MITSUBISHI ELECTRIC
HYDRONICS & IT COOLING SYSTEMS S.p.A.

IT COOLING

CHILLERS

NR-C-Z

AIR-COOLED CHILLERS WITH SCROLL COMPRESSORS AND CENTRIFUGAL FANS (PLUG FAN), FOR INDOOR INSTALLATION
17-281 kW

rcitcooling.com

NR-C-Z

A TRULY UNIQUE SOLUTION FOR INDOOR INSTALLATIONS.

Air-cooled chillers for indoor installation. 17-281 kW

NR-C-Z features high efficiency scroll compressors, weld-brazed plate evaporator, EC plug fans, full aluminum microchannel coils and in-house developed management software.

NR-C-Z
AIR-COOLED CHILLERS

COOLING CAPACITY 17-281 kW

0 25 50 75 100 125 150 175 200 225 250 275 300

EXTREMELY VERSATILE INSTALLATION

Traditionally, air condensed units have axial fans and are designed for outdoor installations, requiring a minimum clearance space to ensure a proper airflow through the air heat exchanger.

NR-C-Z revolutionizes this paradigm. Thanks to the adoption of centrifugal fans, these air-condensed units are suitable for indoor installation. Available static pressure provided by the radial fans allows the use of long ducts for air discharge. Thus, providing easy installation of the units even in the presence of spaces closed by walls with grids.

IT COOLING APPLICATIONS

- Data centers and server rooms
- Technological Centres
- Telecommunication Systems
- Laboratories

ACOUSTIC VERSIONS

- **Standard**
Unit with standard ventilation regulation. **Baseline**

SL **Super Low Noise**
The highest level of noise reduction which cuts noise emissions. **-7 dB(A)**

HEAT RECOVERY CONFIGURATIONS

- **Standard unit**
Unit for the production of chilled water.

D **Partial heat recovery**
Unit equipped with an auxiliary heat exchanger on the compressor discharge for superheat recovery.

NR-C-Z revolutionizes the paradigm of air-cooled units for outdoor installation. Thanks to the adoption of centrifugal fans, and a new compact design, the new RC branded range of air-condensed units for indoor installation was created.

ErP COMPLIANT

EFFICIENCY AT FULL LOADS

AVERAGE EER

version A	2,92
version K	2,73

SEASONAL COOLING ENERGY EFFICIENCY

AVERAGE SEPR AT

version A	5,16
version K	4,84

FLEXIBLE AIR FLOW SELECTION

The NR-C-Z units provide a fully configurable air supply, changing the standard vertical supply into horizontal supply. This facilitates the installation and air flow selection the moment the unit is installed.

EASY ACCESSIBILITY DURING MAINTENANCE

NR-C-Z units have a casing that is removable and is built to guarantee maximum accessibility for service and maintenance.

EASILY INTEGRATABLE IN EXISTING STRUCTURES

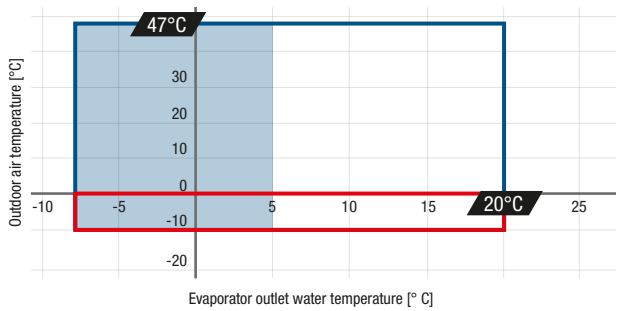
The units integrate seamlessly into surrounding structures. Thanks to the hidden internal installation and a rational design, NR-C-Z units are compatible with areas particularly sensitive to noise pollution.

EXTENDED OPERATING LIMITS

The NR-C-Z chillers are able to guarantee perfect operation with external air temperature values down to -10°C during the winter season, and up to 47°C during the summer season.

The maximum chilled water temperature produced is 20°C, ideal for IT Cooling applications where, in combination with containment solutions, electronic equipment conditioning systems require greater cooling temperatures than those of air-conditioned rooms for the well-being of people, thus improving the efficiency of the system.

CHILLER OPERATING LIMITS



- Required accessories:
  EVAPORATOR OUTLET WATER TEMPERATURE <5°C
- Required accessories if hydronic module is present:
  ANTIFREEZE PIPING, PUMPS

TECHNOLOGICAL CHOICES

W3000TE CONTROL and USER-FRIENDLY USER INTERFACE

Fully in-house software developed by Mitsubishi Electric Hydronics & IT Cooling Systems.

- 19 supported languages.
- Optional serial cards with the most common protocols are available: ModBus, Bacnet MS/TP RS485, Bacnet Over IP, Echelon Lonworks.
- “QUICK MIND” logic: a self-adapting algorithm that activates or deactivates the compressors only when a change in the system load moves the flow temperature out of the setpoint neutral zone.
- Diagnostics: “BLACK BOX” function for saving more than 100 machine variables for a rapid trouble-shooting.

The keypad W3000 Compact, as standard equipment, features function controls and a complete LCD display for viewing data and activating the unit, via a multilevel menu, with settable display language.

HEAT EXCHANGERS

NR-C-Z

- Full aluminum microchannel coils.
- Less refrigerant charge.
- Reduced weight.
- Sizes 0904/A, 0904/SL-K, 1004/A, 1004/SL-K and 1104/K are realized with copper tubes and aluminium fins heat exchanger coils.

