Datasheet HYDRA

R290

Water-To-Water Heat Pumps reversible on the water side and Water-To-Water chillers for comfort applications

Nominal heating capacity: 18-270 kW

Nominal cooling capacity: 16-215 kW



EUROKLIMAT
Let's go Natural

HYDRA

R290 Refrigerant R290 | GWP=3 · Brazed plate heat exchanger · Semi-hermetic piston compressor · Reversible heat pump · SCOP

15-1-1 ⟷ 220-2-2

Water to water heat pumps with reciprocating compressors for comfort applications up to 60 °C



Solution

B - Base

Sound version

ST - Standard
LN - Low Noise
SL - Super Low Noise

Equipment

AS - Standard equipment
DS - Desuperheater

Heating capacity 18 - 253 kW
Cooling capacity 16 - 208 kW

Safety system	To ensure a high level of safety throughout the useful life of the selected propane unit, special measures have been introduced that make this product unique. In fact, the refrigeration circuit is watertight and sufficiently robust, the pipes have been designed to have few joints and welds and all the materials used are compatible with the R290 refrigerant (propane). The electrical panel is installed in a separate compartment and some of the most important components are ATEX certified. In addition, the unit is equipped with a refrigerant gas leak detector and with a centrifugal suction expulsion fan, both ATEX certified.
Refrigerant charge	Maximum allowable charge of Refrigerating systems and heat pumps should be evaluated according to EN378:2016 that is a safety and environmental standard published by CEN that provides guidance for Design, Construction, Installation, Operation and Maintenance of Refrigerating systems and heat pumps.
Structure	Structure specifically designed and built to guarantee total resistance to atmospheric agents and corrosion. Basement and panels made of galvanized steel sheet, oven-painted with polyurethane powders. Frame made of anodized aluminium profiles, with aluminium alloy corner joints that guarantee excellent mechanical resistance and low weight. LN (Low Noise) version: the panels are internally lined with sound-absorbing material. SL (Super Low Noise) version: the panels are sandwich and insulated with rock wool.
Compressor	Reciprocating semi-hermetic type compressor equipped with: electronic control module and protection of the electric motor (installed inside the electrical panel); oil charge; oil level sight glass and oil crankcase heater; anti-vibration rubber supports; anti-vibration pipes (suction and discharge); suction and discharge valves. The compressor can be supplied with one or more RSH capacity control heads to guarantee an adaptation of the cooling capacity in case of thermal load's reduction: please see the list of accessories for further information.
Water heat exchangers	Brazed plate-type heat exchangers, stainless steel AISI 316 made, complete with water differential pressure switch, air vent valve and thermally insulated with closed-cell neoprene anti-condensate material. The heat exchangers design provides high thermal exchange and high performance results, furthermore it guarantees small dimensions and easy installation and maintenance.
Electrical board	Each unit is equipped with electric panel, built, wired and fully tested at the factory. Wiring numeration and optimized layout facilitate troubleshooting. The installed components are identified by nameplates to better identify the application and the type of action. Switchboard is made according to standards IEC 204-1/EN60204-1 and it is complete with the following main components: - Main isolator switch - Door interlock safety device - Contactor and protection for compressor and fans - Cabinet minimum protection rating IP54. To ensure higher level of security, the cabinet is outside the machine and positioned on one side of the unit. The propane sensor is equipped with separate power supply: this power supply must always be guaranteed in order to ensure the monitoring of any leakage.
Control	The programmable electronic microprocessor control system allows you to automatically adjust the thermal or cooling power supplied by the unit and to manage malfunction alarms. Thanks to a multitasking operating system and the adoption of standard, local and remote connectivity protocols, the selected controller is a powerful control system that can be easily interfaced with the most common Building Management Systems (BMS) on the market.
Refrigerant circuit	Filter drier, moisture-liquid sight glass, electronic expansion valve, high & low pressure gauge, high and low pressure transducers, high pressure switch, safety high pressure valve (when required by EN 378-2016 standard).
Water circuit	Base version: as interface to the plant, includes the water fittings of the evaporator only.

MAIN ACCESSORIES

- Anti-vibration rubber/bell mounts
- Stainless steel panels (AISI 304)
- Double safety valve with changeover valve
- Electronic flow switch hydraulic circuit - Evaporator
- Flanges and counter-flanges for water fittings
- Hydraulic circuit pipes in stainless steel
- Water filter
- RSH Capacity Control head / Inverter driven compressor
- Double gas detector with separate electrical supply
- Energy meter for measuring the electric energy consumed
- Cloud GATE" device for monitoring and remote management
- UNIT COLLECT - Cascade unit management system

HYDRA

Technical data

HYDRA R290 range		15-1-1	25-1-1	35-1-1	45-1-1	55-1-1
P BP//AS/BP/*S version**						
Heating capacity (1)	**[kW]**	**18,3**	**29,6**	**36,6**	**53,5**	**63,6**
Total power input (1)	[kW]	4,53	7,50	9,49	13,4	15,7
COP - Coefficient Of Performance (1)	[-]	4,04	3,95	3,86	3,99	4,05
Condenser water flow (1)	[m^3/h]	3,17	5,13	6,32	9,26	11,00
Condenser circuit pressure drop (1)	[kPa]	40,4	47,8	49,6	30,0	40,3
Evaporator water flow (1)	[m^3/h]	4,00	6,42	7,83	11,60	13,80
Evaporator circuit pressure drop (1)	[kPa]	47,5	55,3	47,6	57,7	46,9
Applications for seasonal efficiency for heating according to Commission Regulation (EU) No 813/2013 - Low Temperature - Average Climate						
SCOP	[-]	5,794	5,938	5,651	5,706	5,759
$\eta_{s,h}$	[%]	223,8	229,5	218,0	220,2	222,4
Applications for seasonal efficiency for heating according to Commission Regulation (EU) No 813/2013 - Medium Temperature - Average Climate						
SCOP	[-]	4,546	4,537	4,393	4,468	4,543
$\eta_{s,h}$	[%]	173,9	173,5	167,7	170,7	173,7
Cooling capacity (2)	**[kW]**	**15,9**	**25,0**	**30,4**	**45,0**	**54,4**
Total power input (2)	[kW]	3,97	6,34	8,15	11,7	13,8
EER - Energy Efficiency Ratio (2)	[-]	4,01	3,94	3,73	3,85	3,94
Condenser water flow (2)	[m^3/h]	3,41	5,39	6,63	9,77	11,70
Condenser circuit pressure drop (2)	[kPa]	47,8	54,5	56,2	34,3	47,0
Evaporator water flow (2)	[m^3/h]	2,73	4,31	5,24	7,75	9,36
Evaporator circuit pressure drop (2)	[kPa]	23,9	27	23,1	27,9	23,3

Reefrigerant circuit						
Refrigerant / $GWP_{(100Y)}$	-	R290 / 0,02				
Charge of refrigerant - Base unit	[kg]	1,1	1,4	1,7	2,5	3,8
Independent refrigerant circuits	[n°]	1				
Compressors type / quantity	-	Semi-hermetic pistons / 1				
Steps of capacity for each compressor (std)	-	2 (75 - 50%)	2 (75 - 50%)	2 (75 - 50%)	2 (75 - 50%)	2 (75 - 50%)
Expansion valve type	-	Electronic				

Desuperheater (option) - P BP//DS/BP/*S**						
Heating capacity (3)	**[kW]**	**1,96**	**2,99**	**3,82**	**5,89**	**6,97**
Water flow (3)	[m^3/h]	0,34	0,52	0,66	1,02	1,20
User circuit pressure drop (3)	[kPa]	2,6	2,4	2,3	2,6	2,4

Electrical data						
Power supply (main - gas detector)	-	400/3+N/50 - 230/1/50				
Maximum power input	[kW]	6,2	10,9	12,9	16,3	20,2
Maximum absorbed current - MRA	[A]	10,8	18,9	21,6	30,2	42,0
Locked rotor current – LRA	[A]	63,1	74,6	59,1	107	125

Water connections						
Condenser side (nominal external diameter)	[inch/DN]	1" (DN 25)	1" (DN 25)	1" (DN 25)	1" 1/2 (DN 40)	1" 1/2 (DN 40)
Evaporator side (nominal external diameter)	[inch/DN]	1" (DN 25)	1" (DN 25)	1" (DN 25)	1" 1/2 (DN 40)	1" 1/2 (DN 40)

Dimensions & weights (P BP/ST/AS/BP/*S version)						
Lenght	[mm]	1211	1211	1211	1646	1646
Width	[mm]	800	800	800	800	800
Height	[mm]	1600	1600	1600	1800	1800
Shipping weight	[kg]	460	470	515	635	710
Operating weight	[kg]	465	475	520	640	717

Noise levels						
Total sound power (ST version)	[db(A)]	69	74	74	78	78
Total sound pressure (ST version) - at 1 m distance	[db(A)]	61	66	66	70	70
Total sound pressure (ST version) - at 10 m distance	[db(A)]	41	46	46	50	50
Total sound power (LN version)	[db(A)]	67	72	72	76	76
Total sound pressure (LN version) - at 1 m distance	[db(A)]	59	64	64	68	68
Total sound pressure (LN version) - at 10 m distance	[db(A)]	39	44	44	48	48
Total sound power (SL version)	[db(A)]	65	70	70	74	74
Total sound pressure (SL version) - at 1 m distance	[db(A)]	57	62	62	66	66
Total sound pressure (SL version) - at 10 m distance	[db(A)]	37	42	42	46	46

Reference conditions:

(1) Condenser fluid temperature IN/OUT = 40/45 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 10/7 °C - Evaporator Fluid: water - Results according to UNI EN 14511-2022

(2) Condenser fluid temperature IN/OUT = 30/35 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 12/7 °C - Evaporator Fluid: water - Results according to UNI EN 14511-202

(3) Condenser fluid temperature IN/OUT = 30/35 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 12/7 °C - Evaporator Fluid: water - Desuperheater water temperature IN/OUT = 40/45 °C - Results according to UNI EN 14511-2022

HYDRA

Technical data

HYDRA R290 range		65-1-1	75-1-1	90-1-1	110-1-1	90-2-2
P BP//AS/BP/*S version**						
Heating capacity (1)	**[kW]**	**80,2**	**90,4**	**106,0**	**126**	**108,0**
Total power input (1)	[kW]	20,6	22,5	27,7	32,7	26,9
COP - Coefficient Of Performance (1)	[-]	3,89	4,02	3,83	3,85	4,01
Condenser water flow (1)	[m^3/h]	13,9	15,7	18,4	21,8	18,7
Condenser circuit pressure drop (1)	[kPa]	41,8	39,2	51,7	45,1	39,2
Evaporator water flow (1)	[m^3/h]	17,30	19,6	22,8	26,9	23,5
Evaporator circuit pressure drop (1)	[kPa]	51,1	50,7	64,7	59,9	50,0
Applications for seasonal efficiency for heating according to Commission Regulation (EU) No 813/2013 - Low Temperature - Average Climate						
SCOP	[-]	5,593	5,721	5,468	5,497	6,020
$\eta_{s,h}$	[%]	215,7	220,9	210,7	211,9	232,8
Applications for seasonal efficiency for heating according to Commission Regulation (EU) No 813/2013 - Medium Temperature - Average Climate						
SCOP	[-]	4,397	4,422	4,306	4,323	4,734
$\eta_{s,h}$	[%]	167,9	168,9	164,2	164,9	181,4
Cooling capacity (2)	**[kW]**	**65,5**	**77,6**	**87**	**103**	**91,3**
Total power input (2)	[kW]	17,6	19,8	23,9	28,1	23,6
EER - Energy Efficiency Ratio (2)	[-]	3,72	3,92	3,64	3,67	3,87
Condenser water flow (2)	[m^3/h]	14,3	16,8	19,1	22,6	19,8
Condenser circuit pressure drop (2)	[kPa]	45,7	46,2	57,3	50,1	45,0
Evaporator water flow (2)	[m^3/h]	11,3	13,4	15,0	17,8	15,7
Evaporator circuit pressure drop (2)	[kPa]	23,7	25,5	30,4	28,3	24,3

