

PROPANE TURBOCOMPRESSOR

Advanced oil-free two-stage centrifugal compressor
developed to enhance the cooling industry



EMERGENCY
STABILITY



ENERGY
EFFICIENCY



ENVIRONMENTALLY
FRIENDLY



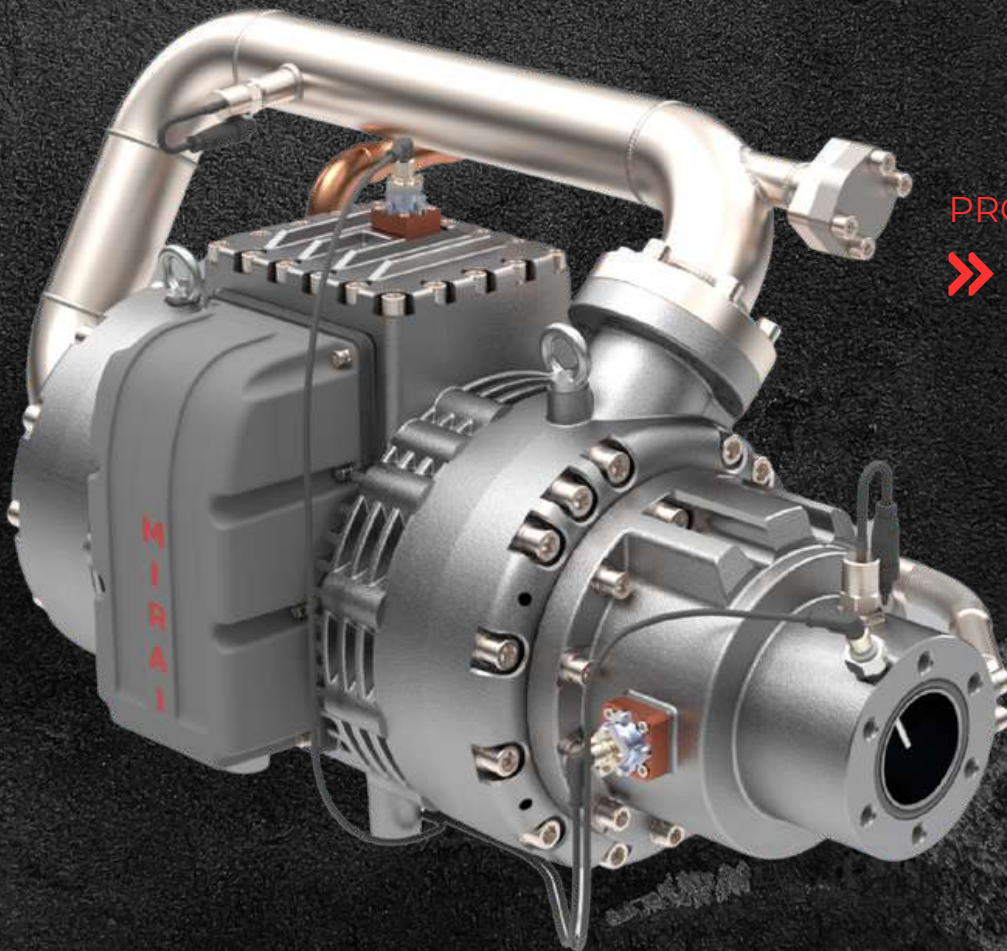
OIL-FREE



NO VIBRATION



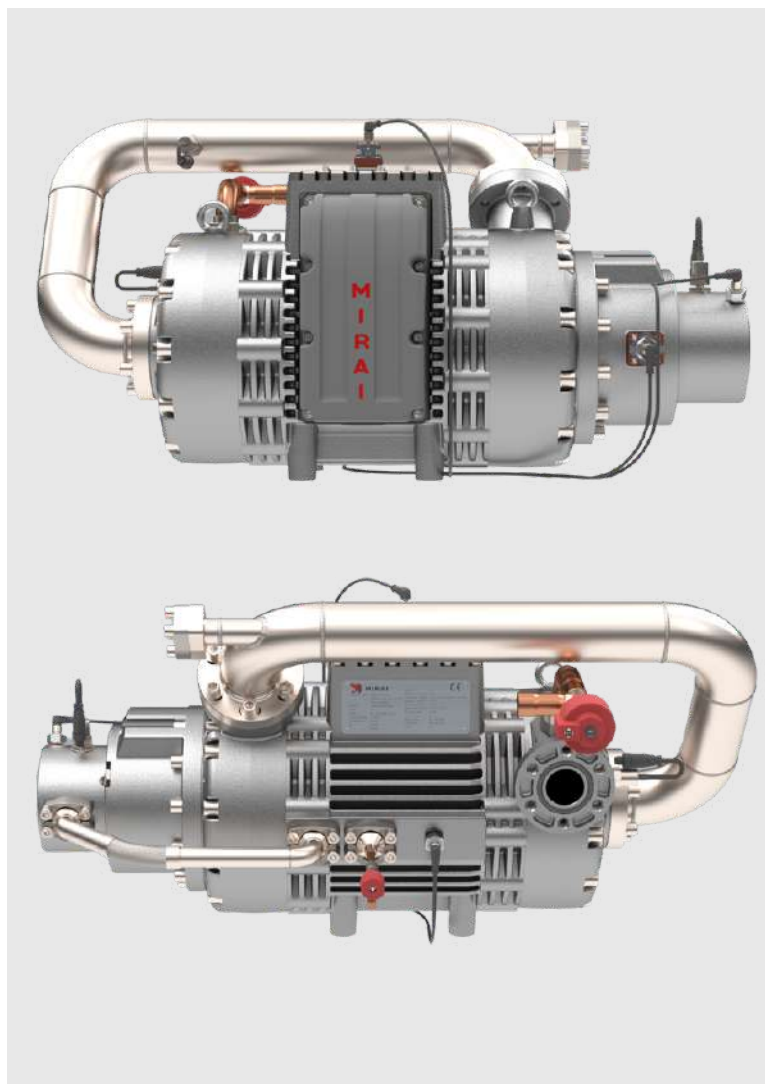
RELIABILITY



PRODUCT SHEET

» **MT 290**





THE MIRAI PROPANE TURBOCOMPRESSOR:

RELIABLE: Designed for 20 years life-cycle with minimal maintenance.

OIL-FREE DESIGN: Eliminates the risk of system contamination with oil, improving energy efficiency, reducing capital costs and minimizing service requirements.

NO VIBRATION AND LOW NOISE:

Turbocompressor provides vibration-free operation and extremely low noise levels compared to competitive technologies

