

# PROJECT VRF R410A FULL DC INVERTER

## XRV PLUS HEAT RECOVERY Heat recovery - 3 pipes



### FULL DC INVERTER

- HCSRU 2524 XRV-1 Plus
- HCSRU 2804 XRV-1 Plus
- HCSRU 3354 XRV-1 Plus
- HCSRU 4004 XRV-1 Plus
- HCSRU 4504 XRV-1 Plus

The range is characterised by 5 basic modules: 8, 10, 12, 14 e 16HP.  
All outdoor unit compressors are Full DC Inverter type for a high level of efficiency.  
Possibility of connecting up to 24 indoor units with only one flow divider.  
The indoor units can operate in different modes even if they are connected to the same flow divider.  
Wide range in operating conditions: from -20° C WB in heating mode up to +43° C DB in cooling mode with no stop.  
High splitting distance: max distance between I.U. up to 200 m, total length up to 1000 m.

### High energy efficiency

Fan and grille.



Integrated electric circuit.



Control of DC Inverter wave at 180°(IPM).



DC Inverter fan, low noise level, low consumption, high efficiency.

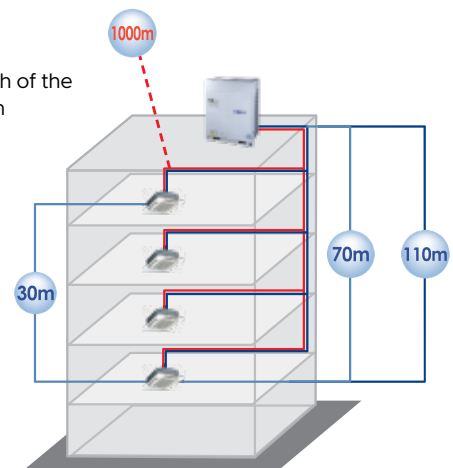
Highly efficient heat exchanger.

High pressure DC Inverter Scroll compressor contributes to very high efficiency.



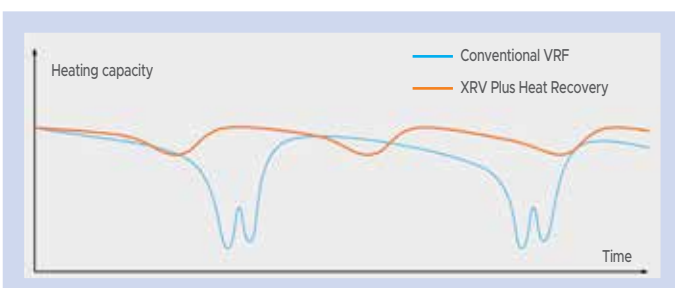
### Splitting lengths and height differences

Maximum length of the pipes = 1000 m



- Max distance between O.U. and the farthest I.U. = 200 m
- Max distance from the divider to the farthest I.U. = 40 m
- Max distance from the first branch pipe to the farthest I.U. = 90 m
- Max height difference between O.U. (up high) and I.U. = 70 m
- Max height difference between O.U. (down) and the I.U. = 110 m
- Max height difference between I.U. = 30 m
- Maximum length of the pipes = 1000 m

### Curve of heating capacity during defrost



### Heating during defrost

XRV Plus heat recovery remarkably reduces defrost time thanks to the particular structure of the heat exchanger, therefore with non-stop operation.

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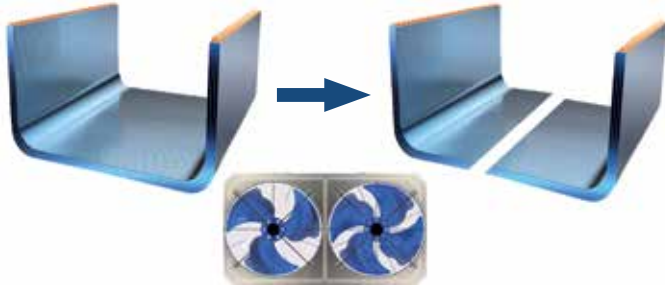
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### Fan and exchanger

Outdoor unit heat exchangers are divided in two parts, a left and right structure, so that there are two independent circuits in one outdoor unit. Each outdoor unit has two fans, which allow control over each heat exchanger structure individually.

