

FRIGA-BOHN®

MULTIHAVANE

Condensing unit

HFC



|||| HT **100 - 275 kW**
|||| MT **15 - 225 kW**
|||| LT **5 - 65 kW**



- # Unit ready to use and pre-wired in the factory to **save time on installation**.
- # **Versatile unit** that be adapted to the needs of your application:
 - Outdoor installation, on the ground or a roof.
 - Two compressor technologies available: Scroll or semi-hermetic.
 - Possibility of adjusting the noise level with the low noise level (LN) option.
 - Optional oversized condenser for high ambient temperatures.
- # Easy access to all components for **easy maintenance**.

CONDENSER

- # NEOSTAR (L or P) and WA type condensers, regulated by cascade stop.
- # Low noise level: silent condenser.
- # Oversized condenser: for operation in high ambient temperatures, up to 43 °C.

OPTION

GPC

Condenser protection grille.

CASING

- # Base of frame in high-strength folded galvanized sheet metal.
- # White sheet metal casing.
- # Removable panels with 1/4 turn latches.
- # Designed for easy handling by crane (lifting rings as standard).
- # Low noise level: noise insulation of the compressor compartment.

COMPRESSOR

- # The compressors are charged with ester oil and are equipped as shown in the table below:

	SH Octagon	Scroll	SH
Number of compressors	2-3-4	2-3-4	2-3
Crankcase heater	Yes	Yes	Yes
Suction and delivery valves	Yes	Yes	Yes
HP safety pressure switch	Yes	Yes	Yes
Oil pump	From 4VC	No	Yes
Cylinder head fan	Negative	No	Negative

OPTION

COQ

Noise insulation casing on Scroll (except ZF15, ZB38 and ZB45).



REGULATION AND SAFETY

- # For Scroll or Octagon 2-compressor racks: Pressure regulation with 1 LP regulator pressure switch per compressor and 1 HP regulator pressure switch per condenser fan.
- # For other racks: Electronic regulation by controller with LP/HP sensors signal 4/20 mA.
- # A LP general safety pressure switch.
- # One oil differential pressure switch per compressor for semi-hermetic compressors and from the 4VC compressor for OCT).
- # 1 or 2 HP cartridge pressure switches with automatic reset per compressor.
- # Two pressure gages (LP+HP).
- # Connection of each element in 1/4" flexible tube.

OPTION

BP1	Additional LP pressure switch.
BPS	LP safety pressure switch per compressor (automatic reset).
CDP	LP/HP pressure sensor signal 4/20 mA.
HPG	HP general pressure switch.
HPS	Additional HP pressure switch.



ELECTRICAL BOX

- # Electrical cabinet with latch-locked double door.
- # Front panel disconnect switch and power indicator.
- # All the electrical equipment is connected to the circuit board, which includes protection and control of the condensing unit.

OIL LINE

- # LP oil return with a removable oil separator and a receiver equipped with a high and low indicator, shut-off valves and a calibrated degassing valve in the LP manifold with a shut-off valve.
- # Float oil level regulators and shut-off valve per compressor for SH and electronic for Scroll.

LIQUID LINE

- # Liquid line with filter dryer(s) with removable cartridge(s), 3/8" SAE charging valve(s) and a hygroscopic indicator and shut-off valve(s).

RECEIVER

- # Horizontal liquid receiver with 2 inlet/outlet shut-off valves.
- # Single or double safety valve with 3-way valve if the capacity is > or = 100 l.

MANIFOLDS

- # Suction and delivery manifolds in 304L stainless steel for SH and copper for Sc and OCT, fixed with polypropylene collars on the suction side and high temperature resistant polyamide on the delivery side.
- # General filter unit on the suction or per compressor depending on model with removable cartridge(s).

CONNECTION VALVES

- # Suction valve and liquid outlet valve depending on the model.

OPTION

SIL	Delivery muffler (only for SH version).
TXL	Electronic oil level controllers.
ALR	Optoelectronic refrigerant level alarm.
SSD	Double safety valve with 3-way valve only for receivers with a capacity of less than 100 L (standard for the others).
PR2	2 return suction valves and 2 liquid outlet valves (only for SH version).
BAC	Liquid separator (except SC), with oil return system by suction or gravity depending on model.
RLS	Oversized liquid receiver.

