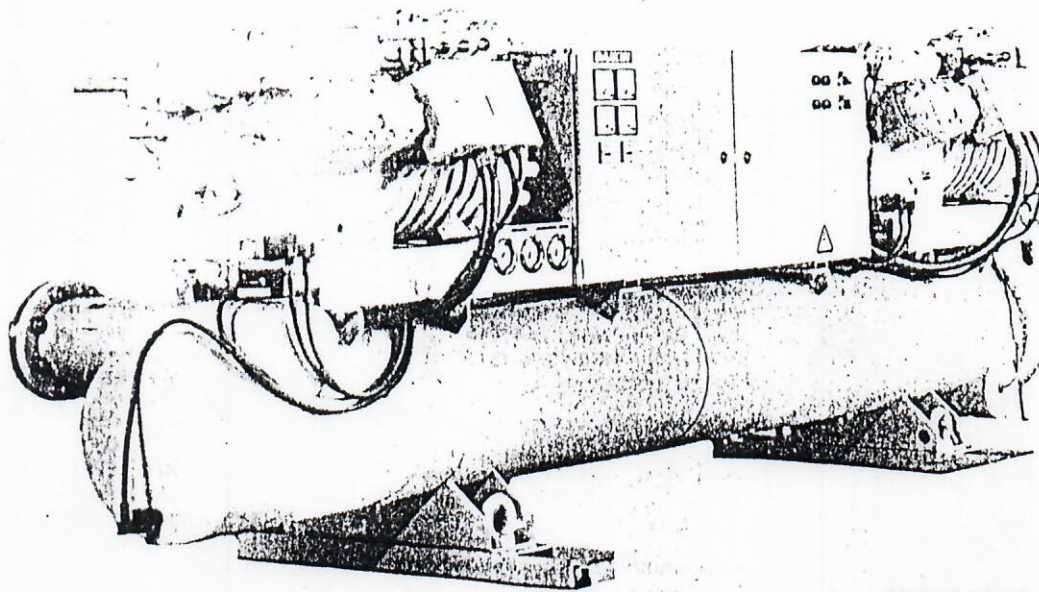


DAIKIN

Water Chilling Units
Remote Condenser Type
EUWL-F series

50HZ

series no.
EES55-1B



EUWL120F

DAIKIN Remote Condenser Type Packaged Water Chillers are available in 10 Models. They are ideally used in combination with Daikin Fan Coil Units (FWV, FWH, FWVM and FWHM series) and/or Daikin Air Handling Units (AVE and AHE series) for air conditioning of offices, hotels, restaurants, hospitals etc., or for supplying chilled water for industrial uses.

Main components

The compressor is semi-hermetic type H74-series with high EER, developed with Daikin's own technique. Lubrication of the compressor is done by the built-in automatic reversible trochoid pump. Oil pressure can be adjusted by the oil pressure control valve. In addition, an oil level gauge is fitted. Suction and discharge stop valves are standard.

The evaporator is dry-expansion shell and Hi-X U-tube type (internal surface of the tubes is improved by serration). For draining chilled water, a plug is provided in the evaporator inlet pipe. EUWL80~120F have two independent refrigeration circuits. EUWL150&180F have three independent refrigeration circuits.

The condenser is to be provided separately and can be air-cooled or watercooled and can be supplied by Daikin or field supplied.

Economical operation

In addition to the newly designed compressor, and heat exchangers, an electronic thermostat senses chilled water temperature. This thermostat is reliable and controls water temperature accurately. In addition, each compressor is equipped with a new multi-step unloader mechanism which controls the operation precisely in accordance with load for saving energy.

Safe operation

Besides the freeze-up protection thermostat which protects the units against too low chilled water outlet temperatures, the following safety devices are installed to protect the compressor:

- 1) Low pressure switch
- 2) High pressure switch
- 3) Crankcase heater
- 4) Oil pressure control switch
- 5) Compressor thermal protector
- 6) Over-current relay
- 7) Anti-recycling timer.

Easy maintenance

Maintenance has been simplified, since following equipment is added as standard:

- 1) Suction and discharge stopvalve on compressor
- 2) Glycerine filled pressure gauges
- 3) Electronic thermostat with LED indication
- 4) Independent safety devices for each compressor
- 5) Separate main terminals for each compressor motor.

Easy field work

These chillers are equipped with many features for easier field work, such as:

- 1) Terminals for remote indication of each safety device operation
- 2) Voltage free contacts for general alarm, ON, OFF, compressor operation
- 3) Automatic restart after power failure.

Easy installation

All the units are assembled, internally wired and are subject to stringent test before delivery.

GRENCOBEL N.V.

