



FOCS



1542 - 2642
277 - 516 kW

Air-cooled water chiller with helical fans



(The photo of the unit is indicative and may change depending on the model)

- Flexibility
- Adaptability
- Extended operating range

SUMMARY

FOCS
1542 - 2642

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This company participates in the Eurovent Certification Programme. The products are listed in the Directory of certified products.

Eurovent certification applied to units with cooling capacity up to 1500 kW for air cooled water chillers and water cooled liquid chillers.



Company quality system certified to UNI EN ISO 9001

Liability disclaimer

This bulletin is not exhaustive about: installation, use, safety precautions, handling and transport. Refer to "General Manual for Installation" for further informations.

This bulletin refers to standard executions, in particular for dimension, weight, electric, hydraulic, aeraulic and refrigerant connections (whereas applicable). Contact Climaveneta Commercial Office for further drawings and schemes.

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1. ENERGY INDICES

1.1 Energy indices ESEER and IPLV

Increasingly closer attention is being paid towards the power consumption of air-conditioning equipment, both in Europe and elsewhere.

For many years in the United States, reference has not just been made to efficiency at rated conditions. A valuation index is also used which considers marginal operation of the unit at rated conditions as well as increased usage in part load conditions when the external air temperature is lower than the rated value and when the separation stages of the cooling compressors are used.

The valuation index adopted in the United States is called IPLV (Integrated Part Load Value) and is defined in the regulations issued by ARI (American Refrigeration Institute).

conditions shown below. The temperature of the water leaving the evaporator is considered constant at 6.7°C in all load conditions, with a delta of 5°C in the full load condition.

The multipliers 1, 42, 45 e 12 are the cooling performance coefficients in various load conditions statistically calculated by ARI on the basis of surveys conducted, for various types of buildings and operating conditions, in 29 American cities.

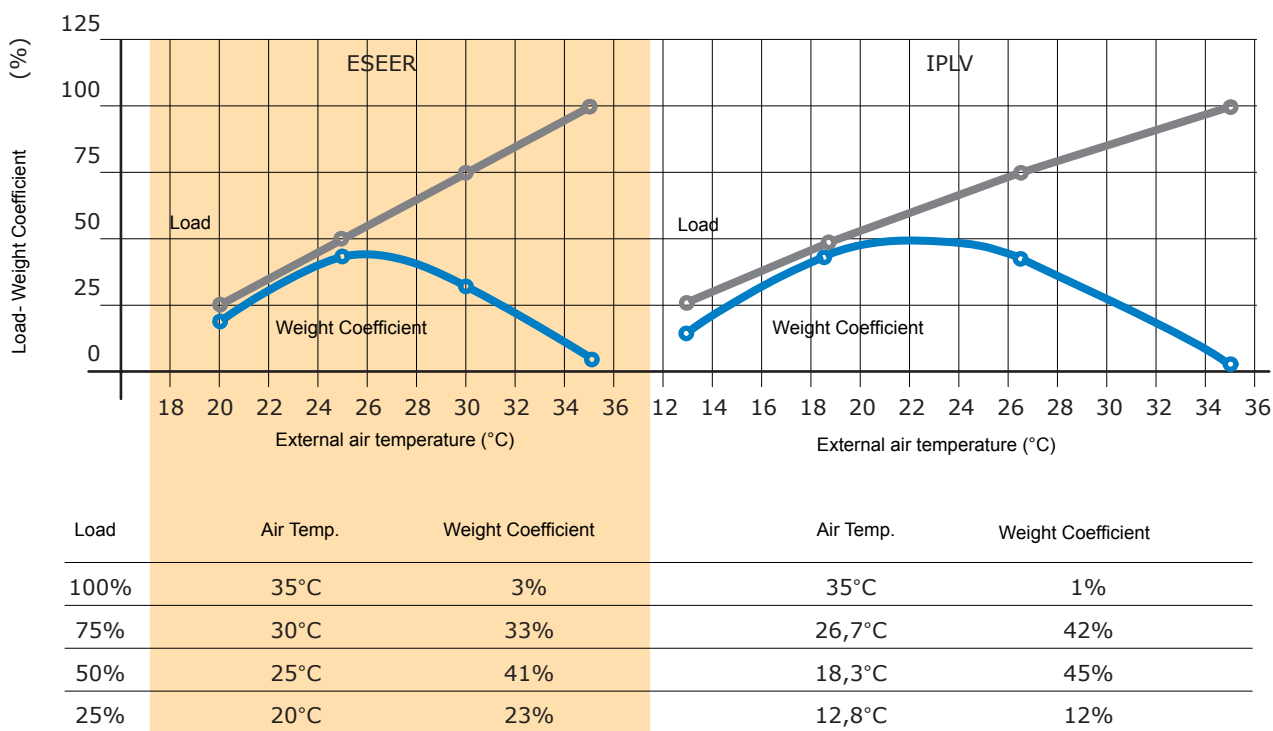
Evaporator temp. leaving	6.7 °C constant			
DeltaT full load	5°C			
Load	100%	75%	50%	25%
Cond. inlet water temp.	35°C	26,7°C	18,3°C	12,8°C

ARI Standard

$$(1) \text{ IPLV}_{\text{ARI}} = \frac{(1 \cdot \text{EER}_{100\%} + 42 \cdot \text{EER}_{75\%} + 45 \cdot \text{EER}_{50\%} + 12 \cdot \text{EER}_{25\%})}{100}$$

where EER100%, EER75%, EER50%, EER25% are the efficiencies of the chiller in the various load conditions (100% - 75% - 50% and 25% respectively), calculated in the operating

In normal European applications it is difficult to think of a chiller working at an external air temperature lower than 20°C. Air-conditioning is never used to this extent; design and legislative constraints tend to reduce power consumption and encourage the adoption of systems based on the direct or indirect use of external air wherever possible (FreeCooling).



Energy = percentage of total power produced in the various conditions

In Europe there is a proposal for EECCAC (Energy Efficiency and Certification of Central Air Conditioner)

Proposal EECCAC

$$(2) \text{ ESEER} = \frac{(3 \cdot \text{EER}_{100\%} + 33 \cdot \text{EER}_{75\%} + 41 \cdot \text{EER}_{50\%} + 23 \cdot \text{EER}_{25\%})}{100}$$

where

Evaporator temp. leaving 7 °C constant

DeltaT full load 5 °C

Load 100% 75% 50% 25%

Cond. inlet water temp. 35°C 30°C 25°C 20°C

Using the energy indices

After establishing which index to use and estimating the total power required by the system in the summer mode (in kWh), we

can calculate seasonal electricity consumption (in kWh) using the following formula:

$$\text{Power absorbed} = \text{Power requested} / \text{Index of efficiency}$$

The real power calculation can be obtained more correctly in a "dynamic" form, that is, considering the load performance curve at different external temperatures, the location and the reference number of operating hours.

These figures will allow plant consultants and designers to make their evaluations depending on the type of building, the place of installation and the type of heat load. etc.. They can also determine the energy index using the method that best reflects plant requirements and can make comparisons between similar or equivalent systems using the same reference unit.

FOCS	IPLV	ESEER
1542 B	4.03	3.64
1742 B	3.97	3.57
1942 B	3.88	3.56
1962 B	3.88	3.58
2442 B	4.01	3.61
2642 B	3.83	3.49
1542 LN	4.13	3.68
1742 LN	4.05	3.58
1942 LN	4.04	3.61
1962 LN	4.03	3.61
2442 LN	4.08	3.62
2642 LN	3.93	3.48
1542 SL	3.96	3.50
1542 SL	3.96	3.47
1542 SL	3.88	3.46
1542 SL	4.04	3.62
1542 SL	4.16	3.69
1542 SL	3.98	3.52

(1) IPLV (Integrated Part Load Value)

(2) ESEER (European Seasonal Energy Efficiency Ratio)

(3) EER (Energy Efficiency Ratio)

ARI Standard indices

Indices for EECCAC proposal

Full load efficiency (kW/kW)

2. UNIT DESCRIPTION

2.1 High efficiency series

This new series of units combines elevated efficiency rates (EER) with the use of R134a refrigerant.

The excellent level of performance was achieved thanks to the accurate sizing of all internal components in order to fully exploit the characteristics of the ecological refrigerant used. Special attention was paid to all the heat exchange surfaces, fans and compressors.

The newly designed condenser coils with special construction features have larger surfaces, as do the new asymmetrical evaporators with improved and more efficient refrigerant distribution both in the liquid and steam phases.

The fans with elevated unit efficiency are suitably adjusted to optimise air flow to the condensing section and guarantee maximum silent-running in all operating conditions.

The new screw compressors are specially designed for R134a refrigerant. The continual adjustment feature constantly modulates the capacity of each compressor between 100% and 50% of its potential.

This adjustment mode also allows the exact power required by the system to be instantaneously delivered and precisely adapted to load variations. This in turn reduces the number of start-ups and consequently improves reliability. Simultaneous adjustment of the unit, based on the control of the temperature of the water leaving the evaporator, assures an extremely restricted variation with respect to the setpoint. The advantages of the continual adjustment of individual compressors are enhanced with the use of electronic thermostat valves (optional for the entire range).

Their precision and rapidity of response optimise load variations and allow stable conditions to be achieved in a very short time, even when operating in the part load mode.

The accurate sizing of the system combined with this series of units offers considerable energy saving and consequently significant reductions in running costs.

Air-cooled water chillers

Air-cooled water chiller with axial fans for outdoor installation. The unit is supplied with anti-freeze oil and refrigerant and has been factory tested. On-site installation therefore just involves making connections to the mains power and water supplies. Unit charged with R134a refrigerant.

2.2 Standard unit composition

Supporting frame

Frame with base in polyester-painted thick hot-galvanised sheet steel.

Shaped aluminium walls.

Panelling

The external panelling, made from aluminium alloy for total corrosion resistance, offers maximum ease of access to the internal components.

Screw compressors

Semi-hermetic screw-compressors with 2 five and six-lobe rotors. The five-lobe rotor is directly splined onto the 2-pole motor (2,950 rpm) without the use of overgears. Compression occurs five times every motor turn and the gas therefore discharges continuously without the typical throbbing common to reciprocating compressors. Leading-edge numerical control machines were used to make the rotors and machine the bearing seats. Compressor cooling power is continuously modulated from 100 to 50%. In addition to the standard no-load starting feature, the motors are fitted with electric starting devices which limit the power absorbed during the compressor starting phase. A check valve on the coolant delivery line prevents the rotor from reversing after stopping. Special maintenance-free bearings al-

low very long work cycles. Lubrication is forced, without the use of an oil pump. The high efficiency built-in oil separator ensures the constant presence of oil in the compressor. The rotors are dynamically balanced to ensure that the vibrations common to reciprocating compressors do not occur. The lack of vibrations and the absence of delicate intake and delivery valves, in addition to very fine manufacturing tolerances, sophisticated quality controls during the production process and a limited number of moving parts, guarantee quiet and highly reliable operation. Each compressor is fitted with manual-reset motor thermal protection, delivery gas temperature control, an oil level float, an oil level sight-glass and an electric resistance for heating the oil when the compressor is stopped.

Water-refrigerant heat exchanger

Direct expansion heat exchanger type with asymmetric refrigerant paths to maintain the correct refrigerant velocity inside the tubes during both liquid and gaseous phases. The steel shell is insulated with a closed-cell anti-condensation lining. The copper pipes are internally grooved so as to improve the heat exchange. The pipes are mechanically expanded onto the tube plate ends. An antifreeze electric heater prevents the formation of ice inside the casing of the exchanger when the unit is not operating but connected to the electrical supply.

Differential pressure switch for controlling the water flow is fitted standard.

Refrigerant-air heat exchanger

Aluminium fins and copper tubes type heat exchanger. The aluminium fins are correctly spaced to guarantee the best heat exchange efficiency. The lower part of the exchanger functions as a sub-cooling circuit thus increasing the cooling capacity.

Fans

Axial electric fans, protected to IP 54, with external rotor and profiled die-cast aluminium blades. Housed in aerodynamic hoods complete with safety grille. 6-pole electric motor with built-in thermal protection.

Refrigerant circuit

Main components of the refrigerant circuit:

- compressor discharge check valve,
- compressor discharge shut-off valve,
- liquid line shut-off valve,
- liquid line solenoid valve,
- dryer filter with replaceable cartridge,
- refrigerant line sight glass with humidity indicator,
- externally equalised thermostatic valve,
- high pressure safety valve,
- low pressure safety valve,
- high and low pressure transducers
- high pressure switches,
- differential pressure switch for water

Electric power and control panel

Electric power and control panel, built to EN 60204-1/EC 204-1 standards, complete with:

- control circuit transformer,
- general door lock isolator,
- power circuit with bar distribution system,
- fuses and contactors for compressors and fans,
- terminals for cumulative alarm block (BCA),
- remote ON/OFF terminals,
- spring-type control circuit terminal board,
- electric panel for outdoor installation,
- electronic controller.
- phase sequence relay

Basic model

Unit without heat recovery.

Model with partial heat recovery (D)

Air cooled chiller with partial heat recovery. Compared with the basic configuration, this version features an additional refrigerant/water heat exchanger on the gas delivery line. This heat exchanger, fitted in series before the traditional cooling circuit condenser, is large enough to recover heat for the production of medium-to-high temperature water for domestic hot water and the like. The heating capacity of the heat recovery circuit is approximately equal to the power input of the compressor. Each exchanger is fitted standard with an antifreeze heater

Model with heat recovery (R)

Air cooled chiller with total heat recovery. Compared with the basic configuration, this version features an additional refrigerant/water heat exchanger on the gas delivery line. This heat exchanger, fitted in parallel with the traditional cooling circuit condenser, is large enough to recover heat for the production of domestic hot water and the like. The heating capacity of the heat recovery circuit is approximately equal to the cooling power plus the power input of the compressors. Each exchanger is fitted standard with an antifreeze heater

AVAILABLE VERSIONS**B (base)**

Standard unit.

