

## **NEBIS HE FL**

Packaged air cooled liquid chillers in A class energy efficiency for outdoor installation.  
Cooling Capacity: 311 ÷ 1394 kW



New green-screw on-off compressors  
Flooded evaporator  
Microchannel condensing coils  
Double refrigerant circuit  
EER up to 3,15  
ESEER up to 4,45

**NEBIS HE FL:** Packaged air cooled liquid chillers in “A” class energy efficiency for outdoor installation, equipped with on-off screw compressors, flooded evaporator and microchannel condensing coils.  
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**HIGH EFFICIENCY**  
RC Hi-Tech

**A CLASS**  
RC Hi-Tech



# NEBIS HE FL



## MAIN FEATURES

- Air cooled liquid chiller.
- High energy efficiency.
- 27 models available, for a wide selection opportunity.
- Average step of 40kW.
- EER up to 3,15.
- ESEER up to 4,45.
- Green-Screw compressors.
- R134a Refrigerant charge.
- Double refrigerant circuit.
- Flooded evaporator..
- AC Axial fans.
- Double air circuit.
- Electronic expansion valve.
- Suitable for outdoor installation.

## MAIN BENEFITS

- High EER, A class energy efficiency.
- High ESEER.
- Availability of kit for the reduction and the extreme reduction of the noise.
- Availability of pumping groups.
- Availability of total or partial heat recovery system.
- Availability of EC fans for a higher efficiency.
- Components dedicated to the safety of the unity.
- Eurovent Certification.

## NEW GREEN SCREW COMPRESSORS

New Green Screw compressors: on-off high efficiency twin screw compressors, RC branded. 2x ON/OFF screw compressors on two refrigerant circuits. Capacity modulation 50-100% for each compressor.

## MICROCHANNEL CONDENSING COILS

The use of aluminium for the micro-channel condensers manufacture is able to offer the possibility for very light machinery: the coil weight is only 50% compared to traditional copper pipes and aluminium fins of the same capacity.

The reduced air resistance of the micro-channel coils allows to drastically reduce the fans motors electric energy consumption. At the same performances conditions, the micro-channels condensers require up-to less than 75% refrigerant when compared to the traditional heat exchangers.

## A CLASS ENERGY EFFICIENCY

The best and most accurate components applied to the chillers.

## WORKING LIMITS IN COOLING MODE

Chilled water outlet temperature: -10÷15°C  
Ambient temperature: -20÷48°C

**MAIN COMPONENTS****FRAMEWORK**

- Base, self supporting frame and panelling in steel plate with protective surfaces treatment in compliance with UNI ISO 9227/ASTMB117 and ISO 7253, and painted with epoxy powders.
- Colour: RAL 9002.

**COMPRESSORS**

- Two on/off twin screw semi-hermetic compressors with highly efficient screw profile and high peripheral speed, optimized for R134a refrigerant with:
  - Electronic protection device that includes:
    - Electric motor thermal protection via internal winding temperature sensors.
    - Phase sequence electronic relay.
    - Sensor on refrigerant discharge for temperature monitoring.
  - Stepless capacity control, 50÷100% for each compressor.
  - 2-pole 3-phase electric motor with Part-Winding starting from model 310 V2 F06 to model 710 V2 F12 included.
  - 2-pole 3-phase electric motor with Star / Delta starting from model 780 V2 F14 to model 1400 V2 F24 included.
- Integrated discharge check valve.
- Integrated oil separator on gas discharge.
- Integrated safety relief valve (overpressure inner valve).
- Replaceable cartridge oil filter.
- Oil flow switch.
- Valves for oil filling and discharge.
- Oil sight glass.
- Oil receiver.
- Crankcase heater.
- Terminal box with IP54 enclosure class.
- Rubber supports.

**EVAPORATOR**

- Flooded shell and tube evaporator, optimized for R134a refrigerant.
- Version two passes, characterized by low pressure losses on the water side.
- Water tubes with a helical rifled internal surface.
- Integrated liquid drop separator.
- Shell, header, tube sheets made of carbon steel, tubes in Cu.
- Anticondensate insulation made of polyurethane.
- Large liquid level indicator.
- Temperature sensors on water inlet and outlet.
- Water flow switch for water flow control on water outlet towards the plant, not installed but supplied in kit.
- Large liquid level indicator
- Antifreeze heater.
- Jet pump for oil drainage.
- Hydraulic connections with grooved end supplied as standard with flexible joint and adapter pipe to be welded.

**CONDENSING COIL**

- Microchannel condensing coil in aluminium, perfectly suitable for the civil and industrial applications cooling, while the protection function of the oxide layer allows an optimum resistance to corrosion also in case of aggressive ambient conditions.
- Extremely light construction. The coil weight is only 50% compared to traditional copper pipes and aluminium fins of the same capacity.
- Low air side pressure drop and consequentially drastic reduction of the fans motors electric energy consumption.
- High heat exchange efficiency.
- Reduced internal volume capable of reducing the total refrigerant charge. At the same performances conditions, the micro-channels condensers require up-to less than 75% refrigerant when compared to the traditional heat exchangers.
- Double air circuit.

**FANS SECTION**

- Axial fans with sickle-shaped blades, fan guard and optimized for low noise levels.
- External rotor AC type electric motor with stepless variable speed for condensing pressure control, with phase-cut electronic controller.
- IP54 enclosure class.

