Quincy COMPRESSOR

Refrigerated Air Dryers

HEAT EXCHANGER
10 YEAR WARRANTY

QUINCY QPCD SERIES | CYCLING
QUINCY QPNC SERIES | NON-CYCLING
QUINCY QPHT SERIES | HIGH TEMP

A Greener Choice

REFRIGERATED AIR DRYERS

CYCLING AND NON-CYCLING DESIGNS FOR MAXIMUM SYSTEM EFFICIENCY

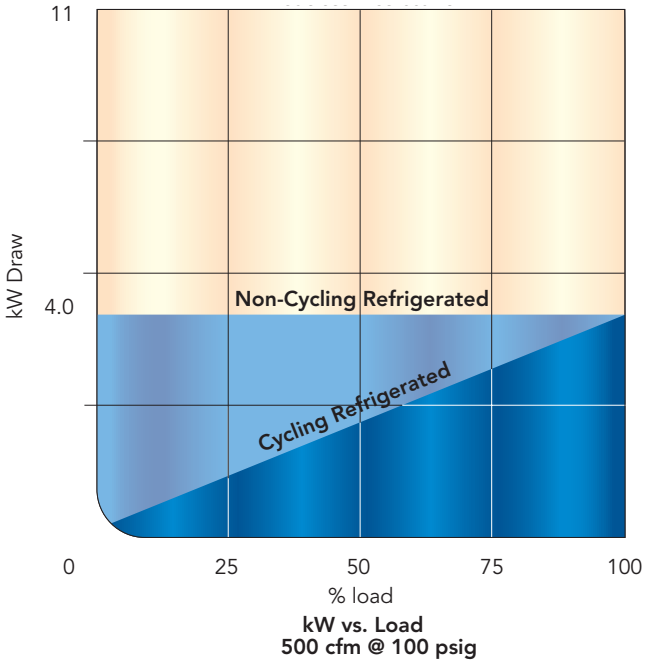
- Balanced refrigeration control systems provide reliable and consistent performance
- R-134a, R-404a and R-410a refrigerants ensure environmentally friendly operation
- User friendly control panels display operation data and instrumentation
- Cycling units 250 cfm and up creates total system versatility
- Application-specific heat exchangers render low pressure drop and optimum performance
- Integral cold point separator provides optimal moisture separation
- Electronic No Loss drain saves energy and ensures positive condensate removal
- Cold surface insulation improves thermal efficiency
- Attractive, heavy gauge, powder coated cabinets protect internal components
- UL and cUL standard on all units

CYCLING AND NON-CYCLING DRYERS 10 TO 4000 CFM

Quincy refrigerated air dryers are manufactured to exact standards in state-of-the-art production facilities, featuring high capacity, balanced component selection and consistent output. This, combined with a clean, simple design, creates an efficient, reliable and environmentally friendly non cycling refrigerated air dryer.

Quincy refrigerated air dryers allow plant equipment to run efficiently, and processes more reliably, by providing the cleanest compressed air utility possible. Payback starts immediately upon start up.

To customize the total air system for optimum efficiency, Quincy provides both Cycling and Non-Cycling refrigerated air dryers. Cycling dryers are well suited for systems with future expansion plans or fluctuating loads, whereas Non-Cycling dryers are typically best employed in systems that produce fairly constant loads. Either way, Quincy's lineup features time tested, proven and reliable compressed air dryers for demanding applications.



kW vs. Load
500 cfm @ 100 psig

The above chart represents the energy saving potential of a cycling dryer vs. a non-cycling dryer at various load conditions.