Slachthuislaan 23 2008 ANTWERPEN

Telefoon (03) 235 11 44

Telefax (03) 235 87 46

Telex 32 427

I. Specifications

| Model | | EUWL25F | EUWL30F | EUWL40F | EUWL50F | EUWL60F |
|---|--------------------------------------|--------------------------------------|--------------------------------------|--|--|--------------------------------------|
| Capacity steps | [%] | 100-50-0 | 100-67-33-0 | 100-67-33-0 | 100-75-50-25-0 | 100-75-50-25-0 |
| Compressor N° x model N° of cylinders Speed Refrigeration machine oil Charged volume | [RPM.] [ℓ] | 1x4H74TAE1 4 | 1x6H74FAE1 6 | 1x6H74TAE1 6 1450 SUNISO 3GSD | 1x8H74QAE1 8 | 1x8H74WAE1 8 |
| Evaporator N° x model Water volume | [ℓ] | 1xDHD2414-31 34 | 1xDHD2416-30 39 | 1xDHD3216-31 68 | 1xDHD3216-32 68 | 1xDHD3516-31 84 |
| Refrigerant control N° of circuits Refrigerant | | 1 | 1 | 1 R-22 | 1 | 1 |
| Pipe connections Evaporator water inlet/outlet Drain Liquid pipe Discharge pipe | [inch] [inch] [inch] [inch] | FPT 2" FPT 1/2" 7/8" 1 3/8" | FPT 2" FPT 1/2" 7/8" 1 3/8" | FPT 2 1/2" FPT 1/2" 7/8" 1 3/8" | FPT 2 1/2" FPT 1/2" 7/8" 1 3/8" | FPT 3" FPT 1/2" 7/8" 1 3/8" |
| Insulation material | | Polyethylene foam | | | | |
| Machine weight (approx.) Operation weight (approx.) | [kg] [kg] | 500 534 | 545 584 | 590 658 | 710 778 | 845 929 |
| Noise level | [dB(A)] | 76 | 77 | 78 | 79 | 80 |

- Notes: 1. Counter flanges are supplied with the unit.
2. Measured point of noise level: 1 m from the front side, at 1.5 m height.

| Model | | EUWL80F | EUWL100F | EUWL120F | EUWL150F | EUWL180F |
|---|--------------------------------------|---|---|--|---|---|
| Capacity steps | [%] | 100-83-50-33-0 | 100-75-50-25-0 | 100-75-50-25-0 | 100-75-50-17-0 | 100-75-50-17-0 |
| Compressor N° x model N° of cylinders Speed Refrigeration machine oil Charged volume | [RPM.] [ℓ] | 2x6H74TAE1 2 x 6 | 2x8H74QAE1 2 x 8 | 2x8H74WAE1 2 x 8 1450 SUNISO 3GSD | 3x8H74QAE1 3 x 8 | 3x8H74WAE1 3 x 8 |
| Evaporator N° x model Water volume | [ℓ] | 1xDHD3230-31 130 | 1xDHD3230-22 130 | 1xDHD3530-30 159 | 1xDHD3531-31 183 | 1xDHD3535-30 207 |
| Refrigerant control N° of circuits Refrigerant | | 2 | 2 | 2 R-22 | 3 | 3 |
| Pipe connections Evaporator water inlet/outlet Drain Liquid pipe Discharge pipe | [inch] [inch] [inch] [inch] | 4" flange** FPT 1" 7/8" 1 3/8" | 4" flange** FPT 1" 7/8" 1 3/8" | 5" flange** FPT 1" 7/8" 1 3/8" | 5" flange** FPT 1" 7/8" 1 3/8" | 5" flange** FPT 1" 7/8" 1 3/8" |
| Insulation material | | Polyethylene foam | | | | |
| Machine weight (approx.) Operation weight (approx.) | [kg] [kg] | 1230 1360 | 1470 1600 | 1725 1884 | 2110 2293 | 2210 2417 |
| Noise level | [dB(A)] | 78 | 79 | 80 | 82 | 83 |

- Notes: ** 1. Counter flanges are supplied with the unit.
2. Measured point of noise level: 1 m from the front side, at 1.5 m height.

2. Electrical characteristics (for R-22)

| Model | | Phase | NDSV | Starting method | STC | RA | MRC |
|----------|------|-------|-----------|-----------------|----------------|----------------|------------|
| EUWL25F | SDT1 | 3 ~ | 220 | Y - Δ | 180 102-113 | 73 42-39 | 97 56 |
| | SDY1 | 3 ~ | 380 - 415 | | | | |
| EUWL30F | SDT1 | 3 ~ | 220 | Y - Δ | 191 111-122 | 79 46-42 | 105 61 |
| | SDY1 | 3 ~ | 380 - 415 | | | | |
| EUWL40F | SDT1 | 3 ~ | 220 | Y - Δ | 227 128-140 | 107 61-57 | 143 83 |
| | SDY1 | 3 ~ | 380 - 415 | | | | |
| EUWL50F | SDT1 | 3 ~ | 220 | Y - Δ | 331 191-209 | 131 76-70 | 191 108 |
| | SDY1 | 3 ~ | 380 - 415 | | | | |
| EUWL60F | SDT1 | 3 ~ | 220 | Y - Δ | 365 215-236 | 147 86-78 | 220 123 |
| | SDY1 | 3 ~ | 380 - 415 | | | | |
| EUWL80F | SDT1 | 3 ~ | 220 | Y - Δ | 227 128-140 | 210 120-110 | 286 166 |
| | SDY1 | 3 ~ | 380 - 415 | | | | |
| EUWL100F | SDT1 | 3 ~ | 220 | Y - Δ | 331 191-209 | 265 154-140 | 382 216 |
| | SDY1 | 3 ~ | 380 - 415 | | | | |
| EUWL120F | SDT1 | 3 ~ | 220 | Y - Δ | 365 215-236 | 295 172-157 | 440 246 |
| | SDY1 | 3 ~ | 380 - 415 | | | | |
| EUWL150F | SDT1 | 3 ~ | 220 | Y - Δ | 331 191-209 | 424 245-225 | 573 324 |
| | SDY1 | 3 ~ | 380 - 415 | | | | |
| EUWL180F | SDT1 | 3 ~ | 220 | Y - Δ | 365 215-236 | 439 256-234 | 660 369 |
| | SDY1 | 3 ~ | 380 - 415 | | | | |