Reefrigerant circuit						
Refrigerant / $GWP_{(100Y)}$	-	R290 / 0,02				
Charge of refrigerant - Base unit	[kg]	4,3	4,5	5,8	7,1	4,2 (x2)
Independent refrigerant circuits	[n°]	1				2
Compressors type / quantity	-	Semi-hermetic pistons / 1				Semi-hermetic pistons / 2
Steps of capacity for each compressor (std)	-	2 (75 - 50%)	3 (83 - 67 - 50%)	3 (83 - 67 - 50%)	3 (83 - 67 - 50%)	2 (75 - 50%)
Expansion valve type	-	Electronic				

Desuperheater (option) - P BP//DS/BP/*S**						
Heating capacity (3)	**[kW]**	**8,77**	**10,3**	**12,2**	**14,7**	**12,5**
Water flow (3)	[m^3/h]	1,50	1,79	2,11	2,55	2,15
User circuit pressure drop (3)	[kPa]	2,7	2,9	2,8	3,0	4,2

Electrical data						
Power supply (main - gas detector)	-	400/3+N/50 - 230/1/50				
Maximum power input	[kW]	25,2	31,8	36,6	44,2	32,6
Maximum absorbed current - MRA	[A]	42,8	53,9	61,0	74,6	60,4
Locked rotor current – LRA	[A]	145	145	159	189	137

Water connections						
Condenser side (nominal external diameter)	[inch/DN]	1" 1/2 (DN 40)	2" (DN 50)	2" (DN 50)	2" (DN 50)	2" (DN 50)
Evaporator side (nominal external diameter)	[inch/DN]	1" 1/2 (DN 40)	1" 1/2 (DN 40)	2" (DN 50)	2" (DN 50)	2" (DN 50)

Dimensions & weights (P BP/ST/AS/BP/*S version)						
Lenght	[mm]	1646	1646	1646	1646	2066
Width	[mm]	800	800	800	800	1200
Height	[mm]	1800	1800	1800	1800	1950
Shipping weight	[kg]	720	750	810	845	1045
Operating weight	[kg]	727	757	817	852	1055

Noise levels						
Total sound power (ST version)	[db(A)]	82	82	84	84	81
Total sound pressure (ST version) - at 1 m distance	[db(A)]	74	74	76	76	73
Total sound pressure (ST version) - at 10 m distance	[db(A)]	54	54	56	56	53
Total sound power (LN version)	[db(A)]	80	80	82	82	79
Total sound pressure (LN version) - at 1 m distance	[db(A)]	72	72	74	74	71
Total sound pressure (LN version) - at 10 m distance	[db(A)]	52	52	54	54	51
Total sound power (SL version)	[db(A)]	78	78	80	80	77
Total sound pressure (SL version) - at 1 m distance	[db(A)]	70	70	72	72	69
Total sound pressure (SL version) - at 10 m distance	[db(A)]	50	50	52	52	49

Reference conditions:

(1) Condenser fluid temperature IN/OUT = 40/45 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 10/7 °C - Evaporator Fluid: water - Results according to UNI EN 14511-2022

(2) Condenser fluid temperature IN/OUT = 30/35 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 12/7 °C - Evaporator Fluid: water - Results according to UNI EN 14511-2022

(3) Condenser fluid temperature IN/OUT = 30/35 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 12/7 °C - Evaporator Fluid: water - Desuperheater water temperature IN/OUT = 40/45 °C - Results according to UNI EN 14511-2022

HYDRA

Technical data

HYDRA R290 range		110-2-2	130-2-2	155-2-2	190-2-2	220-2-2
P BP//AS/BP/*S version**						
Heating capacity (1)	**[kW]**	**128**	**161**	**181**	**215**	**253**
Total power input (1)	[kW]	31,3	41,2	45,4	55,2	65,9
COP - Coefficient Of Performance (1)	[-]	4,09	3,91	3,99	3,89	3,84
Condenser water flow (1)	[m^3/h]	22,1	27,9	31,4	37,3	43,9
Condenser circuit pressure drop (1)	[kPa]	38,4	50,3	53,2	31,3	31,1
Evaporator water flow (1)	[m^3/h]	27,8	34,7	39,4	46,4	54,3
Evaporator circuit pressure drop (1)	[kPa]	57,7	64,8	73,9	81,9	101,3
Applications for seasonal efficiency for heating according to Commission Regulation (EU) No 813/2013 - Low Temperature - Average Climate						
SCOP	[-]	6,026	5,869	5,990	5,816	5,764
$\eta_{s,h}$	[%]	233,1	226,7	231,6	224,7	222,6
Applications for seasonal efficiency for heating according to Commission Regulation (EU) No 813/2013 - Medium Temperature - Average Climate						
SCOP	[-]	4,779	4,649	4,737	4,580	4,554
$\eta_{s,h}$	[%]	183,2	178,0	181,5	175,2	174,2
Cooling capacity (2)	**[kW]**	**109**	**132**	**156**	**177**	**208**
Total power input (2)	[kW]	27,3	35,2	39,9	47,6	56,2
EER - Energy Efficiency Ratio (2)	[-]	3,99	3,75	3,91	3,72	3,70
Condenser water flow (2)	[m^3/h]	23,5	28,7	33,6	38,7	45,5
Condenser circuit pressure drop (2)	[kPa]	44,7	55,2	62,6	34,8	34,6
Evaporator water flow (2)	[m^3/h]	18,8	22,7	26,5	30,5	35,8
Evaporator circuit pressure drop (2)	[kPa]	28,5	30,1	36,9	38,5	47,9

Reefrigerant circuit						
Refrigerant / $GWP_{(100Y)}$	-	R290 / 0,02				
Charge of refrigerant - Base unit	[kg]	5,2 (x2)	6,2 (x2)	7,3 (x2)	7,0 (x2)	8,0 (x2)
Independent refrigerant circuits	[n°]	2				
Compressors type / quantity	-	Semi-hermetic pistons / 2				
Steps of capacity for each compressor (std)	-	2 (75 - 50%)	2 (75 - 50%)	3 (83 - 67 - 50%)	3 (83 - 67 - 50%)	3 (83 - 67 - 50%)
Expansion valve type	-	Electronic				

Desuperheater (option) - P BP//DS/BP/*S**						
Heating capacity (3)	**[kW]**	**13,4**	**17,1**	**19,2**	**24,2**	**29,9**
Water flow (3)	[m^3/h]	2,32	2,97	3,34	4,20	5,15
User circuit pressure drop (3)	[kPa]	4,5	4,5	4,7	4,8	5,0

Electrical data						
Power supply (main - gas detector)	-	400/3+N/50 - 230/1/50				
Maximum power input	[kW]	40,4	50,4	63,6	73,2	88,4
Maximum absorbed current - MRA	[A]	84,0	85,6	108	122	149
Locked rotor current – LRA	[A]	167	187	198	220	263

Water connections						
Condenser side (nominal external diameter)	[inch/DN]	2" (DN 50)	2" (DN 50)	2" (DN 50)	3" (DN 80)	3" (DN 80)
Evaporator side (nominal external diameter)	[inch/DN]	2" (DN 50)	2" (DN 50)	2" (DN 50)	3" (DN 80)	3" (DN 80)

Dimensions & weights (P BP/ST/AS/BP/*S version)						
Lenght	[mm]	2066	2066	2066	2066	2066
Width	[mm]	1200	1200	1200	1200	1200
Height	[mm]	1950	1950	1950	1950	1950
Shipping weight	[kg]	1145	1180	1225	1345	1370
Operating weight	[kg]	1155	1190	1235	1355	1380

Noise levels						
Total sound power (ST version)	[db(A)]	81	85	85	87	87
Total sound pressure (ST version) - at 1 m distance	[db(A)]	73	77	77	79	79
Total sound pressure (ST version) - at 10 m distance	[db(A)]	53	57	57	59	59
Total sound power (LN version)	[db(A)]	79	83	83	85	85
Total sound pressure (LN version) - at 1 m distance	[db(A)]	71	75	75	77	77
Total sound pressure (LN version) - at 10 m distance	[db(A)]	51	55	55	57	57
Total sound power (SL version)	[db(A)]	77	81	81	83	83
Total sound pressure (SL version) - at 1 m distance	[db(A)]	69	73	73	75	75
Total sound pressure (SL version) - at 10 m distance	[db(A)]	49	53	53	55	55

Reference conditions:

(1) Condenser fluid temperature IN/OUT = 40/45 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 10/7 °C - Evaporator Fluid: water - Results according to UNI EN 14511-2022

(2) Condenser fluid temperature IN/OUT = 30/35 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 12/7 °C - Evaporator Fluid: water - Results according to UNI EN 14511-2022

(3) Condenser fluid temperature IN/OUT = 30/35 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 12/7 °C - Evaporator Fluid: water - Desuperheater water temperature IN/OUT = 40/45 °C - Results according to UNI EN 14511-2022

HYDRA

Technical data

HYDRA R290 range		15-1-1	25-1-1	35-1-1	45-1-1	55-1-1
P BP//AS/BP/II version**						
Heating capacity (1)	**[kW]**	**19,3**	**23,6**	**36,9**	**47,5**	**67,5**
Total power input (1)	[kW]	5,26	5,64	9,79	12,3	17,8
COP - Coefficient Of Performance (1)	[-]	3,67	4,18	3,77	3,86	3,79
Condenser water flow (1)	[m^3/h]	3,34	4,09	6,39	8,23	11,70
Condenser circuit pressure drop (1)	[kPa]	44,3	31,9	50,5	24,3	44,9
Evaporator water flow (1)	[m^3/h]	4,07	5,20	7,86	10,20	14,40
Evaporator circuit pressure drop (1)	[kPa]	49,1	37,9	47,9	45,5	50,4
Applications for seasonal efficiency for heating according to Commission Regulation (EU) No 813/2013 - Low Temperature - Average Climate						
SCOP	[-]	4,955	6,187	5,720	5,675	5,416
$\eta_{s,h}$	[%]	190,2	239,5	220,8	219,0	208,6
Applications for seasonal efficiency for heating according to Commission Regulation (EU) No 813/2013 - Medium Temperature - Average Climate						
SCOP	[-]	4,061	4,766	4,346	4,327	4,237
$\eta_{s,h}$	[%]	154,4	182,6	165,9	165,1	161,5
Cooling capacity (2)	**[kW]**	**15,7**	**20,7**	**30,7**	**39,5**	**56,0**
Total power input (2)	[kW]	4,64	4,89	8,32	10,4	15,8
EER - Energy Efficiency Ratio (2)	[-]	3,38	4,23	3,69	3,80	3,54
Condenser water flow (2)	[m^3/h]	3,50	4,40	6,71	8,60	12,30
Condenser circuit pressure drop (2)	[kPa]	50,1	37,9	57,4	27,3	51,4
Evaporator water flow (2)	[m^3/h]	2,71	3,56	5,29	6,80	9,64
Evaporator circuit pressure drop (2)	[kPa]	23,6	19,2	23,5	22,1	24,5

