

DE-X

Refrigeration Dryers

DE-X 003 – 140 (0,35 - 14,0 m³/min.)



Range introduction

DE-X overview



Cooling, conditioning, purifying.

Introducing the DE-X range

Nomenclature:

- DE Dry Energy
- X Direct Expansion
- G / K Green / Standard (refrigerant)
- xxx air flow at 3°C dew point (in m³/min) x 10

example:
2,2 m³/min x 10
= DE-XG 022

Air flows: 0,35 – 14,0 m³/min

Models in range: 17

DE-X range

model	air flow (dew point 3°C)		air flow (dew point 7°C)		absorbed power	pressure drop
	m ³ /min	m ³ /h	m ³ /min	m ³ /h	kW	bar
DE-XG 003	0,35	21	0,43	26	0,11	0,021
DE-XG 005	0,5	30	0,6	37	0,15	0,042
DE-XG 007	0,65	39	0,8	48	0,18	0,074
DE-XG 010	0,95	57	1,15	69	0,23	0,052
DE-XG 012	1,2	72	1,5	88	0,30	0,085
DE-XG 015	1,5	90	1,8	108	0,35	0,108
DE-XG 018	1,8	108	2,2	131	0,41	0,160
DE-XG 022	2,2	132	2,7	161	0,46	0,221
DE-XG 027	2,7	162	3,2	195	0,58	0,075
DE-XG 032	3,2	192	3,8	229	0,81	0,095
DE-XG 040	4,0	241	4,8	290	0,82	0,122
DE-XG 045	4,5	270	5,4	325	1,01	0,123
DE-XG 060	6,0	361	7,2	429	1,10	0,084
DE-XG 070	7,0	420	8,3	498	1,13	0,089
DE-XG 090	9,0	541	10,6	638	1,35	0,128
DE-XK 120	12,0	720	14,2	853	1,21	0,157
DE-XK 140	14,0	840	16,5	990	1,67	0,220

Absorbed power & pressure drop data refers to air flow with 3°C dew point.

Technical parameters

- Maximum pressure: 16 barg
- Air inlet temperature: 25 – 70 °C (DE-X 003-090)
25 – 65 °C (DE-X 120-140)
- Ambient temperature: 5 – 50 °C
- Power supply: 230/1/50 (wired with Schuko plug)
- Protection rating: IP22
- Sound pressure level: <70 dB(A) at 1m (free field)
- Refrigerant: R513A (DE-X 003-090)
R410A (DE-X 120-140)

Components

- Compressor: reciprocating (DE-X 003-090)
 rotary (DE-X 120-140)
- Expansion device: hot gas expansion valve
- Lamination device: calibrated capillary tube
- Heat exchanger: 3-in-1 aluminium exchanger
- Condenser: air-cooled condenser coil
- Fan: axial
- Controller: microprocessor

Product design

DE-X architecture



Cooling, conditioning, purifying.

The housing



Robust heavy duty structure
for a worldwide audience.

Galvanized steel panels.

Epoxy powder coated painting.

RAL 7035 main colouring,
details/base in RAL 7037.

4 frame sizes.

DE-X dimensions

model	dimensions (mm)			weight	air connections
	width	depth	height	kg	
DE-XG 003	390	407	400	21	1/2"
DE-XG 005	390	407	400	21	1/2"
DE-XG 007	390	407	400	21	1/2"
DE-XG 010	390	407	400	23	1/2"
DE-XG 012	390	407	400	24	1/2"
DE-XG 015	380	497	661	36	3/4"
DE-XG 018	380	497	661	41	3/4"
DE-XG 022	380	497	661	42	3/4"
DE-XG 027	380	497	661	45	1"
DE-XG 032	720	536	856	54	1"
DE-XG 040	720	518	856	56	1"
DE-XG 045	720	518	856	68	1"
DE-XG 060	720	518	856	71	1 1/2"
DE-XG 070	720	518	856	75	1 1/2"
DE-XG 090	885	703	1086	110	1 1/2"
DE-XK 120	885	710	1086	115	2"
DE-XK 140	885	710	1086	115	2"