**REFRIGERANT CIRCUIT**

Components for each refrigerant circuit:

- Capacitive level sensor connected to the driver of the expansion valve.
- Electronic expansion valve that allows high performance and system efficiency thanks to a timely and accurate response to changes in temperature and pressure.
- Energy reserve module for the electronic expansion valve to allow the closure of the valve in the event of lack of power supply.
- Liquid receiver with safety valve and service valve.
- Sight glass.
- Filter dryer on liquid line.
- Service valves on liquid line.
- Service valves on compressor gas discharge.
- Safety valves on high and low pressure side.
- Pressure transducers with indication, control and protection functions, on low and high refrigerant pressure.
- High pressure safety switch with manual reset.
- Pressure gauge on high and low pressure.
- Refrigerant circuit with copper tubing with anticondensate insulation of the suction line.
- Plastic capillary hoses for pressure sensors connection.
- R134a refrigerant charge.

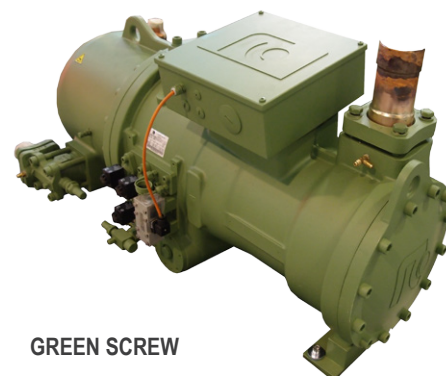
**ELECTRICAL PANEL**

In accordance with EN60204-1 norms, suitable for outdoor installation, complete with:

- Main switch with door lock safety.
- Fuses for each compressor.
- Magnetothermic switches for fans or water pumps (if scheduled).
- Contactors for each load.
- Compressor Part-Winding starting system from model 280 V2 F06 to model 710 V2 F12 included.
- Compressor Star / Delta starting system from model 780 V2 F14 to model 1400 V2 F24 included.
- Transformer for auxiliary circuit and microprocessor supply.
- Panel with machine controls.
- Power supply 400/3/50.

**CONTROL SYSTEM**

- Microprocessor control system with graphic display for control and monitor of operating and alarms status. 6 keys terminal. The system includes:
  - Clock card for alarms date and time displaying and storing;
  - Predisposition for the memorization of the intervened alarms;
  - Predisposition for connectivity board housing ( RCom MBUS/JBUS, LON, BACnet for Ethernet (SNMP- TCP/IP), BACnet for MS/TP). The electronic cards are optional accessories;
  - Main components hour-meter;
- Non-volatile "Flash" memory for data storage in case of power supply faulty;
  - Analogue set point compensation (0÷10Vdc) according to an external analogue signal at Customer care;
  - Menu with protection password;
  - LAN connection.

**GREEN SCREW**



## OPTIONAL ACCESSORIES

NEBIS HE FL SIZE	F06	F08	F10	F12	F14	F16	F18	F20	F22	F24
450 - Partial heat recovery	•	•	•	•	•	•	•	•	•	•
451 - 100% heat reclaim	•	•	•	•	•	•	•	•	•	•
449 - Voltage free contact for partial heat recovery water pump	•	•	•	•	•	•	•	•	•	•
739 - Pumping group (1 pump)	•	•	•	•	-	-	-	-	-	-
740 - Pumping group (2 pumps)	-	-	-	-	•	•	•	•	•	•
769 - Pumping group (1+1stby)	•	•	•	•	-	-	-	-	-	-
770 - Pumping group (2+1stby)	-	-	-	-	•	•	•	•	•	•
960 - Free contact enable indoor pump	•	•	•	•	•	•	•	•	•	•
150 - LNO kit	•	•	•	•	•	•	•	•	•	•
151 - Kit ELN	•	•	•	•	•	•	•	•	•	•
1040-Kit Extreme ELN	•	•	•	•	•	•	•	•	•	•
118 - Kit brine A (for glycol solution production up to -6°C)	•	•	•	•	•	•	•	•	•	•
119 - Kit brine B (for glycol solution production up to -12°C)	•	•	•	•	•	•	•	•	•	•
101 - EC fan	•	•	•	•	•	•	•	•	•	•
1002- Soft Starter	•	•	•	•	•	•	•	•	•	•
170 - Spring antivibration holders (kit)	•	•	•	•	•	•	•	•	•	•
171 - Rubber antivibration holders (kit)	•	•	•	•	•	•	•	•	•	•
Diffusor for EC fans	•	•	•	•	•	•	•	•	•	•
Container kit	•	•	•	•	•	•	•	•	•	•
217 - Double safety valve	•	•	•	•	•	•	•	•	•	•
Stop valves for safety valves	•	•	•	•	•	•	•	•	•	•
350 -Kit TK PRO corrosion resistant painting treatment	•	•	•	•	•	•	•	•	•	•
Accident prevention net	•	•	•	•	•	•	•	•	•	•
Anti-hailstorm net	•	•	•	•	•	•	•	•	•	•
Service valve on compressor group suction	•	•	•	•	•	•	•	•	•	•
Thermal protection relay for on/off compressors	•	•	•	•	•	•	•	•	•	•
Power factor capacitors for on/off motor compressors	•	•	•	•	•	•	•	•	•	•
79 - Electrical panel heating system	•	•	•	•	•	•	•	•	•	•
Anti-freeze heaters for pumping group	•	•	•	•	•	•	•	•	•	•
Majored insulation for evaporator	•	•	•	•	•	•	•	•	•	•
731 - Safety water flow switch	•	•	•	•	•	•	•	•	•	•
Oil cooling kit with plate type heat exchanger	•	•	•	•	•	•	•	•	•	•
88 - Analog set point compensation	•	•	•	•	•	•	•	•	•	•
85 - Demand limit	•	•	•	•	•	•	•	•	•	•
1003 - Analog flowmeter	•	•	•	•	•	•	•	•	•	•
1005 - Power supply analyzer	•	•	•	•	•	•	•	•	•	•
1009 - Kit Multimeter	•	•	•	•	•	•	•	•	•	•
Double power supply with ATS system	•	•	•	•	•	•	•	•	•	•
Free contact for general alarm	•	•	•	•	•	•	•	•	•	•
83 - Compressor operation indicator	•	•	•	•	•	•	•	•	•	•
Data logger	•	•	•	•	•	•	•	•	•	•
Touch screen graphic display	•	•	•	•	•	•	•	•	•	•
930 - Remote graphic terminal kit	•	•	•	•	•	•	•	•	•	•
962 - Kit modem GSM	•	•	•	•	•	•	•	•	•	•
923 - RC-Com MBUS/JBUS Serial board	•	•	•	•	•	•	•	•	•	•
926 - LON Serial board	•	•	•	•	•	•	•	•	•	•
931 - BACnet Ethernet - SNMP - TCP/IP Serial board	•	•	•	•	•	•	•	•	•	•
932 - BACnet MS/TP Serial board	•	•	•	•	•	•	•	•	•	•
WPC - Inverter pumps and controls	•	•	•	•	•	•	•	•	•	•
889 - Master plant SEQUENCER	•	•	•	•	•	•	•	•	•	•
RC CLOUD PLATFORM	•	•	•	•	•	•	•	•	•	•