2-pipe system

3-pipe system



### Pressure head up to 20 Pa

The available pressure head up to 20 Pa allows users to "hide" the outdoor units from view and to duct the outlet air.



### Branch pipe kit

#### Branch pipe downstreams of the first indoor unit

Code	A - Capacity of the connectible indoor units (kW)
DIS-22-1RB	$A < 16.6$
DIS-180-1RB	$16.6 \leq A < 33.0$
DIS-371-1RB	$33.0 \leq A < 66.0$
DIS-540-1RH Plus	$66.0 \leq A < 92.0$
DIS-1344-1RH Plus	$92.0 \leq A < 135.0$

#### Branch pipe kit for outdoor connection

Code	Outdoor units
DOS 2-1RH Plus	2 Outdoor unit KITS
DOS 3-1RH Plus	3 Outdoor unit KITS
DOS 4-1RH Plus	4 Outdoor unit KITS
OH-BAL-KT*	T-shaped fitting for oil parallel pipe

\* Included in DOS 3-1H Plus & DOS 4-1H Plus KITS.

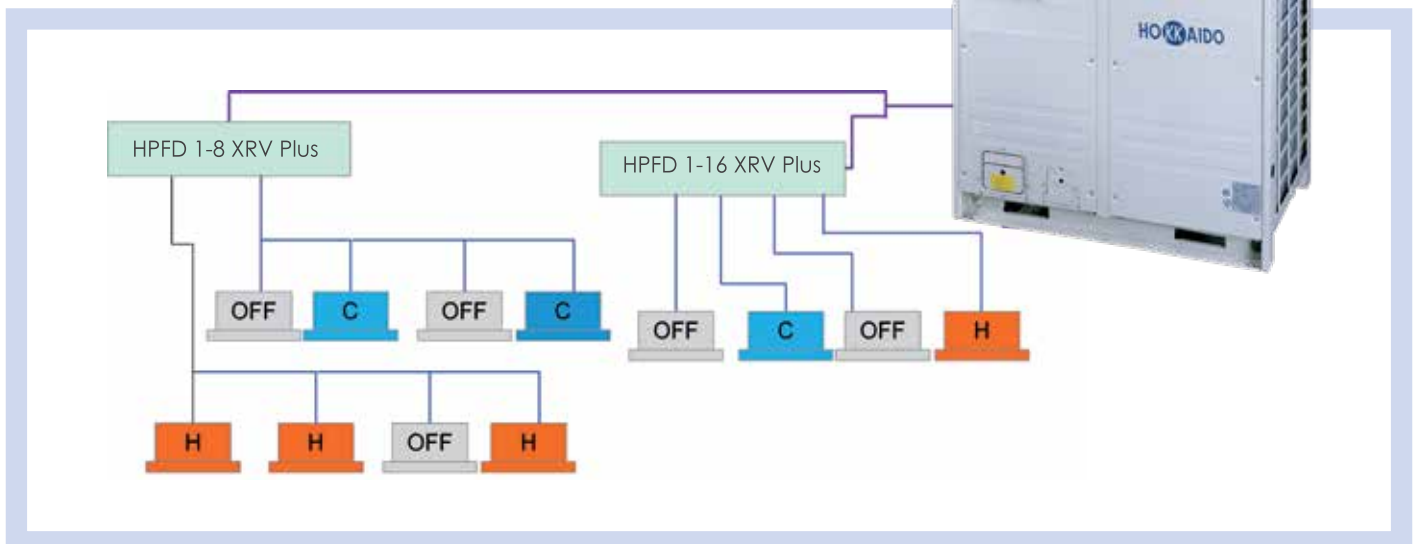
### Indoor unit connection system

Indoor units are connected to flow dividers.

Up to 4 indoor units (max 16 kW) can be connected to each output.

The units connected to each output can operate in different modes from those connected to another output.

All indoor units connected to one output can only operate in the same mode.



