

welldana®



pool spa sauna wellness

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Welldana® Heat Pumps.

Modellerne 34-180505, 34-180510 & 34-180526.

Til svømmebassiner & Spa.



Miljørigtigt energi.



Der tages forbehold for evt. produktændringer.
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Udgave 4.4 10 – 2008.

Manual No: 03-111001.

Language: Dansk & English.



Tillykke med Deres nye Welldana® Heat Pump.

Læs manualen grundigt igennem før placering og installation.

Denne manual omhandler følgende Welldana® modeller:

- 34-180505. 9,5 kw. (34-180505-1 med kabinet i rustfri stål)
- 34-180510. 14 kw.
- 34-180526. 26 kw.

Varmepumpen leveres uden eksterne by-pass, ventiler og rør.

Varmepumpen kan anvendes både som varmpumpe og chiller/køler.

Varmepumpen sælges med 2 års reklamationsret via forhandler.

Indholdsfortegnelse.

1. Ved modtagelse af varmpumpen.
2. Placering af varmpumpen.
3. Vigtig sikkerhedsanvisning.
4. Tekniske data.
5. Standarder.
6. Effektivitetskurver.
7. Installation.
8. Vinter/vedligehold. (**Vigtigt**)
9. Betjeningspanel og funktioner.
10. Opstart af Varmepumpen.
11. Fejlsøgning.
12. Tilbehør.

1. Ved modtagelse af varmpumpen kontrolleres, at:

1. Der ikke er nogen synlige skader/skrammer på emballagen!
Fjern emballagen forsigtigt. Brug ikke en hobbykniv, da den kan ridse overfladen.
2. Kabinettet ikke er beskadiget.
3. Viseren/nålen i manometeret står ca. midt i det grønne område. (uden strøm på)

Kontakt fragtføreren og Deres forhandler øjeblikkeligt, hvis det leverede udstyr er beskadiget eller ufuldstændigt.

2. Placering af varmpumpen.

- Varmepumpen er en selvstændig enhed, der kan placeres stort set hvor som helst. For at opnå størst virkningsgrad på varmpumpen, skal der være fri adgang til frisk luft. Varmepumpen må gerne placeres under halvtag eller lignende. Vend evt. varmpumpen således at betjeningspanelet vender væk fra solen. Varmepumpen skal være opretstående. Afstanden mellem varmpumpen og bassinet/teknikrummet, bør dog være så kort som muligt. Dette er af hensyn til tryktab og varmetab i rørføringen. Isoleringen af rørføringen vil være en god investering. Monter evt. et CCE stik på væg eller på en stander (**elektriker job**) på stedet hvor varmpumpe placeres. Så kan varmpumpen altid nemt stoppes efter behov, eller flyttes indendørs til vinter (ikke et krav).
- Der skal være mindst 2m frihøjde over varmpumpen/udblæsningen. Der skal mindst være 1m fri område rundt om varmpumpen. Indsugningen og udblæsningen må på ingen måde forhindres eller blokeres.
- Støj. Støj fra en nabo er ikke sagen. Selvom varmpumpen er støjsvag, bør de alligevel nøje udvælge placeringen af varmpumpen. Ligeledes bør rørføringen til varmpumpen ikke være så lang, at filterpumpen til svømmebassinet har svært ved at pumpe vandet rundt. Konsulter deres forhandler eller anden sagkyndig montør.
- Varmepumpen skal placeres på et solidt underlag som minimum er 660 x 660mm.

3. Vigtig sikkerhedsanvisning.

- På terminalen i el-boksen findes det danske mærke "jordmærke" (jord), (jordforbindelse) eller det internationale jordsymbol ©. For at reducere faren for elektrisk stød **skal** denne terminalrække tilsluttes jordforbindelsens leder gul/grøn på hovedforsyningskabel. Minimum 2,5mm² kabel. Se også diagrammet.

4. Tekniske data.

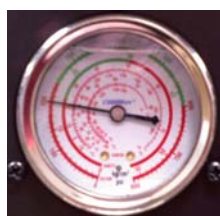
Type	34-180505	34-180510	34-180526
Spænding. (50-60Hz) L - N	220/240 volt.	220/240 volt	400V3N
Amp. (max. forbrug)	9,4	13,8	8,5
Forsikring amp.	13A.	16A.	13A.
Blæserstørrelse.	150 watt.	200 watt.	200 watt.
Blæserhastighed / 2-speed	740 / 620 rpm.	740 / 620 rpm.	740 / 620 rpm.
COP ved 7°C & 24°C ^o lufttemperatur	3,8 / 5,0	3,8 / 5,0	3,8 / 5,0
Støjniveau. (1 meter)	53 / 49 dB (A)	53 / 49 dB (A)	57 dB (A)
Vandtilslutning / bassin.	50mm.	50mm.	50mm.
Vandgennemstrømning.	4 – 9m ³ / time	6 – 9m ³ / time	7,5 – 15m ³ / time
Vand tryktab.	15 Kpa.	15 Kpa.	16 Kpa.
Gas type.	R410A	R410A	R410A
Gas mængde.	1500g.	2300g.	2400g.
Laveste arbejdstemperatur for varmepumpen. (ude temperatur)	- 5°C	- 5°C	- 5°C
Varmekapacitet output max.	9,5kw.	14kw.	26kw.
Varmeveksler type.	Titanium og PVC	Titanium og PVC	Titanium og PVC
Netto / brutto vægt.	97 / 105kg.	105 / 113kg.	112 / 125kg.
Mål, H x L x B mm.	860 x 660 x 660	860 x 660x 660	960 x 660x 660
Kabinet. Matsort lakeret.	Stål	Stål	Stål
Kabinet. Rustfri stål.	Option	No.	No.



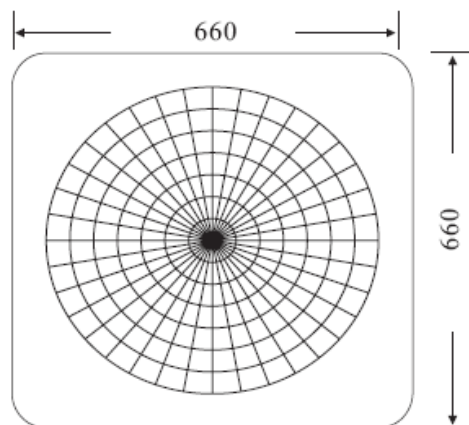
Ved lufttemperatur over 20C^o vil blæser i varmepumpen automatisk skifte til maksimum blæserhastighed.

Varmepumpen vil under drift og afrimningsprocessen afgive en vis mængde kondensvand. Kondensvandet fra kølepladerne bliver ledt til bundpladen på varmepumpen og videre herfra via et 20mm rør, som stikker ud fra under varmepumpen. Kondensvandsmængde kan under rette forhold være flere deciliter pr. time. Kondensvandet skal ledes til kloak eller sivebrønd. Kondensvandet må **ikke** ledes til svømmebassinet.

Mistænk ikke kondensvandet for at være en fejl eller en utæthed i varmepumpen.

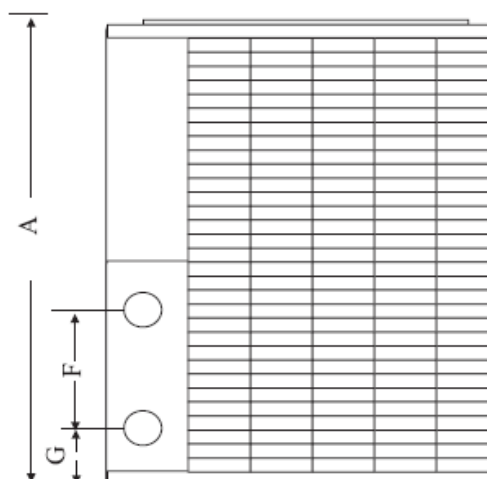


Manometer. (Pumpe ikke i drift)

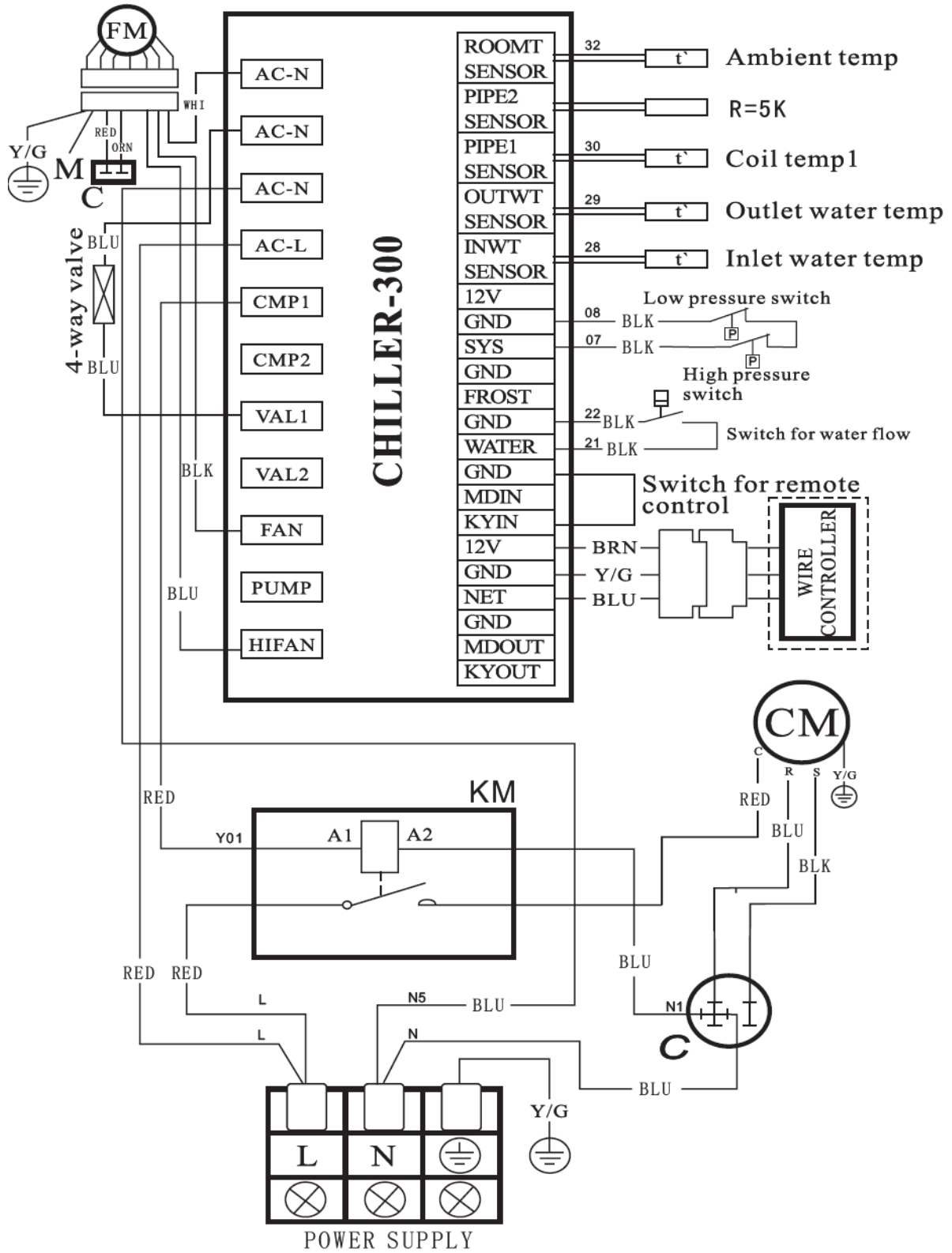


A = højde	Se teknisk data
G	110mm.
F	350mm.

