

# Accuchiller NQV Series

## Portable & Packaged Industrial Chillers

### Benefits:

- **Direct Drive Scroll Compressors:** Hermetically sealed scroll compressors with proven performance in industrial cooling for reliable, low maintenance, and efficient operation.
- **Stainless Steel Evaporators:** High efficiency stainless steel plates with copper brazing provide maximum performance, long life, and an enhanced level of protection from harsh process conditions.
- **Stainless Steel Pump:** Selected for peak performance with the utmost in corrosion protection to ensure a long useful life under severe industrial conditions.
- **Nonferrous Reservoir and Water Lines:** Insulated reservoir, fluid lines, pumps, and other components in the process fluid circuit will remain free of rust for maximum corrosion protection.
- **Evaporator Inlet Strainer:** Removes any debris present in the process fluid to prevent costly downtime and repair due to a clogged chiller evaporator.
- **Easy Access Cabinet:** Heavy-gauge machine access doors with industrial grade tools-free latches provide quick access to all components for easy operation and maintenance.
- **Compressor Protection Technology:** Uses start-to-start anti-recycle control logic to limit cycling under low-load operating conditions to extend compressor life.
- **Warranty:** 18 months parts on entire unit; 12 months labor.



The Accuchiller NQ Series, known for its exceptional performance, now offers an optional variable-speed compressor upgrade - the NQV Series. This innovative feature significantly reduces energy costs by precisely adjusting cooling output to meet real-time demand.

Chillers often operate below their full capacity, which reduces energy efficiency. Traditional fixed-speed compressors rely on hot gas bypass valves to simulate a full load, leading to inefficiencies at part-load conditions. The NQV Series, with its variable-speed scroll compressors, provides a more

efficient solution by adjusting the speed to match the actual cooling demand. Combined with a user-friendly premium PLC control system, it ensures optimal performance and lower operating costs.

NQV Series chillers are available in air cooled or water cooled options. Each model is packed with innovative features that optimize performance and reliability. These features include scroll compressors, microchannel condensers, stainless steel brazed plate evaporators, and low-noise ensure smooth operation and energy savings.

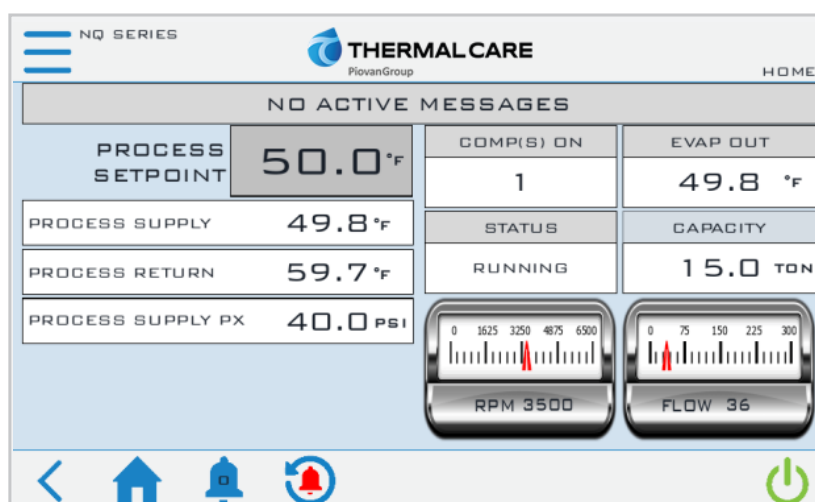
#### Additional Benefits:

- **Premium Control Panel:** Available C-UL 508A industrial control panel with high-quality components that are safe and built to last.
- **7-inch Color Touch Screen Display:** Controls, monitors and maintains stable and reliable chiller operation.
- **Compressor and Pump Run Hour Displays:** Monitor compressor and pump running hours to assist with scheduling maintenance.
- **Power Monitor:** Protects the chiller from extensive damage to the compressor and pump due to loss of phase or phase reversal in the main supply.
- **Reservoir Low Level Alarm:** Indicates a low process fluid condition and protects the process pump and chiller from damage caused by a critically low operating level in the reservoir.
- **Master Reset:** Quick and easy way to reset and restore the control system to factory default settings if a control parameter is mistakenly changed.
- **High-Quality 24 VDC Power Supply:** The 24-volt DC power supply ensures dependable control circuit power and isolates the control circuit from static interference to ensure stable and precise operation.