Electrical panel

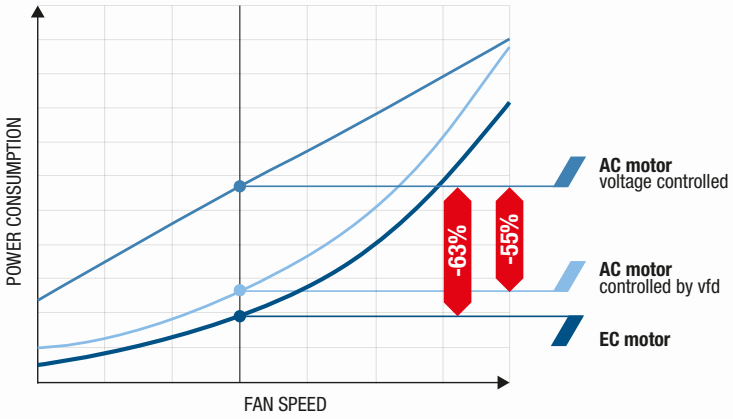
- W3000TE control software, COMPACT keyboard.
- Numbered cables (std on 2 compressors).
- Automatic circuit breakers (std on 2 compressors).

User side heat exchanger

- Brazed plate heat exchanger.
- Efficient heat exchange with a small footprint.
- Dual circuit design for 4 compressor units.

CENTRIFUGAL PLUG FAN WITH EC MOTOR

- More air flow at smaller diameter.
- Energy cost saving by highest efficiency at the operating point.
- Reduced sound levels at partial loads.
- Precise control of airflow.
- Lower consumption in every working condition to achieve a better seasonal efficiency in accordance with ErP Directive.
- No energy lost due to the transmission (belts and pulleys), thanks to the fan being directly coupled with the motor; economical because no maintenance needed.
- Continuous speed control and easy adaptation to varying operational conditions.



Easily Removable Casing

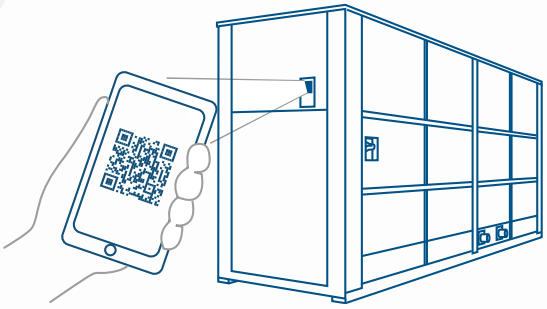
- Base and frame in hot-galvanized steel sheet.
- Panels are easy to remove for quick and easy access to all inner components.
- The self-supporting frame is built to guarantee maximum accessibility for servicing and maintenance operations.
- Total weather resistance.

Fixed speed scroll compressors

Designed for superior efficiency and performance

- Single circuit unit - 2 compressors.
- Dual circuit unit - 4 compressors.

KIPLink USER INTERFACE



KIP LINK
Keyboard In your Pocket

Innovative Wi-Fi interface for an easy and enhanced unit management.

As an option, the direct control over the units comes through the innovative KIPLink interface. Based on Wi-Fi technology, KIPLink gets rid of the standard keyboard and allows one to operate the unit directly from a mobile device (smartphone, tablet, notebook) just by scanning the QR code on the side of the unit.

- Communication based on Wi-Fi technology (no internet connection needed).
- User-friendly components monitoring.
- Real-time graphs and key trends.

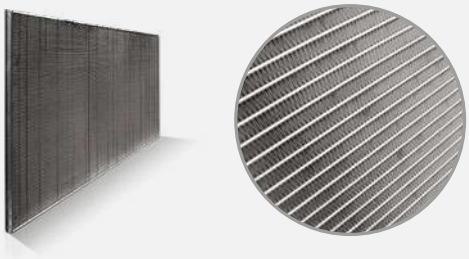
COILS AND COATINGS

RC units are also suitable for installation in the most critical environments. In particularly extreme situations, the corrosive activity of air pollutants may seriously damage the coils, putting the unit at risk or causing the refrigerant to leak into the environment.

As a solution Mitsubishi Electric offers a special e-coating treatment.
The treatment, carried out by means of an electrolytic bath, ensures a lasting resistance to atmospheric agents and long term protection of the component's quality.

MICROCHANNEL COILS

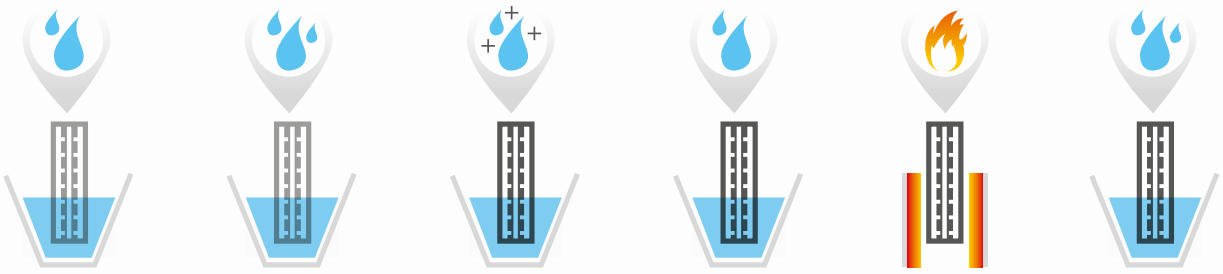
Al - Regular



Al - E-coating

- Excellent resistance to **UV** rays

E- coating process



HYDRONIC MODULES AND FLOW CONTROLS

NR-C-Z units are available with two hydronic configurations:

- factory-mounted complete pump group, which optimizes hydraulic and electrical installation space, time and costs.
- or with terminals to control the external pumps with the unit control logic.