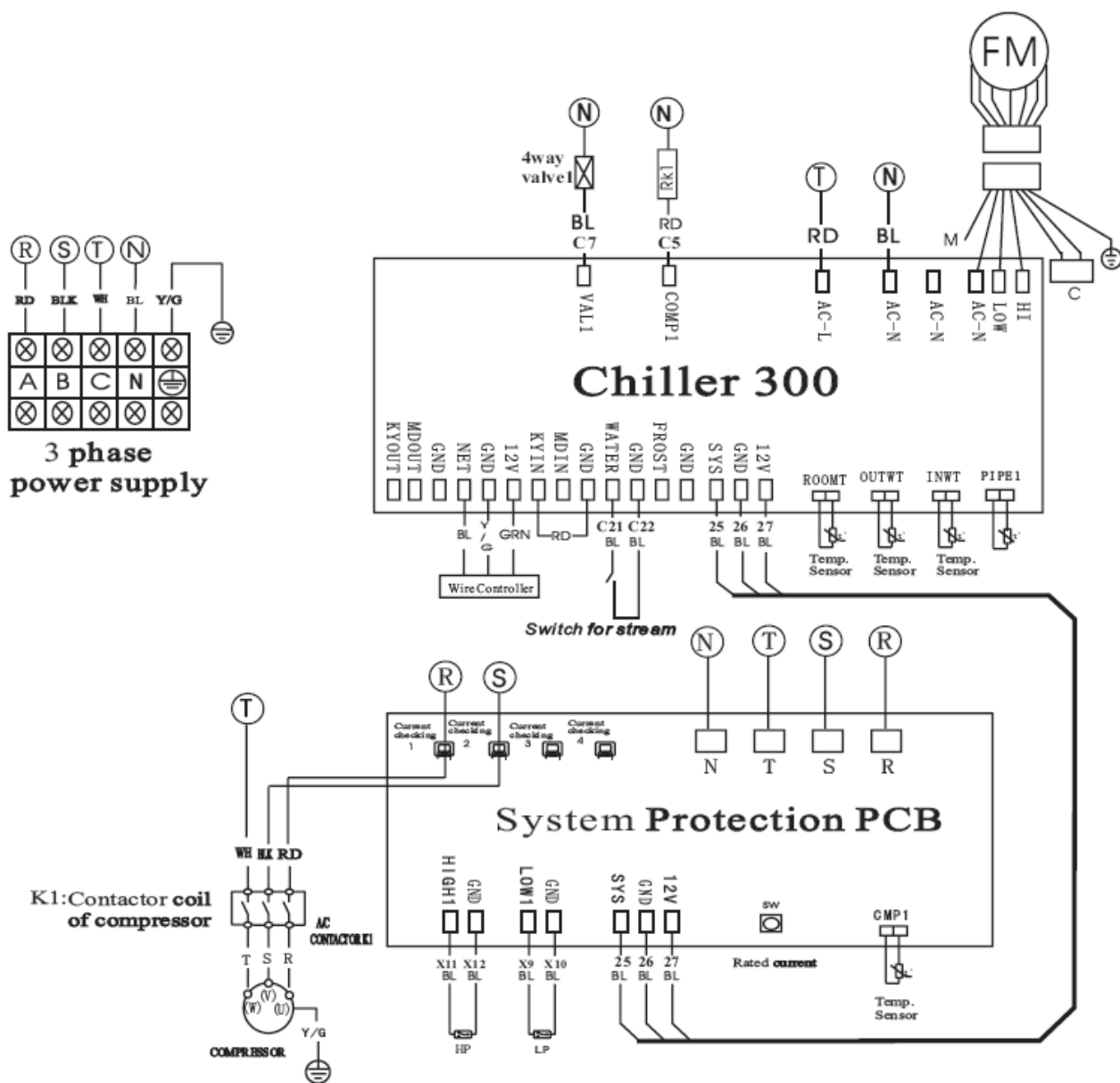
Mål skema.



El-diagram til 9,5kw & 14kw.



EI-diagram til 26kw.



5. Standarder.

Denne Welldana® Varmepumpe opfylder gældende regler og normer for sikkerhed.

Produktet er testet mod gældende EN standarder:

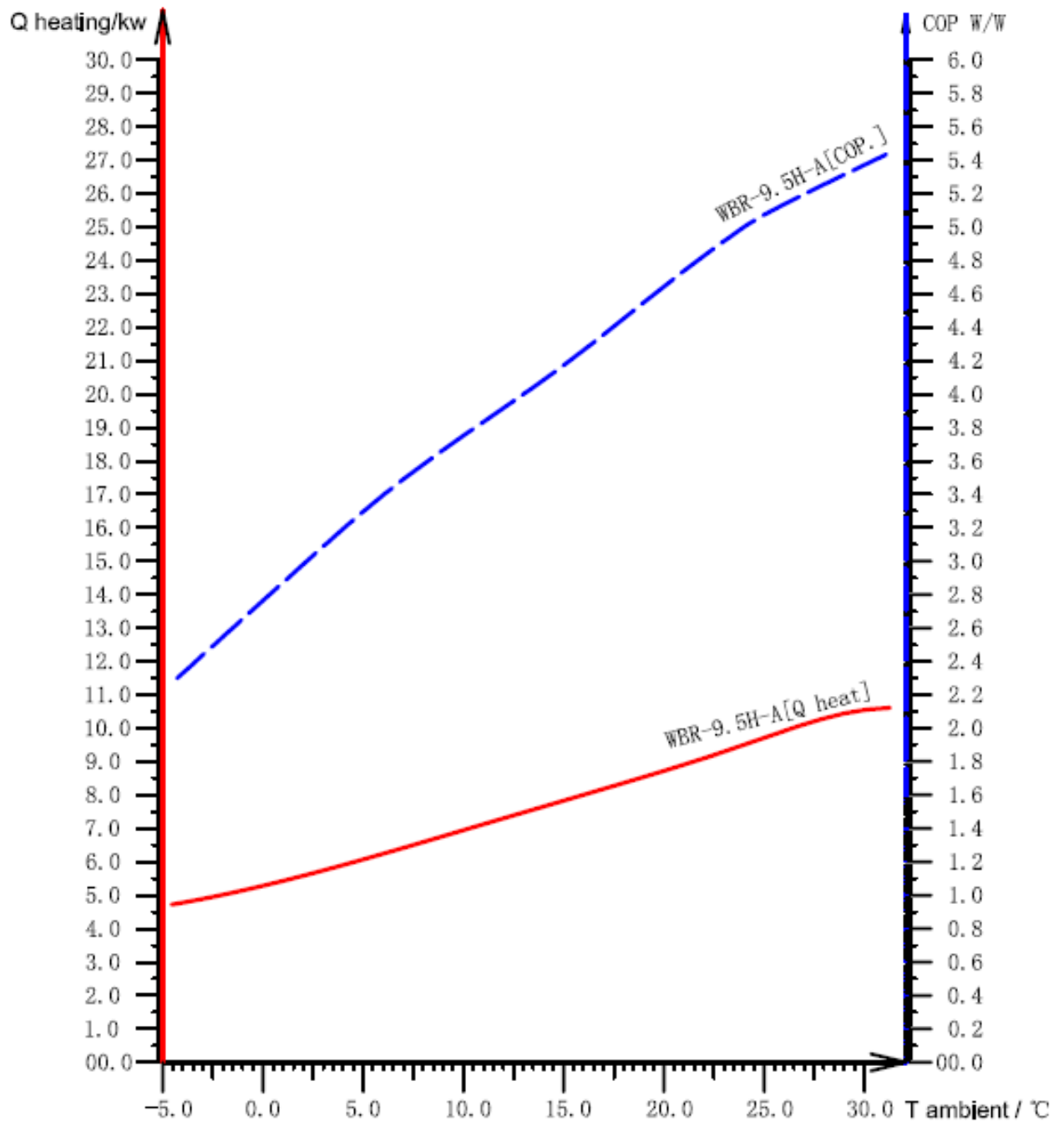
EN 60335-1. EN 60335-2-40. EN 50366.

EMC: EN 55014-1-2. EN 61000-3-2. EN 61000-3-3.

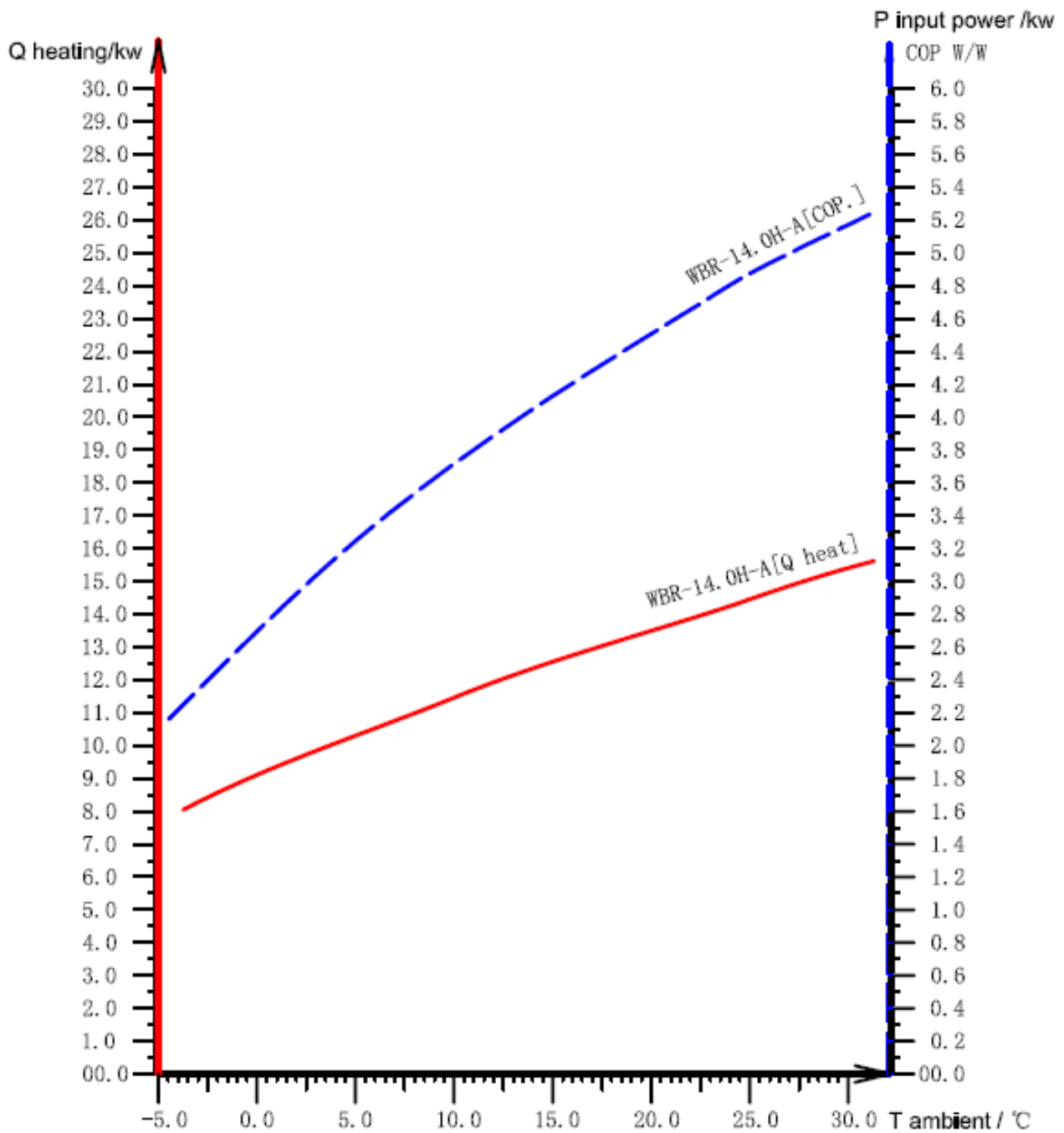
Produktet er **CE** mærket.