#### Available Options:

- High flow/high pressure pumps
- High flow unit design
- Alarm horn
- Alarm relay
- Rotary non-fused or fused disconnect switch
- C-UL508A industrial control panel construction
- Outdoor-duty construction
- Indoor duty low temperature (0°F to 120°F; -18°C to 49°C)
- Outdoor duty temperature (-20°F to 120°F; -29°C to 49°C)
- Air-cooled condenser coil coating for coastal regions
- Pump and tank deduct
- Oversized reservoirs
- Water circuit designed for use with de-ionized water
- Stainless steel cabinetry
- Automatic electric water make-up valve
- High pressure fans for ducting of discharge air
- Emergency stop button
- Remote HMI with 50 foot wire
- Special color paint
- CONNEX 4.0 system-wide control
- 5 year compressor parts warranty

#### 7-Inch Color Touch Screen



Home Screen

## SPECIFICATIONS

Description of Functions	Premium Controls
Display Parameters	
Process Fluid Supply and Return Temperatures	●
Evaporator Fluid Leaving Temperature	●
Process Fluid Supply Pressure	●
Compressor Running Hours	●
Pump Running Hours	●
Condenser Fan Running Hours	●
Refrigerant Suction Pressure	●
Refrigerant Suction Temperature and Superheat	●
Refrigerant Liquid Temperature and Subcooling	●
Refrigeration Discharge Pressure	●
Refrigerant Discharge Temperature	●
Alarms and Warnings	
High Process Fluid Temperature	●
Low Process Fluid Temperature	●
Evaporator Fluid Freeze	●
Evaporator Fluid Low Flow	●
Refrigerant High Pressure	●
Refrigerant Low Pressure	●
Compressor Overload	●
Pump Overload	●
Condenser Fan Overload	●
Reservoir Low Level	●
Communications and Remote Interfaces	
Process Fluid Supply Temperature (0-10 VDC)	●
Remote Start / Stop	●
Alarm Contact	●
CONNEX4.0 Ready	●
Modbus RTU	●
Modbus TCP / IP	●
BACnet MS / TP	○
BACnet / IP	○