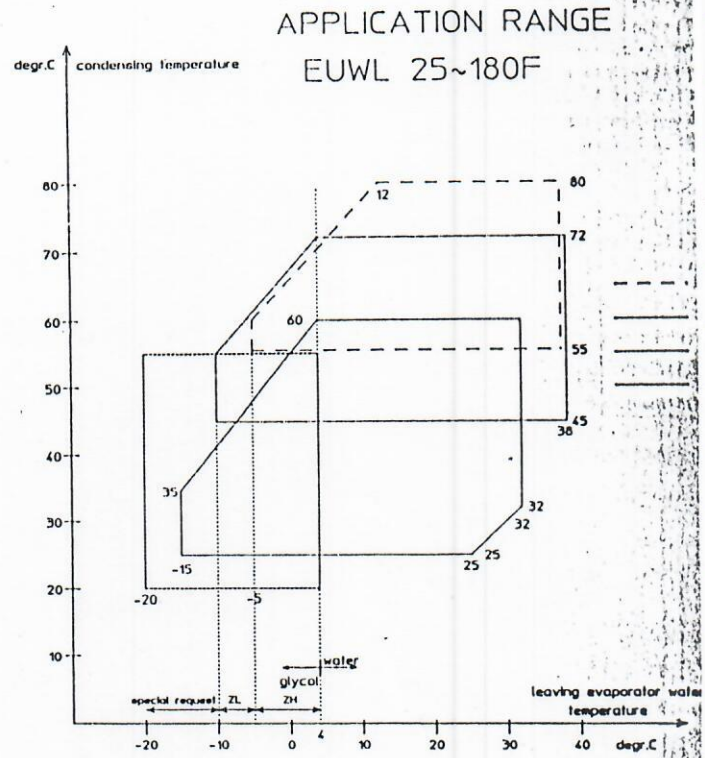
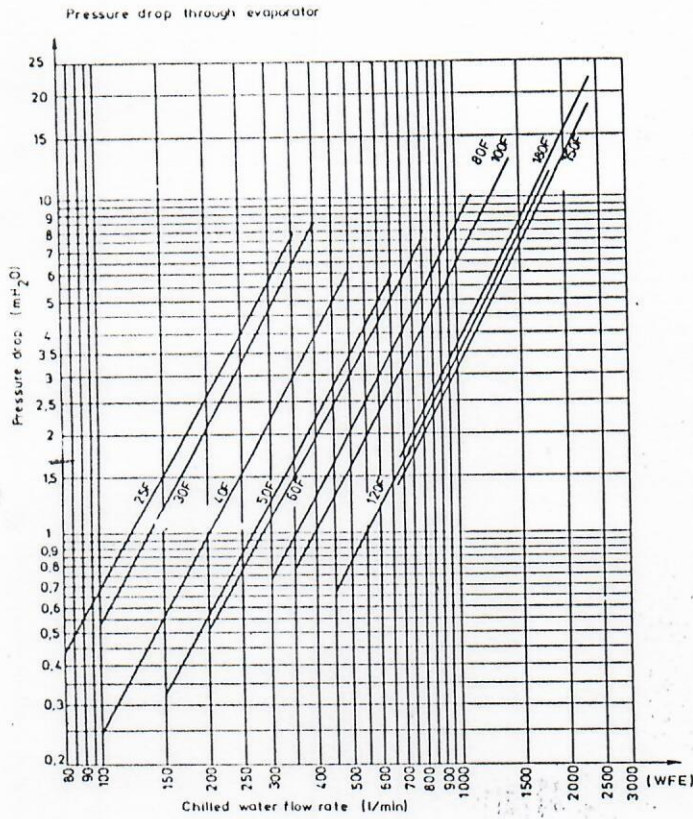
Notes:

1. NDSV: Nominal Distribution System Voltage (Application range): Motors and controls will operate satisfactorily 10 percent above and 10 percent below NDSV.
2. STC: Starting current in ampères (one compressor only). (A)
3. MRC: Maximum running current. (A)
4. RA: Nominal running current. (A)
5. Electrical characteristics based on:
 - Condensing temp. 45°C, subcool 5 K.
 - Entering/leaving chilled water temp. 12.5/7°C.