• available accessory; - not available accessory

## TECHNICAL DATA NEBIS HE FL

NEBIS HE FL SIZE		310 V2 F06	330 V2 F06	340 V2 F06	370 V2 F08	400 V2 F08	420 V2 F08	430 V2 F08	460 V2 F10	
STANDARD	<b>Cooling capacity (1)</b>	<b>kW</b>	<b>311</b>	<b>325</b>	<b>339</b>	<b>369</b>	<b>398</b>	<b>414</b>	<b>430</b>	<b>457</b>
	Unit power input	kW	99,4	103,5	108,0	117,9	127,2	131,8	138,3	145,1
	Evaporator water flow rate	m <sup>3</sup> /h	53	56	58	63	68	71	74	78
	Evaporator pressure drop	kPa	45	42	46	45	45	42	45	45
	Compressors		twin-screw	twin-screw	twin-screw	twin-screw	twin-screw	twin-screw	twin-screw	twin-screw
	Quantity	n.	2	2	2	2	2	2	2	2
	Capacity control	%	25%...100%	25%...100%	25%...100%	25%...100%	25%...100%	25%...100%	25%...100%	25%...100%
	Axial fans	n.	6	6	6	8	8	8	8	10
	Total air flow	m <sup>3</sup> /h	144000	144000	144000	192000	192000	192000	192000	240000
	Air circuits	n.	2	2	2	2	2	2	2	2
	Refrigerant		R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a
	Total refrigerant charge (optional excluded)	kg	163	161	248	262	260	259	256	257
	Gas circuits	n.	2	2	2	2	2	2	2	2
	Power supply	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
	Max operating current (MOC)	A	196	205	214	229	244	259	273	274
	Max unit operating current (FLA)	A	236	264	293	324	345	361	376	371
	Unit starting current (LRA)	A	389	425	434	518	533	565	580	673
	EER (1)	kW/kW	3,13	3,14	3,14	3,13	3,13	3,14	3,11	3,15
	ESEER		4,14	4,19	4,24	4,03	4,10	4,14	4,18	4,01
	Sound power level [Lw] (2)	dB(A)	93,4	93,5	93,5	94,1	94,2	94,3	94,4	95,0
	Average sound pressure level [Lpm] (3)	dB(A)	73,7	73,8	73,9	73,9	74,0	74,1	74,1	74,3
	Net weight	kg	2857	2860	2947	3448	3462	3477	3490	3759
	Hydraulic connections									
	Evaporator IN/OUT - OD (4)	Ø mm	139,7	139,7	139,7	139,7	139,7	139,7	139,7	139,7
	OPTIONAL	Partial heat recovery (5)								
<b>Heating capacity</b>		<b>kW</b>	<b>62</b>	<b>65</b>	<b>67</b>	<b>73</b>	<b>79</b>	<b>82</b>	<b>86</b>	<b>91</b>
Total heat recovery (6)										
<b>Heating capacity</b>		<b>kW</b>	<b>396</b>	<b>416</b>	<b>436</b>	<b>463</b>	<b>504</b>	<b>527</b>	<b>549</b>	<b>576</b>
Pumping group - Power input	kW	8,8	8,8	8,8	11,5	11,5	11,5	11,5	11,0	
LNO KIT 100%	<b>Cooling capacity (1)</b>	<b>kW</b>	<b>311</b>	<b>325</b>	<b>339</b>	<b>369</b>	<b>398</b>	<b>414</b>	<b>430</b>	<b>457</b>
	Unit power input	kW	99,4	103,5	108,0	117,9	127,2	131,8	138,3	145,1
	Total air flow	m <sup>3</sup> /h	144000	144000	144000	192000	192000	192000	192000	240000
	EER (1)	kW/kW	3,13	3,14	3,14	3,13	3,13	3,14	3,11	3,15
	Sound power level [Lw] (2)	dB(A)	91,3	91,4	91,5	92,1	92,2	92,3	92,4	92,9
Average sound pressure level [Lpm] (3)	dB(A)	71,7	71,8	71,9	71,8	71,9	72,0	72,1	72,2	
LNO KIT 85%	<b>Cooling capacity (1)</b>	<b>kW</b>	<b>305</b>	<b>318</b>	<b>332</b>	<b>363</b>	<b>391</b>	<b>407</b>	<b>423</b>	<b>449</b>
	Unit power input	kW	98,4	102,9	107,4	116,3	125,3	130,4	136,5	143,5
	Total air flow	m <sup>3</sup> /h	122400	122400	122400	163200	163200	163200	163200	204000
	EER (1)	kW/kW	3,10	3,09	3,09	3,12	3,12	3,12	3,10	3,13
	Sound power level [Lw] (2)	dB(A)	90,3	90,4	90,5	91,1	91,2	91,3	91,4	91,9
Average sound pressure level [Lpm] (3)	dB(A)	70,7	70,8	70,9	70,8	70,9	71,0	71,1	71,2	
LNO KIT 70%	<b>Cooling capacity (1)</b>	<b>kW</b>	<b>296</b>	<b>309</b>	<b>323</b>	<b>354</b>	<b>381</b>	<b>396</b>	<b>412</b>	<b>438</b>
	Unit power input	kW	97,4	102,3	108,0	113,8	123,7	129,8	136,0	140,8
	Total air flow	m <sup>3</sup> /h	100800	100800	100800	134400	134400	134400	134400	168000
	EER (1)	kW/kW	3,04	3,02	2,99	3,11	3,08	3,05	3,03	3,11
	Sound power level [Lw] (2)	dB(A)	87,3	87,4	87,5	88,1	88,2	88,3	88,4	88,9
Average sound pressure level [Lpm] (3)	dB(A)	67,7	67,8	67,9	67,8	67,9	68,0	68,1	68,2	
ELN KIT	<b>Cooling capacity (1)</b>	<b>kW</b>	<b>296</b>	<b>309</b>	<b>323</b>	<b>354</b>	<b>381</b>	<b>396</b>	<b>412</b>	<b>438</b>
	Unit power input	kW	97,4	102,3	108,0	113,8	123,7	129,8	136,0	140,8
	Total air flow	m <sup>3</sup> /h	100800	100800	100800	134400	134400	134400	134400	168000
	EER (1)	kW/kW	3,04	3,02	2,99	3,11	3,08	3,05	3,03	3,11
	Sound power level [Lw] (2)	dB(A)	84,3	84,4	84,5	85,1	85,2	85,3	85,4	85,9
Average sound pressure level [Lpm] (3)	dB(A)	64,7	64,8	64,9	64,8	64,9	65,0	65,1	65,2	
EXTREME ELN	<b>Cooling capacity (1)</b>	<b>kW</b>	<b>296</b>	<b>309</b>	<b>323</b>	<b>354</b>	<b>381</b>	<b>396</b>	<b>412</b>	<b>438</b>
	Unit power input	kW	97,4	102,3	108,0	113,8	123,7	129,8	136,0	140,8
	Total air flow	m <sup>3</sup> /h	100800	100800	100800	134400	134400	134400	134400	168000
	EER (1)	kW/kW	3,04	3,02	2,99	3,11	3,08	3,05	3,03	3,11
	Sound power level [Lw] (2)	dB(A)	81,4	81,5	81,5	82,1	82,2	82,3	82,4	83,0
Average sound pressure level [Lpm] (3)	dB(A)	61,7	61,8	61,9	61,9	62,0	62,1	62,1	62,3	