Reefrigerant circuit						
Refrigerant / $GWP_{(100Y)}$	-	R290 / 0,02				
Charge of refrigerant - Base unit	[kg]	1,1	1,4	1,7	2,5	3,8
Independent refrigerant circuits	[n°]	1				
Compressors type / quantity	-	Semi-hermetic pistons / 1				
Type of capacity control	-	VFD				
Expansion valve type	-	Electronic				

Desuperheater (option) - P BP//DS/BP/II**						
Heating capacity (3)	**[kW]**	**2,41**	**2,34**	**3,91**	**5,38**	**8,2**
Water flow (3)	[m^3/h]	0,42	0,41	0,68	0,94	1,42
User circuit pressure drop (3)	[kPa]	3,8	1,6	2,4	2,2	3,3

Electrical data						
Power supply (main - gas detector)	-	400/3+N/50 - 230/1/50				
Maximum power input	[kW]	5,7	6,2	10,9	12,9	16,3
Maximum absorbed current - MRA	[A]	10,7	10,8	18,9	21,6	30,2
Locked rotor current – LRA	[A]	10,7	10,8	18,9	21,6	30,2

Water connections						
Condenser side (nominal external diameter)	[inch/DN]	1" (DN 25)	1" (DN 25)	1" (DN 25)	1" 1/2 (DN 40)	1" 1/2 (DN 40)
Evaporator side (nominal external diameter)	[inch/DN]	1" (DN 25)	1" (DN 25)	1" (DN 25)	1" 1/2 (DN 40)	1" 1/2 (DN 40)

Dimensions & weights (P BP/ST/AS/BP/II version)						
Lenght	[mm]	1211	1211	1211	1646	1646
Width	[mm]	800	800	800	800	800
Height	[mm]	1600	1600	1600	1800	1800
Shipping weight	[kg]	460	470	515	635	710
Operating weight	[kg]	465	475	520	640	717

Noise levels						
Total sound power (ST version)	[db(A)]	69	74	74	78	78
Total sound pressure (ST version) - at 1 m distance	[db(A)]	61	66	66	70	70
Total sound pressure (ST version) - at 10 m distance	[db(A)]	41	46	46	50	50
Total sound power (LN version)	[db(A)]	67	72	72	76	76
Total sound pressure (LN version) - at 1 m distance	[db(A)]	59	64	64	68	68
Total sound pressure (LN version) - at 10 m distance	[db(A)]	39	44	44	48	48
Total sound power (SL version)	[db(A)]	65	70	70	74	74
Total sound pressure (SL version) - at 1 m distance	[db(A)]	57	62	62	66	66
Total sound pressure (SL version) - at 10 m distance	[db(A)]	37	42	42	46	46

Reference conditions:

(1) Condenser fluid temperature IN/OUT = 40/45 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 10/7 °C - Evaporator Fluid: water - Results according to UNI EN 14511-2022

(2) Condenser fluid temperature IN/OUT = 30/35 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 12/7 °C - Evaporator Fluid: water - Results according to UNI EN 14511-202

(3) Condenser fluid temperature IN/OUT = 30/35 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 12/7 °C - Evaporator Fluid: water - Desuperheater water temperature IN/OUT = 40/45 °C - Results according to UNI EN 14511-2022

HYDRA

Technical data

HYDRA R290 range		65-1-1	75-1-1	90-1-1	110-1-1	90-2-2
P BP//AS/BP/II version**						
Heating capacity (1)	**[kW]**	**78,9**	**99,3**	**110,0**	**133**	**95,9**
Total power input (1)	[kW]	20,6	27,0	29,9	36,0	24,7
COP - Coefficient Of Performance (1)	[-]	3,83	3,68	3,68	3,69	3,88
Condenser water flow (1)	[m^3/h]	13,7	17,2	19,0	23,0	16,6
Condenser circuit pressure drop (1)	[kPa]	40,6	46,4	55,1	49,7	31,7
Evaporator water flow (1)	[m^3/h]	16,90	21,0	23,3	28,0	20,6
Evaporator circuit pressure drop (1)	[kPa]	49,0	57,0	67,2	64,2	39,5
Applications for seasonal efficiency for heating according to Commission Regulation (EU) No 813/2013 - Low Temperature - Average Climate						
SCOP	[-]	5,939	5,296	5,320	5,300	5,968
$\eta_{s,h}$	[%]	229,6	203,9	204,8	204,0	230,7
Applications for seasonal efficiency for heating according to Commission Regulation (EU) No 813/2013 - Medium Temperature - Average Climate						
SCOP	[-]	4,681	4,171	4,207	4,161	4,566
$\eta_{s,h}$	[%]	179,2	158,8	160,3	158,4	174,7
Cooling capacity (2)	**[kW]**	**66,3**	**79,5**	**91,9**	**107**	**80,1**
Total power input (2)	[kW]	18,1	23,1	26,4	31,2	20,9
EER - Energy Efficiency Ratio (2)	[-]	3,66	3,44	3,48	3,43	3,83
Condenser water flow (2)	[m^3/h]	14,5	17,6	20,3	23,7	17,4
Condenser circuit pressure drop (2)	[kPa]	47,0	50,7	64,4	54,7	35,8
Evaporator water flow (2)	[m^3/h]	11,4	13,7	15,8	18,4	13,8
Evaporator circuit pressure drop (2)	[kPa]	24,3	26,6	33,5	30,0	19,2

Reefrigerant circuit						
Refrigerant / $GWP_{(100Y)}$	-	R290 / 0,02				
Charge of refrigerant - Base unit	[kg]	4,3	4,5	5,8	7,1	4,2 (x2)
Independent refrigerant circuits	[n°]	1				2
Compressors type / quantity	-	Semi-hermetic pistons / 1				Semi-hermetic pistons / 2
Type of capacity control	-	VFD				
Expansion valve type	-	Electronic				

Desuperheater (option) - P BP//DS/BP/II**						
Heating capacity (3)	**[kW]**	**8,99**	**12,5**	**13,5**	**16,8**	**11,1**
Water flow (3)	[m^3/h]	1,55	2,16	2,34	2,89	1,93
User circuit pressure drop (3)	[kPa]	2,8	4,1	3,4	3,7	3,5

Electrical data						
Power supply (main - gas detector)	-	400/3+N/50 - 230/1/50				
Maximum power input	[kW]	24,8	24,7	31,9	36,6	25,8
Maximum absorbed current - MRA	[A]	42,0	42,8	53,9	61,0	43,2
Locked rotor current – LRA	[A]	42,0	42,8	53,9	61,0	43,2

Water connections						
Condenser side (nominal external diameter)	[inch/DN]	1" 1/2 (DN 40)	2" (DN 50)	2" (DN 50)	2" (DN 50)	2" (DN 50)
Evaporator side (nominal external diameter)	[inch/DN]	1" 1/2 (DN 40)	1" 1/2 (DN 40)	2" (DN 50)	2" (DN 50)	2" (DN 50)

Dimensions & weights (P BP/ST/AS/BP/II version)						
Lenght	[mm]	1646	1646	1646	1646	2066
Width	[mm]	800	800	800	800	1200
Height	[mm]	1800	1800	1800	1800	1950
Shipping weight	[kg]	720	750	810	845	1045
Operating weight	[kg]	727	757	817	852	1055

Noise levels (3)						
Total sound power (ST version)	[db(A)]	82	82	84	84	81
Total sound pressure (ST version) - at 1 m distance	[db(A)]	74	74	76	76	73
Total sound pressure (ST version) - at 10 m distance	[db(A)]	54	54	56	56	53
Total sound power (LN version)	[db(A)]	80	80	82	82	79
Total sound pressure (LN version) - at 1 m distance	[db(A)]	72	72	74	74	71
Total sound pressure (LN version) - at 10 m distance	[db(A)]	52	52	54	54	51
Total sound power (SL version)	[db(A)]	78	78	80	80	77
Total sound pressure (SL version) - at 1 m distance	[db(A)]	70	70	72	72	69
Total sound pressure (SL version) - at 10 m distance	[db(A)]	50	50	52	52	49

Reference conditions:

(1) Condenser fluid temperature IN/OUT = 40/45 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 10/7 °C - Evaporator Fluid: water - Results according to UNI EN 14511-2022

(2) Condenser fluid temperature IN/OUT = 30/35 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 12/7 °C - Evaporator Fluid: water - Results according to UNI EN 14511-2022

(3) Condenser fluid temperature IN/OUT = 30/35 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 12/7 °C - Evaporator Fluid: water - Desuperheater water temperature IN/OUT = 40/45 °C - Results according to UNI EN 14511-2022

HYDRA

Technical data

HYDRA R290 range		110-2-2	130-2-2	155-2-2	190-2-2	220-2-2
P BP//AS/BP/II version**						
Heating capacity (1)	**[kW]**	**135**	**159**	**199**	**225**	**267**
Total power input (1)	[kW]	35,4	41,3	54,3	59,8	72,6
COP - Coefficient Of Performance (1)	[-]	3,81	3,85	3,66	3,76	3,68
Condenser water flow (1)	[m^3/h]	23,4	27,5	34,5	39,0	46,2
Condenser circuit pressure drop (1)	[kPa]	42,7	49,0	62,9	33,9	34,3
Evaporator water flow (1)	[m^3/h]	28,9	34,0	42,1	47,8	56,4
Evaporator circuit pressure drop (1)	[kPa]	61,8	62,3	83,0	86,5	108,5
Applications for seasonal efficiency for heating according to Commission Regulation (EU) No 813/2013 - Low Temperature - Average Climate						
SCOP	[-]	5,696	6,163	5,483	5,647	5,521
$\eta_{s,h}$	[%]	219,8	238,5	211,3	217,9	212,9
Applications for seasonal efficiency for heating according to Commission Regulation (EU) No 813/2013 - Medium Temperature - Average Climate						
SCOP	[-]	4,466	4,898	4,362	4,462	4,358
$\eta_{s,h}$	[%]	170,6	187,9	166,5	170,5	166,3
Cooling capacity (2)	**[kW]**	**112**	**134**	**160**	**187**	**215**
Total power input (2)	[kW]	31,2	36,2	46,5	52,5	62,4
EER - Energy Efficiency Ratio (2)	[-]	3,59	3,70	3,44	3,56	3,45
Condenser water flow (2)	[m^3/h]	24,7	29,2	35,4	41,3	47,8
Condenser circuit pressure drop (2)	[kPa]	48,9	56,8	68,6	39,1	37,8
Evaporator water flow (2)	[m^3/h]	19,3	23,0	27,5	32,3	37,0
Evaporator circuit pressure drop (2)	[kPa]	29,9	30,8	38,5	42,6	50,8

Reefrigerant circuit						
Refrigerant / $GWP_{(100Y)}$	-	R290 / 0,02				
Charge of refrigerant - Base unit	[kg]	5,2 (x2)	6,2 (x2)	7,3 (x2)	7,0 (x2)	8,0 (x2)
Independent refrigerant circuits	[n°]	2				
Compressors type / quantity	-	Semi-hermetic pistons / 2				
Type of capacity control	-	VFD				
Expansion valve type	-	Electronic				

