

Copeland™ YHV Variable Speed Scroll Compressor Range for A2L Refrigerants R452B/R454B with Inverter Drive

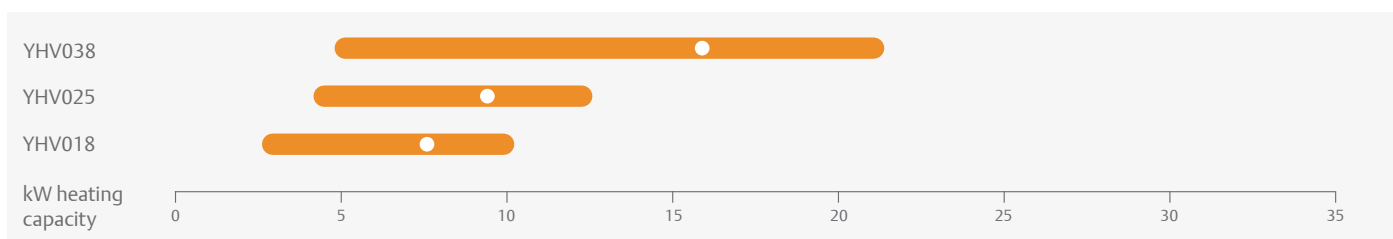
Copeland YHV*2P compressor range is designed to support system manufacturers build brine-to-water or air-to-water heat pumps that meet the requirements of the F-gas phasedown. These scrolls are qualified to reach a wide operating envelope without the need of enhanced vapor injection (EVI).

The matched inverter drives are qualified per EN60335-1 and available for 1ph and 3ph power supply. YHV*2P compressors and their matched drives belong to PED category II and therefore comply with stringent quality requirements: they are hermetically sealed and electrical connections are not source of ignition. This solution is offered to system manufacturers as a CE certified package for faster time to market and for the highest level of compressor protection.



YHV*2P scroll variable speed compressor and drive

YHV Variable Speed Scroll Compressor Line-Up



Conditions: Heating kW Evaporating -7°C, Condensing 50°C, 5K Superheat, 4K Subcooling

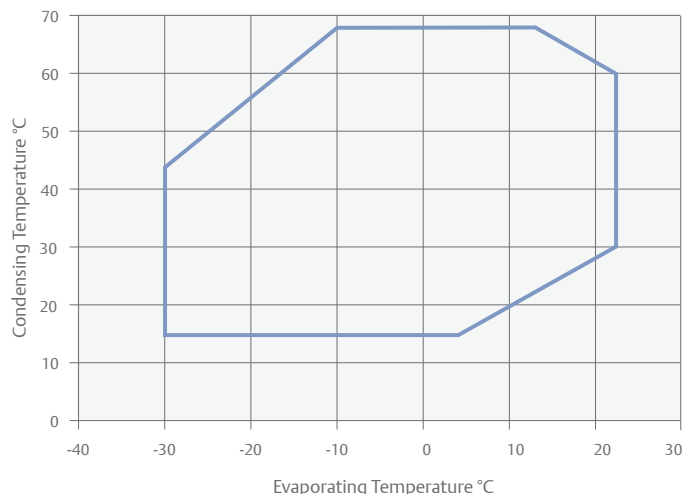
Features and Benefits

- Speed range from 15 to 120 Hz
- Drive available in air-cooled and flat plate version
- Axial and radial compliance for reliability
- Compressor model with 3-feet for compact units
- Pre-compliant solution to relevant application standards (EN378, EN60335), to facilitate system development
- F-gas compliant

Maximum Allowable Pressure (PS)

- Low side PS 28 bar(g) / High Side PS 49 bar(g)

Operating Envelope R454B



Technical Overview

Compressor											
Models	Heating Capacity (kW)			COP*	Displacement (cm³)	Stub Suction (inch)	Stub Discharge (inch)	Oil Quantity (l)	Length/Width/Height (mm)	Net Weight (kg)	Sound Pressure @1 m - dB(A)**
	Min	Max	Nominal Capacity								
YHV0182P	2.6	10.1	6.2	2.0	18	3/4	1/2	0.7	194/216/335	15	61
YHV0252P	3.9	12.4	8.4	2.1	25	3/4	1/2	0.7	194/216/335	16	65
YHV0382P	5.4	21.4	12.6	2.2	38	3/4	1/2	1.2	216/194/385	20	64

