607	5726	41.5	(1x)	25.0	(1x)	(2x)



12E-5D 3DS-P								30.0		4.0	972
PFI 12 12E-5D 4ES-P	14056	9745	7412	3651	3607	6082	39.2	(1x) 30.0	25.0	(1x) 4.0	(2x) 1079
PFI 12 12E-6D 1DS-M	12912	8832	6609	3651	3607	5916	35.5	(1x) 15.0	25.0	(1x) 4.0	(2x) 963
PFI 12 12E-6D 1ES-P	13398	9301	6967	3651	3607	6272	42.8	(1x) 30.0	25.0	(1x) 4.0	(2x) 971
PFI 12 18E-2D 1DS-K	13243	8712	4794	5480	3607	5631	56.4	(2x) 7.5	39.0	(1x) 5.5	(2x) 508
PFI 12 18E-2D 2DS-L	13702	9076	5044	5480	3607	5631	62.7	(2x) 11.0	39.0	(1x) 5.5	(2x) 557
PFI 12 18E-2D 2ES-K	13974	9331	5411	5480	3607	5821	52.5	(2x) 7.5	39.0	(1x) 5.5	(2x) 566
PFI 12 18E-2D 3ES-L	14442	9699	5665	5480	3607	5821	58.1	(2x) 11.0	39.0	(1x) 5.5	(2x) 616
PFI 12 18E-2D 4DS-M	14519	9675	5588	5480	3607	5631	65.0	(2x) 15.0	39.0	(1x) 5.5	(2x) 665
PFI 12 18E-2D 4ES-M	14928	10062	5974	5480	3607	5821	62.7	(2x) 15.0	39.0	(1x) 5.5	(2x) 676
PFI 12 18E-3D 1DS-L	14873	9884	5851	5480	3607	5631	60.8	(2x) 11.0	39.0	(1x) 5.5	(2x) 739
PFI 12 18E-3D 1ES-O	15509	10503	6341	5480	3607	6012	73.1	(2x) 22.0	39.0	(1x) 5.5	(2x) 747
PFI 12 18E-3D 2DS-N	15459	10320	6205	5480	3607	5631	69.2	(2x) 18.5	39.0	(1x) 5.5	(2x) 813
PFI 12 18E-3D 2ES-O	16026	10871	6709	5480	3607	6012	70.8	(2x) 22.0	39.0	(1x) 5.5	(2x) 821
PFI 12 18E-3D 3DS-N	15958	10674	6559	5480	3607	5631	66.2	(2x) 18.5	39.0	(1x) 5.5	(2x) 886
PFI 12 18E-3D 3ES-L	16412	11111	7076	5480	3607	6012	54.5	(2x) 11.0	39.0	(1x) 5.5	(2x) 895
PFI 12 18E-3D 4DS-N	16557	11100	6985	5480	3607	5631	64.4	(2x) 18.5	39.0	(1x) 5.5	(2x) 974
PFI 12 18E-3D 4ES-O	17157	11679	7516	5480	3607	6012	66.3	(2x) 22.0	39.0	(1x) 5.5	(2x) 984
PFI 12 18E-4D 1DS-N	16603	11151	7035	5480	3607	5821	68.1	(2x) 18.5	39.0	(1x) 5.5	(2x) 971
PFI 12 18E-4D 1ES-O	16439	10973	7539	5480	3607	6202	69.8	(2x) 22.0	39.0	(1x) 5.5	(2x) 978
PFI 12 18E-4D	17116	11454	8020	5480	3607	6202	67.2	(2x) 22.0	39.0	(1x) 5.5	(2x) 1076