**Legend:**      Standard = ●      Optional = ○

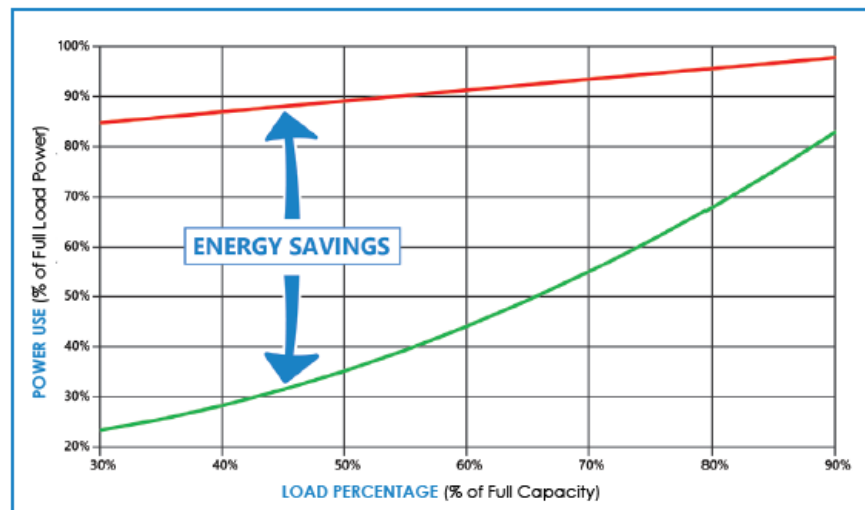
## ENERGY SAVINGS

Available variable speed scroll compressor technology, in conjunction with a PLC, constantly monitors the process load and adjusts the compressor speed for peak for peak efficiency and temperature control. By automatically adjusting the compressor speed, the chiller works only as hard as necessary to provide optimum performance with significantly reduced power use. The chiller can pay for itself in as little as one year.

### VARIABLE-SPEED COMPRESSOR PAYBACK (YEARS)<sup>1</sup>

Capacity	Hours	Process Load (Percentage of Full Capacity)							
		50%	55%	60%	65%	70%	75%	80%	85%
5 Tons 18 kW	4,000	3.4	3.6	3.9	4.3	4.8	5.5	6.7	8.8
	6,000	2.3	2.4	2.6	2.8	3.2	3.7	4.5	5.9
	8,400	1.6	1.7	1.9	2.0	2.3	2.6	3.2	4.2
10 Tons 35 kW	4,000	1.2	1.3	1.4	1.5	1.7	2.0	2.4	3.1
	6,000	0.8	0.9	0.9	1.0	1.1	1.3	1.6	2.1
	8,400	0.6	0.6	0.7	0.7	0.8	0.9	1.1	1.5
15 Tons 53 kW	4,000	1.1	1.2	1.3	1.4	1.6	1.9	2.4	3.5
	6,000	0.7	0.8	0.8	0.9	1.1	1.3	1.6	2.3
	8,400	0.5	0.6	0.6	0.7	0.8	0.9	1.1	1.7
20 Tons 70 kW	4,000	1.1	1.2	1.3	1.4	1.6	1.9	2.4	3.3
	6,000	0.7	0.8	0.9	1.0	1.1	1.3	1.6	2.2
	8,400	0.5	0.6	0.6	0.7	0.8	0.9	1.2	1.6
30 Tons 106 kW	4,000	0.8	0.8	0.9	1.0	1.1	1.3	1.6	2.1
	6,000	0.5	0.6	0.6	0.7	0.8	0.9	1.1	1.4
	8,400	0.4	0.4	0.4	0.5	0.5	0.6	0.8	1.0