Conditions: Evaporating -7°C, Condensing 50°C, Superheat 10K, Subcooling 0K
*at Nominal Speed (90Hz)
** @ 1m: sound pressure level at 1m distance from the compressor, free field condition

Inverter Drive										
Models	Matched Compressor	Power input (kW)	Amps (A)	Cooling	Net Weight (kg)	1Ph 230V	3Ph 400V	Comm.	Length/Width/Height (mm)*	
		Max	Max							
ED3011AU	YHV018	2.6	11	Air / Liquid	2.8	√	n.a.	Modbus	205/240/143	
ED3015AU	YHV025	3.8	15		2.8	√	n.a.		205/240/143	
ED3020AU	YHV025-38	5.5	20		3.6	√	n.a.		205/250/180	
ED3013BU	YHV018	4.4	13		3.4	n.a.	√		205/250/183	
ED3018BU	YHV025-38	6.0	18		4.4	n.a.	√		205/250/183	

*Air-cooled version including fins

Capacity Data

Condensing Temperature +50℃																	
R452B		Heating Capacity (kW)							R452B		Power Input (kW)						
		Evaporating Temperature (℃)									Evaporating Temperature (℃)						
Models		-15	-10	-5	0	5	+10	+15	Models		-15	-10	-5	0	5	+10	+15
YHV0182P	Max	7.8	9.0	10.3	11.9	13.4	14.2	14.9	YHV0182P	Max	3.2	3.3	3.3	3.4	3.3	3.1	2.8
	Min	3.2	3.7	4.3	4.9	5.6	6.4	7.2		Min	1.3	1.3	1.4	1.4	1.4	1.4	1.3
YHV0252P	Max	10.5	12.3	14.2	16.3	18.5	19.6	20.6	YHV0252P	Max	4.2	4.5	4.6	4.7	4.7	4.3	4.0
	Min	5.2	5.1	5.8	6.7	7.7	8.8	10.0		Min	2.6	1.8	1.8	1.8	1.8	1.8	1.8
YHV0382P	Max	12.9	16.1	18.6	21.4	24.6	27.7	28.3	YHV0382P	Max	4.7	5.6	5.8	5.9	6.1	6.1	5.4
	Min	6.6	7.7	8.8	10.2	11.7	13.3	15.2		Min	2.6	2.7	2.7	2.7	2.8	2.8	2.8

Conditions: Suction Superheat 10K / Subcooling 0K

Condensing Temperature +50℃																	
R454B		Heating Capacity (kW)							R454B		Power Input (kW)						
		Evaporating Temperature (℃)									Evaporating Temperature (℃)						
Models		-15	-10	-5	0	5	+10	+15	Models		-15	-10	-5	0	5	+10	+15
YHV0182P	Max	7.7	9.9	10.0	11.5	13.0	13.8	14.5	YHV0182P	Max	3.2	4.5	3.3	3.3	3.3	3.0	2.8
	Min	3.1	3.6	4.1	4.7	5.4	6.2	7.0		Min	1.3	1.3	1.3	1.3	1.4	1.3	1.3
YHV0252P	Max	10.4	11.9	13.8	15.8	17.9	19.0	20.0	YHV0252P	Max	4.3	4.4	4.5	4.6	4.6	4.3	3.9
	Min	4.3	4.9	5.7	6.5	7.5	8.6	9.7		Min	1.7	1.8	1.8	1.8	1.8	1.8	1.8
YHV0382P	Max	13.2	15.7	18.1	20.9	24.0	27.0	27.7	YHV0382P	Max	5.2	5.5	5.7	5.9	6.0	6.0	5.3
	Min	6.4	7.5	8.6	9.9	11.3	12.9	14.7		Min	2.6	2.7	2.7	2.7	2.7	2.7	2.7

Conditions: Suction Superheat 10K / Subcooling 0K

Copeland™ XHV & ZHW Variable Speed Scroll Compressor Ranges for R410A With Inverter Drive

