Heavygel

Industrial Water Chiller – High Efficiency Series

EFX

HEAVYGEL EFX
THE MOST EFFICIENT CHILLERS IN PROCESS COOLING

In developing the new EFX chiller line, Frigel has paid utmost attention to the concept of **"Total Cost of Ownership"**, well aware that the **initial investment cost** of a water chiller is a **minimal part** of the overall running costs that chiller will generate during its lifetime.

Energy use, installation, maintenance and dismantling costs, downtimes and service costs, must all be carefully considered and evaluated to make a smart decision when the time to invest in a new process chiller comes.

With the new Water Cooled Chiller **Heavy*gel* EFX**, Frigel sets new standards for Process Cooling, introducing the use of the **most efficient technologies** available today.

the Power to Outperform

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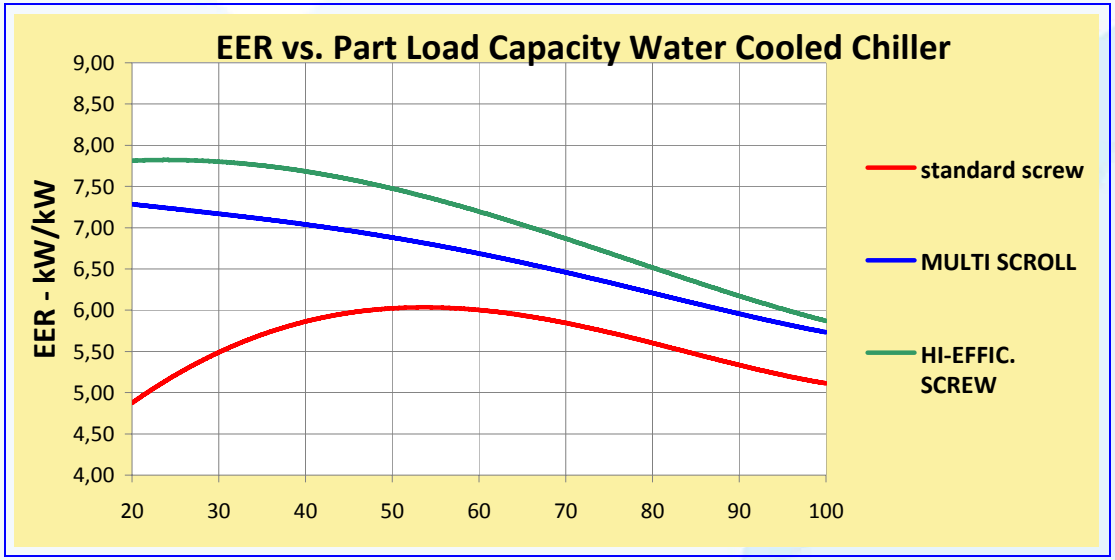
Frigel
Intelligent Process Cooling

With the clear objective of minimizing the "Total Cost of Ownership" for our Customers, we have designed the new EFX chiller line, with the following **features**:

MINIMUM ELECTRICAL CONSUMPTION



Note: EER (Energy Efficiency Ratio) indicates the electrical performance of a chiller.

The chart shows the full and part load performance curves of the compressors used on the EFX chillers compared with a typical oil-flooded screw compressor on a 300 kW (90-ton) water-cooled chiller.

The two types of compressors used on the EFX chillers line are much more efficient compared to traditional compressors.

The Energy Savings that can be achieved with the EFX Chillers can widely justify eventual higher costs of the initial investment.

The amount of savings obviously depends on two variables: the cost of energy and the running hours.

MINIMUM PAYBACK OF ADDITIONAL INVESTMENT >

Best-in-Class Compressors

The table on the right can give an idea of the impact of the energy consumption on the Total Cost of Ownership for a process chiller.

	Payback Period of Additional Investment (years)				
€/kWh					
€ cent 15	3	2	2	1	1
€ cent 10	5	3	2	2	2
€ cent 9	5	4	3	2	2
€ cent 8	6	4	3	2	2
€ cent 7	7	5	3	3	2
€ cent 6	8	5	4	3	3
€ cent 5	10	7	5	4	3
	1000	1500	2000	2500	3000
	Compressors Run Hours				

