

**DAIKIN**

**Installation, Operation and Maintenance Manual**  
**D – 507 C – 07/02 B – EN**

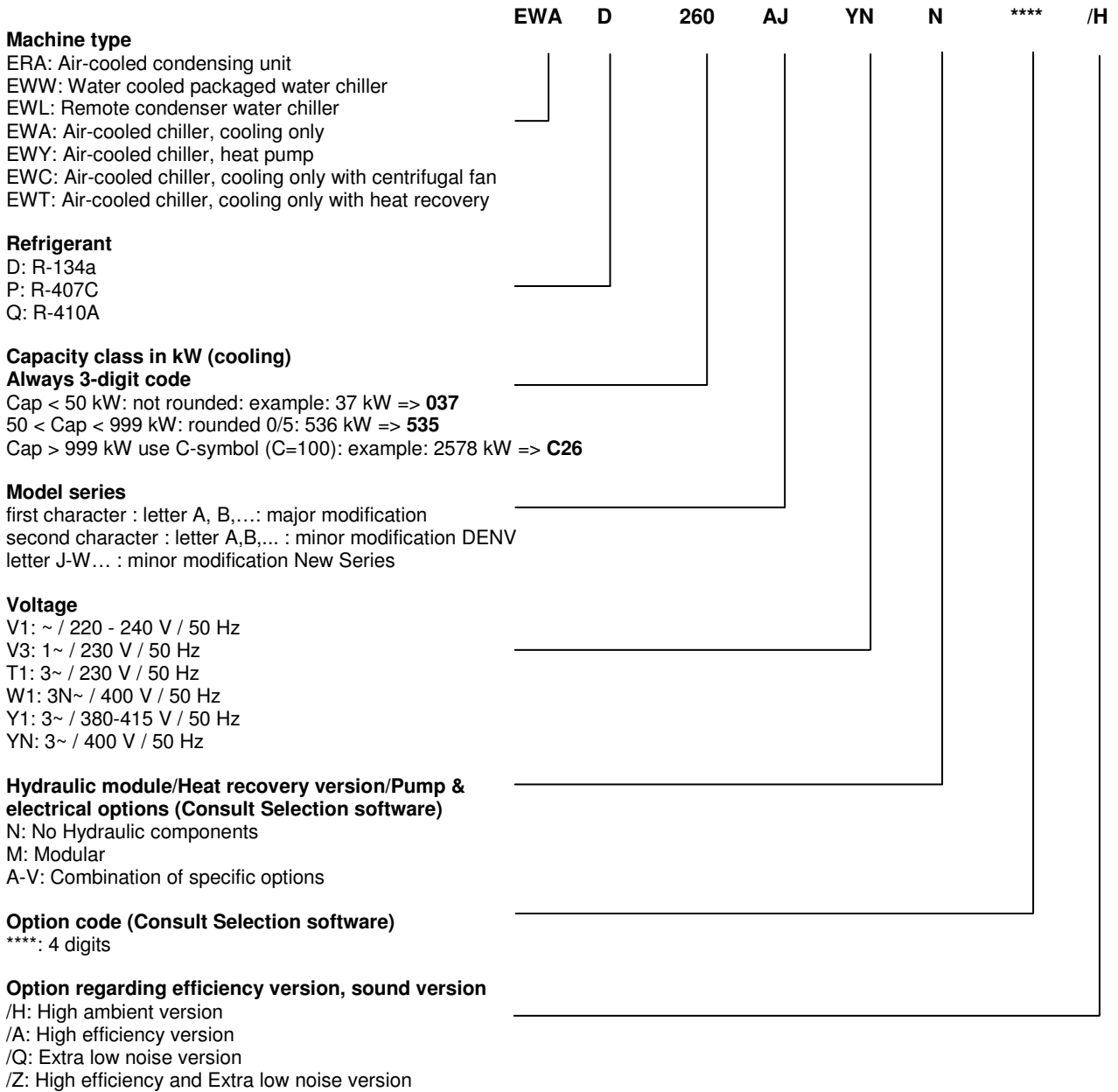


## **Air-cooled screw chillers**

EWAD 190-600AJYNN  
EWAD 210-500AJYNN/Q  
EWAD 260-650AJYNN/A  
EWAD 200-600AJYNN/H

50Hz – Refrigerant: R-134a

# Nomenclature



**Figure 1 - Nomenclature**

**Table 7 - EWAD260÷340AJYNN/A R-134a - Technical Data**

Unit Size		260	280	320	340
Screw compressors	N.	2	2	2	2
Refrigerant circuits	N.	2	2	2	2
Refrigerant charge R-134a	kg	60	68	80	80
Oil charge	kg	26	26	26	26
Min % of capacity reduction	%	12,5	12,5	12,5	12,5

**Condenser fans**

No. of fans / nominal power fan	N. / kW	6 / 1,16	8 / 1,16	8 / 1,16	8 / 1,16
Fan speed	rpm	900	900	900	900
Diameter	mm	710	710	710	710
Total air flow	m <sup>3</sup> /s	22,3	30,6	29,7	29,7

**Evaporator**

Evaporators / water volume	N. / l	1 / 93	1 / 113	1 / 113	1 / 164
Max operating pressure	bar	10,5	10,5	10,5	10,5
Water connection diameter	"	4	4	4	4

**Condenser coil**

Coil type	Lanced fins – Internally spiral wound tubes
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**Weight and dimensions**

Standard unit shipping weight	kg	2866	3186	3286	3366
Standard unit operating weight	kg	2959	3299	3399	3530
Unit length	mm	3140	4040	4040	4040
Unit width	mm	2235	2235	2235	2235
Unit height	mm	2340	2340	2340	2340

**Table 8 - EWAD360÷420AJYNN/A R-134a - Technical Data**

Unit Size		360	380	420
Screw compressors	N.	2	2	2
Refrigerant circuits	N.	2	2	2
Refrigerant charge R-134a	kg	80	80	80
Oil charge	kg	26	26	26
Min % of capacity reduction	%	12,5	12,5	12,5

