

9.1 P12 Separation System, S/N 383

9.1.1 General Operating Conditions and Settings

Operating Feed Flow Range:	0.5-10 Liters/minute
Case Cooling Flow Rate:	at 10°C: 2.5 Liters/min at 25°C: 4.0 Liters/min (the flow rate will depend on the desired process temperature)
Spindle Temperature Control Loop Supply Requirements:	Flow Rate: 1-3 liters/min Recommended Coolant: glycol water mixture Coolant Temperature: 25-35°C
Maximum Internal Pressure:	15 psi
Operating Temperature Range:	4°-40° C
SIP Maximum Temperature:	121°C (250 °F) (requires SIP option kit).
Maximum Bowl Speed:	10,838 RPM
Centrifugal Force:	At Bowl Wall 20,000 G's @ 10,838 RPM At Pool Surface 13,333 G's @ 10,838 RPM
Torque Settings:	Draw bar: 100 ft.-lbs. All swing bolts: 43 ft.-lbs. Spindle Cap screws: 11.5 ft.-lbs. Tower Brace bolts : 43 ft.-lbs.

9.1.2 System Components

Bowl:	Inside Diameter:	12.0"
	Pool Surface Diameter:	8.0"
	Bowl Volume:	9.4 Liters, 574 in ³
	Solids Space (Nominal)	8.5 Liters, 519 in ³
	Baffles:	4
	Material:	Ti-6AL-4V Titanium Alloy,
	Specification:	AMS 4928
Main Drive:	Motor Type:	10 HP 230/460V, Variable Frequency AC, 3 phase 215 TC frame
	Base Speed:	3525 rpm @ 60 Hz.
	Drive to Spindle Ratio:	1:2.41
	Controller:	Allen-Bradley 1336 Plus microprocessor controlled variable frequency AC drive
Scraper Drive:	Motor Type:	¼ HP, 230/460 VAC, 3 phase. Base Speed 1800 RPM
	Gear Reduction Ratio:	40:1
	Scraping Bowl Speed:	44 RPM
	Torque:	52 ft. lbs @ 44 RPM Other Pneumatic Tooth Clutch
Spindle and Bearings:		Cartridge Assembly with angular- contact, maintenance free, lubed for life, superprecision ball bearings, packed with synthetic grease
	Main Spindle Seal:	Mechanical Gas Barrier Seal

Actuators:	Scraper:	Linear Pneumatic with hydraulic speed control
	Solids Gate:	Rotary pneumatic with timing belt drive
	Centrate Gate:	Pneumatic, built into case
	Spindle Swing Lock:	Pneumatic, built into Bearing Housing
Control Panel:	NEMA 4x Cabinet NEMA 4 Switches and Display Lamp Panel	
PLC Controller:	Allen-Bradley SLC 500 Modular Hardware Style with 48 DC outputs, 16 DC inputs, 8 analog inputs and 4 analog outputs.	
	Operator Interface:	Allen-Bradley PanelView 550 Operator Terminal
	Software Version:	63-99-0072
Piping:	316 L Sanitary Stainless Steel, 180 Grit finish with orbital welds and Sanitary Clamp connections	
Contact Materials: (except Bowl)	Metal:	316L, 17-4, Nitronic 60 Stainless steel
	Elastomers:	EPDM, Teflon, PEEK
Safety Interlocks:	Based on Field Inputs from: Vibration Spindle bearing temperature (upper limit) Excess fluid level in Lower Case Scraper Actuator position Solids Gate position System air pressure	

9.1.3 Required Utilities

Power Requirements:

45 Amp, 480 VAC, 3 phase, 50 Hz

Pneumatics Requirements:

Instrument-quality air supplied at 80-120 psi.
Recommended setting at the air connection:

85 ± 5 psi.

Continuous Flow: 2 SCFM

Momentary Flow: 15 SCFM

Control Cabinet Purge: 8 SCFM

Nitrogen supplied at 80-120 psi

Continuous Flow: 2 SCFM

Momentary Flow: 15 SCFM

Recommended setting at the N₂ regulator:

85 ± 5 psi.