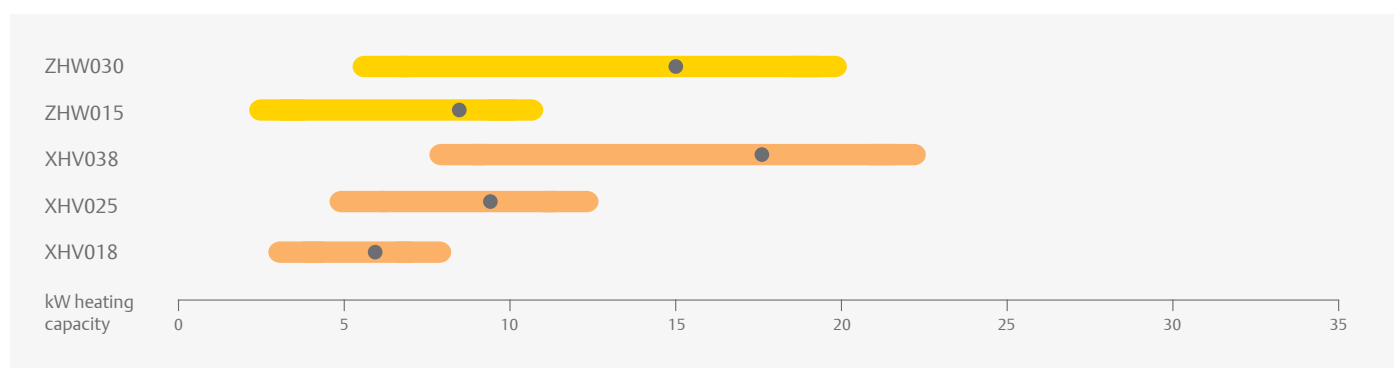
XHV and ZHW variable speed scroll compressors for R410A, for outstanding performance for cooling and heating applications.

XHV and ZHW compressors deliver outstanding performances, both in new building and retrofit applications. Variable speed Copeland scroll compressors feature a state-of-the-art brushless permanent magnet motor matched with a highly efficient drive and vapor injection technology (ZHW only). In addition to Copeland market-proven robustness, XHV and ZHW compressors with the qualified inverter drive meet and exceed the level of reliability expected for these demanding applications.



ZHW scroll variable speed compressor and drive

XHV & ZHW Variable Speed Scroll Compressor Line-Up

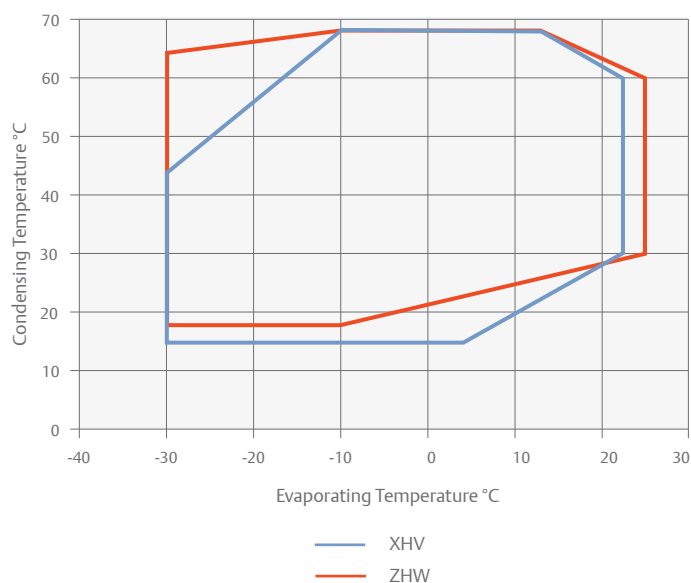


Conditions: Cooling kW Evaporating 5°C, Condensing 50°C, Superheat 10K, Subcooling 0K
Heating kW Evaporating -7°C, Condensing 50°C, 5K Superheat, 4K Subcooling

Features and Benefits

- Highest efficiency throughout the operating envelope and speed range
- Envelope and speed management information for the system controller (real-time communication via Modbus RS485)
- Enhanced Vapor Injection technology for best seasonal efficiency (ZHW)
- High water temperature for all applications
- Compliance with electromagnetic-compatibility (EMC) and electromagnetic-interference (EMI) requirements for residential applications
- VDE certification for ZHW compressor matched with Emerson inverter drive
- Wide speed range 15-120Hz
- Mutually optimized and qualified scroll and drive

Operating Envelope R410A



Maximum Allowable Pressure (PS)

- ZHW:
Low side PS 28 bar(g) / High side PS 45 bar(g)
- XHV:
Low side PS 28 bar(g) / High side PS 45 bar(g)

