intarWatt | HFC industrial chillers

- Built-in hydraulic circuit (optional).
- No need for machine room.
- Minimum refrigerant charge.
- Optimised compact system with minimum maintenance.

Air-cooled water or glycol chillers for industrial applications. They are characterised by a very compact construction, designed for outdoor use, which integrates the semihermetic compressors, air condensers with V-coil arrangement, plate heat exchanger and the control panel.

Features

- 400V 3N 50Hz power supply. Available in 60Hz. Others voltages by request.
- Semihermetic Copeland Stream compressors, damper-mounted and acoustically insulated, with power partialisation, rotalock service valves, crankcase heater and electronic protection and diagnostics module.
- High-efficiency condensing coils in V-arrangement, made of copper tubes and aluminium fins, with double-speed axial motor fans Ø 800 mm.
- Cooling circuits made of annealed copper or steel tube equipped with high and low pressure switches, service valves, filter and sight glass.
- Copper brazed stainless steel plate heat exchanger with anti-freeze heating element.
- Hydraulic circuit made of copper pipe with threaded connections, fill/drain valve, flow switch, thermometers and inlet/outlet pressure gauges. Threaded connections up to 2 1/2" and following with flange connection.
- Electric control panel with thermal, magneto-thermal and differential protection for each compressor and fan.
- Electronic control with control of power stages, high and low pressure transducers, anti-freeze control and digital control interface.

Options

- Integrated hydraulic unit (see page 116).
- Secondary pump and/or frequency converter.
- Variable speed EC electronic fans.
- Anti-corrosion coating on condensing coil.
- Cooling circuit closing panels.
- Interior fairing of frigorific compartment.
- Motor guards with manual reset on compressors.
- Heat recovery (20 or 80 % condenser heat) for hot water generation.

Highly reliable compressors

New Copeland Stream range of semihermetic compressors provides best-in-class performance with both existing HFC refrigerants and new low-GWP refrigerants.

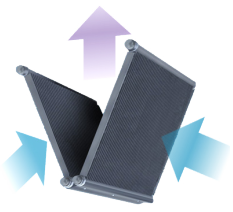
The range consists of four- and six-cylinder semihermetic compressors, with power matching.

The CoreSense™ technology incorporated in the compressors helps to extend the life of the equipment. This technology provides advanced compressor protection, fault diagnosis and energy consumption measurement.

Tropicalised condensing coil in V

intarWatt chillers integrate the air condensers with coils in a V-arrangement, with a large exchange surface on a small floor plan, allowing efficient and reliable operation at high ambient temperatures.

intarWatt chillers can integrate microchannel heat exchanger technology, achieving an even higher exchange capacity compared to tube and fin coils.



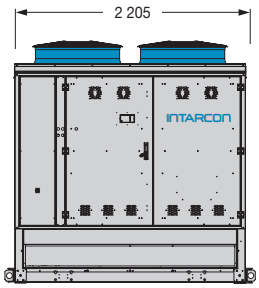
Sound insulation of compressors

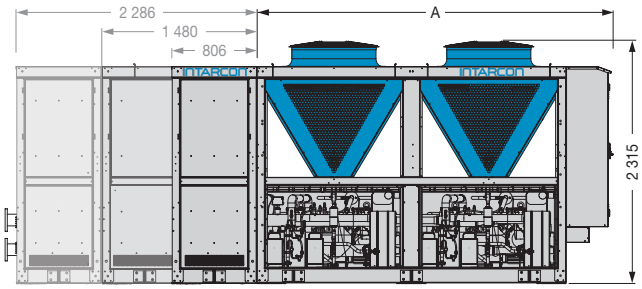
intarWatt chillers are equipped with acoustic compressor encapsulation, consisting of a metal enclosure with a sound-absorbing inner lining, with an acoustic attenuation of up to 9 dB(A).

