Sabroe

Refrigeration Plant Computation

Version 31.10

File	:	Dummy	Ref	:	JDOE	Page : 1
Date	:	2021/04/28	Time	:	11.31.45	
User	:	JCI GLOBAL USER MSI INSTALL				
Prog	:	COMP1/209901	Print	:	MIE ver. 9.11.19041.0	

SINGLE STAGE COMPRESSOR

compressor type	SV 24 female drive (old)		refrigerant	R 717	
number of compressors	1.00		evaporating temperature	0.0	deg.C
compressor load	100.0	%	condensing temperature	45.0	deg.C
drive shaft speed	2950.0	RPM (list)	total suction superheat	0.0	K
port number	1 (var.)		suction line superheat	0.0	K
internal volume ratio	2.5		total liquid subcooling	2.0	K
suction line loss	0.5	K	condenser liquid subcooling	2.0	K
discharge line loss	0.0	K			
total cooling capacity	418.9	kW	total shaft power req.	111.6	kW
			drive shaft torque	361.	Nm
total heating capacity	531.	kW	cooling cap./shaft power ratio	3.75	
			cooling cap./line power ratio	0.00	
economiser type	none		side load	none	
oil cooling system	refrig. cooling		oil specifications	Sabroe PAO 68	
oil cooler load - actual	50.5	kW	oil inlet temperature	55.0	deg.C
oil cooler load - min. cap.	N/A		total oil flow	3.4	m3/h
oil separator:			oil density	812.4	kg/m3
number of oil separators:	1.0		oil specific heat capacity	2.22	kJ/kgK
oil separator load:	-1.0	%	oil kinematic viscosity	41.6	cSt
			oil heat conductivity	0.140	W/m.K
			oil weight percentage	100.00	%
			total charge of oil	0.0	litre
motor:	not defined				
start-up:			equalization temp.(max)	25.0	deg.C
motor eff.	0.000		motor line power cons.	Inf	kW
operating conditions:					
suction pressure	4.21	bar_a	discharge pressure	17.82	bar_a
suction temperature	-0.49	deg.C	discharge temperature	84.50	deg.C

suction specific volume	0.2943	m3/kg	disch. temp. at min. load	86.32	deg.C
enthalpy difference (ref.)	1059.43	kJ/kg	discharge specific volume	0.0885	m3/kg
suction side mass flow	0.3954	kg/s	condenser subcooled liquid density	574.6	kg/m3
swept volume	499.1	m3/h	evaporator saturated liquid density	638.6	kg/m3
			pressure ratio (p2/p1)	4.23	

errors and warnings:
NB: no starting torque check - motor data not available !
NB: sound level computation - no data available for this compressor
NB: no oil separator defined for compressor
NB: No weight found for compressor
NB: All data valid for fixed speed drive only !
NB: design limits violation - please run Design Limits Check !

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SABROE base refrigerant composition

refrigerant designation	R-717				
number of elements in mixture	1				(1)
mixture critical temperature	132.25	deg.C	evaporating line temperature glide	0.00	K
mixture critical pressure	113.33	bar_a	condensing line temperature glide	0.00	K
mixture average mol. weight	17.03	kg/kmol	mixture surface tension at TE	.2057E-01	N/m

number		name	mol-%	weight-%
1	R717	ammonia	100.000	100.000

errors and warnings:

errors and warnings:

Some performance data issued for the products are based on outphased equipment information.
Therefore result accuracy cannot be guaranteed.
Data subject to change without notice.

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PLANT DATA - SV 24

plant load percentage	100.0	%
plant cooling capacity	418.9	kW
plant heating capacity	530.5	kW
totalt shaft power consumption	111.6	kW
total line power consumption	0.0	kW
shaft cooling power ratio	3.75	
shaft heating power ratio	4.75	
line cooling power ratio	0.00	
line heating power ratio	0.00	
plant 5 min. priority vol.	24.56	litre

errors and warnings: