DE;TECH

Energy saving refrigeration dryers
32 – 954 CFM

- ✓NEW HIGH EFFICIENCY HEAT EXCHANGER
- ✓HIGHEST ENERGY SAVINGS
- ✓MINIMUM PRESSURE DROPS
- ✓LOWEST ENVIRONMENTAL IMPACT
- ✓REDUCED CARBON FOOTPRINT
- ✓EASY INSTALLATION
- ✓EASY SERVICEABILITY
- ✓MAXIMUM RELIABILITY

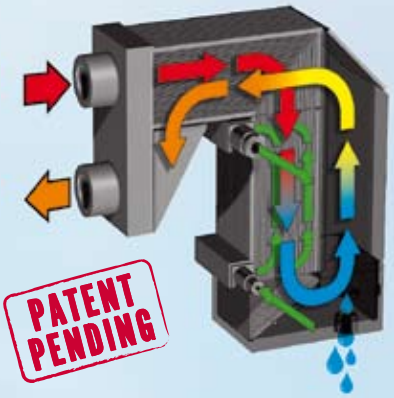
**Purifying your compressed air,
increasing your efficiency.**

MTA®
Cooling, conditioning, purifying.

DRY ENERGY - iTECH

With the introduction of **DE iTECH**, the new generation of energy-saving refrigeration dryers, MTA not only renews its product offering for the compressed air treatment but also reinterprets the concept of **THERMAL STORAGE OPERATION**, that made the international success of the DE Hybrid dryers.
The new **IMPULSE TECHNOLOGY** offers important advantages in terms of energy saving, reliability and operating costs as the **DE iTECH** dryer is able to adapt itself to the real needs of the compressed air system. The regulation system of the dryer controls the dryer operation granting the most energetically effective method of compressed air drying, achieving high energy saving and ensuring at the same time an excellent dew point stability also in dynamic conditions.

HIGH EFFICIENCY HEAT EXCHANGER



NEW ADVANCED 3-IN-1 HEAT EXCHANGER

3-in-1 compact aluminium heat exchanger including an Air-Air heat exchanger, the evaporator and a separator combined in a single module. This advanced heat exchanger has been engineered specifically to maximize the heat transfer coefficient and to guarantee industry leading pressure drops.

Air-to-Air Heat Exchanger

Hot and moist air enters the Air-to-Air heat exchanger where it exchanges heat in total counter flow with the outgoing cold air. Precooling saves energy by reducing the heat load on the evaporator section.

Evaporator (Air-to-Refrigerant Heat Exchanger)

The pre-cooled air enters the evaporator where it is cooled to the required dew point by exchanging heat in counter flow with the evaporating refrigerant, allowing maximum thermal exchange. The dew point temperature is held within its optimum performance range by the microprocessor even under differing ambient conditions.

Demister Separator

After cooling the cold air enters the high efficiency stainless steel separator where the condensate is removed by a demister falling into the generously dimensioned drainage chamber or sump for disposal through the microprocessor controlled drain. The cold dry compressed air passes through the secondary side of the Air-to-Air heat exchanger where it is reheated by the hot inlet air it is precooling. Reheating prevents down-stream pipe sweating.

IMPULSE TECHNOLOGY

The microprocessor adapts the working cycle to the real working conditions by controlling through "impulses" the opening and closing of the solenoid valve.

HIGH-PERFORMANCES CONDENSER

The air-cooled condenser is designed to ensure operation up to 50°C external temperature and to achieve very high energy efficiency values. DEiT 009 – 032 are supplied with tubeless condenser with steel fins protected by a double layer dipping painting. DEiT 040 – 270 are equipped with a condenser coil with copper tubes and aluminium fins. Thanks to the ducted condenser coil, the maintenance activities are possible also with dryer ON. Condenser filters standard on DEiT 100 – 270.

REFRIGERATION COMPRESSORS FULLY HERMETIC

Piston compressors (DEiT 009 – 140) ensure high reliability and long service life.
Scroll compressors (DEiT 165 – 270) offer reduced energy consumptions, low vibrations, less moving parts and high reliability.