400V 3N 50Hz | Positive temperature | Semihermetic compressor | R-134a / R-449A

Refrigerant	Compressor	Series / Model	Compressor HP	Compressor Model	Cooling capacity (kW) [1] Water outlet temperature (°C) % propylene glycol by volume -8 °C 35 %	Input power (kW)	Ecodesign SEPR [3]	Max. input current (A)	Condenser Fan Ø (mm)	Condenser Air flow (m³/h)	Water flow (m³/h)	Hydraulic connection	Weight (kg)	SPL dB(A) [3]
R-134a	2x Semihermetic	MWW-TY-1 0302	40	2x 4ML-15X	44	20.7	3.1	76	2x Ø 800	44 000	6.8	2 1/2"	1 085	49
		MWW-TY-1 0402	40	2x 4MM-20X	49	22.1	3.3	83	2x Ø 800	42 000	7.4	2 1/2"	1 114	50
		MWW-TY-1 0502	50	2x 4MU-25X	57	27.3	3.2	109	2x Ø 800	42 000	8.8	2 1/2"	1 122	52
		MWW-TY-1 0602	60	2x 6MM-30X	72	33.0	3.4	125	2x Ø 800	40 000	11.0	DN80	1 205	52
		MWW-TY-1 0702	70	2x 6MT-35X	79	36.7	3.3	140	2x Ø 800	40 000	12.1	DN80	1 217	52
		MWW-TY-1 0802	80	2x 6MU-40X	83	40.5	3.2	157	2x Ø 800	40 000	12.8	DN80	1 225	54
	4x Semihermetic	MWW-TY-2 0604	60	4x 4ML-15X	88	41.4	3.1	152	4x Ø 800	88 000	13.6	DN80	2 170	52
		MWW-TY-2 0804	80	4x 4MM-20X	97	44.2	3.3	166	4x Ø 800	84 000	14.8	DN80	2 228	53
		MWW-TY-2 1004	100	4x 4MU-25X	114	54.6	3.2	218	4x Ø 800	84 000	17.5	DN80	2 244	55
		MWW-TY-2 1204	120	4x 6MM-30X	144	66.0	3.5	250	4x Ø 800	80 000	22.1	DN100	2 410	55
		MWW-TY-2 1404	140	4x 6MT-35X	157	73.4	3.4	280	4x Ø 800	80 000	24.1	DN100	2 434	55
		MWW-TY-2 1604	140	4x 6MU-40X	166	81.0	3.2	314	4x Ø 800	80 000	25.5	DN100	2 450	57
	6x Semih.	MWW-TY-3 1806	180	6x 6MM-30X	216	99	3.4	420	6x Ø 800	120 000	33.1	DN125	3 615	56
		MWW-TY-3 2106	240	6x 6MT-35X	236	110	3.3	471	6x Ø 800	120 000	36.2	DN125	3 651	57
		MWW-TY-3 2406	300	6x 6MU-40X	250	122	3.2	456	6x Ø 800	120 000	38.3	DN125	3 675	59
R-449A	1x Semihermetic	MWW-TG-1 0251	25	4MH-25X	38	19.6	2.6	47	2x Ø 800	44 000	5.8	2 1/2"	912	47
		MWW-TG-1 0301	30	4MI-30X	41	20.7	2.7	52	2x Ø 800	44 000	6.2	2 1/2"	913	47
		MWW-TG-1 0351	35	4MK-35X	48	25.5	2.6	67	2x Ø 800	44 000	7.3	2 1/2"	927	49
		MWW-TG-1 0401	50	6MI-40X	61	30.1	2.9	77	2x Ø 800	42 000	9.3	DN80	969	54
		MWW-TG-1 0451	45	6MJ-45X	66	33.6	2.8	87	2x Ø 800	42 000	10.1	DN80	973	55
		MWW-TG-1 0501	50	6MK-50X	71	37.6	2.7	98	2x Ø 800	42 000	10.8	DN80	980	56
	2x Semihermetic	MWW-TG-1 0602	60	2x 4MI-30X	78	38.3	3.0	98	2x Ø 800	40 000	11.9	DN80	1 151	50
		MWW-TG-1 0702	70	2x 4MK-35X	89	48.1	2.7	127	2x Ø 800	40 000	13.7	DN80	1 179	52
		MWW-TG-2 0802	80	2x 6MI-40X	122	60.3	2.9	154	4x Ø 800	84 000	18.7	DN100	1 938	57
		MWW-TG-2 0902	90	2x 6MJ-45X	132	67.3	2.8	174	4x Ø 800	84 000	20.2	DN100	1 946	58
		MWW-TG-2 1002	100	2x 6MK-50X	141	75.2	2.7	197	4x Ø 800	84 000	21.6	DN100	1 960	59
	4x Sh.	MWW-TG-2 1204	120	4x 4MI-30X	155	77.4	2.9	196	4x Ø 800	80 000	23.8	DN100	2 302	53
		MWW-TG-2 1404	140	4x 4MK-35X	179	96.3	2.7	254	4x Ø 800	80 000	27.4	DN100	2 358	55
	3x Semih.	MWW-TG-3 1203	120	3x 6MI-40X	183	90.4	2.9	231	6x Ø 800	126 000	28.1	DN100	2 907	59
		MWW-TG-3 1353	135	3x 6MJ-45X	197	101	2.8	261	6x Ø 800	126 000	30.2	DN100	2 919	60
		MWW-TG-3 1503	150	3x 6MK-50X	212	113	2.7	294	6x Ø 800	126 000	32.5	DN100	2 940	61
	6x Sh.	MWW-TG-3 1806	180	6x 4MI-30X	233	116	3.0	295	6x Ø 800	120 000	35.7	DN125	3 453	55
		MWW-TG-3 2106	210	6x 4MK-35X	268	144	2.7	382	6x Ø 800	120 000	41.1	DN125	3 537	56