MHV SH^(A) 2^(B) PHT^(C) 4HE-25Y^(D) A^(E) C3^(F) L^(G) 2^(H) -D^(I)

(A) Compressor technology: **SC** = Scroll **OCT** = Octagon **SH** = Semi-hermetic

(B) Number of compressors

(C) **N** = Negative / te = - 35 °C **P** = Positive / te = - 10 °C **PHT** = Positive High Temp. / te = 0 °C

(D) Compressor type

(E) Condenser version: **A** = Standard **AS** = Oversized **ALN** = Low noise level

(F) Box type: **C1 - C2 - C3 - C4 - C5**

(G) Fan arrangement: **L** = in-line **P** = parallel

(H) Number of fans

(I) Module type or fan Ø: **A** = 1,200 **B** = 1,500 **D** = 2,000 **5** = 500 mm **6** = 630 mm

The MULTIHAVANE is available with HFCs. For precise selection, please consult our software.

			MULTIHAVANE		High temperature positive range	
MHV SH ...			A		AS	
Power (l)	R449A	kW	109,1	273,8	98,6	202,2
Power consumption (l)		kW	39,6	102,6	45,0	95,7
	R404A	kW	117,3	> 293,3	102,8	> 167,3
Power consumption (l)		kW	40,5	> 105,2	46,6	> 79,1
Current drawn	A max.		88,8	> 237,9	94,0	> 210,8
Compressors	Nb		2	> 3	2	> 3
Liquid capacity	l.		145	> 200	145	> 200
Net weight	kg		1860	> 3142	2140	> 2822

(l) **A**: Evaporating temperature 0 °C / Ambient temperature +32 °C - Superheat: 10K - Subcool: 3K.

AS: Evaporating temperature 0 °C / Ambient temperature +42 °C - Superheat: 10K - Subcool: 3K.

R404A is a refrigerant only available for non-EU markets (not compatible with F-Gas).

MHV SH^(A) 2^(B) P^(C) 4MF-13X^(D) A^(E) C3^(F) L^(G) 2^(H) -A^(I)

(A) Compressor technology: **SC** = Scroll **OCT** = Octagon **SH** = Semi-hermetic
 (B) Number of compressors
 (C) **N** = Negative / te = - 35 °C **P** = Positive / te = - 10 °C **PHT** = Positive High Temp. / te = 0 °C
 (D) Compressor type
 (E) Condenser version: **A** = Standard **AS** = Oversized **ALN** = Low noise level
 (F) Box type: **C1 - C2 - C3 - C4 - C5**
 (G) Fan arrangement: **L** = in-line **P** = parallel
 (H) Number of fans
 (I) Module type or fan Ø: **A** = 1,200 **B** = 1,500 **D** = 2,000 **5** = 500 mm **6** = 630 mm

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MULTIHAVANE

Positive range

MHV SH ...		
Power (1)	R449A	kW
Power consumption (1)		kW
	R404A	kW
Power consumption (1)		kW
Current drawn	A max.	
Compressors	Nb	
Acoustics (2)	dB(A)	
Liquid capacity	l.	
Net weight		kg

A	AS	ALN
31,0 > 120,7	34,8 > 128,7	29,1 > 64,0
63,6 > 234,6	54,2 > 200,1	64,3 > 136,5
31,0 > 120,7	34,8 > 128,7	29,1 > 64,0
59,1 > 255,4	62,5 > 255,4	55,4 > 139,7
2 > 3	2 > 3	2 > 3
-	-	46 > 54
68 > 200	68 > 200	68 > 145
1598 > 3114	1618 > 3254	1828 > 3067

MHV OCT ...		
Power (1)	R449A	kW
Power consumption (1)		kW
	R404A	kW
Power consumption (1)		kW
Current drawn	A max.	
Compressors	Nb	
Acoustics (2)	dB(A)	
Liquid capacity	l.	
Net weight		kg

A	AS	ALN
11,4 > 55,9	14,0 > 45,2	10,6 > 53,8
21,9 > 114,7	19,6 > 94,7	24,3 > 114,9
11,4 > 55,9	14,0 > 59,1	10,6 > 53,8
21,9 > 120,2	25,1 > 120,2	21,8 > 117,7
2 > 4	2 > 4	2 > 4
-	-	33 > 49
40 > 98	40 > 98	40 > 98
789 > 2414	822 > 2457	1160 > 2912