1. Referred to chilled water temperature 12/7°C – 0% glycol solution; air temperature to the condenser 35°C. Fouling factor of the exchangers 0,043 m<sup>2</sup>K/kW.
2. Sound power level [Lw] according to ISO EN 9614 – 2.
3. Average sound pressure level [Lp<sub>m</sub>] 1m far according to ISO EN 3744.
4. Hydraulic connection with grooved end complete with flexible joint and adapter pipe for solder connection.
5. Referred to chilled water temperature 12/7°C – 0% glycol solution; air temperature to the condenser 35°C; water temperature heat recovery 40/45°C – 0% glycol solution. Fouling factor of the exchangers 0,043 m<sup>2</sup>K/kW.
6. Referred to chilled water temperature 12/7°C – 0% glycol solution; water temperature heat recovery 40/45°C – 0% glycol solution; Fouling factor of the exchangers 0,043 m<sup>2</sup>K/kW.

## TECHNICAL DATA NEBIS HE FL

NEBIS HE FL SIZE		480 V2 F10	510 V2 F10	550 V2 F10	590 V2 F10	630 V2 F10	670 V2 F12	710 V2 F12	780 V2 F14	
STANDARD	<b>Cooling capacity (1)</b>	<b>kW</b>	<b>474</b>	<b>511</b>	<b>548</b>	<b>585</b>	<b>622</b>	<b>669</b>	<b>703</b>	<b>777</b>
	Unit power input	kW	151,0	162,2	174,5	186,3	198,7	212,4	224,6	247,5
	Evaporator water flow rate	m <sup>3</sup> /h	81	88	94	100	107	115	121	134
	Evaporator pressure drop	kPa	43	42	42	43	43	45	45	42
	Compressors		twin-screw	twin-screw	twin-screw	twin-screw	twin-screw	twin-screw	twin-screw	twin-screw
	Quantity	n.	2	2	2	2	2	2	2	2
	Capacity control	%	25%...100%	25%...100%	25%...100%	25%...100%	25%...100%	25%...100%	25%...100%	25%...100%
	Axial fans	n.	10	10	10	10	10	12	12	14
	Total air flow	m <sup>3</sup> /h	240000	240000	240000	240000	240000	288000	288000	336000
	Air circuits	n.	2	2	2	2	2	2	2	2
	Refrigerant		R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a
	Total refrigerant charge (optional excluded)	kg	258	255	252	249	251	323	325	320
	Gas circuits	n.	2	2	2	2	2	2	2	2
	Power supply	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
	Max operating current (MOC)	A	276	302	329	356	383	410	438	479
	Max unit operating current (FLA)	A	355	392	428	447	466	500	525	600
	Unit starting current (LRA)	A	674	701	647	743	770	837	864	732
	EER (1)	kW/kW	3,14	3,15	3,14	3,14	3,13	3,15	3,13	3,14
	ESEER		4,05	4,12	4,19	4,27	4,35	4,22	4,28	4,20
	Sound power level [Lw] (2)	dB(A)	95,1	96,3	97,3	97,4	97,5	98,8	99,0	99,1
Average sound pressure level [Lpm] (3)	dB(A)	74,4	75,6	76,6	76,7	76,8	77,7	77,8	77,6	
Net weight	kg	3775	4108	4441	4449	4456	4985	4990	5863	
Hydraulic connections										
Evaporator IN/OUT - OD (4)	Ø mm	139,7	139,7	139,7	139,7	139,7	139,7	139,7	168,3	
OPTIONAL	Partial heat recovery (5)									
	<b>Heating capacity</b>	<b>kW</b>	<b>94</b>	<b>102</b>	<b>109</b>	<b>116</b>	<b>124</b>	<b>133</b>	<b>140</b>	<b>155</b>
	Total heat recovery (6)									