Standard unit. Unit with Low Temperature Pressure Device for condensation control

LN (Low Noise)

Low noise version. This configuration features special soundproofing for the compressor chamber and reduced fan speed. Unit with Low Temperature Variable Speed Device for condensation control

SL (Super Low Noise)

Super low noise version. This configuration features special soundproofing for the compressor chamber, reduced fan speed, an oversized condensing section. Unit with Low Temperature Variable Speed Device for condensation control

2.3 W3000SE-Large electronic controller

The controller W3000SE-Large offers the latest control and functions developed directly by Climaveneta on the basis of their experience gained over the years with the particular units and services engineering solutions.

The keypad is generously sized with full operating status display. The controls and the complete LCD display favour an easy and safe access to the machine setup. These resources allow the assessment and intervention on the unit, by means of a multi-level menu, with selectable user's language. The diagnostics comprises a complete alarm management system, including "black box" (via PC) functions and an alarm log (via display or also PC) for optimised analysis of unit performance. The diagnostics includes full management of alarms with black-box functions and alarm record for better analysis of unit performance. Supervision is easy through Climaveneta devices or with various options for interfacing to ModBus, Bacnet, Echelon LonTalk protocols. Compatibility with remote keyboard (management up to 10 units). Clock for operation scheduling (4 typical days and 10 time bands).

The regulation is characterized by the continuous modulation capacity based on a dead band on the evaporator outlet water temperature. As alternative is possible to manage a step regulation based on the return water temperature, with proportional or proportional and integral logics.

Optionally (VPF package), capacity modulation can be integrated with hydraulic flow modulation, thanks to inverter-driven pumps and to specific resources for the hydraulic circuit.

2.4 Accessories

- Increased noise insulation (std on LN/SL units)
- Spring isolators
- Rubber isolators
- High temperature pressure control
- Extra charge for AE up to -18°C (in addition to DP or DVV)
- Compressor suction valve
- Oversized electric heater on evaporator
- Increased evaporator insulation
- Cu/Cu condensing coils
Recommended for applications in atmospheres with a medium-high corrosion potential.
- Condensing coils with epoxy-coated fins
Recommended for applications in atmospheres characterized by a low corrosion potential.
- Condensing coils with Fin Guard Silver treatment
Recommended for marine exposure conditions, with an high level of pollution or other aggressive atmospheres.
- Coil protection with peraluman grille
- Victaulic-couplings on external evaporator connection (supplied separately)
- Flanges on external evaporator connections (supplied separately)
- Evaporator water flow switch (supplied separately)
- Power factor correction
- Automatic circuit breakers
- Free voltage contacts for compr. operation signalling
- Pump relay (supplied separately)
- Pump relay
- Numbered wires
- Sequencer (supplied separately)
- Electronic expansion valves

**FOCS
B**

3.1 GENERAL TECHNICAL DATA

SIZE		1542	1742	1942	1962	2442	2642	
FOCS								
COOLING (1)								
Cooling capacity	kW	277	329	366	398	466	516	
Total power input (unit)	kW	104	121	139	154	179	193	
EER		2,67	2,71	2,64	2,58	2,61	2,67	
ESEER		3,64	3,57	3,56	3,58	3,61	3,49	
Heat exchanger water flow	m³/h	47,7	56,6	63,1	68,5	80,2	88,8	
Heat exchanger pressure drop	kPa	39,8	56,1	48,1	31,9	32,2	42,6	
FOCS-D								
COOLING WITH PARTIAL RECOVERY (2)								
Cooling capacity	kW	287	341	380	413	484	535	
Total power input (unit)	kW	100	118	134	149	173	187	
Heat exchanger water flow	m³/h	47,7	56,6	63,1	68,5	80,2	88,8	
Heat exchanger pressure drop	kPa	39,8	56,1	48,1	31,9	32,2	42,6	
Heat recovery thermal capacity	kW	84,9	97,1	113	126	144	157	
Heat exchanger recovery water flow	m³/h	14,8	16,9	19,6	22,0	25,1	27,3	
Plant side heat exchanger recovery pressure drop	kPa	32,4	24,3	32,8	22,5	29,3	34,7	
FOCS-R								
COOLING WITH TOTAL RECOVERY (3)								
Cooling capacity	kW	293	344	382	423	497	549	
Total power input (unit)	kW	87,4	102	119	123	145	161	
Heat exchanger water flow	m³/h	47,7	56,6	63,1	68,5	80,2	88,8	
Heat exchanger pressure drop	kPa	39,8	56,1	48,1	31,9	32,2	42,6	
Heat recovery thermal capacity	kW	375	440	494	539	633	701	
Heat exchanger recovery water flow	m³/h	65,1	76,4	85,8	93,6	110	122	
Plant side heat exchanger recovery pressure drop	kPa	32,3	44,4	32,4	38,5	38,5	47,1	
COMPRESSORS								
Number	N°.	2	2	2	2	2	2	
Number of capacity	N°.	6	6	6	6	6	6	
Number of circuits	N°.	2	2	2	2	2	2	
Type of regulation		STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	
Minimum capacity steps	%	25	25	25	25	25	25	
Type of refrigerant		R134a	R134a	R134a	R134a	R134a	R134a	
Refrigerant charge	kg.	64,1	74,2	91,2	99,2	130	157	
Oil charge	kg.	30	30	30	30	44	44	
FANS								
Number	N°.	6	6	6	6	8	8	
Air flow	m³/s	27,3	32,5	31,2	31,2	43,4	41,6	
Singol power input	kW	1,45	2,1	2,1	2,1	2,1	2,1	
NOISE LEVELS (4)								
Total sound power	dB(A)	97	99	97	97	99	99	
Total sound pressure	dB(A)	65	67	65	65	67	67	
DIMENSIONS AND WEIGHTS (5)								
Length	mm.	4610	4610	4610	4610	5610	5610	
Width	mm.	2222	2222	2222	2222	2222	2222	
Height	mm.	2150	2420	2420	2420	2430	2430	
Weight	kg.	3490	3680	3810	4100	5140	5340	

- 1 Plant (side) cooling exchanger water (in/out) 12/7 °C
Source (side) heat exchanger air (in) 35 °C
- 2 Plant (side) cooling exchanger water (in/out) 12/7 °C
Source (side) heat exchanger air (in) 35 °C
Plant (side) heat exchanger recovery water (in/out) 40/45 °C
- 3 Plant (side) cooling exchanger water (in/out) 12/7 °C
Plant (side) heat exchanger recovery water (in/out) 40/45 °C
- 4 Sound power on the basis of measurements made in compliance with ISO 9614 and Eurovent 8/1 for Eurovent certified units;
in compliance with ISO 3744 for non-certified units
Average sound pressure level, at 10 (m.) distance, unit in a free field on a reflective surface; non-binding value obtained
from the sound power level
- 5 Standard configuration
- Not available

**FOCS
LN**

GENERAL TECHNICAL DATA

SIZE		1542	1742	1942	1962	2442	2642	
FOCS								
COOLING (1)								
Cooling capacity	kW	265	310	345	376	440	483	
Total power input (unit)	kW	106	124	144	165	186	201	
EER		2,51	2,50	2,40	2,29	2,37	2,40	
ESEER		3,68	3,58	3,61	3,61	3,62	3,48	
Heat exchanger water flow	m³/h	45,7	53,4	59,3	64,8	75,7	83,1	
Heat exchanger pressure drop	kPa	36,6	49,8	42,6	28,6	28,6	37,3	
FOCS-D								
COOLING WITH PARTIAL RECOVERY (2)								
Cooling capacity	kW	275	322	357	391	456	501	
Total power input (unit)	kW	102	120	139	159	179	194	
Heat exchanger water flow	m³/h	45,7	53,4	59,3	64,8	75,7	83,1	
Heat exchanger pressure drop	kPa	36,6	49,8	42,6	28,6	28,6	37,3	
Heat recovery thermal capacity	kW	89,9	104	122	140	157	171	
Heat exchanger recovery water flow	m³/h	15,6	18,1	21,2	24,4	27,3	29,7	
Plant side heat exchanger recovery pressure drop	kPa	36,4	28,0	38,3	27,7	34,6	40,9	
FOCS-R								
COOLING WITH TOTAL RECOVERY (3)								
Cooling capacity	kW	293	344	382	423	497	549	
Total power input (unit)	kW	87,4	102	119	123	145	161	
Heat exchanger water flow	m³/h	45,7	53,4	59,3	64,8	75,7	83,1	
Heat exchanger pressure drop	kPa	36,6	49,8	42,6	28,6	28,6	37,3	
Heat recovery thermal capacity	kW	375	440	494	539	633	701	
Heat exchanger recovery water flow	m³/h	65,1	76,4	85,8	93,6	110	122	
Plant side heat exchanger recovery pressure drop	kPa	32,3	44,4	32,4	38,5	38,5	47,1	
COMPRESSORS								
Number	N°.	2	2	2	2	2	2	
Number of capacity	N°.	6	6	6	6	6	6	
Number of circuits	N°.	2	2	2	2	2	2	
Type of regulation		STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	
Minimum capacity steps	%	25	25	25	25	25	25	
Type of refrigerant		R134a	R134a	R134a	R134a	R134a	R134a	
Refrigerant charge	kg.	64,1	74,2	91,2	99,2	130	157	
Oil charge	kg.	30	30	30	30	44	44	
FANS								
Number	N°.	6	6	6	6	8	8	
Air flow	m³/s	22,0	25,1	23,9	23,9	33,5	31,9	
Singol power input	kW	0,85	1,2	1,2	1,2	1,2	1,2	
NOISE LEVELS (4)								
Total sound power	dB(A)	91	91	91	91	93	93	
Total sound pressure	dB(A)	59	59	59	59	61	61	
DIMENSIONS AND WEIGHTS (5)								
Length	mm.	4610	4610	4610	4610	5610	5610	
Width	mm.	2222	2222	2222	2222	2222	2222	
Height	mm.	2150	2420	2420	2420	2430	2430	
Weight	kg.	3490	3680	3810	4100	5140	5340	

- 1 Plant (side) cooling exchanger water (in/out) 12/7 °C
Source (side) heat exchanger air (in) 35 °C
- 2 Plant (side) cooling exchanger water (in/out) 12/7 °C
Source (side) heat exchanger air (in) 35 °C
Plant (side) heat exchanger recovery water (in/out) 40/45 °C
- 3 Plant (side) cooling exchanger water (in/out) 12/7 °C
Plant (side) heat exchanger recovery water (in/out) 40/45 °C
- 4 Sound power on the basis of measurements made in compliance with ISO 9614 and Eurovent 8/1 for Eurovent certified units;
in compliance with ISO 3744 for non-certified units
Average sound pressure level, at 10 (m.) distance, unit in a free field on a reflective surface; non-binding value obtained
from the sound power level
- 5 Standard configuration
- Not available

**FOCS
SL**

GENERAL TECHNICAL DATA

SIZE		1542	1742	1942	1962	2442	2642	
FOCS								
COOLING	(1)							
Cooling capacity	kW	252	296	334	377	442	484	
Total power input (unit)	kW	112	128	149	164	183	199	
EER		2,26	2,31	2,24	2,29	2,41	2,43	
ESEER		3,5	3,47	3,46	3,62	3,69	3,52	
Heat exchanger water flow	m ³ /h	43,4	50,9	57,4	64,8	76,2	83,4	
Heat exchanger pressure drop	kPa	33,0	45,3	39,9	28,6	29,0	37,5	
FOCS-D								
COOLING WITH PARTIAL RECOVERY	(2)							
Cooling capacity	kW	262	307	346	391	459	502	
Total power input (unit)	kW	108	124	144	159	177	193	
Heat exchanger water flow	m ³ /h	43,4	50,9	57,4	64,8	76,2	83,4	
Heat exchanger pressure drop	kPa	33,0	45,3	39,9	28,6	29,0	37,5	
Heat recovery thermal capacity	kW	95,8	109	126	140	156	170	
Heat exchanger recovery water flow	m ³ /h	16,7	19,0	22,0	24,4	27,0	29,5	
Plant side heat exchanger recovery pressure drop	kPa	41,3	30,9	41,2	27,6	34,0	40,6	
FOCS-R								
COOLING WITH TOTAL RECOVERY	(3)							
Cooling capacity	kW	293	344	382	423	497	549	
Total power input (unit)	kW	87,4	102	119	123	145	161	
Heat exchanger water flow	m ³ /h	43,4	50,9	57,4	64,8	76,2	83,4	
Heat exchanger pressure drop	kPa	33,0	45,3	39,9	28,6	29,0	37,5	
Heat recovery thermal capacity	kW	375	440	494	539	633	701	
Heat exchanger recovery water flow	m ³ /h	65,1	76,4	85,8	93,6	110	122	
Plant side heat exchanger recovery pressure drop	kPa	32,3	44,4	32,4	38,5	38,5	47,1	
COMPRESSORS								
Number	N°.	2	2	2	2	2	2	
Number of capacity	N°.	6	6	6	6	6	6	
Number of circuits	N°.	2	2	2	2	2	2	
Type of regulation		STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	STEPLESS	
Minimum capacity steps	%	25	25	25	25	25	25	
Type of refrigerant		R134a	R134a	R134a	R134a	R134a	R134a	
Refrigerant charge	kg.	74,5	87	78,4	104	153	186	
Oil charge	kg.	30	30	30	30	44	44	
FANS								
Number	N°.	6	6	8	8	10	10	
Air flow	m ³ /s	16,1	19,3	28,2	26,9	33,7	32,1	
Singol power input	kW	0,69	0,9	0,9	0,9	0,9	0,9	
NOISE LEVELS								
Total sound power	dB(A)	86	87	87	87	89	89	
Total sound pressure	dB(A)	54	55	55	55	56	56	
DIMENSIONS AND WEIGHTS								
Length	mm.	4610	4610	5610	5610	6610	6610	
Width	mm.	2222	2222	2222	2222	2222	2222	
Height	mm.	2150	2420	2430	2430	2430	2430	
Weight	kg.	3580	3790	3960	4410	5730	5970	

- 1 Plant (side) cooling exchanger water (in/out) 12/7 °C
Source (side) heat exchanger air (in) 35 °C
- 2 Plant (side) cooling exchanger water (in/out) 12/7 °C
Source (side) heat exchanger air (in) 35 °C
Plant (side) heat exchanger recovery water (in/out) 40/45 °C
- 3 Plant (side) cooling exchanger water (in/out) 12/7 °C
Plant (side) heat exchanger recovery water (in/out) 40/45 °C
- 4 Sound power on the basis of measurements made in compliance with ISO 9614 and Eurovent 8/1 for Eurovent certified units;
in compliance with ISO 3744 for non-certified units
Average sound pressure level, at 10 (m.) distance, unit in a free field on a reflective surface; non-binding value obtained from the sound power level
- 5 Standard configuration
- Not available

3.2 COOLING CAPACITY PERFORMANCE

FOCS B

1542																		
Ta	25	30	32	35	40	42	25	30	32	35	40	42	25	30	32	35	40	42
Tev	6						7						8					
Pf	302	286	279	268	250	243	311	295	288	277	258	251	321	304	297	285	266	258
Pat	86,8	94,1	97,3	102	112	115	88,1	95,5	98,7	104	113	117	89,4	96,9	100	105	114	118
Qev	52,0	49,2	48,0	46,2	43,1	41,8	53,6	50,7	49,5	47,7	44,5	43,1	55,3	52,3	51,1	49,2	45,9	44,5
Dpev	47,3	42,3	40,3	37,3	32,5	30,5	50,3	45,0	42,9	39,8	34,6	32,6	53,4	47,9	45,6	42,3	36,8	34,7
Tev	9						10						11					
Pf	330	313	305	294	274	266	340	322	314	303	283	274	349	331	323	311	291	282
Pat	90,7	98,2	101	107	116	120	92,0	99,6	103	108	117	121	93,3	101	104	109	119	122
Qev	56,9	53,9	52,6	50,6	47,3	45,9	58,5	55,4	54,1	52,1	48,7	47,2	60,2	57,0	55,7	53,6	50,1	48,6
Dpev	56,7	50,8	48,4	44,9	39,1	36,8	60,0	53,8	51,3	47,6	41,5	39,0	63,4	56,9	54,2	50,3	43,9	41,3
1742																		
Ta	25	30	32	35	40	42	25	30	32	35	40	42	25	30	32	35	40	42
Tev	6						7						8					
Pf	362	341	332	319	294	284	373	352	343	329	304	294	385	363	354	339	314	303
Pat	102	110	114	120	130	134	103	112	116	121	132	136	105	113	117	123	133	138
Qev	62,3	58,7	57,2	54,8	50,7	48,9	64,3	60,6	59,0	56,6	52,3	50,5	66,2	62,5	60,9	58,4	54,0	52,2
Dpev	67,9	60,3	57,2	52,6	44,9	41,9	72,3	64,2	61,0	56,1	47,9	44,7	76,8	68,3	64,9	59,7	51,1	47,7
Tev	9						10						11					
Pf	396	374	364	350	323	313	408	385	375	360	333	322	419	396	386	370	343	332
Pat	106	115	119	125	135	139	108	116	120	126	137	141	109	118	122	128	138	143
Qev	68,2	64,4	62,7	60,2	55,7	53,8	70,2	66,3	64,6	62,0	57,4	55,5	72,2	68,2	66,5	63,8	59,1	57,1
Dpev	81,5	72,5	68,9	63,4	54,3	50,7	86,3	76,9	73,0	67,3	57,7	53,9	91,3	81,3	77,3	71,2	61,1	57,1
1942																		
Ta	25	30	32	35	40	42	25	30	32	35	40	42	25	30	32	35	40	42
Tev	6						7						8					
Pf	398	377	369	355	330	319	410	389	380	366	341	330	422	401	392	378	351	340
Pat	118	127	131	137	149	154	120	129	132	139	151	156	122	130	134	141	153	158
Qev	68,4	65,0	63,5	61,1	56,8	54,9	70,6	67,0	65,5	63,1	58,6	56,7	72,7	69,1	67,5	65,0	60,5	58,5
Dpev	56,7	51,1	48,7	45,2	39,0	36,5	60,3	54,4	51,9	48,1	41,6	39,0	64,0	57,8	55,2	51,2	44,3	41,5
Tev	9						10						11					
Pf	435	413	404	389	362	350	447	425	416	400	373	361	460	437	428	412	383	371
Pat	124	132	136	143	155	160	125	134	138	145	157	162	127	136	140	147	159	165
Qev	74,9	71,2	69,6	67,0	62,3	60,3	77,1	73,3	71,6	69,0	64,2	62,2	79,2	75,4	73,7	71,0	66,1	64,0
Dpev	67,9	61,3	58,6	54,3	47,0	44,1	71,9	65,0	62,1	57,6	49,9	46,7	76,0	68,7	65,7	60,9	52,8	49,5
1962																		
Ta	25	30	32	35	40	42	25	30	32	35	40	42	25	30	32	35	40	42
Tev	6						7						8					
Pf	422	406	399	387	364	354	435	418	410	398	375	365	447	430	422	409	385	375
Pat	127	138	144	152	169	176	128	140	145	154	171	178	130	142	147	156	173	181
Qev	72,7	69,9	68,6	66,6	62,7	61,0	74,8	72,0	70,7	68,5	64,5	62,8	77,0	74,0	72,7	70,5	66,4	64,5
Dpev	35,9	33,2	32,0	30,1	26,7	25,3	38,1	35,2	34,0	31,9	28,3	26,8	40,3	37,3	35,9	33,8	29,9	28,3
Tev	9						10						11					
Pf	459	442	434	421	396	385	472	454	445	432	406	395	484	466	457	443	416	405
Pat	132	144	149	158	175	183	134	146	151	160	177	185	136	148	153	162	179	187
Qev	79,1	76,1	74,7	72,5	68,2	66,3	81,3	78,2	76,7	74,4	70,0	68,0	83,4	80,2	78,8	76,3	71,7	69,7
Dpev	42,6	39,4	38,0	35,7	31,6	29,9	44,9	41,6	40,0	37,6	33,3	31,4	47,3	43,8	42,2	39,6	35,0	33,0
2442																		
Ta	25	30	32	35	40	42	25	30	32	35	40	42	25	30	32	35	40	42
Tev	6						7						8					
Pf	508	481	469	452	421	408	524	496	484	466	434	421	540	511	499	481	448	434
Pat	147	161	167	176	193	200	149	163	169	179	196	203	151	165	171	181	198	205
Qev	87,5	82,8	80,8	77,7	72,4	70,2	90,3	85,4	83,4	80,2	74,7	72,4	93,0	88,1	86,0	82,7	77,1	74,7
Dpev	38,3	34,3	32,6	30,2	26,2	24,6	40,7	36,5	34,8	32,2	27,9	26,2	43,3	38,8	37,0	34,2	29,7	27,9
Tev	9						10						11					
Pf	556	527	514	495	461	447	572	542	529	509	475	460	588	557	544	524	488	473
Pat	153	167	173	183	201	208	155	169	176	185	203	211	157	171	178	188	205	213
Qev	95,8	90,7	88,6	85,2	79,4	77,0	98,6	93,4	91,2	87,8	81,8	79,3	101	96,0	93,8	90,3	84,1	81,5
Dpev	45,9	41,1	39,2	36,3	31,5	29,6	48,6	43,6	41,6	38,5	33,4	31,4	51,4	46,1	44,0	40,7	35,4	33,2

Ta [°C] - Air temperature
Tev [°C] - Plant (side) cooling exchanger output water temperature
Pf [kW] - Cooling capacity
Pat [kW] - Total power input
Qev [m³/h] - Plant (side) heat exchanger water flow
Dpev [kPa] - Plant (side) cooling exchanger pressure drop
'-' Conditions outside the operating range
Waterflow and pressure drop on heat exchangers calculated with 5°C of delta T
NOTE: Data on grey background: unit switched to non-silenced operation

COOLING CAPACITY PERFORMANCE

**FOCS
B**

2642																		
Ta	25	30	32	35	40	42	25	30	32	35	40	42	25	30	32	35	40	42
Tev	6						7						8					
Pf	561	532	520	500	463	447	578	549	536	516	478	462	596	566	553	532	494	477
Pat	164	176	181	190	207	214	166	178	184	193	210	217	169	181	187	196	213	221
Qev	96,6	91,6	89,5	86,0	79,7	77,0	99,6	94,6	92,3	88,8	82,4	79,6	103	97,5	95,2	91,6	85,0	82,2
Dpev	50,3	45,3	43,2	40,0	34,3	32,0	53,6	48,3	46,0	42,6	36,6	34,2	56,9	51,3	49,0	45,3	39,0	36,5
Tev	9						10						11					
Pf	614	583	570	548	509	492	631	600	586	565	525	507	649	617	603	581	540	522
Pat	172	184	190	199	216	224	174	187	192	202	219	227	177	189	195	205	222	230
Qev	106	100	98,1	94,4	87,7	84,8	109	103	101	97,3	90,4	87,4	112	106	104	100	93,1	90,0
Dpev	60,3	54,5	52,0	48,2	41,5	38,8	63,8	57,7	55,1	51,1	44,1	41,2	67,5	61,1	58,3	54,1	46,8	43,8

Ta [°C] - Air temperature
 Tev [°C] - Plant (side) cooling exchanger output water temperature
 Pf [kW] - Cooling capacity
 Pat [kW] - Total power input
 Qev [m³/h] - Plant (side) heat exchanger water flow
 Dpev [kPa] - Plant (side) cooling exchanger pressure drop
 '-' Conditions outside the operating range
 Waterflow and pressure drop on heat exchangers calculated with 5°C of delta T
 NOTE: Data on grey background: unit switched to non-silenced operation

COOLING CAPACITY PERFORMANCE

**FOCS
LN**

1542																		
Ta	25	30	32	35	40	42	25	30	32	35	40	42	25	30	32	35	40	42
Tev	6						7						8					
Pf	292	275	268	257	250	243	301	284	277	265	258	251	310	292	285	273	266	258
Pat	87,5	95,4	98,8	104	112	115	89,0	96,9	100	106	113	117	90,4	98,5	102	107	114	118
Qev	50,3	47,4	46,2	44,3	43,1	41,8	51,8	48,9	47,6	45,7	44,5	43,1	53,4	50,3	49,0	47,1	45,9	44,5
Dpev	44,3	39,3	37,3	34,4	32,5	30,5	47,0	41,8	39,7	36,6	34,6	32,6	49,9	44,3	42,1	38,8	36,8	34,7
Tev	9						10						11					
Pf	319	301	293	281	274	266	328	309	301	289	283	274	337	318	310	297	291	282
Pat	91,9	100,0	103	109	116	120	93,3	101	105	110	117	121	94,8	103	106	112	119	122
Qev	54,9	51,8	50,5	48,5	47,3	45,9	56,5	53,3	51,9	49,9	48,7	47,2	58,1	54,7	53,4	51,2	50,1	48,6
Dpev	52,8	46,9	44,6	41,1	39,1	36,8	55,9	49,6	47,2	43,5	41,5	39,0	59,0	52,4	49,8	45,9	43,9	41,3
1742																		
Ta	25	30	32	35	40	42	25	30	32	35	40	42	25	30	32	35	40	42
Tev	6						7						8					
Pf	346	324	315	301	294	284	357	334	325	310	304	294	368	344	334	319	314	303
Pat	103	112	116	122	130	134	105	114	118	124	132	136	106	116	119	126	133	138
Qev	59,6	55,8	54,2	51,7	50,7	48,9	61,4	57,5	55,9	53,4	52,3	50,5	63,3	59,3	57,6	55,0	54,0	52,2
Dpev	62,2	54,5	51,4	46,8	44,9	41,9	66,1	58,0	54,7	49,8	47,9	44,7	70,1	61,5	58,0	52,9	51,1	47,7
Tev	9						10						11					
Pf	378	354	344	329	323	313	389	364	354	338	333	322	399	374	364	347	343	332
Pat	108	117	121	128	135	139	109	119	123	129	137	141	111	121	125	131	138	143
Qev	65,1	61,0	59,3	56,6	55,7	53,8	67,0	62,7	61,0	58,2	57,4	55,5	68,8	64,5	62,7	59,8	59,1	57,1
Dpev	74,2	65,1	61,5	56,1	54,3	50,7	78,5	68,9	65,1	59,3	57,7	53,9	82,8	72,7	68,7	62,7	61,1	57,1
1942																		
Ta	25	30	32	35	40	42	25	30	32	35	40	42	25	30	32	35	40	42
Tev	6						7						8					
Pf	383	359	349	334	330	319	394	370	360	345	341	330	406	381	371	355	351	340
Pat	119	130	134	141	149	154	121	132	136	144	151	156	123	134	139	146	153	158
Qev	65,9	61,8	60,1	57,5	56,8	54,9	67,9	63,7	62,0	59,3	58,6	56,7	69,9	65,6	63,8	61,1	60,5	58,5
Dpev	52,5	46,2	43,7	40,1	39,0	36,5	55,8	49,1	46,5	42,6	41,6	39,0	59,1	52,1	49,3	45,2	44,3	41,5
Tev	9						10						11					
Pf	418	392	381	365	362	350	429	403	392	400	373	361	441	414	403	412	383	371
Pat	125	136	141	148	155	160	127	138	143	145	157	162	129	141	145	147	159	165
Qev	71,9	67,5	65,7	62,9	62,3	60,3	73,9	69,4	67,5	69,0	64,2	62,2	75,9	71,3	69,4	71,0	66,1	64,0
Dpev	62,6	55,1	52,2	47,8	47,0	44,1	66,1	58,3	55,2	57,6	49,9	46,7	69,8	61,5	58,2	60,9	52,8	49,5
1962																		
Ta	25	30	32	35	40	42	25	30	32	35	40	42	25	30	32	35	40	42
Tev	6						7						8					
Pf	409	389	380	366	364	354	421	400	391	376	375	365	433	411	401	409	385	375
Pat	131	145	152	162	169	176	133	148	154	165	171	178	135	150	157	156	173	181
Qev	70,4	66,9	65,4	63,0	62,7	61,0	72,5	68,8	67,3	64,8	64,5	62,8	74,5	70,7	69,1	70,5	66,4	64,5
Dpev	33,7	30,5	29,1	27,0	26,7	25,3	35,7	32,2	30,8	28,6	28,3	26,8	37,7	34,0	32,5	33,8	29,9	28,3
Tev	9						10						11					
Pf	444	422	412	421	396	385	456	432	422	432	406	395	467	443	432	443	416	405
Pat	137	152	159	158	175	183	139	155	161	160	177	185	141	157	164	162	179	187
Qev	76,5	72,6	70,9	72,5	68,2	66,3	78,5	74,5	72,7	74,4	70,0	68,0	80,5	76,3	74,5	76,3	71,7	69,7
Dpev	39,8	35,8	34,2	35,7	31,6	29,9	41,9	37,7	36,0	37,6	33,3	31,4	44,1	39,6	37,7	39,6	35,0	33,0
2442																		
Ta	25	30	32	35	40	42	25	30	32	35	40	42	25	30	32	35	40	42
Tev	6						7						8					
Pf	486	457	445	427	421	408	501	471	459	440	434	421	516	485	472	481	448	434
Pat	151	166	173	183	193	200	153	169	175	186	196	203	156	171	178	181	198	205
Qev	83,7	78,7	76,6	73,4	72,4	70,2	86,3	81,1	79,0	75,7	74,7	72,4	88,8	83,6	81,4	82,7	77,1	74,7
Dpev	35,0	31,0	29,4	27,0	26,2	24,6	37,2	32,9	31,2	28,6	27,9	26,2	39,5	34,9	33,1	34,2	29,7	27,9
Tev	9						10						11					
Pf	531	499	486	495	461	447	546	513	499	509	475	460	560	527	513	524	488	473
Pat	158	174	181	183	201	208	160	176	183	185	203	211	163	179	186	188	205	213
Qev	91,4	86,0	83,7	85,2	79,4	77,0	94,0	88,4	86,0	87,8	81,8	79,3	96,5	90,8	88,4	90,3	84,1	81,5
Dpev	41,8	37,0	35,0	36,3	31,5	29,6	44,2	39,1	37,0	38,5	33,4	31,4	46,6	41,2	39,1	40,7	35,4	33,2