Desuperheater (option) - P BP//DS/BP/II**						
Heating capacity (3)	**[kW]**	**15,9**	**17,6**	**23,5**	**26,8**	**33,6**
Water flow (3)	[m^3/h]	2,77	3,06	4,08	4,66	5,81
User circuit pressure drop (3)	[kPa]	6,1	4,8	6,7	5,8	6,2

Electrical data						
Power supply (main - gas detector)	-	400/3+N/50 - 230/1/50				
Maximum power input	[kW]	32,6	49,6	49,4	63,8	73,2
Maximum absorbed current - MRA	[A]	60,4	84,0	85,6	107,8	122,0
Locked rotor current – LRA	[A]	60,4	84,0	85,6	107,8	122,0

Water connections						
Condenser side (nominal external diameter)	[inch/DN]	2" (DN 50)	2" (DN 50)	2" (DN 50)	3" (DN 80)	3" (DN 80)
Evaporator side (nominal external diameter)	[inch/DN]	2" (DN 50)	2" (DN 50)	2" (DN 50)	3" (DN 80)	3" (DN 80)

Dimensions & weights (P BP/ST/AS/BP/II version)						
Lenght	[mm]	2066	2066	2066	2066	2066
Width	[mm]	1200	1200	1200	1200	1200
Height	[mm]	1950	1950	1950	1950	1950
Shipping weight	[kg]	1145	1180	1225	1345	1370
Operating weight	[kg]	1155	1190	1235	1355	1380

Noise levels						
Total sound power (ST version)	[db(A)]	81	85	85	87	87
Total sound pressure (ST version) - at 1 m distance	[db(A)]	73	77	77	79	79
Total sound pressure (ST version) - at 10 m distance	[db(A)]	53	57	57	59	59
Total sound power (LN version)	[db(A)]	79	83	83	85	85
Total sound pressure (LN version) - at 1 m distance	[db(A)]	71	75	75	77	77
Total sound pressure (LN version) - at 10 m distance	[db(A)]	51	55	55	57	57
Total sound power (SL version)	[db(A)]	77	81	81	83	83
Total sound pressure (SL version) - at 1 m distance	[db(A)]	69	73	73	75	75
Total sound pressure (SL version) - at 10 m distance	[db(A)]	49	53	53	55	55

Reference conditions:

(1) Condenser fluid temperature IN/OUT = 40/45 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 10/7 °C - Evaporator Fluid: water - Results according to UNI EN 14511-2022

(2) Condenser fluid temperature IN/OUT = 30/35 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 12/7 °C - Evaporator Fluid: water - Results according to UNI EN 14511-2022

(3) Condenser fluid temperature IN/OUT = 30/35 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 12/7 °C - Evaporator Fluid: water - Desuperheater water temperature IN/OUT = 40/45 °C - Results according to UNI EN 14511-2022

HYDRA HT

30-1-1 ⟷ 230-2-2

R290 Refrigerant R290 | GWP=3

Brazed plate heat exchanger

Semi-hermetic piston compressor

Reversible heat pump

SCOP

Water to water heat pumps with reciprocating compressors for comfort applications up to 75 °C



Solution
B - Base

Sound version
ST - Standard
LN - Low Noise
SL - Super Low Noise

Equipment
AS - Standard equipment
DS - Desuperheater

Heating capacity 36,2 - 283 kW
Cooling capacity 30,3 - 240 kW

Safety system	To ensure a high level of safety throughout the useful life of the selected propane unit, special measures have been introduced that make this product unique. In fact, the refrigeration circuit is watertight and sufficiently robust, the pipes have been designed to have few joints and welds and all the materials used are compatible with the R290 refrigerant (propane). The electrical panel is installed in a separate compartment and some of the most important components are ATEX certified. In addition, the unit is equipped with a refrigerant gas leak detector and with a centrifugal suction expulsion fan, both ATEX certified.
Refrigerant charge	Maximum allowable charge of Refrigerating systems and heat pumps should be evaluated according to EN378:2016 that is a safety and environmental standard published by CEN that provides guidance for Design, Construction, Installation, Operation and Maintenance of Refrigerating systems and heat pumps.
Structure	Structure specifically designed and built to guarantee total resistance to atmospheric agents and corrosion. Basement and panels made of galvanized steel sheet, oven-painted with polyurethane powders. Frame made of anodized aluminium profiles, with aluminium alloy corner joints that guarantee excellent mechanical resistance and low weight. LN (Low Noise) version: the panels are internally lined with sound-absorbing material. SL (Super Low Noise) version: the panels are sandwich and insulated with rock wool.
Compressor	Reciprocating semi-hermetic type compressor equipped with: electronic control module and protection of the electric motor (installed inside the electrical panel); oil charge; oil level sight glass and oil crankcase heater; anti-vibration rubber supports; anti-vibration pipes (suction and discharge); suction and discharge valves. The compressor can be supplied with one or more RSH capacity control heads to guarantee an adaptation of the cooling capacity in case of thermal load's reduction: please see the list of accessories for further information.
Water heat exchangers	Brazed plate-type heat exchangers, stainless steel AISI 316 made, complete with water differential pressure switch, air vent valve and thermally insulated with closed-cell neoprene anti-condensate material. The heat exchangers design provides high thermal exchange and high performance results, furthermore it guarantees small dimensions and easy installation and maintenance.
Electrical board	Each unit is equipped with electric panel, built, wired and fully tested at the factory. Wiring numeration and optimized layout facilitate troubleshooting. The installed components are identified by nameplates to better identify the application and the type of action. Switchboard is made according to standards IEC 204-1/EN60204-1 and it is complete with the following main components: - Main isolator switch - Door interlock safety device - Contactor and protection for compressor and fans - Cabinet minimum protection rating IP54. To ensure higher level of security, the cabinet is outside the machine and positioned on one side of the unit. The propane sensor is equipped with separate power supply: this power supply must always be guaranteed in order to ensure the monitoring of any leakage.
Control	The programmable electronic microprocessor control system allows you to automatically adjust the thermal or cooling power supplied by the unit and to manage malfunction alarms. Thanks to a multitasking operating system and the adoption of standard, local and remote connectivity protocols, the selected controller is a powerful control system that can be easily interfaced with the most common Building Management Systems (BMS) on the market.
Refrigerant circuit	Filter drier, moisture-liquid sight glass, electronic expansion valve, high & low pressure gauge, high and low pressure transducers, high pressure switch, safety high pressure valve (when required by EN 378-2016 standard).
Water circuit	**Base version:** as interface to the plant, includes the water fittings of the evaporator only.

MAIN ACCESSORIES

- Anti-vibration rubber/bell mounts
- Stainless steel panels (AISI 304)
- Double safety valve with changeover valve
- Electronic flow switch hydraulic circuit - Evaporator
- Flanges and counter-flanges for water fittings
- Hydraulic circuit pipes in stainless steel
- Water filter
- Double gas detector with separate electrical supply
- Energy meter for measuring the electric energy consumed
- Cloud GATE" device for monitoring and remote management
- UNIT COLLECT - Cascade unit management system

HYDRA HT

Technical data

HYDRA HT R290 range		30-1-1	40-1-1	50-1-1	70-1-1	95-1-1
P BP//AS/BP/II version**						
Heating capacity (1)	**[kW]**	**36,2**	**44,4**	**65,8**	**93,5**	**118**
Total power input (1)	[kW]	10,6	12,8	18,8	27,3	34,8
COP - Coefficient Of Performance (1)	[-]	3,42	3,47	3,50	3,42	3,39
Condenser water flow (1)	[m^3/h]	6,26	7,68	11,4	16,2	20,5
Condenser circuit pressure drop (1)	[kPa]	45,8	43,9	53,9	72,0	58,2
Evaporator water flow (1)	[m^3/h]	7,44	9,20	13,7	19,4	24,4
Evaporator circuit pressure drop (1)	[kPa]	85,6	90,9	107	120	110
Applications for seasonal efficiency for heating according to Commission Regulation (EU) No 813/2013 - Low Temperature - Average Climate						
SCOP	[-]	5,431	5,522	5,624	5,483	5,432
$\eta_{s,h}$	[%]	209,2	212,9	217,0	211,3	209,3
Applications for seasonal efficiency for heating according to Commission Regulation (EU) No 813/2013 - Medium Temperature - Average Climate						
SCOP	[-]	4,295	4,360	4,446	4,365	4,321
$\eta_{s,h}$	[%]	163,8	166,4	169,9	166,6	164,8
Cooling capacity (2)	**[kW]**	**30,3**	**37,7**	**55,5**	**78,2**	**99,1**
Total power input (2)	[kW]	9,39	11,4	16,5	24,1	30,9
EER - Energy Efficiency Ratio (2)	[-]	3,23	3,31	3,36	3,24	3,21
Condenser water flow (2)	[m^3/h]	6,81	8,42	12,3	17,5	22,3
Condenser circuit pressure drop (2)	[kPa]	57,1	55,3	66,8	89,0	72,4
Evaporator water flow (2)	[m^3/h]	5,22	6,49	9,57	13,5	17,1
Evaporator circuit pressure drop (2)	[kPa]	48,6	52,0	60,1	67,0	62,4

Reefrigerant circuit						
Refrigerant / $GWP_{(100Y)}$	-	R290 / 0,02				
Charge of refrigerant - Base unit	[kg]	1,3	1,5	1,9	2,6	3,3
Independent refrigerant circuits	[n°]	1				
Compressors type / quantity	-	Semi-hermetic pistons / 1				
Type of capacity control	-	VFD				
Expansion valve type	-	Electronic				

Electrical data						
Power supply (main - gas detector)	-	400/3+N/50 - 230/1/50				
Maximum power input	[kW]	11,7	15,3	22,1	33,2	42,6
Maximum absorbed current - MRA	[A]	18,7	24,5	35,4	53,3	68,3
Locked rotor current – LRA	[A]	18,7	24,5	35,4	53,3	68,3

Water connections						
Condenser side (nominal external diameter)	[inch/DN]	1" (DN 25)	1" (DN 25)	1" 1/2 (DN 40)	1" 1/2 (DN 40)	1" 1/2 (DN 40)
Evaporator side (nominal external diameter)	[inch/DN]	1" (DN 25)	1" 1/2 (DN 40)	1" 1/2 (DN 40)	2" (DN 50)	2" (DN 50)

Dimensions & weights (P BP/ST/AS/BP/II version)						
Lenght	[mm]	1211	1211	1646	1646	1646
Width	[mm]	800	800	800	800	800
Height	[mm]	1600	1600	1800	1800	1800
Shipping weight	[kg]	515	535	710	750	810
Operating weight	[kg]	520	540	717	757	817

Noise levels						
Total sound power (ST version)	[db(A)]	74	78	78	82	84
Total sound pressure (ST version) - at 1 m distance	[db(A)]	66	70	70	74	76
Total sound pressure (ST version) - at 10 m distance	[db(A)]	46	50	50	54	56
Total sound power (LN version)	[db(A)]	72	76	76	80	82
Total sound pressure (LN version) - at 1 m distance	[db(A)]	64	68	68	72	74
Total sound pressure (LN version) - at 10 m distance	[db(A)]	44	48	48	52	54
Total sound power (SL version)	[db(A)]	70	74	74	78	80
Total sound pressure (SL version) - at 1 m distance	[db(A)]	62	66	66	70	72
Total sound pressure (SL version) - at 10 m distance	[db(A)]	42	46	46	50	52

Reference conditions:

(1) Condenser fluid temperature IN/OUT = 40/45 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 10/7 °C - Evaporator Fluid: water - Results according to UNI EN 14511-2022

(2) Condenser fluid temperature IN/OUT = 30/35 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 12/7 °C - Evaporator Fluid: water - Results according to UNI EN 14511-2022

(3) Condenser fluid temperature IN/OUT = 30/35 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 12/7 °C - Evaporator Fluid: water - Desuperheater water temperature IN/OUT = 40/45 °C - Results according to UNI EN 14511-2022

HYDRA HT

Technical data

HYDRA HT R290 range		115-1-1	105-2-2	150-2-2	195-2-2	230-2-2
P BP//AS/BP/II version**						
Heating capacity (1)	**[kW]**	**140**	**132**	**186**	**238**	**283**
Total power input (1)	[kW]	41,0	37,5	54,8	69,6	82,3
COP - Coefficient Of Performance (1)	[-]	3,41	3,52	3,39	3,42	3,44
Condenser water flow (1)	[m^3/h]	24,3	22,9	32,3	41,2	49,1
Condenser circuit pressure drop (1)	[kPa]	61,3	43,2	63,6	73,7	84,2
Evaporator water flow (1)	[m^3/h]	29,0	27,6	38,4	49,2	58,8
Evaporator circuit pressure drop (1)	[kPa]	111	104	122	121	135
Applications for seasonal efficiency for heating according to Commission Regulation (EU) No 813/2013 - Low Temperature - Average Climate						
SCOP	[-]	5,474	5,784	4,914	4,954	5,016
$\eta_{s,h}$	[%]	211,0	223,3	188,6	190,2	192,6
Applications for seasonal efficiency for heating according to Commission Regulation (EU) No 813/2013 - Medium Temperature - Average Climate						
SCOP	[-]	4,353	4,608	4,482	4,510	4,558
$\eta_{s,h}$	[%]	166,1	176,3	171,3	172,4	174,3
Cooling capacity (2)	**[kW]**	**118**	**112**	**156**	**200**	**240**
Total power input (2)	[kW]	36,4	33,2	48,6	61,8	73,0
EER - Energy Efficiency Ratio (2)	[-]	3,24	3,37	3,21	3,24	3,29
Condenser water flow (2)	[m^3/h]	26,4	24,9	35,1	44,9	53,5
Condenser circuit pressure drop (2)	[kPa]	76,3	53,8	79,1	91,9	105
Evaporator water flow (2)	[m^3/h]	20,3	19,3	26,9	34,5	41,2
Evaporator circuit pressure drop (2)	[kPa]	62,6	59,0	68,8	68,6	76,7

Reefrigerant circuit						
Refrigerant / $GWP_{(100Y)}$	-	R290 / 0,02				
Charge of refrigerant - Base unit	[kg]	4,2	5,1	5,9	9,8	12,1
Independent refrigerant circuits	[n°]	1	2			
Compressors type / quantity	-	Semi-hermetic pistons / 1	Semi-hermetic pistons / 2			
Type of capacity control	-	VFD				
Expansion valve type	-	Electronic				

Electrical data						
Power supply (main - gas detector)	-	400/3+N/50 - 230/1/50				
Maximum power input	[kW]	52,1	44,2	66,4	85,2	104
Maximum absorbed current - MRA	[A]	83,5	70,8	107	137	167
Locked rotor current – LRA	[A]	83,5	70,8	107	137	167

Water connections						
Condenser side (nominal external diameter)	[inch/DN]	2" (DN 50)	2" (DN 50)	3" (DN 80)	3" (DN 80)	3" (DN 80)
Evaporator side (nominal external diameter)	[inch/DN]	2" (DN 50)	2" (DN 50)	2" (DN 50)	3" (DN 80)	3" (DN 80)

Dimensions & weights (P BP/ST/AS/BP/II version)						
Lenght	[mm]	1646	2066	2066	2066	2066
Width	[mm]	800	1200	1200	1200	1200
Height	[mm]	1800	1950	1950	1950	1950
Shipping weight	[kg]	845	1145	1225	1345	1370
Operating weight	[kg]	852	1155	1235	1355	1380

Noise levels						
Total sound power (ST version)	[db(A)]	84	81	85	87	87
Total sound pressure (ST version) - at 1 m distance	[db(A)]	76	73	77	79	79
Total sound pressure (ST version) - at 10 m distance	[db(A)]	56	53	57	59	59
Total sound power (LN version)	[db(A)]	82	79	83	85	85
Total sound pressure (LN version) - at 1 m distance	[db(A)]	74	71	75	77	77
Total sound pressure (LN version) - at 10 m distance	[db(A)]	54	51	55	57	57
Total sound power (SL version)	[db(A)]	80	77	81	83	83
Total sound pressure (SL version) - at 1 m distance	[db(A)]	72	69	73	75	75
Total sound pressure (SL version) - at 10 m distance	[db(A)]	52	49	53	55	55

Reference conditions:

(1) Condenser fluid temperature IN/OUT = 40/45 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 10/7 °C - Evaporator Fluid: water - Results according to UNI EN 14511-2022

(2) Condenser fluid temperature IN/OUT = 30/35 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 12/7 °C - Evaporator Fluid: water - Results according to UNI EN 14511-2022

(3) Condenser fluid temperature IN/OUT = 30/35 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 12/7 °C - Evaporator Fluid: water - Desuperheater water temperature IN/OUT = 40/45 °C - Results according to UNI EN 14511-2022

HYDRA HT+

35-2-1 S ⟷ 220-4-2 S

R290 Refrigerant R290 | GWP=3

Brazed plate heat exchanger

Scroll Compressor

Reversible heat pump

SCOP

Water to water heat pumps with scroll compressors for comfort applications up to 75 °C



Solution

B - Base

Sound version

ST - Standard
LN - Low Noise
SL - Super Low Noise

Equipment

AS - Standard equipment
DS - Desuperheater

Heating capacity 39 - 244 kW
Cooling capacity 34 - 211 kW

Safety system	To ensure a high level of safety throughout the useful life of the selected propane unit, special measures have been introduced that make this product unique. In fact, the refrigeration circuit is watertight and sufficiently robust, the pipes have been designed to have few joints and welds and all the materials used are compatible with the R290 refrigerant (propane). The electrical panel is installed in a separate compartment and some of the most important components are ATEX certified. In addition, the unit is equipped with a refrigerant gas leak detector and with a centrifugal suction expulsion fan, both ATEX certified.
Refrigerant charge	Maximum allowable charge of Refrigerating systems and heat pumps should be evaluated according to EN378:2016 that is a safety and environmental standard published by CEN that provides guidance for Design, Construction, Installation, Operation and Maintenance of Refrigerating systems and heat pumps.
Structure	Structure specifically designed and built to guarantee total resistance to atmospheric agents and corrosion. Basement and panels made of galvanized steel sheet, oven-painted with polyurethane powders. Frame made of anodized aluminium profiles, with aluminium alloy corner joints that guarantee excellent mechanical resistance and low weight. LN (Low Noise) version: the panels are internally lined with sound-absorbing material. SL (Super Low Noise) version: the panels are sandwich and insulated with rock wool.
Compressor	Hermetic scroll compressor with specially designed and optimized orbiting spirals for use with the selected refrigerant. These latest generation compressors offer high energy performance. The electric motor, three-phase 2-pole, is cooled by the refrigerant gas coming from the suction side and is protected against any operating anomalies and excessive discharge temperature, with over-temperature devices and motor overcurrent and / or integral electronic protection. The compressor is fitted on rubber anti-vibration mountings in order to reduce vibrations towards the structure and facilitate installation. The compressor is supplied with dedicated lubricating oil charge for Propane and has a fully hermetic design, safe for flammable refrigerants (A3). These compressors guarantee a reduced level of sound emission, a limited inrush current and a high MTBF (Mean Time Before Failure - average time between failures). The electrical terminals of the motor are placed in a dedicated box realized with IP54 protection.
Water heat exchangers	Brazed plate-type heat exchangers, stainless steel AISI 316 made, complete with water differential pressure switch, air vent valve and thermally insulated with closed-cell neoprene anti-condensate material. The heat exchangers design provides high thermal exchange and high performance results, furthermore it guarantees small dimensions and easy installation and maintenance.
Electrical board	Each unit is equipped with electric panel, built, wired and fully tested at the factory. Wiring numeration and optimized layout facilitate troubleshooting. The installed components are identified by nameplates to better identify the application and the type of action. Switchboard is made according to standards IEC 204-1/EN60204-1 and it is complete with the following main components: - Main isolator switch - Door interlock safety device - Contactor and protection for compressor and fans - Cabinet minimum protection rating IP54. To ensure higher level of security, the cabinet is outside the machine and positioned on one side of the unit. The propane sensor is equipped with separate power supply: this power supply must always be guaranteed in order to ensure the monitoring of any leakage.
Control	The programmable electronic microprocessor control system allows you to automatically adjust the thermal or cooling power supplied by the unit and to manage malfunction alarms. Thanks to a multitasking operating system and the adoption of standard, local and remote connectivity protocols, the selected controller is a powerful control system that can be easily interfaced with the most common Building Management Systems (BMS) on the market.
Refrigerant circuit	Filter drier, moisture-liquid sight glass, electronic expansion valve, high & low pressure gauge, high and low pressure transducers, high pressure switch, safety high pressure valve (when required by EN 378-2016 standard).
Water circuit	**Base version:** as interface to the plant, includes the water fittings of the evaporator only.

MAIN ACCESSORIES

- Anti-vibration rubber/bell mounts
- Stainless steel panels (AISI 304)
- Double safety valve with changeover valve
- Electronic flow switch hydraulic circuit - Evaporator
- Flanges and counter-flanges for water fittings
- Hydraulic circuit pipes in stainless steel
- Water filter
- 1 VFD compressor per circuit
- Double gas detector with separate electrical supply
- Energy meter for measuring the electric energy consumed
- Cloud GATE" device for monitoring and remote management
- UNIT COLLECT - Cascade unit management system

HYDRA HT+

Technical data

HYDRA HT+ R290 range		35-2-1 S	40-2-1 S	45-2-1 S	65-2-1 S	85-2-1 S
P BP//AS/BP/OO version**						
Heating capacity (1)	**[kW]**	**38,9**	**43,7**	**49,1**	**74,0**	**94,4**
Total power input (1)	[kW]	9,86	11,0	12,2	18,8	24,0
COP - Coefficient Of Performance (1)	[-]	3,95	3,97	4,02	3,94	3,93
Condenser water flow (1)	[m^3/h]	6,7	7,6	8,5	12,8	16,4
Condenser circuit pressure drop (1)	[kPa]	48,0	42,7	41,0	56,4	51,8
Evaporator water flow (1)	[m^3/h]	8,5	9,5	10,7	16,1	20,4
Evaporator circuit pressure drop (1)	[kPa]	79,7	83,4	74,4	90,4	84,6
Applications for seasonal efficiency for heating according to Commission Regulation (EU) No 813/2013 - Low Temperature - Average Climate						
SCOP	[-]	5,325	5,392	5,481	5,406	5,543
$\eta_{s,h}$	[%]	205,0	207,7	211,3	208,2	213,7
Applications for seasonal efficiency for heating according to Commission Regulation (EU) No 813/2013 - Medium Temperature - Average Climate						
SCOP	[-]	4,432	4,473	4,522	4,504	4,530
$\eta_{s,h}$	[%]	169,3	170,9	172,9	172,1	173,2
Cooling capacity (2)	**[kW]**	**33,7**	**38,0**	**42,9**	**64,1**	**81,9**
Total power input (2)	[kW]	8,31	9,22	10,3	15,9	19,9
EER - Energy Efficiency Ratio (2)	[-]	4,06	4,12	4,17	4,03	4,12
Condenser water flow (2)	[m^3/h]	7,2	8,1	9,1	13,7	17,5
Condenser circuit pressure drop (2)	[kPa]	58,3	51,9	50,0	68,4	62,7
Evaporator water flow (2)	[m^3/h]	5,8	6,5	7,4	11,0	14,1
Evaporator circuit pressure drop (2)	[kPa]	43,8	45,7	40,9	49,5	46,9