REFRIGERATED AIR DRYERS

QPNC — NON-CYCLING DRYER OPERATION

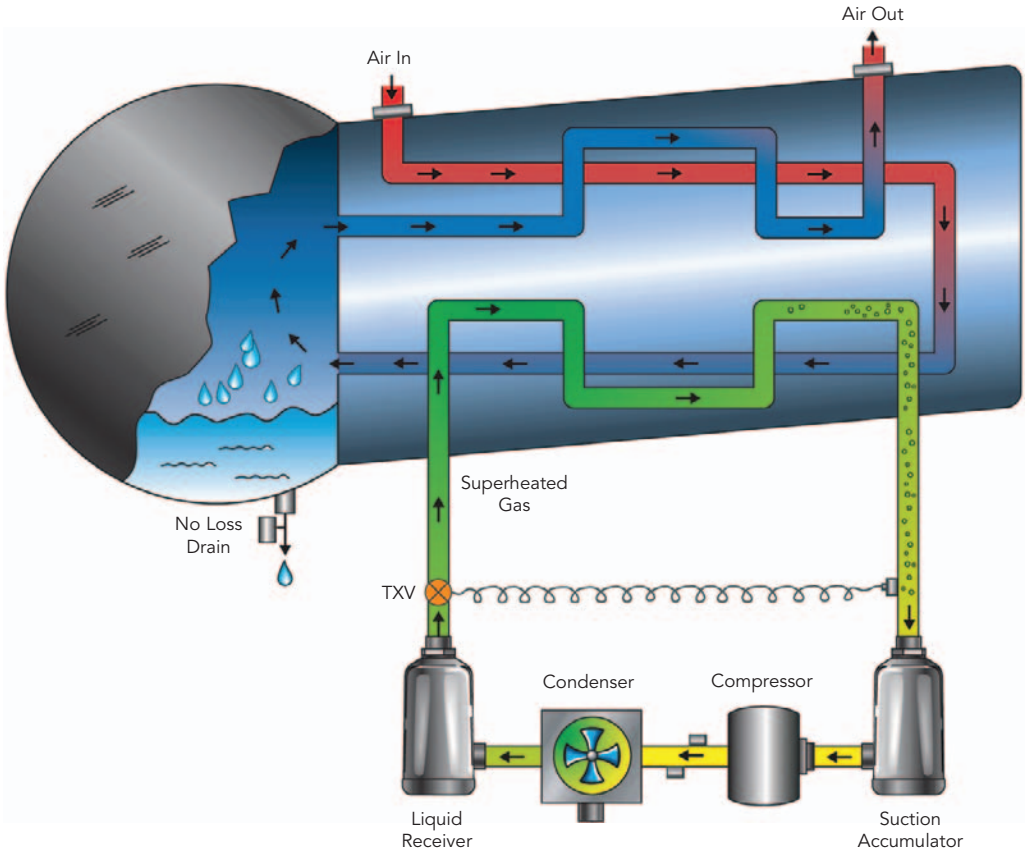
Quincy Non-Cycling dryers use a two-stage heat exchanger system to maintain consistent dew points. Freeze-ups are prevented and optimum performance is maintained by integrating the highest quality components and refrigeration controls into our system.

The system reduces the temperature of the compressed air to appox. +39°F forcing entertained moisture to condense. The mixture of condensed liquids and cold air then flow into the cold point moisture separator where the liquids are collected and removed by an electronic No Loss condensate drain. The No Loss drain ensure maximum moisture removal while saving energy.

Once liquids have been removed, the cold dry compressed air returns through the cold side of the first stage heat exchanger where it is reheated by the warm incoming air. Pipe sweating is avoided and air volume is increased by reheating.

The compressed air is now considered treated and ready for delivery to downstream products.

Non-Cycling Flow Schematic



QPCD — CYCLING DRYER OPERATION

Quincy Cycling Dryers save energy by turning the refrigeration system on and off in response to demand. A three-stage cold air module combined with our exclusive Cold Storage Integration (CSI) chiller provides more cold storage and higher energy savings than conventional cycling designs. Thermostatic controls provide tight dew point control and prevents freeze ups.

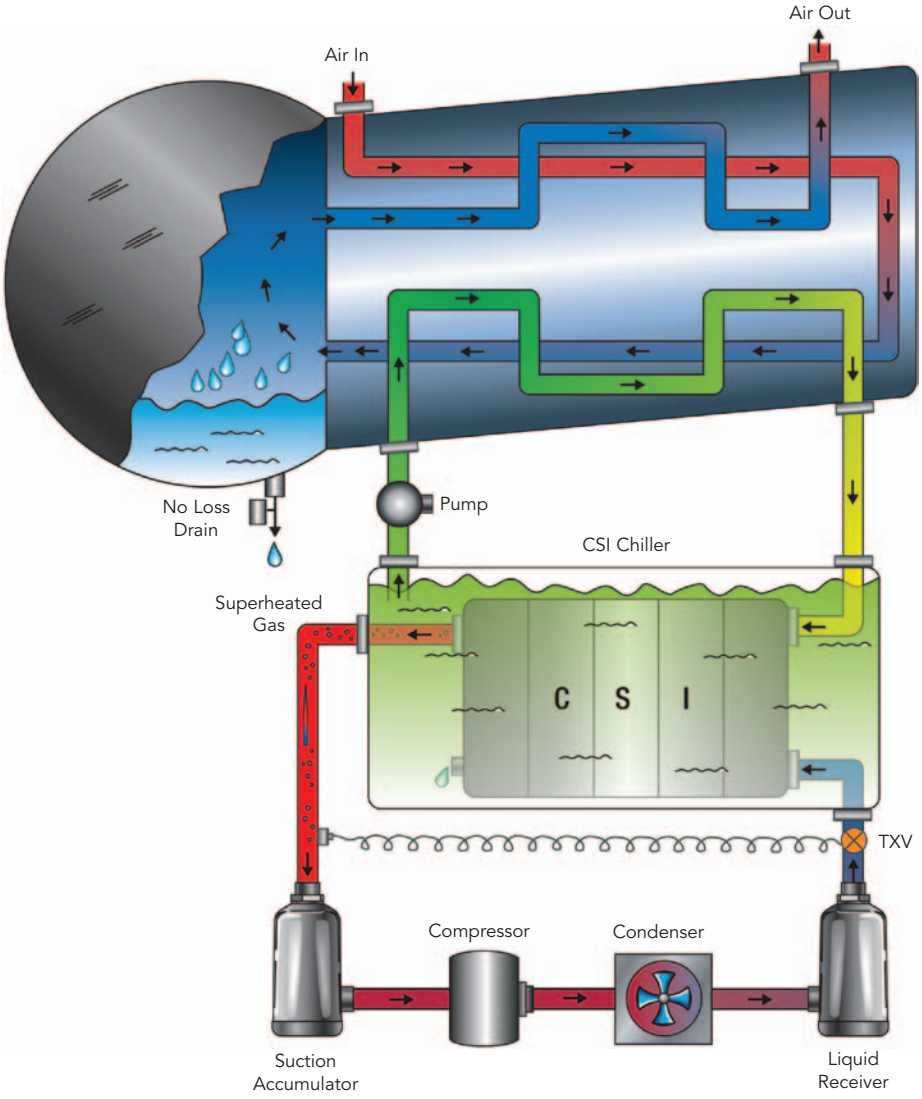
Contaminated compressed air flows into the 3-in-1 cold air module first stage exchanger section where it is pre-cooled by the cold air returning from the chilled mass section.