**Condenser fans**

No. of fans / nominal power fan	N. / kW	8 / 1,16	8 / 1,80	8 / 1,80
Fan speed	rpm	900	900	900
Diameter	mm	710	800	800
Total air flow	m <sup>3</sup> /s	29,7	44,0	43,0

**Evaporator**

Evaporators / water volume	N. / l	1 / 159	1 / 159	1 / 159
Max operating pressure	bar	10,5	10,5	10,5
Water connection diameter	"	4	4	4

**Condenser coil**

Coil type	Lanced fins – Internally spiral wound tubes
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**Weight and dimensions**

Standard unit shipping weight	kg	3376	3321	3386
Standard unit operating weight	kg	3535	3480	3545
Unit length	mm	4040	4040	4040
Unit width	mm	2235	2235	2235
Unit height	mm	2340	2340	2340

**Table 15 - Sound levels EWAD-AJYNN/A**

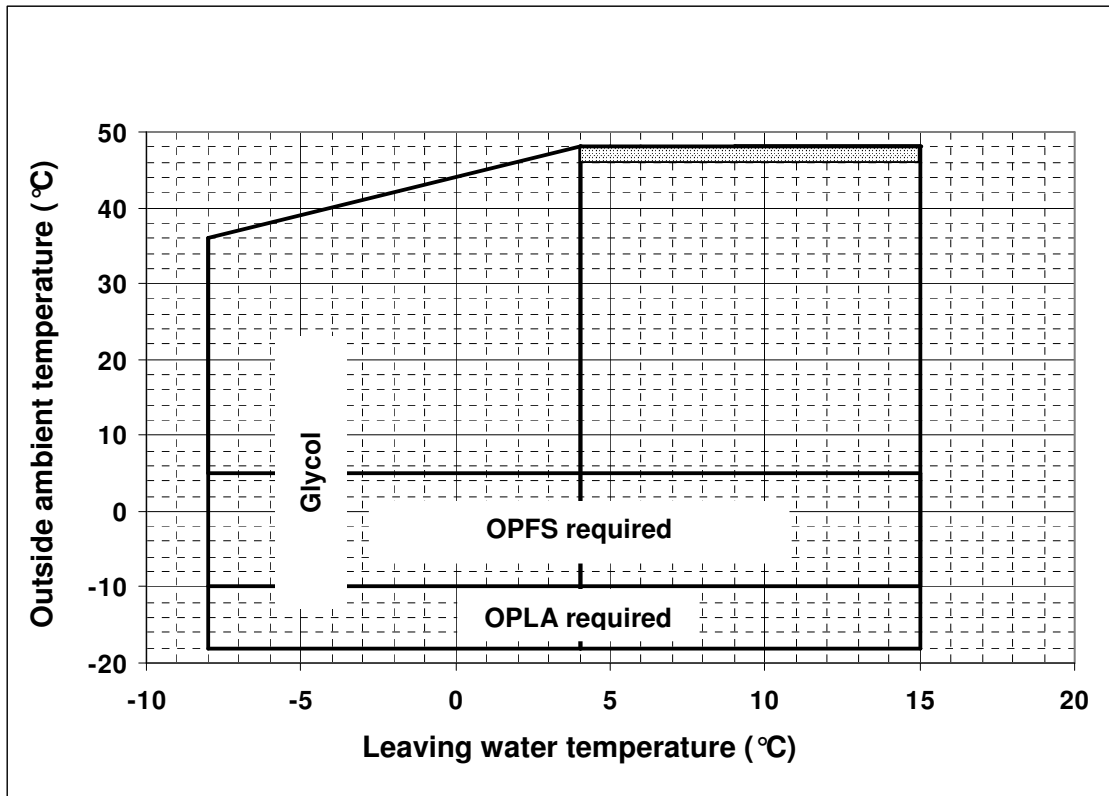
Unit size	Sound pressure at 1 m distance from the unit in semi-spherical free field (ref. factor $2 \times 10^{-5}$ Pa)									Power
	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	dB(A)	dB(A)
260	79,5	74,9	72,9	79,2	68,7	65,9	57,3	51,4	77,5	96,8
280	79,5	74,9	72,9	79,2	68,7	65,9	57,3	51,4	77,5	97,2
320	79,5	74,9	72,9	79,2	68,7	65,9	57,3	51,4	77,5	97,2
340	79,5	74,9	72,9	79,2	68,7	65,9	57,3	51,4	77,5	97,2
360	79,5	74,9	72,9	79,2	68,7	65,9	57,3	51,4	77,5	97,2
380	81,0	76,4	74,4	80,7	70,2	67,4	58,8	52,9	79,0	98,7
420	81,0	76,4	74,4	80,7	70,2	67,4	58,8	52,9	79,0	98,7
500	64,5	73,5	73,0	78,5	71,5	73,0	60,0	53,0	79,0	98,7
550	64,5	73,5	73,5	78,5	71,5	73,0	60,0	53,0	79,0	99,2
600	64,5	73,5	73,5	78,5	71,6	73,1	60,0	53,0	79,0	99,2
650	64,5	73,5	73,5	78,5	71,5	73,0	60,0	53,0	79,0	99,2