Reefrigerant circuit						
Refrigerant / $GWP_{(100Y)}$	-	R290 / 0,02				
Charge of refrigerant - Base unit	[kg]	1,1	1,2	1,5	1,9	2,9
Independent refrigerant circuits	[n°]	1				
Compressors type / quantity	-	Scroll / 2				
Capacity steps	-	0% - 50% - 100%				
Expansion valve type	-	Electronic				

Desuperheater (option) - P BP//DS/BP/OO**						
Heating capacity (3)	**[kW]**	**3,71**	**4,04**	**4,42**	**7,08**	**9,45**
Water flow (3)	[m^3/h]	0,65	0,70	0,77	1,22	1,64
User circuit pressure drop (3)	[kPa]	4,5	4,7	5,2	5,4	4,4

Electrical data						
Power supply (main - gas detector)	-	400/3+N/50 - 230/1/50				
Maximum power input	[kW]	24,6	27,8	31,0	48,0	64,0
Maximum absorbed current - MRA	[A]	29,8	32,6	36,0	53,4	72,6
Locked rotor current – LRA	[A]	138	139	141	165	246

Water connections						
Condenser side (nominal external diameter)	[inch/DN]	1" 1/4 (DN 32)	1" 1/4 (DN 32)	1" 1/4 (DN 32)	1" 1/2 (DN 40)	2" (DN 50)
Evaporator side (nominal external diameter)	[inch/DN]	1" 1/4 (DN 32)	1" 1/4 (DN 32)	1" 1/2 (DN 40)	2" (DN 50)	2" (DN 50)

Dimensions & weights (P BP/ST/AS/BP/OO version)						
Lenght	[mm]	1211	1211	1646	1646	1646
Width	[mm]	800	800	800	800	800
Height	[mm]	1600	1600	1800	1800	1800
Shipping weight	[kg]	555	565	690	690	845
Operating weight	[kg]	560	570	697	697	852

Noise levels						
Total sound power (ST version)	[db(A)]	75	78	79	87	88
Total sound pressure (ST version) - at 1 m distance	[db(A)]	59	62	63	71	72
Total sound pressure (ST version) - at 10 m distance	[db(A)]	44	47	47	55	56
Total sound power (LN version)	[db(A)]	73	76	77	85	86
Total sound pressure (LN version) - at 1 m distance	[db(A)]	57	60	61	69	70
Total sound pressure (LN version) - at 10 m distance	[db(A)]	42	45	45	53	54
Total sound power (SL version)	[db(A)]	71	74	75	83	84
Total sound pressure (SL version) - at 1 m distance	[db(A)]	55	58	59	67	68
Total sound pressure (SL version) - at 10 m distance	[db(A)]	40	43	43	51	52

Reference conditions:

(1) Condenser fluid temperature IN/OUT = 40/45 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 10/7 °C - Evaporator Fluid: water - Results according to UNI EN 14511-2022

(2) Condenser fluid temperature IN/OUT = 30/35 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 12/7 °C - Evaporator Fluid: water - Results according to UNI EN 14511-2022

(3) Condenser fluid temperature IN/OUT = 30/35 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 12/7 °C - Evaporator Fluid: water - Desuperheater water temperature IN/OUT = 40/45 °C - Results according to UNI EN 14511-2022

HYDRA HT+

Technical data

HYDRA HT+ R290 range		110-2-1 S	90-4-2 S	135-4-2 S	175-4-2 S	220-4-2 S
P BP//AS/BP/OO version**						
Heating capacity (1)	**[kW]**	**121**	**97,6**	**147**	**189**	**243**
Total power input (1)	[kW]	30,9	24,8	38,0	47,8	62,2
COP - Coefficient Of Performance (1)	[-]	3,92	3,94	3,87	3,95	3,91
Condenser water flow (1)	[m^3/h]	21,0	16,9	25,5	32,7	42,1
Condenser circuit pressure drop (1)	[kPa]	48,9	38,1	50,6	58,3	69,9
Evaporator water flow (1)	[m^3/h]	26,3	21,2	31,8	41,0	52,6
Evaporator circuit pressure drop (1)	[kPa]	95,0	104	105	103	121
Applications for seasonal efficiency for heating according to Commission Regulation (EU) No 813/2013 - Low Temperature - Average Climate						
SCOP	[-]	5,509	5,798	5,795	6,053	5,993
$\eta_{s,h}$	[%]	212,3	223,9	223,8	234,1	231,7
Applications for seasonal efficiency for heating according to Commission Regulation (EU) No 813/2013 - Medium Temperature - Average Climate						
SCOP	[-]	4,522	4,636	4,643	4,757	4,738
$\eta_{s,h}$	[%]	172,9	177,5	177,7	182,3	181,5
Cooling capacity (2)	**[kW]**	**105**	**84,5**	**127**	**164**	**211**
Total power input (2)	[kW]	25,6	20,9	32,2	39,5	51,4
EER - Energy Efficiency Ratio (2)	[-]	4,10	4,04	3,94	4,15	4,11
Condenser water flow (2)	[m^3/h]	22,4	18,1	27,4	34,9	44,9
Condenser circuit pressure drop (2)	[kPa]	59,1	46,3	61,5	70,5	84,6
Evaporator water flow (2)	[m^3/h]	18,1	14,6	21,9	28,2	36,2
Evaporator circuit pressure drop (2)	[kPa]	52,4	57,1	57,9	57,0	67,0

Reefrigerant circuit						
Refrigerant / $GWP_{(100Y)}$	-	R290 / 0,02				
Charge of refrigerant - Base unit	[kg]	3,8	1,6 (x2)	2,3 (x2)	3,1 (x2)	4,2 (x2)
Independent refrigerant circuits	[n°]	1,0	2			
Compressors type / quantity	-	Scroll / 2	Scroll / 4			
Capacity steps	-	0% - 50% - 100%	0% - 25% - 50% - 75% - 100%			
Expansion valve type	-	Electronic				

Desuperheater (option) - P BP//DS/BP/OO**						
Heating capacity (3)	**[kW]**	**12,3**	**9,54**	**15,4**	**18,5**	**24,8**
Water flow (3)	[m^3/h]	2,15	1,66	2,68	3,22	4,31
User circuit pressure drop (3)	[kPa]	3,0	7,3	7,6	6,0	4,6

Electrical data						
Power supply (main - gas detector)	-	400/3+N/50 - 230/1/50				
Maximum power input	[kW]	78,0	62,0	96,0	128	156
Maximum absorbed current - MRA	[A]	96,8	72,0	107	145	194
Locked rotor current – LRA	[A]	322	177	218	319	419

Water connections						
Condenser side (nominal external diameter)	[inch/DN]	2" (DN 50)	2" (DN 50)	2 1/2" (DN 65)	2 1/2" (DN 65)	3" (DN 80)
Evaporator side (nominal external diameter)	[inch/DN]	2 1/2" (DN 65)	2" (DN 50)	2 1/2" (DN 65)	3" (DN 80)	3" (DN 80)

Dimensions & weights (P BP/ST/AS/BP/OO version)						
Lenght	[mm]	1646	2066	2066	2066	2066
Width	[mm]	800	1200	1200	1200	1200
Height	[mm]	1800	1950	1950	1950	1950
Shipping weight	[kg]	865	1105	1105	1405	1410
Operating weight	[kg]	872	1115	1115	1415	1420

Noise levels						
Total sound power (ST version)	[db(A)]	88	82	90	91	91
Total sound pressure (ST version) - at 1 m distance	[db(A)]	72	64	72	73	73
Total sound pressure (ST version) - at 10 m distance	[db(A)]	56	50	58	59	59
Total sound power (LN version)	[db(A)]	86	80	88	89	89
Total sound pressure (LN version) - at 1 m distance	[db(A)]	70	62	70	71	71
Total sound pressure (LN version) - at 10 m distance	[db(A)]	54	48	56	57	57
Total sound power (SL version)	[db(A)]	84	78	86	87	87
Total sound pressure (SL version) - at 1 m distance	[db(A)]	68	60	68	69	69
Total sound pressure (SL version) - at 10 m distance	[db(A)]	52	46	54	55	55

Reference conditions:

(1) Condenser fluid temperature IN/OUT = 40/45 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 10/7 °C - Evaporator Fluid: water - Results according to UNI EN 14511-2022

(2) Condenser fluid temperature IN/OUT = 30/35 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 12/7 °C - Evaporator Fluid: water - Results according to UNI EN 14511-2022

(3) Condenser fluid temperature IN/OUT = 30/35 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 12/7 °C - Evaporator Fluid: water - Desuperheater water temperature IN/OUT = 40/45 °C - Results according to UNI EN 14511-2022

HYDRA HT+

Technical data

HYDRA HT+ R290 range		35-2-1 S	40-2-1 S	45-2-1 S	65-2-1 S	85-2-1 S
P BP//AS/BP/OI version**						
Heating capacity (1)	**[kW]**	**38,9**	**44,3**	**49,3**	**74,6**	**94,2**
Total power input (1)	[kW]	9,89	11,2	12,2	19,0	24,1
COP - Coefficient Of Performance (1)	[-]	3,93	3,96	4,04	3,93	3,91
Condenser water flow (1)	[m^3/h]	6,7	7,7	8,5	12,9	16,3
Condenser circuit pressure drop (1)	[kPa]	48,0	43,5	41,3	57,0	51,6
Evaporator water flow (1)	[m^3/h]	8,4	9,6	10,8	16,2	20,4
Evaporator circuit pressure drop (1)	[kPa]	79,5	84,7	74,8	91,2	84,2
Applications for seasonal efficiency for heating according to Commission Regulation (EU) No 813/2013 - Low Temperature - Average Climate						
SCOP	[-]	5,591	5,880	5,839	5,893	5,712
$\eta_{s,h}$	[%]	215,6	227,2	225,6	227,7	220,5
Applications for seasonal efficiency for heating according to Commission Regulation (EU) No 813/2013 - Medium Temperature - Average Climate						
SCOP	[-]	4,676	4,713	4,787	4,771	4,319
$\eta_{s,h}$	[%]	179,0	180,5	183,5	182,8	164,7
Cooling capacity (2)	**[kW]**	**33,6**	**38,3**	**43,0**	**64,5**	**81,6**
Total power input (2)	[kW]	8,3	9,42	10,3	16,1	19,9
EER - Energy Efficiency Ratio (2)	[-]	4,05	4,07	4,17	4,01	4,10
Condenser water flow (2)	[m^3/h]	7,2	8,2	9,2	13,8	17,4
Condenser circuit pressure drop (2)	[kPa]	58,2	52,8	50,3	69,3	62,5
Evaporator water flow (2)	[m^3/h]	5,8	6,6	7,4	11,1	14,1
Evaporator circuit pressure drop (2)	[kPa]	43,6	46,5	41,1	50,0	46,6