The pre-cooled compressed air is then directed into the second stage of the cold air module where the air temperature is lowered to approximately +35°F by the chilled mass flowing from the CSI chiller assembly.

The compressed air flows into the integral moisture separator where the condensed liquids are removed by centrifugal action and sent to the sump for disposal through the microprocessor controlled drain.

When the microprocessor reads the low set point from the thermostat, it turns the refrigeration compressor off. When the compressor is off, no energy is used. The totally immersed chiller, stainless steel heat exchanger eliminates radiant heat loss while preventing dew point spikes. The Cold Air Module works in combination with the CSI chiller to optimize efficiency and reduce power consumption by as much as 6%.

Cycling Flow Schematic



REFRIGERATED AIR DRYERS

CONTROLS

Quincy non-cycling dryers 10 to 2500 cfm standard controls include: a refrigerant analyzer gauge, electronic no-air-loss drain, on/off switch and a general purpose alarm light wired to the compressor overload circuit.

Non-cycling Control Panel 10–2500 cfm

- Run Light
- Alarm Indicator Light
- Analyzer Gauge
- System Schematic
- Stop / Start Switch with Lock Out

Cycling Microprocessor Control Panel 250-4000 cfm

- Inlet Air Temperature
- Chilled Media Temperature
- Ambient Temperature
- Fahrenheit or Centigrade
- Alarm Indicator
- Compressor Running Indicator
- Service Due Indicator

REFRIGERANT

All Quincy Compressor refrigerated air dryers use R-134a, R-404a or R-410a refrigerants, which are recognized by the Environmental Protection Agency (EPA) as being non-ozone depleting, and offer the following environmental advantages:

A Greener Choice

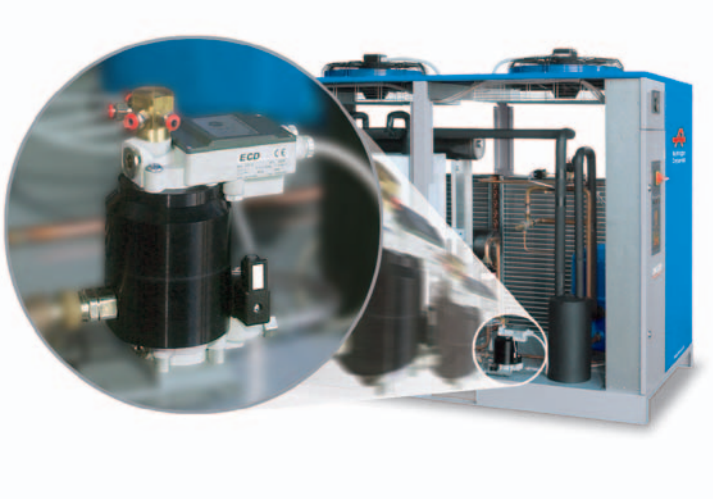
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

- No CFC's or HCFC's
- EPA/SNAP Compliant
- Zero Ozone Depletion Potential (ODP)
- Qualifies for one LEED point
- Higher performance/efficiency potential

ADDITIONAL DESIGN ELEMENTS

CONDENSATE REMOVAL SYSTEMS

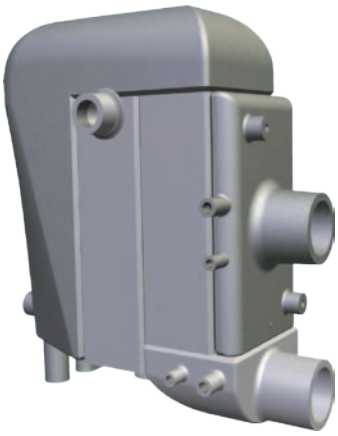
All Standard Quincy Non Cycling dryers are equipped with high efficiency, environmentally friendly No Loss electronic drains. Cycling dryers are equipped with microprocessor controlled electronic drains.