AIR CONNECTIONS
AT THE REAR

The branding



FRAME 1 WITH WALL
MOUNTING HOLES

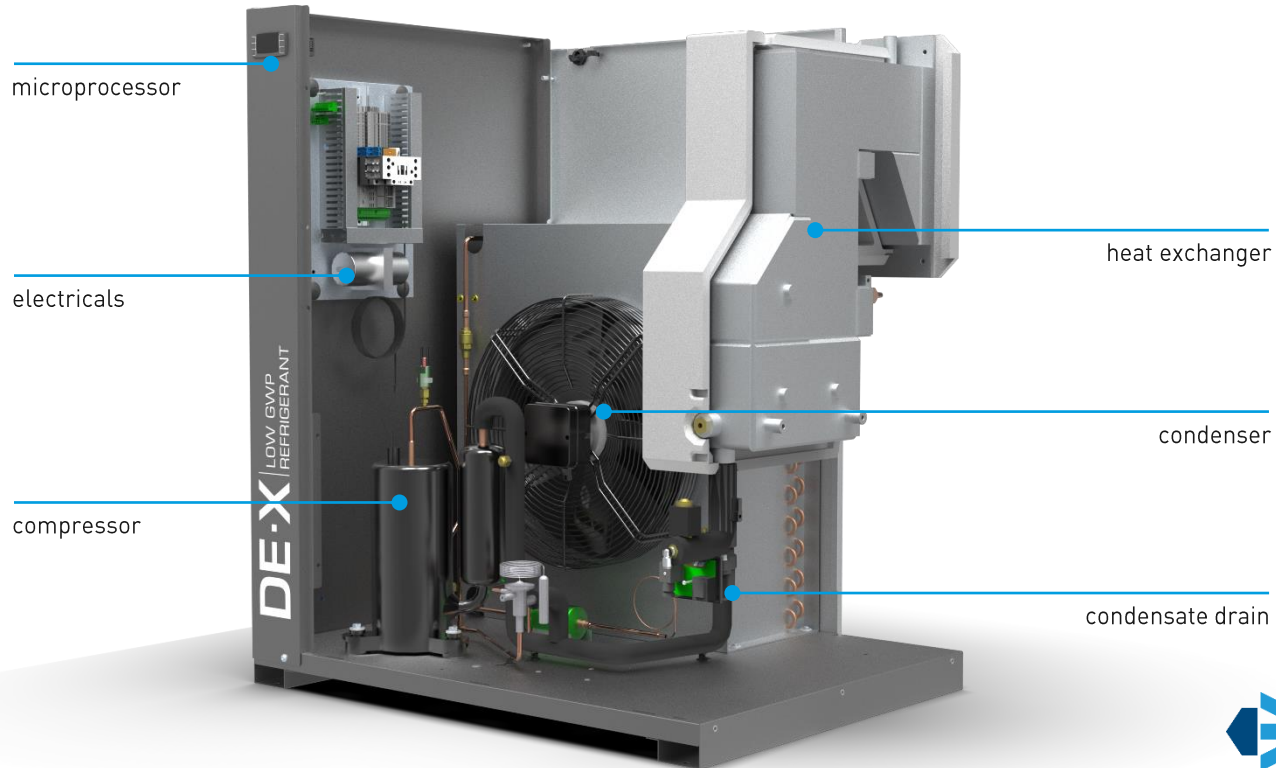


RAL
7035

The decals:



General components layout



Product operation

DE-X working principle



Cooling, conditioning, purifying.

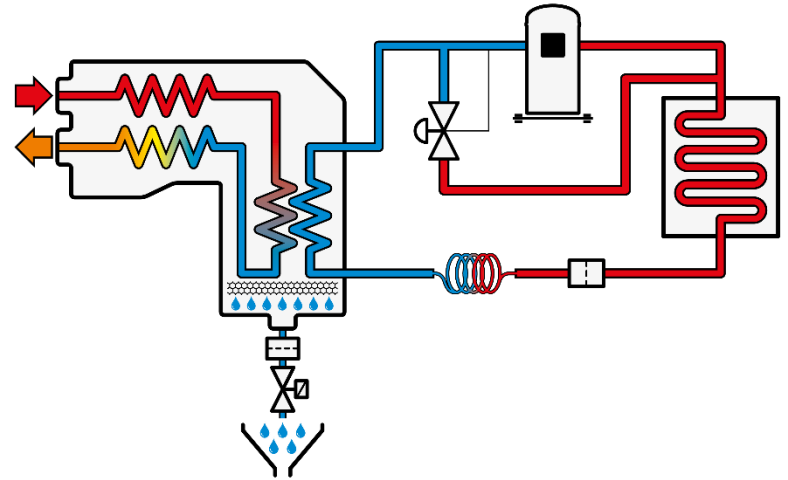
DE-X operation

Hot moist compressed air enters the inlet side of the air-to-air heat exchanger where it is precooled by the dry air exiting the dryer.