Dimensions





Pump set [*]

Dimensions (mm)	A
1 series	1 901
2 series	3 377
3 series	4 853
4 series	6 329

[*] Dimension of the additional module according to the configuration of the pump set of the equipment.

Dimensions in mm.

[1] Nominal performance refer to positive temperature operation at I/O temperature of -2/-8 °C of propylene glycol at 35 % concentration, for an ambient temperature of 35 °C.

[2] Seasonal performance factor (SEPR) according to Commission Regulation (EU) 2015/1095.

[3] Sound pressure level, with directivity 1, measured at 10 m from the unit (non-binding value calculated from sound power).

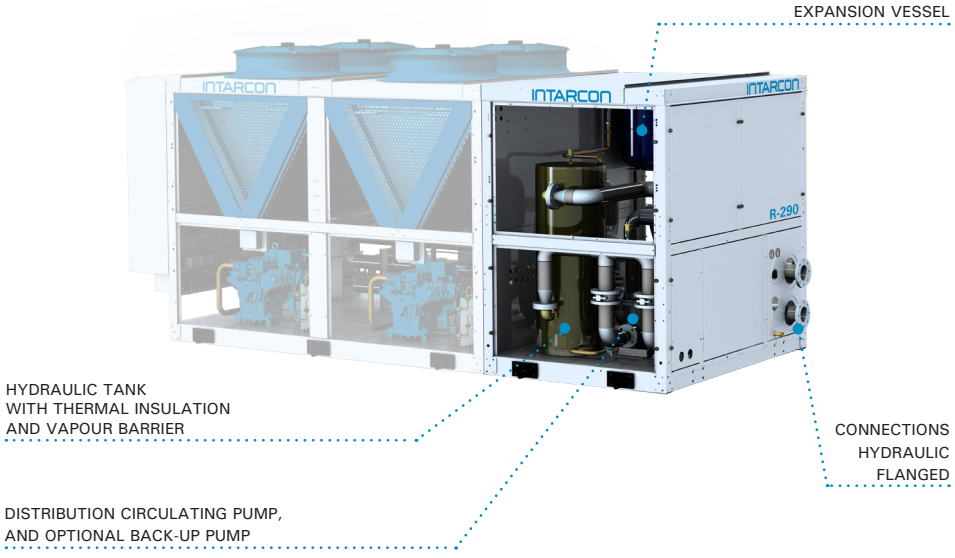
Pump sets for WW series

- Integrated modular construction.
- Optimised assemblies for water and glycol.
- Reduced footprint.

Pump sets for water or glycol in closed circuit, assembled in galvanised sheet steel bodywork and structure with polyester paint for outdoor installation and coupled to the chillers.

Features

- 400V 3N 50Hz power supply. Available in 60Hz. Others voltages by request.
- Glycol circulating pumps with stainless steel impeller and optional reserve pump.
- Buffer tank with high density polyurethane foam insulation and vapour barrier (depending on version).
- Closed membrane expansion vessel.
- Mesh filter.
- Glycerine thermometers and pressure gauges.
- Air vent.
- Drain inlet.
- Flanged hydraulic connections.
- Electrical control and power panel with magneto-thermal protection and independent differential for each pump, and electronic control unit for pump management and rotation.
- Pump sets incorporated in WW series, except WW-FD 4 and 5.

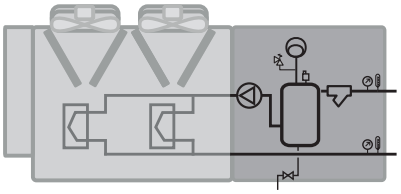


Versions

- A versions

  GW-AH: Primary pump set with tank

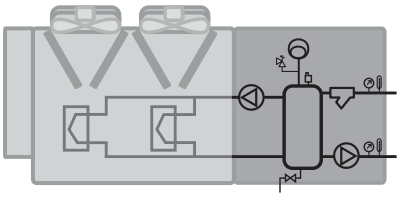
  Pump set with medium or high pressure circulating pump at constant flow rate, assembled together with the chiller.



- B versions

  GW-BH: Secondary pump set

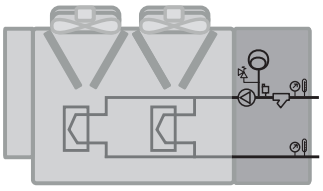
  Pump set with secondary circuit, buffer tank and medium or high pressure circulating pump at constant or variable flow rate (optional), with primary circuit pumps, assembled together with the chiller.



- N versions

  GW-NH: Pumping group

  Hydraulic unit with constant flow circulating pump.



400V 3N 50Hz | High temperature | Water

	Series / Model	Water flow (m^3/h) 7 °C [1]	Main pump (kW)	Available pressure (kPa) [3]	Inertia tank except N version (litres)	Expansion vessel (litres)	Hydraulic connection	Auxiliary primary pump B version (kW)
WATER	AGW-AH-0 025 AGW-BH-1 025	10 to 30	3.0	250 to 150	200	8	DN80	1.1
	AGW-AH-0 030 AGW-BH-1 030	20 to 30	4.0	300 to 200	200	8	DN80	1.1
	AGW-AH-1 040 AGW-BH-1 040	25 to 40	4.0	200 to 150	200	15	DN100	1.5
	AGW-AH-1 050 AGW-BH-1 050	30 to 50	5.5	300 to 150	200	15	DN100	1.5
	AGW-AH-1 055 AGW-BH-1 055	40 to 55	7.5	300 to 200	200	24	DN100	2.2
	AGW-AH-1 070 AGW-BH-2 070	50 to 75	7.5	200 to 150	200	24	DN125	4.0
	AGW-AH-1 090 AGW-BH-2 090	60 to 90	11	250 to 150	500	35	DN125	4.0

