

**PSC175**
**Pipeline Service Compressor Specifications**

PLC Control Scheme	Pig Pushing	Pipeline Evacuation
	<p><b>Supply large volume of gas at low <math>\Delta P</math></b> <b>Discharge pressure up to 1500 psi</b></p> <ul style="list-style-type: none"> <li>Operator selects operating pressure limits (upper and lower) and speed (if desired)</li> <li>The Compressor will operate with inlet connected directly to the reciprocating compressor</li> <li>Screw compressor will be left offline and isolated from pressure</li> <li>PLC will control compressor speed to stay within operational limits</li> </ul>	<p><b>Draw target volume down to selected pressure</b> <b>Discharge pressure up to 1100 psi</b></p> <ul style="list-style-type: none"> <li>Operator selects desired final pressure and initiates PLC control</li> <li>Operation begins with inlet connected to reciprocating compressor and Screw compressor offline</li> <li>The reciprocating compressor will draw pipeline pressure down to 250 psi</li> <li>At 250 psi automated ball valves will reconfigure the flow path for series operation. Inlet flowing to screw compressor, screw compressor discharge flowing to reciprocating compressor.</li> <li>A pressure reducing valve will limit screw compressor inlet to 70 psi</li> <li>PLC will control compressor speed to maintain maximum flow throughout operation</li> <li>Compression will stop upon reaching operator selected final pressure</li> </ul>

Screw Compressor	Type	Oil flooded rotary screw gas compressor
	Model	Gardner Denver Enduro 25
	Suction Pressure	70 psi maximum
	Discharge Pressure	250 psi maximum
	Vi	4.5
	Drive	Hydraulic Variable Speed Closed Loop
	Oil Filter	Donaldson Duramax c/w diff. P indicator

Reciprocating Compressor	Type	2 Throw single stage reciprocating
	Model	Arrow VRC-2
	Suction Pressure	1500 psi maximum
	Discharge Pressure	1500 psi maximum
	Drive	Hydraulic Variable Speed Closed Loop
	Oil Filter	Spin on

Driver	Type	Natural gas fueled
	Model	KEM 10.3
	Horsepower	175 HP @ 2400 rpm available to compressor
	Cylinders	8
	Displacement	628 cubic inch
	Compression Ratio	10.5:1
	Aspiration	Natural
	Ignition	Coil near plug
	Radiator	Bolted construction
	Silencer	Critical Grade
	Governor	Electronic
Certification	EPA / CARB	

Controls and Instrumentation	System Control		PLC Siemens S7-1200
	Engine Readout		Multifunction LCD display
	Indicators	General	Hour meter Compressor discharge temperature Separator level <i>Pressures:</i> Inlet, screw suction, inter-stage, discharge, and oil coalescing element differential pressures
		Engine	Engine rpm Engine oil, fuel and vacuum pressures

		Engine oil and glycol levels
		Engine glycol temperature
	Web Enabled Remote Monitoring	Cellular Network IOT system

Warnings and Shutdowns		Warnings	Shutdowns
	Compressor Oil Filter $\Delta$ Pressure	✓	
	Oil Coalescing Element $\Delta$ Pressure	✓	
	Suction Pressure Low		✓
	Suction Pressure High		✓
	Discharge Pressure Low		✓
	Discharge Pressure High		✓
	Compressor Discharge Temp. High		✓
	Engine Oil Pressure Low		✓
	Engine Coolant Temperature High		✓
ESD		✓	

Screw Compressor Cooling System	Type	Aftercooler/oil cooler combination
	Model	Global Heat Transfer AOX-100
	Rating	250 psi @ 325 °F
	CRN	AB, BC, SK
	Thermostat	Set @ 180 °F

Reciprocating Compressor Cooling System	Type	Finned Tube
	Model	Custom Assembly
	Rating	1500 psi @ 350 °F

Inlet/Outlet	Inlet Flange	3" 600# RFF
	Outlet Flange	3" 600# RFF
	Inlet Valve	3" FP ball valve
	Discharge Check	2" Piston check