EMERGENCY STABILITY: Gas-dynamic bearings developed by MIRAI Intex, ensure stability in case of power outages or sudden power failure and other seismic disturbances.

EFFICIENT PART LOAD: Thanks to the Inlet Guide Vanes, MIRAI propane turbocompressors operate efficiently under controlled part-load conditions, resulting in energy savings.

LOW GLOBAL WARMING POTENTIAL (GWP)

REFRIGERANT: All models of MIRAI propane turbocompressors are available with R290 (propane), which has a GWP100* of **0.02** and ODP **0**.

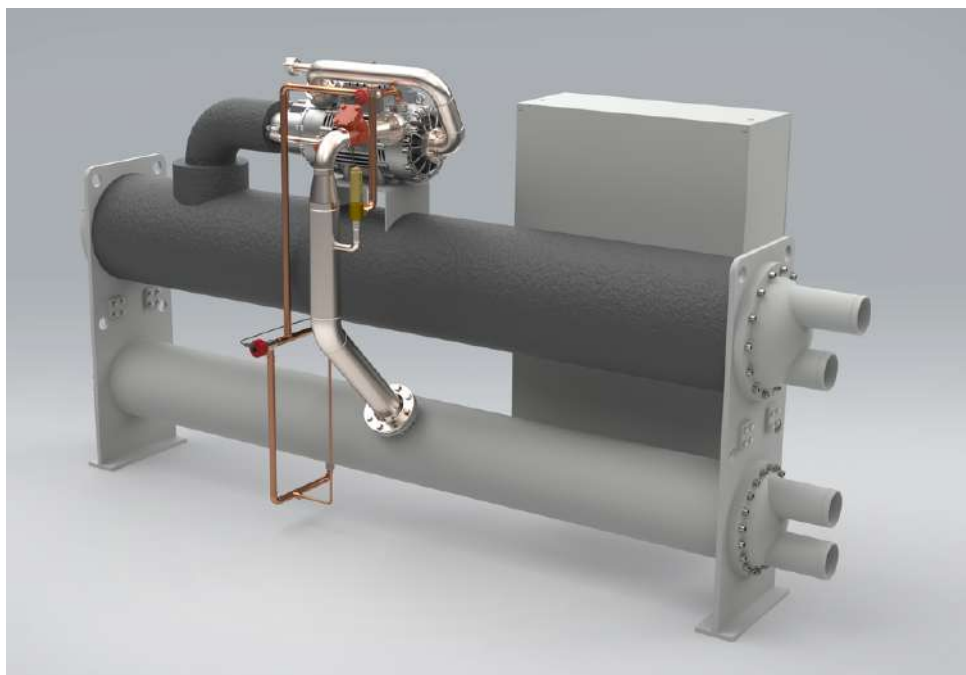
APPLICATIONS

Our propane turbocompressor opens up new market opportunities for chiller manufacturers and end users.