<sup>1</sup>Based on \$0.10/kWhr power cost

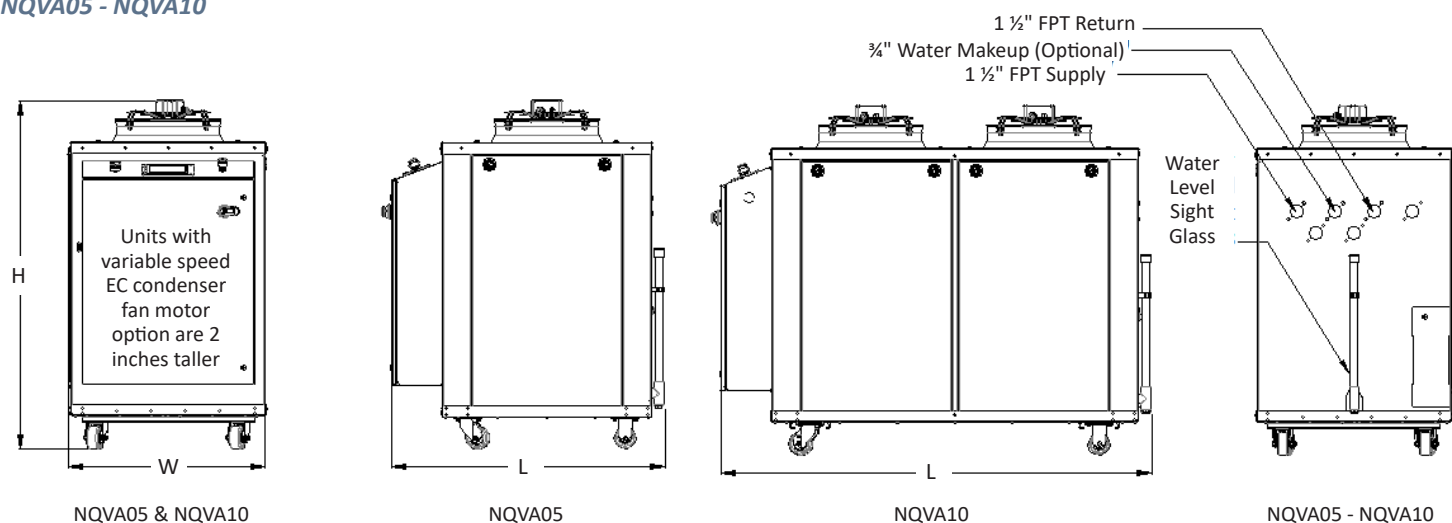


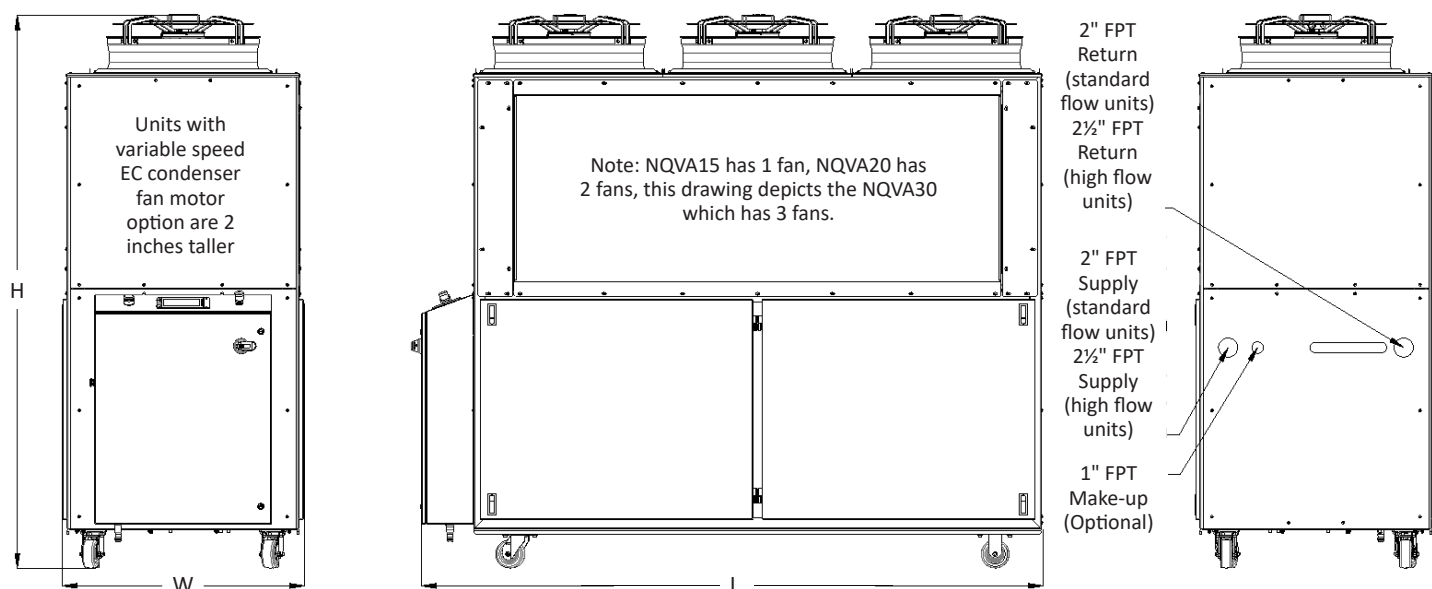
— Fixed Speed Scroll Compressor  
— Variable Speed Scroll Compressor