**Table 16 - Sound levels EWAD-AJYNN/H**

Unit size	Sound pressure at 1 m distance from the unit in semi-spherical free field (ref. factor $2 \times 10^{-5}$ Pa)									Power
	63 Hz	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz	dB(A)	dB(A)
200	79,0	74,3	72,4	78,8	67,8	65,2	56,5	50,8	77,0	95,7
210	79,0	74,3	72,4	78,8	67,8	65,2	56,5	50,8	77,0	95,7
240	79,0	74,3	72,4	78,8	67,8	65,2	56,5	50,8	77,0	96,3
260	79,0	74,3	72,4	78,8	67,8	65,2	56,5	50,8	77,0	96,3
280	79,0	74,3	72,4	78,8	67,8	65,2	56,5	50,8	77,0	96,3
300	79,0	74,3	72,4	78,8	67,8	65,2	56,5	50,8	77,0	96,3
320	79,0	74,3	72,4	78,8	67,8	65,2	56,5	50,8	77,0	96,3
340	79,0	74,3	72,4	78,8	67,8	65,2	56,5	50,8	77,0	96,7
400	81,0	76,4	74,4	80,7	70,2	67,4	58,8	52,9	79,0	98,7
420	63,0	72,0	70,5	77,0	68,5	71,0	58,5	50,4	77,0	96,7
460	63,0	72,0	71,5	77,0	70,0	71,5	58,5	51,5	77,5	97,7
480	63,0	72,0	71,5	77,0	70,0	71,5	58,5	51,5	77,5	97,7
500	63,0	72,0	71,5	77,0	70,0	71,5	58,5	51,5	77,5	97,7
550	64,5	73,5	73,5	78,5	71,5	73,0	60,0	53,0	79,0	99,2
600	65,0	74,0	74,0	79,0	72,1	73,6	60,5	53,5	79,5	99,7

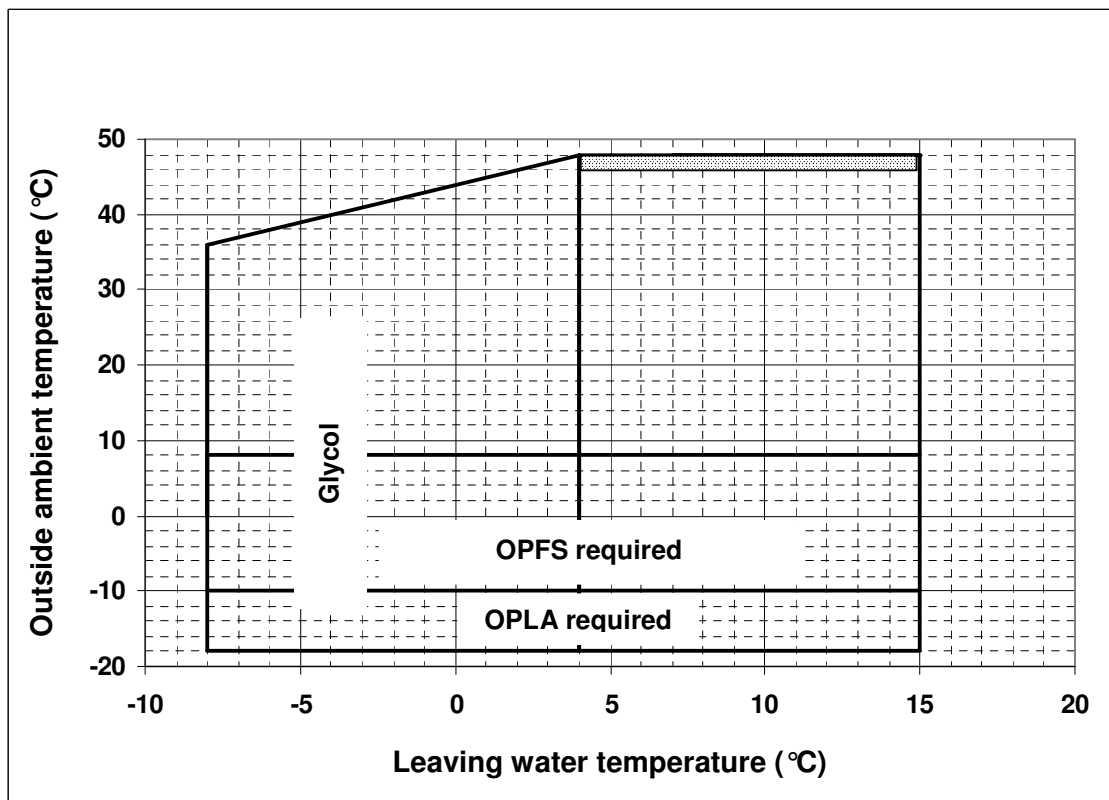
**Note:** The values are according to ISO 3744 and refer to units without pumps kit.

Figure 4 - Operating limits - EWAD-AJYNN/A



Check on rating tables for actual operating limit at full load.

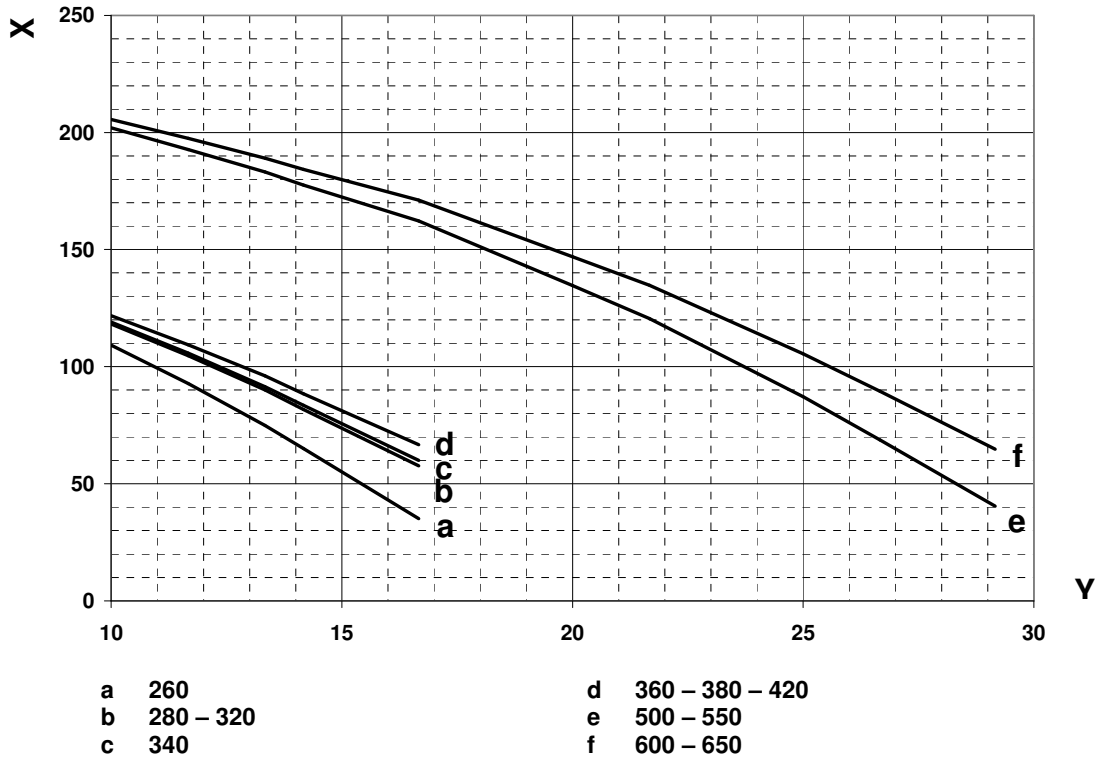
Figure 5 - Operating limits - EWAD-AJYNN/H