## XRV PLUS HEAT RECOVERY

### Heat recovery - 3 pipes

Model / Combination		HCSRU 2524 XRV-1 Plus	HCSRU 2804 XRV-1 Plus	HCSRU 3354 XRV-1 Plus	HCSRU 4004 XRV-1 Plus	HCSRU 4504 XRV-1 Plus
<b>Power</b>	<b>HP</b>	<b>8</b>	<b>10</b>	<b>12</b>	<b>14</b>	<b>16</b>
Rated cooling capacity (1)	kW	25.2	28.0	33.5	40.0	45.0
Rated heating capacity (2)	kW	27.0	31.5	37.5	40.0	45.0
<b>Electrical data</b>						
Electric consumption in cooling mode (rated)	Ph-V-Hz	3-380~415V-50Hz	3-380~415V-50Hz	3-380~415V-50Hz	3-380~415V-50Hz	3-380~415V-50Hz
Electric consumption in heating mode (rated)	kW	6.67	7.24	9.28	11.49	14.20
EER performance coefficient in cooling mode	kW	5.28	6.54	9.24	9.76	11.90
COP performance coefficient in heating mode	W/W	3.78	3.87	3.61	3.48	3.17
COP coeff. di prestazione in riscaldamento	W/W	5.11	4.82	4.06	4.10	3.78
<b>Refrigerant circuit/features</b>						
Refrigerant	type (GWP) Kg (tons CO2)	R410A (2088) 10 (20.880)	R410A (2088) 10 (20.880)	R410A (2088) 10 (20.880)	R410A (2088) 13 (27.144)	R410A (2088) 13 (27.144)
DC Inverter compressor	no. / type	1 / Scroll DC Inverter HITACHI			2 / Scroll DC Inverter HITACHI	
Refrigerant connections (3)	Liquid	Ø mm (inch)	9.53 (3/8)	12.7 (1/2)		15.9 (5/8)
	Low pressure gas	Ø mm (inch)	22.2 (7/8)		25.4 (1)	28.6 (9/8)
	High pressure gas	Ø mm (inch)	19.1 (3/4)			22.2 (7/8)
	H.p. parallel gas	Ø mm (inch)	19.1 (3/4)			19.1 (3/4)
	Parallel oil	Ø mm (inch)	6.35 (1/4)			6.35 (1/4)
Max pipe length	m	1000	1000	1000	1000	1000
Max height difference between indoor units	m	30	30	30	30	30
Max height difference between outdoor and indoor units	O.U. up-down	70 - 110	70 - 110	70 - 110	70 - 110	70 - 110
<b>Product specifications</b>						
Dimensions (4)	LxHxD	mm 1250x1615x765			mm 1250x1615x765	
Net weight	Kg	255			303	
Sound pressure level at 1 m	min-max	dB(A) 55/57		56/58	58/60	
Sound power level	max	79	83	84	88	
Fan air flow	min-max	m³/h 10675 / 12000			m³/h 12875 / 15000	
Operating temp. range in cooling mode	°C / DB	-5 / 43	-5 / 43	-5 / 43	-5 / 43	-5 / 43
Operating temp. range in heating mode	°C / WB	-20 / 24	-20 / 24	-20 / 24	-20 / 24	-20 / 24
<b>Connectable indoor units</b>	<b>no.</b>	<b>13</b>	<b>16</b>	<b>20</b>	<b>23</b>	<b>26</b>
Capacity of connected indoor unit	%	50 - 130	50 - 130	50 - 130	50 - 130	50 - 130