Ta [°C] - Air temperature
 Tev [°C] - Plant (side) cooling exchanger output water temperature
 Pf [kW] - Cooling capacity
 Pat [kW] - Total power input
 Qev [m³/h] - Plant (side) heat exchanger water flow
 Dpev [kPa] - Plant (side) cooling exchanger pressure drop
 '-' Conditions outside the operating range
 Waterflow and pressure drop on heat exchangers calculated with 5°C of delta T
 NOTE: Data on grey background: unit switched to non-silenced operation



COOLING CAPACITY PERFORMANCE

**FOCS
LN**

2642

Ta	25	30	32	35	40	42	25	30	32	35	40	42	25	30	32	35	40	42
Tev	6						7						8					
Pf	539	504	490	468	463	447	555	520	505	483	478	462	571	535	520	532	494	477
Pat	166	181	187	197	207	214	169	184	191	201	210	217	172	187	194	196	213	221
Qev	92,7	86,8	84,4	80,6	79,7	77,0	95,5	89,5	87,0	83,1	82,4	79,6	98,4	92,2	89,6	91,6	85,0	82,2
Dpev	46,4	40,7	38,4	35,1	34,3	32,0	49,3	43,3	40,9	37,3	36,6	34,2	52,2	45,9	43,4	45,3	39,0	36,5
Tev	9						10						11					
Pf	588	551	536	548	509	492	604	566	551	565	525	507	620	582	566	581	540	522
Pat	175	190	197	199	216	224	178	194	201	202	219	227	181	197	204	205	222	230
Qev	101	94,9	92,2	94,4	87,7	84,8	104	97,6	94,9	97,3	90,4	87,4	107	100	97,5	100	93,1	90,0
Dpev	55,3	48,6	45,9	48,2	41,5	38,8	58,4	51,4	48,6	51,1	44,1	41,2	61,7	54,3	51,3	54,1	46,8	43,8

Ta [°C] - Air temperature

Tev [°C] - Plant (side) cooling exchanger output water temperature

Pf [kW] - Cooling capacity

Pat [kW] - Total power input

Qev [m³/h] - Plant (side) heat exchanger water flow

Dpev [kPa] - Plant (side) cooling exchanger pressure drop

'-' Conditions outside the operating range

Waterflow and pressure drop on heat exchangers calculated with 5°C of delta T

NOTE: Data on grey background: unit switched to non-silenced operation

COOLING CAPACITY PERFORMANCE

**FOCS
SL**

1542																		
Ta	25	30	32	35	40	42	25	30	32	35	40	42	25	30	32	35	40	42
Tev	6						7						8					
Pf	281	263	256	245	243	236	289	271	264	252	251	243	298	279	271	278	259	251
Pat	91,7	100	104	110	106	111	93,3	102	106	112	108	112	94,9	104	107	99,9	110	114
Qev	48,4	45,3	44,1	42,2	41,9	40,5	49,8	46,7	45,4	43,4	43,2	41,8	51,3	48,1	46,7	47,9	44,5	43,1
Dpev	41,0	36,0	34,0	31,1	30,7	28,8	43,5	38,2	36,1	33,0	32,7	30,6	46,0	40,4	38,2	40,2	34,7	32,6
Tev	9						10						11					
Pf	306	287	279	287	266	258	314	295	287	295	274	266	323	302	294	303	282	273
Pat	96,5	105	109	101	111	115	98,1	107	111	103	112	116	99,7	109	112	104	114	118
Qev	52,7	49,4	48,1	49,3	45,9	44,4	59,4	50,8	49,4	50,8	47,2	45,7	55,6	52,1	50,7	52,2	48,5	47,0
Dpev	48,7	42,8	40,4	42,6	36,8	34,6	51,3	45,1	42,7	45,1	39,0	36,6	54,1	47,5	44,9	47,7	41,2	38,7
1742																		
Ta	25	30	32	35	40	42	25	30	32	35	40	42	25	30	32	35	40	42
Tev	6						7						8					
Pf	335	312	302	287	283	273	345	321	311	296	292	282	355	330	320	328	301	290
Pat	106	115	120	126	122	127	108	117	122	128	124	129	109	119	124	115	126	130
Qev	57,6	53,6	52,0	49,4	48,7	46,9	59,4	55,3	53,6	50,9	50,3	48,5	61,1	56,9	55,1	56,4	51,9	50,0
Dpev	58,1	50,4	47,3	42,7	41,6	38,6	61,7	53,5	50,2	45,3	44,3	41,1	65,3	56,6	53,2	55,8	47,2	43,8
Tev	9						10						11					
Pf	365	340	329	338	311	299	375	349	338	347	320	308	384	358	347	357	329	317
Pat	111	121	126	117	128	132	113	123	127	118	129	134	115	125	129	120	131	136
Qev	62,8	58,5	56,7	58,1	53,5	51,5	64,5	60,1	58,3	59,8	55,1	53,1	66,3	61,7	59,8	61,5	56,7	54,6
Dpev	69,1	59,9	56,2	59,2	50,1	46,5	72,9	63,2	59,4	62,7	53,1	49,3	76,8	66,6	62,6	66,3	56,2	52,2
1942																		
Ta	25	30	32	35	40	42	25	30	32	35	40	42	25	30	32	35	40	42
Tev	6						7						8					
Pf	373	349	339	324	317	307	384	359	349	334	327	316	395	370	359	364	337	326
Pat	123	134	139	146	142	148	126	137	141	149	145	150	128	139	144	134	147	152
Qev	64,2	60,1	58,4	55,7	54,6	52,8	66,1	61,9	60,1	57,4	56,3	54,5	68,0	63,7	61,9	62,7	58,1	56,2
Dpev	49,8	43,7	41,2	37,6	36,1	33,7	52,9	46,3	43,7	39,9	38,4	35,9	56,0	49,1	46,3	47,6	40,8	38,2
Tev	9						10						11					
Pf	406	380	369	375	347	336	417	390	379	386	357	346	428	401	389	396	367	355
Pat	130	141	146	137	149	155	132	144	149	139	151	157	135	146	151	141	154	159
Qev	69,9	65,5	63,6	64,6	59,8	57,8	71,9	67,3	65,4	66,4	61,6	59,5	73,8	69,1	67,1	68,3	63,3	61,2
Dpev	59,2	51,9	49,0	50,5	43,3	40,5	62,5	54,8	51,7	53,4	45,8	42,9	65,8	57,7	54,5	56,5	48,5	45,3
1962																		
Ta	25	30	32	35	40	42	25	30	32	35	40	42	25	30	32	35	40	42
Tev	6						7						8					
Pf	410	389	380	366	363	353	421	400	391	377	373	363	433	411	402	408	384	373
Pat	130	145	152	162	157	165	132	147	154	164	160	167	134	150	156	145	162	169
Qev	70,5	67,0	65,5	63,1	62,4	60,7	72,5	68,9	67,3	64,8	64,2	62,5	74,6	70,8	69,2	70,3	66,0	64,2
Dpev	33,8	30,5	29,2	27,1	26,5	25,1	35,8	32,3	30,8	28,6	28,1	26,6	37,8	34,1	32,5	33,6	29,7	28,1
Tev	9						10						11					
Pf	445	422	412	419	394	383	456	433	422	430	404	393	468	443	433	441	414	402
Pat	137	152	159	147	164	171	139	154	161	149	166	173	141	157	163	151	168	176
Qev	76,6	72,7	71,0	72,2	67,8	66,0	78,6	74,5	72,8	74,1	69,6	67,7	80,6	76,4	74,6	76,0	71,4	69,4
Dpev	39,9	35,9	34,2	35,4	31,3	29,6	42,0	37,8	36,0	37,4	32,9	31,1	44,1	39,7	37,8	39,3	34,6	32,7
2442																		
Ta	25	30	32	35	40	42	25	30	32	35	40	42	25	30	32	35	40	42
Tev	6						7						8					
Pf	489	460	448	429	422	409	504	474	462	442	436	422	519	488	476	456	449	436
Pat	149	164	170	181	175	183	151	167	173	183	178	185	154	169	176	186	180	188
Qev	84,2	79,2	77,1	73,9	72,7	70,4	86,8	81,7	79,5	76,2	75,0	72,7	89,4	84,1	81,9	78,5	77,4	75,0
Dpev	35,5	31,4	29,7	27,3	26,4	24,8	37,7	33,3	31,6	29,0	28,1	26,4	40,0	35,4	33,5	30,8	29,9	28,1
Tev	9						10						11					
Pf	534	502	489	497	463	449	549	517	503	512	477	462	564	531	517	526	490	475
Pat	156	172	178	165	183	190	158	174	181	168	185	193	160	176	183	170	188	195
Qev	92,0	86,5	84,3	85,6	79,7	77,3	94,6	89,0	86,6	88,1	82,1	79,6	97,2	91,4	89,0	90,7	84,5	81,9
Dpev	42,3	37,5	35,5	36,6	31,8	29,9	44,7	39,6	37,5	38,8	33,7	31,7	47,2	41,8	39,6	41,1	35,7	33,5

Ta [°C] - Air temperature
 Tev [°C] - Plant (side) cooling exchanger output water temperature
 Pf [kW] - Cooling capacity
 Pat [kW] - Total power input
 Qev [m³/h] - Plant (side) heat exchanger water flow
 Dpev [kPa] - Plant (side) cooling exchanger pressure drop
 '-' Conditions outside the operating range
 Waterflow and pressure drop on heat exchangers calculated with 5°C of delta T
 NOTE: Data on grey background: unit switched to non-silenced operation



COOLING CAPACITY PERFORMANCE

**FOCS
SL**

2642																		
Ta	25	30	32	35	40	42	25	30	32	35	40	42	25	30	32	35	40	42
Tev	6						7						8					
Pf	541	506	492	470	463	448	557	522	507	484	478	463	573	537	522	532	494	478
Pat	164	179	186	196	190	197	167	183	189	199	193	201	170	186	192	179	196	204
Qev	93,0	87,1	84,7	80,8	79,7	77,1	95,9	89,8	87,3	83,4	82,4	79,6	98,7	92,5	89,9	91,7	85,0	82,2
Dpev	46,7	41,0	38,7	35,3	34,3	32,1	49,6	43,6	41,1	37,5	36,6	34,3	52,6	46,2	43,7	45,4	39,0	36,5
Tev	9						10						11					
Pf	590	553	537	549	509	493	606	568	553	565	525	508	623	584	568	581	540	523
Pat	173	189	196	182	199	207	176	192	199	185	203	210	179	195	202	188	206	213
Qev	102	95,2	92,6	94,5	87,7	84,8	104	97,9	95,2	97,3	90,4	87,5	107	101	97,8	100	93,1	90,1
Dpev	55,7	49,0	46,3	48,2	41,5	38,9	58,9	51,8	48,9	51,2	44,1	41,3	62,2	54,7	51,7	54,2	46,8	43,8

Ta [°C] - Air temperature
 Tev [°C] - Plant (side) cooling exchanger output water temperature
 Pf [kW] - Cooling capacity
 Pat [kW] - Total power input
 Qev [m³/h] - Plant (side) heat exchanger water flow
 Dpev [kPa] - Plant (side) cooling exchanger pressure drop
 '-' Conditions outside the operating range
 Waterflow and pressure drop on heat exchangers calculated with 5°C of delta T
 NOTE: Data on grey background: unit switched to non-silenced operation

3.3 DESUPERHEATER CAPACITY PERFOR.

FOCS - D B

1542																		
Tde	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Ta	25			30			32			35			40			42		
Pf	323	323	323	306	306	306	298	298	298	287	287	287	268	268	268	260	260	260
Pat	85,3	85,3	85,3	92,5	92,5	92,5	95,6	95,6	95,6	100	100	100	109	109	109	113	113	113
Ptde	76,6	70,9	67,0	83,8	79,6	75,4	86,9	83,4	79,0	91,8	89,5	84,9	101	101	95,6	104	105	100
Qde	13,3	12,3	11,7	14,5	13,8	13,1	15,0	14,5	13,7	15,9	15,5	14,8	17,4	17,5	16,6	18,1	18,3	17,4
Dpde	26,2	22,5	20,2	31,4	28,4	25,6	33,7	31,2	28,1	37,6	35,9	32,4	45,3	45,4	41,1	48,8	49,9	45,2