FACTORY MOUNTED PUMP GROUP

1 or 2 pumps (duty/standby) provide low or high head (available head approx. 100 or 200kPa).

Speed regulation	Tipo		Available head
Fixed speed (2 pole motor)	Single-head in-line pump	Twin-head in-line pump	▸ Low head ▸ High head
Variable Speed EC motor (2 pole motor)	Single-head in-line pump	Twin-head in-line pump	▸ Low head

CONNECTIONS FOR THE MANAGEMENT OF EXTERNAL PUMPS

The unit controls the activation of 1 or 2 external pumps

ON / OFF signal (1 or 2 pumps)

The unit is supplied with 1 or 2 relays that control the activation of 1 or 2 external pumps (duty / standby) via ON / OFF signals.

Modulating signal (1 or 2 pumps)

The unit is supplied with 1 or 2 relays and a contact with signal modulating 0-10V that controls the activation and the speed of 1 or 2 external pumps with variable speed.

VPF control logic

VPF
VARIABLE PRIMARY FLOW

The VPF control series (Variable Primary Flow) doesn't only adjust the pump speed on the basis of the plant's thermal load, but also dynamically optimizes the unit's thermoregulation for variable flow operation, thus ensuring both the highest pump energy savings and chiller stable operation.

VPF: constant ΔP on the plant side
For systems with only the primary circuit.

VPF.D: constant ΔT on the plant side
For systems with primary and secondary circuits separated by a hydraulic decoupler.

NR-C-Z 0072-1104

Chiller, air source
for indoor installation
17-281 kW

NR-C-Z / K			0072	0092	0102	0122	0152	0182	0202	0232	0272
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	400/3/50
PERFORMANCE											
COOLING ONLY (GROSS VALUE)											
Cooling capacity	(1)	kW	17,8	22,5	26,5	30,3	38,5	45,5	51,8	58,1	66,8
Total power input	(1)	kW	6,23	8,29	9,54	11,3	12,9	14,9	17,7	20,5	23,6
EER	(1)	kW/kW	2,86	2,71	2,78	2,68	2,98	3,05	2,93	2,83	2,83
COOLING ONLY (EN14511 VALUE)											
Cooling capacity	(1)(2)	kW	17,7	22,4	26,4	30,1	38,3	45,3	51,6	57,8	66,5
EER	(1)(2)	kW/kW	2,85	2,70	2,78	2,68	2,99	3,06	2,93	2,83	2,84
Cooling energy class			A	B	A	B	A	A	A	A	A
SEPR HT	(3)(4)		5,37	5,23	5,41	4,95	5,34	5,23	5,12	4,92	4,92
COOLING ONLY											
16°C/10°C											
Cooling capacity	(5)	kW	19,6	24,8	29,1	33,2	42,1	49,8	56,7	63,4	73,0
Total power input	(5)	kW	6,29	8,46	9,71	11,6	13,1	15,1	18,1	21,0	24,1
EER	(5)	kW/kW	3,12	2,93	3,00	2,86	3,21	3,30	3,13	3,02	3,03
23°C/15°C											
Cooling capacity	(6)	kW	22,8	28,9	33,7	38,4	48,7	57,6	65,5	72,8	84,0
Total power input	(6)	kW	6,40	8,78	10,0	12,1	13,5	15,6	18,8	21,8	25,1
EER	(6)	kW/kW	3,56	3,29	3,37	3,17	3,61	3,69	3,48	3,34	3,35
EXCHANGERS											
HEAT EXCHANGER USER SIDE IN REFRIGERATION											
Water flow	(1)	l/s	0,85	1,08	1,27	1,45	1,84	2,17	2,48	2,78	3,19
Pressure drop	(1)(2)	kPa	24,8	24,4	25,1	25,5	27,3	24,9	25,3	25,6	25,3
REFRIGERANT CIRCUIT											
Compressors nr.		N°	2	2	2	2	2	2	2	2	2
No. Circuits		N°	1	1	1	1	1	1	1	1	1
Refrigerant charge		kg	3,50	3,70	4,10	4,20	7,30	8,30	9,20	9,40	10,7
NOISE LEVEL											
Sound power level in cooling	(8)(9)	dB(A)	80	78	81	80	77	80	81	82	82
SIZE AND WEIGHT											
A	(10)	mm	1500	1500	1500	1500	2480	2480	2480	2480	2480
B	(10)	mm	900	900	900	900	1100	1100	1100	1100	1100
H	(10)	mm	1910	1910	1910	1910	2100	2100	2100	2100	2100
Operating weight	(10)	kg	390	398	433	435	855	889	891	909	974

Notes:

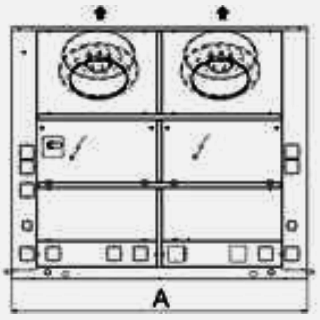
NR-C-Z / K			0302	0352	0402	0452	0502	0552	0602	0702	0524
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE											
COOLING ONLY (GROSS VALUE)											
Cooling capacity	(1)	kW	75,5	85,5	97,6	110	125	140	156	178	127
Total power input	(1)	kW	27,1	32,1	35,5	40,9	44,8	52,9	59,9	66,9	47,7
EER	(1)	kW/kW	2,79	2,66	2,75	2,69	2,79	2,65	2,60	2,66	2,67
COOLING ONLY (EN14511 VALUE)											
Cooling capacity	(1)(2)	kW	75,2	85,2	97,2	110	125	140	155	178	127
EER	(1)(2)	kW/kW	2,79	2,67	2,76	2,70	2,80	2,66	2,61	2,67	2,67
Cooling energy class			A	B	A	B	A	B	B	B	B
SEPR HT	(3)(4)		4,87	4,60	4,78	4,61	4,81	4,54	4,64	4,63	4,77
COOLING ONLY											
16°C/10°C											
Cooling capacity	(5)	kW	82,4	93,4	107	120	136	153	170	194	139
Total power input	(5)	kW	27,8	32,9	36,4	42,0	45,9	54,3	61,5	68,8	48,9
EER	(5)	kW/kW	2,96	2,84	2,94	2,86	2,97	2,82	2,76	2,82	2,83
23°C/15°C											
Cooling capacity	(6)	kW	94,6	107	124	138	156	176	195	223	159
Total power input	(6)	kW	28,9	34,4	38,2	44,0	48,1	57,0	64,6	72,3	51,0
EER	(6)	kW/kW	3,27	3,13	3,23	3,14	3,25	3,08	3,02	3,08	3,12
EXCHANGERS											
HEAT EXCHANGER USER SIDE IN REFRIGERATION											
Water flow	(1)	l/s	3,61	4,09	4,67	5,26	5,98	6,70	7,44	8,52	6,08
Pressure drop	(1)(2)	kPa	25,9	25,7	25,3	25,4	25,4	25,8	25,6	26,3	25,6
REFRIGERANT CIRCUIT											
Compressors nr.		N°	2	2	2	2	2	2	2	2	4
No. Circuits		N°	1	1	1	1	1	1	1	1	2
Refrigerant charge		kg	11,1	12,0	14,1	14,8	18,6	19,2	20,0	23,5	21,0
NOISE LEVEL											
Sound power level in cooling	(8)(9)	dB(A)	82	84	87	80	87	88	89	94	88
SIZE AND WEIGHT											
A	(10)	mm	2480	2480	2980	2980	3970	3970	3970	4670	3970
B	(10)	mm	1100	1100	1260	1260	1260	1260	1260	1260	1260
H	(10)	mm	2100	2100	2100	2100	2100	2100	2100	2100	2100
Operating weight	(10)	kg	1016	1087	1340	1365	1541	1570	1644	1815	1515

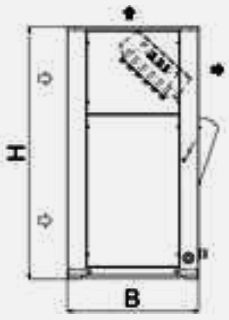
Notes:

COOLING SCROLL PLATES
HFC R-410A PLUG FAN

NR-C-Z / K			0604	0704	0804	0904	1004	1104
Power supply		V/ph/Hz	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	148	171	191	220	246	282
Total power input	(1)	kW	56,6	64,2	74,7	81,9	93,4	108
EER	(1)	kW/kW	2,62	2,67	2,56	2,69	2,63	2,62
COOLING ONLY (EN14511 VALUE)								
Cooling capacity	(1)(2)	kW	148	171	191	220	245	281
EER	(1)(2)	kW/kW	2,63	2,68	2,57	2,70	2,64	2,63
Cooling energy class			B	B	B	B	B	B
SEPR HT	(3)(4)		4,63	4,57	4,55	4,58	4,61	4,50
COOLING ONLY								
16°C/10°C								
Cooling capacity	(5)	kW	162	187	209	240	268	307
Total power input	(5)	kW	57,9	65,9	76,8	84,1	95,9	110
EER	(5)	kW/kW	2,79	2,84	2,72	2,86	2,79	2,78
23°C/15°C								
Cooling capacity	(6)	kW	186	215	241	277	307	353
Total power input	(6)	kW	60,4	68,9	80,7	88,2	100	116
EER	(6)	kW/kW	3,07	3,12	2,98	3,13	3,05	3,06
EXCHANGERS								
HEAT EXCHANGER USER SIDE IN REFRIGERATION								
Water flow	(1)	l/s	7,10	8,19	9,14	10,52	11,75	13,47
Pressure drop	(1)(2)	kPa	27,0	25,7	26,1	26,1	26,1	23,5
REFRIGERANT CIRCUIT								
Compressors nr.		N°	4	4	4	4	4	4
No. Circuits		N°	2	2	2	2	2	2
Refrigerant charge		kg	22,3	26,3	28,4	32,3	34,6	86,0
NOISE LEVEL								
Sound power level in cooling	(8)(9)	dB(A)	90	95	97	91	93	94
SIZE AND WEIGHT								
A	(10)	mm	3970	4670	4670	5670	5670	5670
B	(10)	mm	1260	1260	1260	1260	1260	1260
H	(10)	mm	2100	2100	2100	2100	2100	2100
Operating weight	(10)	kg	1620	1926	2080	2453	2510	2563

Notes:
1 Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger air (in) 35°C.
2 Values in compliance with EN14511-3:2013.
3 Seasonal space heating energy index
4 Seasonal energy efficiency of high temperature process cooling [REGULATION (EU) N. 2016/2281]
5 Plant (side) cooling exchanger water (in/out) 16°C/ 10°C; Source (side) heat exchanger air (in) 35°C.
6 Acqua scambiatore freddo lato utenza (in/out) 23°C/15°C; Aria scambiatore lato sorgente (in) 35°C.
8 Sound power on the basis of measurements made in compliance with ISO 9614.
9 Sound power level in cooling, outdoors.
10 Unit in standard configuration/execution, without optional accessories.
The units highlighted in this publication contain HFC R410A [GWP_{100} 2088] fluorinated greenhouse gases.
Certified data in EUROVENT