The precooled air then enters the evaporator, where it is cooled to the required dew point by the incoming refrigerant liquid, which changes phase and becomes a low-pressure gas suitable to continue the process as it returns to the suction side of the refrigerant compressor.

Thanks to this cooling effect, water vapor condenses out of the air and is efficiently separated, then removed by the condensate drain.

The cold dry compressed air exits the evaporator and returns to the outlet side of the air-to-air heat exchanger, where it is reheated by the incoming air, thus preventing the formation of condensate in the compressed air piping.



X-MODULE heat exchanger

Patented proprietary design



Cooling, conditioning, purifying.

X-MODULE heat exchanger

Patented MTA design

3-in-1 bar & plate configuration.

Patented, designed by MTA.

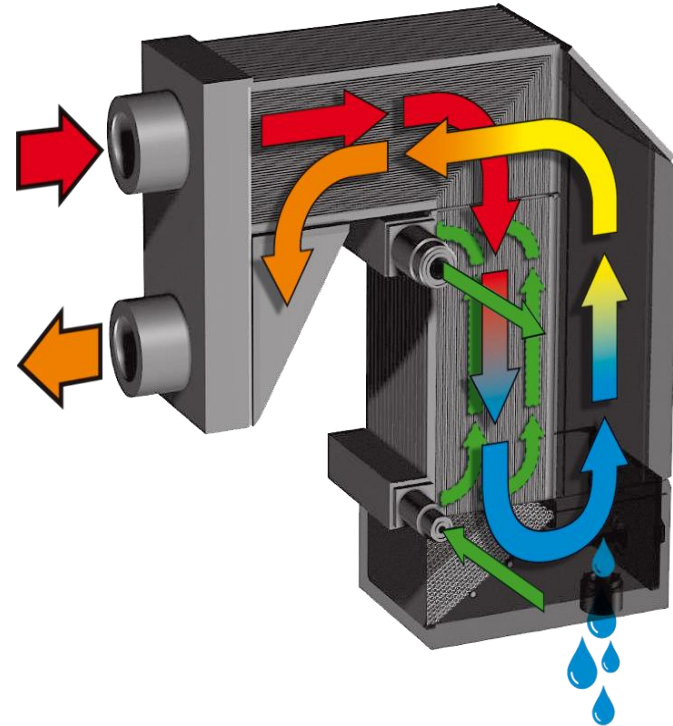
Robust all-in-one construction.

Compact dimensions.

Low pressure drop configuration.

Pre-formed close-fit high density polystyrene insulation.

Vertical positioning for optimum performance.

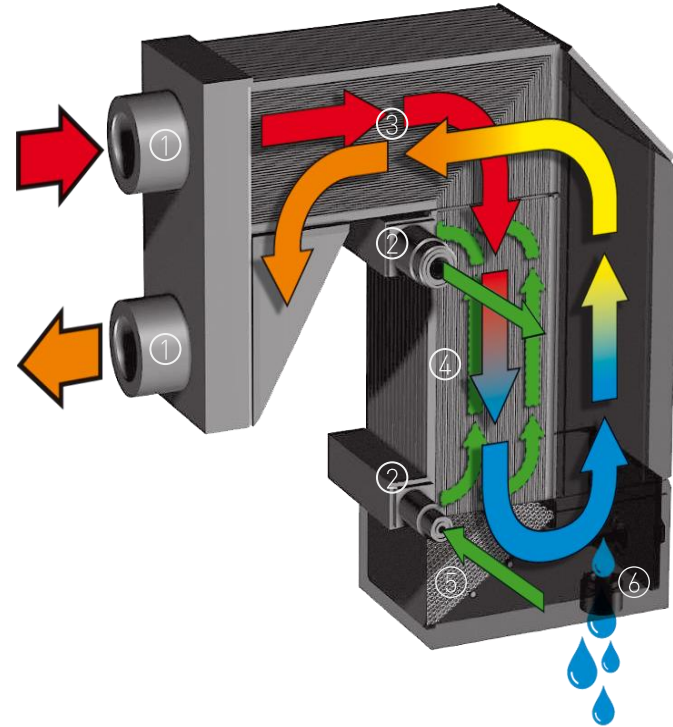


Cooling, conditioning, purifying.