# TECHNICAL DATA

Air Cooled Condenser Chillers	NQVA05	NQVA10	NQVA15	NQVA20	NQVA30
Cooling Capacity <sup>1</sup>	5 tons 18 kW	11 tons 39 kW	15 tons 53 kW	21 tons 74 kW	31 tons 109 kW
Set Point Range	20 to 80°F -7 to 27°C	20 to 80°F -7 to 27°C	20 to 80°F -7 to 27°C	20 to 80°F -7 to 27°C	20 to 80°F -7 to 27°C
Compressor (qty)	1	1	1	2	2
Sound Pressure @ 1 meter (dBA)	74	76	82	84	86
Pump Motor Size	2 hp 1.5 kW	3 hp 2.2 kW	3 hp 2.2 kW	5 hp 3.7 kW	5 hp 3.7 kW
Pump Flow	12 gpm 45 lpm	27 gpm 102 lpm	36 gpm 136 lpm	48 gpm 182 lpm	72 gpm 273 lpm
Net Available Pump Pressure <sup>2</sup>	41 psi 2.8 bar	48 psi 3.3 bar	40 psi 2.8 bar	45 psi 3.1 bar	43 psi 3.0 bar
Reservoir Holding Capacity	14 gal 53 L	30 gal 114 L	60 gal 227 L	60 gal 227 L	67 gal 254 L
Dimensions L x W x H in (mm)	48 x 34 x 61 (1,219 x 864 x 1,549)	75 x 34 x 61 (1,905 x 864 x 1,549)	87 x 41 x 94 (2,210 x 1,041 x 2,388)	87 x 41 x 94 (2,210 x 1,041 x 2,388)	105 x 41 x 94 (2,667 x 1,041 x 2,388)
Shipping Weight	770 lbs 349 kg	1,245 lbs 565 kg	3,250 lbs 1,474 kg	3,350 lbs 1,520 kg	4,200 lbs 1,905 kg
Operating Weight	860 lbs 390 kg	1,420 lbs 644 kg	3,585 lbs 1,626 kg	3,765 lbs 1,708 kg	4,760 lbs 2,159 kg

