

NECS-WQ

INTEGRA unit for 4-pipe systems, water source

0152 - 1204 48,38-411,7 kW



Multi-purpose indoor unit for use in 4-pipe systems for the simultaneous production of chilled and hot water by means of two independent water circuits. These units are able to satisfy the demand for hot and cold water simultaneously through a system that does not require seasonal switching. Water-source unit equipped with hermetic rotary Scroll compressors, with R410A, plate heat exchangers and thermostatic expansion valve. The range is composed by units equipped with two and four compressors, all with two independent refrigerant circuits.

Control



W3000 large

The controller W3000 large offers the latest control and functions developed directly by Mitsubishi Electric Hydronics & IT Cooling Systems S.p.A. on the basis of their experience gained over the years with these particular units and the related plant engineering. The keypad is generously sized with full operating status display. The controls and detailed LCD make access to machine settings easy and safe. Temperature regulation managed on the two water circuits, with a proportional logic referred to the return water temperatures. This allows to satisfy simultaneously the different heating- and cooling requests, with no need of mode changeover. The diagnostics includes full management of alarms with black-box functions and alarm record for better analysis of unit performance. Supervision is easy through Mitsubishi Electric Hydronics & IT Cooling Systems S.p.A. devices or with various options for interfacing to ModBus, Bacnet, Echelon LonTalk protocols. Compatibility with remote keyboard (management up to 10 units). Clock available with programming of operation (standard 4 days and 10 time bands). Exclusive self-adaptive defrost logic, monitoring multiple operational- and ambient parameters, which allows to reduce the number and duration of the defrost cycles, with a benefit for the overall energy efficiency.

Refrigerant



Versions

B Basic

Features

REFRIGERANT GAS R410A

The use of R410A allowed to achieve better energy efficiencies with environment full respect (ODP = 0)

INTEGRATED CONDENSATION'S CONTROL

A 2 way valve is supplied as standard for the condensing pressure control. For all the applications in which a constant waterflow through the condenser is needed, a 3-way valve option is also available under request.

ENERGY SAVING

Energy saving guaranteed by the advanced operation's logic. The best operation mode is set completely automatically and independently by the unit's controller, in order to minimize the absorbed energy whatever the cooling and/or heating demand might be

HOT WATER SUPPLY

Production of hot water up to 55°C to meet the most demanding application needs.

Accessories

- Remote control keyboard (distance to 200m and to 500m)
- Acoustical enclosure to reduce the noise emissions.
- Set-up for remote connectivity with ModBus, Echelon LonTalk, Bacnet protocol board
- Water connections directed upwards (for 2 compressors units only)

NECS-WQ		0152	0182	0202	0252	0262	0302	0412	0512	
Power supply	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	
PERFORMANCE										
COOLING ONLY (GROSS VALUE)										
Cooling capacity	(1)	kW	48,38	55,59	64,57	73,35	82,77	97,04	126,7	157,7
Total power input	(1)	kW	8,560	9,730	11,23	13,15	14,69	17,37	22,81	28,16
EER	(1)	kW/kW	5,654	5,714	5,768	5,561	5,633	5,575	5,557	5,592
COOLING ONLY (EN14511 VALUE)										
Cooling capacity	(1)(2)	kW	45,50	52,20	60,90	69,20	77,90	91,30	118,6	148,5
EER	(1)(2)	kW/kW	4,420	4,500	4,510	4,430	4,500	4,440	4,440	4,490
HEATING ONLY (GROSS VALUE)										
Total heating capacity	(3)	kW	52,07	59,68	69,34	79,04	88,88	104,4	134,8	168,8
Total power input	(3)	kW	12,39	13,78	16,19	18,47	20,37	23,87	31,02	38,41
COP	(3)	kW/kW	4,202	4,326	4,278	4,270	4,358	4,368	4,348	4,396
HEATING ONLY (EN14511 VALUE)										
Total heating capacity	(2)(3)	kW	52,40	60,00	69,60	79,40	89,30	104,9	135,5	169,6
COP	(2)(3)	kW/kW	3,970	4,110	4,080	4,070	4,140	4,150	4,130	4,160
COOLING WITH TOTAL HEAT RECOVERY										
Cooling capacity	(4)	kW	40,42	46,72	54,12	61,68	69,73	81,98	105,6	132,7
Total power input	(4)	kW	12,39	13,78	16,19	18,47	20,37	23,87	31,02	38,41
Recovery heat exchanger capacity	(4)	kW	52,07	59,68	69,34	79,04	88,88	104,4	134,8	168,8
TER		kW/kW	7,460	7,710	7,623	7,605	7,775	7,799	7,755	7,852
ENERGY EFFICIENCY										
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)										
Ambient refrigeration										
Prated,c	(11)	kW	-	-	-	-	-	-	-	-
SEER	(11)(12)		-	-	-	-	-	-	-	-
Performance η_s	(11)(13)	%	-	-	-	-	-	-	-	-
SEASONAL EFFICIENCY IN HEATING (Reg. EU 813/2013)										
PDesign	(5)	kW	62,2	71,1	82,8	94,4	106	125	162	202
SCOP	(5)(14)		5,71	5,88	5,93	5,74	5,79	5,79	5,73	5,72
Performance η_s	(5)(15)	%	220	227	229	222	224	224	221	221
Seasonal efficiency class	(16)		A++	-	-	-	-	-	-	-
EXCHANGERS										
HEAT EXCHANGER USER SIDE IN REFRIGERATION										
Water flow	(1)	l/s	2,186	2,505	2,923	3,323	3,741	4,387	5,697	7,129
Pressure drop	(1)	kPa	25,3	22,8	22,4	25,8	28,5	30,2	34,6	37,9
HEAT EXCHANGER SOURCE SIDE IN REFRIGERATION										
Water flow	(1)	l/s	2,643	3,023	3,522	4,017	4,512	5,298	6,881	8,598
Pressure drop	(1)	kPa	37,0	33,2	32,5	37,6	41,4	44,0	50,4	55,1
HEAT EXCHANGER USER SIDE IN HEATING										
Water flow	(4)	l/s	2,513	2,881	3,347	3,815	4,290	5,041	6,506	8,149
Pressure drop	(4)	kPa	33,5	30,1	29,3	34,0	37,5	39,8	45,1	49,5
HEAT EXCHANGER SOURCE SIDE IN HEATING										
Water flow	(3)	l/s	1,381	1,596	1,849	2,107	2,382	2,801	3,609	4,534
Pressure drop	(3)	kPa	10,1	9,25	8,95	10,4	11,5	12,3	13,9	15,3
REFRIGERANT CIRCUIT										
Compressors nr.		N°	2	2	2	2	2	2	2	2
No. Circuits		N°	2	2	2	2	2	2	2	2
Refrigerant charge		kg	5,90	6,50	7,20	8,20	8,60	10,3	13,9	16,8
NOISE LEVEL										
Sound Pressure	(6)	dB(A)	42	43	43	43	44	45	46	47
Sound power level in cooling	(7)(8)	dB(A)	73	74	74	74	75	76	77	78
Sound power level in heating	(7)(9)	dB(A)	73	74	74	74	75	76	77	78
SIZE AND WEIGHT										
A	(10)	mm	1220	1220	1220	1220	1220	1220	1220	1220
B	(10)	mm	877	877	877	877	877	877	877	877
H	(10)	mm	1496	1496	1496	1496	1496	1496	1496	1496
Operating weight	(10)	kg	450	470	490	505	525	550	745	825