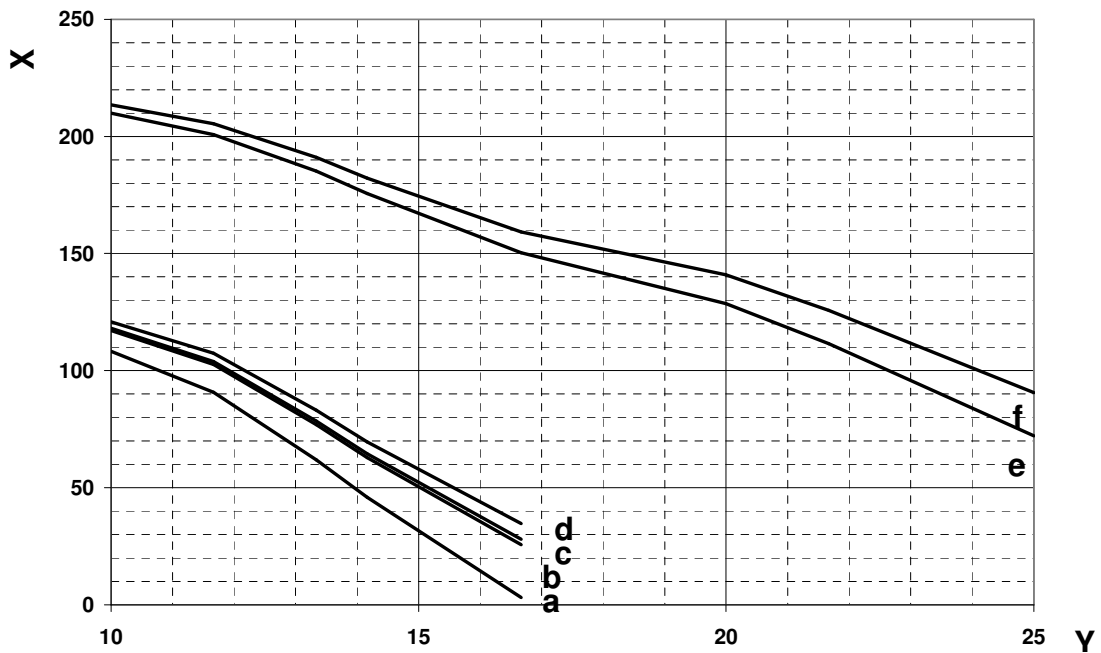
Check on rating tables for actual operating limit at full load.

Figure 14 - Low lift water pumps kit (option on request) - Lift diagrams for EWAD-AJYNN/A

**EWAD-AJYNN/A with low lift single pump**



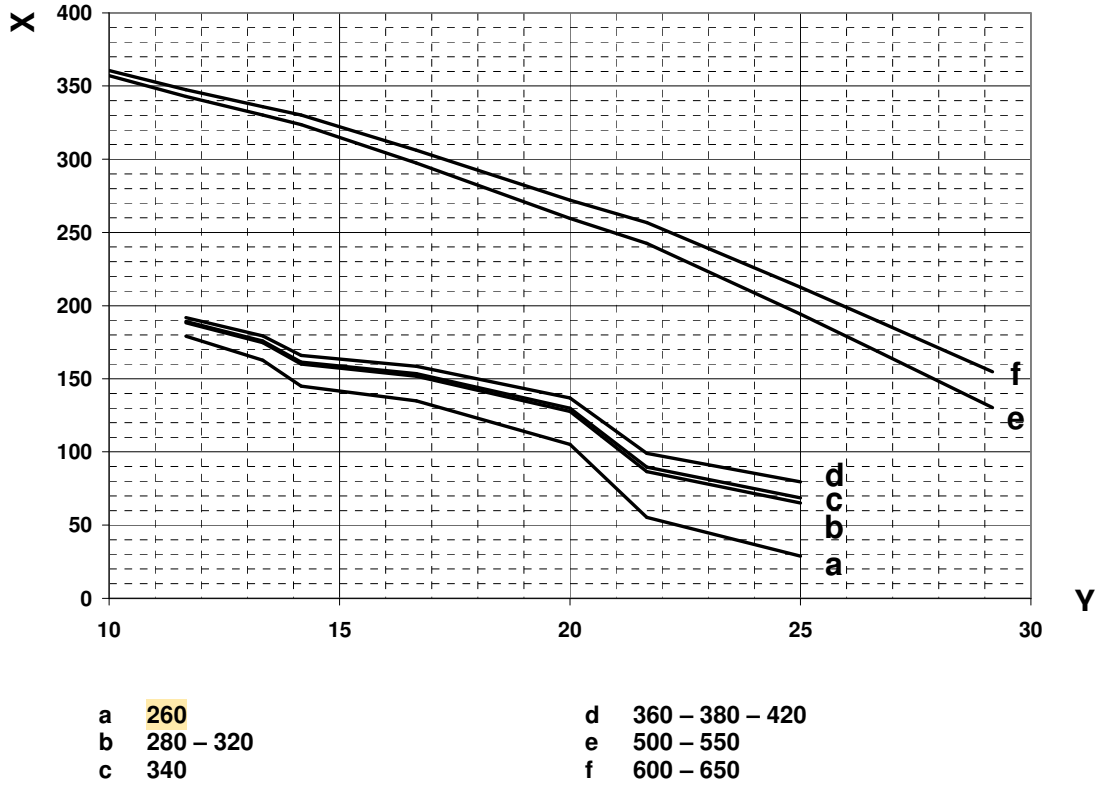
**EWAD-AJYNN/A with low lift double pump**