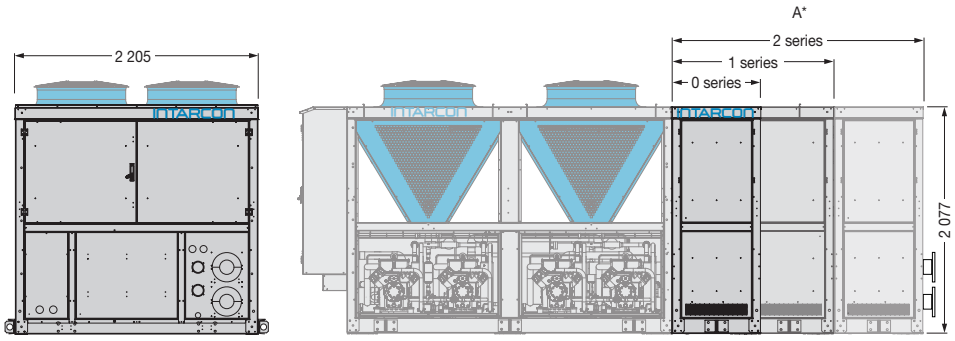
400V 3N 50Hz | Positive temperature | Glycol

	Series / Model	Flow MPG 35 % (m^3/h) -8 °C [2]	Main pump (kW)	Available pressure (kPa) [3]	Inertia tank except N version (litres)	Expansion vessel (litres)	Hydraulic connection	Auxiliary primary pump B version (kW)
GLYCOL	MGW-AH-0 015 MGW-BH-1 015	10 to 15	4.0	300 to 200	200	24	2 1/2"	0.75
	MGW-AH-0 025 MGW-BH-1 025	10 to 25	3.0	250 to 150	200	24	DN80	1.1
	MGW-AH-1 030 MGW-BH-1 030	20 to 30	4.0	250 to 150	200	35	DN100	1.1
	MGW-AH-1 035 MGW-BH-1 035	25 to 35	4.0	200 to 150	200	35	DN100	1.5
	MGW-AH-1 045 MGW-BH-1 045	30 to 45	5.5	250 to 150	200	50	DN100	1.5
	MGW-AH-1 050 MGW-BH-1 050	35 to 50	7.5	300 to 200	200	50	DN100	2.2
	MGW-AH-1 060 MGW-BH-2 060	40 to 60	7.5	200 to 150	200	50	DN125	3.0
	MGW-AH-1 070 MGW-BH-2 070	50 to 70	11.0	250 to 150	500	50	DN125	3.0
	MGW-AH-1 085 MGW-BH-2 085	65 to 85	15.0	250 to 150	500	50	DN125	3.0

Options

- Back-up main pump.
- Variable speed drive on main pump.
- Auxiliary back-up pump.

Dimensions



Dimensions (mm)	A
0 series	806
1 series	1 480
2 series	2 286

* Pump set according to configuration.

Dimensions in mm.

[1] Performance calculated for pumping water at 7°C.

[2] Performance calculated for pumping 35 % propylene glycol concentration at -8°C.

[3] Hydraulic pressure available for the distribution circuit and the chiller.

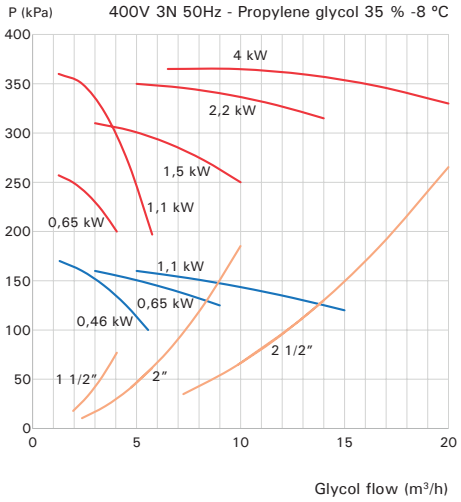
Auxiliary pump in the primary circuit

The auxiliary pump in the primary circuit is a low-pressure pump sized with an available pressure of about 50 to 100 kPa, enough to overcome the pressure drop of the exchanger of the chiller and a small section of piping.

