

**ROD LOAD, PSV, PRESSURE TRANSMITTER & TEMP. SETPOINTS**

Unit Number:	16974-NR	Project Engineer:	A.Halbert
Customer Name:	ConocoPhillips Canada	Sales Contact:	G.Nelson
Compressor Frame:	Ariel JGK/4		
Stroke:	5.500		

Compressor type:	Ariel				
Rod Diameter	2.000 in	Rod Load Compression	40,000 lbf	Barometric Pressure	13.03 psia
Rod Load Total	74,000 lbf	Rod Load Tension	37,000 lbf	Panel Programming	Available

**ROD LOADING SET POINTS (ENTER WORST CASE SCENARIO)**

DESIGN OK

		Stage 1 (Throw 2 & 4)	Stage 2 (Throw 3)	Stage 3 (Throw 1)		
Cylinder Diameter		15.875 in	11.000 in	6.750 in		
Cylinder MAWP		635.00 psig	845.00 psig	1900.00 psig		
Min Suction Pressure		10.00 psig	80.96 psig	316.81 psig		
Max Suction Pressure		120.00 psig	259.06 psig	580.51 psig		
Min Discharge Pressure		83.38 psig	322.53 psig	1010.13 psig		
Max Discharge Pressure		264.29 psig	590.51 psig	1010.13 psig		
Cylinder Acting:		Double	Double	Double	Double	Double
ROD LOAD COMPRESSION	Actual - from Performance run	34,240 lbf	37,480 lbf	28,840 lbf		
	Calculated based on actual values	34,233 lbf	37,474 lbf	28,833 lbf		
	% DIFF.	0.02%	0.02%	0.02%		
ROD LOAD TENSION	Actual - from Performance run	24,494 lbf	34,669 lbf	24,272 lbf		
	Calculated based on actual values	32,994 lbf	34,735 lbf	23,462 lbf		
	% DIFF.	25.76%	0.19%	3.45%		
ROD LOAD TOTAL	Actual - from Performance run	49,654 lbf	72,150 lbf	53,058 lbf		
	Calculated based on actual values	67,227 lbf	72,209 lbf	52,295 lbf		
	% DIFF.	26.14%	0.08%	1.46%		
	Adjusted Suction Pressure	7.50 psig	60.72 psig	237.61 psig		
	Adjusted Discharge Pressure	181.62 psig	424.26 psig	1040.03 psig		
	Valve Efficiency:	0.9373	0.9400	0.8185		

ROD LOAD COMPRESSION	37,315.14 lbf	37,798.57 lbf	39,302.19 lbf		
	93.3% of Max Load	94.5% of Max Load	98.3% of Max Load		
	DESIGN OK	DESIGN OK	DESIGN OK		
ROD LOAD TENSION	36,684.15 lbf	36,201.16 lbf	34,697.67 lbf		
	99.1% of Max Load	97.8% of Max Load	93.8% of Max Load		
	DESIGN OK	DESIGN OK	DESIGN OK		
ROD LOAD TOTAL	73,999.30 lbf	73,999.73 lbf	73,999.86 lbf		
	100% of Max Load	100% of Max Load	100% of Max Load		
	DESIGN OK	DESIGN OK	DESIGN OK		
Max Differential	174.12 psig	363.54 psig	802.43 psig		
Differential DPSHH Setting:	165.41 psig	345.37 psig	762.30 psig		

- Notes:**
1. For Ariel Cylinders, Rod Loads are calculated using cylinder internal pressures.
  2. Rod load calculations are for gas loads only, inertia loads have not been included.
  3. Rod load calculations are using assumed valve efficiencies, for a more accurate calculation actual valve efficiencies should be used.
  4. In cases you know that the DPSHH considerably exceeds the actual operating conditions, it may be beneficial to set the DPSHH closer to your operating parameters.

**16974-NR - PSV PRESSURE SET POINTS**

	Stage 1 (Throw 2 & 4)	Stage 2 (Throw 3)	Stage 3 (Throw 1)		
Discharge PSV Setting:	635.00 psig	845.00 psig	1650.00 psig		
PSV Type	Standard	Standard	Standard	Standard	Standard
PSV simmer point:	571.50 psig	760.50 psig	1485.00 psig		

**16974-NR - PRESSURE TRANSMITTER & TEMP. SET POINTS & RANGES**

	Suction	Stage 1 (Throw 2 & 4)	Stage 2 (Throw 3)	Stage 3 (Throw 1)		
Low Suction Warning (PSL) - User Override	8.50 psig			269.29 psig		
Low Suction Set Point (PSLL) - User Override	7.50 psig			237.61 psig		
High Suction Warning (PSH) - User Override	138.00 psig			667.59 psig		
High Suction Set Point (PSHH) - User Override	150.00 psig			725.64 psig		
High Discharge Warning (PSH)		303.93 psig	679.09 psig	1161.65 psig		
Cylinder MAWP (psig)		635.00 psig	845.00 psig	1900.00 psig		
MAWP Status		DESIGN OK	DESIGN OK	DESIGN OK		
High Discharge Set Point (PSHH)		330.36 psig	738.14 psig	1262.66 psig		
PSHH USER OVERRIDE						
PSV simmer point:		571.50 psig	760.50 psig	1485.00 psig		
PSV Simmer Status		DESIGN OK	DESIGN OK	DESIGN OK		
Pressure Transmitter Range	0-870PSIG (EXS)	0-1305PSIG (EXS)	0-1305PSIG (EXS)	0-TBAPSIG		
Max Differential		174.12 psig	363.54 psig	802.43 psig		
Differential DPSHH Setting:		165.41 psig	345.37 psig	762.30 psig		
Differential DPSH Warning:		156.71 psig	327.19 psig	722.18 psig		
Max Discharge Temp.		273.00 deg F	281.00 deg F	304.00 psig		
Cyl. Discharge Temp. Warning (TSH):		286.65 deg F	295.05 deg F	319.20 deg F		
Cyl. Discharge Temp. Set Point (TSHH):		300.30 deg F	309.10 deg F	334.40 deg F		

- Notes:**
5. Above Data must be transferred to the Control Panel Configuration Sheet.