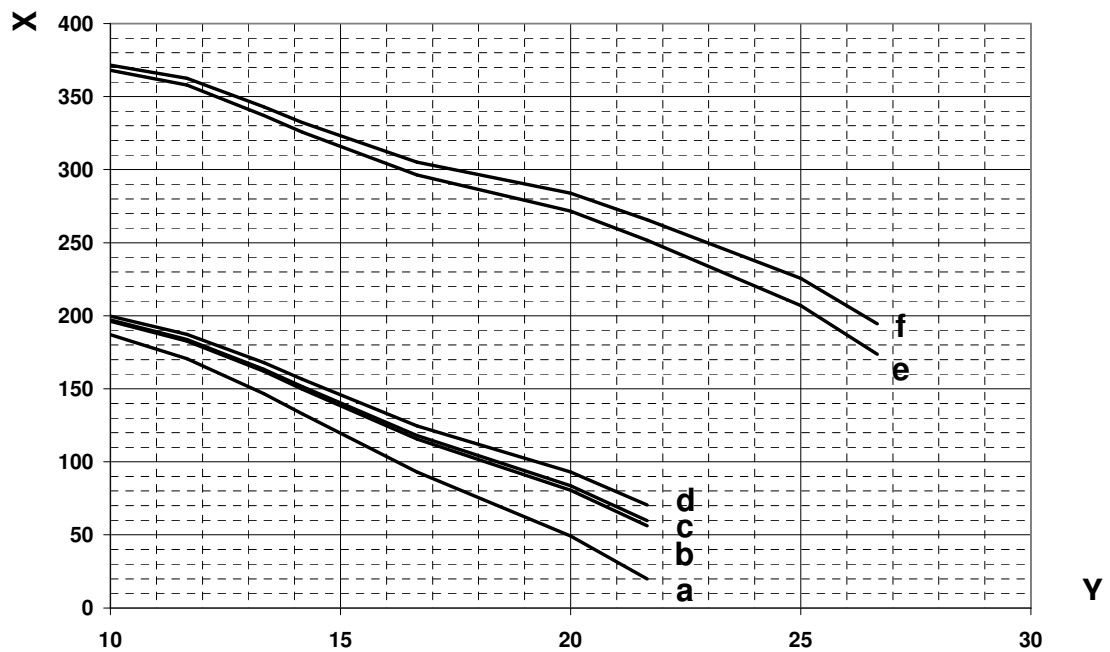
X Available lift (kPa)  
Y Water flow rate (l/s)