MHV SC ...		
Power (1)	R449A	kW
Power consumption (1)		kW
	R404A	kW
Power consumption (1)		kW
Current drawn	A max.	
Compressors	Nb	
Acoustics (2)	dB(A)	
Liquid capacity	l.	
Net weight		kg

A	AS	ALN
8,8 > 54,2	10,2 > 64,6	8,1 > 52,2
17,1 > 106,4	15,1 > 87,5	18,1 > 106,6
8,8 > 54,2	10,2 > 64,6	8,1 > 52,2
23,4 > 132,7	24,2 > 132,7	23,0 > 130,2
2 > 4	2 > 4	2 > 4
-	-	38 > 50
40 > 98	40 > 98	40 > 98
701 > 2134	728 > 2177	875 > 2632

(1) **A**: Evaporating temperature -10 °C / Ambient temperature +32 °C - Superheat: 10K - Subcool: 3K.

AS: Evaporating temperature -10 °C / Ambient temperature +42 °C - Superheat: 10K - Subcool: 3K.

ALN: Evaporating temperature -10 °C / Ambient temperature +32 °C - Superheat: 10K - Subcool: 3K.

(2) Lp at 10 m: Sound pressure in dB(A) measured at 10 m, in a free field over a reflecting plane, in accordance with standard EN 13487 (parallelepiped reference surface).

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MHV SH^(A) 2^(B) N^(C) 4HE-18Y^(D) A^(E) C3^(F) L^(G) 2^(H) -A^(I)

(A) Compressor technology: **SC** = Scroll **OCT** = Octagon **SH** = Semi-hermetic

(B) Number of compressors

(C) **N** = Negative / te = - 35 °C **P** = Positive / te = - 10 °C **PHT** = Positive High Temp. / te = 0 °C

(D) Compressor type

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(H) Number of fans

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Negative range

MHV SH ...		
Power (1)	R449A	kW
	R404A	kW
Power consumption (1)		kW
Current drawn	A max.	
Compressors	Nb	
Acoustics (2)	dB(A)	
Liquid capacity	l	
Net weight	kg	

A	AS	ALN
22,9 > 71,0	17,2 > 54,2	22,2 > 71,1
20,6 > 66,2	20,7 > 68,4	19,0 > 64,2
57,7 > 185,8	57,7 > 185,8	54,0 > 183,3
2 > 3	2 > 3	2 > 3
-	-	43 > 54
68 > 200	68 > 200	68 > 145
1594 > 2788	1594 > 2788	1770 > 3286

MHV OCT ...		
Power (1)	R449A	kW
	R404A	kW
Power consumption (1)		kW
Current drawn	A max.	
Compressors	Nb	
Acoustics (2)	dB(A)	
Liquid capacity	l	
Net weight	kg	

A	AS	ALN
6,8 > 30,5	5,1 > 22,2	6,9 > 30,5
6,4 > 24,9	6,5 > 24,2	5,8 > 24,9
16,6 > 72,4	16,6 > 72,4	15,9 > 72,4
2 > 4	2 > 4	2 > 4
-	-	33 > 47
40 > 68	40 > 68	40 > 68
792 > 2368	792 > 2368	913 > 2658

MHV SC ...		
Power (1)	R449A	kW
	R404A	kW
Power consumption (1)		kW
Current drawn	A max.	
Compressors	Nb	
Acoustics (2)	dB(A)	
Liquid capacity	l	
Net weight	kg	

A	AS	ALN
6,3 > 38,3	5,1 > 31,1	6,4 > 38,3
6,4 > 41,8	7,6 > 48,7	5,8 > 41,8
17,6 > 107,4	17,6 > 107,4	16,8 > 107,4
2 > 4	2 > 4	2 > 4
-	-	38 > 49
40 > 98	40 > 98	40 > 98
692 > 2292	692 > 2292	813 > 2582

(1) **A**: Evaporating temperature -35 °C / Ambient temperature +32 °C - Superheat: 10K - Subcool: 3K.

AS: Evaporating temperature 35 °C / Ambient temperature +42 °C - Superheat: 10K - Subcool: 3K.

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