NQ Series

Design and Component Specifications

4 to 43 Tons

NQA10 with PLC Controller

General

The NQ Series portable chillers are for indoor use in industrial manufacturing locations. The chillers are produced in our ISO 9001:2008 certified facility. Water-cooled and air-cooled units ship with a full refrigerant charge. Units with a remote air-cooled condenser ship with a nitrogen charge. All units are in a heavy gauge powder coated steel cabinet with tools-free access.

Mechanical Features

- Energy efficient and reliable scroll compressor(s)
- Stepper motor driven hot gas bypass for reliable and precise temperature control
- Stainless steel brazed plate evaporator provides higher heat transfer coefficients due to reduced fouling
- (Air-Cooled Units) Generously sized air-cooled condensers designed for industrial enviroments and tested to 700 PSIG. Includes air inlet filters. All chillers with integral air cooled condensers feature all aluminum microchannel condensers for easier maintenance and improved reliability
- (Water-Cooled Units) Generously sized water-cooled condenser for industrial environments
- (Remote Condenser Units) Modular design with divided fan sections prevents 'wind-milling' during fan cycling includes galvanized steel fan sections and coil baffles, copper tube/aluminum fin coils tested to 650 PSIG, direct drive multi-blade propeller fans with venture orifices to optimize efficiency
- (Water-Cooled Units) Condenser water regulating valve to provide constant head pressure
- (Air-Cooled Units) Condenser fan blade, motor, nozzle, and guard are a single piece assembly for improved reliability with the fan motors having a rugged external rotor desigh with totally enclosed air over construction
- Refrigerant TXV, filter/drier, crank case heater, and sight glass
- Freezestat safety integrated into password protected menu to reduce risk of tampering
- Encapsulated high and low refrigerant pressure safeties
- RTD temperature sensors yield higher precision and repeatability than thermocouples
- Nonferrous water circuit construction
- Insulated polyethylene reservoir with removable cover and low level switch to protect pump
- Stainless steel process pump with pressure gauge
- Fail safe flow switch interlocked with compressor
- Y-strainer to protect evaporator from contamination
- Internal valved bypass line to protect pump and evaporator
- Factory tested under full load conditions prior to shipment

Electrical Features

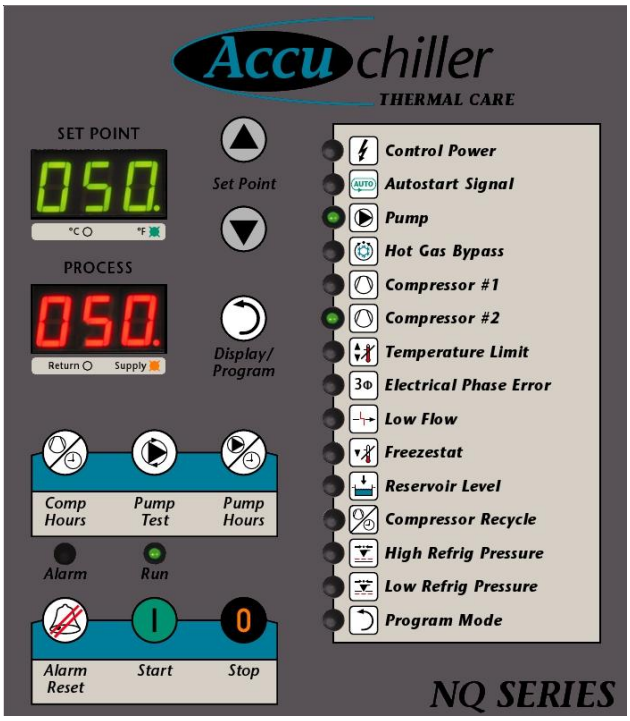
- C-UL 508A industrial control panel (USA/Canada UL specification)
- 24VDC control voltage
- Rotary non-fused disconnect switch
- Alarm horn
- Compressor, pump, and condenser fan (air-cooled units only) starters mounted in control panel and wired to motors

Control Features

- Start-to-start anti-cycle timer prevents short-cycling of compressor while minimizing unnecessary off periods
- Adjustable deviation alarm timer delay to prevent nuisance alarms during start-up
- Display temperatures easily switched from °F to °C on controller
- Display of compressor and pump running hours helps with scheduling routine maintenance
- 3-phase monitor protects against unit damage due to phase reversal or loss of phase
- Master reset function to restore factory default settings