1742																		
Tde	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Ta	25			30			32			35			40			42		
Pf	387	387	387	365	365	365	356	356	356	341	341	341	315	315	315	305	305	305
Pat	100	100	100	109	109	109	112	112	112	118	118	118	128	128	128	132	132	132
Ptde	87,7	81,1	76,7	95,9	91,1	86,3	99,4	95,5	90,5	105	102	97,1	115	115	109	119	120	114
Qde	15,2	14,1	13,3	16,6	15,8	15,0	17,2	16,6	15,7	18,2	17,8	16,9	19,9	19,9	19,0	20,6	20,9	19,9
Dpde	19,7	16,9	15,2	23,6	21,4	19,2	25,4	23,4	21,1	28,3	27,0	24,3	33,9	34,0	30,8	36,4	37,2	33,8

1942																		
Tde	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Ta	25			30			32			35			40			42		
Pf	425	425	425	404	404	404	395	395	395	380	380	380	353	353	353	342	342	342
Pat	116	116	116	125	125	125	128	128	128	134	134	134	146	146	146	151	151	151
Ptde	104	95,7	90,6	112	106	101	116	111	105	122	119	113	133	133	127	138	140	133
Qde	17,9	16,6	15,7	19,4	18,4	17,5	20,0	19,3	18,3	21,1	20,6	19,6	23,1	23,1	22,0	24,0	24,3	23,1
Dpde	27,5	23,6	21,2	32,1	29,1	26,2	34,3	31,7	28,6	38,1	36,3	32,8	45,6	45,8	41,5	49,2	50,3	45,6

1962																		
Tde	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Ta	25			30			32			35			40			42		
Pf	451	451	451	434	434	434	426	426	426	413	413	413	389	389	389	378	378	378
Pat	124	124	124	136	136	136	141	141	141	149	149	149	165	165	165	173	173	173
Ptde	112	103	97,8	123	117	111	128	123	117	137	133	126	153	153	145	160	162	154
Qde	19,4	17,9	17,0	21,3	20,3	19,2	22,2	21,4	20,3	23,7	23,1	22,0	26,5	26,5	25,2	27,7	28,0	26,7
Dpde	17,4	14,9	13,4	21,1	19,1	17,2	22,9	21,2	19,1	26,1	24,9	22,5	32,6	32,7	29,6	35,7	36,5	33,1

2442																		
Tde	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Ta	25			30			32			35			40			42		
Pf	544	544	544	515	515	515	503	503	503	484	484	484	450	450	450	437	437	437
Pat	144	144	144	158	158	158	164	164	164	173	173	173	189	189	189	196	196	196
Ptde	128	118	112	141	134	127	147	141	134	156	152	144	173	173	164	180	181	172
Qde	22,1	20,5	19,4	24,4	23,3	22,1	25,5	24,5	23,2	27,1	26,4	25,1	29,9	29,9	28,5	31,1	31,5	30,0
Dpde	22,7	19,5	17,5	27,8	25,2	22,7	30,1	27,9	25,1	34,0	32,4	29,3	41,6	41,7	37,8	45,0	46,0	41,7

2642																		
Tde	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Ta	25			30			32			35			40			42		
Pf	600	600	600	570	570	570	556	556	556	535	535	535	496	496	496	480	480	480
Pat	161	161	161	173	173	173	178	178	178	187	187	187	203	203	203	210	210	210
Ptde	144	133	126	156	148	140	161	155	147	170	166	157	186	186	177	194	196	186
Qde	25,0	23,1	21,9	27,0	25,7	24,4	27,9	26,9	25,5	29,4	28,8	27,3	32,3	32,3	30,8	33,5	33,9	32,3
Dpde	29,0	24,9	22,4	33,9	30,7	27,7	36,3	33,5	30,2	40,3	38,4	34,7	48,5	48,6	44,0	52,3	53,5	48,5

Tde (°C) - Plant (side) heat exchanger recovery output water temperature
 Ta [°C] - Source (side) cooling exchanger air temperature
 Pf (kW) - Cooling capacity (Plant side cooling exchanger water in/out 12/7 °C)
 Pat (kW) - Total power input
 Ptde (kW) - Heat recovery thermal capacity
 Qde (m3/h) - Plant (side) cooling exchanger recovery water flow
 Dpde (kPa) - Plant side heating exchanger recovery pressure drop
 '-' - Conditions outside the operating range
 Waterflow and pressure drop on heat exchangers calculated with 5°C of delta T
 NOTE: Data on grey background: unit switched to non-silenced operation

DESUPERHEATER CAPACITY PERFOR.

**FOCS - D
LN**

1542																		
Tde	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Ta	25			30			32			35			40			42		
Pf	312	312	312	294	294	294	287	287	287	275	275	275	268	268	268	260	260	260
Pat	86,0	86,0	86,0	93,7	93,7	93,7	97,0	97,0	97,0	102	102	102	109	109	109	113	113	113
Ptde	80,9	74,9	70,8	88,6	84,2	79,8	91,9	88,3	83,7	97,2	94,8	89,9	101	101	95,6	104	105	100
Qde	14,0	13,0	12,3	15,4	14,6	13,9	15,9	15,3	14,5	16,8	16,4	15,6	17,4	17,5	16,6	18,1	18,3	17,4
Dpde	29,3	25,1	22,6	35,1	31,8	28,6	37,8	34,9	31,5	42,2	40,3	36,4	45,3	45,4	41,1	48,8	49,9	45,2

1742																		
Tde	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Ta	25			30			32			35			40			42		
Pf	370	370	370	347	347	347	337	337	337	322	322	322	315	315	315	305	305	305
Pat	101	101	101	110	110	110	114	114	114	120	120	120	128	128	128	132	132	132
Ptde	94,0	86,9	82,2	103	97,7	92,6	107	102	97,0	113	110	104	115	115	109	119	120	114
Qde	16,3	15,1	14,3	17,8	16,9	16,1	18,5	17,8	16,9	19,5	19,0	18,1	19,9	19,9	19,0	20,6	20,9	19,9
Dpde	22,6	19,4	17,5	27,1	24,6	22,1	29,2	27,0	24,3	32,5	31,0	28,0	33,9	34,0	30,8	36,4	37,2	33,8

1942																		
Tde	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Ta	25			30			32			35			40			42		
Pf	409	409	409	384	384	384	374	374	374	357	357	357	353	353	353	342	342	342
Pat	117	117	117	127	127	127	132	132	132	139	139	139	146	146	146	151	151	151
Ptde	110	102	96,2	120	114	108	125	120	113	132	128	122	133	133	127	138	140	133
Qde	19,0	17,6	16,7	20,8	19,8	18,8	21,6	20,8	19,7	22,8	22,3	21,2	23,1	23,1	22,0	24,0	24,3	23,1
Dpde	31,0	26,6	23,9	37,1	33,6	30,2	39,9	36,8	33,2	44,4	42,4	38,3	45,6	45,8	41,5	49,2	50,3	45,6

1962																		
Tde	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Ta	25			30			32			35			40			42		
Pf	437	437	437	415	415	415	405	405	405	391	391	391	389	389	389	378	378	378
Pat	128	128	128	143	143	143	149	149	149	159	159	159	165	165	165	173	173	173
Ptde	121	112	106	136	129	122	142	136	129	152	148	140	153	153	145	160	162	154
Qde	21,0	19,4	18,4	23,5	22,3	21,2	24,6	23,6	22,4	26,3	25,7	24,4	26,5	26,5	25,2	27,7	28,0	26,7
Dpde	20,4	17,5	15,8	25,6	23,2	20,9	28,1	26,0	23,4	32,2	30,7	27,7	32,6	32,7	29,6	35,7	36,5	33,1

2442																		
Tde	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Ta	25			30			32			35			40			42		
Pf	520	520	520	489	489	489	476	476	476	456	456	456	450	450	450	437	437	437
Pat	148	148	148	163	163	163	169	169	169	179	179	179	189	189	189	196	196	196
Ptde	139	128	121	154	146	138	160	153	145	170	166	157	173	173	164	180	181	172
Qde	24,0	22,3	21,1	26,6	25,3	24,0	27,7	26,6	25,3	29,4	28,7	27,3	29,9	29,9	28,5	31,1	31,5	30,0
Dpde	26,8	23,0	20,7	32,9	29,8	26,8	35,6	33,0	29,7	40,2	38,3	34,6	41,6	41,7	37,8	45,0	46,0	41,7

2642																		
Tde	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Ta	25			30			32			35			40			42		
Pf	576	576	576	539	539	539	524	524	524	501	501	501	496	496	496	480	480	480
Pat	163	163	163	178	178	178	184	184	184	194	194	194	203	203	203	210	210	210
Ptde	154	142	134	168	160	151	175	168	159	185	180	171	186	186	177	194	196	186
Qde	26,6	24,7	23,4	29,1	27,7	26,3	30,2	29,1	27,6	32,0	31,2	29,7	32,3	32,3	30,8	33,5	33,9	32,3
Dpde	32,9	28,3	25,4	39,5	35,8	32,2	42,5	39,3	35,4	47,5	45,3	40,9	48,5	48,6	44,0	52,3	53,5	48,5

Tde (°C) - Plant (side) heat exchanger recovery output water temperature
 Ta [°C] - Source (side) cooling exchanger air temperature
 Pf (kW) - Cooling capacity (Plant side cooling exchanger water in/out 12/7 °C)
 Pat (kW) - Total power input
 Ptde (kW) - Heat recovery thermal capacity
 Qde (m3/h) - Plant (side) cooling exchanger recovery water flow
 Dpde (kPa) - Plant side heating exchanger recovery pressure drop
 '-' - Conditions outside the operating range
 Waterflow and pressure drop on heat exchangers calculated with 5°C of delta T
 NOTE: Data on grey background: unit switched to non-silenced operation

DESUPERHEATER CAPACITY PERFOR.

FOCS - D
SL

1542																		
Tde	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Ta	25			30			32			35			40			42		
Pf	300	300	300	281	281	281	274	274	274	262	262	262	260	260	260	252	252	252
Pat	90,2	90,2	90,2	98,6	98,6	98,6	102	102	102	108	108	108	104	104	104	108	108	108
Ptde	86,0	79,6	75,3	94,4	89,7	85,0	98,0	94,1	89,2	104	101	95,8	104	104	99,0	108	109	104
Qde	14,9	13,8	13,1	16,4	15,6	14,8	17,0	16,3	15,5	17,9	17,5	16,7	18,1	18,1	17,2	18,7	19,0	18,0
Dpde	33,1	28,4	25,5	39,8	36,1	32,5	42,9	39,7	35,8	48,0	45,8	41,3	48,6	48,7	44,1	52,3	53,5	48,5

1742																		
Tde	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Ta	25			30			32			35			40			42		
Pf	358	358	358	333	333	333	323	323	323	307	307	307	303	303	303	292	292	292
Pat	104	104	104	113	113	113	117	117	117	124	124	124	120	120	120	124	124	124
Ptde	98,7	91,3	86,3	108	103	97,3	112	108	102	118	115	109	120	120	114	124	125	119
Qde	17,1	15,8	15,0	18,7	17,8	16,9	19,4	18,7	17,7	20,5	20,0	19,0	20,7	20,8	19,8	21,5	21,7	20,7
Dpde	25,0	21,4	19,2	30,0	27,1	24,4	32,2	29,8	26,9	35,9	34,2	30,9	36,7	36,8	33,4	39,4	40,4	36,6

1942																		
Tde	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Ta	25			30			32			35			40			42		
Pf	398	398	398	373	373	373	362	362	362	346	346	346	340	340	340	328	328	328
Pat	121	121	121	132	132	132	137	137	137	144	144	144	140	140	140	145	145	145
Ptde	114	106	99,9	125	119	112	129	124	118	137	133	126	140	140	133	145	146	139
Qde	19,8	18,3	17,4	21,6	20,6	19,5	22,4	21,6	20,5	23,7	23,1	22,0	24,2	24,2	23,0	25,0	25,3	24,1
Dpde	33,5	28,7	25,8	40,0	36,2	32,6	43,0	39,8	35,9	47,9	45,7	41,2	49,9	50,1	45,4	53,6	54,9	49,8

1962																		
Tde	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Ta	25			30			32			35			40			42		
Pf	437	437	437	415	415	415	406	406	406	391	391	391	387	387	387	377	377	377
Pat	128	128	128	143	143	143	149	149	149	159	159	159	154	154	154	161	161	161
Ptde	121	112	106	135	129	122	142	136	129	152	148	140	154	154	146	161	163	155
Qde	20,9	19,4	18,4	23,4	22,3	21,2	24,5	23,6	22,4	26,3	25,7	24,4	26,7	26,7	25,4	27,9	28,2	26,9
Dpde	20,4	17,5	15,7	25,6	23,1	20,8	28,0	25,9	23,3	32,1	30,6	27,6	33,1	33,2	30,1	36,2	37,1	33,6

2442																		
Tde	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Ta	25			30			32			35			40			42		
Pf	523	523	523	492	492	492	479	479	479	459	459	459	452	452	452	438	438	438
Pat	146	146	146	161	161	161	167	167	167	177	177	177	172	172	172	179	179	179
Ptde	137	127	120	152	144	137	158	152	144	168	164	156	172	172	163	179	181	172
Qde	23,8	22,0	20,9	26,3	25,1	23,8	27,4	26,4	25,0	29,1	28,5	27,0	29,7	29,8	28,3	31,0	31,3	29,8
Dpde	26,3	22,5	20,2	32,2	29,2	26,3	35,0	32,3	29,2	39,5	37,7	34,0	41,1	41,3	37,4	44,6	45,6	41,3