5. Flow rates, pressure drops, application range

5.1 Range of flow rate and pressure drop

5.2 Application range



5.3 Water flow rates

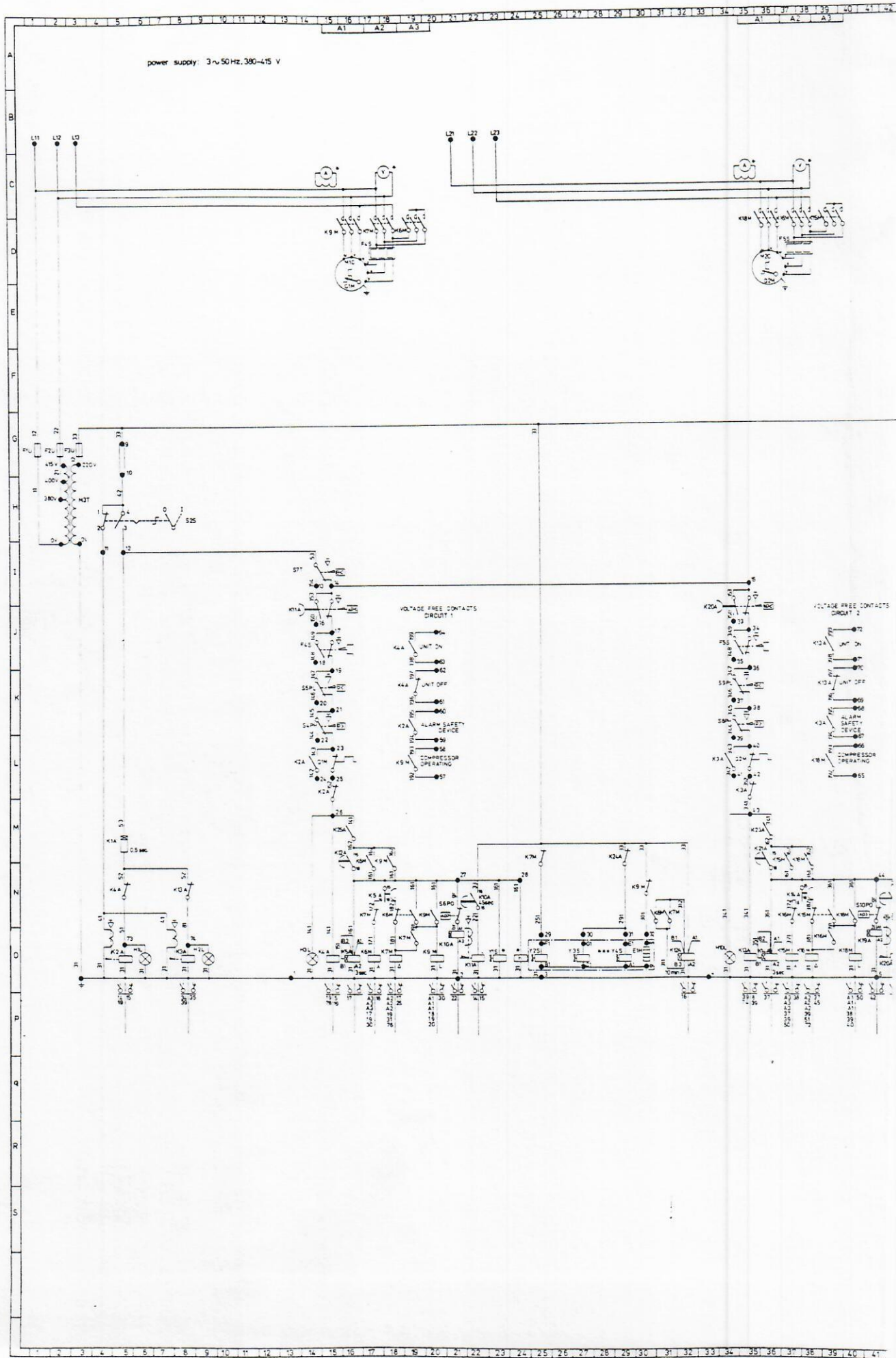
| Model | WFE (l/min.) min-max |
|------------|-------------------------|
| EUWL 25 F | 80- 350 |
| EUWL 30 F | 100- 400 |
| EUWL 40 F | 100- 500 |
| EUWL 50 F | 150- 650 |
| EUWL 60 F | 200- 800 |
| EUWL 80 F | 300-1100 |
| EUWL 100 F | 350-1400 |
| EUWL 120 F | 450-1800 |
| EUWL 150 F | 650-2450 |
| EUWL 180 F | 670-2550 |