HEAT EXCHANGERS & MOISTURE SEPARATORS

Quincy's premium heat exchanger design, materials, and construction ensure maximum reliability and efficiency. To ensure the removal of all condensed liquids and to minimize pressure drop, Quincy high efficiency heat exchangers are paired with either our unique Five Step Centrifugal Moisture Separator or with an integral moisture separator.

- Application-specific design for low pressure drop and optimum performance
- Cold Air Module (QPNC 75 - 2500 & QPCD 250 - 1200)
- Brazed Plate (QPNC 10 - 50)
- Integrated Moisture Separator (QPNC 75 - 2500 & QPCD 250 - 1200)
- 10-Year Heat Exchanger Warranty



REFRIGERATED AIR DRYERS

QPCD — SPECIFICATIONS & ENGINEERING DATA

Cycling

Model	cfm @ 100 psig	m³/hr 7 bar	Standard Electrics — Volts/Phase Hertz	Full Load kW	Pressure — Max psig	Nominal ΔP	Dimensions — L In.	W In.	H In.	Approximate Shipping Wt. lb.	Connections In/Out
QPCD 250*	250	425	208/230-3-60 or 460-3-60	2.8	200	3.6	40	32	46	825	1.5″ NPT (F)
QPCD 325*	325	552	208/230-3-60 or 460-3-60	2.8	200	3.6	40	32	46	850	1.5″ NPT (F)
QPCD 400*	400	680	208/230-3-60 or 460-3-60	3.9	200	4.3	40	32	46	860	2″ NPT (F)
QPCD 500*	500	850	208/230-3-60 or 460-3-60	4.6	200	4.3	40	32	46	870	2″ NPT (F)
QPCD 600*	600	1020	208/230-3-60 or 460-3-60	5.1	200	4.3	40	32	46	910	2″ NPT (F)
QPCD 800*	800	1359	208/230-3-60 or 460-3-60	6.2	150	3.6	54	32	46	700	3″ NPT (F)
QPCD 1000*	1000	1699	208/230-3-60 or 460-3-60	7.6	150	4.3	54	32	46	730	3″ NPT (F)
QPCD 1200*	1200	2039	460-3-60	9.6	150	5.0	54	32	46	765	3″ NPT (F)
QPCD 1500*	1500	2549	460-3-60	11.4	150	4.3	72	42	61	1450	4″ Flange
QPCD 1700*	1700	2889	460-3-60	14.2	150	4.3	72	42	61	1500	4″ Flange
QPCD 2000*	2000	3398	460/3/60	15.9	150	3.6	72	42	61	1650	4″ Flange
QPCD 2500*	2500	4248	460/3/60	22.8	150	3.6	106	92	74	3100	6″ Flange
QPCD 3200*	3200	5437	460/3/60	28.4	150	4.5	106	92	74	3200	6″ Flange
QPCD 4000*	4000	6796	460/3/60	31.8	150	4.5	106	92	74	3500	6″ Flange

* Water cooled available. Consult factory for data and availability.

Notes: Capacity in accordance with recommended NFPA standards and CAGI standard ADF 100. Ratings based on 100°F inlet temperature, 100 psig inlet pressure and 100°F max ambient.

kW inputs are shown for air cooled models including fan motors.

CORRECTION FACTORS

Inlet Air Pressure Correction

A	psi	60	80	100	120	140	150	180	200
	Factor	0.83	0.94	1	1.03	1.05	1.08	1.09	1.11

Ambient Air Temperature Correction

C	Temp.°F	80	90	100	110
	Factor	1.15	1.07	1.00	0.91

Inlet Air Temperature Correction

B	Temp.°F	80	90	100	110	120
	Factor	1.5	1.21	1	0.84	0.69

Dew Point Correction

D	Temp.°F	37–39°F	45–50°F
	Factor	1	1.2

Example One: Conditions
Requirement

Capacity	745 cfm
Inlet Pressure	120 psig
Inlet Air Temp.	90°F
Ambient Temp.	100°F
Dew Point	39°F

Example One: Calculations

$$\text{Dryer Required} = \frac{\text{cfm required}}{(A) \times (B) \times (C) \times (D)}$$

$$= \frac{745}{(1.03) \times (1.21) \times (1) \times (1)}$$

= 598 cfm dryer required

Select QPCD 600 for this application

Example Two: Conditions
QPCD 1000 Corrected Flow for:

Inlet Pressure	120 psig
Inlet Air Temp.	110°F
Ambient Temp.	90°F
Dew Point	39°F

Example Two: Calculations

Corrected Capacity = Std. Capacity x (A) x (B) x (C) x (D)

= 1000 x (1.03) x (.84) x (1.07) x (1)

= 926 cfm

QPNC — SPECIFICATIONS & ENGINEERING DATA

Non-Cycling

Model	cfm @ 100 psig	m³/hr 7 bar	Standard Electrics — Volts/Phase Hertz	Full Load kW	Pressure — Max psig	Nominal ΔP	Dimensions — L In.	W In.	H In.	Approximate Shipping Wt. lb.	Connections In/Out	Refrigerant Gas
QPNC 10	10	17	115/1/60	0.2	230	1.5	22	16	25	57	0.5″ NPT (M)	R-134a
QPNC 15	15	25	115/1/60	0.2	230	2.2	22	16	25	59	0.5″ NPT (M)	R-134a
QPNC 25	25	42	115/1/60	0.3	230	2.9	22	16	25	70	0.5″ NPT (M)	R-134a
QPNC 35	35	59	115/1/60	0.3	230	2.9	22	16	25	75	0.5″ NPT (M)	R-134a
QPNC 50	50	85	115/1/60	0.4	230	2.9	23	17	37	75	0.5″ NPT (M)	R-134a
QPNC 75	75	127	115/1/60	0.7	230	2.9	26	20	38	112	1″ NPT (F)	R-404a
QPNC 100	100	170	115/1/60	0.9	200	2.2	26	20	38	134	1.5″ NPT (F)	R-404a
QPNC 125	125	212	115/1/60	1.0	200	2.9	27	15	42	150	1.5″ NPT (F)	R-404a
QPNC 150	150	255	208-230/1/60	1.5	200	1.5	27	15	42	198	1.5″ NPT (F)	R-404a
QPNC 200	200	340	208-230/1/60	1.6	200	2.9	27	15	42	198	1.5″ NPT (F)	R-404a
QPNC 250	250	425	460/3/60	1.9	200	3.6	29	35	40	198	1.5″ NPT (F)	R-404a
QPNC 300	300	510	460/3/60	2.3	188	3.6	29	35	40	282	2″ NPT (F)	R-410a
QPNC 360	360	612	460/3/60	2.6	188	4.3	29	35	40	322	2″ NPT (F)	R-410a
QPNC 500	500	850	460/3/60	3.2	188	4.3	29	35	40	348	2″ NPT (F)	R-410a
QPNC 600	600	1020	460/3/60	4.3	188	4.3	40	43	61	364	2″ NPT (F)	R-410a
QPNC 750	750	1275	460/3/60	5.4	188	3.6	40	43	61	717	3″ NPT (F)	R-404a
QPNC 1000	1000	1700	460/3/60	5.8	188	4.3	40	43	61	739	3″ NPT (F)	R-404a
QPNC 1250	1500	2125	460/3/60	7.3	188	5.0	40	83	61	772	3″ NPT (F)	R-404a
QPNC 1600	1600	2720	460/3/60	9.6	188	4.3	40	83	61	1213	6″ Flange	R-404a
QPNC 1800	1800	3060	460/3/60	9.6	188	4.3	40	83	61	1235	6″ Flange	R-404a
QPNC 2200	2200	3740	460/3/60	12.5	188	3.6	40	83	61	1323	6″ Flange	R-404a
QPNC 2500	2500	4250	460/3/60	12.5	188	3.6	40	83	61	1323	6″ Flange	R-404a
QPNC 3200*	3200	5440	460/3/60	15.8	150	4.5	113	60	99	4200	6″ Flange	R-404a
QPNC 4000*	4000	6800	460/3/60	18.2	150	4.5	150	80	117	6500	8″ Flange	R-404a

* Water cooled available. Consult factory for data and availability.

Notes: Capacity in accordance with recommended NFPA standards and CAGI standard ADF 100. Ratings based on 100°F inlet temperature, 100 psig inlet pressure and 100°F max ambient.

kW inputs are shown for air cooled models including fan motors.

CORRECTION FACTORS

Inlet Air Pressure Correction

	Temp.°F	60	80	100	120	140	150	180	200
A	QPNC 10 - 250 Factor	0.79	0.93	1	1.03	1.07	1.09	1.12	1.14
	QPNC 325 - 4000 Factor	0.83	0.94	1	1.03	1.05	1.08	1.09	1.11

Ambient Air Temperature Correction

	Temp.°F	80	90	100	110
C	QPNC 10 - 250 Factor	1.12	1.03	1	0.92
	QPNC 325 - 4000 Factor	1.15	1.07	1	0.91

Inlet Air Temperature Correction

	Temp.°F	80	100	110	120
B	QPNC 10 - 250 Factor	1.05	1	0.87	0.67
	QPNC 325 - 4000 Factor	1.05	1	0.84	0.69