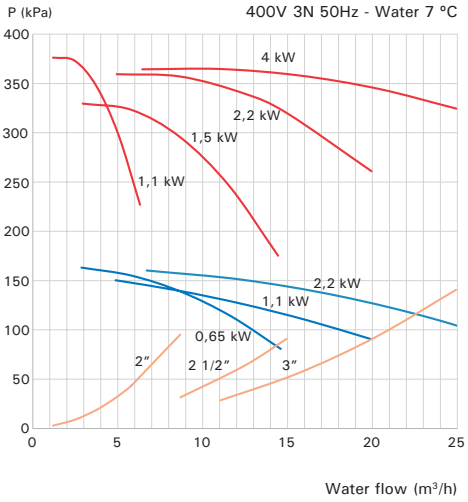
Pump sets

Characteristic curves

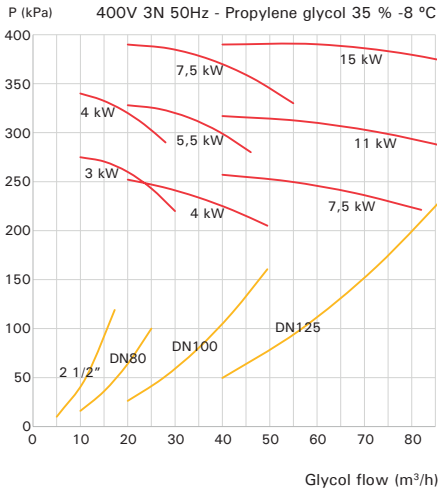
MWV series



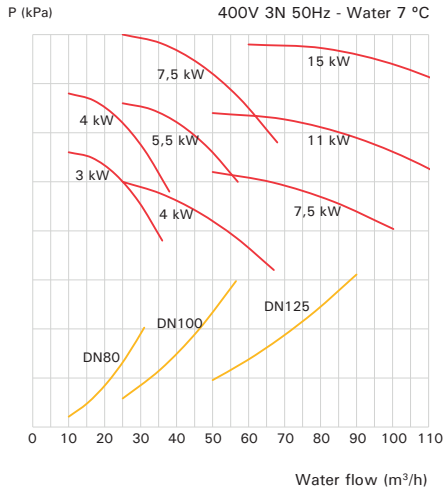
Serie AWV



MWW series



AWW series



— Main pump.

— Primary circuit booster pump.

— Pressure drop characteristic of the hydraulic unit.

The attached curves allow the operating point of the system to be checked on the basis of the pump characteristic curve and taking into account the internal pressure drop curve of the hydraulic unit.

In pump set with primary and secondary circuit (GV-BH and GW-BH versions), the hydraulic resistor of the chiller is compensated by the primary circuit pump.

For units with a single pumping unit (GV-AH and GW-AH version), the heater of the chiller must be taken into account and added to the available pressure required for the distribution circuit. The following values are recommended:

- WV series: 30-40 kPa.
- WW series: 40-50 kPa.

Example of selection

It is intended to select a pump set to be combined with the 35 % propylene glycol chiller, model MWW-FD-3 1503, with a cooling capacity of 260 kW at a temperature range of -2/-8 °C, it a glycol flow rate of 47.5 m³/h and an available pressure for the distribution circuit of 200 kPa.

For the required flow rate we are looking for the pump that results in a water column of 20 m between the characteristic curves of the pump and the DN100 pipe pump set, which corresponds to the hydraulic connections of the chiller. The 7.5 kW pump and DN100 connections characterise the pump set model MGW-BH-1 050.

Optionally, this hydraulic unit can be equipped with a primary circuit pump.