HIGH EFFICIENCY 3-IN-1 HEAT EXCHANGER

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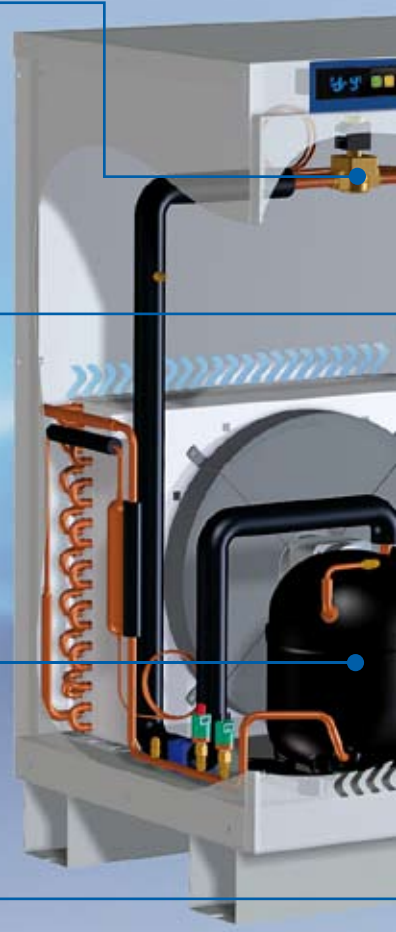


IMPULSE TECHNOLOGY Energy Saving

This revolutionary design matches energy consumption to the work load to achieve energy savings while in operation. Thanks to some sensors placed on the refrigeration and on the compressed air circuits, the microprocessor controls the dryer operation granting the most energetically effective method of compressed air drying.

- For high/medium flows, the dryer applies the I.T. to regulate its drying capacity.
- For low air flows, the dryer utilizes the thermal storage operation.

Impulse technology for high/medium air flows: The refrigerant compressor is permanently ON to achieve a perfect control of the dew point. The microprocessor controls through "impulses" the opening and closing of a solenoid valve installed on the suction pipe of the refrigerant compressor, in partial load conditions then only a small portion of the nominal refrigerant flows through a by-pass capillary to the compressor. In partial load conditions the compressor compresses less refrigerant than at peak load and therefore it consumes less energy (refrigerant flow control technology).

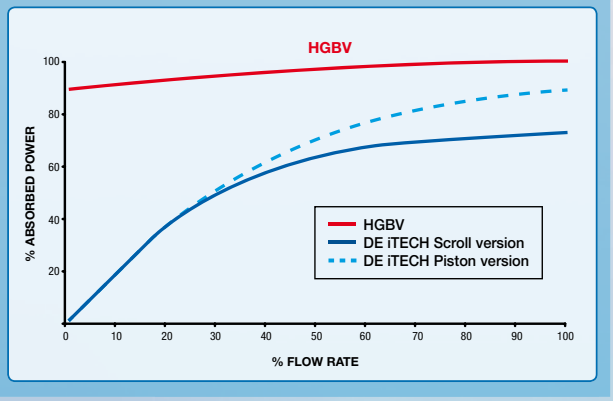
Thermal STORAGE operation for low air flows: The refrigerant compressor cycles ON/OFF for maximum savings and reliability. Since the refrigeration capacity is greater than the load, the excess capacity cools the all-in-one exchanger that acts like a thermal storage.

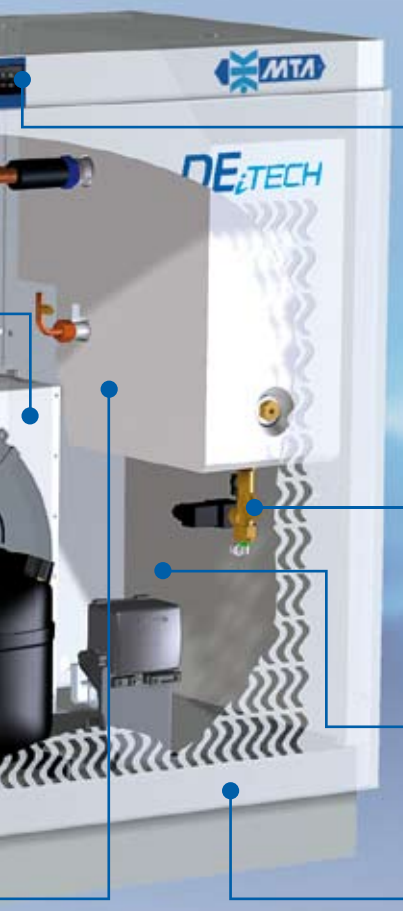
ENERGY SAVING COMPARISON

Normally a refrigeration dryer is sized to reach its nominal performance even in the most extreme conditions. In reality, these conditions are rarely achieved and the dryer works at partial load for most of its operating life.
This is due to both the high variability of the compressed air flow of industrial plants and for the average operating temperature that normally is lower than the temperature used to select the dryer itself. Only a dryer capable to adapt its working cycle to the real working conditions can provide a real energy savings.

Hot Gas by-pass Valve (HGBV): "Non cycling" dryers work with the refrigerant compressor continuously running independently from the inlet condition, using a by-pass valve to control evaporating pressure. Energy consumption remains almost constant also in absence of compressed air flow.

