RAD SIZING PROGRAM OUTPUT

CORE DESCRIPTION IS: Sizing copper core - S.I. Units

CORE SPECIFICATIONS:

TUBE MATERIAL: BRASS
FIN MATERIAL: COPPER
NUMBER OF TUBE ROWS = 1
TUBE TYPE : PLAIN
FIN GEOMETRY: LOUVER
FINS PER M = 850.4
LOUVER ANGLE = 30.0 DEGREES

TUBE PITCH = 12.00 MM
MINOR DIAMETER = 2.00 mm
MAJOR DIAMETER = 19.00 MM
TUBE WALL THICKNESS = 0.150 MM
TOT TUBE FLOW AREA = 0.00208 sq. meters

FIN THICKNESS = 0.0400 MM
FIN DEPTH = 42.000 mm
FINS PER METER = 850.4
LOUVER ANGLE = 30.0 DEGREES
LOUVER LENGTH/FIN HEIGHT = .89
LOUVER PITCH = 1.500 MM

OPERATING CONDITIONS:

INLET AIR TEMP = 30.0 C
INLET COOLANT TEMP = 90.0 C
ELEVATION = 1000.0 M
COOLANT FLOW RATE = 300.00 L/min 50% GLYCOL, Re = 9223. (LAMINAR IF Re < 2100)
CMIN (CAPACITY RATE) = AIR SIDE

CORE DESIGN:

HEADER WIDTH = 800.0 mm
TUBE LENGTH = 600.0 mm
FIN WEIGHT = 5.15 kg
CORE WET WEIGHT = 8.56 kg
CORE DRY WEIGHT = 7.29 kg

CORE PERFORMANCE:

Ufr = air frontal velocity @ inlet air temp = 10.00 m/s
Q = heat transfer rate =139.953 kW
DPA = actual air pressure drop = 24.34 mm H2O
DPC = coolant pressure drop = 21.55 kPa
DTC = coolant temp change = 13.56 deg C

ENGINEERING DATA:

Q/Afr-ITD = 4859.5 Watts/m^2-C
h-air = 174.33 Watts/m^2-C
m^3/min = ambient air flowrate @ inlet air temp = 288.03 m^3/min
h-coolant = 9825.43 Watts/m^2-C
n (fin efficiency) = 0.839
nhAo/Afr = 8089.60 Watts/m^2-C
RA/RT = 0.77 = ratio of air side to total h.t. resistance
Reynolds no = 9223. (Laminar if Re < 2100)
Heat exchanger effectiveness = 0.467