This compressor is designed for **air and water cooled chiller applications**, covering the complete range of Industrial and Commercial needs.

WHY CHOOSE PROPANE AS REFRIGERANT

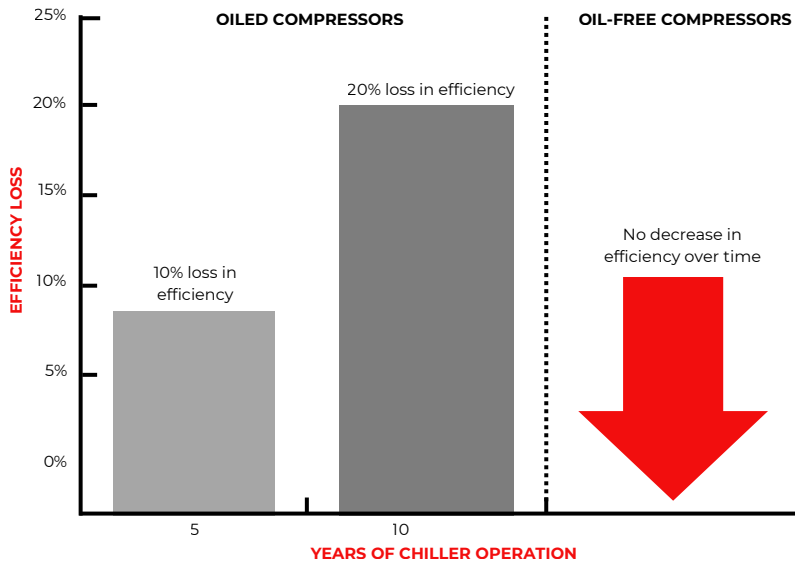
- » Excellent thermodynamic properties
- » Low refrigerant charge quantities possible
- » Very good material compatibility



**Based on the Sixth Assessment Report adopted by the Intergovernmental Panel on Climate Change*

WHY OIL-FREE COMPRESSORS ARE BETTER

MIRAI turbocompressors are completely OIL-FREE, meaning there is no performance degradation due to oil contamination.



*Source: Tsinghua University Study 2014

MAIN ADVANTAGES OF OUR OIL-FREE COMPRESSORS

- » Reliability
- » High energy efficiency
- » No compressor wear
- » No performance losses



MINIMAL SERVICE

Due to oil-free design there is no need for regular maintenance



REMOTE MONITORING

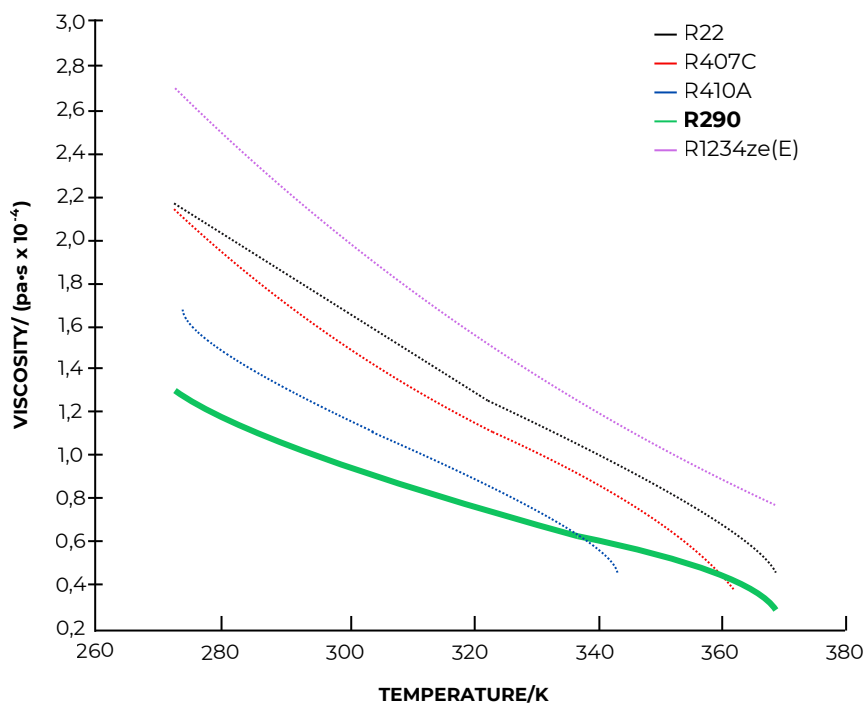
Available remote monitoring system (RMS)