Alarms, Warnings, and Safeties

- Temperature deviation warnings provide an adjustable deviation set point to indicate abnormal operation of chiller or process equipment without shutting down the chiller
- Temperature deviation alarms provide critical condition shut down of the chiller to protect against equipment damage
- High supply temperature deivation warning
- High supply temperature deviation alarm
- Low supply temperature deviation warning
- Low supply temperature deviation alarm
- Tank critical low level alarm
- Loss of flow alarm
- Freezestat alarm
- Pump motor overload alarm
- Electrical phase loss or reversal alarm
- Refrigeration high pressure alarm
- Refrigeration low pressure alarm
- Supply temperature sensor fault alarm
- Return temperature sensor fault alarm
- Freezestat sensor fault alarm



Standard Microprocessor Controller

Warranty

- 5 year parts warranty for microprocessor with a lifetime $175 exchange policy after initial 5 year warranty period
- 18 months parts warranty
- 1 year labor warranty

Available Options

- High static pressure fans available for integral air-cooled units 15 tons and higher to allow for ducting of exhaust air
- Fused disconnect or circuit breaker in place of the standard non-fused disconnect switch
- Automatic tank water make-up
- Larger pumps for increased flow and/or pressure
- Outdoor duty construction
- Two pump system with dedicated pumps for process and recirculation for special process flows and/or pressures
- ModBus RTU
- Panasonic PLC with touch screen interface for enhanced diagnostic and operational display capabilities

Optional PLC Controller Color Touch-Screen HMI

- Refrigeration pressure transducers with sensor fault alarms (requires PLC option)
- Process flow meter (requires PLC option)
- Set point ambient tracking or remote control
- 3-way water temperature control valve (requires PLC option)

Air-Cooled Portable Chillers

Model	NQA04	NQA05	NQA08	NQA10	NQA13	NQA15	NQA20	NQA25	NQA30
Cooling Capacity (tons)[1]	4.5	5.1	7.9	11.1	12.3	14.9	20	25.2	29.9
Set Point Range (°F)	20 to 80	20 to 80	20 to 80	20 to 80	20 to 80	20 to 80	20 to 80	20 to 80	20 to 80
Refrigerant	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Condenser Air Flow (cfm)	4,500	4,500	9,000	9,000	9,000	10,500	19,000	20,000	27,000
Sound Power (dBA @ 1 meter)	71	71	74	74	74	82	86	85	88
Pump Motor Size (hp)	1.5	1.5	1.5	1.5	1.5	3	3	5	5
Pump Flow (gpm)	11	12	19	27	30	36	48	60	72
Pump Pressure (psi)	42	42	41	39	39	57	52	60	56
Unit MCA @ 460/3/60 (amps)[2]	15.6	18.1	26.1	30.9	36.5	44.3	55.5	70.0	83.1
Length (inches)	47.50	47.50	75.00	75.00	75.00	87.25	87.25	105.25	105.25
Width (inches)	34.50	34.50	34.50	34.50	34.50	41.00	41.00	41.00	41.00
Height (inches)	60.75	60.75	60.75	60.75	60.75	93.50	93.50	93.50	93.50
Reservoir Holding Capacity (gal)	11	11	22	22	22	50	50	67	67
Process Connections (inches)	1.5	1.5	1.5	1.5	1.5	2	2	2	2
Shipping Weight (lbs)	720	720	1,195	1,195	1,215	3,200	3,300	3,800	4,150

[1]Cooling tons based on 12,000 BTU/Hr/ton with 50°F leaving coolant and 95°F ambient air.
[2]MCA is Minimum Circuit Ampacity used for main power wire sizing.