## NQVA05 - NQVA10



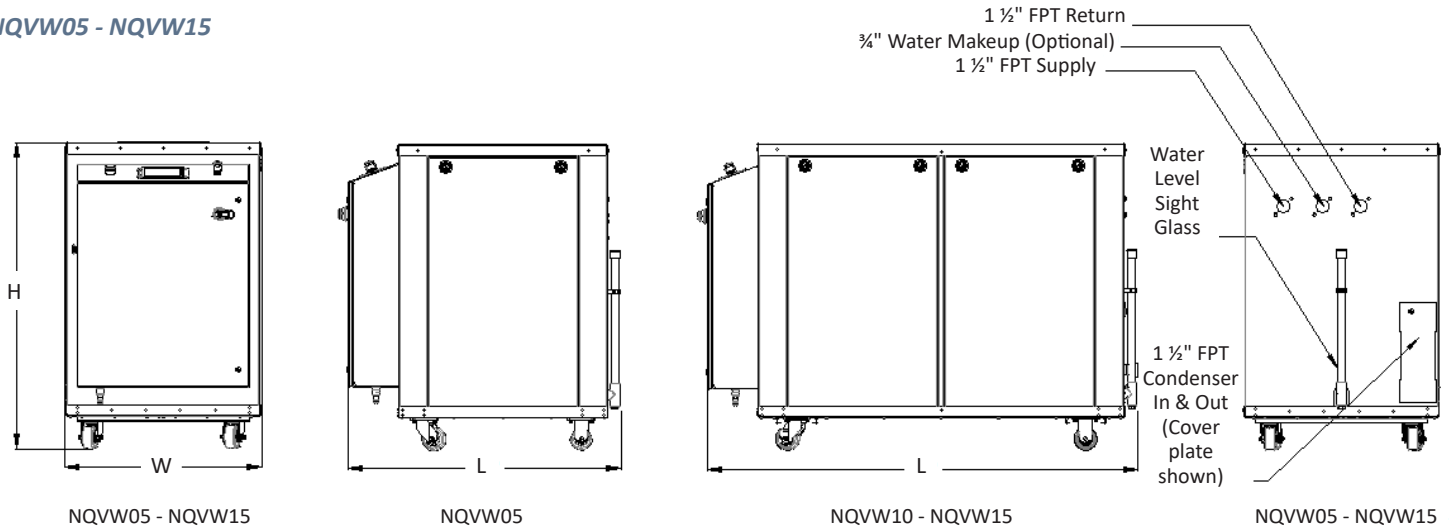


Water Cooled Condenser Chillers	NQVW05	NQVW10	NQVW15	NQVW20	NQVW30
<b>Cooling Capacity<sup>1</sup></b>	6 tons 21 kW	12 tons 42 kW	17 tons 60 kW	23 tons 81 kW	33 tons 116 kW
<b>Set Point Range</b>	20 to 80°F -7 to 27°C	20 to 80°F -7 to 27°C	20 to 80°F -7 to 27°C	20 to 80°F -7 to 27°C	20 to 80°F -7 to 27°C
<b>Compressor (qty)</b>	1	1	1	2	2
<b>Sound Pressure @ 1 meter (dBA)</b>	70	71	73	74	75
<b>Pump Motor Size</b>	2 hp 1.5 kW	3 hp 2.2 kW	3 hp 2.2 kW	5 hp 3.7 kW	5 hp 3.7 kW
<b>Pump Flow</b>	13 gpm 49 lpm	29 gpm 110 lpm	39 gpm 148 lpm	54 gpm 204 lpm	79 gpm 299 lpm
<b>Net Available Pump Pressure<sup>2</sup></b>	40 psi 2.8 bar	46 psi 3.2 bar	35 psi 2.4 bar	41 psi 2.8 bar	39 psi 2.7 bar
<b>Reservoir Holding Capacity</b>	14 gal 53 L	30 gal 114 L	30 gal 114 L	60 gal 227 L	67 gal 254 L
<b>Dimensions L x W x H in (mm)</b>	48 x 34 x 53 (1,219 x 864 x 1,346)	75 x 34 x 53 (1,905 x 864 x 1,346)	75 x 34 x 53 (1,905 x 864 x 1,346)	87 x 41 x 47 (2,210 x 1,041 x 1,194)	105 x 41 x 47 (2,667 x 1,041 x 1,194)
<b>Shipping Weight</b>	770 lbs 349 kg	1,245 lbs 565 kg	1,365 lbs 619 kg	1,950 lbs 885 kg	2,300 lbs 1,043 kg
<b>Operating Weight</b>	860 lbs 390 kg	1,420 lbs 644 kg	1,550 lbs 703 kg	2,365 lbs 1,073 kg	2,860 lbs 1,297 kg

