

Compressor Calculation Record

Customer_____Developer_____
Site Location _____Caribbean_____

Plant _____ 3 x 3 x 1 GTCC CHP
Sales File No. _____

Date_____30-Mar-16
By _____JOH

Process Conditions

Gas _____ LPG vapor _____
Capacity _____ 12 MMSCFD _____
Suction Pressure _____ 249 psia _____

Suction Temperature _____ 582 R
Discharge Pressure _____ 714.015
Isentropic Exponent _____ 1.1314

Barometric Pressure _	14.015
Molecular Weight ____	44.094
Relative Humidity ____	60

Operating Conditions		1	2	3	4		Operating Conditions				1	2	3	4
1	Gas	LEP C3H8				15	Operating Conditions							
2	Qs - MMSCFD	12.62				16	N_H . Hydraulic Efficcy				95%			
3	Qs Inlet Vol. CFM	561				17	$M = K-1/K N_H$				0.1222519			
4	Ps - psia	249				18	$r = Pd/Ps$				2.8675301			
5	Ts _F - °F	122				19	$r^M - 1$				0.1374471			
5	Ts _R - °R	582				20	Head = Z _{ave} RTs(r ^M -1) / M ft-lb/lb				22,513			
6	Pd - psia	714.015				21	GHP =((wgt flow x H) /(33000 x N _H))				747.34			
7	Molecular Weight	44.094				22	Total BHP = GHP + 1% GHP				755			
8	Z _s					23								
9	Z _d					24	T _d = T _s x r ^M (degrees Rankine)				662			
10	Z _{ave}	0.98194				25	Pressure Coefficient, μ				0.51			
11	ρ_M	35.039				26	$N = 1300 \sqrt{DIA \times \text{sq root Head}/S \times \mu} = \text{rpm}$							
12	Spec. Vol = Z x R _M x Ts (°R)/144 x P _s = ft³/lb	0.5585				27	Critical Speed, RPM							
13	Wgt. Flow = Qs /spec. vol. = lb/min.	1040.69				28	Qs / N							
14	K-1/K	0.1161393				29	Qd / N							
							Compressor Selection							