**Figure 17 - High lift water pumps kit (option on request) - Lift diagrams for EWAD-AJYNN/A**

**EWAD-AJYNN/A with high lift single pump**

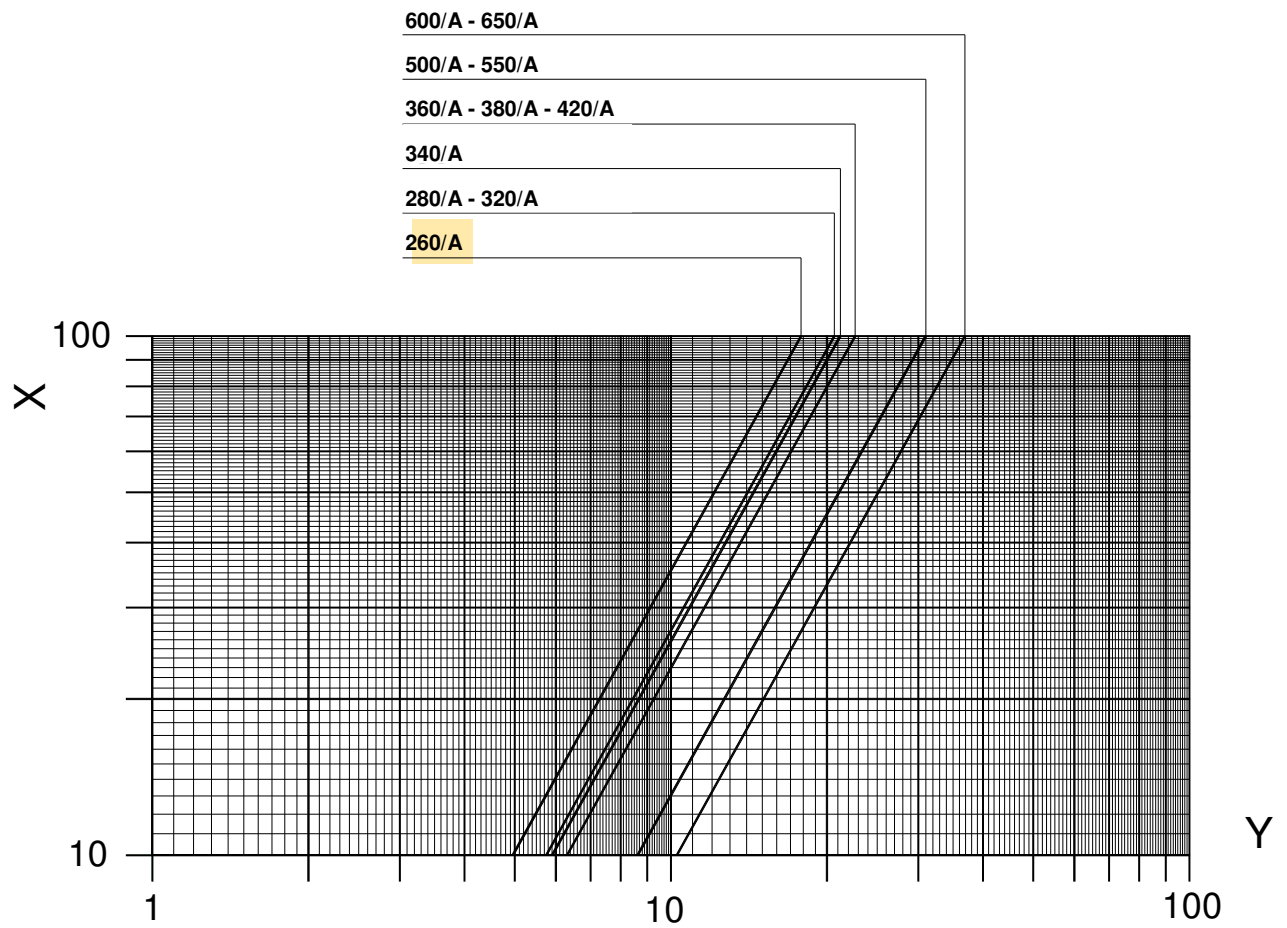


**EWAD-AJYNN/A with high lift double pump**



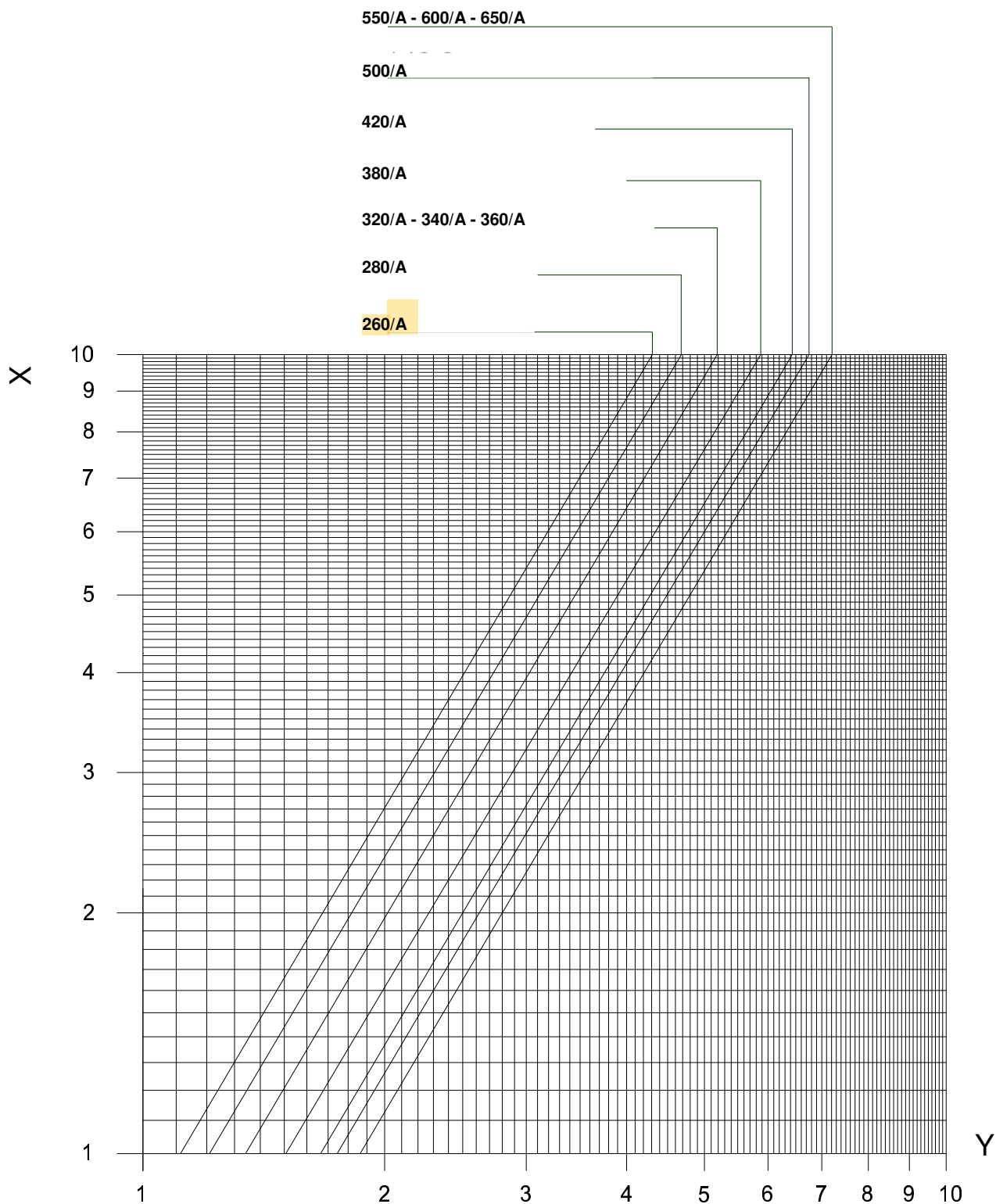
X Available lift (kPa)  
Y Water flow rate (l/s)