X-MODULE heat exchanger

Design

- 1) Air inlet / outlet
- 2) Refrigerant inlet / outlet
- 3) Air-to-air heat exchanger
- 4) Evaporator
- 5) Condensate separation section
- 6) Condensate outlet



The details

A closer look at DE-X



Cooling, conditioning, purifying.

Condenser

Air-cooled coil

DE-X 003-027:

- Steel tubeless condenser with protective coating as standard.

DE-X 032-140:

- Cu-Al finned coil;
 - protective coating on request.

The protective coating shields against operation in aggressive ambient conditions.



LLF

Low Load Function

The Low Load Function automatically cycles the compressor on & off in zero/low load conditions.

High energy savings in stand-by conditions are ensured.

The risk of the dryer freezing with regard to the valve calibration is eliminated.

LLF ensures the hot gas by-pass valve does not require any seasonal adjustments.



Condensate drains

Choose your preferred configuration

- a) SCE: timed drain, controlled via the microprocessor.
- b) CDS: “Smart” level sensing zero-loss electronic drain (DE-X 003-060).
- c) CDE: sensor activated zero-loss electronic drain with visual alarm signal.
- d) Configured for customer supplied CDS/CDE mounting.

All drain versions feature a shut-off valve, protective filter and drain test button.

Timed drain mounted internally, zero-loss drain mounted internally from DE-X 015.



CDS 1608



CDE 1620

Drain mounting: CDS/CDE

Supply details

Models supplied with a CDS 1608 or a CDE 1620 drain are supplied as follows:

- DE-X 003-012 are supplied with connections to externally mount the drain, with the CDS/CDE drain provided in a separate package to be mounted during unit commissioning.
- DE-X 015-140 are supplied with the CDS/CDE drain already installed internally.



iDRY Microprocessor control

Advanced and easy to use



Numerical dew point display (“dry” on request).

Informative multi-icon display.

Compressor on/off sequencing in LLF operation phase.

Condensate drain programming and drain test button (timed drain).

Full programmability with password protection.

Fail-safe and extensively field-tested.

iDRY Microprocessor control

Alarms & warnings



High dew point alarm.

Low dew point alarm.

User alarm (programmable as signal or dryer arrest).

Sensor fault alarm.

Service warning.

Alarm history (last alarm).

Remote connectivity

Monitor and control your DE-X



Multiple connectivity opportunities:

- Remote on/off.
- General alarm Volt Free Contact.
- RS485 interface (with optional gateway).

DE-X is Industry 4.0 ready.

NB: 1 digital input offers either remote on/off, user alarm or RS485 interface; they cannot be applied contemporaneously.

Options

Personalize your DE-X dryer

Compressed air by-pass.

Packaging: - container;
 - seaworthy;
 - multiple DE-X 003-012 units.

Water-cooled versions (on request from DE-X 015).

Special voltages (on request).

Condenser protective coating (on request for DE-X 032-140).

Certifications

Certified quality

Electromagnetic compatibility Directive compliant (2014/30/UE).

Machines Directive Compliant (2006/42/CE).

PED compliant (2014/68/UE), with class I classification.

CE marked.



Benefits

“An MTA dryer”

Market leading pressure drops

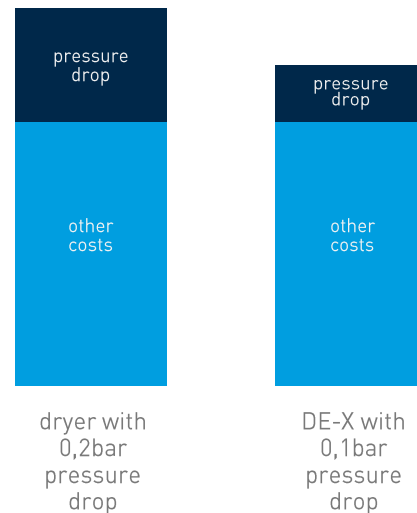
Significant energy savings

Typically nearly 30% of a dryer's total lifecycle costs are due to the energy required to overcome its pressure drop.

