

# CRYOMECH

## Liquid Nitrogen Plant Specification Sheet

### LNP20

Liquid nitrogen production rate\*  $\geq 20$  liter/day (0.8 liter/hour); 5.2 gal/day (0.22 gal/hour)  
\*reduced production rate on 50Hz

#### Dewar assembly

Capacity 100 liters (26 gal)  
Weight:  
Empty 210 lb (95 kg)  
Full 388 lb (176 kg)  
Dimensions (OD x H) 24 x 48 in (61 x 122 cm)

#### Cold head model

AL125, mounted on dewar

#### Helium compressor model

CP830, available as air or water cooled

##### Air cooled:

Weight 176 lb (80 kg)  
Dimensions (L x W x H) 19 x 22 x 22 in (48 x 56 x 56 cm)  
Electrical rating 208/230VAC, 1Ph, 60Hz // 200/220VAC, 1Ph, 50Hz  
Power consumption 4.1 kW // 3.5 kW

##### Water cooled:

Weight 165 lb (75 kg)  
Dimensions (L x W x H) 18 x 18 x 22 in (46 x 46 x 56 cm)  
Electrical rating 208/230VAC, 1Ph, 60Hz // 200VAC, 1Ph, 50Hz  
Power consumption 3.9 kW // 3.3 kW  
Cooling water flow rate Minimum flow 1.2 GPM (4.5 LPM) @ 80°F (27°C) maximum temperature

#### Helium flexible lines

Standard length 10 ft (3 m)  
Weight per pair 6.4 lb (2.9 kg)

#### Nitrogen generator assembly

Nitrogen purity 98%  
Weight 61 lb (28 kg)  
Dimensions (L x W x H) 42 x 7 x 29 in (107 x 18 x 74 cm)  
Nitrogen Gas Flow Rate 0.38 SCFM at 7 PSIG (10.8 LPM at 0.5 bar)

#### System parameters

Helium pressure 200  $\pm$  5 PSIG (13.8  $\pm$  .34 bar) @ 60 Hz  
200  $\pm$  5 PSIG (13.8  $\pm$  .34 bar) @ 50 Hz  
Ambient temperature range 45°F to 100°F (7°C to 38°C)  
Maximum altitude (standard LNP) 10,000 ft (3000 m)

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#### Compressed air requirement

Dew point 35°F (2°C)  
Flow rate 3.7 ACFM at 85 PSIG (105 ALPM at 6 bar) FAD\*\*  
\*\*FAD (free air delivery) measures the compressor's output while operating at a specific pressure. The result, expressed in actual cubic feet per minute (ACFM), rates the outlet flow based on the inlet conditions.

#### Maximum sound level

Air cooled 76 dBA @ 1 meter  
Water cooled 70 dBA @ 1 meter

#### Minimum footprint requirement

Air cooled helium compressor 7.5 x 2.5 ft (2.3 m x 0.8 m)  
Water cooled helium compressor 4.5 x 3.5 ft (1.4 m x 1.1 m)

#### Shipping weight and dimensions

The standard LNP is packaged in two wooden crates  
Crate 1(Cold Head, Dewar):  
Weight 380 lb (172 kg)  
Dimensions (L x W x H) 41 x 38 x 65 in (104 x 97 x 165 cm)  
Crate 2(Helium Compressor):  
Weight 440 lb (200 kg)  
Dimensions (L x W x H) 48 x 40 x 38 in (122 x 102 x 97 cm)  
Crate 3(Optional Air Compressor):  
Weight 880 lb (399 kg)  
Dimensions (L x W x H) 69 x 43 x 64 in (175 x 109 x 163 cm)

#### **Optional Equipment**

##### Air compressor

Flow rate 6.3 ACFM at 175 PSIG (178 ALPM at 12.1 bar) FAD  
Weight 500 lb (227 kg)  
Dimensions (L x W x H) 53 x 28 x 48 in (135 x 71 x 122 cm)  
Duty cycle 1/3  
Horsepower 3  
Electrical rating 230VAC, 1Ph, 60Hz; 200VAC, 1Ph, 50Hz  
Sound level 76 dBA @ 1meter

##### Refrigerated air dryer

Nominal capacity 10 SCFM (283 SLPM)  
Weight 42 lb (19 kg)  
Dimensions (L x W x H) 18 x 8 x 18 in (46 x 20 x 46 cm)  
Power consumption 0.2 kW  
Electrical rating 115VAC, 1Ph, 60Hz; 230VAC, 1Ph, 50Hz