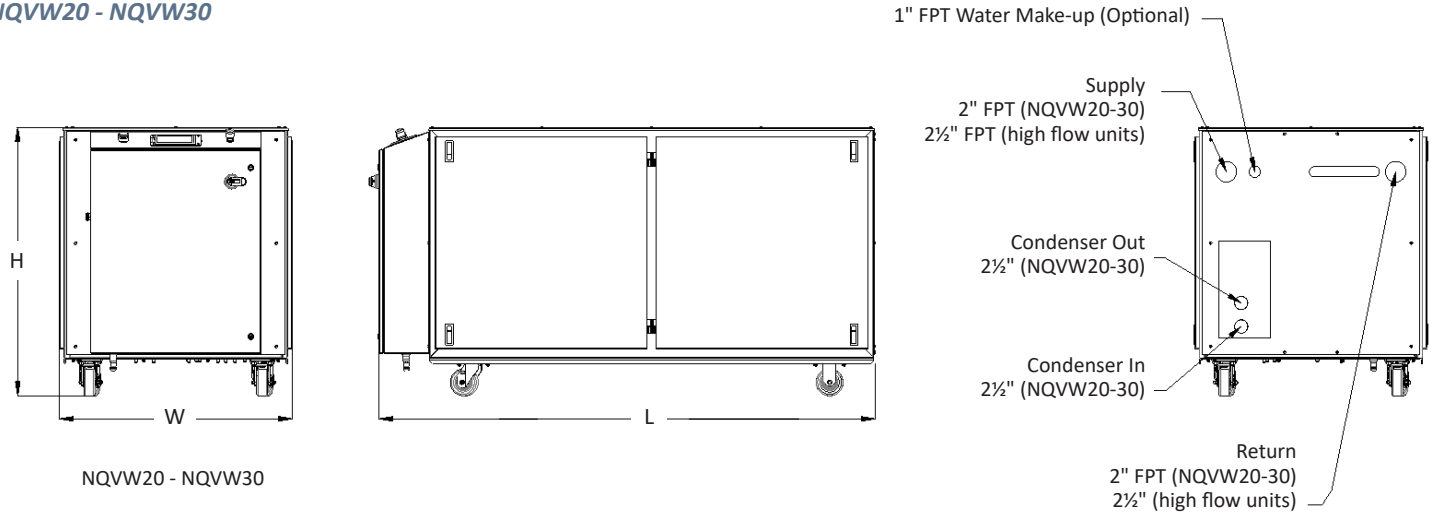
<sup>1</sup>Cooling tons based on 12,000 BTU/Hr/ton with 50°F (10°C) leaving coolant, 85°F (29°C) condenser water or 95°F (35°C) ambient air and R410A refrigerant.

<sup>2</sup>Net available pressure at outlet of chiller is pump discharge pressure less the internal pressure loss through the fluid circuit.

## NQVW05 - NQVW15



## NQVW20 - NQVW30



## ELECTRICAL DATA

Air Cooled Condenser Chillers	Rated Voltage <sup>1</sup> FLA @ 208		Rated Voltage <sup>1</sup> FLA @ 230		Rated Voltage <sup>1</sup> FLA @ 460		Rated Voltage <sup>1</sup> FLA @ 575	
	MCA <sup>2</sup>	MOP <sup>3</sup>	MCA <sup>2</sup>	MOP <sup>3</sup>	MCA <sup>2</sup>	MOP <sup>3</sup>	MCA <sup>2</sup>	MOP <sup>3</sup>
NQVA05	N/A	N/A	50	80	23	40	N/A	N/A
NQVA10	N/A	N/A	73	125	46	80	N/A	N/A
NQVA15	N/A	N/A	88	150	86	150	N/A	N/A
NQVA20	N/A	N/A	128	175	70	100	N/A	N/A
NQVA30	N/A	N/A	164	225	125	200	N/A	N/A

Water Cooled Condenser Chillers	Rated Voltage <sup>1</sup> FLA @ 208		Rated Voltage <sup>1</sup> FLA @ 230		Rated Voltage <sup>1</sup> FLA @ 460		Rated Voltage <sup>1</sup> FLA @ 575	
	MCA <sup>2</sup>	MOP <sup>3</sup>	MCA <sup>2</sup>	MOP <sup>3</sup>	MCA <sup>2</sup>	MOP <sup>3</sup>	MCA <sup>2</sup>	MOP <sup>3</sup>
NQVA05	N/A	N/A	47	50	21	35	N/A	N/A
NQVA10	N/A	N/A	67	125	42	80	N/A	N/A
NQVA15	N/A	N/A	80	150	81	150	N/A	N/A
NQVA20	N/A	N/A	111	175	61	100	N/A	N/A
NQVA30	N/A	N/A	139	200	111	175	N/A	N/A

<sup>1</sup>Allowable voltage is  $\pm 10\%$  from rated voltage.