6, Effektivitetskurver.

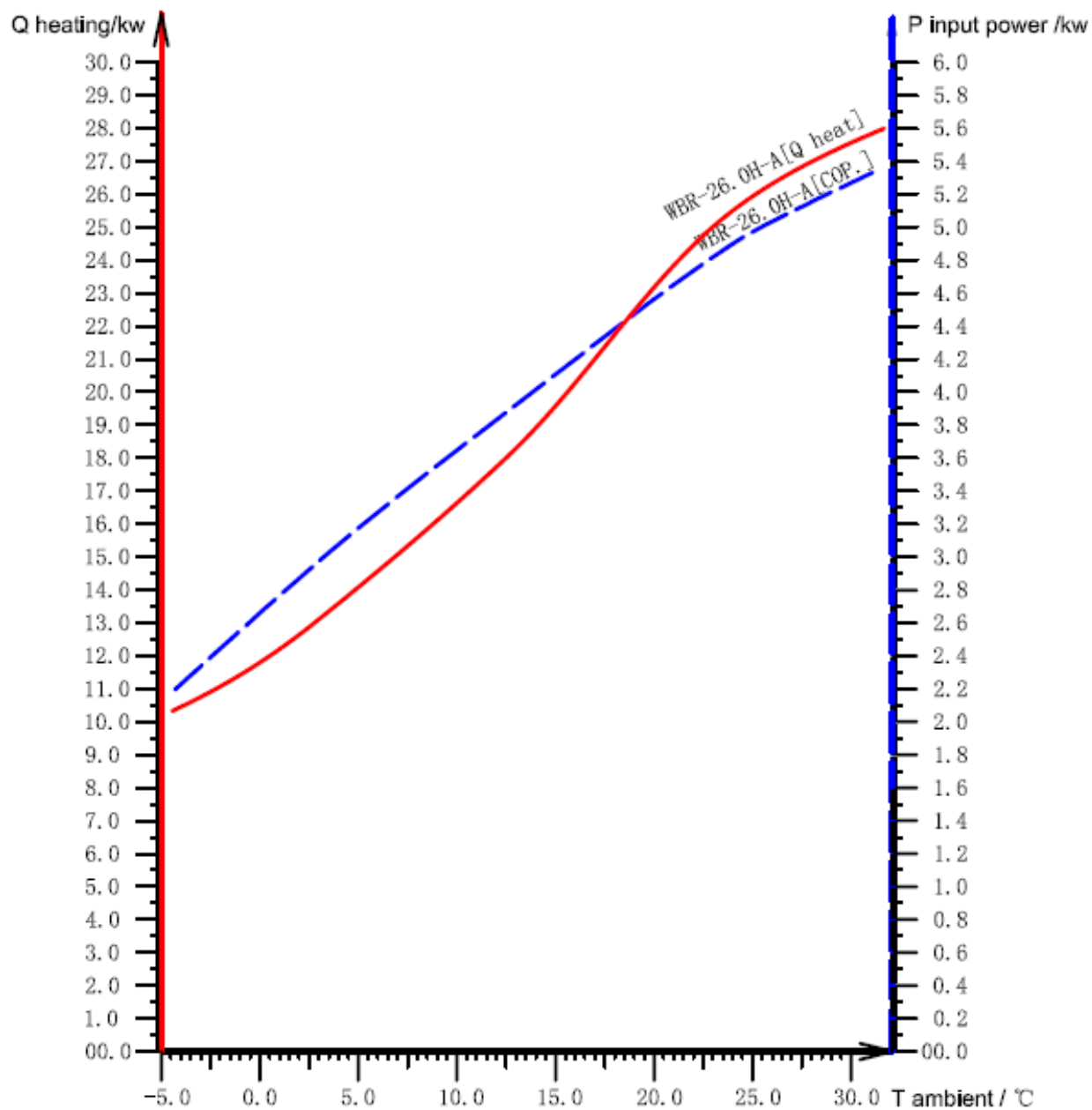
Kurver til 9,5 kw Varmepumpe



Kurver til 14 kw Varmepumpe.



Kurver til 26 kw Varmepumpe.



7. Installation.

Varmepumpen er fabrikeret og optimeret til at opvarme vandet i svømmebassiner. Varmepumpen skal installeres af en sagkyndig montør. Fejlinstallation eller skader heraf dækkes ikke af garantien.



Elektrisk:

Varmepumpen skal elektrisk monteres med egen afbryder*. Afbryderen* skal være tilsluttet parallel med afbryderen til filterpumpen (1) således hvis filterpumpen slukkes / stoppes, så slukkes der også automatisk for varmpumpen. Husk at installationen skal være forsynet med HFI eller HPFI.

Varmepumpen må kun kunne startes hvis bassinpumpen er startet.

Varmepumpens egen afbryder* anvendes/slukkes, når sandfiltret på anlægget skal returskylles m.m.

3-faset varmpumper bør beskyttes med motorværn hvis forsikringen ikke er en automatsikringsgruppe.

Montere evt. et CCE stik på væg eller på en stander (**elektriker job**) på stedet hvor varmpumpe placeres. Så kan varmpumpen altid nem flyttes indendørs ved vinter (ikke et krav).

Hydraulisk:

Varmepumpen skal fødes med bassin vandet via bassinets filterpumpe.

Varmepumpen skal monteres med kuglehane på ind og udgang. (in/out)

Varmepumpen har alt efter model et max. vandgennemstrømning. Hvis gennemstrømningen via bassin pumpen (1) er større end dette, skal der installeres et by-pass (6) hvorved gennemstrømningen således kan trimmes.

Der må kun trimmes på by-pass ventilen og kuglehane til indløb/inlet på varmpumpen.

Varmepumpen har et minimum og maksimum gennemstrømningskrav, ellers stopper varmpumpen.

Se tekniske data.

Der bør ikke anvendes rørføring til varmpumpen som er mindre end Ø 50mm.

Omløberen på adapterne må **KUN** håndspændes. (Ældre modeller)

Adapterne til tilslutninger på varmpumpen er 1½" gevind. Adapter 1½"x50mm. Er vedlagt.

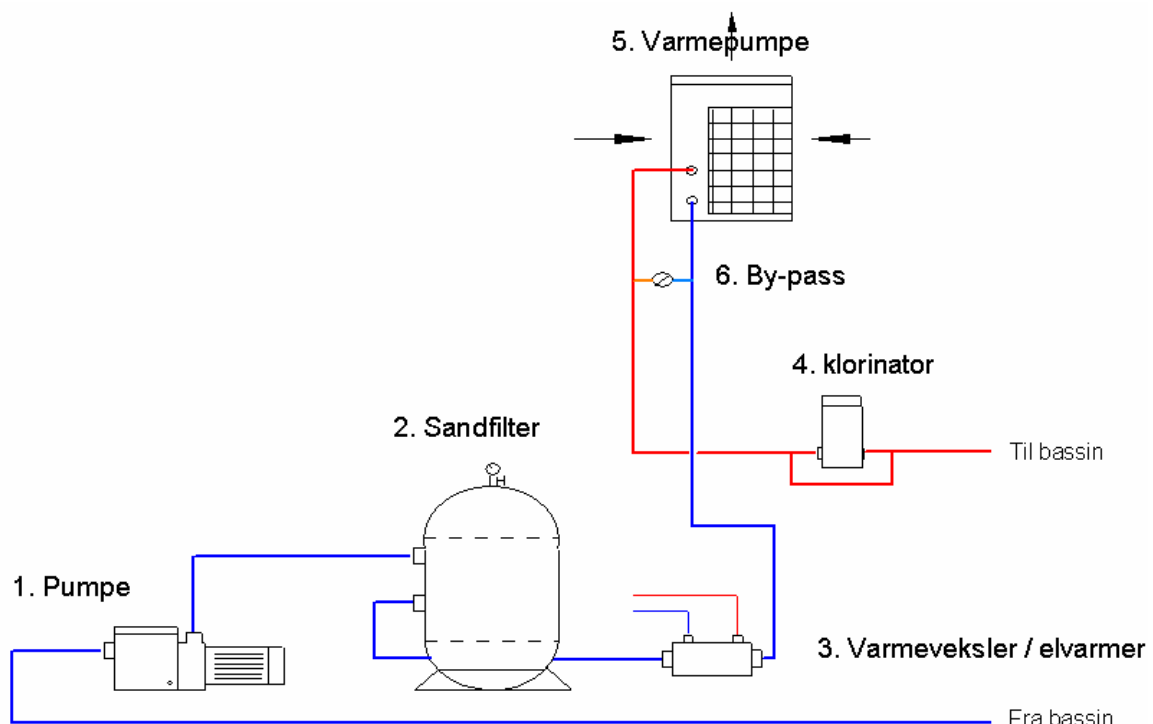
Isolering af rørføringen vil være en god investering.

Er der højde/niveau forskel på rørføringen mellem frem og retur til varmpumpen hvor varmpumpen står højere i niveau end filterpumpen og svømmebassinet, så **skal** der etableres udluftninger på det højeste rørføring ud af varmpumpen.

Er svømmebassinet udstyret med klorinator (5) eller eventuelt kemikaliestyling med syrepumpe og klorpumpe, så **skal** klorinator og/eller injector være monteret efter varmpumpen, som det sidste udstyr inden vandet går retur til svømmebassinet.

Er svømmebassinet udstyret med varmeveksler (3) eller el-varmer, kan man under drift af varmpumpe med økonomisk fordel lukke/slukke for disse. Husk varmeveksleren må **kun** lukkes på primærsiden.

Princip diagram.



8. Vinter/vedligehold.

Når/hvis det besluttes at lukke svømmebassinet ned for vinteren, og der slukkes for bassinpumpen og varmepumpen, er det meget vigtigt at varmepumpen **straks** tømmes for vand. Afmonterer rørføringen.

VIGTIGT: Vip/tip varmepumpen 45°, herved tømmes **alt** vandet ud af varmeveksleren.

Tøm også rørene så vidt mulig.

Vent ikke til senere med dette arbejde, for frosten overrasker altid.

Garantien på varmepumpen dækker ikke frostskafer.

Varmepumpen kan stå ude hele året, men har de plads til varmepumpen i et skur eller i garagen, så vil dette være et perfekt opbevaringssted for vinteren. Benyt evt. en sækkevogn til transporten. Få evt. monteret et CCE stik på væg eller på en stander (**elektriker job**) på stedet hvor varmepumpe er placeret. Så kan varmepumpen altid nem flyttes indendørs ved vinter (ikke et krav). Træk evt. en pose ned over varmepumpen. Brug evt. plastposen fra emballagen.