Water-Cooled Portable Chillers

Model	NQW05	NQW08	NQW10	NQW15	NQW20	NQW25	NQW30	NQW35	NQW40
Cooling Capacity (tons)[1]	5.6	8.2	12.2	16.4	22.3	27.8	32.9	38.3	42.5
Set Point Range (°F)	20 to 80	20 to 80	20 to 80	20 to 80	20 to 80	20 to 80	20 to 80	20 to 80	20 to 80
Refrigerant	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Condenser Water Flow (gpm)	17	24	36	48	65	82	96	111	124
Sound Power (dBA @ 1 meter)	71	74	74	82	86	85	88	88	88
Pump Motor Size (hp)	1.5	1.5	1.5	3	3	5	5	5	5
Pump Flow (gpm)	13	20	29	39	54	67	79	92	102
Pump Pressure (psi)	42	41	38	56	49	57	53	50	44
Unit MCA @ 460/3/60 (amps)[2]	16.4	22.6	27.4	39.7	46.3	60.8	69.3	73.7	77.2
Length (inches)	47.50	75.00	75.00	75.00	87.25	87.25	105.25	105.25	105.25
Width (inches)	34.50	34.50	34.50	34.50	41.00	41.00	41.00	41.00	41.00
Height (inches)	53.50	53.50	53.50	53.50	47.00	47.00	47.00	47.00	47.00
Reservoir Holding Capacity (gal)	11	22	22	22	50	50	67	67	67
Process Connections (inches)	1.5	1.5	1.5	1.5	2	2	2	2.5	2.5
Condenser Connections (inches)	1.5	1.5	1.5	1.5	2.5	2.5	2.5	2.5	3
Shipping Weight (lbs)	720	1,195	1,195	1,315	1,900	2,100	2,250	3,400	3,900

[1]Cooling tons based on 12,000 BTU/Hr/ton with 50°F leaving coolant and 85°F condenser water.
[2]MCA is Minimum Circuit Ampacity used for main power wire sizing.

Remote Air-Cooled Condenser Chillers

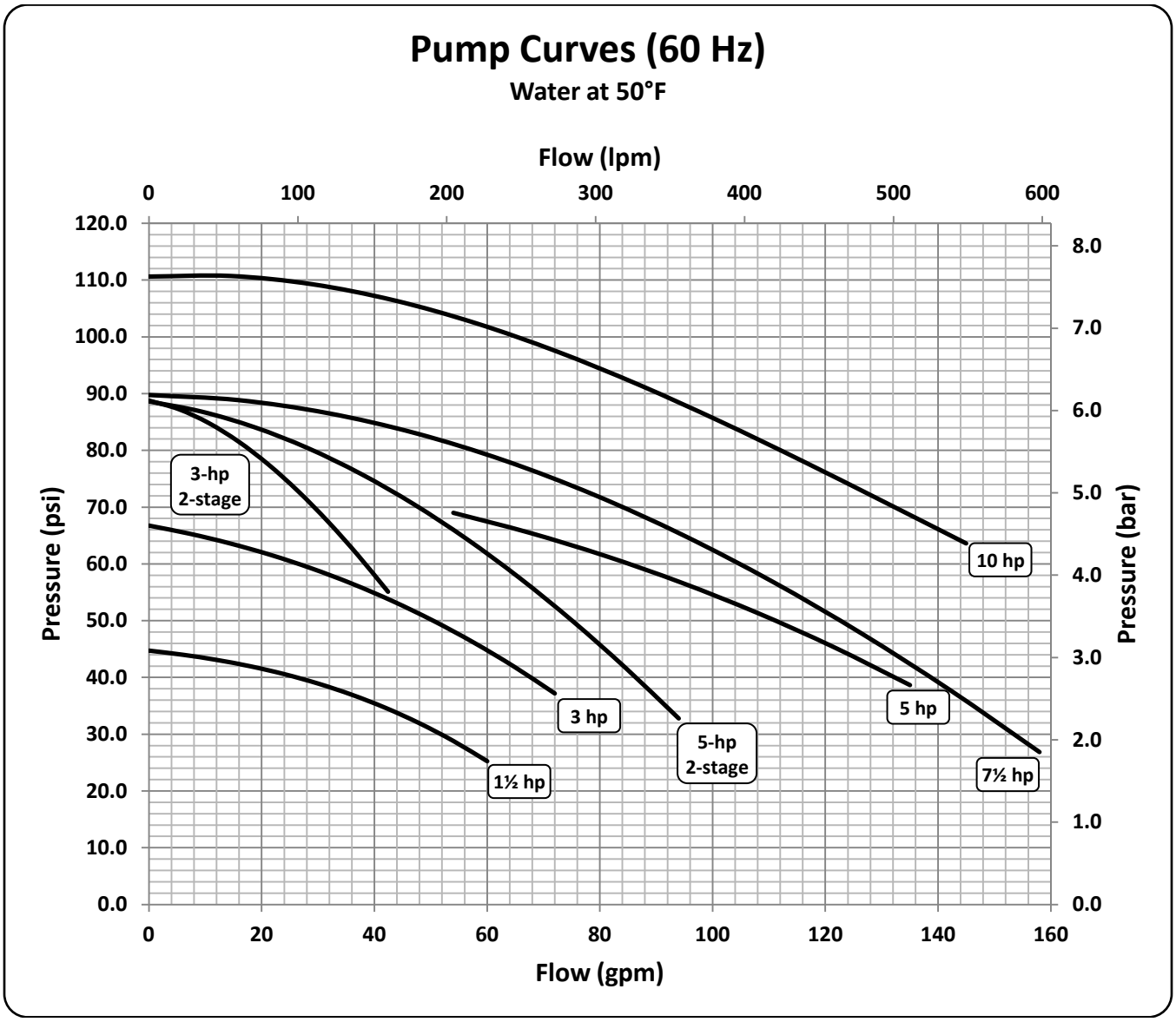
Model	NQR05	NQR08	NQR10	NQR15	NQR20	NQR25	NQR30	NQR35	NQR40
Cooling Capacity (tons)[1]	5.3	7.6	11.2	15.1	20.3	25.6	30.3	34.4	38.4
Set Point Range (°F)	20 to 80	20 to 80	20 to 80	20 to 80	20 to 80	20 to 80	20 to 80	20 to 80	20 to 80
Refrigerant	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
Sound Power (dBA @ 1 meter)	71	74	74	82	86	85	88	88	88
Pump Motor Size (hp)	1.5	1.5	1.5	3	3	5	5	5	5
Pump Flow (gpm)	13	18	27	36	48	61	73	83	92
Pump Pressure (psi)	42	42	39	57	52	60	56	51	50
Unit MCA @ 460/3/60 (amps)[2]	16.4	22.6	27.4	39.7	46.3	60.8	69.3	73.7	77.2
Length (inches)	47.50	75.00	75.00	75.00	87.25	87.25	105.25	105.25	105.25
Width (inches)	34.50	34.50	34.50	34.50	41.00	41.00	41.00	41.00	41.00
Height (inches)	53.50	53.50	53.50	53.50	47.00	47.00	47.00	47.00	47.00
Reservoir Holding Capacity (gal)	11	22	22	22	50	50	67	67	67
Process Connections (inches)	1.5	1.5	1.5	1.5	2	2	2	2.5	2.5
Refrigerant Liquid Line (inches)	0.625	0.625	0.875	0.875	0.875	1.125	1.125	1.375	1.375
Refrigerant Suction Line (inches)	0.625	0.625	0.875	0.875	0.875	1.125	1.125	1.375	1.375
Shipping Weight (lbs)	720	1,195	1,195	1,315	1,900	2,100	2,250	3,400	3,900