EXTENDED WARRANTY

Free extended warranty in case of purchasing the optional full RMS.

COMPARISON OF VISCOSITY



It is important to compare the viscosity of refrigerants in order to select one that will allow efficient flow without causing excessive resistance.

Propane (R290) is an excellent choice due to its low viscosity. This results in a significant reduction in system pressure drop (dP), compressor power consumption and an increase in efficiency.

SUSTAINABLE DEVELOPMENT

With this innovative development, **MIRAI INTEX** highlights the dedication to **Climate Action** as one of key goals of Sustainable Development.

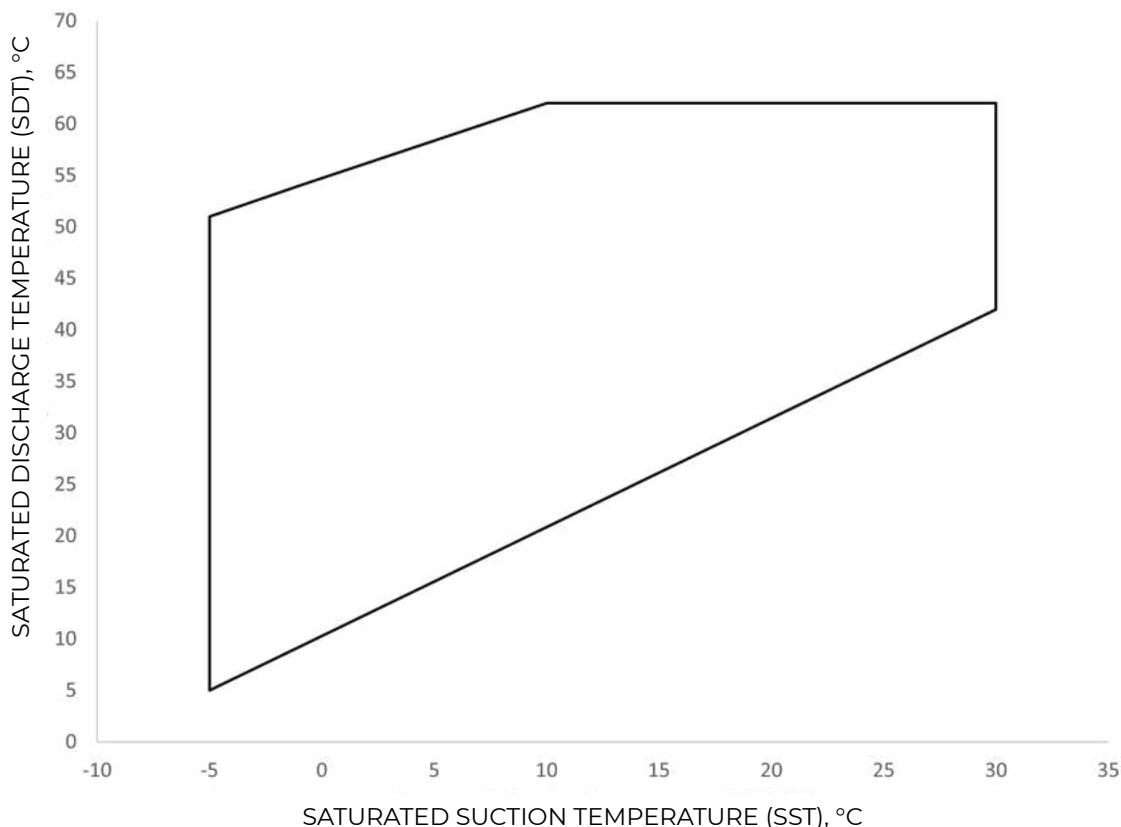


Source: https://www.researchgate.net/figure/Comparison-of-latent-heat-Colour-figure-can-be-viewed-at-wileyonlinelibrarycom_fig8_347795188