Dew Point Correction

	Temp.°F	37–39°F	45–50°F
D	QPNC 10 - 250 Factor	1	1.12
	QPNC 325 - 4000 Factor	1	1.2

Example One: Conditions
Requirement

Capacity	480 cfm
Inlet Pressure	120 psig
Inlet Air Temp.	110°F
Ambient Temp.	100°F
Dew Point	39°F

Example One: Calculations

$$\text{Dryer Required} = \frac{\text{cfm required}}{\text{(A) x (B) x (C) x (D)}}$$

$$= \frac{480}{(1.03) \times (.84) \times (1) \times (1)}$$

= 555 cfm dryer required

Select QPNC 600 for this application

Example Two: Conditions
QPNC 500 Corrected Flow for:

Inlet Pressure	120 psig
Inlet Air Temp.	110°F
Ambient Temp.	90°F
Dew Point	39°F

Example Two: Calculations

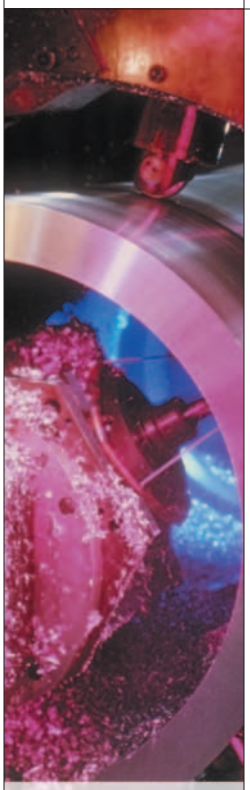
Corrected Capacity = Std. Capacity x (A) x (B) x (C) x (D)

= 500 x (1.03) x (.84) x (1.07) x (1)

= 463 cfm

QPNC-25 Non-Cycling Dryer

REFRIGERATED AIR DRYERS



QPNC & QPCD AVAILABLE EQUIPMENT

Available Equipment	Non-Cycling Models (SCFM) 10–50	75–125	150-200	250	300-600	750-2500	3200-4000	Cycling Models (SCFM) 250–1200	1500–4000
Controls:									
Microprocessor	n/a	n/a	n/a	n/a	n/a	S	S	S	S
Hot Gas Bypass Valve	S	S	S	S	S	S	S	n/a	n/a
Thermostatic Expansion Device	S	S	S	S	S	S	S	S	S
High/Low Refrigerant Shutdown	n/a	n/a	n/a	n/a	n/a	S	S	S	S
Refrig. Dual Pressure	n/a	n/a	n/a	n/a	n/a	S	S	S	S
Cycling Thermostat	n/a	n/a	n/a	n/a	n/a	n/a	n/a	S	S
Heat Exchangers:									
Three-stage Modular Heat Exchanger w/Integral Cold Point Separation	S	S	S	S	S	S	S	n/a	n/a
Three-Stage (Chiller) System	n/a	n/a	n/a	n/a	n/a	n/a	n/a	S	S
Separators & Drains:									
High Efficiency Moisture Separator	S	S	S	S	S	S	S	S	S
Electronic No Loss Drain	S	S	S	S	S	S	O	O	O
Electronic Timer Drain	n/a	n/a	n/a	n/a	n/a	n/a	S	S	S
Indicator lights:									
Power On	S	S	S	S	S	S	S	S	S
°F or °C Mode	n/a	n/a	n/a	n/a	n/a	n/a	S	S	S
Alarm	S	S	S	S	S	S	S	S	S
Drain Light	n/a	n/a	n/a	n/a	n/a	S	S	S	S
Compressor Running	n/a	n/a	n/a	n/a	n/a	n/a	S	S	S
Service Due	n/a	n/a	n/a	n/a	n/a	n/a	S	S	S
Instrumentation:									
Air In Temperature	n/a	n/a	n/a	n/a	n/a	n/a	S	S	S
Air Out Temperature	n/a	n/a	n/a	n/a	n/a	n/a	GP	GP	GP
Air In Pressure	n/a	n/a	n/a	n/a	n/a	n/a	GP	GP	GP
Air Out Pressure	n/a	n/a	n/a	n/a	n/a	n/a	GP	GP	GP
Ambient/Cooling Water Temp	n/a	n/a	n/a	n/a	n/a	n/a	S	S	S
Refrigerant Suction Temperature	n/a	n/a	n/a	n/a	n/a	n/a	S	n/a	n/a
Chilled Media Temperature	n/a	n/a	n/a	n/a	n/a	n/a	n/a	S	S
Refrigeration Suction Pressure	S	S	S	S	S	S	S	S	S
Refrigeration Discharge Pressure	n/a	n/a	n/a	n/a	n/a	n/a	GP	GP	GP
6′ Single Phase Power Cord	S	S	S	S	S	n/a	n/a	n/a	n/a
NEMA 1	S	S	S	S	S	S	S	S	S
NEMA 4	n/a	n/a	n/a	n/a	n/a	n/a	O	O	O
Cooling:									
Air	S	S	S	S	S	S	S*	S	S*
Water	n/a	n/a	n/a	n/a	n/a	n/a	n/a	O	O**
Enclosures:									
Powder Coated Cabinet	S	S	S	S	S	S	n/a	S	n/a
Filters:									
Particulate	O	O	O	O	O	O	O	O	O
Coalescer	O	O	O	O	O	O	O	O	O
Mist Eliminator	O	O	O	O	O	O	O	O	O

