ROCORE INDUSTRIES, INC. ***** RADIATOR PERFORMANCE SHEET

9845 So. 57th. St.
Franklin, WI 53132

PHONE 414-421-4666
FAX 414-421-0712

PROGRAM & FILE NAME:STDRAD5.xls

UNDERLINED ITEMS ARE ENTERED VALUES, ALL OTHERS ARE CALCULATED

CUSTOMER : Saxon Co.
ADDRESS :

ATTENTION : Zip
REFERENCE : Your RFQ Dated 4-05-2000
APPLICATION :
RADIATOR MODEL NO : F68-8-~~70/30~~ 701/301 Engine-Driven Rad. & AC. Asm. (JW. Rad.)

ENGINE DATA:

ENGINE MANUFACTURER	= Cat	ENGINE MODEL	= 3516 TA
ENGINE RATING (HP OR KW)	= 750 kw	ENGINE SPEED, RPM	= 1200
ENGINE HEAT LOAD, BTU/MIN	= 55,237	COOLANT FLOW, GPM	= 422.0
COOLANT,% ETHYLENE GLYCOL	= 50	DUTY	= Continuous

DESIGN CONDITIONS:

LOAD FACTOR, %	= 110	MAX. AMBIENT AIR TEMP,F	= 105.0
MAX TOP TANK TEMP, F	= 210	MAX ALTITUDE, FT	= 100
AIR RISE TO COOLER, F	= 10.0		

FAN DATA:

FAN DIAMETER, IN	= 84	FAN DERATE, %	=
NUMBER OF BLADES	= 8	FAN HP	= 65.0
FAN BLADE PITCH WIDTH, IN	=	FAN SPEED RATIO	= ~~0.374~~ .560
FAN PART NUMBER	= ECS 422433	FAN SPEED, RPM	= 673
ENTER "BLOWER" OR "SUCKER"	= blower	FAN TIP SPEED, FPM	= 14,800

CORE DATA:

CORE TYPE:RD,RL,ZF,ZS,AH	= RD	CORE CODE (ROWS & FPI)	= 8110
TOT CORE HEIGHT, IN	= 100.00	CORE CODE CHECK	= VALID
TOT FRONTAL CORE AREA, SQ FT	= 47.82	TOT CORE WIDTH, IN	= 68.86
COOLANT VELOCITY, FT/SEC	= 3.85	TUBE WALL THICK, IN	= 0.009
WATER-SIDE PRESS DROP, PSI	= 3.3	GPM FLOW CORR FACTOR	= 1.010

HEAT LOAD CALCULATIONS:

SP HT CF FOR %EG	= 0.900	SP HT FOR %EG, BTU/GL/F	= 7.47
COOLANT TEMP DROP, F	= 19.3	AIR DENS CF FOR ALT	= 0.997
COOLANT OUTLET TEMP, F	= 190.7	AIR TO CORE TEMP, F	= 115
INITIAL TEMP DIFF(ITD), F	= 95.0	AIR DENS CF FOR TEMP	= 0.922
AVG TEMP DIFF(ATD), F	= 85.4	AIR DENS CF(ALT&TEMP)	= 0.934
TOTAL HEAT LOAD, BTU/MIN	= 60,761	APPROACH TEMP, F	= 75.7
REQD BTU/MIN/SF/100F ATD	= 1753	APPROACH TEMP CHECK	= OK
REQD BTU/MIN/F ATD	= 838	CF FOR APPROACH TEMP	= 1.00

AIR FLOW CALCULATIONS:

REQUIRED AIR VEL, FPM	= 1281	AIR VELOCITY CHECK	= OK
REQUIRED AIR FLOW, SCFM	= 61,239	CORE AIR RISE, F	= 59.0
REQ'D SCFM W/FAN DERATE	= 61,239	AIR DISCHARGE TEMP, F	= 174.0
SCFM CORR FOR SUCKER FAN	= NA	AIR TEMP TO FAN, F	= 115.0
FAN SCFM W/DERATE	= 66,385	CFM CF FOR SUCKER FAN	= NA
AVAIL FAN SCFM	= 66,385	CORE STATIC RES,IN H20	= 1.11
AVAIL AIR VEL, FPM	= 1388	EXTERNAL STATIC,IN H2O	= 0.50
AMBIENT CAPABILITY, F	= 110	TOTAL STATIC RES, IN H20	= 1.61

ADDITIONAL DATA:

~~Motor 50 HP, 1750 RPM, 3/60/230/460 V. TEFC.~~
~~Estimated Sound Pressure Level=77 dBA at 23 Ft.~~

BY : Frank Kessler

DATE : 04/07/2000

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UNDERLINED ITEMS ARE ENTERED VALUES, ALL OTHERS ARE CALCULATED

CUSTOMER : Saxon Co
ADDRESS :

ATTENTION : Zip Saxon
REFERENCE : Your RFQ Dated 4-05-2000
APPLICATION :
RADIATOR MODEL NO : F68-8-~~70/30~~ 70/30(Engine-Driven Rad. & AC. Asm. (AC. Rad.)