WFE: Water flow evaporator

7. Wiring diagrams

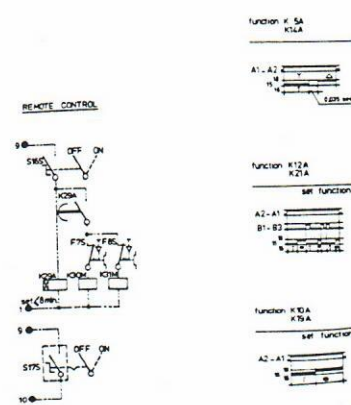
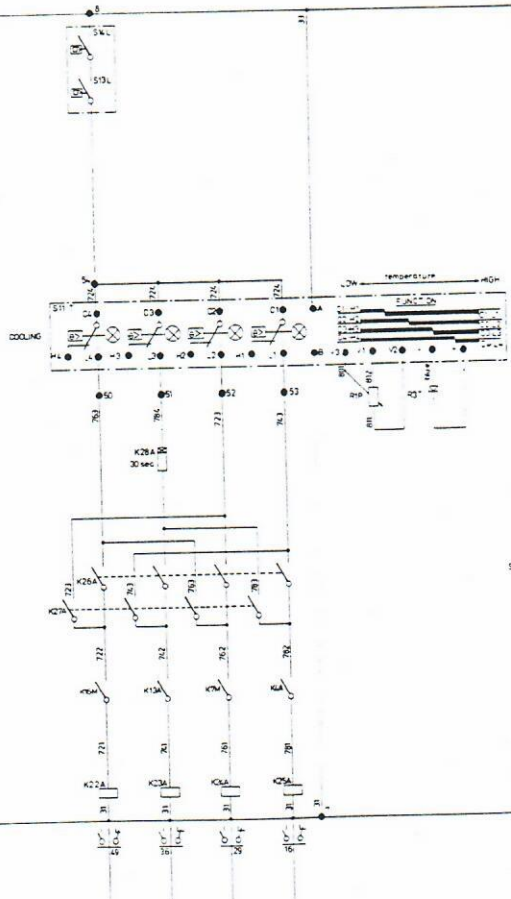
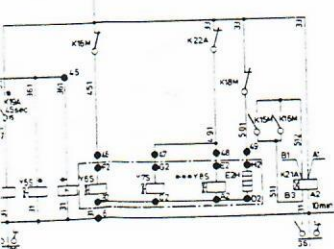
symbols

| | | | | | |
|------|-----------------------------------|--------|------------------------------------|--------|----------------------------|
| E1H | crankcase heater | | | Y1S* | liquid line solenoid valve |
| E2H | crankcase heater | K18M | line contactor | Y2S | unloader solenoid valve |
| F1U | fuse control circuit | K19A | oil pressure timer | Y3S | unloader valve |
| F2U | fuse control circuit | K20A | auxiliary relay with memory block | Y4S*** | unloader solenoid valve |
| F3U | fuse control circuit | K21A | anti-recycling timer | Y5S* | liquid line solenoid valve |
| F4S | over current relay compressor 1 | K22A | auxiliary relay | Y6S | unloader solenoid valve |
| F5S | over current relay compressor 2 | K23A | auxiliary relay | Y7S | unloader solenoid valve |
| H1L | lamp for general alarm circuit 1 | K24A | auxiliary relay | Y8S*** | unloader solenoid valve |
| H2L | lamp for general alarm circuit 2 | K25A | auxiliary relay | | |
| H3L | lamp for operation circuit 1 | K26A | auxiliary relay | | |
| | | K27A | auxiliary relay | | |
| | | K28A | solid state timer | | |
| | | M1C | compressor motor 1 | | |
| | | M2C | compressor motor 2 | | |
| | | M3T | transformer | | |
| | | Q1M | compressor motor thermal protector | | |
| H10L | lamp for operation circuit 2 | Q2M | compressor motor thermal protector | | |
| | | R1P | variable resistor | | |
| | | R3T | temperature sensor | | |
| | | S2S | switch for operation on-off | | |
| K1A | solid state timer | S4PH | high pressure switch | | |
| K2A | auxiliary relay with memory block | S5PL | low pressure switch | | |
| K3A | auxiliary relay with memory block | S6PO | oil pressure switch | | |
| K4A | auxiliary relay | S7T | freeze-up protection thermostat | F7S** | over current relay pump |
| K5A | star-delta timer | S8PH | high pressure switch | F8S** | over current relay pump |
| K6M | star contactor | S9PL | low pressure switch | K29** | timer pump |
| K7M | delta contactor | S10PO | oil pressure switch | K30M** | contactor pump |
| | | S11T | temperature controller | K31M** | contactor pump |
| K9M | line contactor | S13L** | auxiliary contact for interlock | | |
| K10A | oil pressure timer | S14L** | auxiliary contact for interlock | | |
| K11A | auxiliary relay with memory block | S15S | sequence selector switch | | |
| K12A | anti-recycling timer | S16S** | switch for pump start-stop | | |
| K13A | auxiliary relay | S17S** | switch for start-stop (remote) | | |
| K14A | star-delta timer | | | | |
| K15M | star contactor | | | | |
| K16M | delta contactor | | | | |