2ES-O												
PFI 12 18E-4D 3DS-M	17901	12059	7970	5480	3607	5821	58.1	(2x) 15.0	39.0	(1x) 5.5	(2x) 1165	
PFI 12 18E-4D 3ES-N	17747	11885	8496	5480	3607	6202	60.6	(2x) 18.5	39.0	(1x) 5.5	(2x) 1175	
PFI 12 18E-4D 4DS-M	18691	12618	8528	5480	3607	5821	56.4	(2x) 15.0	39.0	(1x) 5.5	(2x) 1282	
PFI 12 18E-4D 4ES-O	18600	12507	9072	5480	3607	6202	62.4	(2x) 22.0	39.0	(1x) 5.5	(2x) 1292	
PFI 12 18E-5D 1ES-L	18659	12729	8691	5480	3607	6367	53.7	(2x) 11.0	39.0	(1x) 5.5	(2x) 1210	
PFI 12 18E-5D 2ES-N	19576	13401	9280	5480	3607	6367	60.7	(2x) 18.5	39.0	(1x) 5.5	(2x) 1332	
PFI 12 18E-5D 3DS-O	19940	13540	9376	5480	3607	6012	62.6	(2x) 22.0	39.0	(1x) 5.5	(2x) 1445	
PFI 12 18E-6D 1DS-O	19958	13582	9417	5480	3607	6202	66.3	(2x) 22.0	39.0	(1x) 5.5	(2x) 1433	
PFI 12 18E-6D 1ES-O	20435	14042	9875	5480	3607	6558	64.5	(2x) 22.0	39.0	(1x) 5.5	(2x) 1441	
PFI 12 18E-6D 2DS-K	20698	14031	10106	5480	3607	6202	45.0	(2x) 7.5	39.0	(1x) 5.5	(2x) 1579	
PFI 12 18E-6D 3ES-O	22419	15445	11276	5480	3607	6558	58.6	(2x) 22.0	39.0	(1x) 5.5	(2x) 1734	

Sound attenuation

Closed circuit cooling towers

Engineering data

Remark: Do not use for construction. Refer to factory certified dimensions & weights. This page includes data current at time of publication, which should be reconfirmed at the time of purchase. In the interest of product improvement, specifications, weights and dimensions are subject to change without notice.

[PFI cooling tower performance at standard conditions - 30% EG](#)

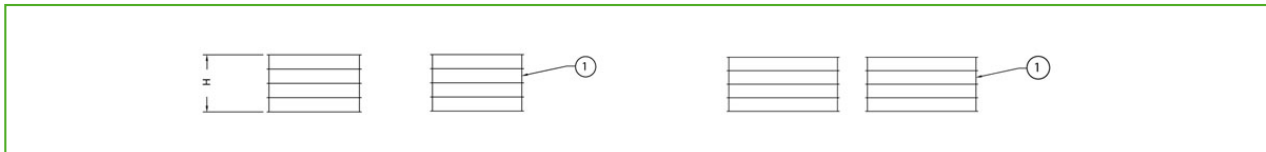
[PFI cooling tower performance at standard conditions - 30% PG](#)

[PFI cooling tower performance at standard conditions - water](#)

[PFI cooling tower - pressure drop](#)

Last update: 01/06/2023

Sound attenuation



1. Discharge attenuator.



Model	Dimensions (mm)		Weights (kg) Discharge
	D	Ht	
PFI 0709E-3D4BS-M	2133	5915	215
PFI 0709E-4D1BS-K	2133	6106	215
PFI 0709E-4D2BS-M	2133	6106	215
PFI 0709E-4D3BS-L	2133	6106	215
PFI 0709E-4D4BS-M	2133	6106	215
PFI 0709E-5D3BS-L	2133	6296	215
PFI 0709E-5D4BS-M	2133	6296	215
PFI 0709E-6D1BS-L	2133	6487	215
PFI 0709E-6D2BS-M	2133	6487	215
PFI 0718E-3D4BS-M	2133	6131	215
PFI 0718E-4D2BS-J	2133	6322	215
PFI 0718E-4D3BS-M	2133	6322	215
PFI 0718E-4D4BS-M	2133	6322	215
PFI 0718E-5D2BS-K	2133	6512	215
PFI 0718E-5D3BS-J	2133	6512	215
PFI 0718E-6D1BS-M	2133	6703	215
PFI 0809E-2D4BS-L	2133	5915	231
PFI 0809E-3D1BS-M	2133	5915	231
PFI 0809E-3D3BS-M	2133	5915	231
PFI 0809E-3D4BS-M	2133	5915	231
PFI 0809E-4D2BS-M	2133	6106	231
PFI 0809E-4D3BS-M	2133	6106	231
PFI 0809E-4D4BS-M	2133	6106	231
PFI 0809E-5D4BS-L	2133	6296	231
PFI 0809E-6D1BS-M	2133	6487	231
PFI 0812E-2D4BS-M	2133	6030	174
PFI 0812E-3D1BS-M	2133	6030	174
PFI 0812E-3D3BS-M	2133	6030	174
PFI 0812E-3D4BS-M	2133	6030	174
PFI 0812E-4D2BS-M	2133	6220	174
PFI 0812E-4D3BS-M	2133	6220	174
PFI 0812E-4D4BS-M	2133	6220	174
PFI 0812E-5D4BS-M	2133	6411	174
PFI 0812E-6D1BS-M	2133	6601	174
PFI 0818E-2D4BS-M	2133	6131	174
PFI 0818E-3D2BS-L	2133	6131	174
PFI 0818E-3D3BS-M	2133	6131	174
PFI 0818E-3D4BS-M	2133	6131	174
PFI 0818E-4D2BS-M	2133	6322	174
PFI 0818E-4D3BS-M	2133	6322	174
PFI 0818E-4D4BS-M	2133	6322	174
PFI 0818E-5D4BS-M	2133	6512	174
PFI 0818E-6D1BS-M	2133	6703	174
PFI 1009E-2D4BS-N	2336	6469	209
PFI 1009E-3D4BS-N	2336	6469	209
PFI 1009E-4D1BS-N	2336	6660	209
PFI 1009E-4D2BS-N	2336	6660	209
PFI 1009E-4D3BS-N	2336	6660	209
PFI 1009E-4D4BS-N	2336	6660	209
PFI 1009E-5D4BS-N	2336	6850	209
PFI 1009E-6D1BS-N	2336	7041	209
PFI 1012E-3D3BS-L	2336	6546	209
PFI 1012E-3D4BS-O	2336	6546	209
PFI 1012E-4D1BS-O	2336	6736	209
PFI 1012E-4D2BS-O	2336	6736	209
PFI 1012E-4D3BS-O	2336	6736	209



