HI-LINE INDUSTRIES

Tundra

Refrigeration Air Dryers

NEW FOR 2016
ENERGY SAVING CONTROLLER AS STANDARD

HIGH PERFORMANCE OIL & PARTICULATE FILTERS TO SUIT DRYER RANGE

REFCOM Register of Companies Competent to Handle Refrigerants Registered Certification Mark

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LOW Carbon Footprint

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Tundra Refrigerant Air Dryers

The new generation of Hi-line Fridge Dryers has been designed with energy efficiency and reliability at the forefront.

Minimal energy consumption is crucial in today's competitive environment, the new Tundra dryer from Hi-line will help drive down your energy costs by minimising pressure drop and lowering absorbed power. The Direct Expansion technology offers a constant +3°c dewpoint at all times, unlike chilled mass dryers which can be as high as +10°c during its thermal cycle.

The new single cell heat exchanger gives the most efficient transfer of heat at the lowest energy cost. By using proven worldwide components within the Tundra refrigerant system reliability is ensured. It also features within that refrigerant system, liquid receivers, line dryers, thermostatic expansion valves and a series of safety features to protect the Freon compressor and its components. The Tundra range has been designed to an engineering specification rather than a budget.

Larger dryers up to 9988 cfm are available on short lead-time, although our standard range as featured here are available ex-stock at our Burton factory for next day delivery.

Technical Specifications - Tundra Refrigerant Air Dryers

Fridge Model	cfm	M3/min	M3/hr	Conn	Weight Kg	Dimensions W x L x H mm	Power Supply	Refrigerant
TUNDRA21	21	0.59	35	1/2"	18	307 x 375 x 386	230-1-50	R134A
TUNDRA36	36	1.02	66	1/2"	26	365 x 455 x 500	230-1-50	R134A
TUNDRA50	50	1.41	85	1/2"	26	365 x 455 x 500	230-1-50	R134A
TUNDRA68	68	1.92	115	¾"	33	410 x 560 x 550	230-1-50	R134A
TUNDRA90	90	2.55	152	1"	38	410 x 560 x 550	230-1-50	R134A
TUNDRA120	120	3.39	199	1"	38	410 x 560 x 550	230-1-50	R407C
TUNDRA159	159	4.50	270	1 1/2"	64	518 x 605 x 667	230-1-50	R407C
TUNDRA210	210	5.94	365	1 1/2"	87	440 x 600 x 960	230-1-50	R407C
TUNDRA295	295	8.35	496	1 1/2"	90	440 x 600 x 960	230-1-50	R407C
TUNDRA409	409	11.58	692	1 1/2"	120	642 x 762 x 1454	230-1-50	R407C
TUNDRA465	465	13.16	788	1 1/2"	130	642 x 762 x 1454	230-1-50	R407C
TUNDRA600	600	16.99	1000	2"	173	642 x 762 x 1454	443-3-50	R407C
TUNDRA770	770	21.80	1300	2 ½"	175	642 x 762 x 1454	443-3-50	R407C
TUNDRA1020	1,020	28.88	1725	3"	300	672 x 1256 x 1525	440-3-50	R407C
TUNDRA1330	1,330	37.66	2250	3"	300	672 x 1256 x 1525	440-3-50	R407C
TUNDRA1605	1,605	45.43	2720	4"	330	727 x 1256 x 1525	440-3-50	R407C

HIGH PRESSURE AND THERMAL MASS VERSIONS ARE AVAILABLE TO ORDER

Standard Reference Conditions (in accordance to ISO 7183)

Inlet compressed air pressure: 7 barg
Inlet compressed air temperature: 35°C @ 100% RH
Ambient air temperature: 25°C
Minimum pressure dew point (PDP): 3°C Class 4 (ISO 8573-1)

Capacity Correction for Various Operating Pressure

Pressure - barg	4	5	6	7	8	10	12	14	16
Factor (Pc)	0.77	0.86	0.93	1	1.05	1.14	1.21	1.27	1.34

Ambient Temperature - °C	20	25	30	35	40	45	50
Factor (Ac)	0.92	1	0.96	0.90	0.82	0.72	0.60

Inlet Temperature - °C	25	30	35	40	45	50	55	60
Factor (Lc)	1.2	1.12	1	0.83	0.69	0.59	0.50	0.44

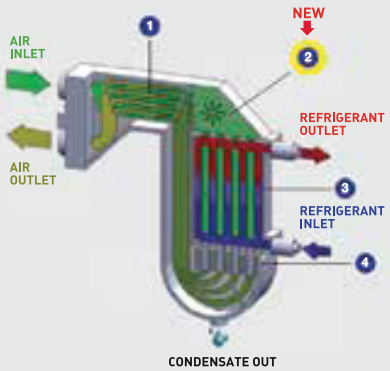
Energy Saving Controller

Within the multifunctional dryer controller the display indicates the dryer running dewpoint. Should the dryer go on to light duty (i.e. reduced airflow) the refrigerant gas pressure is monitored and adjusted accordingly.

The dryer has a built in energy saving device which will stop the compressor and await the refrigerant gas pressure to rise to a pre-set value before starting again. This feature thus reduces energy and also maintains a consistent dryer dewpoint of +3°c pdp at all times.

Ultra High Efficiency Heat Exchanger

The main part of the refrigeration air dryer is the heat exchanger. This compact aluminium module contains the various stages for the treatment of compressed air.



1. **Air/air exchanger** where the first phase is carried out. In this section the air coming in is pre-cooled and the air going out is post-heated. This allows the reduction of the energy consumption of the chiller circuit and reduces the possibility of condensate forming on the outer surface of the pipe leaving the dryer and the compressed air network.
2. **Flow mixing chamber** Unlike other exchangers on the market, the module that we have designed has a flow mixing chamber at the outlet of the air/air exchanger. This passage is very important because the air temperatures at the outlet of the air/air exchanger channels are not stable. Mixing enables the air flow to enter the evaporator channels at a uniform temperature, thus allowing optimum exchange.
3. **Evaporator** The air now pre-cooled in the air/air exchanger and mixed in the mixing chamber enters the evaporator and is cooled to dew point. The heat is transferred to the cooling fluid which evaporates.
4. **Demister** The air cooled in the evaporator passes through a demister separator which allows the condensate to drain into a large collecting chamber. The geometry of the module and of the demister allows load loss values to be kept low.

Example of dryer selection:

Which dryer is required to handle the following worst case conditions?

Maximum compressed air flow of 165cfm. Lowest operating pressure of 10 barg, Maximum ambient air temperature of 35°c, Maximum air inlet temperature of 40°c.

Corrected Capacity is:

Actual Capacity: (Pc*Ac*Lc)= 165*1.14*0.90*0.83 = 140 cfm
Dryer selection will be Tundra 159 +3°c PDP.

General Information

- Operating pressure range 2 to 16 barg.
- Maximum inlet air temperature 60°c
- Ambient Air temperature : 0°c to 50°c
- Constant +3°c dewpoint delivered at all times, unlike thermal dryers.
- High pressure range available with pressure up to 50 barg.
- Dewpoint Indicator as standard, digital on larger models.
- Illuminated "Power On" switch
- Option of Zero Loss or HTD condensate removal.

Hi-line Industries Ltd.
5 Crown Industrial Estate
Oxford Street
Burton-upon-Trent
Staffordshire
DE14 3PG

Tel: **01283 533 377** Fax: **01283 533 367**

Email: **enquiries@hilineindustries.com**

www.hilineindustries.com