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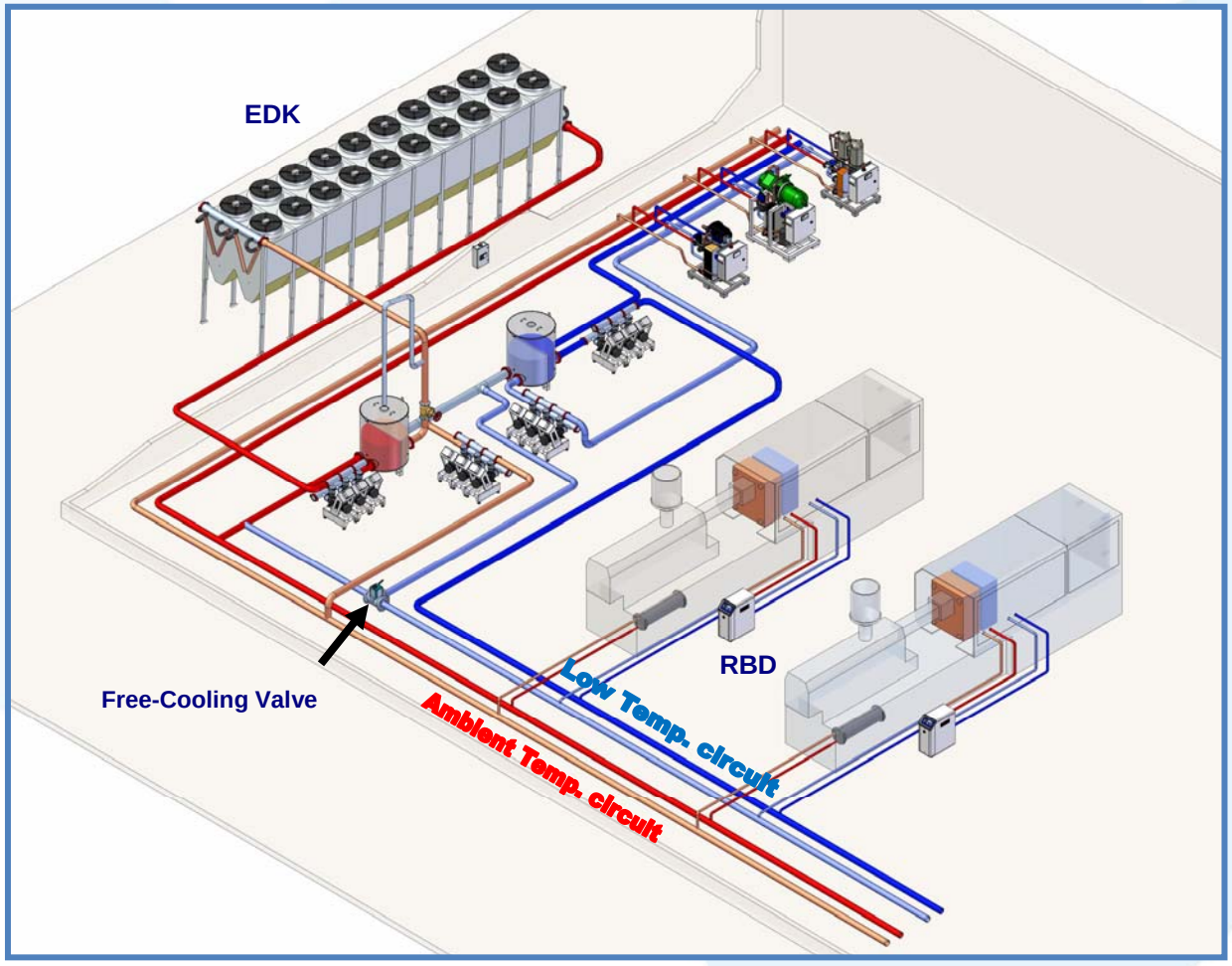
SIMPLE AND MODULAR INSTALLATIONS



EFX chillers are designed to minimize the footprint (almost 50% less than a standard water cooled chiller having same capacity) as well as installation and expansion costs.

Increasing Cooling Capacity is extremely easy, allowing an investment proportional to the need of the moment.

A remotable Control Panel manages all the plant: partializing capacity, equalizing the working hours for each unit installed, monitoring the alarms and all working parameters.

A remote control and management of the entire system through a Gateway is also available as an option (more information regarding this feature: see Aquagel - PMR leaflet).

Typical layout of installation of "Double System" with EFX chillers in a plastic injection moulding plant:

RELIABILITY

The choice of high quality components, the design, the control procedures during all assembling phases and a strict final test guarantee the maximum quality of final products.

Moreover, a guarantee of reliability for plants with EFX chillers is given by their modularity and redundancy, typical of all projects made with these machines. The presence of a simple stand-by EFX unit can drastically reduce the plant down-times risks.