43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88

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NOTES

1. 11, 123 main terminals
2. Terminal numbers compressor connection box wiring for condenser is as flow schematic the wiring unit cannot start additional wiring for remote control remove jumper between terminals 5 and 10
3. DETONAL
4. -use the standard valve standard for packaged water-cooled water chillers with .8500" diameter 1/2 meter 1/2 counter and standard 1/2 inch supply
5. Y45 Y85 only for 100 and 120 hp

RE-0-02-011300

42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88

8. Standard and optional equipment

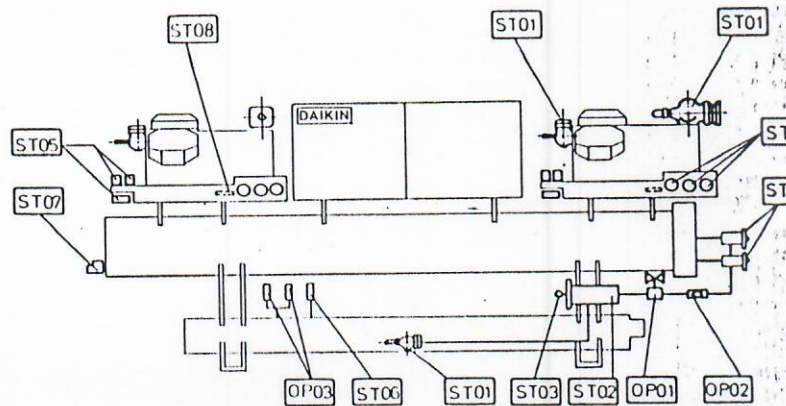
8.1. Refrigerant circuit

Standard accessories

- ST01** Suction and discharge stopvalve.
- ST04** Glycerine filled high-, low- and oil pressure switches gauges.
- ST05** Manual resettable high-, low- and oil pressure switches near the compressor.
- ST07** Manual resettable freeze-up protection thermostat.
- ST08** Crankcase heater for smooth compressor start.
- ST09** Separate refrigerant circuits for each compressor.

Optional accessories

- OP04** Sightglass + liquid line solenoid valve + drier + charge valve + stop valve.
- OP05** Liquid receiver with pressure relief valve, stopvalve at the outlet + sightglass + liquid line solenoid valve + drier + charge valve.



Standard accessories

- ST52** Star-delta starter with over-current relay.
- ST53** Transfo with fuses for 380V-415V and 500V units. Automatic fuses for 220V units.
- ST54** Protection against accidental touching when switch-box door is open.
- ST55** Compressor thermal protector.
- ST56** Autorestart after power failure.
- ST57** Independant circuits for safety devices of each compressor.
- ST58** Electronic multirange thermostat with LED indication.
- ST59** Sequence control switch for compressor operation.
- ST60** Manual reset for all safety devices.
- ST61** Terminals 220V for indication lamp on each safety device.
- ST62** Voltage free contacts for general alarm, (with memory block), on, off, compressor operation.
- ST63** Anti-recycling timer 10 min.

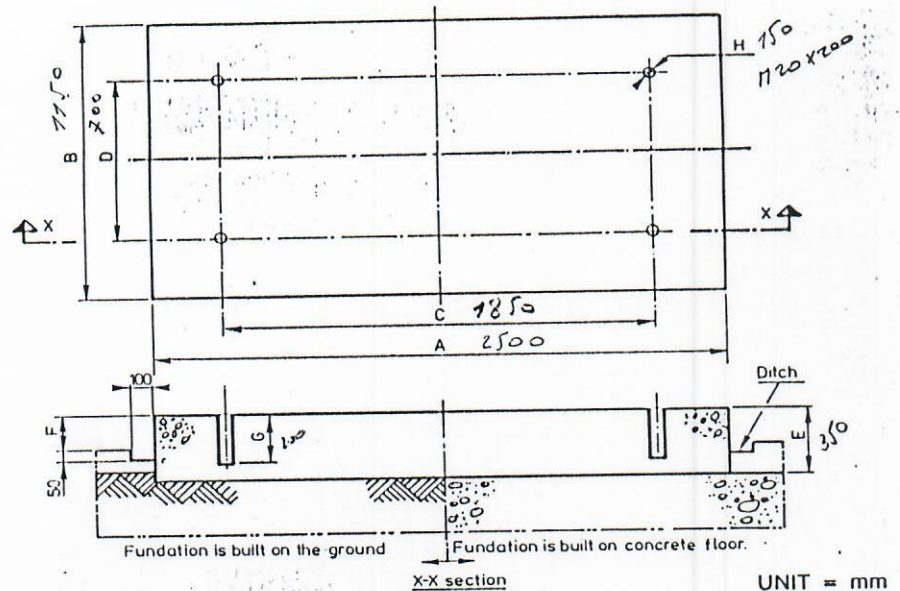
Optional accessories

- OP51** Indication lamp for each safety device.
- OP52** Main switch.
- OP53** Door switch.
- OP54** Thermostat on cold and hot water side.
- OP55** Protection class IP55.
- OP56** h-counter.
- OP57** A-, V-meter
- OP58** Without thermostat

9. Installation

9.1. Foundation

Fix anchor bolts into the concrete foundation. The concrete foundation should be higher than the floor level by approximately 100 mm for ease of plumbing work and better drain. Further, strength of the floor should be strong enough to support the weights of concrete foundation and unit. Be certain that foundation surface is even and flat. Provide a ditch around the foundation so that drainage can be extracted from a machine room.