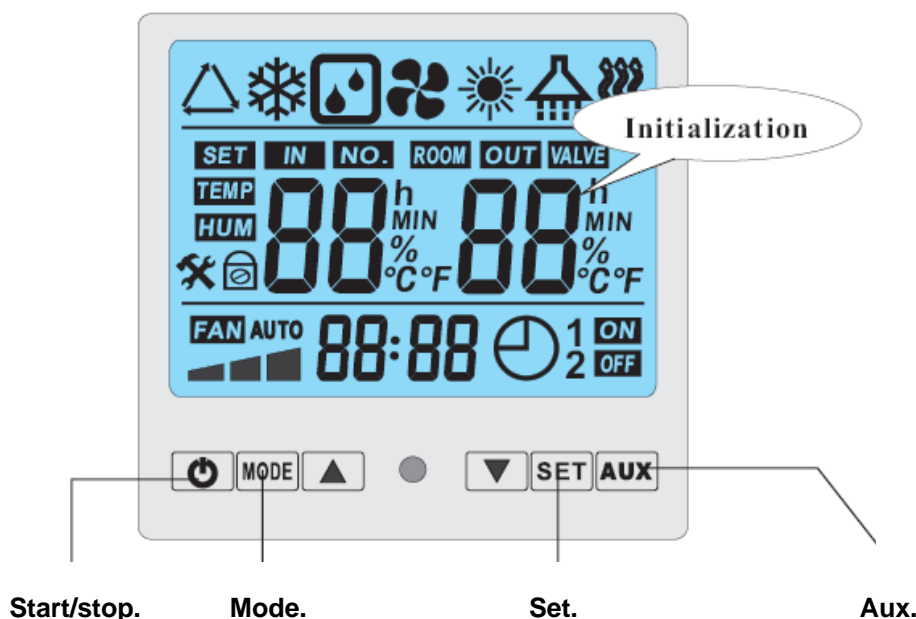
Læg **ikke** varmepumpen ned.

Vigtigt.

For at sikre optimal drift og effektivitet, skal varmepumpen have mindst 2m frihøjde over top udblæsningen. Der skal mindst være 1m fri område rundt om varmepumpen. Indsugningen og/eller udblæsningen må på ingen måde forhindres eller blokeres. Hold også indsugningsgitteret rent. Børst det evt. rent. Kontroller jævnligt.

9. Betjeningspanel og funktioner.

Betjeningspanelet er placeret på siden af varmepumpen, oven over rør tilslutningen.



10. Opstart.

Displayet i betjeningspanelet viser alle nødvendige informationer under drift og indstillinger. PS. Denne manual tager fortrinsvis udgangspunkt i, at maskinen anvendes som varmepumpe.

Tænd for hovedstrømmen til varmepumpen.

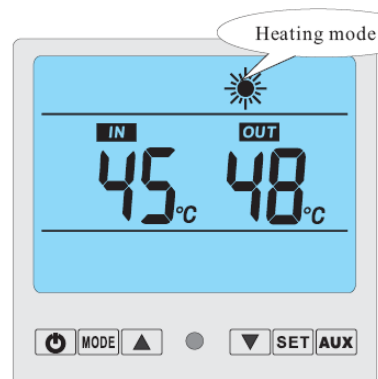
Tryk **start** og afvent displayet.

Hvis displayet ikke viser SOL, tryk på **mode** indtil displayet viser SOL

Hvis vandgennemstrømningen fra bassinpumpen er effektiv, vil varmepumpen starte efter ca. 2,45 minutter (forsinket start).

Når varmepumpen arbejder eller venter under forsinket start, vil displayet vise temperaturer for bassinvandet IN/OUT. Se billedet til højre.

Aux knappen bruges ikke.



Paramenter.

Styringen har 11 parametre fra 00 til 10.

Med **set** knappen kan parametrene bladres igennem for kontrol, uden at varmpumpen stopper.

Parametrene kan ikke ændres her.

Parameter	Beskrivelse.	Område.	Standard indstilling.	Bemærkning.
00	Indstilling af køle temp.	8 – 28°C	28°C	Indstilles af bruger
01	Indstilling af varme temp.	15 – 40°C	28°C	Indstilles af bruger
02	Afrimningsperiode	30 – 90 min.	30 minutter.	Kun for tekniker
03	Spiral temp. start afrimning	0 -30°C	-3°C	Kun for tekniker
04	Spiral temp. stop afrimning	2 – 30°C	13°C	Kun for tekniker
05	Afrimnings tid.	1 – 12 min.	8 minutter.	Kun for tekniker
06	System antal.	1 – 2	1	Må ikke ændres
07	Genstart efter strømsvigt	0 / 1	1 = ja.	Kun for tekniker
08	Arbejdstype: Køle = 0 Opvarmning + køling = 1 Opvarmning = 3	0-1-2-3.	1	Kun for tekniker
09	Arbejdsmetode.	0 – 1	0	Må ikke ændres
10	Indstilling af vandtemp. (auto mode)	8 – 40°C	28°C	Kun for tekniker

Tryk **start**, kompressoren og blæser stopper.

Styringen er nu sat i **standby**.

Det er **kun** i standby der kan ændres på parametrene.

Displayet viser følgende som er indledningen til parametrene.

Se billedet til højre.

Tryk **set** og parameter 00 kommer frem.

Trykkes der igen fortsættes der til parameter 01 osv. indtil alle parametre er bladret igennem.

Tryk **pil op** / **pil ned** for at ændre indstillingen.

Afslut med tryk på **start**. Styringen husker nu indstillingen.

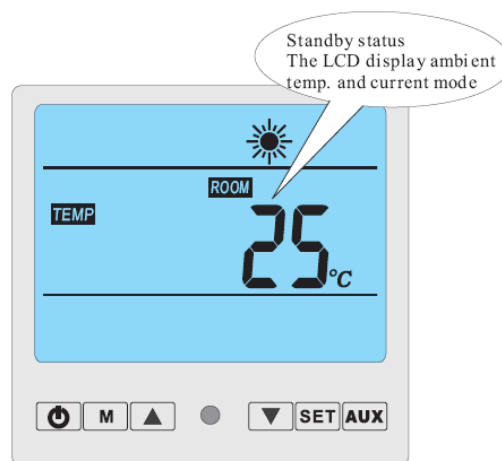
Varmepumpen starter nu automatisk efter 2,45 minutter.

Se evt. paramenterne ovenfor i skemaet.

Parameter 01 er indstillingen til ønsket bassintemperatur.

Standard indstillingen til bassin temperaturen er 28°C

Paramenterne 00 og 02 til 10 indstilles ikke af brugeren.



Når varmpumpen har registreret den ønskede vand/bassintemperatur på indgangen i varmpumpen, stopper varmpumpen automatisk. Varmepumpen har 1°C i temperaturdifference.

Falder temperaturen starter varmpumpen automatisk.

Hvis betjeningspanelet ønskes låst, gøres følgende.

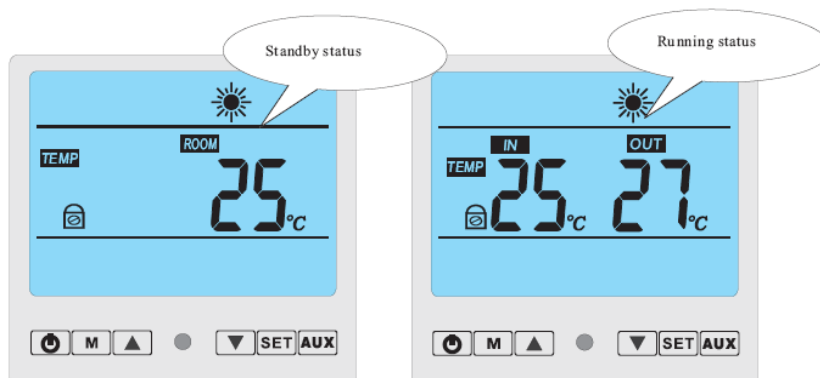
Tryk **pil op** og **pil ned** samtidig og hold dem inde i 5 sek.

Herefter er betjeningspanelet låst.

Der fremkommer en lås i displayet

Tryk **pil op** og **pil ned** samtidig og hold dem inde i 5 sek.

Herefter er betjeningspanelet låst op.



Parameter.

Parameter 00
to set inlet water temp. under cooling mode (8-28°C) default setting: 12°C

Parameter 01
to set inlet water temp. under heating mode (15-40°C) default setting: 40°C

Parameter 02
Total working time of compressor after frosting

Parameter 03
Setting initialized temp for defrosting "-7°C", ("not display, range(0-30°C))

Parameter 04
Terms of Exit Defrosting Function(2-30°C) default setting: 13°C

Parameter 05
Max. Time of defrosting (1-12min) Default setting: 8min.

Parameter 06
system Quantity

Parameter 07
Save setting after power failure 1(yes)0(No)

Parameter 08
Mode:
0(cooling only)
1(cooling&heating)
2(auxiliary elec heating)
3(cooling+heating)
3(heating only)

"0" water pump keeps working all the time.
"1" water pump turns off after the whole unit power off for 30s initialization "0".

Auto mode default setting: return water temp 30°C

11. Fejlsøgning.

Fejl.	Display	Årsag.	Handling.
Vandtemperatur ind, sensor fejl	PP 01	Sensor afbrudt eller kortslettet	Test ledning, sensor og stik. Udskift evt.
Vandtemperatur ud, sensor fejl	PP 02	Sensor afbrudt eller kortslettet	Test ledning, sensor og stik. Udskift evt.
Spiral 1 sensor fejl.	PP 03	Sensor afbrudt eller kortslettet	Test ledning, sensor og stik. Udskift evt.
Spiral 2 sensor fejl.	PP 04	Sensor afbrudt eller kortslettet	Test ledning, sensor og stik. Udskift evt.
Omgivende temperatur sensor.	PP 05	Sensor afbrudt eller kortslettet	Test ledning, sensor og stik. Udskift evt.
For stor forskel i temperaturen ind/ud.	PP 06	Vandgennemstrømningen er for lille.	Check ventiler, filterpumpe, filter og by-pass.
Ophedning.	PP 07	Vandgennemstrømningen er for lille.	Check ventiler, filterpumpe, filter og by-pass.
Første frostsikrings kørsel	PP 08	Lav ude temperatur.	Tøm anlægget for vand.
Anden frostsikrings kørsel	PP 09	Lav ude temperatur.	Tøm anlægget for vand.
Funktionsfejl i system 1.	EE 01	Funktionsfejl i printkort.	Tilkald tekniker
Funktionsfejl i system 2.	EE 02	Tilgangsspænding for lav.	Check hovedkablet/(elektiker)
Flow vagt fejl.	EE 03	For lille eller for stor flow.	Check bassinpumpen, rør, by-pass og kuglehaner. Check tekniske spec.
Flow eller kompressor fejl Luft i veksleren	EE 04	Vandgennemstrømningen er for stor. Luft i veksleren	Regulere flowet ned med by-pass eller tilkald tekniker. Monter automatisk udluftning.
Temperatursvingninger.	EE 05	Vandgennemstrømningen varierer.	Check bassinpumpen og rør. Check ventiler, filter og by-pass.
Afrimning	Logo	Kold spiral / element.	Ingen. Normal funktion.
Kommunikation fejl.	EE 08	Kommunikation fejl mellem betjeningspanel og styring.	Check kabelforbindelse. Tilkald tekniker.