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TECHNICAL DATA

Heavygel		EFX 150 MS	EFX 300 SC
Cooling capacity	kW	**150** (1)	**300** (1)
Compressor	qty x nomin. HP	**2 x 25 HP**	**1 x 90 HP**
	Type	**Multi Scroll**	**High Efficiency Screw**
Gas	Type	**R-407c**	**R-134a**
Set-point (min – max) (3)	°C	**0 / +30**	**0 / +30**
Evaporator	m³/h (nom.)	**30**	**52**
	Δp (bar @ m³/h nom)	**0.88**	**0.6**
Condenser	m³/h (nom.)	**38**	**65**
	Δp (bar @ m³/h nom)	**1.85**	**1.5**
Total Nominal Installed Values	kW	**54**	**97**
FLA - Full Load Ampere (only for installation purposes)	A @ 400/50	**90**	**179**
Sound level @ 10 mt	dB(A)	**53**	**55**
Connections to Evaporator	Victaulic® in/out	**2”1/2**	**2”1/2**
Connections to Coondenser	Victaulic® in/out	**2”1/2**	**2”1/2**
Width - L	mm	**1.350**	**1.600**
Depht - P	mm	**950**	**1.150**
Height - H	mm	**1.990**	**2.170**
Net weight	Kg	**827**	**1600**

(1) @ 10°C - 35°C **(2)** @ 15°C - 35°C **(3)** for a correct machine setting, process set-points must be known

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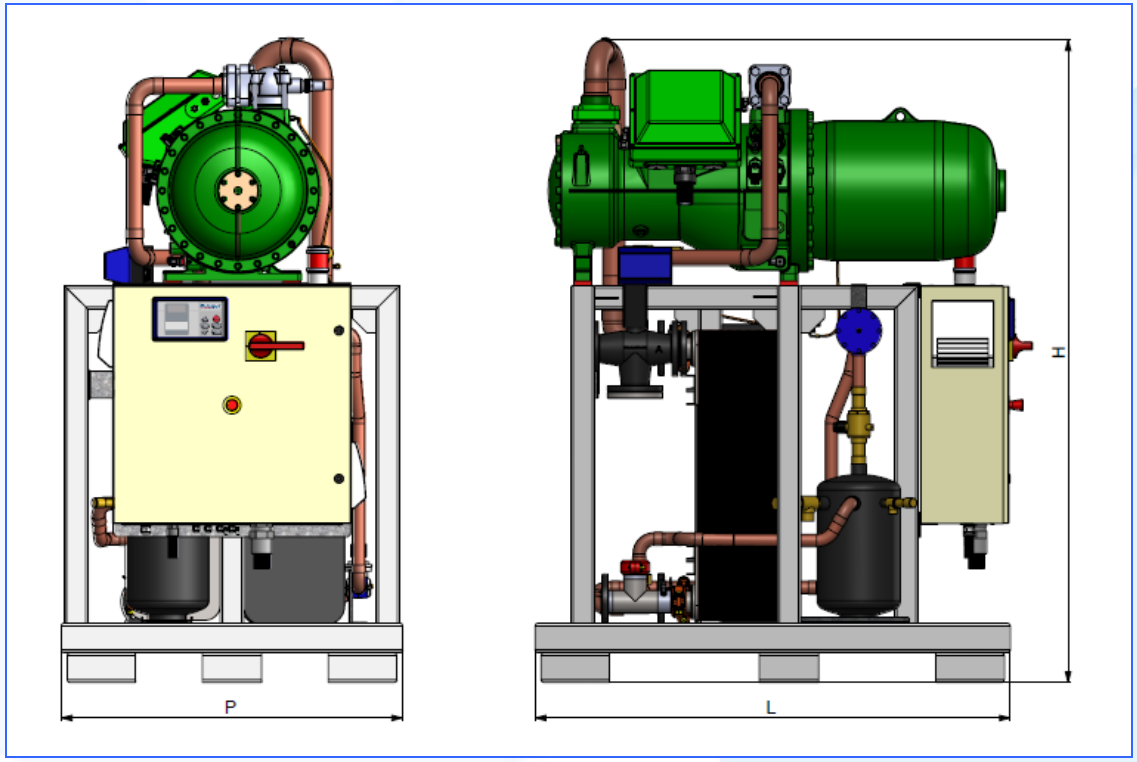

Heavygel EFX 300 SC

Minimum Footprint
Minimum Noise

REMOTE MONITORING SYSTEM

All EFX chillers can be remotely controlled utilizing the PMR (remote monitoring panel: see the PMR leaflet for more Information).

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EFX 150 MS

WATER-COOLED MULTI-SCROLL COMPRESSOR CHILLER

While the efficiency and reliability of the multi-scroll compressors featured in this unit has already been widely proved all over the world, they have been thoroughly optimized its use for Process Cooling applications, with the intent of maximizing the energetic performances.
Optimized for use with R-407c refrigerant gas. Very low start-up current.
High performance stainless steel brazed plate condenser and evaporator.

Multi-Scroll Compressor

EFX 300 SC

WATER-COOLED HIGH EFFICIENCY SCREW COMPRESSOR CHILLER

It is equipped with a Semi-Hermetic High Efficiency Screw compressor, specifically designed for water cooled chillers with low ratio of gas compression.
Ideal for set-points of 0-12°C. Optimized for use with R-134a refrigerant gas.
Very low start-up currents.
High performance stainless steel brazed plate condenser and evaporator.

High-Efficiency Semi-hermetic Screw Compressor

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