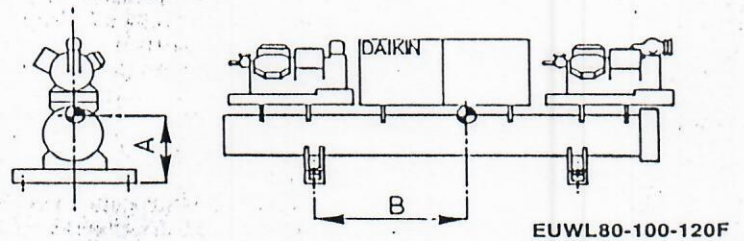
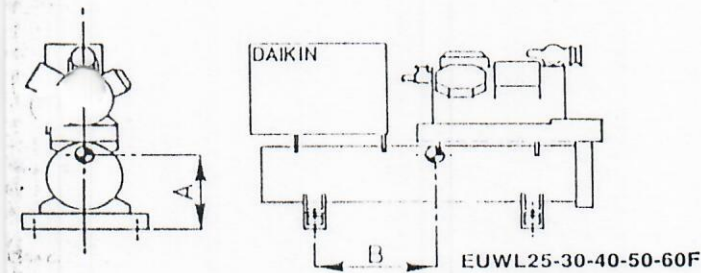


Notes:

- The measurements tabulated are based on the fact that the base is made in the ground or on a concrete floor. In case the base is made on a concrete floor, it is possible to include thickness of concrete floor in that of the base. The measurements of A, B, E, G and H are minimum.
- In case a base is made on concrete floor, be sure to provide a ditch as shown. It is important to extract drainage regardless of whether a base is made in the ground or on the concrete floor. (Ditch -- Sewerage)
- Ingredient ratio of the concrete is cement: 1, sand: 2, gravel: 4, which is standard and insert iron bar of ϕ 10 at every interval of 300 mm. The edge of the concrete base should be planed.

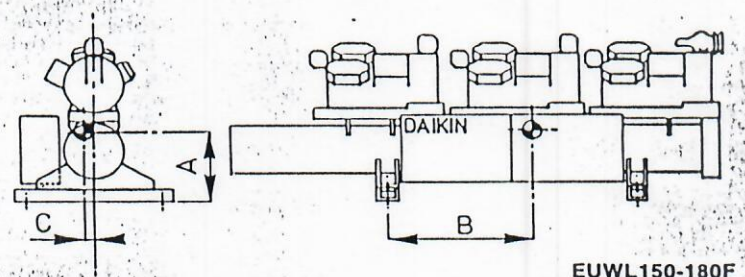
| Model | A | B | C | D | E | F | G | H | Anchor bolt | |
|---------|-------|-------|-------|-------|-----|-----|-----|-----|-------------|------|
| | | | | | | | | | Size | O'ty |
| EUW25F | 1,450 | 900 | 850 | 400 | 250 | 100 | 160 | 150 | M16 x 160 | 4 |
| EUW30F | 1,450 | 900 | 850 | 400 | 250 | 100 | 160 | 150 | M16 x 160 | 4 |
| EUW40F | 1,700 | 1 050 | 1,100 | 600 | 300 | 100 | 200 | 150 | M20 x 200 | 4 |
| EUW50F | 1,700 | 1 050 | 1 100 | 600 | 300 | 100 | 200 | 150 | M20 x 200 | 4 |
| EUW60F | 1,700 | 1 050 | 1,100 | 600 | 300 | 100 | 200 | 150 | M20 x 200 | 4 |
| EUW80F | 2,500 | 1 150 | 1 850 | 700 | 350 | 100 | 200 | 150 | M20 x 200 | 4 |
| EUW100F | 2,500 | 1,250 | 1,850 | 800 | 350 | 100 | 200 | 150 | M20 x 200 | 4 |
| EUW120F | 2,500 | 1,250 | 1,850 | 800 | 350 | 100 | 200 | 150 | M20 x 200 | 4 |
| EUW150F | 2,800 | 1,970 | 1,800 | 100 | 300 | 100 | 200 | 150 | M20 x 200 | 4 |
| EUW180F | 2,800 | 1,970 | 1,800 | 1,080 | 350 | 100 | 270 | 150 | M24 x 270 | 4 |

9.2. Location of center of gravity



Unit = mm

| Model | A | B | C |
|----------|-----|------|----|
| EUWL25F | 375 | 567 | — |
| EUWL30F | 423 | 543 | — |
| EUWL40F | 497 | 645 | — |
| EUWL50F | 499 | 825 | — |
| EUWL60F | 465 | 834 | — |
| EUWL80F | 520 | 987 | — |
| EUWL100F | 531 | 1005 | — |
| EUWL120F | 515 | 993 | — |
| EUWL150F | 552 | 962 | 25 |
| EUWL180F | 533 | 915 | 25 |



GRENCOBEL N.V.