Reefrigerant circuit						
Refrigerant / $GWP_{(100Y)}$	-	R290 / 0,02				
Charge of refrigerant - Base unit	[kg]	1,1	1,2	1,5	1,9	2,9
Independent refrigerant circuits	[n°]	1				
Compressors type / quantity	-	Scroll / 2				
Minimum capacity step	-	35,0%	31,0%	31,3%	23,2%	35,0%
Expansion valve type	-	Electronic				

Desuperheater (option) - P BP//DS/BP/OI**						
Heating capacity (3)	**[kW]**	**3,72**	**4,17**	**4,44**	**7,28**	**9,49**
Water flow (3)	[m^3/h]	0,65	0,72	0,77	1,26	1,65
User circuit pressure drop (3)	[kPa]	4,5	4,9	5,2	5,6	4,4

Electrical data						
Power supply (main - gas detector)	-	400/3+N/50 - 230/1/50				
Maximum power input	[kW]	24,6	26,2	29,4	39,5	64,0
Maximum absorbed current - MRA	[A]	29,8	31,2	34,3	44,7	72,6
Locked rotor current – LRA	[A]	138	138	139	156	246

Water connections						
Condenser side (nominal external diameter)	[inch/DN]	1" 1/4 (DN 32)	1" 1/4 (DN 32)	1" 1/4 (DN 32)	1" 1/2 (DN 40)	2" (DN 50)
Evaporator side (nominal external diameter)	[inch/DN]	1" 1/4 (DN 32)	1" 1/4 (DN 32)	1" 1/2 (DN 40)	2" (DN 50)	2" (DN 50)

Dimensions & weights (P BP/ST/AS/BP/OI version)						
Lenght	[mm]	1211	1211	1646	1646	1646
Width	[mm]	800	800	800	800	800
Height	[mm]	1600	1600	1800	1800	1800
Shipping weight	[kg]	560	570	700	700	865
Operating weight	[kg]	565	575	707	707	872

Noise levels						
Total sound power (ST version)	[db(A)]	75	78	79	87	88
Total sound pressure (ST version) - at 1 m distance	[db(A)]	59	62	63	71	72
Total sound pressure (ST version) - at 10 m distance	[db(A)]	44	47	47	55	56
Total sound power (LN version)	[db(A)]	73	76	77	85	86
Total sound pressure (LN version) - at 1 m distance	[db(A)]	57	60	61	69	70
Total sound pressure (LN version) - at 10 m distance	[db(A)]	42	45	45	53	54
Total sound power (SL version)	[db(A)]	71	74	75	83	84
Total sound pressure (SL version) - at 1 m distance	[db(A)]	55	58	59	67	68
Total sound pressure (SL version) - at 10 m distance	[db(A)]	40	43	43	51	52

Reference conditions:

(1) Condenser fluid temperature IN/OUT = 40/45 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 10/7 °C - Evaporator Fluid: water - Results according to UNI EN 14511-2022

(2) Condenser fluid temperature IN/OUT = 30/35 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 12/7 °C - Evaporator Fluid: water - Results according to UNI EN 14511-2022

(3) Condenser fluid temperature IN/OUT = 30/35 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 12/7 °C - Evaporator Fluid: water - Desuperheater water temperature IN/OUT = 40/45 °C - Results according to UNI EN 14511-2022

HYDRA HT+

Technical data

HYDRA HT+ R290 range		110-2-1 S	90-4-2 S	135-4-2 S	175-4-2 S	220-4-2 S
P BP//AS/BP/OI version**						
Heating capacity (1)	**[kW]**	**122**	**97,9**	**148**	**188**	**244**
Total power input (1)	[kW]	31,5	25,0	38,5	47,9	63,5
COP - Coefficient Of Performance (1)	[-]	3,87	3,92	3,84	3,92	3,84
Condenser water flow (1)	[m^3/h]	21,1	17,0	25,7	32,6	42,4
Condenser circuit pressure drop (1)	[kPa]	49,5	38,4	51,2	58,1	70,7
Evaporator water flow (1)	[m^3/h]	26,3	21,2	32,0	40,9	52,8
Evaporator circuit pressure drop (1)	[kPa]	95,5	104,5	105,7	102,5	121,8
Applications for seasonal efficiency for heating according to Commission Regulation (EU) No 813/2013 - Low Temperature - Average Climate						
SCOP	[-]	5,938	5,927	5,908	6,269	6,132
$\eta_{s,h}$	[%]	229,5	229,1	228,3	242,7	237,3
Applications for seasonal efficiency for heating according to Commission Regulation (EU) No 813/2013 - Medium Temperature - Average Climate						
SCOP	[-]	4,717	4,756	4,788	4,873	4,860
$\eta_{s,h}$	[%]	180,7	182,2	183,5	186,9	186,4
Cooling capacity (2)	**[kW]**	**105**	**84,8**	**128**	**164**	**211**
Total power input (2)	[kW]	26,2	21,1	32,7	39,5	52,6
EER - Energy Efficiency Ratio (2)	[-]	4,01	4,02	3,91	4,15	4,01
Condenser water flow (2)	[m^3/h]	22,5	18,2	27,6	34,8	45,2
Condenser circuit pressure drop (2)	[kPa]	59,7	46,6	62,2	70,3	85,5
Evaporator water flow (2)	[m^3/h]	18,1	14,6	22,0	28,1	36,3
Evaporator circuit pressure drop (2)	[kPa]	52,6	57,4	58,4	56,7	67,3

Reefrigerant circuit						
Refrigerant / $GWP_{(100Y)}$	-	R290 / 0,02				
Charge of refrigerant - Base unit	[kg]	3,8	1,6 (x2)	2,3 (x2)	3,1 (x2)	4,2 (x2)
Independent refrigerant circuits	[n°]	1	2			
Compressors type / quantity	-	Scroll / 2	Scroll / 4			
Minimum capacity step	-	27,1%	15,6%	11,6%	17,5%	13,6%
Expansion valve type	-	Electronic				

Desuperheater (option) - P BP//DS/BP/OI**						
Heating capacity (3)	**[kW]**	**12,9**	**9,61**	**15,8**	**18,6**	**25,9**
Water flow (3)	[m^3/h]	2,24	1,67	2,74	3,23	4,49
User circuit pressure drop (3)	[kPa]	3,2	7,4	7,9	6,1	4,9

Electrical data						
Power supply (main - gas detector)	-	400/3+N/50 - 230/1/50				
Maximum power input	[kW]	71,0	58,8	79,0	128	142
Maximum absorbed current - MRA	[A]	84,7	68,6	89,4	145	169
Locked rotor current – LRA	[A]	310	174	201	319	395

Water connections						
Condenser side (nominal external diameter)	[inch/DN]	2" (DN 50)	2" (DN 50)	2 1/2" (DN 65)	2 1/2" (DN 65)	3" (DN 80)
Evaporator side (nominal external diameter)	[inch/DN]	2 1/2" (DN 65)	2" (DN 50)	2 1/2" (DN 65)	3" (DN 80)	3" (DN 80)

Dimensions & weights (P BP/ST/AS/BP/OI version)						
Lenght	[mm]	1646	2066	2066	2066	2066
Width	[mm]	800	1200	1200	1200	1200
Height	[mm]	1800	1950	1950	1950	1950
Shipping weight	[kg]	885	1125	1125	1445	1445
Operating weight	[kg]	892	1135	1135	1455	1455

Noise levels						
Total sound power (ST version)	[db(A)]	88	82	90	91	91
Total sound pressure (ST version) - at 1 m distance	[db(A)]	72	64	72	73	73
Total sound pressure (ST version) - at 10 m distance	[db(A)]	56	50	58	59	59
Total sound power (LN version)	[db(A)]	86	80	88	89	89
Total sound pressure (LN version) - at 1 m distance	[db(A)]	70	62	70	71	71
Total sound pressure (LN version) - at 10 m distance	[db(A)]	54	48	56	57	57
Total sound power (SL version)	[db(A)]	84	78	86	87	87
Total sound pressure (SL version) - at 1 m distance	[db(A)]	68	60	68	69	69
Total sound pressure (SL version) - at 10 m distance	[db(A)]	52	46	54	55	55

Reference conditions:

(1) Condenser fluid temperature IN/OUT = 40/45 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 10/7 °C - Evaporator Fluid: water - Results according to UNI EN 14511-2022

(2) Condenser fluid temperature IN/OUT = 30/35 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 12/7 °C - Evaporator Fluid: water - Results according to UNI EN 14511-2022

(3) Condenser fluid temperature IN/OUT = 30/35 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 12/7 °C - Evaporator Fluid: water - Desuperheater water temperature IN/OUT = 40/45 °C - Results according to UNI EN 14511-2022

HYDRA HE+

35-2-1 S ⟷ 220-4-2 S

R290 Refrigerant R290 | GWP=3

Brazed plate heat exchanger

Scroll Compressor

SEER

Water to water chillers with scroll compressors for comfort applications



Solution

B - Base

Sound version

ST - Standard
LN - Low Noise
SL - Super Low Noise

Equipment

AS - Standard equipment
DS - Desuperheater

Cooling capacity 34 - 211 kW

Safety system	To ensure a high level of safety throughout the useful life of the selected propane unit, special measures have been introduced that make this product unique. In fact, the refrigeration circuit is watertight and sufficiently robust, the pipes have been designed to have few joints and welds and all the materials used are compatible with the R290 refrigerant (propane). The electrical panel is installed in a separate compartment and some of the most important components are ATEX certified. In addition, the unit is equipped with a refrigerant gas leak detector and with a centrifugal suction expulsion fan, both ATEX certified.
Refrigerant charge	Maximum allowable charge of Refrigerating systems and heat pumps should be evaluated according to EN378:2016 that is a safety and environmental standard published by CEN that provides guidance for Design, Construction, Installation, Operation and Maintenance of Refrigerating systems and heat pumps.
Structure	Structure specifically designed and built to guarantee total resistance to atmospheric agents and corrosion. Basement and panels made of galvanized steel sheet, oven-painted with polyurethane powders. Frame made of anodized aluminium profiles, with aluminium alloy corner joints that guarantee excellent mechanical resistance and low weight. LN (Low Noise) version: the panels are internally lined with sound-absorbing material. SL (Super Low Noise) version: the panels are sandwich and insulated with rock wool.
Compressor	Hermetic scroll compressor with specially designed and optimized orbiting spirals for use with the selected refrigerant. These latest generation compressors offer high energy performance. The electric motor, three-phase 2-pole, is cooled by the refrigerant gas coming from the suction side and is protected against any operating anomalies and excessive discharge temperature, with over-temperature devices and motor overcurrent and / or integral electronic protection. The compressor is fitted on rubber anti-vibration mountings in order to reduce vibrations towards the structure and facilitate installation. The compressor is supplied with dedicated lubricating oil charge for Propane and has a fully hermetic design, safe for flammable refrigerants (A3). These compressors guarantee a reduced level of sound emission, a limited inrush current and a high MTBF (Mean Time Before Failure - average time between failures). The electrical terminals of the motor are placed in a dedicated box realized with IP54 protection.
Water heat exchangers	Brazed plate-type heat exchangers, stainless steel AISI 316 made, complete with water differential pressure switch, air vent valve and thermally insulated with closed-cell neoprene anti-condensate material. The heat exchangers design provides high thermal exchange and high performance results, furthermore it guarantees small dimensions and easy installation and maintenance.
Electrical board	Each unit is equipped with electric panel, built, wired and fully tested at the factory. Wiring numeration and optimized layout facilitate troubleshooting. The installed components are identified by nameplates to better identify the application and the type of action. Switchboard is made according to standards IEC 204-1/EN60204-1 and it is complete with the following main components: - Main isolator switch - Door interlock safety device - Contactor and protection for compressor and fans - Cabinet minimum protection rating IP54. To ensure higher level of security, the cabinet is outside the machine and positioned on one side of the unit. The propane sensor is equipped with separate power supply: this power supply must always be guaranteed in order to ensure the monitoring of any leakage.
Control	The programmable electronic microprocessor control system allows you to automatically adjust the thermal or cooling power supplied by the unit and to manage malfunction alarms. Thanks to a multitasking operating system and the adoption of standard, local and remote connectivity protocols, the selected controller is a powerful control system that can be easily interfaced with the most common Building Management Systems (BMS) on the market.
Refrigerant circuit	Filter drier, moisture-liquid sight glass, electronic expansion valve, high & low pressure gauge, high and low pressure transducers, high pressure switch, safety high pressure valve (when required by EN 378-2016 standard).
Water circuit	**Base version:** as interface to the plant, includes the water fittings of the evaporator only.