2642																		
Tde	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Ta	25			30			32			35			40			42		
Pf	578	578	578	541	541	541	526	526	526	502	502	502	496	496	496	480	480	480
Pat	162	162	162	176	176	176	183	183	183	193	193	193	186	186	186	194	194	194
Ptde	153	141	134	167	159	151	174	167	158	184	179	170	186	186	177	194	195	186
Qde	26,5	24,5	23,2	29,0	27,6	26,2	30,1	28,9	27,5	31,8	31,1	29,5	32,3	32,3	30,8	33,5	33,9	32,3
Dpde	32,6	28,0	25,1	39,1	35,4	31,9	42,1	39,0	35,1	47,1	45,0	40,6	48,5	48,6	44,1	52,3	53,5	48,5

Tde (°C) - Plant (side) heat exchanger recovery output water temperature

Ta [°C] - Source (side) cooling exchanger air temperature

Pf (kW) - Cooling capacity (Plant side cooling exchanger water in/out 12/7 °C)

Pat (kW) - Total power input

Ptde (kW) - Heat recovery thermal capacity

Qde (m3/h) - Plant (side) cooling exchanger recovery water flow

Dpde (kPa) - Plant side heating exchanger recovery pressure drop

'-' - Conditions outside the operating range

Waterflow and pressure drop on heat exchangers calculated with 5°C of delta T

NOTE: Data on grey background: unit switched to non-silenced operation

3.4 RECOVERY CAPACITY PERFORMANCE **FOCS - R**
B

1542																		
Tre	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Tev	6			7			8			9			10			11		
Pf	315	299	282	327	310	293	338	321	303	349	332	314	360	343	324	372	354	335
Qev	46,2	46,2	46,2	47,7	47,7	47,7	49,2	49,2	49,2	50,6	50,6	50,6	52,1	52,1	52,1	53,6	53,6	53,6
Dpev	37,3	37,3	37,3	39,8	39,8	39,8	42,3	42,3	42,3	44,9	44,9	44,9	47,6	47,6	47,6	50,3	50,3	50,3
Pat	72,3	78,9	86,6	73,1	79,7	87,4	73,8	80,4	88,1	74,5	81,2	88,9	75,2	81,9	89,6	75,9	82,6	90,3
Ptre	383	374	364	395	385	375	407	397	386	419	408	397	431	420	409	443	432	420
Qre	66,4	64,8	63,2	68,4	66,8	65,1	70,5	68,8	67,1	72,6	70,8	69,0	74,7	72,8	71,0	76,8	74,9	73,0
Dpre	33,5	31,9	30,4	35,6	33,9	32,3	37,8	36,0	34,2	40,0	38,1	36,2	42,4	40,3	38,3	44,8	42,6	40,5

1742																		
Tre	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Tev	6			7			8			9			10			11		
Pf	374	354	331	387	366	344	401	379	356	414	392	369	428	406	382	441	419	394
Qev	54,8	54,8	54,8	56,6	56,6	56,6	58,4	58,4	58,4	60,2	60,2	60,2	62,0	62,0	62,0	63,8	63,8	63,8
Dpev	52,6	52,6	52,6	56,1	56,1	56,1	59,7	59,7	59,7	63,4	63,4	63,4	67,3	67,3	67,3	71,2	71,2	71,2
Pat	84,2	92,2	101	85,0	93,0	102	85,7	93,8	103	86,4	94,6	104	87,2	95,3	105	87,8	96,0	105
Ptre	453	440	427	467	454	440	481	468	453	495	481	466	510	495	480	524	509	493
Qre	78,5	76,4	74,1	80,9	78,7	76,4	83,3	81,1	78,7	85,8	83,5	81,1	88,2	85,9	83,4	90,7	88,3	85,7
Dpre	46,8	44,3	41,8	49,7	47,1	44,4	52,8	50,0	47,1	55,9	53,0	49,9	59,2	56,1	52,9	62,6	59,3	55,9

1942																		
Tre	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Tev	6			7			8			9			10			11		
Pf	414	392	369	429	406	382	444	421	396	459	435	410	473	449	424	489	464	438
Qev	61,1	61,1	61,1	63,1	63,1	63,1	65,0	65,0	65,0	67,0	67,0	67,0	69,0	69,0	69,0	71,0	71,0	71,0
Dpev	45,2	45,2	45,2	48,1	48,1	48,1	51,2	51,2	51,2	54,3	54,3	54,3	57,6	57,6	57,6	60,9	60,9	60,9
Pat	98,2	107	118	99,3	108	119	100	109	120	101	111	121	102	112	122	103	113	123
Ptre	507	493	479	522	508	494	538	523	509	554	539	524	570	554	538	586	570	553
Qre	87,8	85,5	83,3	90,5	88,2	85,8	93,2	90,8	88,4	95,9	93,5	91,0	98,7	96,2	93,6	101	98,8	96,2
Dpre	33,9	32,2	30,5	36,0	34,2	32,4	38,2	36,3	34,4	40,5	38,4	36,4	42,9	40,7	38,5	45,3	43,0	40,7

1962																		
Tre	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Tev	6			7			8			9			10			11		
Pf	442	426	409	456	440	423	470	454	436	485	469	450	499	483	464	514	497	478
Qev	66,6	66,6	66,6	68,5	68,5	68,5	70,5	70,5	70,5	72,5	72,5	72,5	74,4	74,4	74,4	76,3	76,3	76,3
Dpev	30,1	30,1	30,1	31,9	31,9	31,9	33,8	33,8	33,8	35,7	35,7	35,7	37,6	37,6	37,6	39,6	39,6	39,6
Pat	99,3	110	122	100	111	123	101	112	124	102	112	125	102	113	125	103	114	126
Ptre	535	530	524	550	544	539	565	559	553	580	574	567	595	589	582	611	604	596
Qre	92,7	91,9	91,1	95,3	94,5	93,6	97,9	97,0	96,1	101	99,6	98,6	103	102	101	106	105	104
Dpre	37,8	37,2	36,5	40,0	39,3	38,5	42,2	41,4	40,6	44,5	43,6	42,8	46,8	45,9	45,0	49,2	48,3	47,2

2442																		
Tre	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Tev	6			7			8			9			10			11		
Pf	533	507	479	552	525	497	571	543	514	590	562	532	609	581	550	628	599	568
Qev	77,7	77,7	77,7	80,2	80,2	80,2	82,7	82,7	82,7	85,2	85,2	85,2	87,8	87,8	87,8	90,3	90,3	90,3
Dpev	30,2	30,2	30,2	32,2	32,2	32,2	34,2	34,2	34,2	36,3	36,3	36,3	38,5	38,5	38,5	40,7	40,7	40,7
Pat	118	130	144	118	131	145	119	132	146	120	133	147	121	133	148	121	134	149
Ptre	644	629	615	663	648	633	683	668	652	703	687	671	722	706	689	742	725	708
Qre	112	109	107	115	112	110	118	116	113	122	119	117	125	122	120	129	126	123
Dpre	39,5	37,9	36,3	42,0	40,2	38,5	44,5	42,6	40,8	47,1	45,1	43,2	49,8	47,7	45,6	52,5	50,4	48,2

2642																		
Tre	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Tev	6			7			8			9			10			11		
Pf	594	563	530	615	583	549	636	604	569	657	625	590	679	646	610	700	667	630
Qev	86,0	86,0	86,0	88,8	88,8	88,8	91,6	91,6	91,6	94,4	94,4	94,4	97,3	97,3	97,3	100	100	100
Dpev	40,0	40,0	40,0	42,6	42,6	42,6	45,3	45,3	45,3	48,2	48,2	48,2	51,1	51,1	51,1	54,1	54,1	54,1
Pat	133	145	159	135	147	161	136	148	162	138	150	164	139	151	165	141	153	167
Ptre	719	699	679	741	721	701	764	743	722	787	765	744	810	788	765	833	810	787
Qre	125	121	118	128	125	122	132	129	125	136	133	129	140	137	133	144	141	137
Dpre	49,3	46,8	44,3	52,4	49,8	47,1	55,7	52,9	50,1	59,0	56,1	53,1	62,5	59,4	56,2	66,1	62,8	59,5

Tre (°C) - Plant (side) heat exchanger recovery output water temperature
Tev (°C) - Plant (side) cooling exchanger output water temperature
Pf (kW) - Cooling capacity
Qev (m3/h) - Plant (side) heat exchanger water flow
Dpev (kPa) - Plant (side) cooling exchanger pressure drop
Ptre (kW) - Heat recovery thermal capacity
Pat (kW) - Total power input
Qre (m3/h) - Plant side heat exchanger recovery water flow
Dpre (kPa) - Plant side heating exchanger recovery pressure drop
'-' - Conditions outside the operating range
Waterflow and pressure drop on heat exchangers calculated with 5°C of delta T

RECOVERY CAPACITY PERFORMANCE

FOCS - R
LN

1542																		
Tre	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Tev	6			7			8			9			10			11		
Pf	315	299	282	327	310	293	338	321	303	349	332	314	360	343	324	372	354	335
Qev	44,3	44,3	44,3	45,7	45,7	45,7	47,1	47,1	47,1	48,5	48,5	48,5	49,9	49,9	49,9	51,2	51,2	51,2
Dpev	34,4	34,4	34,4	36,6	36,6	36,6	38,8	38,8	38,8	41,1	41,1	41,1	43,5	43,5	43,5	45,9	45,9	45,9
Pat	72,3	78,9	86,6	73,1	79,7	87,4	73,8	80,4	88,1	74,5	81,2	88,9	75,2	81,9	89,6	75,9	82,6	90,3
Ptre	383	374	364	395	385	375	407	397	386	419	408	397	431	420	409	443	432	420
Qre	66,4	64,8	63,2	68,4	66,8	65,1	70,5	68,8	67,1	72,6	70,8	69,0	74,7	72,8	71,0	76,8	74,9	73,0
Dpre	33,5	31,9	30,4	35,6	33,9	32,3	37,8	36,0	34,2	40,0	38,1	36,2	42,4	40,3	38,3	44,8	42,6	40,5

1742																		
Tre	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Tev	6			7			8			9			10			11		
Pf	374	354	331	387	366	344	401	379	356	414	392	369	428	406	382	441	419	394
Qev	51,7	51,7	51,7	53,4	53,4	53,4	55,0	55,0	55,0	56,6	56,6	56,6	58,2	58,2	58,2	59,8	59,8	59,8
Dpev	46,8	46,8	46,8	49,8	49,8	49,8	52,9	52,9	52,9	56,1	56,1	56,1	59,3	59,3	59,3	62,7	62,7	62,7
Pat	84,2	92,2	101	85,0	93,0	102	85,7	93,8	103	86,4	94,6	104	87,2	95,3	105	87,8	96,0	105
Ptre	453	440	427	467	454	440	481	468	453	495	481	466	510	495	480	524	509	493
Qre	78,5	76,4	74,1	80,9	78,7	76,4	83,3	81,1	78,7	85,8	83,5	81,1	88,2	85,9	83,4	90,7	88,3	85,7
Dpre	46,8	44,3	41,8	49,7	47,1	44,4	52,8	50,0	47,1	55,9	53,0	49,9	59,2	56,1	52,9	62,6	59,3	55,9

1942																		
Tre	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Tev	6			7			8			9			10			11		
Pf	414	392	369	429	406	382	444	421	396	459	435	410	473	449	424	489	464	438
Qev	57,5	57,5	57,5	59,3	59,3	59,3	61,1	61,1	61,1	62,9	62,9	62,9	64,6	64,6	64,6	66,4	66,4	66,4
Dpev	40,1	40,1	40,1	42,6	42,6	42,6	45,2	45,2	45,2	47,8	47,8	47,8	50,6	50,6	50,6	53,4	53,4	53,4
Pat	98,2	107	118	99,3	108	119	100	109	120	101	111	121	102	112	122	103	113	123
Ptre	507	493	479	522	508	494	538	523	509	554	539	524	570	554	538	586	570	553
Qre	87,8	85,5	83,3	90,5	88,2	85,8	93,2	90,8	88,4	95,9	93,5	91,0	98,7	96,2	93,6	101	98,8	96,2
Dpre	33,9	32,2	30,5	36,0	34,2	32,4	38,2	36,3	34,4	40,5	38,4	36,4	42,9	40,7	38,5	45,3	43,0	40,7

1962																		
Tre	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Tev	6			7			8			9			10			11		
Pf	442	426	409	456	440	423	470	454	436	485	469	450	499	483	464	514	497	478
Qev	63,0	63,0	63,0	64,8	64,8	64,8	66,5	66,5	66,5	68,3	68,3	68,3	69,9	69,9	69,9	71,6	71,6	71,6
Dpev	27,0	27,0	27,0	28,6	28,6	28,6	30,1	30,1	30,1	31,7	31,7	31,7	33,3	33,3	33,3	34,9	34,9	34,9
Pat	99,3	110	122	100	111	123	101	112	124	102	112	125	102	113	125	103	114	126
Ptre	535	530	524	550	544	539	565	559	553	580	574	567	595	589	582	611	604	596
Qre	92,7	91,9	91,1	95,3	94,5	93,6	97,9	97,0	96,1	101	99,6	98,6	103	102	101	106	105	104
Dpre	37,8	37,2	36,5	40,0	39,3	38,5	42,2	41,4	40,6	44,5	43,6	42,8	46,8	45,9	45,0	49,2	48,3	47,2

2442																		
Tre	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Tev	6			7			8			9			10			11		
Pf	533	507	479	552	525	497	571	543	514	590	562	532	609	581	550	628	599	568
Qev	73,4	73,4	73,4	75,7	75,7	75,7	77,9	77,9	77,9	80,2	80,2	80,2	82,4	82,4	82,4	84,7	84,7	84,7
Dpev	27,0	27,0	27,0	28,6	28,6	28,6	30,4	30,4	30,4	32,1	32,1	32,1	34,0	34,0	34,0	35,8	35,8	35,8
Pat	118	130	144	118	131	145	119	132	146	120	133	147	121	133	148	121	134	149
Ptre	644	629	615	663	648	633	683	668	652	703	687	671	722	706	689	742	725	708
Qre	112	109	107	115	112	110	118	116	113	122	119	117	125	122	120	129	126	123
Dpre	39,5	37,9	36,3	42,0	40,2	38,5	44,5	42,6	40,8	47,1	45,1	43,2	49,8	47,7	45,6	52,5	50,4	48,2