Oil Separator	Rated Pressure	285 psi @ 250 °F
	Size	14" diameter
	Design Code	ASME Sect VIII, Div I
	PSV	285 psi
	Corrosion Allowance	1/8"
	Sight Glass	Glass 10" viewing length
	CRN	AB, BC, SK

Piping	Process Piping	SA-106B threaded piping
	Other Piping	SA-106B threaded spools
	Vent Header	Header for PSV's, and auto blow down
	All process valves unioned or flanged for easy replacement	

Enclosure	Dimensions	Length 20', width 8', height 8'(Approximate)
	Service Doors	1 - engine, 1 - compressor
	Louvers	4 gravity louvers, lockable for transport
	Coating	Galvanized steel
	Sound Proofing	Critical grade muffler Low speed cooling fans

Compliance	Process Piping	B31.3
	Electrical	CSA C22.1 (Canadian Electrical Code)

**DISCHARGE PRESSURE Max ΔP: 1100 psi / 7585 kPa**

	<b>300</b>	<b>400</b>	<b>500</b>	<b>600</b>	<b>700</b>	<b>800</b>	<b>900</b>	<b>1000</b>	<b>1100</b>
<b>PSI</b>									
<i>kPa</i>	2070	2760	3445	4135	4825	5515	6205	6895	7585
<b>0</b>	<b>575</b>	<b>560</b>	<b>520</b>	<b>500</b>	<b>460</b>	<b>450</b>	<b>430</b>	<b>400</b>	<b>380</b>
<i>0</i>	16.3	15.9	14.7	14.2	13.0	12.7	12.2	11.3	10.8
<b>100</b>	<b>1050</b>	<b>1050</b>	<b>1000</b>	<b>930</b>	<b>850</b>	<b>830</b>	<b>800</b>	<b>760</b>	<b>720</b>
<i>690</i>	29.7	29.7	28.3	26.3	24.1	23.5	22.7	21.5	20.4
<b>200</b>	<b>1512</b>	<b>1371</b>	<b>1239</b>	<b>1115</b>	<b>1017</b>	<b>896</b>	<b>800</b>	<b>760</b>	<b>720</b>
<i>1380</i>	42.8	39.4	35.1	31.6	28.8	25.4	22.7	21.5	20.4
<b>300</b>	<b>2489</b>	<b>2333</b>	<b>2186</b>	<b>2048</b>	<b>1916</b>	<b>1788</b>	<b>1665</b>	<b>1554</b>	<b>1445</b>
<i>2070</i>	70.5	66.1	61.9	58.0	54.3	50.6	47.1	44.0	40.9
<b>400</b>		<b>3329</b>	<b>3171</b>	<b>3022</b>	<b>2879</b>	<b>2741</b>	<b>2607</b>	<b>2478</b>	<b>1960</b>
<i>2760</i>		94.3	89.8	85.6	81.5	77.6	73.8	70.2	55.5
<b>500</b>			<b>4196</b>	<b>4037</b>	<b>3884</b>	<b>3738</b>	<b>3596</b>	<b>2690</b>	<b>1661</b>
<i>3445</i>			118.8	114.3	110.0	105.8	101.8	76.2	47.0
<b>600</b>				<b>5107</b>	<b>4945</b>	<b>4790</b>	<b>4639</b>	<b>3683</b>	<b>2176</b>
<i>4135</i>				144.6	140.0	135.6	131.4	104.3	61.6
<b>700</b>					<b>6041</b>	<b>5878</b>	<b>5719</b>	<b>5212</b>	<b>3461</b>
<i>4825</i>					177.1	166.4	161.9	147.6	98.0
<b>800</b>						<b>6998</b>	<b>6833</b>	<b>6673</b>	<b>5432</b>
<i>5515</i>						198.2	193.5	189.0	153.8
<b>900</b>							<b>7976</b>	<b>7810</b>	<b>7435</b>
<i>6205</i>							225.9	221.2	210.5
<b>1000</b>								<b>8973</b>	<b>8804</b>
<i>6895</i>								254.1	249.3

Projected Performance based on 2500 ft, gas density .656, temp 68°F – Flow Rates in **mscfd** e3m3/day. Steady state flow rate.

Flow rate reduces with pipeline pressure during evacuation.

Two stage operation.