Notes

- Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger water (in/out) 14°C/30°C.
- Values in compliance with EN14511
- Plant (side) heat exchanger water (in/out) 40°C/45°C; Source (side) heat exchanger water (in/out) 14°C/7°C.
- Plant (side) cooling exchanger water (in/out) 12°C/7°C; Plant (side) heat exchanger water (in/out) 40°C/45°C.
- Parameter calculated for LOW-TEMPERATURE application in AVERAGE climate conditions according to [REGULATION (EU) N. 813/2013]
- Average sound pressure level at 10m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
- Sound power on the basis of measurements made in compliance with ISO 9614.
- Sound power level in cooling, indoors.
- Sound power level in heating, indoors.
- Unit in standard configuration/execution, without optional accessories.
- Parameter calculated according to [REGULATION (EU) N. 2016/2281]
- Seasonal energy efficiency ratio
- Seasonal space cooling energy efficiency
- Seasonal coefficient of performance
- Seasonal space heating energy efficiency
- Energy efficiency class referred to LOW-TEMPERATURE application in AVERAGE climate conditions according to [REGULATION (EU) N. 811/2013]

The units highlighted in this publication contain HFC R410A [GWP₁₀₀ 2088] fluorinated greenhouse gases.

Certified data in EUROVENT

NECS-WQ

INTEGRA unit for 4-pipe systems, water source

0152 - 1204 48,38-411,7 kW

NECS-WQ		0612	0604	0704	0804	0904	1004	1104	1204
Power supply	V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE									
COOLING ONLY (GROSS VALUE)									
Cooling capacity	(1) kW	204,8	193,2	224,2	254,2	283,9	315,4	362,9	411,7
Total power input	(1) kW	36,56	34,74	40,05	45,46	50,86	56,37	64,80	73,04
EER	(1) kW/kW	5,596	5,568	5,591	5,587	5,578	5,592	5,600	5,640
COOLING ONLY (EN14511 VALUE)									
Cooling capacity	(1)(2) kW	192,5	182,0	210,6	238,2	267,0	297,1	341,5	387,4
EER	(1)(2) kW/kW	4,500	4,450	4,480	4,500	4,510	4,520	4,520	4,550
HEATING ONLY (GROSS VALUE)									
Total heating capacity	(3) kW	218,9	208,2	239,5	270,1	303,3	337,7	388,2	439,7
Total power input	(3) kW	49,95	47,72	54,72	61,82	69,22	76,76	88,38	99,60
COP	(3) kW/kW	4,387	4,365	4,378	4,371	4,383	4,397	4,391	4,415
HEATING ONLY (EN14511 VALUE)									
Total heating capacity	(2)(3) kW	219,9	209,2	240,6	271,3	302,3	339,1	389,8	441,5
COP	(2)(3) kW/kW	4,160	4,150	4,160	4,160	4,180	4,180	4,180	4,210
COOLING WITH TOTAL HEAT RECOVERY									
Cooling capacity	(4) kW	172,0	163,3	188,1	212,0	238,2	265,6	305,1	346,1
Total power input	(4) kW	49,95	47,72	54,72	61,82	69,22	76,76	88,38	99,60
Recovery heat exchanger capacity	(4) kW	218,9	208,2	239,5	270,1	303,3	337,7	388,2	439,7
TER	kW/kW	7,834	7,788	7,817	7,803	7,825	7,855	7,843	7,890
ENERGY EFFICIENCY									
SEASONAL EFFICIENCY IN COOLING (Reg. EU 2016/2281)									
Ambient refrigeration									
Prated,c	(11) kW	-	-	-	-	-	297	342	387
SEER	(11)(12)	-	-	-	-	-	5,14	5,24	5,25
Performance ηs	(11)(13)	-	-	-	-	-	198	202	202
