

Platform **TRF Evolution**

TRF DX A

DATA CENTER

INDUSTRIAL

AIR CONDENSED PERIMETER MOUNTED UNITS FOR DATA CENTERS

23.9–160.1 kW



MULTI-PROTOCOL COMMUNICATION INTERFACE	SCROLL COMPRESSORS
EC RADIAL FANS	MODBUS CONTROLLED FANS
FAST RESTART	ON-BOARD HUMIDIFIER
MODULATING HOT GAS POST-HEATING	LOW GWP REFRIGERANT

The TRF DX series perimeter mounted units are direct expansion units with Scroll on-off compressors designed to be installed in medium/large-sized premises such as server rooms and labs or for applications where **accurate control of thermo-hygrometric parameters and round-the-clock operation are required**. The top priority for internal design and for the choice of components is **energy efficiency to optimise the system overall electricity** consumption with a positive impact on the Data Center Power Usage Effectiveness (PUE).

Versatile and flexible range

Thanks to different refrigerating configurations available, the **TRF DX** range is suitable for a number of applications in the field of Data Center air conditioning.

TRF A

Air condensed with remote condenser

TRF W

Dry Cooler or Evaporative tower water condensed

TRF Z

Mains water condensed (15°C)

TRF F

Water condensed and indirect water Free-Cooling

TRF D

Air condensed with remote condenser and Dual Cooling

TRF K

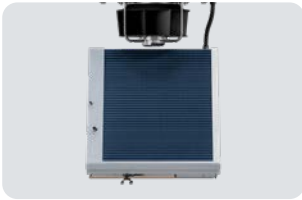
Evaporative tower water condensation or Dry Cooler and Dual Cooling

TRF Q

Mains water condensed (15°C) and Dual Cooling

TRF DX A units are air-condensed perimeter-mounted units in the TRF range; they are widely used for the cooling of Data Centers. The air-condensed solution offers a **simple system design**, thanks to the absence of auxiliary circuits and pumps; **the cooling circuit is managed by the cabinet**, and both the indoor unit and the remote condenser are **easy to install**.

- Refrigerant R410A: Also available with R513A and R134a
- EC Fans
- Scroll on/off compressors
- Temperature control through heating and post-heating systems with electric heating elements, hot water and hot gas (optional)
- Humidity control through dehumidification and humidification (optional)
- Broad choice of accessories, including base modules and plenums for ducting
- Air filter class G3 as standard. Air Filters G4, M5, F7 (optional)
- Double power supply with automatic switch (optional)
- Constant-flow (airflow control) or constant available overpressure (ΔP control) ventilation modulation (optional)
- Electronic expansion valves (optional)
- Low temperature kits for optimal operation in the case of installation in particularly cold environments (on request)
- Long distance kits for optimal operation in the event of large distances between indoor and outdoor units (on request)



Safety in the server room

All models in the TRF DX A range feature heat exchange coils with hydrophilic coating as standard. This special coating - together with an adequate selection of air through-flow speeds - **aids condensate collection during the dehumidification process, preventing any dripping on the inside and outside of the unit.**



Efficiency

The performance, reliability and efficiency of HiRef units are guaranteed **by using the best quality components and by cleverly designed internal and external layouts.**



Easier scheduled maintenance

The unit has been painstakingly designed to ensure frontal access to components. This makes **routine maintenance easier in full compliance with safety standards.**



Remote condensers

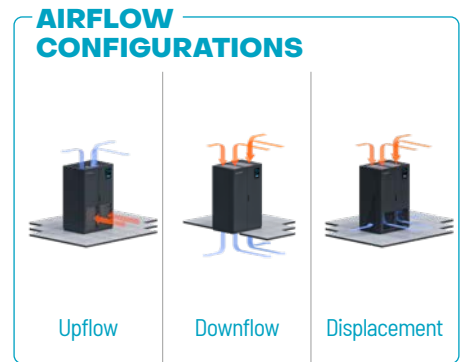
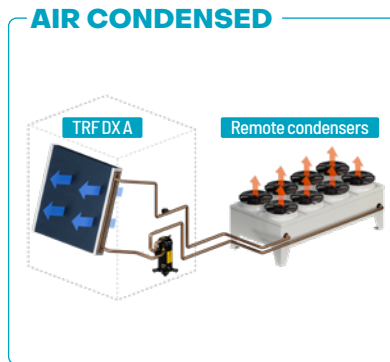
All units can be combined with HiRef remote condensers, choosing from **different combinations to meet all system needs. Oversize remote condensers** are ideal for warmer environments, where it is necessary to keep the condensing temperature under control, while **the compact condensers** on the other hand are small in terms of both size and consumption. The condensers, used with dual-circuit units, are available with a single cooling circuit for **maximum reliability and redundancy of the system** or with a double cooling circuit, **to reduce installation spaces and costs.**

Green

HiRef is constantly committed to the search for refrigerants with **ever-lower environmental impact.** The use of ASHRAE Class A1 refrigerants, non-toxic and non-flammable, is essential for close control application. TRF DX A units are available with R134a and R513A refrigerants.