Model / Combination		HCSRU 2804 XRV-1 Plus HCSRU 2804 XRV-1 Plus HCSRU 4004 XRV-1 Plus	HCSRU 2804 XRV-1 Plus HCSRU 2804 XRV-1 Plus HCSRU 4504 XRV-1 Plus	HCSRU 2804 XRV-1 Plus HCSRU 3354 XRV-1 Plus HCSRU 4504 XRV-1 Plus	HCSRU 2804 XRV-1 Plus HCSRU 4004 XRV-1 Plus HCSRU 4504 XRV-1 Plus	HCSRU 4004 XRV-1 Plus HCSRU 4004 XRV-1 Plus HCSRU 4004 XRV-1 Plus	HCSRU 4004 XRV-1 Plus HCSRU 4004 XRV-1 Plus HCSRU 4504 XRV-1 Plus
<b>Power</b>	<b>HP</b>	<b>34 (10+10+14)</b>	<b>36 (10+10+16)</b>	<b>38 (10+12+16)</b>	<b>40 (10+14+16)</b>	<b>42 (14+14+14)</b>	<b>44 (14+14+16)</b>
Rated cooling capacity (1)	kW	96.0	101.0	106.5	113.0	120.0	125.0
Rated heating capacity (2)	kW	103.0	108.0	114.0	116.5	120.0	125.0
<b>Electrical data</b>							
Electric consumption in cooling mode (rated)	Ph-V-Hz	3-380~415V-50Hz	3-380~415V-50Hz	3-380~415V-50Hz	3-380~415V-50Hz	3-380~415V-50Hz	3-380~415V-50Hz
Electric consumption in heating mode (rated)	kW	25.97	28.68	30.72	32.93	34.47	37.18
EER performance coefficient in cooling mode	kW	22.84	24.98	27.68	28.2	29.28	31.42
COP performance coefficient in heating mode	W/W	3.70	3.52	3.47	3.43	3.48	3.36
COP coeff. di prestazione in riscaldamento	W/W	4.51	4.32	4.12	4.13	4.10	3.98
<b>Refrigerant circuit/features</b>							
Refrigerant	type (GWP) Kg (tons CO2)	R410A (2088) 33 (68.904)	R410A (2088) 33 (68.904)	R410A (2088) 33 (68.904)	R410A (2088) 36 (75.168)	R410A (2088) 39 (81.432)	R410A (2088) 39 (81.432)
DC Inverter compressor	no. / type	4 / Scroll DC Inverter HITACHI			5 / Scroll DC Inv. HITACHI	6 / Scroll DC Inverter HITACHI	
Refrigerant connections (3)	Liquid	Ø mm (inch)	19.1 (3/4)			19.1 (3/4)	
	Low pressure gas	Ø mm (inch)	41.3 (1 5/8)			41.3 (1 5/8)	
	High pressure gas	Ø mm (inch)	34.9 (1 3/8)			34.9 (1 3/8)	
	H.p. parallel gas	Ø mm (inch)	19.1 (3/4)			19.1 (3/4)	
	Parallel oil	Ø mm (inch)	6.35 (1/4)			6.35 (1/4)	
Max pipe length	m	1000	1000	1000	1000	1000	1000
Max height difference between indoor units	m	30	30	30	30	30	30
Max height difference between outdoor and indoor units	O.U. up-down	70 - 110	70 - 110	70 - 110	70 - 110	70 - 110	70 - 110
<b>Product specifications</b>							
Dimensions (4)	LxHxD	mm 3950x1615x765			mm 3950x1615x765		mm 3950x1615x765
Net weight	Kg	813			861		909
Sound pressure level at 1 m	min-max	dB(A) 55/65		55/66		56/67	
Sound power level	max	90		90		90	
Fan air flow	min-max	m³/h 10675 / 39000		m³/h 10675 / 40000		m³/h 12875 / 45000	
Operating temp. range in cooling mode	°C / DB	-5 / 43	-5 / 43	-5 / 43	-5 / 43	-5 / 43	-5 / 43
Operating temp. range in heating mode	°C / WB	-20 / 24	-20 / 24	-20 / 24	-20 / 24	-20 / 24	-20 / 24
<b>Connectable indoor units</b>	<b>no.</b>	<b>56</b>	<b>59</b>	<b>63</b>	<b>64</b>	<b>64</b>	<b>64</b>
Capacity of connected indoor unit	%	50 - 130	50 - 130	50 - 130	50 - 130	50 - 130	50 - 130

(1) Cooling capacity tested in accordance with ISO 5151 Standards; outdoor temperature 35° C DB, 24° C WB and indoor temperature 27° C DB, 19° WB.

(2) Heating capacity tested in accordance with ISO 5151 Standards; outdoor temperature 7° C DB, 6° C WB and indoor temperature 20° C DB, 15° C WB.

(3) When several outdoor units are paired the diameters indicated refer to the section up to the first branch, with a length equivalent or less than 90m.

(4) Space between the paired units = 100 mm.