[1]Cooling tons based on 12,000 BTU/Hr/ton with 50°F leaving coolant and 95°F ambient air.
[2]MCA is Minimum Circuit Ampacity used for main power wire sizing.

Remote Air-Cooled Condensers

Model	Chiller Model Used With	Refrigerant	Air Flow (cfm)	Dimensions (inches)			Connections (inches)		Unit MCA[1] @ 460/3/60	Shipping Weight Lbs.
				L	W	H	Inlet	Outlet		
LNQ-S01-A005	NQR05	R410A	5,600	73.00	45.50	49.25	1.375	1.375	15.0	330
LNQ-S01-A006	NQR08	R410A	5,375	73.00	45.50	49.25	1.375	1.375	15.0	560
LNQ-S02-A008	NQR10	R410A	11,400	127.00	45.50	49.25	1.375	1.375	15.0	580
LNH-S02-A015	NQR15	R410A	15,500	127.00	45.50	49.25	1.375	1.375	15.0	630
LNH-S02-A017	NQR20	R410A	14,875	127.00	45.50	49.25	1.375	1.375	15.0	680
LNH-S03-A022	NQR25	R410A	25,400	180.00	45.50	49.25	2.125	2.125	15.0	930
LNH-S03-A026	NQR30	R410A	24,375	180.00	45.50	49.25	2.125	2.125	15.0	1,000
LNX-S04-A026	NQR35	R410A	27,950	233.00	45.50	49.25	2.125	2.125	15.0	1,210
LNL-S04-A032	NQR40	R410A	28,775	233.00	45.50	49.25	2.125	2.125	15.0	1,310

[1]MCA is Minimum Circuit Ampacity used for main power wire sizing.



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