NR-C-Z 0072-1104

Chiller, air source
for indoor installation
17-281 kW

NR-C-Z / SL-K			0072	0092	0102	0122	0152	0182	0202	0232
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	17,4	21,9	25,6	29,3	37,5	44,4	51,2	56,8
Total power input	(1)	kW	6,09	8,02	9,11	10,8	12,6	14,5	17,3	20,0
EER	(1)	kW/kW	2,86	2,73	2,81	2,71	2,98	3,06	2,96	2,84
COOLING ONLY (EN14511 VALUE)										
Cooling capacity	(1)(2)	kW	17,3	21,8	25,5	29,1	37,3	44,2	51,0	56,6
EER	(1)(2)	kW/kW	2,87	2,72	2,82	2,72	2,97	3,07	2,96	2,84
Cooling energy class			A	A	A	A	A	A	A	A
SEPR HT	(3)(4)		5,53	5,38	5,61	5,28	5,34	5,37	5,25	5,09
COOLING ONLY										
16°C/10°C										
Cooling capacity	(5)	kW	19,2	24,1	28,1	32,0	41,0	48,6	55,9	61,9
Total power input	(5)	kW	6,16	8,22	9,33	11,1	12,9	14,8	17,8	20,6
EER	(5)	kW/kW	3,12	2,93	3,01	2,88	3,18	3,28	3,14	3,00
23°C/15°C										
Cooling capacity	(6)	kW	22,3	28,0	32,4	36,9	47,2	56,0	64,4	70,9
Total power input	(6)	kW	6,30	8,59	9,76	11,7	13,4	15,4	18,6	21,5
EER	(6)	kW/kW	3,54	3,26	3,32	3,15	3,52	3,64	3,46	3,30
EXCHANGERS										
HEAT EXCHANGER USER SIDE IN REFRIGERATION										
Water flow	(1)	l/s	0,83	1,05	1,23	1,40	1,79	2,12	2,45	2,72
Pressure drop	(1)(2)	kPa	23,9	23,1	23,5	23,9	25,9	23,8	24,8	24,5
REFRIGERANT CIRCUIT										
Compressors nr.		N°	2	2	2	2	2	2	2	2
No. Circuits		N°	1	1	1	1	1	1	1	1
Refrigerant charge		kg	3,50	3,70	6,80	7,00	7,30	8,30	9,20	9,40
NOISE LEVEL										
Sound power level in cooling	(8)(9)	dB(A)	68	70	70	72	70	76	73	74
SIZE AND WEIGHT										
A	(10)	mm	1500	1500	2480	2480	2480	2480	2480	2480
B	(10)	mm	900	900	1100	1100	1100	1100	1100	1100
H	(10)	mm	1910	1910	2100	2100	2100	2100	2100	2100
Operating weight	(10)	kg	423	431	795	798	868	928	930	949

Notes:

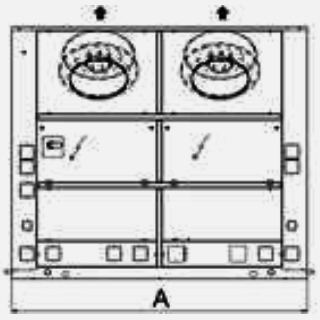
NR-C-Z / SL-K			0272	0302	0352	0402	0452	0502	0552	0602
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE										
COOLING ONLY (GROSS VALUE)										
Cooling capacity	(1)	kW	65,4	73,5	83,0	94,8	107	122	136	150
Total power input	(1)	kW	22,8	26,4	31,1	34,3	39,5	43,8	51,5	57,8
EER	(1)	kW/kW	2,87	2,78	2,67	2,76	2,71	2,79	2,65	2,60
COOLING ONLY (EN14511 VALUE)										
Cooling capacity	(1)(2)	kW	65,1	73,2	82,7	94,5	106	122	136	150
EER	(1)(2)	kW/kW	2,87	2,79	2,67	2,77	2,71	2,80	2,65	2,61
Cooling energy class			A	A	B	A	A	A	B	B
SEPR HT	(3)(4)		5,18	4,92	4,76	4,90	4,81	4,87	4,69	4,66
COOLING ONLY										
16°C/10°C										
Cooling capacity	(5)	kW	71,3	80,0	90,5	104	116	133	148	164
Total power input	(5)	kW	23,3	27,1	32,0	35,4	40,7	45,1	53,1	59,6
EER	(5)	kW/kW	3,06	2,95	2,83	2,92	2,86	2,96	2,80	2,75
23°C/15°C										
Cooling capacity	(6)	kW	81,9	91,6	104	119	133	153	170	187
Total power input	(6)	kW	24,4	28,4	33,7	37,4	43,1	47,4	56,0	63,2
EER	(6)	kW/kW	3,36	3,23	3,08	3,18	3,10	3,22	3,03	2,97
EXCHANGERS										
HEAT EXCHANGER USER SIDE IN REFRIGERATION										
Water flow	(1)	l/s	3,13	3,51	3,97	4,53	5,11	5,85	6,52	7,20
Pressure drop	(1)(2)	kPa	24,2	24,5	24,2	23,9	23,9	24,4	24,4	23,9
REFRIGERANT CIRCUIT										
Compressors nr.		N°	2	2	2	2	2	2	2	2
No. Circuits		N°	1	1	1	1	1	1	1	1
Refrigerant charge		kg	11,6	12,0	12,8	16,8	17,3	18,6	19,2	21,1
NOISE LEVEL										
Sound power level in cooling	(8)(9)	dB(A)	76	76	77	76	77	82	83	86
SIZE AND WEIGHT										
A	(10)	mm	2980	2980	2980	2980	3970	3970	3970	4670
B	(10)	mm	1260	1260	1260	1260	1260	1260	1260	1260
H	(10)	mm	2100	2100	2100	2100	2100	2100	2100	2100
Operating weight	(10)	kg	1110	1174	1245	1391	1448	1590	1620	1778