12. Tilbehør.

Varmepumpen leveres med et ekstra hus og dækplade til betjeningspanelet. Herved kan betjeningspanelet flyttes til en anden lokalitet hvis det ønskes.

Der er vedlagt en 5m forlængerledning med stik til dette formål.



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Welldana® Heat Pumps. Models 34-180505, 34-180510 & 34-180526. For Swimmingpool & Spa heating.



Model photo:



A reservation is made for any product changes.
Copyright: Welldana A/S.

Version 4.4 10 – 2008.

Manual No: 03-111001.

Language: English.



Congratulations on your new Welldana® Heat Pump.

Read this manual thoroughly before placing and installation.

This manual relates to the Welldana® models listed below:

- 34-180505. 9,5 kw. (34-180505-1 with stainless steel cabinet)
- 34-180510. 14 kw.
- 34-180526. 26 kw.

This heat pump is available without external by-pass, valves, and pipes.

The heat pump may be used as Chiller / cooler and Heat Pump.

The heat pump is sold with a two-year claim right period through distributor.

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1. Upon receipt of your heat pump.
2. Placing of heat pump.
3. Important safety directions.
4. Technical data.
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6. Installation.
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8. Efficiency curves.
9. Start up the Heat pump.
10. Control panel and functions.
11. Troubleshooting.
12. Accessories.

1. Upon receipt of your heat pump, check that:

4. The packaging shows no visible damage/marks or scratches on the packaging!
Carefully remove the packaging. Do not use a hobby knife as it may scratch the surface.
5. The cabinet is not damaged.
6. The indicator / needle in the pressure gauge is about in the middle of the green area (no power on)

Contact carrier and your distributor immediately if the equipment supplied is damaged or incomplete.

2. Placing of Heat Pump.

- Your heat pump is an independent unit which may be placed largely anywhere. For max rate of efficiency on the heat pump, free access to fresh air will be required. The heat pump may be placed under a shed roof or similar. You may turn your heat pump so that the control panel is not facing the sun. The heat pump should be upright. The distance between the heat pump and the pool/technology room should, however, be as short as possible, with a view to pressure loss and heat loss in the piping. The insulation of the piping will be a good investment.
A CCE socket may be mounted on the wall or on a stand (**electrician job**) at the point of placing the heat pump. For your heat pump may then always be stopped easily when so required, or moved indoors in winter time (not a must).
- Leave a minimum clearance of 2 m over the heat pump / blow-out. Leave at least a 1 m clearance round the heat pump. The suction and/or the blow-off may in no way be impeded or blocked.
- Noise. Noise from a neighbour is not likely to be popular. Even though the heat pump is low-noise, you should still carefully select the placing of your heat pump. Also, the piping to the heat pump should not be so long that the filter pump to the swimming pool will be hard pressed to pump the water round. Consult your distributor or some other expert fitter.
- Your heat pump should be placed on a solid base which should, as a minimum, be 660 x 660mm.

3. Important Safety Directions.

- The electricity box terminal has the Danish "ground" mark("ground" = earth), (earth connection) or the international earth symbol ©. To reduce the electric shock hazard, this terminal **must** be connected to the earth connection conductor yellow/green on the main supply cable. Minimum 2,5mm² cable. Also please refer to the diagram.

4. Technical Data.

Type	34-180505	34-180510	34-180526
Voltage. (50-60Hz) L - N	220/240 volt.	220/240 volt.	400V3N
Amp. consumption. (max.)	9,4	13,8	8,5
Fuse amp.	13A	16A.	13A
Blower size.	150 watt.	200 watt.	200 watt.
Blower speed / 2-speed	740 / 620 rpm.	740 / 620 rpm.	740 / 620 rpm.
COP at 7°C & 24°C air temp.	3,8 / 5,0	3,8 / 5,0	3,8 / 5,0
Noise Level. (1 meter)	53 / 49 dB (A)	53 / 49 dB (A)	57 dB (A)
Water connection / pool.	50mm.	50mm.	50mm.
Water flow.	4 – 9m ³ /hour	6 – 9m ³ /hour	7,5 – 15m ³ /hour
Water pressure loss	15 Kpa.	15 Kpa.	16 Kpa.
Gas type.	R410A	R410A	R410A
Gas volume	1500g.	2300g.	2400g.
lowest working temperature for the heat pump. (outside temperature)	- 5°C	- 5°C	-5°C
Heat capacity output max.	9,5kw.	14kw.	26Kw.
Heat Exchanger type.	Titanium and PVC	Titanium and PVC	Titanium and PVC
Net / gross weight.	97 / 105kg.	105 / 113kg.	112 / 125kg.
Dimensions in mm. H x L x W	860 x 660 x 660	860 x 660 x 660	960 x 660 x 660
Cabinet. Matt black lacquered.	Steel	Steel	Steel
Cabinet. Stainless steel.	Option	No.	No.

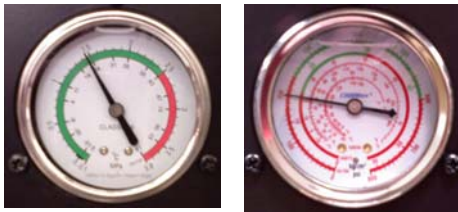


At an air temperature above 20C°, the heat pump blower will automatically adjust to max. blower speed.

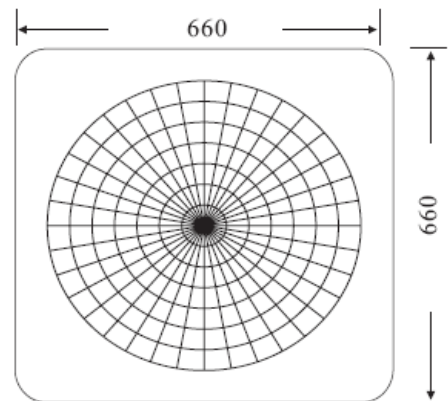
During the operating and defrosting process, the heat pump will yield a certain volume of condensed water. The condensed water from the cooling plates will be conducted to the heat pump bottom plate, and from there onward through a 20mm pipe protruding from under the heat pump. The condensed water volume may, under the right conditions, be several decilitres per hour.

The condensed water is to be conducted to sewer or cesspool. The condensed water may **not** be conducted to the swimming pool.

Do not suspect the condensed water of being due to a fault or a leak in the heat pump.

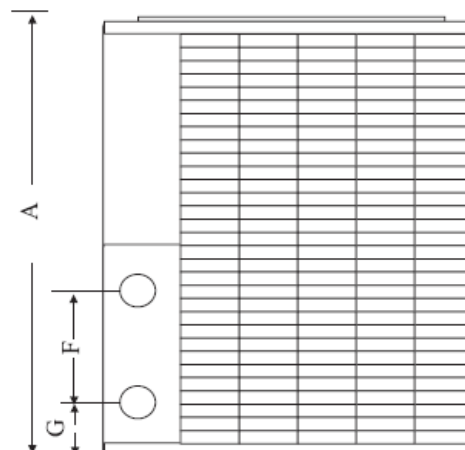


Pressure Gauge.

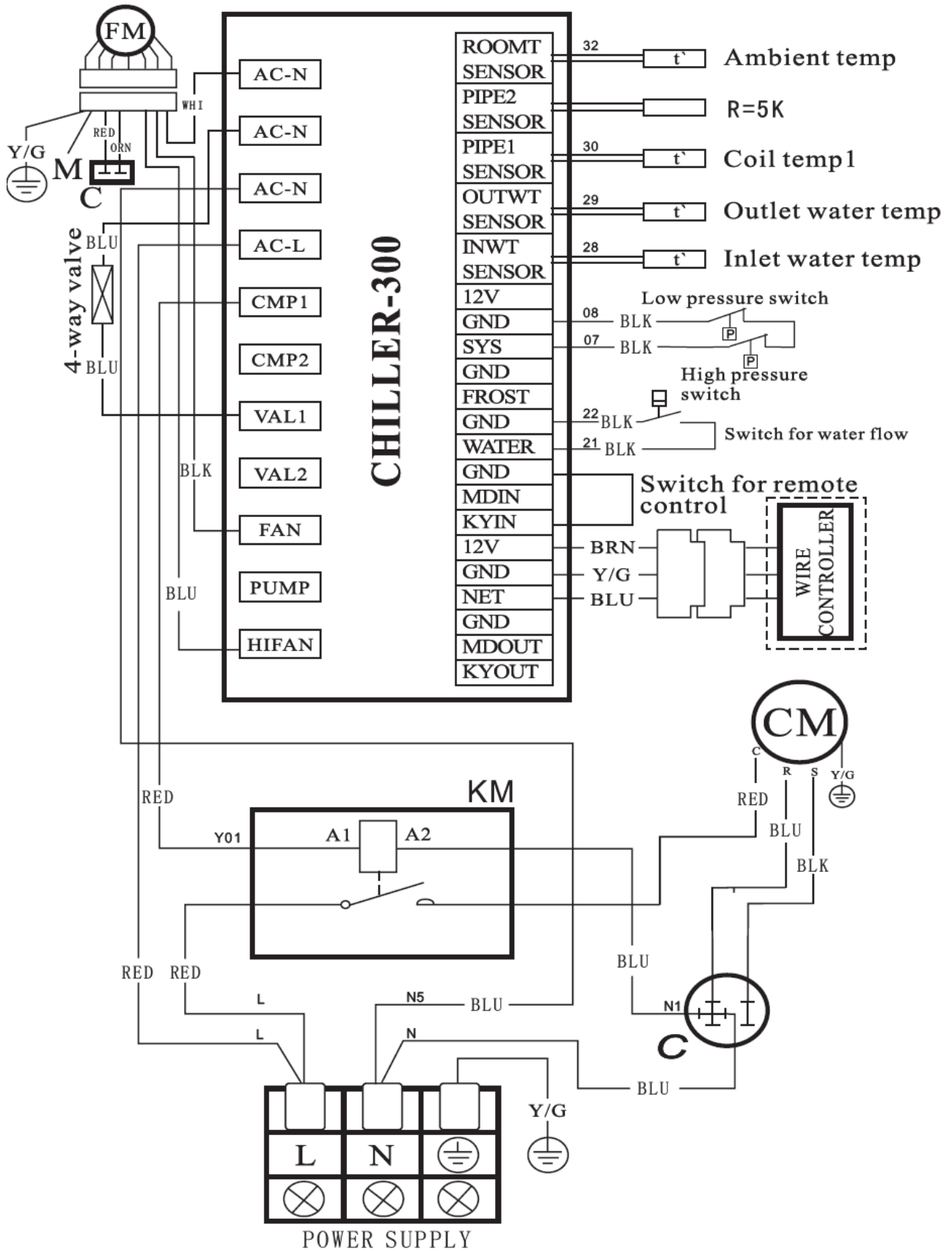


A = height	See technical data
G	110mm.
F	350mm.