	<b>Heating capacity</b>	<b>kW</b>	<b>596</b>	<b>649</b>	<b>701</b>	<b>754</b>	<b>809</b>	<b>858</b>	<b>907</b>	<b>996</b>
Pumping group - Power input	kW	11,0	11,0	11,0	11,0	11,0	13,3	13,3	21,4	
LNO KIT 100%	<b>Cooling capacity (1)</b>	<b>kW</b>	<b>474</b>	<b>511</b>	<b>548</b>	<b>585</b>	<b>622</b>	<b>669</b>	<b>703</b>	<b>777</b>
	Unit power input	kW	151,0	162,2	174,5	186,3	198,7	212,4	224,6	247,5
	Total air flow	m <sup>3</sup> /h	240000	240000	240000	240000	240000	288000	288000	336000
	EER (1)	kW/kW	3,14	3,15	3,14	3,14	3,13	3,15	3,13	3,14
	Sound power level [Lw] (2)	dB(A)	93,1	94,3	95,2	95,3	95,4	96,8	96,9	97,0
Average sound pressure level [Lpm] (3)	dB(A)	72,4	73,6	74,5	74,6	74,7	75,6	75,8	75,6	
LNO KIT 85%	<b>Cooling capacity (1)</b>	<b>kW</b>	<b>466</b>	<b>502</b>	<b>538</b>	<b>573</b>	<b>609</b>	<b>657</b>	<b>689</b>	<b>763</b>
	Unit power input	kW	148,4	160,4	173,5	186,6	199,0	211,9	224,4	246,9
	Total air flow	m <sup>3</sup> /h	204000	204000	204000	204000	204000	244800	244800	285600
	EER (1)	kW/kW	3,14	3,13	3,10	3,07	3,06	3,10	3,07	3,09
	Sound power level [Lw] (2)	dB(A)	92,1	93,3	94,2	94,3	94,4	95,8	95,9	96,0
Average sound pressure level [Lpm] (3)	dB(A)	71,4	72,6	73,5	73,6	73,7	74,6	74,8	74,6	
LNO KIT 70%	<b>Cooling capacity (1)</b>	<b>kW</b>	<b>454</b>	<b>489</b>	<b>524</b>	<b>557</b>	<b>590</b>	<b>639</b>	<b>669</b>	<b>742</b>
	Unit power input	kW	146,0	159,8	174,1	187,5	201,4	211,6	224,5	247,3
	Total air flow	m <sup>3</sup> /h	168000	168000	168000	168000	168000	201600	201600	235200
	EER (1)	kW/kW	3,11	3,06	3,01	2,97	2,93	3,02	2,98	3,00
	Sound power level [Lw] (2)	dB(A)	89,1	90,3	91,2	91,3	91,4	92,8	92,9	93,0
Average sound pressure level [Lpm] (3)	dB(A)	68,4	69,6	70,5	70,6	70,7	71,6	71,8	71,6	
ELN KIT	<b>Cooling capacity (1)</b>	<b>kW</b>	<b>454</b>	<b>489</b>	<b>524</b>	<b>557</b>	<b>590</b>	<b>639</b>	<b>669</b>	<b>742</b>
	Unit power input	kW	146,0	159,8	174,1	187,5	201,4	211,6	224,5	247,3
	Total air flow	m <sup>3</sup> /h	168000	168000	168000	168000	168000	201600	201600	235200
	EER (1)	kW/kW	3,11	3,06	3,01	2,97	2,93	3,02	2,98	3,00
	Sound power level [Lw] (2)	dB(A)	86,1	87,3	88,2	88,3	88,4	89,8	89,9	90,0
Average sound pressure level [Lpm] (3)	dB(A)	65,4	66,6	67,5	67,6	67,7	68,6	68,8	68,6	
EXTREME ELN	<b>Cooling capacity (1)</b>	<b>kW</b>	<b>454</b>	<b>489</b>	<b>524</b>	<b>557</b>	<b>590</b>	<b>639</b>	<b>669</b>	<b>742</b>
	Unit power input	kW	146,0	159,8	174,1	187,5	201,4	211,6	224,5	247,3
	Total air flow	m <sup>3</sup> /h	168000	168000	168000	168000	168000	201600	201600	235200
	EER (1)	kW/kW	3,11	3,06	3,01	2,97	2,93	3,02	2,98	3,00
	Sound power level [Lw] (2)	dB(A)	83,1	84,3	85,3	85,4	85,5	86,8	86,9	87,1
Average sound pressure level [Lpm] (3)	dB(A)	62,4	63,6	64,6	64,7	64,8	65,7	65,8	65,6	