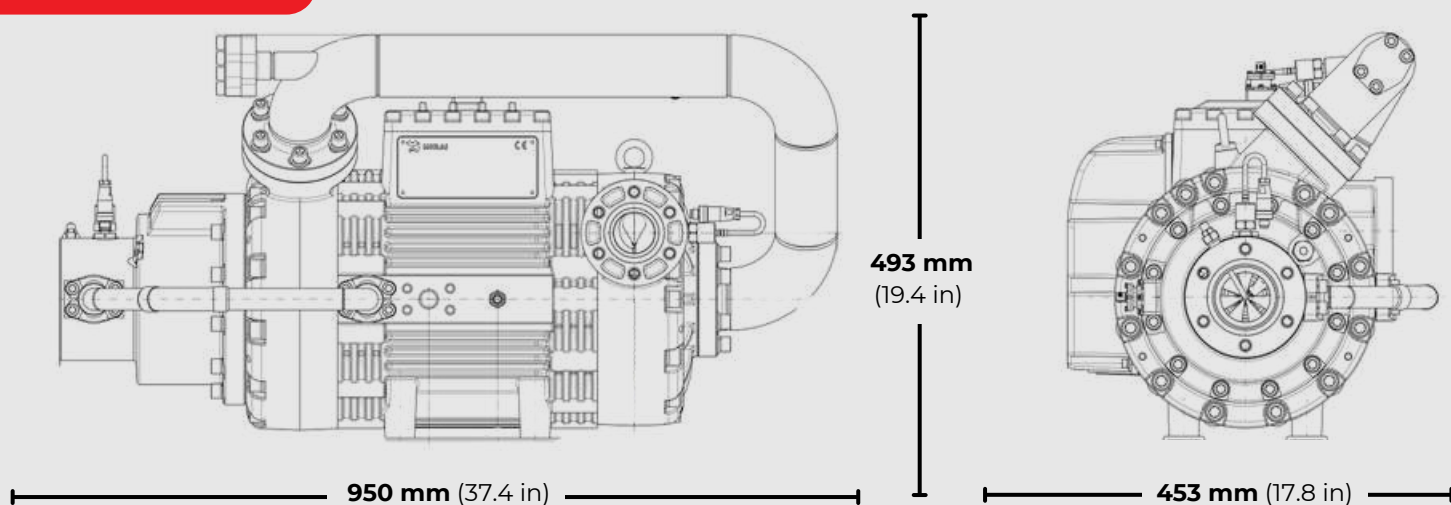
TECHNICAL DATA

MODEL	MT 290
REFRIGERANT	R290 (Propane)
NOMINAL COOLING CAPACITY	82 tons / 290 kW
SCOPE OF APPLICATION	Air or Water-Cooled chillers
MOTOR POWER	60 kW
VOLTAGE	~3 PE, 400 V/440V/460V/480V , 50 Hz/60 Hz
WEIGHT	155 kg (342 lbs)
DIMENSIONS (DxHxW)	950 mm (37.4 in) × 493 mm (19.4 in) × 453 mm (17.8 in)
LOADING CAPABILITIES RANGE (MIN/MAX%)*	30 %-100 %
MAX SATURATED DISCHARGE TEMPERATURE	62°C
MAX SATURATED SUCTION TEMPERATURE	30°C
MIN SATURATED SUCTION TEMPERATURE	-5°C
MAX ALLOWABLE LIFT ON COMPRESSOR	1580 kPa
MIN REQUIRED LIFT ON COMPRESSOR	145 kPa
MASS FLOW*	0.4-1.2 kg/sec
INVERTER COOLING	Air / Water (for special application)
COMPRESSOR COOLING	Liquid propane

*DEPENDING ON ACTUAL WORKING POINT

OPERATING ENVELOPE


DIMENSIONS



INSTALLATION

- | | | |
|-----------------------------------|------------------------------|--|
| 1 PROPANE SUCTION | 5 MOTOR COOLING VALVE | 9 INLET PRESSURE SENSOR |
| 2 PROPANE DISCHARGE | 6 INTERSTAGE PIPELINE | 10 REFRIGERANT INLET TEMPERATURE SENSOR |
| 3 BYPASS VALVE | 7 CHECK VALVE | 11 IGV CONTROL |
| 4 IGV POSITION SIGHT GLASS | 8 SAFETY VALVE | |

