

Direct expansion: Commissioning – Heating – Altherma Flex

Installer		Performed by	
Company name		Company	
Contact person		Technician	
End customer		Date	
Name			
Street – N°			
Zip code – City			
Country			

Installation				
Model name			Master	Slave 1/sub unit
Serial number				
Construction year		Model name		
Reference installation		Serial number		
Number of hydro modules		Refrigerant type		Standard weight
Number of convector units				Additional weight
				Total weight
				kg
				kg
				kg

Safety / last minute risk analysis					
Safe access to the installation	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No	Other safety hazards
Enclosed workplace	<input type="checkbox"/>	No	<input type="checkbox"/>	Yes	Emergency exits
Working at heights	<input type="checkbox"/>	No	<input type="checkbox"/>	Yes	Presence of necessary personal protection equipment
Electrical hazards	<input type="checkbox"/>	No	<input type="checkbox"/>	Yes	
					<input type="checkbox"/>
					Yes
					No
					<input type="checkbox"/>
					OK
					Not OK
					<input type="checkbox"/>
					OK
					Not OK

Precommissioning					
N2 Test data available	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No	Vacuum test data available
N2 start pressure		bar			Vacuum test start pressure
N2 test time		hours			Vacuum test time
N2 end pressure		bar			Vacuum test end pressure
					mbar
					hours
					mbar
Power ON 6 hours before commissioning	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No	

Visual inspection					
Outdoor installation connection ratio					Air side outdoor unit correct
Indoor installation connection ratio					Water side hydro modules correct
System index		%			Vibrations/frictions
Piping distance		m			Noise
Piping length within limits	<input type="checkbox"/>	OK	<input type="checkbox"/>	Not OK	Height of unit
Position/angles of refnets correct?	<input type="checkbox"/>	Yes	<input type="checkbox"/>	No	Communication bus
	<input type="checkbox"/>	Not applicable			Presence of installation mistakes
Type of system charging	<input type="checkbox"/>	Automatic charge			Sales selection data available?
	<input type="checkbox"/>	Manual charge			Logbook available and completed?
Which test run was executed?	<input type="checkbox"/>	Short			Airco energy audit has been requested?
	<input type="checkbox"/>	Long			
					<input type="checkbox"/>
					OK
					Not OK
					<input type="checkbox"/>
					OK
					Not OK
					<input type="checkbox"/>
					OK
					Not OK
					<input type="checkbox"/>
					Yes
					No
					<input type="checkbox"/>
					Yes
					No
					<input type="checkbox"/>
					Yes
					No
					<input type="checkbox"/>
					Not applicable



Settings							
Outdoor unit				Hydro module			
Setting	Description	Default value	New value	Setting	Description	Default value	New value

Electrical system							
	L1	L2	L3		230 V AC	560 V DC	
Main voltage 400 V AC				Control voltage			

Electrical system	
Operation mode	
Indoor unit set point	
Installation capacity	

	OnOff/inverter	Frequency	L1 (A)	L2 (A)	L3 (A)	DC °t*	DC SH*
Inverter 1							
Standard 1/inverter 2							
Standard 2							
	Abnormal noise			Crankcase heater			
Inverter 1	<input type="checkbox"/> No	<input type="checkbox"/> Yes			<input type="checkbox"/> OK		<input type="checkbox"/> Not OK
Standard 1/inverter 2	<input type="checkbox"/> No	<input type="checkbox"/> Yes			<input type="checkbox"/> OK		<input type="checkbox"/> Not OK
Standard 2	<input type="checkbox"/> No	<input type="checkbox"/> Yes			<input type="checkbox"/> OK		<input type="checkbox"/> Not OK

* DC °t=discharge temperature / DC SH*=discharge superheat

Number of running compressors		Discharge pressure	bar	
Opening electronic expansion valve condenser	pulse		Condensation temperature	°C
Suction pressure	bar		Liquid temperature	°C
Evaporating temperature	°C		Subcooling	K
Suction temperature	°C			
Suction superheat	K			

Outdoor unit				
Inlet temperature	°C		Fan state 1	<input type="checkbox"/> OK <input type="checkbox"/> Not OK
Outlet temperature	°C		Fan state 2	<input type="checkbox"/> OK <input type="checkbox"/> Not OK
Approach temperature	K			

Electrical checks							
				Electrical insulation		Winding resistance	
Electrical connections	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK	Inverter 1	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK
Contactor contacts	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK	Standard 1/inverter 2	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK
			Standard 2	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK

Regulation checks				
Low pressure sensor calculation	<input type="checkbox"/> OK	<input type="checkbox"/> Not OK	High pressure sensor calculation	<input type="checkbox"/> OK <input type="checkbox"/> Not OK

Overall result				
The installation is working	<input type="checkbox"/> Good	<input type="checkbox"/> Not good	Follow-up site visit needed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
	<input type="checkbox"/> Safe	<input type="checkbox"/> Not safe		

General remarks:

Shortcomings that were not fixed during the commissioning:

Measures to be taken in order to resolve the remaining shortcomings:

Signature certified technician