SEASONAL EFFICIENCY IN HEATING (Reg. EU 813/2013)									
PDesign	(5) kW	262	248	289	325	-	-	-	-
SCOP	(5)(14)	5,76	5,80	5,65	5,77	-	-	-	-
Performance ηs	(5)(15)	222	224	218	223	-	-	-	-
Seasonal efficiency class	(16)	-	-	-	-	-	-	-	-
EXCHANGERS									
HEAT EXCHANGER USER SIDE IN REFRIGERATION									
Water flow	(1) l/s	9,242	8,735	10,11	11,43	12,81	14,26	16,39	18,59
Pressure drop	(1) kPa	39,2	37,3	39,2	38,6	38,3	39,3	39,0	39,4
HEAT EXCHANGER SOURCE SIDE IN REFRIGERATION									
Water flow	(1) l/s	11,15	10,56	12,20	13,79	15,46	17,20	19,77	22,40
Pressure drop	(1) kPa	57,0	54,5	57,1	56,2	55,7	57,1	56,7	57,2
HEAT EXCHANGER USER SIDE IN HEATING									
Water flow	(4) l/s	10,57	10,05	11,56	13,04	14,64	16,30	18,74	21,22
Pressure drop	(4) kPa	51,2	49,3	51,3	50,2	50,0	51,3	51,0	51,4
HEAT EXCHANGER SOURCE SIDE IN HEATING									
Water flow	(3) l/s	5,876	5,580	6,426	7,244	8,139	9,073	10,42	11,82
Pressure drop	(3) kPa	15,8	15,2	15,8	15,5	15,5	15,9	15,8	15,9
REFRIGERANT CIRCUIT									
Compressors nr.	N°	2	4	4	4	4	4	4	4
No. Circuits	N°	2	2	2	2	2	2	2	2
Refrigerant charge	kg	21,2	22,6	25,2	29,4	29,6	36,1	39,2	43,2
NOISE LEVEL									
Sound Pressure	(6) dB(A)	48	54	55	56	57	58	59	59
Sound power level in cooling	(7)(8) dB(A)	79	86	87	88	89	90	91	91
Sound power level in heating	(7)(9) dB(A)	79	86	87	88	89	0	0	0
SIZE AND WEIGHT									
A	(10) mm	1220	2560	2560	2560	2560	2560	2560	2560
B	(10) mm	877	891	891	891	891	891	891	891
H	(10) mm	1496	1810	1810	1810	1810	1810	1810	1810
Operating weight	(10) kg	910	975	1165	1365	1445	1610	1710	1810

Notes

- Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger water (in/out) 14°C/30°C.
- Values in compliance with EN14511
- Plant (side) heat exchanger water (in/out) 40°C/45°C; Source (side) heat exchanger water (in/out) 14°C/7°C.
- Plant (side) cooling exchanger water (in/out) 12°C/7°C; Plant (side) heat exchanger water (in/out) 40°C/45°C.
- Parameter calculated for LOW-TEMPERATURE application in AVERAGE climate conditions according to [REGULATION (EU) N. 813/2013]
- Average sound pressure level at 10m distance, unit in a free field on a reflective surface; non-binding value calculated from the sound power level.
- Sound power on the basis of measurements made in compliance with ISO 9614.
- Sound power level in cooling, indoors.
- Sound power level in heating, indoors.
- Unit in standard configuration/execution, without optional accessories.
- Parameter calculated according to [REGULATION (EU) N. 2016/2281]
- Seasonal energy efficiency ratio
- Seasonal space cooling energy efficiency
- Seasonal coefficient of performance
- Seasonal space heating energy efficiency
- Energy efficiency class referred to LOW-TEMPERATURE application in AVERAGE climate conditions according to [REGULATION (EU) N. 811/2013]

The units highlighted in this publication contain HFC R410A [GWP₁₀₀ 2088] fluorinated greenhouse gases.

Certified data in EUROVENT

Dimensional drawing