MAIN ACCESSORIES

- Anti-vibration rubber/bell mounts
- Stainless steel panels (AISI 304)
- Double safety valve with changeover valve
- Electronic flow switch hydraulic circuit - Evaporator
- Flanges and counter-flanges for water fittings
- Hydraulic circuit pipes in stainless steel
- Water filter
- 1 VFD compressor per circuit
- Double gas detector with separate electrical supply
- Energy meter for measuring the electric energy consumed
- Cloud GATE" device for monitoring and remote management
- UNIT COLLECT - Cascade unit management system

HYDRA HE+

Technical data

HYDRA HE+ R290 range		35-2-1 S	40-2-1 S	45-2-1 S	65-2-1 S	85-2-1 S
W BP//AS/BP/OI version**						
Cooling capacity (1)	**[kW]**	**34,6**	**39,7**	**44,2**	**66,6**	**84,2**
Total power input (1)	[kW]	7,88	8,98	9,95	15,3	18,5
EER - Energy Efficiency Ratio (1)	[-]	4,39	4,42	4,44	4,35	4,55
Condenser water flow (1)	[m^3/h]	7,3	8,4	9,3	14,1	17,7
Condenser circuit pressure drop (1)	[kPa]	44,5	43,8	34,0	36,3	41,5
Evaporator water flow (1)	[m^3/h]	6,0	6,8	7,6	11,5	14,5
Evaporator circuit pressure drop (1)	[kPa]	29,6	29,0	26,0	34,2	30,9
Applications for seasonal efficiency for cooling according to Commission Regulation (EU) No 2016/2281 - Cooling Tower - Fancoil - Average Climate						
SEER	[-]	5,326	5,585	5,370	5,779	5,875
$\eta_{s,c}$	[%]	210,0	220,4	211,8	228,1	232,0

Reefrigerant circuit						
Refrigerant / $GWP_{(100Y)}$	-	R290 / 0,02				
Charge of refrigerant - Base unit	[kg]	1,3	1,5	2,4	3,2	4,1
Independent refrigerant circuits	[n°]	1				
Compressors type / quantity	-	Scroll / 2				
Minimum capacity step	-	35,0%	31,0%	31,3%	23,2%	35,0%
Expansion valve type	-	Electronic				

Desuperheater (option) - W BP//DS/BP/OI**						
Heating capacity (2)	**[kW]**	**3,34**	**3,77**	**4,31**	**6,75**	**8,08**
Water flow (2)	[m^3/h]	0,58	0,65	0,75	1,17	1,41
User circuit pressure drop (2)	[kPa]	3,8	4,3	4,9	5,2	3,6

Electrical data						
Power supply (main - gas detector)	-	400/3+N/50 - 230/1/50				
Maximum power input	[kW]	24,6	26,2	29,4	39,5	64,0
Maximum absorbed current - MRA	[A]	29,8	31,2	34,3	44,7	72,6
Locked rotor current – LRA	[A]	138	138	139	156	246

Water connections						
Condenser side (nominal external diameter)	[inch/DN]	1" 1/4 (DN 32)	1" 1/4 (DN 32)	1" 1/2 (DN 40)	2" (DN 50)	2" (DN 50)
Evaporator side (nominal external diameter)	[inch/DN]	1" 1/4 (DN 32)	1" 1/4 (DN 32)	1" 1/2 (DN 40)	1" 1/2 (DN 40)	2" (DN 50)

Dimensions & weights (W BP/ST/AS/BP/OI version)						
Lenght	[mm]	1211	1211	1646	1646	1646
Width	[mm]	800	800	800	800	800
Height	[mm]	1600	1600	1800	1800	1800
Shipping weight	[kg]	565	575	690	690	880
Operating weight	[kg]	570	580	697	697	887

Noise levels						
Total sound power (ST version)	[db(A)]	75	78	79	87	88
Total sound pressure (ST version) - at 1 m distance	[db(A)]	59	62	63	71	72
Total sound pressure (ST version) - at 10 m distance	[db(A)]	44	47	47	55	56
Total sound power (LN version)	[db(A)]	73	76	77	85	86
Total sound pressure (LN version) - at 1 m distance	[db(A)]	57	60	61	69	70
Total sound pressure (LN version) - at 10 m distance	[db(A)]	42	45	45	53	54
Total sound power (SL version)	[db(A)]	71	74	75	83	84
Total sound pressure (SL version) - at 1 m distance	[db(A)]	55	58	59	67	68
Total sound pressure (SL version) - at 10 m distance	[db(A)]	40	43	43	51	52

Reference conditions:

(1) Condenser fluid temperature IN/OUT = 30/35 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 12/7 °C - Evaporator Fluid: water - Results according to UNI EN 14511-2022

(2) Condenser fluid temperature IN/OUT = 30/35 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 12/7 °C - Evaporator Fluid: water - Desuperheater water temperature IN/OUT = 40/45 °C - Results according to UNI EN 14511-2022

HYDRA HE+

Technical data

HYDRA HE+ R290 range		110-2-1 S	90-4-2 S	130-4-2 S	170-4-2 S	220-4-2 S
W BP//AS/BP/OI version**						
Cooling capacity (1)	**[kW]**	**108**	**87,0**	**132**	**170**	**219**
Total power input (1)	[kW]	24,7	20,1	30,7	37,1	49,6
EER - Energy Efficiency Ratio (1)	[-]	4,37	4,33	4,30	4,58	4,42
Condenser water flow (1)	[m^3/h]	22,8	18,4	28,1	35,5	46,2
Condenser circuit pressure drop (1)	[kPa]	45,4	38,5	45,2	56,4	76,2
Evaporator water flow (1)	[m^3/h]	18,6	15,0	22,8	29,2	37,7
Evaporator circuit pressure drop (1)	[kPa]	37,0	39,9	46,4	45,4	58,5
Applications for seasonal efficiency for cooling according to Commission Regulation (EU) No 2016/2281 - Cooling Tower - Fancoil - Average Climate						
SEER	[-]	6,159	5,514	5,845	6,393	6,381
$\eta_{s,c}$	[%]	243,4	217,6	230,8	252,7	252,2

Reefrigerant circuit						
Refrigerant / $GWP_{(100Y)}$	-	R290 / 0,02				
Charge of refrigerant - Base unit	[kg]	4,9	2,2 x 2	3,3 x 2	4,6 x 2	5,0 x 2
Independent refrigerant circuits	[n°]	1	2			
Compressors type / quantity	-	Scroll / 2	Scroll / 4			
Minimum capacity step	-	27,1%	15,6%	11,6%	17,5%	13,6%
Expansion valve type	-	Electronic				

Desuperheater (option) - W BP//DS/BP/OI**						
Heating capacity (3)	**[kW]**	**11,4**	**8,69**	**13,4**	**15,7**	**22,2**
Water flow (3)	[m^3/h]	1,98	1,51	2,32	2,73	3,85
User circuit pressure drop (3)	[kPa]	2,7	6,3	6,2	4,8	4,1

Electrical data						
Power supply (main - gas detector)	-	400/3+N/50 - 230/1/50				
Maximum power input	[kW]	71,0	58,8	79,0	128	142
Maximum absorbed current - MRA	[A]	84,7	68,6	89,4	145	169
Locked rotor current – LRA	[A]	310	174	201	319	395

Water connections						
Condenser side (nominal external diameter)	[inch/DN]	2 1/2" (DN 65)	2" (DN 50)	2 1/2" (DN 65)	3" (DN 80)	3" (DN 80)
Evaporator side (nominal external diameter)	[inch/DN]	2" (DN 50)	2" (DN 50)	2 1/2" (DN 65)	3" (DN 80)	3" (DN 80)

Dimensions & weights (W BP/ST/AS/BP/OI version)						
Lenght	[mm]	1646	2066	2066	2066	2066
Width	[mm]	800	1200	1200	1200	1200
Height	[mm]	1800	1950	1950	1950	1950
Shipping weight	[kg]	900	1135	1150	1480	1495
Operating weight	[kg]	907	1145	1160	1490	1505

Noise levels						
Total sound power (ST version)	[db(A)]	88	82	90	91	91
Total sound pressure (ST version) - at 1 m distance	[db(A)]	72	64	72	73	73
Total sound pressure (ST version) - at 10 m distance	[db(A)]	56	50	58	59	59
Total sound power (LN version)	[db(A)]	86	80	88	89	89
Total sound pressure (LN version) - at 1 m distance	[db(A)]	70	62	70	71	71
Total sound pressure (LN version) - at 10 m distance	[db(A)]	54	48	56	57	57
Total sound power (SL version)	[db(A)]	84	78	86	87	87
Total sound pressure (SL version) - at 1 m distance	[db(A)]	68	60	68	69	69
Total sound pressure (SL version) - at 10 m distance	[db(A)]	52	46	54	55	55

Reference conditions:

(1) Condenser fluid temperature IN/OUT = 30/35 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 12/7 °C - Evaporator Fluid: water - Results according to UNI EN 14511-2022

(2) Condenser fluid temperature IN/OUT = 30/35 °C - Condenser Fluid: water - Evaporator fluid temperature IN/OUT = 12/7 °C - Evaporator Fluid: water - Desuperheater water temperature IN/OUT = 40/45 °C - Results according to UNI EN 14511-2022



EUROKLIMAT
Let's go Natural

EUROKLIMAT SpA

Factory Italy

Via Liguria, 8
27010 Siziano (PV) Italy

T: +39 038 2610282
E: info@euroklimat.it

www.euroklimat.it

Euroklimat Co., Ltd

Factory China

Euroklimat Industrial Park
Huangjiang, Dongguan, Guangdong, China

T: +86 0769 8366 0888 ext. 8260
E: info@euroklimat.it

www.euroklimat.com.cn

EUROKLIMAT FZCO

Office Dubai

High Bay Office 24, Dubai Silcon Oasis, UAE
PO Box 28178, Dubai, UAE

T: +971 4 3423152
E: info@ek-me.com

www.euroklimatme.com

green cooling initiative

Technical_Data HYDRA_EN_010726

9999xxxx