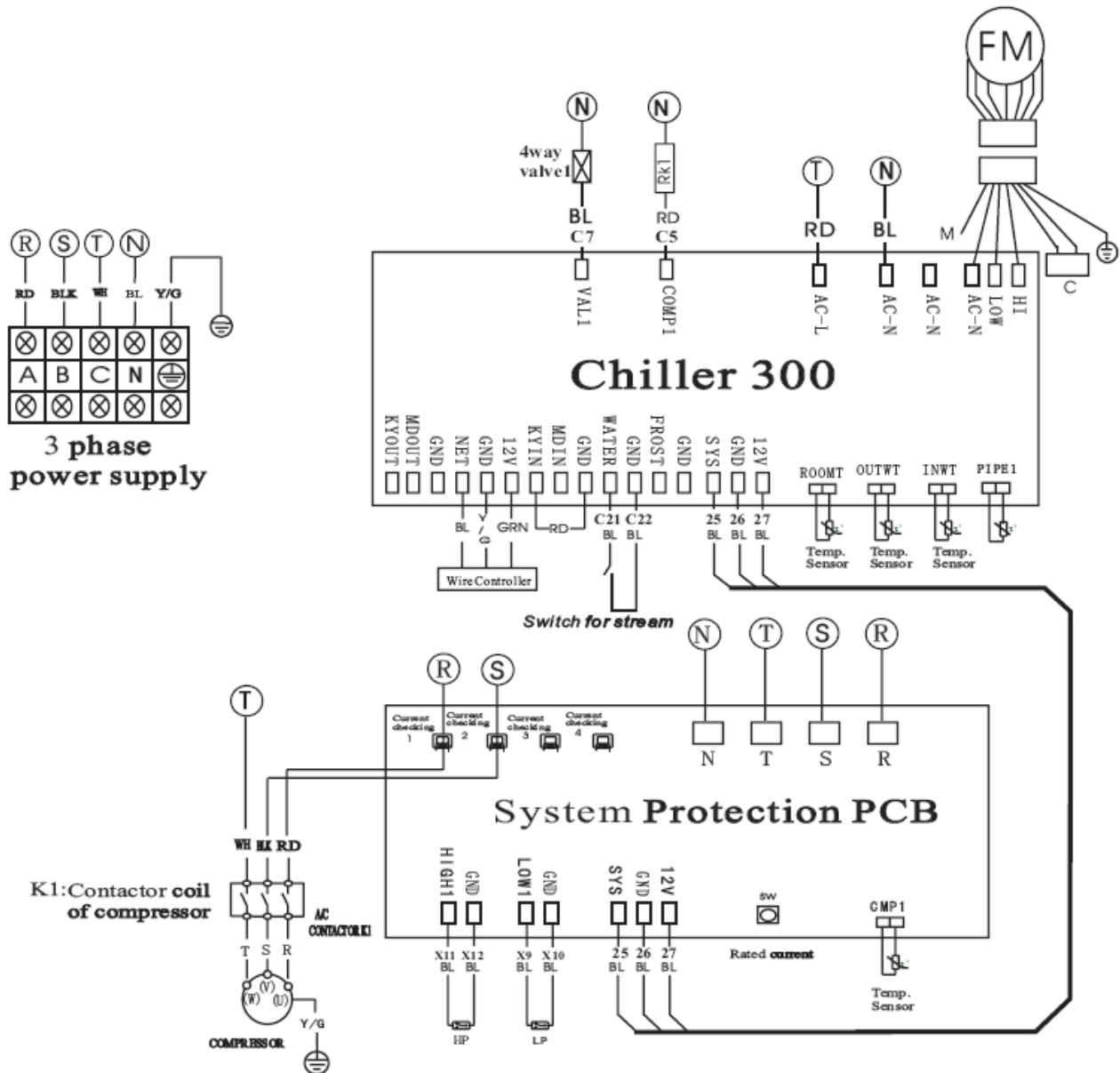
Dimensional Sketch.



Electricity & PCB diagram for 9,5 & 14 kw.



Electricity & PCB diagram for 26 kw.

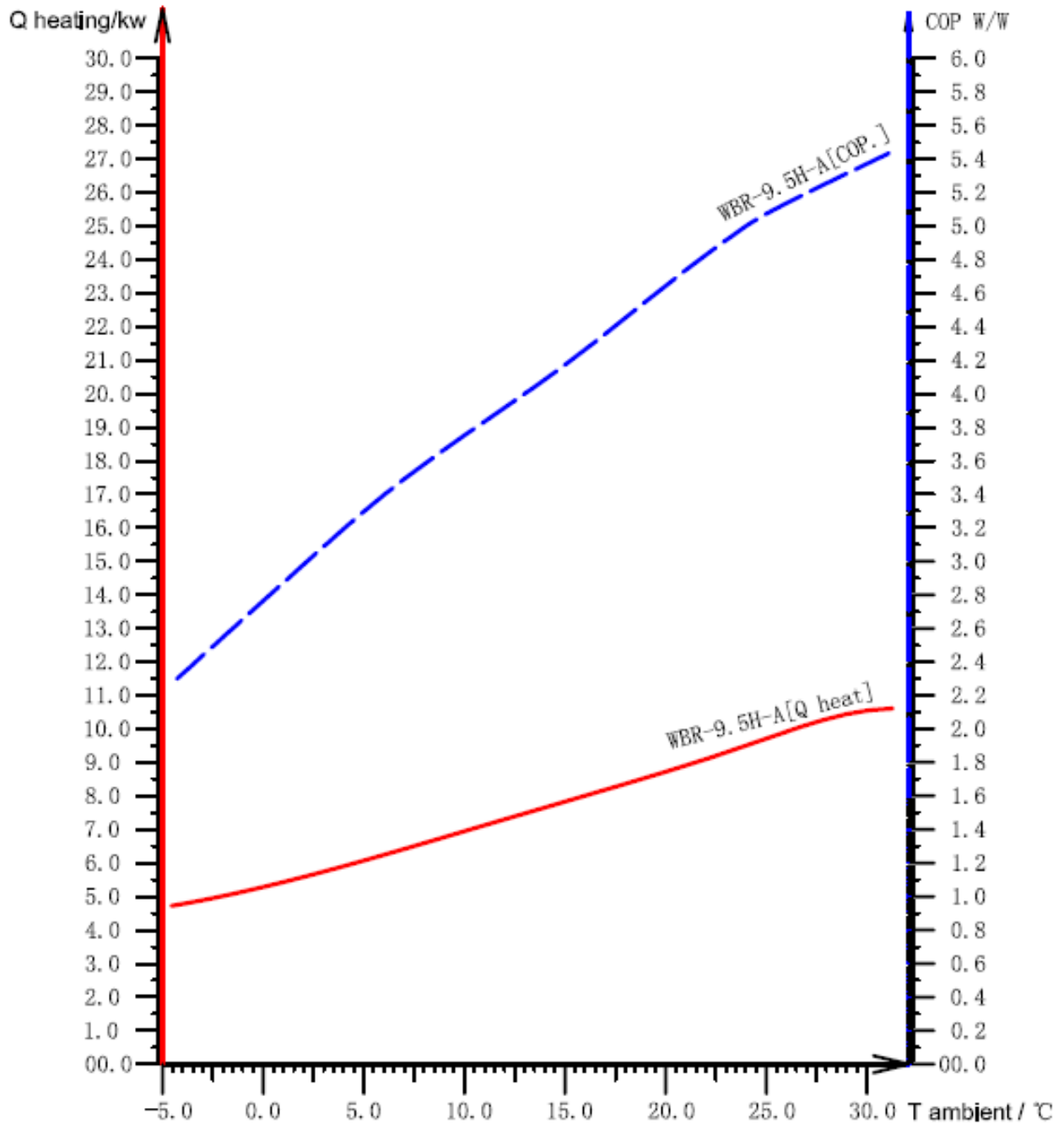


5. Standards.

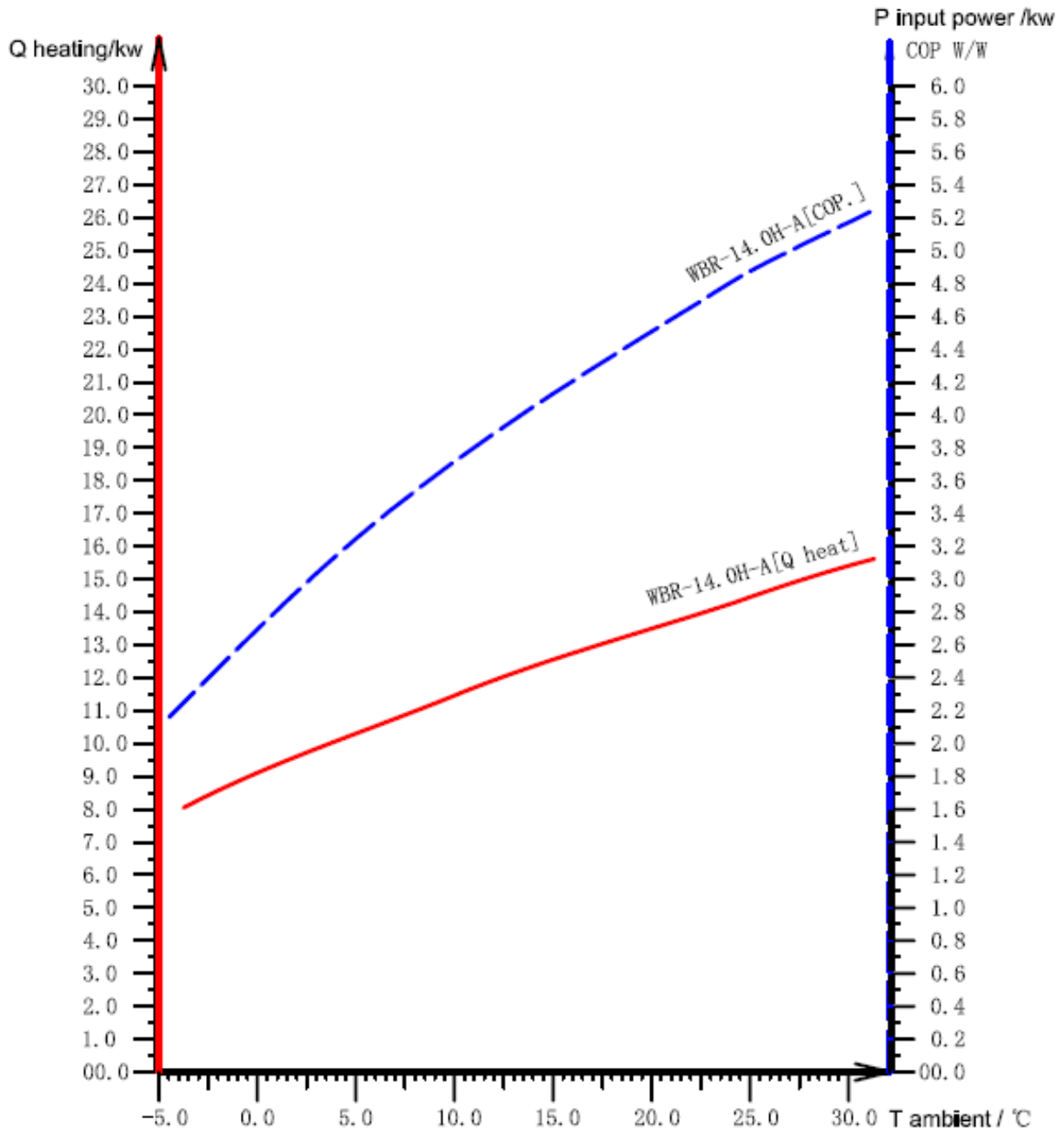
This Welldana® Heat Pump meets current safety rules and standards.
 This product is tested to current EN standards:
 EN 60335-1. EN 60335-2-40. EN 50366.
 EMC: EN 55014-1-2. EN 61000-3-2. EN 61000-3-3.
 This product is **CE** marked.