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### Heat recovery - 3 pipes

HCSRU 2524 XRV-1 Plus HCSRU 2804 XRV-1 Plus	HCSRU 2804 XRV-1 Plus HCSRU 2804 XRV-1 Plus	HCSRU 2804 XRV-1 Plus HCSRU 3354 XRV-1 Plus	HCSRU 2804 XRV-1 Plus HCSRU 4004 XRV-1 Plus	HCSRU 2804 XRV-1 Plus HCSRU 4504 XRV-1 Plus	HCSRU 4004 XRV-1 Plus HCSRU 4004 XRV-1 Plus	HCSRU 4004 XRV-1 Plus HCSRU 4504 XRV-1 Plus	HCSRU 4504 XRV-1 Plus HCSRU 4504 XRV-1 Plus
<b>18 (8+10)</b>	<b>20 (10+10)</b>	<b>22 (10+12)</b>	<b>24 (10+14)</b>	<b>26 (10+16)</b>	<b>28 (14+14)</b>	<b>30 (14+16)</b>	<b>32 (16+16)</b>
53.2	56.0	61.5	68.0	73.0	80.0	85.0	90.0
58.5	63.0	69.0	71.5	76.5	80.0	85.0	90.0
3-380~415V-50Hz	3-380~415V-50Hz	3-380~415V-50Hz	3-380~415V-50Hz	3-380~415V-50Hz	3-380~415V-50Hz	3-380~415V-50Hz	3-380~415V-50Hz
13.91	14.48	16.52	18.73	21.44	22.98	25.69	28.40
11.82	13.08	15.78	16.3	18.44	19.52	21.66	23.8
3.82	3.87	3.72	3.63	3.40	3.48	3.31	3.17
4.95	4.82	4.37	4.39	4.15	4.10	3.92	3.78
R410A (2088)	R410A (2088)	R410A (2088)	R410A (2088)	R410A (2088)	R410A (2088)	R410A (2088)	R410A (2088)
20 (41.760)	20 (41.760)	20 (41.760)	23 (48.024)	23 (48.024)	26 (54.288)	26 (54.288)	26 (54.288)
2 / Scroll DC Inverter HITACHI			3 / Scroll DC Inverter HITACHI		4 / Scroll DC Inverter HITACHI		
15.9 (5/8)			15.9 (5/8)		19.1 (3/4)		19.1 (3/4)
31.8 (1 1/4)			34.9 (1 3/8)		34.9 (1 3/8)		34.9 (1 3/8)
28.6 (9/8)			28.6 (9/8)		28.6 (9/8)		28.6 (9/8)
19.1 (3/4)			19.1 (3/4)		19.1 (3/4)		19.1 (3/4)
6.35 (1/4)			6.35 (1/4)		6.35 (1/4)		6.35 (1/4)
1000	1000	1000	1000	1000	1000	1000	1000
30	30	30	30	30	30	30	30
70 - 110	70 - 110	70 - 110	70 - 110	70 - 110	70 - 110	70 - 110	70 - 110
2600x1615x765			2600x1615x765		2600x1615x765		
510			558		606		
55/61			55/63		56/64		
88			88		89		
10675 / 24000			10675 / 25000		12875 / 30000		
-5 / 43			-5 / 43		-5 / 43		
-20 / 24			-20 / 24		-20 / 24		
29			39		46		
50 - 130			50 - 130		50 - 130		