PFI 1012E-4D4BS-O	2336	6736	209
PFI 1012E-5D3BS-L	2336	6927	209
PFI 1012E-5D4BS-K	2336	6927	209
PFI 1012E-6D1BS-O	2336	7117	209
PFI 1212E-3D3BS-L	2743	6725	288
PFI 1212E-3D4BS-O	2743	6725	288
PFI 1212E-4D1BS-N	2743	6915	288
PFI 1212E-4D2BS-P	2743	6915	288
PFI 1212E-4D3BS-P	2743	6915	288
PFI 1212E-4D4BS-P	2743	6915	288
PFI 1212E-5D2BS-L	2743	7106	288
PFI 1212E-5D3BS-L	2743	7106	288
PFI 1212E-6D1BS-P	2743	7296	288
PFI 1212E-6D2BS-M	2743	7296	288
PFI 1218E-3D4BS-M	2336	7011	209
PFI 1218E-4D1BS-M	2336	7201	209
PFI 1218E-4D2BS-N	2336	7201	209
PFI 1218E-4D3BS-N	2336	7201	209
PFI 1218E-4D4BS-M	2336	7201	209
PFI 1218E-5D2BS-K	2336	7392	209
PFI 1218E-5D3BS-N	2336	7392	209
PFI 1218E-6D1BS-O	2336	7582	209
PFI 1218E-6D2BS-O	2336	7582	209
PFI 1218E-6D3BS-O	2336	7582	209
PFI 0709E-2D3DS-H	2133	5915	215
PFI 0709E-3D1DS-K	2133	5915	215
PFI 0709E-3D1ES-H	2133	6296	215
PFI 0709E-3D2DS-K	2133	5915	215
PFI 0709E-3D2ES-L	2133	6296	215
PFI 0709E-3D3DS-K	2133	5915	215
PFI 0709E-3D4DS-M	2133	5915	215
PFI 0709E-4D1DS-L	2133	6106	215
PFI 0709E-4D1ES-H	2133	6487	215
PFI 0709E-4D2DS-M	2133	6106	215
PFI 0709E-4D2ES-K	2133	6487	215
PFI 0709E-4D3ES-J	2133	6487	215
PFI 0709E-4D4DS-J	2133	6106	215
PFI 0709E-5D1ES-M	2133	6652	215
PFI 0709E-5D2DS-M	2133	6296	215
PFI 0709E-5D2ES-K	2133	6652	215
PFI 0709E-5D3ES-L	2133	6652	215
PFI 0709E-5D4DS-K	2133	6296	215
PFI 0709E-6D1DS-M	2133	6487	215
PFI 0709E-6D1ES-M	2133	6842	215
PFI 0709E-6D2DS-J	2133	6487	215
PFI 0709E-6D2ES-L	2133	6842	215
PFI 0718E-2D1DS-L	2133	6131	215
PFI 0718E-2D2DS-K	2133	6131	215
PFI 0718E-2D3DS-K	2133	6131	215
PFI 0718E-2D3ES-L	2133	6322	215
PFI 0718E-2D4ES-M	2133	6322	215
PFI 0718E-3D1DS-J	2133	6131	215
PFI 0718E-3D1ES-L	2133	6512	215
PFI 0718E-3D2DS-K	2133	6131	215
PFI 0718E-3D2ES-H	2133	6512	215
PFI 0718E-3D3DS-M	2133	6131	215
PFI 0718E-3D4DS-M	2133	6131	215
PFI 0718E-4D1ES-H	2133	6703	215
PFI 0718E-4D2DS-J	2133	6322	215
PFI 0718E-4D2ES-M	2133	6703	215
PFI 0718E-4D3DS-M	2133	6322	215



