



**Rotary Screw Gas Compressors**

Job Description:  
Customer Name:

Job/Run Ref No: 20711 (100423) 0-175  
Customer Ref No:

**RESULTS (Rating at Given Conditions)**

Capacity Loading	100.0	100.0	%
Volume Flow Predicted	0.626	0.626	mmscfd
Mass Flow Predicted	23.9	23.9	lb/min
Power Required	176.0	176.0	bhp
Torque Required	513.4	513.4	ft-lb
Efficiency, Volumetric	NA	75.1	%
Efficiency, Adiabatic	NA	59.1	%
Oil Flow, Total	36.9	36.9	USgpm
Oil Flow, Brgs & Gears	7.4	7.4	USgpm
Oil Flow, Injection	29.5	29.5	USgpm
Heat Load, Oil Cooler	5,834	5,834	Btu/min
Heat Load, Aftercooler	931	931	Btu/min

**SITE CONDITIONS**

Elevation Above Sea Level	2500 feet
Barometric Pressure	13.400 psia

**PRESSURES**

Suction Flange, Skid	0.00 psig
Suction Loss, Skid	1.50 psi
Suction Flange, Compr	-1.50 psig
Discharge Flange, Compr	182.00 psig
Discharge Loss, Skid	7.00 psi
Discharge Flange, Skid	175.00 psig
Pressure Ratio, Compressor	16.42
Pressure Loss, Oil System	10.00 psi

**COMPRESSOR**

**PDR20X**

Rotor Diameter	204.0 mm
Male Rotor L/D	2.20
Volume Ratio Type	Fixed
Internal Volume Ratio (Vi)	4.7
Ideal Volume Ratio	9.48
Internal Gear Ratio	1.24
Compressor Input Speed	1800 rpm CW
Displacement	0.3205 ft <sup>3</sup> /rev
Male Rotor Tip Speed	23.8 m/s
Maximum Discharge Pressure	175 psig
Minimum Manifold Pressure	84 psig

**TEMPERATURES**

Ambient Air	90.0 °F
Compressor Suction	60.0 °F
Compressor Discharge	200.0 °F
Aftercooler Outlet	120.0 °F
Compressor Injection Oil	160.0 °F

**GAS PROPERTIES (given Specific Gravity)**

Specific Gravity	0.720
Mole Weight	20.808
Specific Heat Ratio, Cp/Cv	1.244
Specific Heat, Cp	0.486 Btu/lb/°F
Inlet Compressibility	0.997

**DRIVER**

Available Motor Power	200 bhp
Actual Motor Loading	88.0 %
Actual Motor Speed	1800 rpm
Gearbox Ratio	1.000

**COMPRESSOR OIL**

POLYGLYCOL 115

Solubility of Gas in Oil	Low (0%-10% by wt)
Diluted Oil Viscosity	25 cSt
Density	62.131 lb/ft <sup>3</sup>
Specific Heat, Cp	0.474 Btu/lb/°F

**STATUS:** Application requires PAA.

**NOTICES:**

No warranty or guarantee, either implied or expressed, is given on results from this program.

Data and procedures in this program are subject to change by Sullair Corp. without notice.

Accuracy of full-load compressor capacity and power predicted by this program is within +/-5% at the specified operating conditions. Part-load performance is estimated and has no tolerance.

**PRODUCT APPLICATION ANALYSIS (PAA) BY SULLAIR:**

Sullair has the right to verify all applications and performance estimates prior to order acceptance.

An application will require PAA prior to order acceptance if any Formal Limit is violated but the corresponding PAA Limit is not violated.

Any PAA limit violation precludes both Product Application Analysis and application acceptance by Sullair.

All applications with H2S or CO2 require approval by Sullair Corp. prior to order acceptance.

All engine-driven applications require torsional analysis by the compressor skid packager.