2642																		
Tre	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Tev	6			7			8			9			10			11		
Pf	594	563	530	615	583	549	636	604	569	657	625	590	679	646	610	700	667	630
Qev	80,6	80,6	80,6	83,1	83,1	83,1	85,6	85,6	85,6	88,2	88,2	88,2	90,7	90,7	90,7	93,2	93,2	93,2
Dpev	35,1	35,1	35,1	37,3	37,3	37,3	39,6	39,6	39,6	42,0	42,0	42,0	44,4	44,4	44,4	46,9	46,9	46,9
Pat	133	145	159	135	147	161	136	148	162	138	150	164	139	151	165	141	153	167
Ptre	719	699	679	741	721	701	764	743	722	787	765	744	810	788	765	833	810	787
Qre	125	121	118	128	125	122	132	129	125	136	133	129	140	137	133	144	141	137
Dpre	49,3	46,8	44,3	52,4	49,8	47,1	55,7	52,9	50,1	59,0	56,1	53,1	62,5	59,4	56,2	66,1	62,8	59,5

Tre (°C) - Plant (side) heat exchanger recovery output water temperature

Tev (°C) - Plant (side) cooling exchanger output water temperature

Pf (kW) - Cooling capacity

Qev (m3/h) - Plant (side) heat exchanger water flow

Dpev (kPa) - Plant (side) cooling exchanger pressure drop

Ptre (kW) - Heat recovery thermal capacity

Pat (kW) - Total power input

Qre (m3/h) - Plant side heat exchanger recovery water flow

Dpre (kPa) - Plant side heating exchanger recovery pressure drop

'-' - Conditions outside the operating range

Waterflow and pressure drop on heat exchangers calculated with 5°C of delta T

RECOVERY CAPACITY PERFORMANCE

FOCS - R
SL

1542																		
Tre	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Tev	6			7			8			9			10			11		
Pf	315	299	282	327	310	293	338	321	303	349	332	314	360	343	324	372	354	335
Qev	42,2	42,2	42,2	43,4	43,4	43,4	44,7	44,7	44,7	46,0	46,0	46,0	47,2	47,2	47,2	48,5	48,5	48,5
Dpev	31,1	31,1	31,1	33,0	33,0	33,0	35,0	35,0	35,0	37,0	37,0	37,0	39,0	39,0	39,0	41,1	41,1	41,1
Pat	72,3	78,9	86,6	73,1	79,7	87,4	73,8	80,4	88,1	74,5	81,2	88,9	75,2	81,9	89,6	75,9	82,6	90,3
Ptre	383	374	364	395	385	375	407	397	386	419	408	397	431	420	409	443	432	420
Qre	66,4	64,8	63,2	68,4	66,8	65,1	70,5	68,8	67,1	72,6	70,8	69,0	74,7	72,8	71,0	76,8	74,9	73,0
Dpre	33,5	31,9	30,4	35,6	33,9	32,3	37,8	36,0	34,2	40,0	38,1	36,2	42,4	40,3	38,3	44,8	42,6	40,5

1742																		
Tre	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Tev	6			7			8			9			10			11		
Pf	374	354	331	387	366	344	401	379	356	414	392	369	428	406	382	441	419	394
Qev	49,4	49,4	49,4	50,9	50,9	50,9	52,4	52,4	52,4	53,9	53,9	53,9	55,4	55,4	55,4	56,9	56,9	56,9
Dpev	42,7	42,7	42,7	45,3	45,3	45,3	48,0	48,0	48,0	50,8	50,8	50,8	53,7	53,7	53,7	56,6	56,6	56,6
Pat	84,2	92,2	101	85,0	93,0	102	85,7	93,8	103	86,4	94,6	104	87,2	95,3	105	87,8	96,0	105
Ptre	453	440	427	467	454	440	481	468	453	495	481	466	510	495	480	524	509	493
Qre	78,5	76,4	74,1	80,9	78,7	76,4	83,3	81,1	78,7	85,8	83,5	81,1	88,2	85,9	83,4	90,7	88,3	85,7
Dpre	46,8	44,3	41,8	49,7	47,1	44,4	52,8	50,0	47,1	55,9	53,0	49,9	59,2	56,1	52,9	62,6	59,3	55,9

1942																		
Tre	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Tev	6			7			8			9			10			11		
Pf	414	392	369	429	406	382	444	421	396	459	435	410	473	449	424	489	464	438
Qev	55,7	55,7	55,7	57,4	57,4	57,4	59,1	59,1	59,1	60,8	60,8	60,8	62,4	62,4	62,4	64,1	64,1	64,1
Dpev	37,6	37,6	37,6	39,9	39,9	39,9	42,3	42,3	42,3	44,7	44,7	44,7	47,2	47,2	47,2	49,7	49,7	49,7
Pat	98,2	107	118	99,3	108	119	100	109	120	101	111	121	102	112	122	103	113	123
Ptre	507	493	479	522	508	494	538	523	509	554	539	524	570	554	538	586	570	553
Qre	87,8	85,5	83,3	90,5	88,2	85,8	93,2	90,8	88,4	95,9	93,5	91,0	98,7	96,2	93,6	101	98,8	96,2
Dpre	33,9	32,2	30,5	36,0	34,2	32,4	38,2	36,3	34,4	40,5	38,4	36,4	42,9	40,7	38,5	45,3	43,0	40,7

1962																		
Tre	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Tev	6			7			8			9			10			11		
Pf	442	426	409	456	440	423	470	454	436	485	469	450	499	483	464	514	497	478
Qev	63,1	63,1	63,1	64,8	64,8	64,8	66,6	66,6	66,6	68,3	68,3	68,3	70,0	70,0	70,0	71,7	71,7	71,7
Dpev	27,1	27,1	27,1	28,6	28,6	28,6	30,1	30,1	30,1	31,7	31,7	31,7	33,3	33,3	33,3	34,9	34,9	34,9
Pat	99,3	110	122	100	111	123	101	112	124	102	112	125	102	113	125	103	114	126
Ptre	535	530	524	550	544	539	565	559	553	580	574	567	595	589	582	611	604	596
Qre	92,7	91,9	91,1	95,3	94,5	93,6	97,9	97,0	96,1	101	99,6	98,6	103	102	101	106	105	104
Dpre	37,8	37,2	36,5	40,0	39,3	38,5	42,2	41,4	40,6	44,5	43,6	42,8	46,8	45,9	45,0	49,2	48,3	47,2

2442																		
Tre	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Tev	6			7			8			9			10			11		
Pf	533	507	479	552	525	497	571	543	514	590	562	532	609	581	550	628	599	568
Qev	73,9	73,9	73,9	76,2	76,2	76,2	78,5	78,5	78,5	80,7	80,7	80,7	83,0	83,0	83,0	85,3	85,3	85,3
Dpev	27,3	27,3	27,3	29,0	29,0	29,0	30,8	30,8	30,8	32,6	32,6	32,6	34,4	34,4	34,4	36,4	36,4	36,4
Pat	118	130	144	118	131	145	119	132	146	120	133	147	121	133	148	121	134	149
Ptre	644	629	615	663	648	633	683	668	652	703	687	671	722	706	689	742	725	708
Qre	112	109	107	115	112	110	118	116	113	122	119	117	125	122	120	129	126	123
Dpre	39,5	37,9	36,3	42,0	40,2	38,5	44,5	42,6	40,8	47,1	45,1	43,2	49,8	47,7	45,6	52,5	50,4	48,2

2642																		
Tre	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45	35	40	45
Tev	6			7			8			9			10			11		
Pf	594	563	530	615	583	549	636	604	569	657	625	590	679	646	610	700	667	630
Qev	80,8	80,8	80,8	83,4	83,4	83,4	85,9	85,9	85,9	88,5	88,5	88,5	91,0	91,0	91,0	93,5	93,5	93,5
Dpev	35,3	35,3	35,3	37,5	37,5	37,5	39,9	39,9	39,9	42,2	42,2	42,2	44,7	44,7	44,7	47,2	47,2	47,2
Pat	133	145	159	135	147	161	136	148	162	138	150	164	139	151	165	141	153	167
Ptre	719	699	679	741	721	701	764	743	722	787	765	744	810	788	765	833	810	787
Qre	125	121	118	128	125	122	132	129	125	136	133	129	140	137	133	144	141	137
Dpre	49,3	46,8	44,3	52,4	49,8	47,1	55,7	52,9	50,1	59,0	56,1	53,1	62,5	59,4	56,2	66,1	62,8	59,5

Tre (°C) - Plant (side) heat exchanger recovery output water temperature
 Tev (°C) - Plant (side) cooling exchanger output water temperature
 Pf (kW) - Cooling capacity
 Qev (m3/h) - Plant (side) heat exchanger water flow
 Dpev (kPa) - Plant (side) cooling exchanger pressure drop
 Ptre (kW) - Heat recovery thermal capacity
 Pat (kW) - Total power input
 Qre (m3/h) - Plant side heat exchanger recovery water flow
 Dpre (kPa) - Plant side heating exchanger recovery pressure drop
 '-' - Conditions outside the operating range
 Waterflow and pressure drop on heat exchangers calculated with 5°C of delta T

4. OPERATING RANGE

	FOCS		FOCS-D		FOCS-R	
	Evaporator		Heat recovery		Desuperheater	
	min	max	min	max	min	max
Exchanger water (in) (°C)	8 (1)	23 (1)	18 (1) (2)	-	18 (2)	51 (2)
Exchanger water (out) (°C)	5 (1) (6)	15 (1)	26 (1) (2)	-	26 (2)	55 (182)
Thermal difference (°C)	3	8	4	-	4	8

	Vers.	Min	Min	Max (*)	Max (*)
Ambient air temp. (in) (°C)	B	-10 (2)	-10 (2) (3)	44 - 46 (2)(5)	-
Ambient air temp. (in) (°C)	LN	-10 (2)	-10 (2) (3)	35 - 41 (2)(4)	44 - 46 (2)(5)
Ambient air temp. (in) (°C)	SL	-10 (2)	-10 (2) (3)	35 - 37 (2)(4)	44 - 46 (2)(5)

Limits to exchanger water temperature are valid within the minimum - maximum water flow range indicated in the Hydraulic Data section.

(*) According to unit size

(1) Condenser air (in) 35 °C

(2) Evaporator water (in/out) 12/7 °C

(3) With low ambient temperature control (STD/OPT)

(4) Condenser air-flow rate in low-noise operating mode

(5) Condenser air-flow rate in standard operating mode

(6) With temperatures down to -8°C use anti-freeze mixtures. In case of lower temperatures, please contact our Sales Department. Always indicate the evaporator outlet temperature when ordering

ETHYLENE GLYCOL MIXTURE

Ethylene glycol and water mixtures, used as a heat-conveying fluid, cause a variation in unit performance. For correct data, use the factors indicated in the following table.

	Freezing point (°C)							
	0	-5	-10	-15	-20	-25	-30	-35
	Ethylene glycol percentage by weight							
	0	12%	20%	30%	35%	40%	45%	50%
cPf	1	0,985	0,98	0,974	0,97	0,965	0,964	0,96
cQ	1	1,02	1,04	1,075	1,11	1,14	1,17	1,2
cdp	1	1,07	1,11	1,18	1,22	1,24	1,27	1,3

cPf: cooling capacity correction factor

cQ: flow correction factor

cdp: pressure drop correction factor

For data concerning other kind of anti-freeze solutions (e.g. propylene glycol) please contact our Sales Department.

FOULING FACTORS

Performances are based on clean condition of tubes (fouling factor =1). For different fouling values, performance should be adjusted using the correction factors shown in the following table.

Fouling factors	Evaporator			Heat recovery			Desuperheater		
	f1	fk1	fx1	f2	fk2	fx2	f3	fk3	fx3
(m ² °C/W) 4,4 x 10 ⁻⁵	1	1	1	0.99	1.03	1.03	0.99	1.03	1.03
(m ² °C/W) 0,86 x 10 ⁻⁴	0,96	0,99	0,99	0,98	1,04	1,04	0,98	1,04	1,04
(m ² °C/W) 1,72 x 10 ⁻⁴	0,93	0,98	0,98	0,95	1,06	1,06	0,95	1,06	1,06

f1 - f2 - f3 : capacity correction factors

fk1 - fk2 - fk3 : compressor power input correction factors

fx1 - fx2 - fx3 : total power input correction factors

5. HYDRAULIC DATA

5.1 WATER FLOW AND PRESSURE DROP

Water flow in the shell and tube heat exchangers is given by:
 $Q = P \times 0,86 / Dt$

Q: water flow (m³/h)

Dt: difference between inlet and outlet water temp. (°C)

P: heat exchanger capacity (kW)

Pressure drop is given by:

$$Dp = K \times Q^2 / 1000$$

Q: water flow (m³/h)

Dp: pressure drop (kPa)

K: unit size ratio

SIZE	Evaporator				Rec (1) - Cond (2)			Desuperheater		
	K	Q min m ³ /h	Q max m ³ /h	C.a. min m ³	K	Q min m ³ /h	Q max m ³ /h	K	Q min m ³ /h	Q max m ³ /h
1542	17.5	29.7	80.0	2.0	7.6	40.6	81.5	149	0	18.6
1742	17.5	35.3	94.0	2.4	7.6	47.7	95.6	85.5	0	21.2
1942	12.1	39.3	105.0	2.6	4.4	53.5	107.0	85.5	0	24.6
1962	6.8	42.7	114.0	2.8	4.4	58.4	117.0	46.5	0	27.6
2442	5.0	50.0	134.0	3.3	3.2	68.7	138.0	46.5	0	31.5
2642	5.4	55.4	148.0	3.7	3.2	76.0	152.0	46.5	0	34.2

Q min: minimum water flow admitted to the heat exchanger.

Q max: maximum water flow admitted to the heat exchanger.

C.a. min: minimum water content admitted in the plant.

(2) Cond.= Condenser. For water to water type units. In units with heat-recovery , this data is valid for both the condensing and the heat-recovery exchangers.

(1) Rec.= Heat Recovery. For units with total heat recovery.