* Optional on 4000 scfm model
** Standard on 4000 scfm model

S = Standard
O = Optional

GP = Gauge Package Option
n/a = Not Applicable

QPHT — HIGH TEMPERATURE REFRIGERATED DRYER

- Accepts 180°F Inlet Temperature
- Space-Saving 3-in-1 Design
- Eliminates Water, Oil and Dirt from Air Systems
- Prevents Damage to Pneumatic Tools and Cylinders, Adding to Their Lifetime Use
- Fewer Finished Product Defects
- Prevents "Fisheye" Paint Splotches
- Reduces Operational Downtime
- Increase Profitability and Productivity
- Eliminates Air Line Purging

SPACE SAVING REFRIGERATED DRYER

QPHT Series Total Air System High Temperature Dryers integrate five different components that perform separate functions. An air-cooled aftercooler, refrigerated dryer, moisture separator, electronic adjustable drain valve, and coalescer work in harmony to ensure absolutely clean air that's oil and dirt free.

Heat exchangers with a smooth wall (primary) surface provide maximum heat transfer efficiency. The automatic drain has a solid state programmable timer and a manual override (particle strainer included). The virtually maintenance-free unit ships with oil, a full refrigerant charge and a three-prong plug for easy installation.

QPHT — SPECIFICATIONS & ENGINEERING DATA

High Temperature

Model	cfm @ 100 psig	Use With Compressor	Stnd Electrics	Ref hp	Heat Exchanger Material	Max psig	Refrigerant	Ambient Air Filter	Dimensions L In.	W In.	H In.	Approx Wt. lb.	Connections In.
QPHT 25	25	5 hp	115/1/60	1/4	Copper	175	R-134A	Stnd	17 1/2	18 3/4	17 3/4	85	1/2 NPT
QPHT 50	50	10 hp	115/1/60	1/4	Copper	175	R-22	Opt	28	20	30	128	1/2 NPT
QPHT 75	75	15 hp	115/1/60	1/2	St. Steel/Copper	175	R-134A	Opt	28	18	40	183	1 NPT
QPHT 100	100	20 hp	115/1/60	3/4	St. Steel/Copper	175	R-134A	Opt	28	18	40	194	1 NPT
QPHT 125	125	25 hp	115/1/60	3/4	St. Steel/Copper	175	R-134A	Opt	28	18	40	200	1 NPT

Notes: Instrumentation includes; On/off switch, power on light, hi-temp light, refrigerant suction pressure gauge, drain test button, drain adjustment knobs. Coalescing filter is supplied for all models. Automatic drain is electronic, timer operated and panel mounted. 208-230/1/60 or 100/1/50 electrics are available as no charge options.