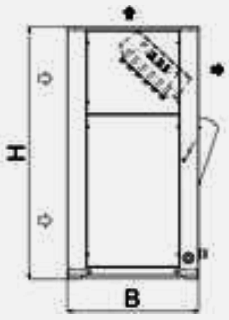
Notes:

COOLING SCROLL PLATES
HFC R-410A PLUG FAN

NR-C-Z / SL-K			0702	0524	0604	0704	0804	0904	1004
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
PERFORMANCE									
COOLING ONLY (GROSS VALUE)									
Cooling capacity	(1)	kW	172	124	145	166	185	222	243
Total power input	(1)	kW	65,4	46,6	55,0	62,7	71,8	79,6	91,0
EER	(1)	kW/kW	2,63	2,66	2,63	2,65	2,58	2,79	2,67
COOLING ONLY (EN14511 VALUE)									
Cooling capacity	(1)(2)	kW	172	124	144	166	185	222	243
EER	(1)(2)	kW/kW	2,64	2,67	2,63	2,66	2,58	2,80	2,68
Cooling energy class			B	B	B	B	B	A	B
SEPR HT	(3)(4)		4,60	4,97	4,80	4,80	4,69	4,81	4,75
COOLING ONLY									
16°C/10°C									
Cooling capacity	(5)	kW	187	135	157	181	202	243	265
Total power input	(5)	kW	67,5	47,9	56,5	64,6	74,2	81,7	93,3
EER	(5)	kW/kW	2,78	2,81	2,78	2,80	2,72	2,97	2,84
23°C/15°C									
Cooling capacity	(6)	kW	214	154	180	208	232	280	304
Total power input	(6)	kW	71,5	50,3	59,3	68,1	78,7	85,7	97,4
EER	(6)	kW/kW	3,00	3,06	3,03	3,05	2,95	3,26	3,13
EXCHANGERS									
HEAT EXCHANGER USER SIDE IN REFRIGERATION									
Water flow	(1)	l/s	8,24	5,93	6,91	7,95	8,85	10,63	11,64
Pressure drop	(1)(2)	kPa	24,6	24,3	25,6	24,2	24,5	26,6	25,6
REFRIGERANT CIRCUIT									
Compressors nr.		N°	2	4	4	4	4	4	4
No. Circuits		N°	1	2	2	2	2	2	2
Refrigerant charge		kg	25,3	21,0	23,1	27,6	29,7	82,6	84,3
NOISE LEVEL									
Sound power level in cooling	(8)(9)	dB(A)	89	82	84	89	82	88	89
SIZE AND WEIGHT									
A	(10)	mm	5670	3970	4670	5670	5670	5670	5670
B	(10)	mm	1260	1260	1260	1260	1260	1260	1260
H	(10)	mm	2100	2100	2100	2100	2100	2100	2100
Operating weight	(10)	kg	2058	1564	1743	2217	2296	2453	2510

Notes:
1 Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger air (in) 35°C.
2 Values in compliance with EN14511-3:2013.
3 Seasonal space heating energy index
4 Seasonal energy efficiency of high temperature process cooling [REGULATION (EU) N. 2016/2281]
5 Plant (side) cooling exchanger water (in/out) 16°C/ 10°C; Source (side) heat exchanger air (in) 35°C.
6 Acqua scambiatore freddo lato utenza (in/out) 23°C/15°C; Aria scambiatore lato sorgente (in) 35°C.
8 Sound power on the basis of measurements made in compliance with ISO 9614.
9 Sound power level in cooling, outdoors.
10 Unit in standard configuration/execution, without optional accessories.
The units highlighted in this publication contain HFC R410A [GWP_{100} 2088] fluorinated greenhouse gases.
Certified data in EUROVENT