ENGINE DATA:			
ENGINE MANUFACTURER	= Cat	ENGINE MODEL	= 3516B
ENGINE RATING (HP OR KW)	= 750 KW	ENGINE SPEED, RPM	= 1200
ENGINE HEAT LOAD, BTU/MIN	= 4,954	COOLANT FLOW, GPM	= 122.0
COOLANT,% ETHYLENE GLYCOL	= 50	DUTY	= CONTINUOUS
DESIGN CONDITIONS:			
LOAD FACTOR, %	= 105	MAX. AMBIENT AIR TEMP,F	= 105.0
MAX TOP TANK TEMP, F	= 135.7	MAX ALTITUDE, FT	= 100
AIR RISE TO COOLER, F	= 10.0		
FAN DATA:			
FAN DIAMETER, IN	= 84	FAN DERATE, %	=
NUMBER OF BLADES	= 8	FAN HP	= 65.0
FAN BLADE PITCH WIDTH, IN	=	FAN SPEED RATIO	= ~~0.374~~ .560
FAN PART NUMBER	= ECS 422433	FAN SPEED, RPM	= 673
ENTER "BLOWER" OR "SUCKER"	= blower	FAN TIP SPEED, FPM	= 14,800
CORE DATA:			
CORE TYPE:RD,RL,ZF,ZS,AH	= RD	CORE CODE (ROWS & FPI)	= 8110
TOT CORE HEIGHT, IN	= 100.00	CORE CODE CHECK	= VALID
TOT FRONTAL CORE AREA, SQ FT	= 20.11	TOT CORE WIDTH, IN	= 28.96
COOLANT VELOCITY, FT/SEC	= 2.71	TUBE WALL THICK, IN	= 0.009
WATER-SIDE PRESS DROP, PSI	= 2.3	GPM FLOW CORR FACTOR	= 0.990
HEAT LOAD CALCULATIONS:			
SP HT CF FOR %EG	= 0.900	SP HT FOR %EG, BTU/GL/F	= 7.47
COOLANT TEMP DROP, F	= 5.7	AIR DENS CF FOR ALT	= 0.997
COOLANT OUTLET TEMP, F	= 130.0	AIR TO CORE TEMP, F	= 115
INITIAL TEMP DIFF(ITD), F	= 20.7	AIR DENS CF FOR TEMP	= 0.922
AVG TEMP DIFF(ATD), F	= 17.8	AIR DENS CF(ALT&TEMP)	= 0.934
TOTAL HEAT LOAD, BTU/MIN	= 5,202	APPROACH TEMP, F	= 15.0
REQD BTU/MIN/SF/100F ATD	= 1795	APPROACH TEMP CHECK	= OK
REQD BTU/MIN/F ATD	= 361	CF FOR APPROACH TEMP	= 0.97
AIR FLOW CALCULATIONS:			
REQUIRED AIR VEL, FPM	= 1322	AIR VELOCITY CHECK	= OK
REQUIRED AIR FLOW, SCFM	= 26,596	CORE AIR RISE, F	= 11.6
REQ'D SCFM W/FAN DERATE	= 26,596	AIR DISCHARGE TEMP, F	= 126.6
SCFM CORR FOR SUCKER FAN	= NA	AIR TEMP TO FAN, F	= 115.0
FAN SCFM W/DERATE	= 28,451	CFM CF FOR SUCKER FAN	= NA
AVAIL FAN SCFM	= 28,451	CORE STATIC RES,IN H20	= 1.15
AVAIL AIR VEL, FPM	= 1415	EXTERNAL STATIC,IN H2O	= 0.50
AMBIENT CAPABILITY, F	= 106	TOTAL STATIC RES, IN H20	= 1.65

ADDITIONAL DATA:

~~motor 50 HP, 1750 RPM, 3/60/230/460 V, TEFC.~~
~~Estimated Sound Pressure Level=77 dBA at 23 Ft.~~

BY : Frank Kessler DATE : 04/07/2000

ROCORE

Technical Data for Model F Engine-Driven Radiators

Model F	68	68	68	68	68	68	68	68	68	68
Heat Reject, BTU/MIN/F ATD	905	965	1,084	1,218	1,353	832	891	1006	1,139	1,272
Min/Max Flow, GPM	127 / 853	127 / 853	127 / 853	127 / 853	127 / 853	127 / 853	127 / 853	127 / 853	127 / 853	127 / 853
Optimum Flow, GPM	585	585	585	585	585	585	585	585	585	585
Core (4)	RL8110	RL8110	RL8110	RL8110	RL8110	RD8110	RD8110	RD8110	RD8110	RD8110
Fan Diameter, IN	84	84	84	84	84	84	84	84	84	84
# of Fan Blades	8	8	8	8	8	8	8	8	8	8
Fan Material	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel	Steel
Fan Model #	422433	422433	422433	422433	422433	422433	422433	422433	422433	422433
Fan Tip Speed, FPM	10,201	10,751	11,301	13,302	14,797	10,201	10,751	11,301	13,302	14,767
Air Flow, SCFM	58,031	58,507	68,554	81,022	94,098	53,465	59,006	69,096	81,661	94,837
Fan HP	21	25	33	47	65	21	25	33	47	65
Fan RPM	464	491	541	605	673	464	491	541	605	673
Sheave Ratio (2)	.258	.273	.301	.336	.374	.258	.273	.301	.336	~~.374~~ .360
Static Resistance, IN H2O	.94	1.01	1.17	1.38	1.62	.93	1.00	1.16	1.37	1.61
Estimated dBA at 25 FT										
Fluid Capacity, GAL	60	60	60	60	60	60	60	60	60	60
Dry Weight, LBS	4765	4765	4765	4765	4765	4765	4765	4765	4765	4765

Notes: 1) Heat rejections assume 0.5" of external static air resistance.
2) Sheave Ratio used is for Engine Speed of 1800 RPM.
3) Estimated dBA's are given at 25' behind a vertical radiator. Subtract 5 dBA for sound at 25' from the side of the radiator.
4) These standard radiators use either louvered or dimpled-fin cores. Contact Rocore for other recommendations for dirty applications.

2/03/2000 Rev. "A"
file: rp005.xls