PFI 0718E-4D4DS-M	2133	6322	215
PFI 0718E-5D1ES-M	2133	6868	215
PFI 0718E-6D1DS-H	2133	6703	215
PFI 0718E-6D1ES-L	2133	7058	215
PFI 0718E-6D2DS-M	2133	6703	215
PFI 0718E-6D2ES-M	2133	7058	215
PFI 0809E-2D4DS-M	2133	5915	231
PFI 0809E-2D4ES-L	2133	6106	231
PFI 0809E-3D1DS-M	2133	5915	231
PFI 0809E-3D4DS-M	2133	5915	231
PFI 0809E-3D4ES-L	2133	6296	231
PFI 0809E-4D1DS-M	2133	6106	231
PFI 0809E-4D2DS-M	2133	6106	231
PFI 0809E-4D4DS-M	2133	6106	231
PFI 0809E-4D4ES-M	2133	6487	231
PFI 0809E-5D1DS-M	2133	6296	231
PFI 0809E-5D2DS-M	2133	6296	231
PFI 0809E-5D2ES-M	2133	6652	231
PFI 0809E-6D1DS-M	2133	6487	231
PFI 0809E-6D1ES-M	2133	6842	231
PFI 0812E-2D4DS-M	2133	6030	174
PFI 0812E-2D4ES-M	2133	6220	174
PFI 0812E-3D1DS-L	2133	6030	174
PFI 0812E-3D2DS-M	2133	6030	174
PFI 0812E-3D4DS-M	2133	6030	174
PFI 0812E-3D4ES-M	2133	6411	174
PFI 0812E-4D1DS-M	2133	6220	174
PFI 0812E-4D2DS-M	2133	6220	174
PFI 0812E-4D2ES-M	2133	6601	174
PFI 0812E-4D4DS-M	2133	6220	174
PFI 0812E-5D2DS-K	2133	6411	174
PFI 0812E-5D2ES-M	2133	6766	174
PFI 0812E-6D1DS-M	2133	6601	174
PFI 0812E-6D1ES-M	2133	6957	174
PFI 0818E-2D4DS-M	2133	6131	174
PFI 0818E-2D4ES-M	2133	6322	174
PFI 0818E-3D2DS-L	2133	6131	174
PFI 0818E-3D2ES-M	2133	6512	174
PFI 0818E-3D4DS-M	2133	6131	174
PFI 0818E-3D4ES-M	2133	6512	174
PFI 0818E-4D2DS-M	2133	6322	174
PFI 0818E-4D2ES-M	2133	6703	174
PFI 0818E-4D3DS-M	2133	6322	174
PFI 0818E-4D4DS-M	2133	6322	174
PFI 0818E-4D4ES-M	2133	6703	174
PFI 0818E-5D2ES-L	2133	6868	174
PFI 0818E-6D1DS-K	2133	6703	174
PFI 0818E-6D1ES-M	2133	7058	174
PFI 1009E-2D4DS-L	2336	6469	209
PFI 1009E-2D4ES-N	2336	6660	209
PFI 1009E-3D1DS-K	2336	6469	209
PFI 1009E-3D4DS-N	2336	6469	209
PFI 1009E-3D4ES-K	2336	6850	209
PFI 1009E-4D1DS-N	2336	6660	209
PFI 1009E-4D3DS-N	2336	6660	209
PFI 1009E-4D3ES-N	2336	7041	209
PFI 1009E-5D1DS-M	2336	6850	209
PFI 1009E-5D1ES-M	2336	7206	209
PFI 1009E-6D1DS-N	2336	7041	209
PFI 1009E-6D1ES-N	2336	7396	209
PFI 1012E-2D2ES-L	2336	6736	209