NR-C-Z 0072-1104

Chiller, air source
for indoor installation
17-281 kW

NR-C-Z / A			0072	0092	0102	0122	0152	0182	0202	0232
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	18,1	22,9	27,4	31,6	38,8	46,0	53,0	59,2
Total power input	(1)	kW	5,94	7,83	8,56	10,2	12,6	14,4	17,2	19,8
EER	(1)	kW/kW	3,05	2,92	3,20	3,10	3,08	3,19	3,08	2,99
COOLING ONLY (EN14511 VALUE)										
Cooling capacity	(1)(2)	kW	18,0	22,8	27,2	31,4	38,6	45,8	52,8	58,9
EER	(1)(2)	kW/kW	3,05	2,93	3,21	3,10	3,09	3,22	3,10	3,00
Cooling energy class			A	A	A	A	A	A	A	A
SEPR HT	(3)(4)		5,73	5,68	6,18	5,79	5,52	5,48	5,36	5,21
COOLING ONLY										
16°C/10°C										
Cooling capacity	(5)	kW	20,0	25,3	30,1	34,8	42,6	50,5	58,1	64,7
Total power input	(5)	kW	5,97	7,98	8,69	10,4	12,8	14,6	17,5	20,2
EER	(5)	kW/kW	3,35	3,17	3,46	3,35	3,33	3,46	3,32	3,20
23°C/15°C										
Cooling capacity	(6)	kW	23,4	29,5	35,1	40,5	49,3	58,5	67,2	74,5
Total power input	(6)	kW	6,06	8,26	8,94	10,8	13,1	15,1	18,2	21,0
EER	(6)	kW/kW	3,86	3,57	3,93	3,75	3,76	3,87	3,69	3,55
EXCHANGERS										
HEAT EXCHANGER USER SIDE IN REFRIGERATION										
Water flow	(1)	l/s	0,87	1,10	1,31	1,51	1,86	2,20	2,54	2,83
Pressure drop	(1)(2)	kPa	25,8	25,3	26,8	27,9	27,8	25,5	26,6	26,6
REFRIGERANT CIRCUIT										
Compressors nr.		N°	2	2	2	2	2	2	2	2
No. Circuits		N°	1	1	1	1	1	1	1	1
Refrigerant charge		kg	3,50	3,70	6,80	7,00	7,30	8,30	9,20	9,40
NOISE LEVEL										
Sound power level in cooling	(8)(9)	dB(A)	74	77	82	84	86	83	84	84
SIZE AND WEIGHT										
A	(10)	mm	1500	1500	2480	2480	2480	2480	2480	2480
B	(10)	mm	900	900	1100	1100	1100	1100	1100	1100
H	(10)	mm	1910	1910	2100	2100	2100	2100	2100	2100
Operating weight	(10)	kg	423	431	795	798	868	928	930	949

Notes:

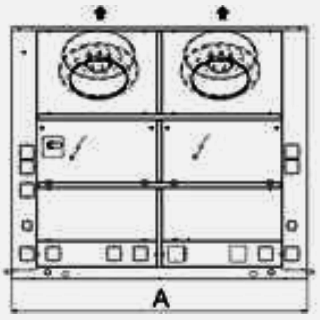
NR-C-Z / A			0272	0302	0352	0402	0452	0502	0552	0602
Power supply		V/ph/Hz	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
PERFORMANCE										
COOLING ONLY (GROSS VALUE)										
Cooling capacity	(1)	kW	67,8	77,2	87,2	99,8	113	126	141	159
Total power input	(1)	kW	22,8	26,2	30,7	33,7	38,7	43,9	51,7	57,4
EER	(1)	kW/kW	2,97	2,95	2,84	2,96	2,92	2,87	2,73	2,76
COOLING ONLY (EN14511 VALUE)										
Cooling capacity	(1)(2)	kW	67,5	76,9	86,9	99,4	113	126	140	158
EER	(1)(2)	kW/kW	2,99	2,96	2,85	2,98	2,93	2,88	2,74	2,77
Cooling energy class			A	A	A	A	A	A	A	A
SEPR HT	(3)(4)		5,23	5,12	4,91	5,08	5,04	4,91	4,72	4,86
COOLING ONLY										
16°C/10°C										
Cooling capacity	(5)	kW	74,1	84,4	95,4	109	124	138	154	173
Total power input	(5)	kW	23,3	26,8	31,5	34,5	39,7	45,1	53,0	58,9
EER	(5)	kW/kW	3,18	3,15	3,03	3,17	3,11	3,05	2,90	2,94
23°C/15°C										
Cooling capacity	(6)	kW	85,6	97,3	110	127	142	158	177	200
Total power input	(6)	kW	24,1	27,8	32,8	36,1	41,5	47,2	55,6	61,7
EER	(6)	kW/kW	3,55	3,50	3,36	3,51	3,43	3,35	3,18	3,24
EXCHANGERS										
HEAT EXCHANGER USER SIDE IN REFRIGERATION										
Water flow	(1)	l/s	3,24	3,69	4,17	4,77	5,40	6,03	6,74	7,58
Pressure drop	(1)(2)	kPa	26,0	27,1	26,7	26,5	26,7	25,9	26,1	26,5
REFRIGERANT CIRCUIT										
Compressors nr.		N°	2	2	2	2	2	2	2	2
No. Circuits		N°	1	1	1	1	1	1	1	1
Refrigerant charge		kg	11,6	12,0	12,8	16,8	17,3	18,6	19,2	21,1
NOISE LEVEL										
Sound power level in cooling	(8)(9)	dB(A)	90	83	84	83	85	86	88	93
SIZE AND WEIGHT										
A	(10)	mm	2980	2980	2980	2980	3970	3970	3970	4670
B	(10)	mm	1260	1260	1260	1260	1260	1260	1260	1260
H	(10)	mm	2100	2100	2100	2100	2100	2100	2100	2100
Operating weight	(10)	kg	1110	1174	1245	1391	1448	1590	1620	1778

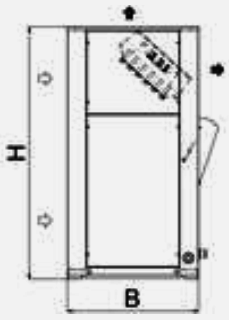
Notes:

COOLING SCROLL PLATES
HFC R-410A PLUG FAN

NR-C-Z / A			0702	0524	0604	0704	0804	0904	1004
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
PERFORMANCE									
COOLING ONLY (GROSS VALUE)									
Cooling capacity	(1)	kW	180	127	150	174	193	225	251
Total power input	(1)	kW	65,3	46,5	55,1	62,3	70,7	81,6	91,1
EER	(1)	kW/kW	2,76	2,74	2,72	2,78	2,74	2,76	2,76
COOLING ONLY (EN14511 VALUE)									
Cooling capacity	(1)(2)	kW	180	127	150	173	193	224	250
EER	(1)(2)	kW/kW	2,78	2,75	2,73	2,80	2,75	2,77	2,76
Cooling energy class			A	A	A	A	A	A	A
SEPR HT	(3)(4)		4,79	4,93	4,80	4,91	4,84	4,74	4,74
COOLING ONLY									
16°C/10°C									
Cooling capacity	(5)	kW	197	139	164	190	212	246	274
Total power input	(5)	kW	67,1	47,7	56,4	63,9	72,6	83,5	93,4
EER	(5)	kW/kW	2,94	2,91	2,90	2,97	2,92	2,95	2,93
23°C/15°C									
Cooling capacity	(6)	kW	227	159	188	219	244	285	315
Total power input	(6)	kW	70,4	49,9	58,8	66,7	76,2	86,8	97,7
EER	(6)	kW/kW	3,22	3,18	3,20	3,28	3,21	3,28	3,22
EXCHANGERS									
HEAT EXCHANGER USER SIDE IN REFRIGERATION									
Water flow	(1)	l/s	8,63	6,08	7,17	8,30	9,25	10,76	12,01
Pressure drop	(1)(2)	kPa	27,0	25,6	27,6	26,4	26,7	27,3	27,3
REFRIGERANT CIRCUIT									
Compressors nr.		N°	2	4	4	4	4	4	4
No. Circuits		N°	1	2	2	2	2	2	2
Refrigerant charge		kg	25,3	21,0	23,1	27,6	29,7	82,6	84,3
NOISE LEVEL									
Sound power level in cooling	(8)(9)	dB(A)	96	86	89	88	88	91	91
SIZE AND WEIGHT									
A	(10)	mm	5670	3970	4670	5670	5670	5670	5670
B	(10)	mm	1260	1260	1260	1260	1260	1260	1260
H	(10)	mm	2100	2100	2100	2100	2100	2100	2100
Operating weight	(10)	kg	2058	1564	1743	2217	2296	2453	2510

Notes:
1 Plant (side) cooling exchanger water (in/out) 12°C/7°C; Source (side) heat exchanger air (in) 35°C.
2 Values in compliance with EN14511-3:2013.
3 Seasonal space heating energy index
4 Seasonal energy efficiency of high temperature process cooling [REGULATION (EU) N. 2016/2281]
5 Plant (side) cooling exchanger water (in/out) 16°C/ 10°C; Source (side) heat exchanger air (in) 35°C.
6 Acqua scambiatore freddo lato utenza (in/out) 23°C/15°C; Aria scambiatore lato sorgente (in) 35°C.
8 Sound power on the basis of measurements made in compliance with ISO 9614.
9 Sound power level in cooling, outdoors.
10 Unit in standard configuration/execution, without optional accessories.
The units highlighted in this publication contain HFC R410A [GWP_{100} 2088] fluorinated greenhouse gases.
Certified data in EUROVENT





“BY FAR THE BEST PROOF IS EXPERIENCE”

Sir Francis Bacon
British Philosopher
(1561 - 1626)

ENI CONGO

2015 Pointe Noire - Congo

Plant type: HPAC System
Cooling capacity: 672 kW
Installed machines: 4x direct expansion close control units, 9x chilled water close control units, 257x fan coil units, 1x air handling unit, 2x scroll compressor chillers
Installer: CEU

Project
Eni has been present in Congo since 1968. Eni and the Congo Republic signed some strategic agreements for the cooperation and the care of the hydrocarbon resources of the Country.

Challenge
Considering the large Eni investment in Congo, it is so easy to understand the company’s need to enlarge their own headquarters in the country. The Pointe Noire location modernization started in 2012 and ended in 2014.
The entire intervention was divided into two phases: the first one was based on the revamping of existing buildings, while the second one consists in the construction of a new edifice.

Solution
In both steps Eni has chosen Mitsubishi Electric as its partner for the air conditioning, both companies sharing an attention to sustainability and a focus on environmental respect. The following solutions were selected for the HVAC plant: 1 air handling unit, 257 fan coils and more than 10 units belonging to the HPAC range. Moreover, two scroll compressor chillers with centrifugal fans serve the indoor close control units and the indoor office spaces.

MORE THAN 2000 PROJECTS ALL OVER THE WORLD.
Every project is characterized by different usage conditions and system specifications for many different latitudes. All these projects share high energy efficiency, maximum integration, and total reliability due to the unique experience of RC branded solutions.

ADLERSHOF STUDIO HALL
2006 Berlin - Germany

Application: Telecommunications
Plant type: Hydronic System
Cooling capacity: 150 kW
Installed machines: 1x chiller with scroll compressor

DEDIPOWER READING DATA CENTRE
2010 Reading - Great Britain

Application: Data Center
Plant type: Hydronic System
Cooling capacity: 1015 kW
Installed machines: 2x chiller with scroll compressors, 1x free-cooling chiller with scroll compressor

ASCO TLC DATA CENTRE, TIER III
2018 Treviso - Italy

Application: Data Center
Plant type: HPAC System
Cooling capacity: 861 kW
Installed machines: 6x chilled water close control units, 2x free-cooling chillers with scroll compressors

CLARO DATA CENTER - CARTAGENA
2013 Cartagena - Colombia

Application: Data Center
Plant type: HPAC System
Cooling capacity: 215 kW
Installed machines: 4x chilled water rack cooling units, 1x chiller with scroll compressor

RC_NR-C-Z_05-18_ENG

for a greener tomorrow

Eco Changes is the Mitsubishi Electric Group's environmental statement, and expresses the Group's stance on environmental management. Through a wide range of businesses, we are helping contribute to the realization of a sustainable society.

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