Technical Overview

Compressor											
R410A	Heating Capacity (kW)			COP*	Displacement (cm³)	Stub Suction (inch)	Stub Discharge (inch)	Oil Quantity (l)	Length/Width/Height (mm)	Net Weight (kg)	Sound Pressure @1 m - dB(A)**
	Min	Max	Nominal Capacity								
ZHW0152P	2.7	10.4	6.1	2.9	15.0	3/4	1/2	1.7	229/198/394	20	68
ZHW0302P	5.5	19.8	11.8	3.2	30.0	3/4	1/2	1.7	229/198/394	20	68
XHV0181P	2.6	10.7	6.4	3.0	18.0	3/4	1/2	0.7	218/198/334	15	61
XHV0251P	3.7	14.8	8.6	3.1	25.0	3/4	1/2	0.7	218/198/334	16	65
XHV0382P	5.5	22.8	13.0	3.1	38.0	3/4	1/2	1.2	218/198/384	20	64

Conditions: Evaporating -7°C, Condensing 50°C
* @ Nominal Speed (90Hz)
** @ 1m: sound pressure level at 1m distance from the compressor, free field condition

Inverter Drive										
Model	Matched Compressor	Power Input (kW)	Amps (A)	Cooling	Net Weight (kg)	1Ph 230V	3Ph 400V	Comm.	Length/Width/Height (mm)*	
		Nominal	Nominal							
EV2055M	ZHW015	5.5		Air / Liquid	3.6	√	√	Modbus	228/260/119	
EV2080M	ZHW030	8.0			5.1	√	√		228/260/156	
ED3015AU	XHV018-25	3.8	15	Air / Liquid	2.8	√	n.a.	Modbus	205/240/143	
ED3020AU	XHV025-38	5.5	20		3.6	√	n.a.		205/250/180	
ED3013BU	XHV018-25	4.4	13		3.4	n.a.	√		205/250/183	
ED3018BU	XHV025-38	6.0	18		4.4	n.a.	√		205/250/183	
ED3022B	XHV038	8.8	22	Air	5.2	n.a.	√		233/316/150	

* Air-cooled version including fins

Capacity Data

Condensing Temperature +50℃																	
R410A		Heating Capacity (kW)							R410A		Power Input (kW)						
		Evaporating Temperature (℃)									Evaporating Temperature (℃)						
Model		-30	-15	-10	-5	0	+5	+15	Model		-30	-15	-10	-5	0	+5	+15
ZHW0152P	Max	6.0	8.6	9.7	11.0	12.0	12.0	12.4	ZHW0152P	Max	3.1	3.3	3.3	3.4	3.2	2.9	2.4
	Min	2.0	2.6	2.8	2.9	3.1	3.1	3.8		Min	1.3	1.1	1.1	1.0	0.9	0.9	0.9
ZHW0302P	Max	11.3	16.3	18.5	20.8	22.6	22.6	23.7	ZHW0302P	Max	5.7	6.0	6.1	6.1	5.7	5.4	4.4
	Min	4.2	5.2	5.8	5.9	6.6	6.6	8.1		Min	2.4	2.0	2.0	1.9	1.7	1.7	1.7

Condition: Suction Superheat 10K, Subcooling 4K

Condensing Temperature +50℃																		
R410A		Heating Capacity (kW)								R410A		Power Input (kW)						
		Evaporating Temperature (℃)										Evaporating Temperature (℃)						
Model		-20	-15	-10	-5	0	+5	+15		Model		-20	-15	-10	-5	0	+5	+15
XHV0181P	Max	7.7	8.7	9.9	11.3	12.9	14.4	16.2		XHV0181P	Max	3.4	3.5	3.6	3.7	3.7	3.6	3.1
	Min	2.2	2.4	2.5	2.6	2.5	2.8	3.7			Min	1.0	1.0	1.0	0.9	0.8	0.8	0.8
XHV0251P	Max	10.3	11.8	13.6	15.7	18.1	20.4	22.8		XHV0251P	Max	4.5	4.7	4.9	5.0	5.1	5.1	4.4
	Min	3.2	3.4	3.6	3.7	3.5	4.0	5.0			Min	1.4	1.4	1.3	1.2	1.1	1.1	1.0
XHV0382P	Max	15.8	18.1	20.9	24.1	27.8	31.4	35.0		XHV0382P	Max	6.9	7.1	7.4	7.6	7.8	7.8	6.7
	Min	4.7	5.1	5.5	5.6	5.4	6.1	7.7			Min	2.1	2.1	2.0	1.9	1.6	1.6	1.6

Condition: Suction Superheat 5K, Subcooling 4K