Figure 20 - Evaporator pressure drop - EWAD-AJYNN/A



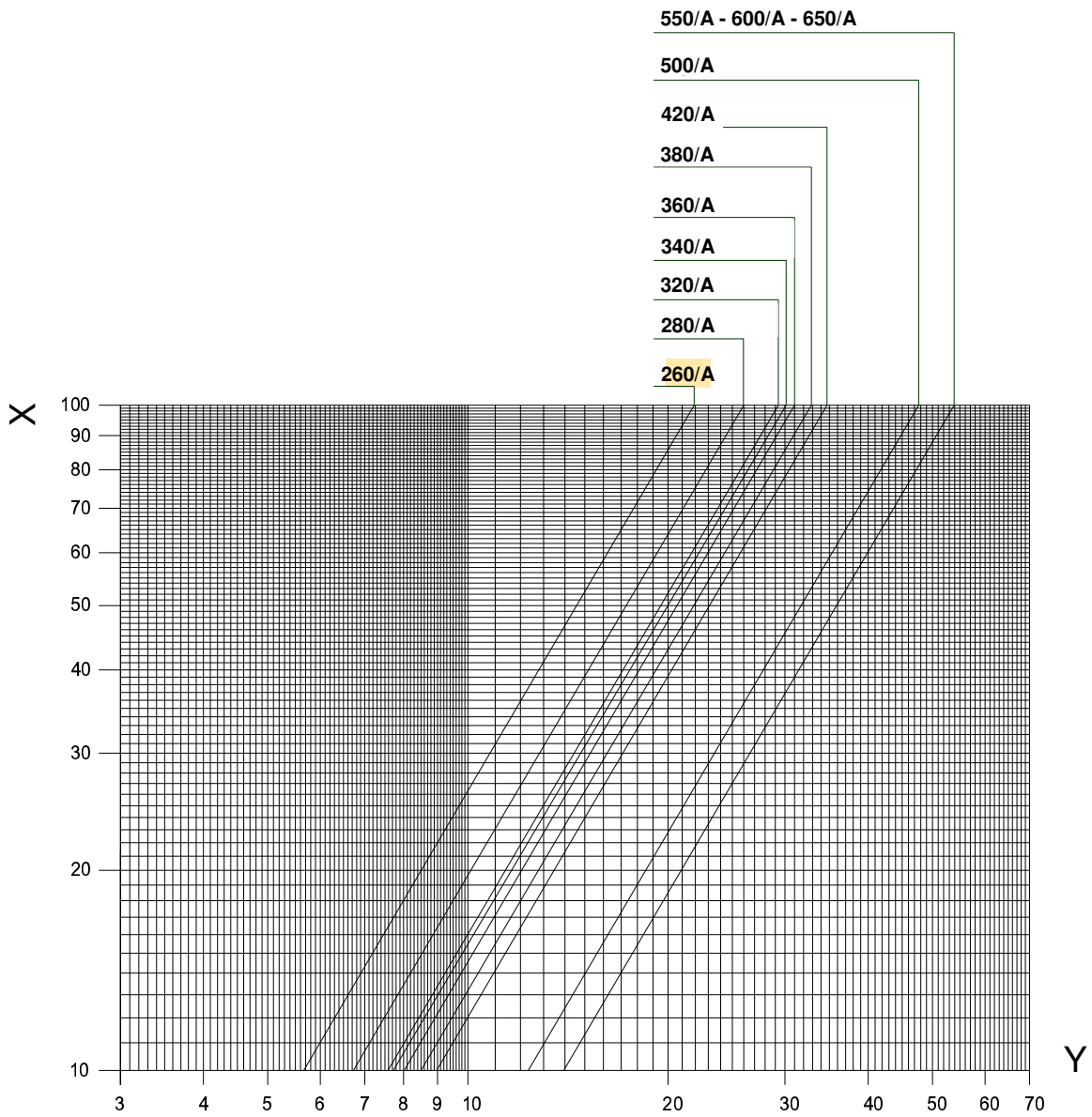
X Pressure drop (kPa)  
Y Water flow rate (l/s)

**Figure 22 - Partial heat recovery pressure drop - EWAD-AJYNN/A**



X Pressure drop (kPa)  
 Y Water flow rate (l/s)

Figure 25 - Total heat recovery pressure drop - EWAD-AJYNN/A



X Pressure drop (kPa)  
Y Water flow rate (l/s)

## Electrical components

All power and interface electrical connections are specified in the wiring diagram that is shipped with the machine. The installer must supply the following components:

- Power supply cables (dedicated conduit)
- Interconnection and interface cables (dedicated conduit)
- Thermal-magnetic circuit breaker of suitable size (please see electrical data)

## Electrical wiring

### Power circuit:

Connect electrical power supply cables to the terminals of the general circuit breaker located on the machine's terminal board. The access panel must have a hole of appropriate diameter for the cable used and its cable gland. A flexible conduit can also be used, containing the three power phases plus earth.

In any case, absolute protection against any water penetrating through the connection point must be ensured.

### Control circuit:

Every machine of the series is supplied with an auxiliary 400/ 230V control circuit transformer. No additional cable for the control system power supply is thus required.

Only if the optional separate accumulation tank is requested, the electrical anti-freeze resistance must have a separate power supply.

## Electrical resistances

The machine has an electrical anti-freeze resistance that is installed directly in the evaporator. Each circuit also has an electrical resistance installed in the compressor, whose purpose is to keep the oil warm thus preventing the presence of liquid refrigerant mixed with the oil in the compressor. Obviously, the operation of the electrical resistances is guaranteed only if there is a constant power supply. If it is not possible to keep the machine powered when inactive during winter, apply at least two of the procedures described in the "Mechanical installation" section under the paragraph "Antifreeze protection of evaporator and heat recovery exchangers".