Dual circuit

Double-circuit versions are already available at low power levels. This solution offers **maximum unit redundancy and ensures continuity of service, more precise refrigerating power and less absorption for partial Data Center loads.**



TRF DX A	0241	0261	0291	0331	0361	0391	0441	0481	0521	0382	0432	0492	0532	0602	0632	0682	0762	0802	0872	0962	1204	1304
Air temperature 24°C - Relative humidity 50% / Outdoor Air Temperature 35°C																						
Cooling capacity	kW																					
SHR	23.9	26.4	29.5	33.5	36.5	39.9	44.3	48.6	52.4	38.7	43.4	48.6	53.7	61.2	64.2	69.7	78	81.6	89.5	98.2	122.1	134
EER	1	1	1	1	1	1	1	0.95	1	1	1	1	1	1	0.92	1	1	0.92	1	0.99	0.93	0.88
Total absorbed power	4	3.99	3.89	4.34	4.41	4.08	4.09	4.44	4.22	4.63	4.13	4.09	4.05	4.06	4.22	4.05	3.99	4.23	3.96	3.95	4.07	3.87
	7.2	7.9	8.8	9.5	10	11.5	12.6	13.6	15.1	11	13.2	14.5	15.9	17.7	19.2	21.1	23.5	25.2	28.5	30.7	35.9	40.5
Air temperature 30°C - Relative humidity 35% / Outdoor air Temperature 35°C																						
Cooling capacity	kW																					
SHR	27.3	29.7	33.1	38.1	41.3	44.8	48.8	54.8	59	44.1	49.5	55.7	60.5	67.8	72.5	78.3	86.1	92.1	99.9	107.9	135.9	145.6
EER	1	0.99	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.99
Total absorbed power	4.39	4.37	4.25	4.83	4.94	4.45	4.4	4.89	4.62	5.11	4.5	4.51	4.44	4.39	4.64	4.51	4.31	4.64	4.3	4.26	4.46	4.11
	7.4	8	9	9.7	10.1	11.8	12.9	13.9	15.4	11.3	13.6	15	16.3	18.1	19.5	21.3	23.9	25.7	29.1	31.2	36.3	41.3
Air temperature 35°C - Relative humidity 30% / Outdoor air temperature 35°C																						
Cooling capacity	kW																					
SHR	29.8	32.7	36.3	41.8	45.2	48.9	53.5	60.1	64.6	47.2	54	60.9	66.5	74.3	79.8	85.5	93.9	101.5	108.9	118.6	148.7	160.1
EER	1	1	1	1	1	1	1	1	1	0.85	1	1	1	1	1	1	1	1	1	1	1	1
Total absorbed power	4.71	4.7	4.61	5.19	5.31	4.74	4.73	5.24	4.93	5.36	4.77	4.79	4.82	4.75	5.03	4.83	4.57	5.06	4.58	4.61	4.79	4.47
	7.6	8.2	9.1	9.8	10.3	12.1	13.1	14.1	15.8	11.5	14	15.4	16.4	18.3	19.8	21.7	24.5	25.9	29.6	31.6	36.9	41.7
Rated air flow	m ³ /h																					
Number of circuits	8800	8800	8800	11800	11800	15500	11800	15500	11800	15500	15500	15500	15500	15500	19900	19900	19900	25300	25300	25300	32100	32100
Number of compressors	1	1	1	1	1	2	1	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2
Lp @ Nominal rpm ; dist.= 2 m Q=2	61	62	63	66	71	67	71	67	71	67	71	67	71	67	71	67	71	67	71	67	71	67
Dimensions [LxHxD]	mm																					
	1010	2000	890	1270	2000	1760	2000	1270	1760	2000	1760	2000	1760	2000	2020	2000	890	2510	2000	890	3160	2000
Power supply	V/ph/Hz																					
	400/3+N/50																					

Performance data relating to Downflow versions with R410A refrigerant combined with standard HiRef remote condenser. | Also available with 60 Hz power supply. | Height of model Displacement 2250 mm.