Slachthuislaan 23 2008 ANTWERPEN

Telefoon (03) 235 11 44

Telefax (03) 235 87 46

Telex 32 427

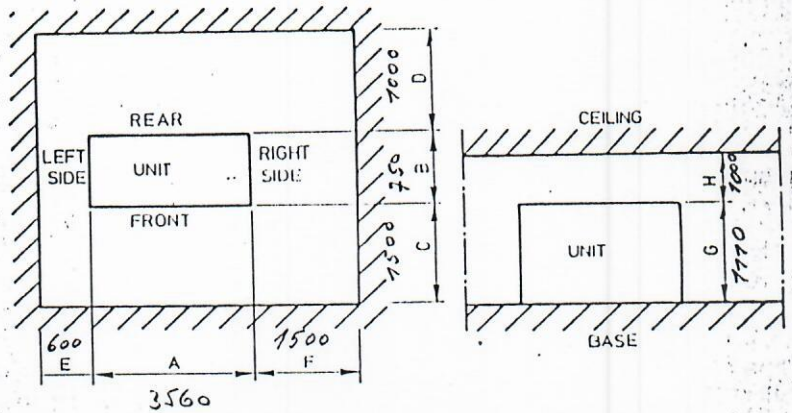
9.3 Service space

It is advisable to make sufficient space

around the unit for maintenance, plumbing work, etc. In general, space more than 500 mm

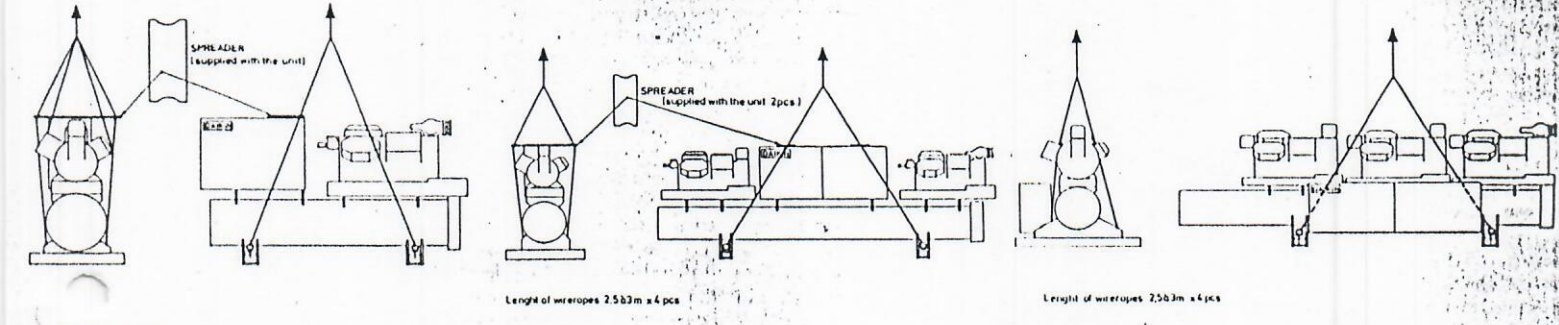
for plumbing work and more than 1000 mm for operation on each respective side, is advisable.

| MODEL | A | B | C | D | E | F | G | H |
|-----------|------|------|------|------|-----|------|------|------|
| EUWL 25F | 1950 | 530 | 1500 | 800 | 600 | 800 | 950 | 1000 |
| EUWL 30F | 2170 | 570 | 1500 | 800 | 600 | 800 | 950 | 1000 |
| EUWL 40F | 2150 | 590 | 1500 | 800 | 600 | 800 | 1040 | 1000 |
| EUWL 50F | 2200 | 660 | 1500 | 800 | 600 | 800 | 1060 | 1000 |
| EUWL 60F | 2460 | 660 | 1500 | 800 | 600 | 800 | 1100 | 1000 |
| EUWL 80F | 3560 | 750 | 1500 | 1000 | 600 | 1500 | 1110 | 1000 |
| EUWL 100F | 3570 | 850 | 1500 | 1000 | 600 | 1500 | 1150 | 1000 |
| EUWL 120F | 3550 | 850 | 1500 | 1000 | 600 | 1500 | 1220 | 1000 |
| EUWL 150F | 3500 | 1200 | 1500 | 1500 | 600 | 2000 | 1200 | 1000 |
| EUWL 180F | 3900 | 1200 | 1500 | 1500 | 600 | 2000 | 1200 | 1000 |



9.4 Points for installation

Put lifting ropes to the eye-bolts attached to the unit and slowly bring in the unit. It is advisable to use ropes which are of the same length.



9.5 Location of a water circulating pump

If locations of a pump and an expansion tank are wrong, air is intermixed into the chilled water system, which may reduce capacity of

the water chiller and cause abnormal noise. Be sure to install the pump to the chilled water inlet side.

9.6 Wiring connection

Accord with your local code, when wiring is provided on the spot.