1. Referred to chilled water temperature 12/7°C – 0% glycol solution; air temperature to the condenser 35°C. Fouling factor of the exchangers 0,043 m<sup>2</sup>K/kW.
2. Sound power level [Lw] according to ISO EN 9614 – 2.
3. Average sound pressure level [Lp<sub>m</sub>] 1m far according to ISO EN 3744.
4. Hydraulic connection with grooved end complete with flexible joint and adapter pipe for solder connection.
5. Referred to chilled water temperature 12/7°C – 0% glycol solution; air temperature to the condenser 35°C; water temperature heat recovery 40/45°C – 0% glycol solution. Fouling factor of the exchangers 0,043 m<sup>2</sup>K/kW.
6. Referred to chilled water temperature 12/7°C – 0% glycol solution; water temperature heat recovery 40/45°C – 0% glycol solution; Fouling factor of the exchangers 0,043 m<sup>2</sup>K/kW.

## TECHNICAL DATA NEBIS HE FL

NEBIS HE FL SIZE		840 V2 F14	890 V2 F14	940 V2 F14	1010 V2 F16	1070 V2 F16	1120 V2 F18	1150 V2 F18	1220 V2 F20	
<b>STANDARD</b>	<b>Cooling capacity (1)</b>	<b>kW</b>	<b>841</b>	<b>889</b>	<b>936</b>	<b>1011</b>	<b>1068</b>	<b>1115</b>	<b>1150</b>	<b>1217</b>
	Unit power input	kW	267,0	283,1	299,0	322,0	343,4	356,2	368,6	391,3
	Evaporator water flow rate	m <sup>3</sup> /h	144	153	161	174	184	191	198	209
	Evaporator pressure drop	kPa	44	44	45	45	45	45	44	46
	Compressors		twin-screw	twin-screw	twin-screw	twin-screw	twin-screw	twin-screw	twin-screw	twin-screw
	Quantity	n.	2	2	2	2	2	2	2	2
	Capacity control	%	25%...100%	25%...100%	25%...100%	25%...100%	25%...100%	25%...100%	25%...100%	25%...100%
	Axial fans	n.	14	14	14	16	16	18	18	20
	Total air flow	m <sup>3</sup> /h	336000	336000	336000	384000	384000	432000	432000	480000
	Air circuits	n.	2	2	2	2	2	2	2	2
	Refrigerant		R134a	R134a	R134a	R134a	R134a	R134a	R134a	R134a
	Total refrigerant charge (optional excluded)	kg	319	397	395	398	397	487	484	484
	Gas circuits	n.	2	2	2	2	2	2	2	2
	Power supply	V/Ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
	Max operating current (MOC)	A	521	545	570	608	646	677	708	752
	Max unit operating current (FLA)	A	665	698	732	785	828	913	987	1047
	Unit starting current (LRA)	A	763	792	817	948	986	1059	1090	1255
	EER (1)	kW/kW	3,15	3,14	3,13	3,14	3,11	3,13	3,12	3,11
	ESEER		4,29	4,37	4,45	4,36	4,44	4,35	4,39	4,33
	Sound power level [Lw] (2)	dB(A)	99,0	99,1	99,2	99,7	99,9	100,2	100,4	102,8
Average sound pressure level [Lpm] (3)	dB(A)	77,6	77,7	77,8	77,8	78,0	78,1	78,3	80,3	
Net weight	kg	6463	6645	6646	7260	7263	7697	7699	8061	
Hydraulic connections										
Evaporator IN/OUT - OD (4)	Ø mm	168,3	168,3	168,3	168,3	168,3	168,3	168,3	168,3	
<b>OPTIONAL</b>	Partial heat recovery (5)									
	<b>Heating capacity</b>	<b>kW</b>	<b>167</b>	<b>177</b>	<b>186</b>	<b>201</b>	<b>213</b>	<b>222</b>	<b>229</b>	<b>242</b>
	Total heat recovery (6)									