## Electrical power supply to the pumps

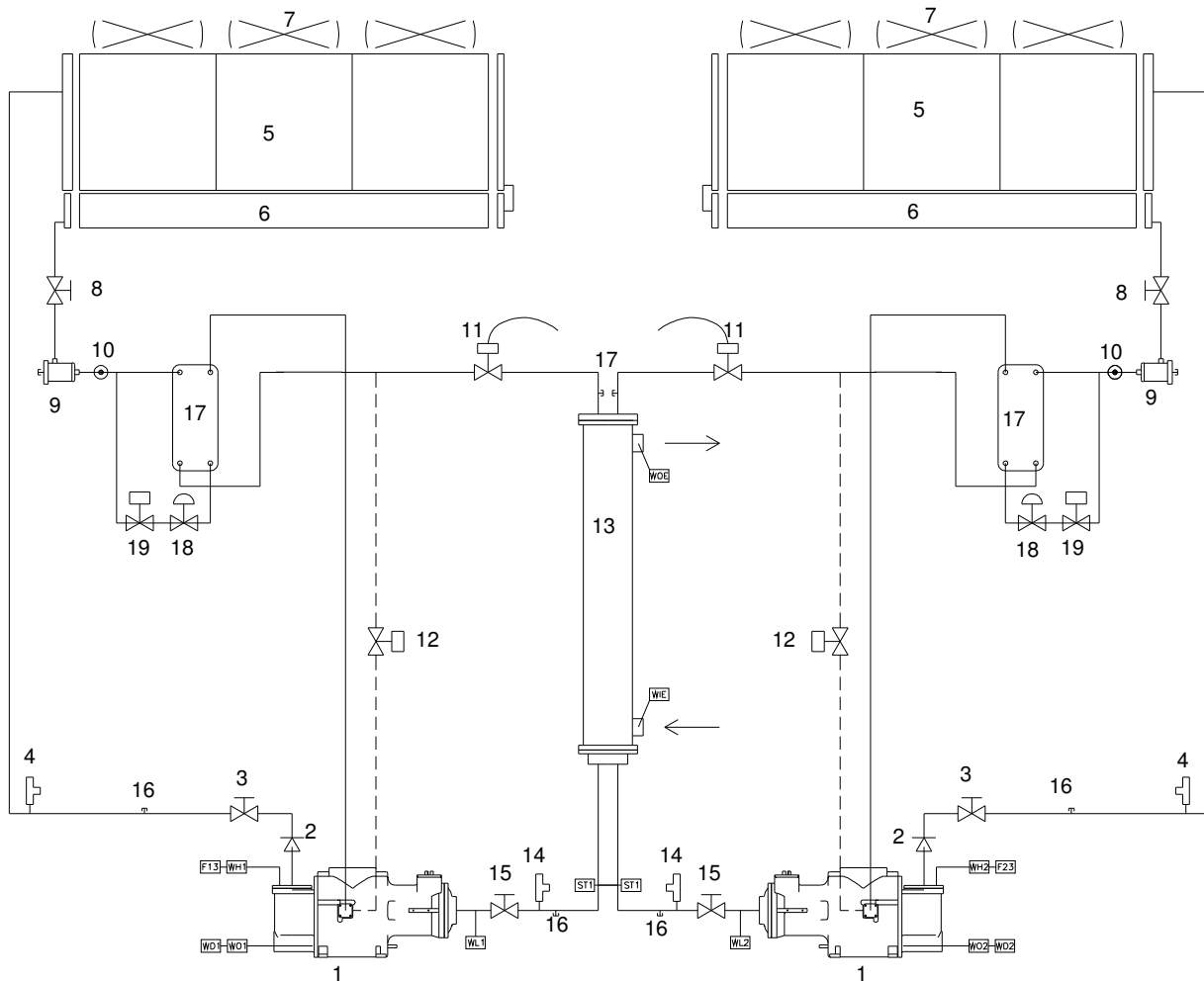
On request, a kit can be installed in the machine for fully-cabled, microprocessor-controlled pumping. No additional control is required in this case.

**Table 20 - Electrical data for optional pumps**

Unit model		Power input (kW)		Absorbed current (A)	
		Low lift		High lift	
EWAD-AJYNN	190 - 200 - 210	1.5	3.0	3.5	6.0
	230 - 240 - 260 - 280 - 300 - 320 - 340 - 360	3.0	5.5	6.0	10.1
EWAD-AJYNN/Q	400 - 440 - 460 - 480	4.0	8.1	7.5	13.7
	500 - 550 - 600	5.5	10.1	11	20
EWAD-AJYNN/A	260 - 280 - 320 - 340 - 360 - 380 - 420	3.0	5.5	6.0	10.1
	500 - 550 - 600 - 650	5.5	10.1	11	20
EWAD-AJYNN/H	200 - 210	1.5	3.0	3.5	6.0
	240 - 260 - 280 - 300 - 320 - 340 - 400	3.0	5.5	6.0	10.1
	420 - 460	4.0	8.1	7.5	13.7
	480 - 500 - 550 - 600	5.5	10.1	11	20

Should the installation use pumps that are external to the machine (not supplied with the unit), a thermal-magnetic circuit breaker and a control contactor must be provided on the power supply line of each pump.

**Figure 30 - EWAD-AJYNN/A unit refrigeration circuit with electronic expansion valve**



- |     |                                       |        |   |
|-----|---------------------------------------|--------|---|
| 1.  | Single-screw compressor               | 15.    | Compressor suction valve                |
| 2.  | Non-return valve                      | 16.    | Charge connection with valve            |
| 3.  | Compressor delivery valve             | 17.    | Economiser                              |
| 4.  | High-pressure safety valve (24.5 bar) | 18.    | Economiser expansion valve              |
| 5.  | Condenser bank                        | 19.    | Economiser solenoid valve               |
| 6.  | Built-in subcooling section           | ST1-2  | Suction temperature sensor              |
| 7.  | Axial fan                             | WL1-2. | Low-pressure transducer (-0.5:7.0 bar)  |
| 8.  | Liquid line shut-off valve            | WO1-2. | Oil pressure transducer (0.0:30.0 bar)  |
| 9.  | Filter dryer                          | WH1-2. | High-pressure transducer (0.0:30.0 bar) |
| 10. | Liquid and humidity indicator         | WD1-2. | Discharge /oil temperature sensor       |
| 11. | Electronic expansion valve            | F13.   | High-pressure switch (21.5 bar)         |
| 12. | Liquid injection solenoid valve       | WIE.   | Water inlet temperature sensor          |
| 13. | Direct expansion evaporator           | WOE.   | Water outlet temperature sensor         |
| 14. | Low-pressure safety valve (15.5 bar)  |        |   |