<sup>2</sup>MCA is Minimum Circuit Amps with standard condenser fan(s) and pump under full load, used for minimum wire size requirement.

<sup>3</sup>MOP is Maximum Overcurrent Protection with standard condenser fans(s) and pump, used for sizing main power protection devices.



**THERMAL CARE**

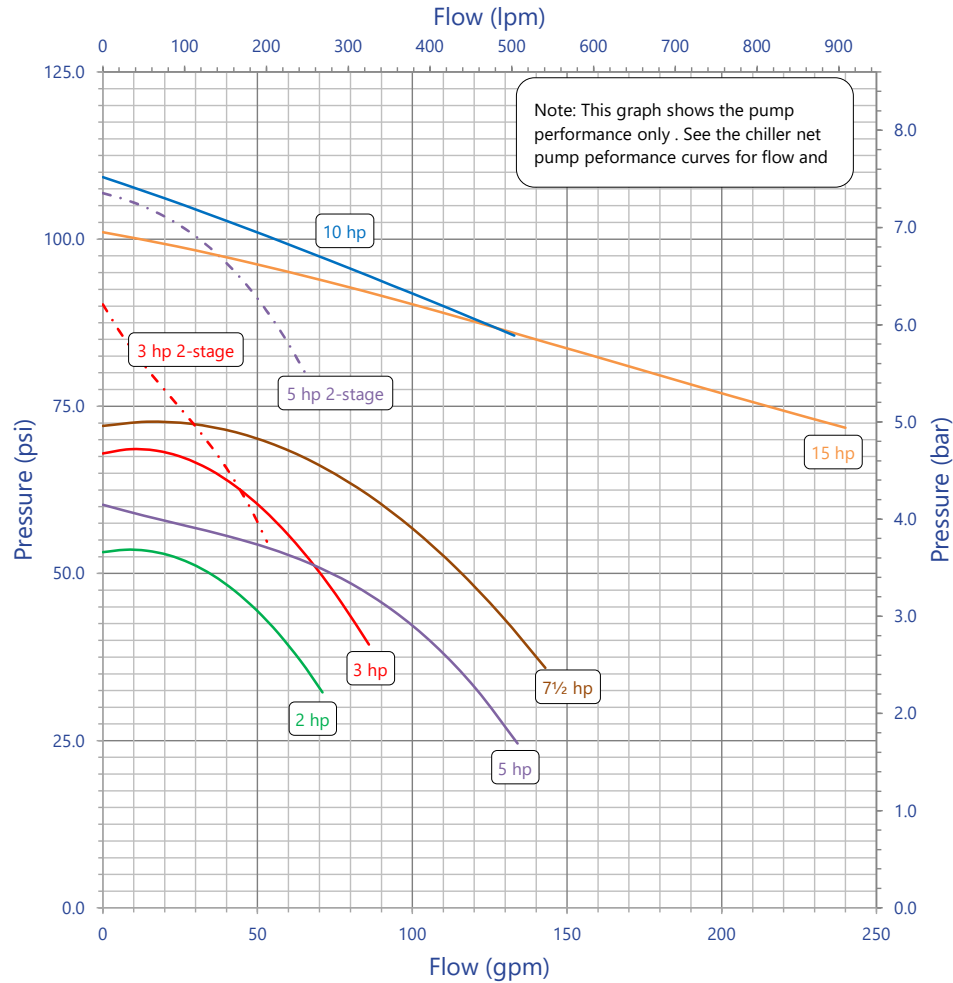
PiovanGroup

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NQV Series - 7

## Pump Curves

Based on Water at 50°F (10°C), 60 Hz



**Thermal Care is ISO 9001 Certified**  
 Manufacturer reserves the right to change specification  
 or design without notification or obligation.