Operating Conditions

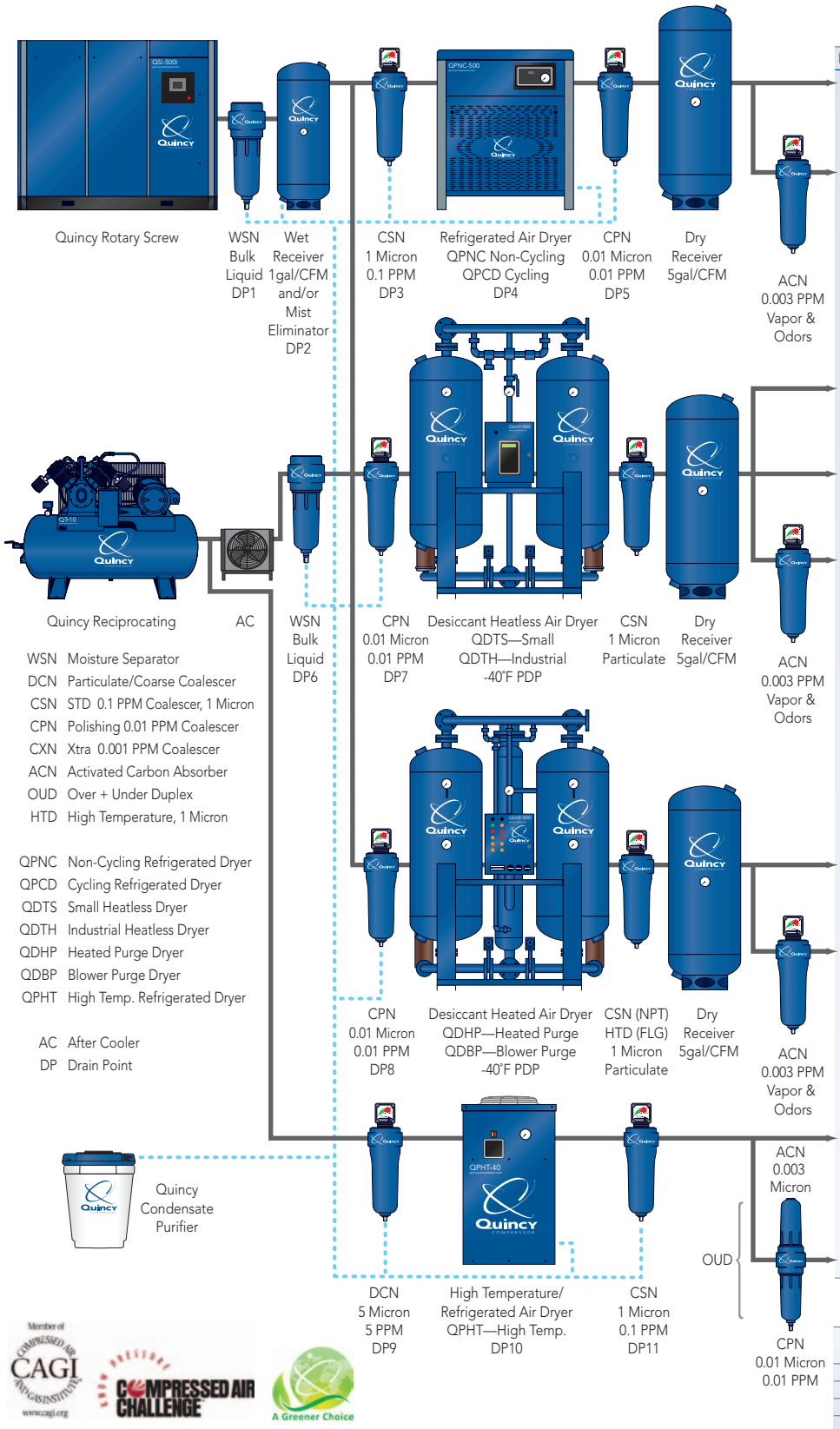
QPHT Models	Maximum Inlet Pressure	Maximum Inlet Air Temp.	Minimum Inlet Air Temp.	Dew-point Temp.	Maximum Ambient Temp.	Minimum Ambient Temp.
25–125	175 psig	180°F	40°F	50°F ± 2°F	100°F	40°F

Inlet Flow SCFM

Model	50°F PDP	40°F PDP
QPHT 25	25	20
QPHT 75	75	60
QPHT 125	125	100

SCFM flow is rated at 180°F max. inlet, 175 psig operating, 200 psig max. and 100°F ambient.

COMPRESSED AIR SYSTEMS BEST PRACTICE



WSN Moisture Separator
DCN Particulate/Coarse Coalescer
CSN STD 0.1 PPM Coalescer, 1 Micron
CPN Polishing 0.01 PPM Coalescer
CXN Xtra 0.001 PPM Coalescer
ACN Activated Carbon Absorber
OUD Over + Under Duplex
HTD High Temperature, 1 Micron

QPNC Non-Cycling Refrigerated Dryer
QPCD Cycling Refrigerated Dryer
QDTS Small Heatless Dryer
QDTH Industrial Heatless Dryer
QDHP Heated Purge Dryer
QDBP Blower Purge Dryer
QPHT High Temp. Refrigerated Dryer

AC After Cooler
DP Drain Point

Air Quality Classification ISO 8573.1						Wet System Avg. DP	
Solids		Moisture		Oil			
Micron	ISO	PDP	ISO	PPM	ISO	psi	Mbar
0.01	1	+38°F	4	0.01	1	10.7	738
0.01	1	+38°F	4	0.003	1	11.8	814
0.01	1	-100°F	1	0.001	1	14.2	979
NOTE: Requires CXN (.001 PPM) filter in series with standard CPN prefilter.							
1	2	-40°F	2	0.01	1	9.2	634
0.01	1	-40°F	2	0.003	1	10.3	710
1	2	-40°F	2	0.01	1	9.2	634
0.01	1	-40°F	2	0.003	1	10.3	710
1	2	+50°F	6	0.01	2	7.8	538
0.01	1	+50°F	6	0.003	1	10.0	689

Approximate Liquid Removal
100 CFM, 100 psi, 80°F, 4000 hrs./yr., 2 PPM

Drain Point	Gallons per Year	Drain Point	Gallons per Year	Drain Point	Gallons per Year
1	3000	5	140	9	300
2	2000	6	3000	10	4320
3	305	7	310	11	120
4	1300	8	310		

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