HCSRU 4004 XRV-1 Plus HCSRU 4504 XRV-1 Plus HCSRU 4504 XRV-1 Plus	HCSRU 4504 XRV-1 Plus HCSRU 4504 XRV-1 Plus HCSRU 4504 XRV-1 Plus	HCSRU 2524 XRV-1 Plus HCSRU 2804 XRV-1 Plus HCSRU 4504 XRV-1 Plus	HCSRU 2804 XRV-1 Plus HCSRU 2804 XRV-1 Plus HCSRU 4504 XRV-1 Plus	HCSRU 2804 XRV-1 Plus HCSRU 3354 XRV-1 Plus HCSRU 4504 XRV-1 Plus	HCSRU 2804 XRV-1 Plus HCSRU 4004 XRV-1 Plus HCSRU 4504 XRV-1 Plus	HCSRU 4004 XRV-1 Plus HCSRU 4004 XRV-1 Plus HCSRU 4504 XRV-1 Plus	HCSRU 4004 XRV-1 Plus HCSRU 4004 XRV-1 Plus HCSRU 4504 XRV-1 Plus	HCSRU 4004 XRV-1 Plus HCSRU 4504 XRV-1 Plus HCSRU 4504 XRV-1 Plus	HCSRU 4504 XRV-1 Plus HCSRU 4504 XRV-1 Plus HCSRU 4504 XRV-1 Plus
<b>46 (14+16+16)</b>	<b>48 (16+16+16)</b>	<b>50 (8+10+16+16)</b>	<b>52 (10+10+16+16)</b>	<b>54 (10+12+16+16)</b>	<b>56 (10+14+16+16)</b>	<b>58 (14+14+14+16)</b>	<b>60 (14+14+16+16)</b>	<b>62 (14+16+16+16)</b>	<b>64 (16+16+16+16)</b>
130.0	135.0	143.2	146.0	151.5	158.0	165.0	170.0	175.0	180.0
130.0	135.0	148.5	153.0	159.0	161.5	165.0	170.0	175.0	180.0
3-380~415V-50Hz	3-380~415V-50Hz	3-380~415V-50Hz	3-380~415V-50Hz	3-380~415V-50Hz	3-380~415V-50Hz	3-380~415V-50Hz	3-380~415V-50Hz	3-380~415V-50Hz	3-380~415V-50Hz
39.89	42.6	42.31	42.88	44.92	47.13	48.67	51.38	54.09	56.8
33.56	35.7	35.62	36.88	39.58	40.1	41.18	43.32	45.46	47.6
3.26	3.17	3.38	3.40	3.37	3.35	3.39	3.31	3.24	3.17
3.87	3.78	4.17	4.15	4.02	4.03	4.01	3.92	3.85	3.78
R410A (2088)	R410A (2088)	R410A (2088)	R410A (2088)	R410A (2088)	R410A (2088)	R410A (2088)	R410A (2088)	R410A (2088)	R410A (2088)
39 (81.432)	39 (81.432)	46 (96.048)	46 (96.048)	46 (96.048)	49 (102.312)	52 (108.576)	52 (108.576)	52 (108.576)	52 (108.576)
6 / Scroll DC Inverter HITACHI		6 / Scroll DC Inverter HITACHI			7 / Scroll DC Inv. HITACHI	8 / Scroll DC Inv. HITACHI		8 / Scroll DC Inv. HITACHI	
19.1 (3/4)		22.2 (7/8)			22.2 (7/8)		22.2 (7/8)		22.2 (7/8)
41.3 (1 5/8)		44.5 (1 3/4)			44.5 (1 3/4)		44.5 (1 3/4)		44.5 (1 3/4)
34.9 (1 3/8)		38.1 (1 1/2)			38.1 (1 1/2)		38.1 (1 1/2)		38.1 (1 1/2)
19.1 (3/4)		19.1 (3/4)			19.1 (3/4)		19.1 (3/4)		19.1 (3/4)
6.35 (1/4)		6.35 (1/4)			6.35 (1/4)		6.35 (1/4)		6.35 (1/4)
1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
30	30	30	30	30	30	30	30	30	30
70 - 110	70 - 110	70 - 110	70 - 110	70 - 110	70 - 110	70 - 110	70 - 110	70 - 110	70 - 110
3950x1615x765		5300x1615x765			5300x1615x765	5300x1615x765		5300x1615x765	
909		1116			1164	1212		1212	
56/68		56/68			55/69		55/69		55/69
91		91			91		91		91
10675 / 54000		10675 / 55000			10675 / 57000	12875 / 60000		12875 / 60000	
-5 / 43		-5 / 43			-5 / 43	-5 / 43		-5 / 43	
-20 / 24		-20 / 24			-20 / 24	-20 / 24		-20 / 24	
64		64			64	64		64	
50 - 130		50 - 130			50 - 130	50 - 130		50 - 130	

(1) Cooling capacity tested in accordance with ISO 5151 Standards; outdoor temperature 35°C DB, 24°C WB and indoor temperature 27°C DB, 19°C WB.  
 (2) Heating capacity tested in accordance with ISO 5151 Standards; outdoor temperature 7°C DB, 6°C WB and indoor temperature 20°C DB, 15°C WB.  
 (3) When several outdoor units are paired the diameters indicated refer to the section up to the first branch, with a length equivalent or less than 90m.  
 (4) Space between the paired units = 100 mm.