PFI 1012E-2D4ES-K	2336	6736	209
PFI 1012E-3D1DS-N	2336	6546	209
PFI 1012E-3D2DS-O	2336	6546	209
PFI 1012E-3D2ES-N	2336	6927	209
PFI 1012E-3D3DS-N	2336	6546	209
PFI 1012E-3D4DS-L	2336	6546	209
PFI 1012E-3D4ES-O	2336	6927	209
PFI 1012E-4D1DS-O	2336	6736	209
PFI 1012E-4D2DS-K	2336	6736	209
PFI 1012E-4D2ES-N	2336	7117	209
PFI 1012E-4D3ES-N	2336	7117	209
PFI 1012E-4D4ES-O	2336	7117	209
PFI 1012E-5D2DS-O	2336	6927	209
PFI 1012E-6D1DS-N	2336	7117	209
PFI 1012E-6D1ES-O	2336	7473	209
PFI 1012E-6D3DS-O	2336	7117	209
PFI 1212E-2D3ES-L	2743	6915	288
PFI 1212E-2D4DS-M	2743	6725	288
PFI 1212E-2D4ES-O	2743	6915	288
PFI 1212E-3D1DS-P	2743	6725	288
PFI 1212E-3D2DS-P	2743	6725	288
PFI 1212E-3D3DS-M	2743	6725	288
PFI 1212E-3D3ES-N	2743	7106	288
PFI 1212E-3D4DS-L	2743	6725	288
PFI 1212E-3D4ES-P	2743	7106	288
PFI 1212E-4D1DS-O	2743	6915	288
PFI 1212E-4D1ES-O	2743	7296	288
PFI 1212E-4D2DS-L	2743	6915	288
PFI 1212E-4D2ES-P	2743	7296	288
PFI 1212E-4D3DS-P	2743	6915	288
PFI 1212E-4D4ES-N	2743	7296	288
PFI 1212E-5D1DS-O	2743	7106	288
PFI 1212E-5D1ES-L	2743	7462	288
PFI 1212E-5D2ES-P	2743	7462	288
PFI 1212E-5D3DS-P	2743	7106	288
PFI 1212E-5D4ES-P	2743	7462	288
PFI 1212E-6D1DS-M	2743	7296	288
PFI 1212E-6D1ES-P	2743	7652	288
PFI 1218E-2D1DS-K	2336	7011	209
PFI 1218E-2D2DS-L	2336	7011	209
PFI 1218E-2D2ES-K	2336	7201	209
PFI 1218E-2D3ES-L	2336	7201	209
PFI 1218E-2D4DS-M	2336	7011	209
PFI 1218E-2D4ES-M	2336	7201	209
PFI 1218E-3D1DS-L	2336	7011	209
PFI 1218E-3D1ES-O	2336	7392	209
PFI 1218E-3D2DS-N	2336	7011	209
PFI 1218E-3D2ES-O	2336	7392	209
PFI 1218E-3D3DS-N	2336	7011	209
PFI 1218E-3D3ES-L	2336	7392	209
PFI 1218E-3D4DS-N	2336	7011	209
PFI 1218E-3D4ES-O	2336	7392	209
PFI 1218E-4D1DS-N	2336	7201	209
PFI 1218E-4D1ES-O	2336	7582	209
PFI 1218E-4D2ES-O	2336	7582	209
PFI 1218E-4D3DS-M	2336	7201	209
PFI 1218E-4D3ES-N	2336	7582	209
PFI 1218E-4D4DS-M	2336	7201	209
PFI 1218E-4D4ES-O	2336	7582	209
PFI 1218E-5D1ES-L	2336	7747	209
PFI 1218E-5D2ES-N	2336	7747	209



PFI 1218E-5D3DS-O	2336	7392	209
PFI 1218E-6D1DS-O	2336	7582	209
PFI 1218E-6D1ES-O	2336	7938	209
PFI 1218E-6D2DS-K	2336	7582	209
PFI 1218E-6D3ES-O	2336	7938	209