6. ELECTRICAL DATA

Maximum values									
Size	n	Compressor			Fan motors (1)		Total unit (1) (2)		
		F.L.I. [kW]	F.L.A. [A]	L.R.A. [A]	F.L.I. [kW]	F.L.A. [A]	F.L.I. [kW]	F.L.A. [A]	S.A. [A]
1542	2	2x64.3	2x105	290	8.7	17.4	137	227	412
1742	2	2x70.2	2x115	350	12.6	22.8	153	253	488
1942	2	2x82.1	2x132	423	12.6	30.4	177	294	585
1962	2	2x82.1	2x132	423	12.6	30.4	177	294	585
2442	2	2x101	2x165	300	16.8	38	219	368	503
2642	2	2x112	2x184	360	16.8	38	241	406	582

F.L.I. Max. power consumption

F.L.A. Max. current consumption

L.R.A. Locked rotor current for single compressor

S.A. Starting current

Voltage tolerance: 10%

Maximum voltage unbalance: 3%

- (1) Values calculated referring to the version with the maximum number of fans working at the max absorbed current
- (2) Safety values to be considered when cabling the unit for power supply and line-protections

7. FULL LOAD SOUND LEVEL

SOUND POWER									
SIZE	Octave band [Hz]								Total sound level
	63	125	250	500	1000	2000	4000	8000	
	Sound power level dB(A)								
1542	93	98	95	95	94	87	79	70	97
1742	94	99	96	98	96	88	78	71	99
1942	93	98	95	95	94	87	79	70	97
1962	93	98	95	95	94	87	79	70	97
2442	94	99	96	98	96	88	78	71	99
2642	94	99	96	98	96	88	78	71	99

Working conditions

Plant (side) cooling exchanger water (in/out) 12/7 °C

Source (side) heat exchanger air (in) 35 °C

Sound power on the basis of measurements made in compliance with ISO 9614 and Eurovent 8/1 for Eurovent certified units; in compliance with ISO 3744 for non-certified units

Such certification refers specifically to the sound Power Level in dB(A). This is therefore the only acoustic data to be considered as binding.

SOUND PRESSURE LEVEL									
SIZE	Octave band [Hz] at 10 m								Total sound level
	63	125	250	500	1000	2000	4000	8000	
	Sound pressure level dB(A)								
1542	61	66	63	63	62	55	47	38	65
1742	62	67	64	66	64	56	46	39	67
1942	61	66	63	63	62	55	47	38	65
1962	61	66	63	63	62	55	47	38	65
2442	62	67	64	66	64	56	46	39	67
2642	62	67	64	66	64	56	46	39	67

Working conditions

Plant (side) cooling exchanger water (in/out) 12/7 °C

Source (side) heat exchanger air (in) 35 °C

Average sound pressure level, at 10 (m.) distance, unit in a free field on a reflective surface; non-binding value obtained from the sound power level

SOUND POWER									
SIZE	Octave band [Hz]								Total sound level
	63	125	250	500	1000	2000	4000	8000	
Sound power level dB(A)									
1542	90	91	93	89	87	81	76	66	91
1742	90	90	92	89	87	81	76	66	91
1942	90	90	92	89	87	81	76	66	91
1962	90	90	92	89	87	81	76	66	91
2442	92	92	94	92	91	83	78	68	93
2642	92	92	94	92	91	83	78	68	93

Working conditions

Plant (side) cooling exchanger water (in/out) 12/7 °C

Source (side) heat exchanger air (in) 35 °C

Sound power on the basis of measurements made in compliance with ISO 9614 and Eurovent 8/1 for Eurovent certified units;

in compliance with ISO 3744 for non-certified units

Such certification refers specifically to the sound Power Level in dB(A). This is therefore the only acoustic data to be considered as binding.

SOUND PRESSURE LEVEL									
SIZE	Octave band [Hz] at 10 m								Total sound level
	63	125	250	500	1000	2000	4000	8000	
Sound pressure level dB(A)									
1542	58	59	61	57	55	49	44	34	59
1742	58	58	60	57	55	49	44	34	59
1942	58	58	60	57	55	49	44	34	59
1962	58	58	60	57	55	49	44	34	59
2442	60	60	62	60	59	51	46	36	61
2642	60	60	62	60	59	51	46	36	61

Working conditions

Plant (side) cooling exchanger water (in/out) 12/7 °C

Source (side) heat exchanger air (in) 35 °C

Average sound pressure level, at 10 (m.) distance, unit in a free field on a reflective surface; non-binding value obtained from the sound power level

SOUND POWER									
SIZE	Octave band [Hz]								Total sound level
	63	125	250	500	1000	2000	4000	8000	
Sound power level dB(A)									
1542	89	88	90	84	80	76	72	65	86
1742	89	88	90	85	82	77	72	65	87
1942	89	88	90	85	82	77	72	65	87
1962	89	88	90	85	82	77	72	65	87
2442	90	89	91	88	84	78	74	66	89
2642	90	89	91	88	84	78	74	66	89

Working conditions

Plant (side) cooling exchanger water (in/out) 12/7 °C

Source (side) heat exchanger air (in) 35 °C

Sound power on the basis of measurements made in compliance with ISO 9614 and Eurovent 8/1 for Eurovent certified units;

in compliance with ISO 3744 for non-certified units

Such certification refers specifically to the sound Power Level in dB(A). This is therefore the only acoustic data to be considered as binding.

SOUND PRESSURE LEVEL									
SIZE	Octave band [Hz] at 10 m								Total sound level
	63	125	250	500	1000	2000	4000	8000	
Sound pressure level dB(A)									
1542	57	56	58	52	48	44	40	33	54
1742	57	56	58	53	50	45	40	33	55
1942	57	56	58	53	50	45	40	33	55
1962	57	56	58	53	50	45	40	33	55
2442	57	56	58	55	51	45	41	33	56
2642	57	56	58	55	51	45	41	33	56

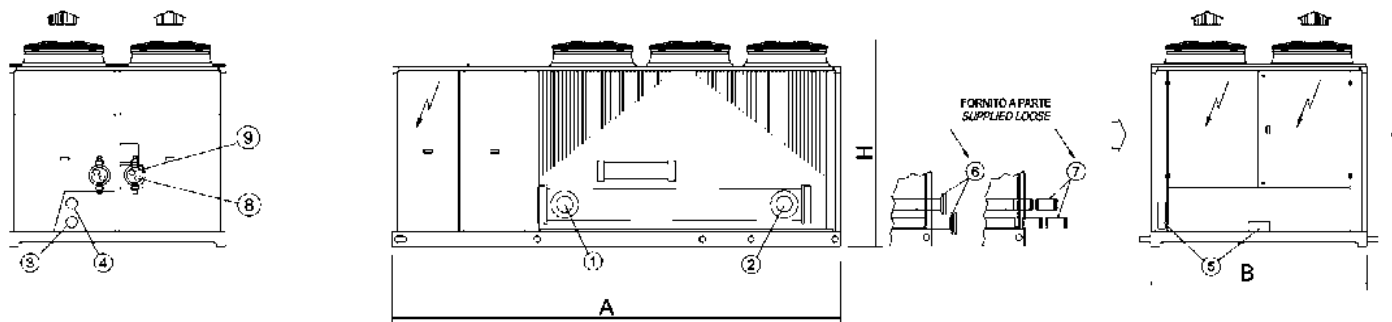
Working conditions

Plant (side) cooling exchanger water (in/out) 12/7 °C

Source (side) heat exchanger air (in) 35 °C

Average sound pressure level, at 10 (m.) distance, unit in a free field on a reflective surface; non-binding value obtained from the sound power level

8. DIMENSIONAL DRAWINGS



- 1 EVAPORATOR WATER INLET
- 2 EVAPORATOR WATER OUTLET
- 5 POWER INLET

OPTIONAL EXTERNAL WATER CONNECTION



- 3 EVAPORATOR WATER INLET
- 4 EVAPORATOR WATER OUTLET

OPTIONAL EXTERNAL WATER CONNECTION

- 6 OPTIONAL FLANGED CONNECTIONS
- 7 OPTIONAL GROOVELOCK CONNECTIONS

HEATING RECOVERY CONNECTIONS

- 8 HEATING RECOVERY WATER INLET
- 9 HEATING RECOVERY WATER OUTLET

-  AIR INLET
-  AIR OUTLET

REMARKS:

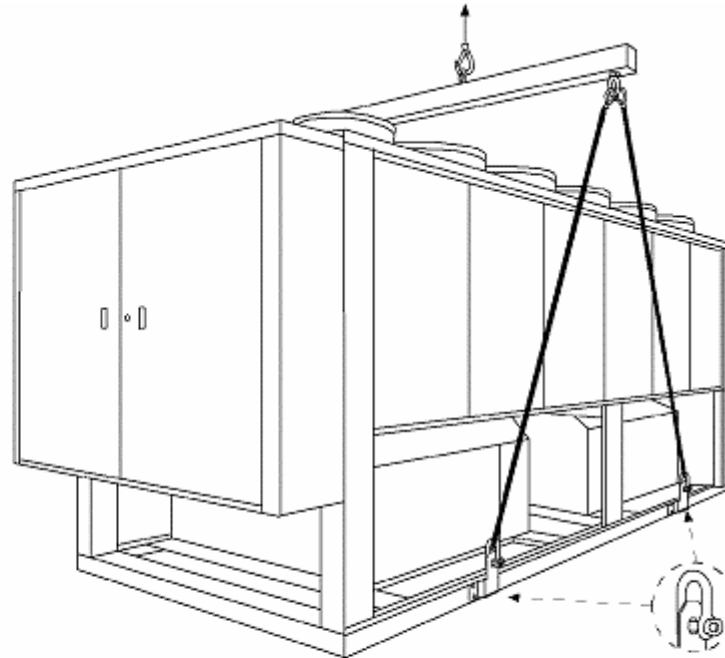
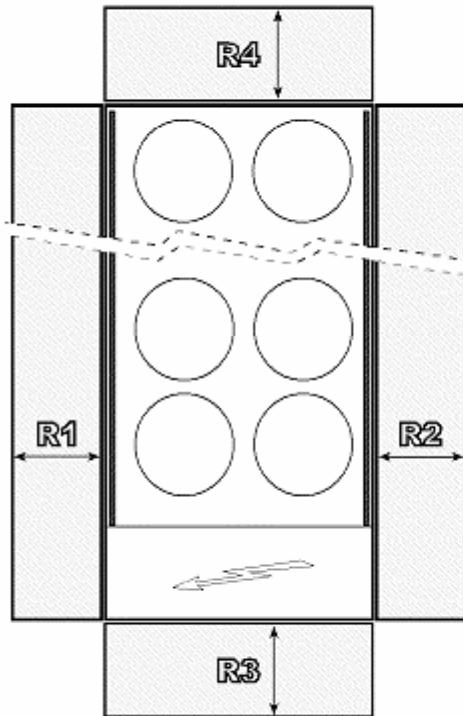
For installation purposes, please refer to the documentation sent after the purchase-contract. This technical data should be considered as indicative.

CLIMAVENETA may modify them at any moment.

DIMENSIONAL DRAWINGS

Size	DIMENSIONS AND WEIGHTS												FREE SPACES (See fol. page)			
	FOCS				FOCS-D				FOCS-R							
	A [mm]	B [mm]	H [mm]	P [kg]	A [mm]	B [mm]	H [mm]	P [kg]	A [mm]	B [mm]	H [mm]	P [kg]	R1 [mm]	R2 [mm]	R3 [mm]	R4 [mm]
1542 B	4610	2222	2150	3490	4610	2222	2150	3600	4610	2222	2150	3820	2000	2000	1100	1100
1742 B	4610	2222	2420	3680	4610	2222	2420	3820	4610	2222	2420	4010	2000	2000	1100	1100
1942 B	4610	2222	2420	3810	4610	2222	2420	3950	4610	2222	2420	4220	2000	2000	1100	1100
1962 B	4610	2222	2420	4100	4610	2222	2420	4250	4610	2222	2420	4510	2000	2000	1100	1100
2442 B	5610	2222	2430	5140	5610	2222	2430	5290	5610	2222	2430	5720	2000	2000	1100	1100
2642 B	5610	2222	2430	5340	5610	2222	2430	5490	5610	2222	2430	5930	2000	2000	1100	1100
1542 LN	4610	2222	2150	3490	4610	2222	2150	3600	4610	2222	2150	3820	2000	2000	1100	1100
1742 LN	4610	2222	2420	3680	4610	2222	2420	3820	4610	2222	2420	4010	2000	2000	1100	1100
1942 LN	4610	2222	2420	3810	4610	2222	2420	3950	4610	2222	2420	4220	2000	2000	1100	1100
1962 LN	4610	2222	2420	4100	4610	2222	2420	4250	4610	2222	2420	4510	2000	2000	1100	1100
2442 LN	5610	2222	2430	5140	5610	2222	2430	5290	5610	2222	2430	5720	2000	2000	1100	1100
2642 LN	5610	2222	2430	5340	5610	2222	2430	5490	5610	2222	2430	5930	2000	2000	1100	1100
1542 SL	4610	2222	2150	3580	4610	2222	2150	3690	4610	2222	2150	3910	2000	2000	1100	1100
1742 SL	4610	2222	2420	3790	4610	2222	2420	3930	4610	2222	2420	4120	2000	2000	1100	1100
1942 SL	5610	2222	2430	3960	5610	2222	2430	4100	5610	2222	2430	4370	2000	2000	1100	1100
1962 SL	5610	2222	2430	4410	5610	2222	2430	4560	5610	2222	2430	4820	2000	2000	1100	1100
2442 SL	6610	2222	2430	5730	6610	2222	2430	5880	6610	2222	2430	6320	2000	2000	1100	1100
2642 SL	6610	2222	2430	2430	6610	2222	2430	6120	6610	2222	2430	6560	2000	2000	1100	1100

9. FREE SPACES - LIFTING MODE - SYMBOLS



Warning: Electrical power!



Warning: Sharp edges!



Warning: Fans!

INSTRUCTIONS

- Make sure that all the panels are firmly fixed in place before moving the unit.
- Before lifting it, check the weight on the CE label.
- Use all, and only, the lifting points provided,
- Use slings of equal length,

- Use a spread-bar (not included)
- Move the unit carefully and avoid abrupt movements.

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