DE-X's market leading pressure drops are on average less than 0,11 bar. Typical dryers can be double this.

For a DE-X 120, a 0,1bar pressure drop reduction results in:

- A 1.819 kWh/year energy reduction.
- An annual 522kg CO₂ emissions reduction.
- An annual saving of €434 (at energy cost €0,24 per kWh).



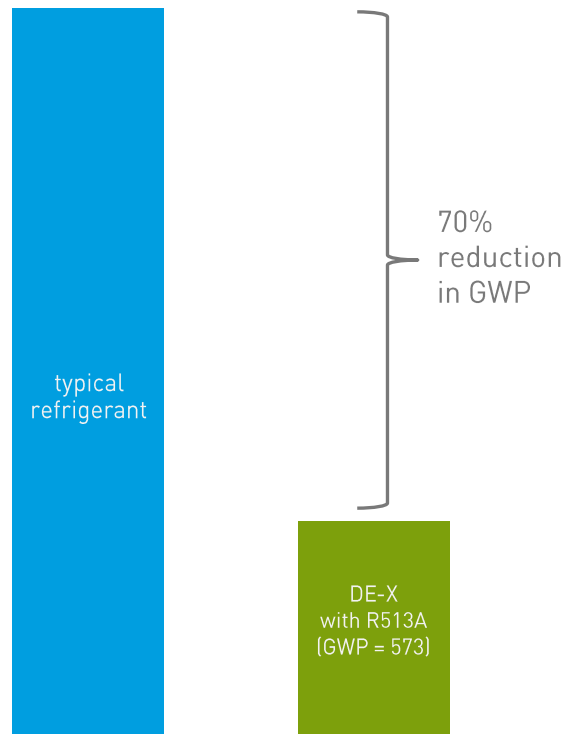
Ecological

Refrigerant R513A

Global Warming Potentials (GWP) are a paramount environmental indicator.

DE-X 003-090 apply refrigerant R513A, with a GWP of 573 (AR5 level).

This is 70% lower than refrigerants typically applied on refrigeration dryers.



Always operates

Peace of mind

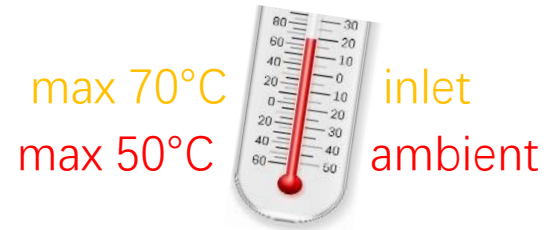
Highest operating limits:

- Max inlet = 70°C (65°C on DE-X 120-140)
- Max ambient = 50°C
- Max pressure = 16 barg

Robust construction with premium field-proven components.

Individually factory tested (components installation, operating sequences, refrigerant leakages, safety devices, electrical safety).

Automatic continuous adjustment to the working conditions, with LLF assuring correct operation in all ambient conditions, without adjustment needs.



Easy to use & install

Plug, play & relax

The dryer arrives fully programmed and ready to use; no seasonal or defined adjustments are required.

The compact construction offers quick panel removal and easy frontal access to all components.

Maintenance needs are minimal.

The combination of a hot gas by-pass valve and LLF ensure optimum self-adjusting operation in all conditions and within the full 0-100% load spectrum.

Auto re-start is standard, a compressed air by-pass is available on request.



Conclusions

Technology you can trust



Cooling, conditioning, purifying.

Why DE-X?

Market leading pressure drops (average < 0,11 bar).

Ecological refrigerant R513A on DE-X 003-090 (GWP = 573).

Extensive operating limits (air inlet, ambient, pressure).

Easy to use microprocessor with connectivity functions.

Patented X-MODULE 3-in-1 heat exchanger.

Low Load Function: energy savings & fail-safe operation.

Premium grade field tested components.

Advanced manufacturing, extensive individual product testing.

DE-X

“an MTA dryer”