	<b>Heating capacity</b>	<b>kW</b>	<b>1086</b>	<b>1156</b>	<b>1225</b>	<b>1316</b>	<b>1406</b>	<b>1451</b>	<b>1501</b>	<b>1581</b>
Pumping group - Power input	kW	21,4	21,4	21,4	22,0	22,0	22,0	22,0	22,0	
<b>LNO KIT 100%</b>	<b>Cooling capacity (1)</b>	<b>kW</b>	<b>841</b>	<b>889</b>	<b>936</b>	<b>1011</b>	<b>1068</b>	<b>1115</b>	<b>1150</b>	<b>1217</b>
	Unit power input	kW	267,0	283,1	299,0	322,0	343,4	356,2	368,6	391,3
	Total air flow	m <sup>3</sup> /h	336000	336000	336000	384000	384000	432000	432000	480000
	EER (1)	kW/kW	3,15	3,14	3,13	3,14	3,11	3,13	3,12	3,11
Sound power level [Lw] (2)	dB(A)	97,0	97,1	97,2	97,6	97,9	98,2	98,4	100,8	
Average sound pressure level [Lpm] (3)	dB(A)	75,5	75,6	75,7	75,7	76,0	76,0	76,2	78,3	
<b>LNO KIT 85%</b>	<b>Cooling capacity (1)</b>	<b>kW</b>	<b>823</b>	<b>869</b>	<b>916</b>	<b>990</b>	<b>1044</b>	<b>1092</b>	<b>1126</b>	<b>1192</b>
	Unit power input	kW	267,2	284,9	302,3	324,6	343,4	356,9	368,0	390,8
	Total air flow	m <sup>3</sup> /h	285600	285600	285600	326400	326400	367200	367200	408000
	EER (1)	kW/kW	3,08	3,05	3,03	3,05	3,04	3,06	3,06	3,05
Sound power level [Lw] (2)	dB(A)	96,0	96,1	96,2	96,6	96,9	97,2	97,4	99,8	
Average sound pressure level [Lpm] (3)	dB(A)	74,5	74,6	74,7	74,7	75,0	75,0	75,2	77,3	
<b>LNO KIT 70%</b>	<b>Cooling capacity (1)</b>	<b>kW</b>	<b>798</b>	<b>842</b>	<b>887</b>	<b>961</b>	<b>1011</b>	<b>1060</b>	<b>1092</b>	<b>1158</b>
	Unit power input	kW	269,6	289,3	309,1	325,8	345,1	356,9	370,2	392,5
	Total air flow	m <sup>3</sup> /h	235200	235200	235200	268800	268800	302400	302400	336000
	EER (1)	kW/kW	2,96	2,91	2,87	2,95	2,93	2,97	2,95	2,95
Sound power level [Lw] (2)	dB(A)	93,0	93,1	93,2	93,6	93,9	94,2	94,4	96,8	
Average sound pressure level [Lpm] (3)	dB(A)	71,5	71,6	71,7	71,7	72,0	72,0	72,2	74,3	
<b>ELN KIT</b>	<b>Cooling capacity (1)</b>	<b>kW</b>	<b>798</b>	<b>842</b>	<b>887</b>	<b>961</b>	<b>1011</b>	<b>1060</b>	<b>1092</b>	<b>1158</b>
	Unit power input	kW	269,6	289,3	309,1	325,8	345,1	356,9	370,2	392,5
	Total air flow	m <sup>3</sup> /h	235200	235200	235200	268800	268800	302400	302400	336000
	EER (1)	kW/kW	2,96	2,91	2,87	2,95	2,93	2,97	2,95	2,95
Sound power level [Lw] (2)	dB(A)	90,0	90,1	90,2	90,6	90,9	91,2	91,4	93,8	
Average sound pressure level [Lpm] (3)	dB(A)	68,5	68,6	68,7	68,7	69,0	69,0	69,2	71,3	
<b>EXTREME ELN</b>	<b>Cooling capacity (1)</b>	<b>kW</b>	<b>798</b>	<b>842</b>	<b>887</b>	<b>961</b>	<b>1011</b>	<b>1060</b>	<b>1092</b>	<b>1158</b>
	Unit power input	kW	269,6	289,3	309,1	325,8	345,1	356,9	370,2	392,5
	Total air flow	m <sup>3</sup> /h	235200	235200	235200	268800	268800	302400	302400	336000
	EER (1)	kW/kW	2,96	2,91	2,87	2,95	2,93	2,97	2,95	2,95
Sound power level [Lw] (2)	dB(A)	87,0	87,1	87,2	87,7	87,9	88,2	88,4	90,8	
Average sound pressure level [Lpm] (3)	dB(A)	65,6	65,7	65,8	65,8	66,0	66,1	66,3	68,3	