6. Efficiency curves.

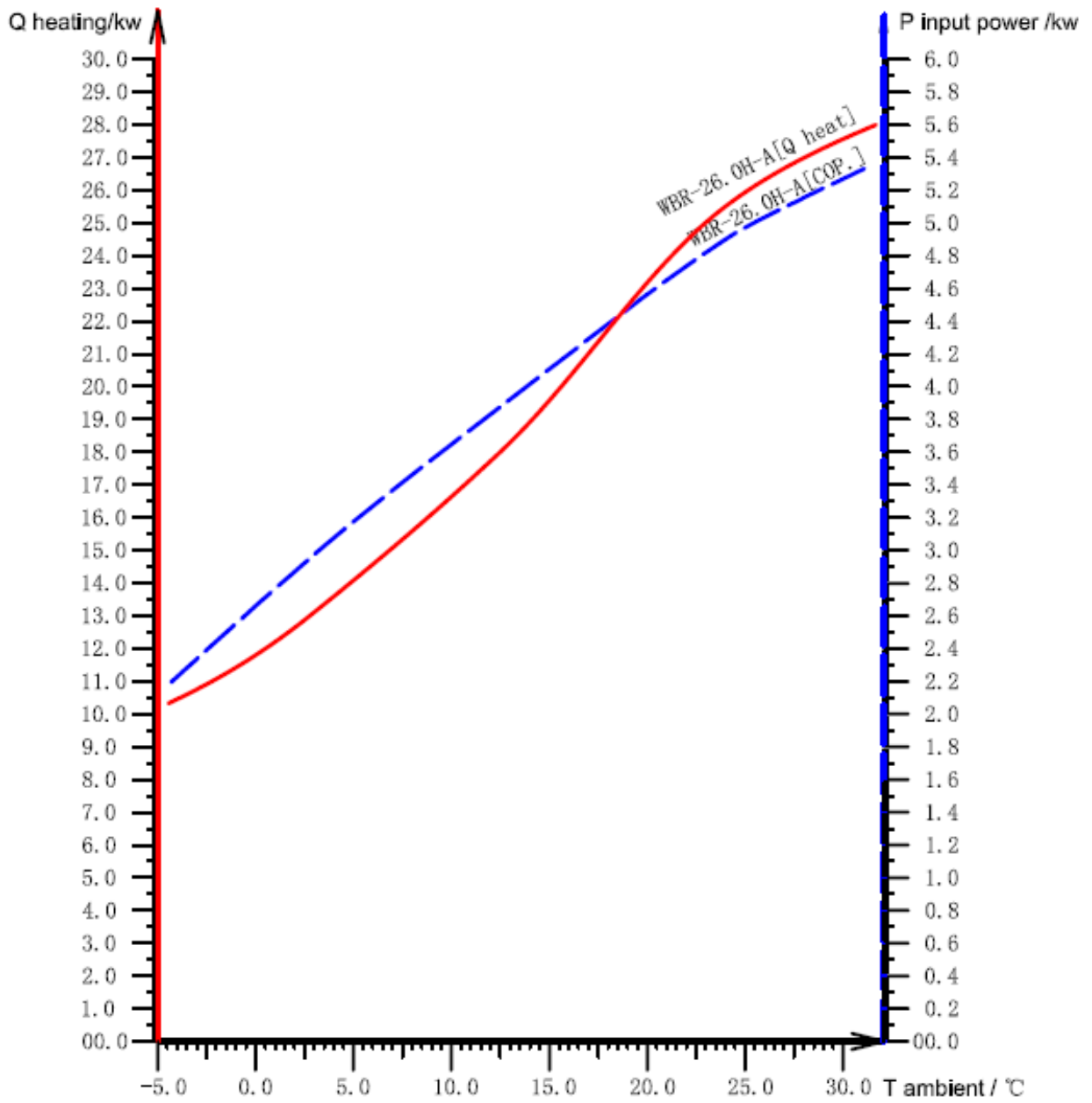
Curves for 9,5kw Heat pump.



Curves for 14kw Heat pump



Curves for 26kw Heat pump.



7. Installation.

This heat pump has been manufactured and optimized to heat the water in swimming pools.

This heat pump must be installed by an expert fitter.

Faulty installation, or damage caused by this, shall not be covered by the warranty.

Electric:

Electrically, this heat pump is to be mounted with a switch* of its own. The switch shall be connected parallel with the switch to the filter pump (1) so that if the filter pump is switched off / stopped, the heat pump will also be turned off automatically. Do remember that the installation is to be provided with HFI or HPFI.

The heat pump may be started only if the pool pump has started.

The heat pump own switch* is used / switched off when the sand filter on the system is to be backwashed etc.

3-phased heat pumps ought to be protected with a motor cover, if the main fuse switchboard is not an aut. switch.

A CCE socket may be mounted on the wall or on a stand (**electrician job**) at the point where the heat pump is placed. The heat pump may then always easily be moved indoors in winter time (it is not a demand)

Hydraulic:

The pool water is to be fed to the heat pump via the pool filter pump.

A ball cock is to be mounted on the heat pump inlet and outlet. (in / out)

Depending on the model, the heat pump will have a max. water flow. If the flow via the pool pump (1) is higher than this, a by-pass (6) is to be installed so as to trim the flow. You may only trim on the by-pass valve and the ball cock to inlet on the heat pump.

The heat pump has a minimum flow requirement, 4m³/hour and 6m³/hour, respectively, otherwise the heat pump will stop.

This also applies if the flow is too high. Please refer to technical data.

Piping to the heat pump of less than dia. 50mm should not be used. The union may **ONLY** be hand tightened.

Models after March 2010 have 1½" x 50mm. thread connection.

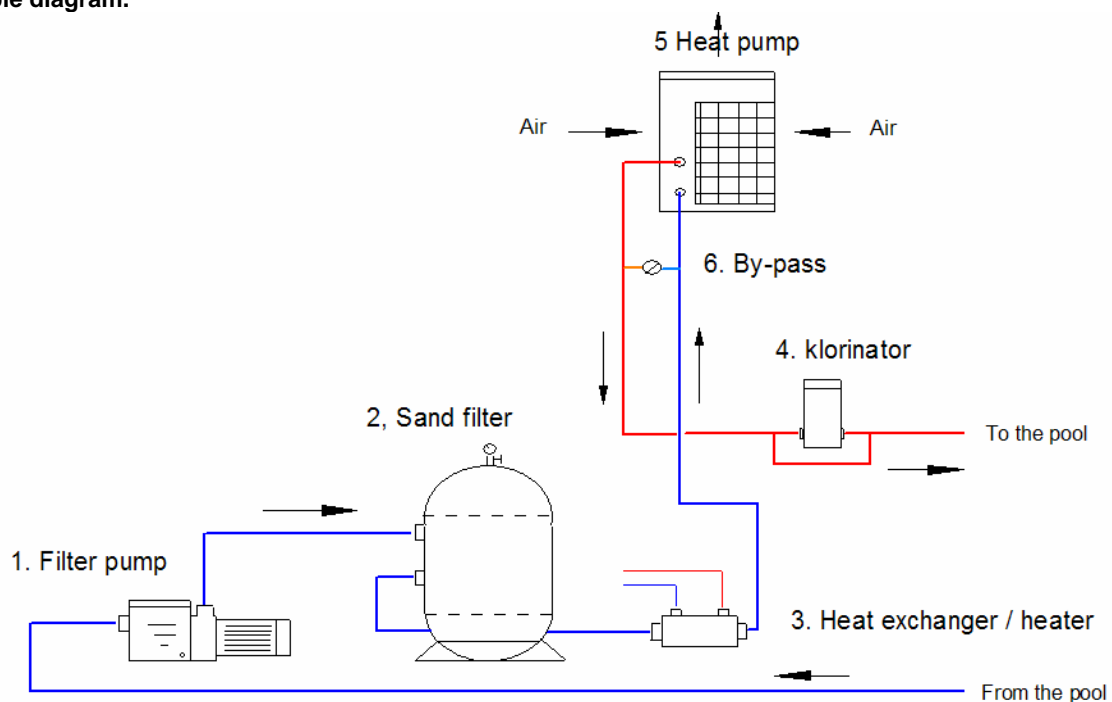
Insulation of the piping will be a good investment.

If there is a considerable height / level difference in the piping forward and back to the heat pump, airing **must** be established at the highest points.

If the swimming pool is equipped with a chlorinator (5) or possibly chemical control with acid pump and chlorine pump, the chlorinator and / or injector **must** be mounted after the heat pump as the last equipment before the water goes back to the swimming pool.

If the swimming pool is equipped with a heat exchanger (3) or an electric heater, these may, during operation of heat pump, be turned off so as to benefit financially. Bear in mind that the heat exchanger may **only** be turned off on the primary side.

Principle diagram.



8. Winter / Maintenance.

If or when it is decided to close down the swimming pool for the winter, and the pool pump and the heat pump are turned off, it is extremely important that the heat pump is emptied for water **instantly**. Loosening both adapters and let all water out.

Important. Tilt the heat pump to 45° so all water is able to drain out from inside the heat exchanger. Empty the pipes between the heat pump and technical room. Do not leave this work for a later, because the frost always comes surprisingly. The heat pump warranty does not cover any frost damage.

The heat pump may be left outside all the year round but if you do have some room for the heat pump in a shed or in your garage, will this be a perfect place to keep it for the winter period. You may use a sack barrow/trolley for the transport.

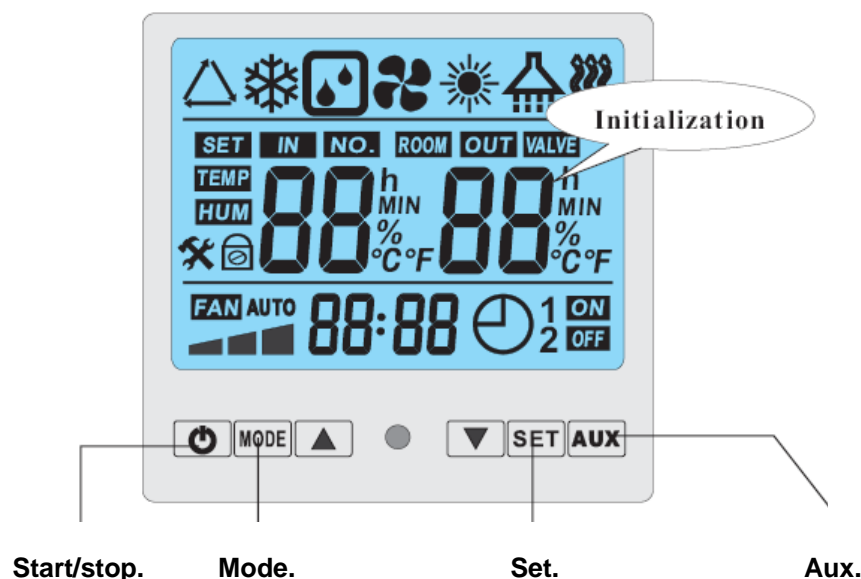
You may have a CCE socket mounted on the wall or on a stand (**electrician job**) at the location where the heat pump is placed, the heat pump may then always easily be moved indoors in winter time (not a must). You may pull a bag down over the heat pump – possibly using the plastic bag from the packaging.