Impulse Technology (iTECH): Impulse Technology combines the technologies of regulation by impulses of the refrigerant flow (cooling capacity control for medium/high compressed air flow) and thermal storage effect (low compressed air flow) to produce maximum energy savings and the lowest dew point.





ELECTRIC POWER AND CONTROL PANEL

The control section is electrically isolated from the power section through a transformer. On DEiT 100 – 270 the power section is fitted with an interlocked door main switch to prevent access while power supply is ON. Electrical equipment is compliant with EN 60204-1 and electrical panel protection degree IP54 compliant with EN 60529 (DEiT 100 – 270) . The dryer is tested for electromagnetic compatibility in accordance with applicable EMC standards. A phase monitor (DEiT 165 – 270) provides protection against phase loss and phase reversal.

CONDENSATE DRAINS

All the dryers have microprocessor controlled drains. The drain open time and cycle time are fully adjustable and the settings can be locked in to avoid tampering.
Zero loss drain (option): a level sensor measures the level of the condensed moisture and automatically opens a valve to drain it off, preventing any pressure loss.

ENVIRONMENTALLY FRIENDLY REFRIGERANTS

R134a refrigerant: DEiT 009 – 080
R404A refrigerant: DEiT 100 – 270

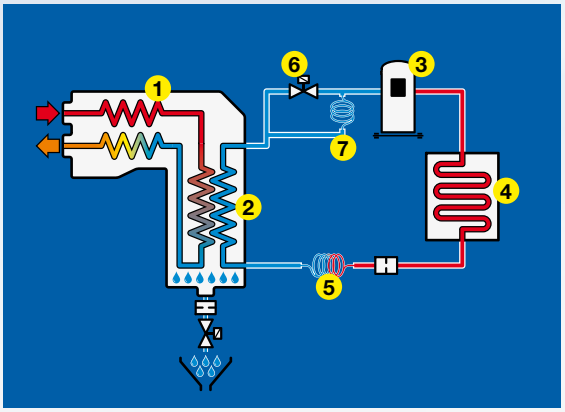
ROBUST CABINET AND STRUCTURE

Heavy duty structure with panels protected by an epoxy polyester power coating RAL 7035. Simple and safe handling by forklift or pallet truck.

ADVANCED DIGITAL CONTROL

DE iTECH features advanced microprocessor control technology, with all models fitted with easy to use digital controls.
A comprehensive digital display keeps the user fully informed. Maintenance operations are simplified, and remote supervision RS485 can easily be supplied.

- The display shows continuously with icon-based menus the following parameters:
  - Status of the dryer (OFF/dry/hdP);
  - Status of the compressor;
  - Status of condensate drain;
  - Energy saving level;
  - Alarms.
- 3 coded alarms ensuring faultless dryer operation.
- Programmable user alarm.
- Service warning, informing user that preventive maintenance should be carried out.
- Condensate drain control and programming, including manual drain test function.
- Remote ON/OFF function.
- Potential-free general alarm contact for remote alarm indication.
- Possibility to connect the dryer to a supervisor system via RS485 Modbus (option).



HOW IT WORKS

Hot moist compressed air enters the Air-to-Air heat exchanger (1) where it is precooled by the dry air leaving the dryer. The refrigerant compressor (3) compresses the refrigerant gas and push it through the condenser (4) where it is condensed in high pressure liquid.
The refrigerant liquid then passes through a capillary (5) that meters it into the evaporator (2) as a low pressure liquid. The microprocessor adapts the working cycle to the real working conditions by controlling through "impulses" the opening and closing of the solenoid valve (6). In partial load conditions only a small portion of the refrigerant flows through the by-pass capillary (7) to the compressor that therefore consumes less energy.
The precooled air enters the evaporator (2) where it is cooled to the required dew point by the incoming refrigerant liquid that changes phase and becomes a low pressure gas suitable to continue the process as it returns to the suction side of the refrigerant compressor (3).
The exiting cold dry compressed air then returns to the Air-to-Air heat exchanger (1) where it is reheated by the incoming air, to prevent sweating in your plant.

PRODUCT SPECIFICATIONS

Model	Airflow		Nominal pressure drop	Power supply	Nominal absorption power	Air connections	Overall dimensions (mm)						Weight
	CFM	m³/min.	bar		kW	Rp	A	B	C	D	E	F	(Kg)
DEiT 009	32	0,9	0,06	230/1/50	0,18	1/2"	380	514	625	70	65	480	31
DEiT 012	42	1,2	0,10	230/1/50	0,22	1/2"	380	514	625	70	65	480	32
DEiT 018	64	1,8	0,04	230/1/50	0,38	1"	380	514	625	70	76	480	35
DEiT 026	92	2,6	0,08	230/1/50	0,49	1"	380	514	625	70	76	480	39
DEiT 032	113	3,2	0,12	230/1/50	0,59	1"	380	514	625	70	76	480	42
DEiT 040	141	4,0	0,12	230/1/50	0,74	1"	680	511	860	80	79	685	68
DEiT 050	177	5,0	0,07	230/1/50	0,81	1 1/2"	680	511	860	120	96	646	75
DEiT 060	212	6,0	0,10	230/1/50	0,84	1 1/2"	680	511	860	120	96	646	76
DEiT 070	247	7,0	0,09	230/1/50	0,95	1 1/2"	755	555	995	150	104	751	93
DEiT 080	283	8,0	0,11	230/1/50	1,10	1 1/2"	755	555	995	150	104	751	94
DEiT 100	353	10,0	0,14	230/1/50	1,53	2"	1031	799	1039	150	143	747	180
DEiT 120	424	12,0	0,17	230/1/50	1,85	2"	1031	799	1039	150	143	747	190
DEiT 140	494	14,0	0,08	230/1/50	2,21	2 1/2"	1170	939	1180	200	165	840	235
DEiT 165	583	16,5	0,10	400/3/50	2,24	2 1/2"	1170	939	1180	200	165	840	246
DEiT 190	671	19,0	0,12	400/3/50	2,55	2 1/2"	1170	939	1180	200	165	840	246
DEiT 230	812	23,0	0,13	400/3/50	2,97	2 1/2"	1170	939	1180	200	165	840	268
DEiT 270	954	27,0	0,16	400/3/50	3,33	2 1/2"	1170	939	1180	200	165	840	272

Data refers to the following working conditions: air FAD 20 °C / 1bar A, pressure 7 bar(g), ambient temperature 25 °C, air inlet temperature 35 °C, pressure dew point 3 °C, according to ISO 8573.1 standard humidity class 4.

Weights are net (without packing and for timed drain confirguration). Refrigerant fluids: R134a (DEiT 009-080), R404A (DEiT 100 – 270). Protection class IP22.
Maximum working pressure 16 bar(g); maximum ambient temperature 50 °C; maximum inlet temperature +70 °C (DEiT 009 – 080), +60 °C (DEiT 100 – 270).

The correction factors in the following table should be used as a guide only; for accurate selection at conditions differing from the above the selection software should be utilised.
CAPACITY correction factors (indicative values): CAPACITY = RATED VALUE 7 bar(g) x K1 x K2 x K3 x K4.

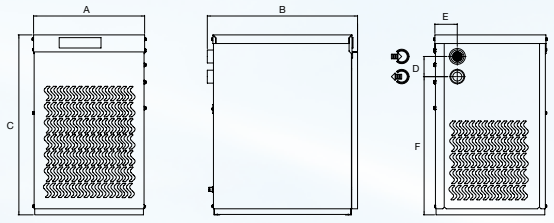
working pressure	bar (g)	3	4	5	6	7	8	9	10	11	12	13	14	15	16
correction factor	K1	0,71	0,82	0,90	0,96	1,00	1,04	1,07	1,09	1,11	1,13	1,15	1,16	1,18	1,19

ambient temperature	°C	20	25	30	35	40	45	50
correction factor	K3	1,05	1,00	0,95	0,89	0,84	0,78	0,72

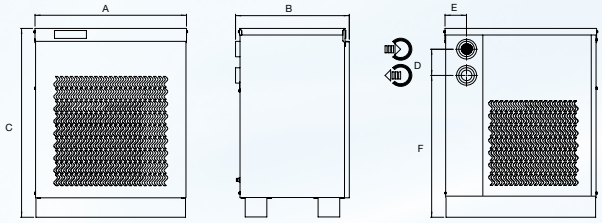
pressure dew point	°C	3	5	7	9
correction factor	K4	1,00	1,12	1,24	1.38

air inlet temperature	°C	30	35	40	45	50	55	60	65	70
correction factor	K2	1,23	1,00	0,81	0,66	0,57	0,52	0,48	0,44	0,40

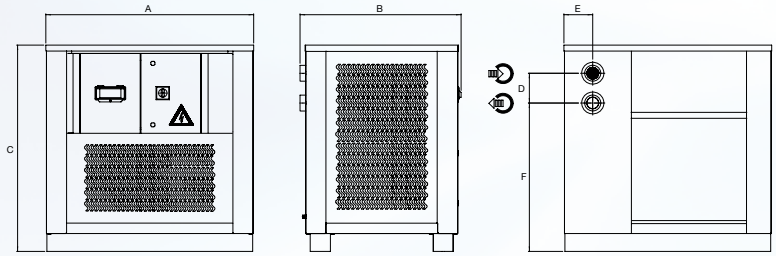
DEiT 009 – 032



DEiT 040 – 080



DEiT 100 – 270



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