1. Referred to chilled water temperature 12/7°C – 0% glycol solution; air temperature to the condenser 35°C. Fouling factor of the exchangers 0,043 m<sup>2</sup>K/kW.
2. Sound power level [Lw] according to ISO EN 9614 – 2.
3. Average sound pressure level [Lp<sub>m</sub>] 1m far according to ISO EN 3744.
4. Hydraulic connection with grooved end complete with flexible joint and adapter pipe for solder connection.
5. Referred to chilled water temperature 12/7°C – 0% glycol solution; air temperature to the condenser 35°C; water temperature heat recovery 40/45°C – 0% glycol solution. Fouling factor of the exchangers 0,043 m<sup>2</sup>K/kW.
6. Referred to chilled water temperature 12/7°C – 0% glycol solution; water temperature heat recovery 40/45°C – 0% glycol solution; Fouling factor of the exchangers 0,043 m<sup>2</sup>K/kW.

## TECHNICAL DATA NEBIS HE FL

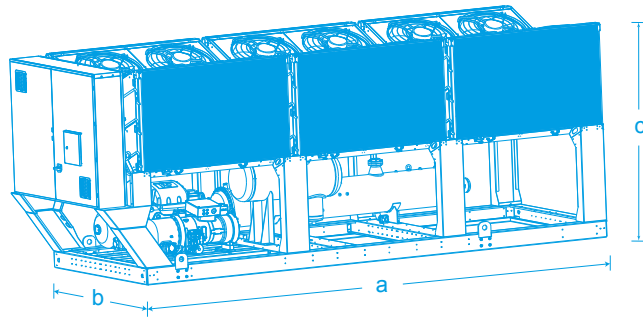
NEBIS HE FL SIZE		1290 V2 F22	1350 V2 F24	1400 V2 F24	
STANDARD	<b>Cooling capacity (1)</b>	<b>kW</b>	<b>1290</b>	<b>1347</b>	<b>1394</b>
	Unit power input	kW	414,8	430,4	446,8
	Evaporator water flow rate	m <sup>3</sup> /h	222	231	239
	Evaporator pressure drop	kPa	46	41	44
	Compressors		twin-screw	twin-screw	twin-screw
	Quantity	n.	2	2	2
	Capacity control	%	25%...100%	25%...100%	25%...100%
	Axial fans	n.	22	24	24
	Total air flow	m <sup>3</sup> /h	528000	576000	576000
	Air circuits	n.	2	2	2
	Refrigerant		R134a	R134a	R134a
	Total refrigerant charge (optional excluded)	kg	481	482	477
	Gas circuits	n.	2	2	2
	Power supply	V/Ph/Hz	400/3/50	400/3/50	400/3/50
	Max operating current (MOC)	A	796	812	829
	Max unit operating current (FLA)	A	1106	1116	1116
	Unit starting current (LRA)	A	1309	1334	1334
	EER (1)	kW/kW	3,11	3,13	3,12
	ESEER		4,26	4,23	4,27
	OPTIONAL	Sound power level [Lw] (2)	dB(A)	103,9	104,0
Average sound pressure level [Lpm] (3)		dB(A)	81,1	81,0	81,1
Net weight		kg	8305	8641	8641
Hydraulic connections					
Evaporator IN/OUT - OD (4)		Ø mm	168,3	168,3	168,3
Partial heat recovery (5)					
<b>Heating capacity</b>		<b>kW</b>	<b>257</b>	<b>268</b>	<b>277</b>
Total heat recovery (6)					
<b>Heating capacity</b>		<b>kW</b>	<b>1668</b>	<b>1733</b>	<b>1803</b>
Pumping group - Power input		kW	22,0	26,6	26,6
LNO KIT 100%	<b>Cooling capacity (1)</b>	<b>kW</b>	<b>1290</b>	<b>1347</b>	<b>1394</b>
	Unit power input	kW	414,8	430,4	446,8
	Total air flow	m <sup>3</sup> /h	528000	576000	576000
	EER (1)	kW/kW	3,11	3,13	3,12
	Sound power level [Lw] (2)	dB(A)	101,8	102,0	102,1
Average sound pressure level [Lpm] (3)	dB(A)	79,1	79,0	79,0	
LNO KIT 85%	<b>Cooling capacity (1)</b>	<b>kW</b>	<b>1265</b>	<b>1323</b>	<b>1369</b>
	Unit power input	kW	414,8	428,2	445,9
	Total air flow	m <sup>3</sup> /h	448800	489600	489600
	EER (1)	kW/kW	3,05	3,09	3,07
	Sound power level [Lw] (2)	dB(A)	100,8	101,0	101,1
Average sound pressure level [Lpm] (3)	dB(A)	78,1	78,0	78,0	
LNO KIT 70%	<b>Cooling capacity (1)</b>	<b>kW</b>	<b>1231</b>	<b>1289</b>	<b>1334</b>
	Unit power input	kW	415,9	428,2	446,2
	Total air flow	m <sup>3</sup> /h	369600	403200	403200
	EER (1)	kW/kW	2,96	3,01	2,99
	Sound power level [Lw] (2)	dB(A)	97,8	98,0	98,1
Average sound pressure level [Lpm] (3)	dB(A)	75,1	75,0	75,0	
ELN KIT	<b>Cooling capacity (1)</b>	<b>kW</b>	<b>1231</b>	<b>1289</b>	<b>1334</b>
	Unit power input	kW	415,9	428,2	446,2
	Total air flow	m <sup>3</sup> /h	369600	403200	403200
	EER (1)	kW/kW	2,96	3,01	2,99
	Sound power level [Lw] (2)	dB(A)	94,8	95,0	95,1
Average sound pressure level [Lpm] (3)	dB(A)	72,1	72,0	72,0	
EXTREME ELN	<b>Cooling capacity (1)</b>	<b>kW</b>	<b>1231</b>	<b>1289</b>	<b>1334</b>
	Unit power input	kW	415,9	428,2	446,2
	Total air flow	m <sup>3</sup> /h	369600	403200	403200
	EER (1)	kW/kW	2,96	3,01	2,99
	Sound power level [Lw] (2)	dB(A)	91,9	92,0	92,1
Average sound pressure level [Lpm] (3)	dB(A)	69,1	69,0	69,1	

1. Referred to chilled water temperature 12/7°C – 0% glycol solution; air temperature to the condenser 35°C. Fouling factor of the exchangers 0,043 m<sup>2</sup>K/kW.
2. Sound power level [Lw] according to ISO EN 9614 – 2.
3. Average sound pressure level [Lp<sub>m</sub>] 1m far according to ISO EN 3744.
4. Hydraulic connection with grooved end complete with flexible joint and adapter pipe for solder connection.
5. Referred to chilled water temperature 12/7°C – 0% glycol solution; air temperature to the condenser 35°C; water temperature heat recovery 40/45°C – 0% glycol solution. Fouling factor of the exchangers 0,043 m<sup>2</sup>K/kW.
6. Referred to chilled water temperature 12/7°C – 0% glycol solution; water temperature heat recovery 40/45°C – 0% glycol solution; Fouling factor of the exchangers 0,043 m<sup>2</sup>K/kW.



## DIMENSIONS (mm)

SIZE F	a	b	c
F06	3420	2260	2540
F08	4690	2260	2540
F10	5650	2260	2540
F12	6820	2260	2540
F14	7735	2260	2540
F16	8906	2260	2540
F18	9820	2260	2540
F20	10990	2260	2540
F22	11905	2260	2540
F24	13075	2260	2540





for a greener tomorrow

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