Do **not** lay down the heat pump.

For optimal operation and efficiency, the heat pump should be given a clearance of at least 2 m above the top blow-off. There must be a clearance of at least 1 m round the heat pump. The suction and/or the blow-off may no way be impeded or blocked. To be checked regularly.

9. Control Panel and Functions.

The control panel is placed at the side of the heat pump, above the pipe connection.



10. Start-Up.

The control panel display shows all items of information required during operation and settings. PS. This manual is primarily based on using the machine as a heat pump.

Switch on the main power supply to the heat pump.

Push **start** and await the display.

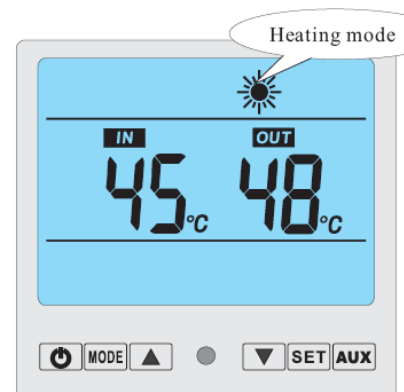
If the displays does not show SOL, push **mode** until the display shows SUN.

If the water flow from the pool pump is effective, the heat pump will start after about 2.45 minutes. (delayed start)

When the heat pump works, or waits under delayed star, the display will show temperatures for the pool water IN/OUT.

See picture right.

Aux button is not in use.



Parameters.

The control has 11 parameters from 00 to 10.

Using the **set** button will scroll the parameters for control without stopping the heat pump.

The parameters cannot be changed here.

Parameter	Description.	Range.	Standard Setting.	Remarks.
00	Setting of cooling temp.	8 – 28°C	28°C	To be set by user
01	Setting of heat temp.	15 – 40°C	28°C	To be set by user
02	Defrosting period	30 – 90 min.	30 minutes.	For technician only
03	Coil temp. start defrosting	0 ~ -30°C	-3°C	For technician only
04	Coil temp. stop defrosting	2 – 30°C	13°C	For technician only
05	Defrosting time.	1 – 12 min.	8 minutes.	For technician only
06	System number.	1 – 2	1	May not be changed
07	Re-start after power failure	0 / 1	1 = ja.	For technician only
08	Work type: Cooling = 0 Heating + cooling = 1 Heating = 3	0-1-2-3	1	For technician only
09	Work method.	0 – 1	0	May not be changed
10	Setting of water temp. (auto mode)	8 – 40°C	28°C	For technician only

Push **start**, the compressor and blower will stop.

The control has now been put on **standby**.

Only in standby may the parameters be changed.

The display shows the following which is the introduction to the parameters.

See picture right.

Push **set**, and parameter 00 will appear.

Pushing again, continuing to parameter 01 etc. until all the parameters have been scrolled through.

Push **arrow up** / **arrow down** to change the setting.

Close by pushing **start**. The control will now remember the setting.

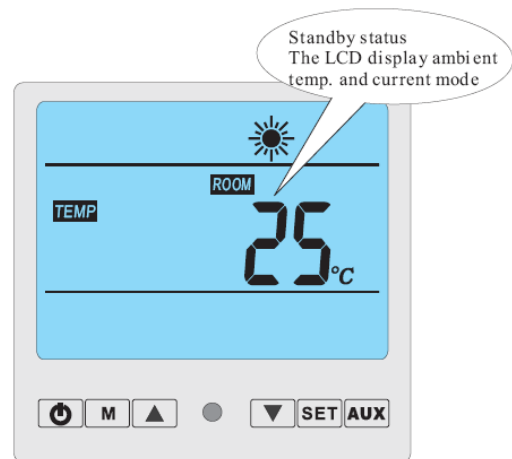
The heat pump will now start automatically after 2.45 minutes.

You may refer to the parameters in the display on the next page.

Parameter 01 is the setting for required pool temperature.

The standard setting for the pool temperature is 28°C

Parameter 00 and 02 to 10 are settings for technician only.



When the heat pump has registered the required water / pool temperature on the inlet in the heat pump, the heat pump will stop automatically. The heat pump has 1°C of temperature difference.

If the temperature drops, the heat pump will start automatically.

If the control is required to be locked, act as follows:

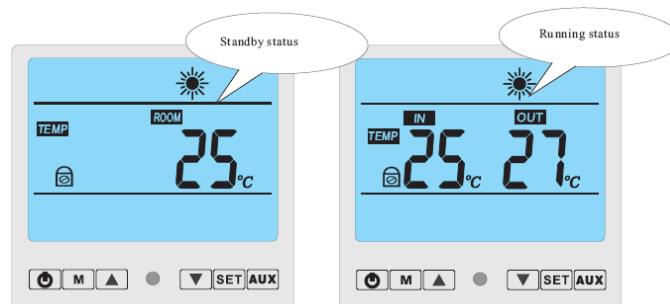
Push **arrow up** and **arrow down** simultaneously, and keep them in for 5 secs.

The control panel will then have been locked.

A lock will appear in the display.

Push **arrow up** and **arrow down** simultaneously, and keep them in for 5 secs.

The control panel will then have been unlocked.



The Parameters.

Parameter 00
to set inlet water temp. under cooling mode (8-28°C) default setting: 12°C

Parameter 01
to set inlet water temp. under heating mode (15-40°C) default setting: 40°C

Parameter 02
Total working time of compressor after frosting

Parameter 03
Setting initialized temp for defrosting "-7°C", ("-" not display, range 0--30°C)

Parameter 04
Terms of Exit Defrosting Function (2-30°C) default setting: 13°C

Parameter 05
Max. Time of defrosting (1-12min) Default setting: 8min.

Parameter 06
system Quantity

Parameter 07
Save setting after power failure 1(yes)0(No)

Parameter 08
Mode:
0 Cooling only
1 (cooling & heating)
2 auxiliary elec heating
3 (cooling + heating)
3 (heating only)

"0" water pump keeps working all the time.
"1" water pump turns off after the whole unit power off for 30s initialization "0".

Auto mode default setting: return water temp 30°C

11. Troubleshooting.

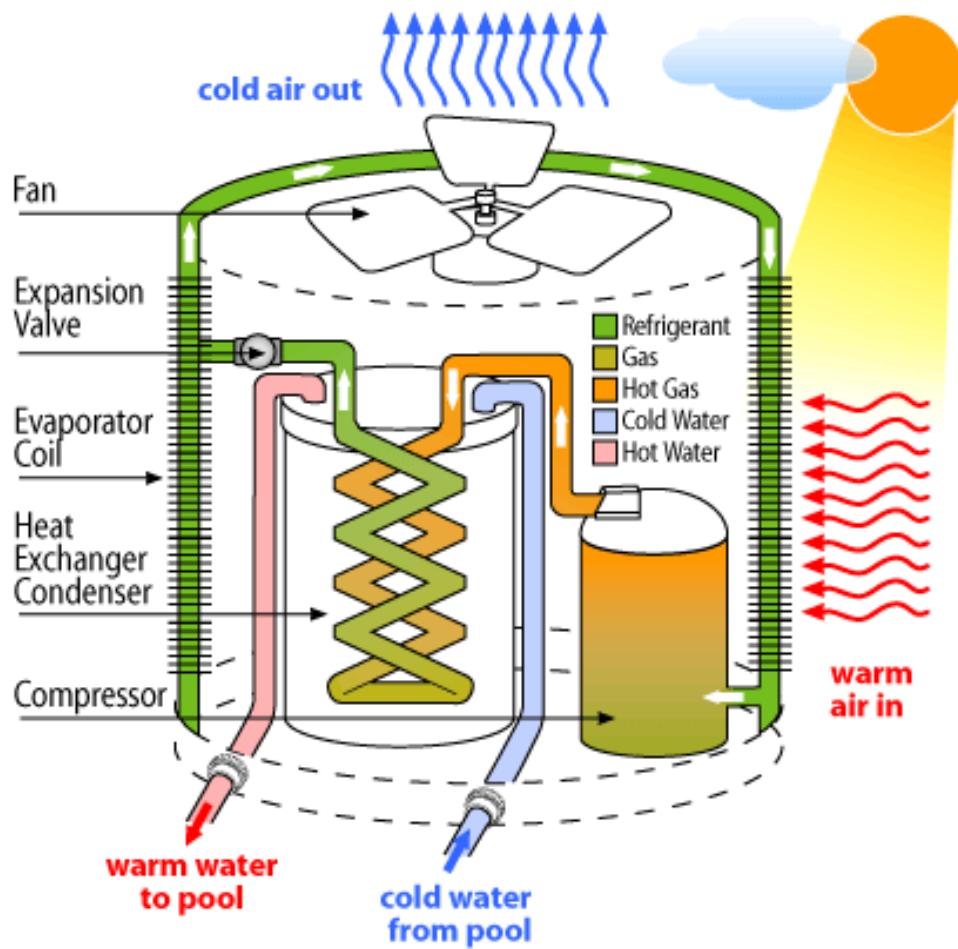
Fault/Error	Display	Cause.	Action.
Water temperature in, sensor fault/error.	PP 01	Sensor interrupted or short circuited.	Test line, sensor and socket. May have to be replaced.
Water temperature out, sensor fault/error.	PP 02	Sensor interrupted or short circuited.	Test line, sensor and socket. May have to be replaced.
Coil 1 sensor fault/error.	PP 03	Sensor interrupted or short circuited.	Test line, sensor and socket. May have to be replaced.
Coil 2 sensor fault/error.	PP 04	Sensor interrupted or short circuited.	Test line, sensor and socket. May have to be replaced.
Ambient temperature sensor fault/error.	PP 05	Sensor interrupted or short circuited.	Test line, sensor and socket. May have to be replaced.
Too high difference in temperature in/out.	PP 06	Water flow too low.	Check valves, filter pump, filter and by-pass.
Heating up.	PP 07	Water flow too low.	Check valves, filter pump, filter and by-pass.
First frostproofing run	PP 08	Low out temperature.	Empty system of water.
Second frostproofing run	PP 09	Low out temperature.	Empty system of water.
Function error in system 1.	EE 01	Function error in print card.	Call technician
Function error in system 2.	EE 02	Input voltage too low.	Check main cable / electrician.
Flow guard error.	EE 03	Too small or too high flow.	Check pool pump, piping, by-pass and ball cocks. Check technical spec.
Flow or compressor error	EE 04	The water flow is too high. Air trapped inside the exchanger.	Adjust the flow down or Call a technician. Mount an auto. airing valve.
Temperature Fluctuations.	EE 05	Water flow varying.	Check pool pump and piping. Check valves, filter and by-pass.
Defrosting	Logo	Cold coil / element.	None. Normal function.
Communication error.	EE 08	Communication error between control panel and control.	Check cable connection. Call technician.

12. Accessories.

Your heat pump is available with an optional house and cover plate for the control panel - allowing for the control panel to be moved to a different locality if so required. A 5m extension line with socket for this purpose is enclosed.



How the Heat pump works.



Larger Welldana® Heat pumps are available.

**This Welldana® Heat pump 90kw is working for Legoland - Denmark
Model type 34-180590.**



Forhandler / Dealer.