



Sabroe

Refrigeration Plant Computation

Version 31.10

File : Test	Ref : VLB	Page : 1
Date : 2021/05/20	Time : 18.07.41	
User : JCI GLOBAL SUPERUSERS VIA SCCM		
Prog : COMP1/109901	Print : MIE ver. 9.11.19041.0	

SINGLE STAGE COMPRESSOR

compressor type	SMC 116 S Rotatune	refrigerant	R 600
number of compressors	1.00	evaporating temperature	48.5 deg.C
compressor load	100.0 %	condensing temperature	127.0 deg.C
drive shaft speed	1500.0 RPM (list)	total suction superheat	23.0 K
no. of working cylinders:	16	suction line superheat	15.0 K
drive type	direct	total liquid subcooling	45.0 K
suction line loss	1.0 K	condenser liquid subcooling	45.0 K
discharge line loss	0.5 K		

total cooling capacity	500.4 kW	total shaft power req.	167.7 kW
total heating capacity	708. kW	drive shaft torque	1068. Nm
		cooling cap./shaft power ratio	2.98
		cooling cap./line power ratio	2.89

equipment for head cooling	not defined
equipment for oil cooling	not defined

oil separator: OHUR 2108 (97)

motor:	ABB/214kW/400V/50Hz/IP55/315L/B3/IE4/In=388A		
start-up:	VSD		
motor eff.	0.969	motor line power cons.	173.1 kW

operating conditions:			
suction pressure	4.65 bar_a	discharge pressure	25.23 bar_a
suction temperature	70.50 deg.C	discharge temperature	136.37 deg.C
suction specific volume	0.0960 m3/kg	discharge specific volume	0.0151 m3/kg
enthalpy difference (ref.)	258.63 kJ/kg	condenser subcooled liquid density	502.9 kg/m3
suction side mass flow	1.9346 kg/s	evaporator saturated liquid density	544.1 kg/m3
swept volume	904.8 m3/h	pressure ratio (p2/p1)	5.42

errors and warnings:

WARNING - no operating limits check for this compr./refrig. combination !

NB: no starting torque check - motor data not available !

NB: Compressor weight incorrect - data missing.

NB: At certain VSD frequencies, resonance vibrations may occur.

NB: Skipping limited frequency ranges may be necessary.

NB: All data valid for factory built VSD unit only !

NB: design limits violation - please run Design Limits Check !

All performance data issued for the products are based on theoretical computations only.

Therefore - use with caution !!

Data subject to change without notice.



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NIST refrigerant mixture composition

refrigerant designation	R-600		
number of elements in mixture	1		(1)
mixture critical temperature	152.01 deg.C	evaporating line temperature glide	0.00 K
mixture critical pressure	37.96 bar_a	condensing line temperature glide	0.00 K
mixture average mol. weight	58.12 kg/kmol	mixture surface tension at TE	.8583E-02 N/m

number	name	mol-%	weight-%
2	R600 butane	100.000	100.000

errors and warnings:

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