

MANUFACTURER	<i>Saskatoon Boiler</i>	MODEL	<i>JWG-175</i>	SERIAL NO.	
TOTAL HEAT ABSORBED (kJ / hr)	<i>5,489,456 (5,203,000 BTU/hr)</i>	TYPE OF HEATER	<i>Direct Fired</i>		
SITE LEGAL DESCRIPTION	<i>11-02-038-08 W5M</i>				

COATING SYSTEM

☒ MFR STD

☐ SES 1.E.410 (offshore)

☐ SES 1.E.410 (onshore)

COPPER ALLOYS

☐ ALLOWED ☐ NOT ALLOWED ☐ EXTERNAL ONLY

EQUIPMENT NOISE CONTROL

☒ NONE

☐ SES 1.D.200

☐

EMISSION CONTROL

☒ NONE ☐

COMBUSTION and FUEL DATA		
TYPE OF FUEL		gas
EXCESS AIR	%	
CALC HEAT RELEASE (LHV)	kJ / hr	
CALC EFFICIENCY (LHV)	%	
GUAR EFFICIENCY (LHV) (see note)	%	
RADIATION LOSS (% of heat release) (LHV)		
FLUE GAS TEMP (out rad sect)	°C	
FLUE GAS TEMP (out conv sect)	°C	
FLUE GAS TEMP (out air heater)	°C	
FLUE GAS MASS VEL (conv sect)	kg / (m ² -sec)	
VOLUME HEAT RELEASE	W / m ³	
ALT ABOVE SEA LEVEL	m	
AIR TEMP (combustion)	°C	
AIR TEMP (draft)	°C	
MIN FURN DRAFT / LOCAT'N	mm-H ₂ O	
DRAFT @ BURNERS	mm-H ₂ O	

FUEL CHARACTERISTICS			
HEATING VALUE (HHV)	kJ / Sm^3		
HEATING VALUE (LHV)	kJ / Sm^3		
SPECIFIC GRAVITY			
MOLECULAR WEIGHT	MW		
VISCOSITY @ $^{\circ}\text{C}$	cP		
VISCOSITY @ $^{\circ}\text{C}$	SSU		
FUEL PRESS @ BURNER	kPa(g)		
ATOMIZING STEAM PRESS	kPa(g)		
COMPOSITION			
VANADIUM	ppm		
SODIUM	ppm		
SALT CONTENT	ppm		
ASH	% wt		
SULFUR	% wt		
HYDROGEN	% wt		
CARBON DIOXIDE	mol %		
NITROGEN	mol %		
OXYGEN	mol %		
(cont'd on next page)			



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JOB NO. 407014-00120

DATA SHEET NO.

407014-00120-00-ME-DAS-0221

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DIRECT FIRED HEATER DATA SHEET

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CLIENT DEVON CANADA

PROJECT FERRIER CENTRAL PROCESSING FACILITY

ITEM NO. 001-H-21-1010

FABR SPEC Exempt

SERVICE Utility Heat Medium Heater for Central Oil Battery(COB)

COMBUSTION & FUEL DATA (cont'd)

FUEL CHARACTERISTICS (cont'd)

COMPOSITION (cont'd)		
METHANE	mol %	
ETHENE	mol %	
ETHANE	mol %	
PROPANE	mol %	
HYDROGEN SULFIDE	mol %	
WATER	mol %	

MECHANICAL DESIGN (COIL DATA)

GENERAL

PLOT LIMITATIONS

MINIMUM STACK HEIGHT (m)

TUBE LENGTH LIMITATIONS

COIL

COIL DESIGN

HEATER SECTION		
DESIGN BASIS for WALL THICKNESS		
DESIGN LIFE	hr	
DESIGN PRESSURE	kPa(g)	
CORROSION ALLOW (tubes)	mm	
WELD STRESS RELIEVE		
WELD INSPECTION REQUIREMENTS		
X-RAY or OTHERS		
MAX WALL TEMP (calc - clean)	°C	
MAX WALL TEMP (design - foul)	°C	
INSIDE FILM COEFF	W / (m ² ·°C)	
OVERALL HEAT TRANS COEFF	W / (m ² ·°C)	
CORRECTED MEAN TEMP DIFF	°C	
BARE TUBES (total exposed surf)	m ²	
EXTENDED SURF TUBES (tot exp surf)	m ²	

COIL CONFIGURATION

TUBES (vertical or horizontal)		
NO. of PASSES / TUBES per PASS		
EFFECTIVE TUBE LENGTH	m	
BARE TUBES (quantity)		
EXTENDED SURFACE TUBES (quantity)		
TUBE SPACING, center to center	mm	
(staggered) (in - line)		
TUBE CENTER to FURNACE WALL	mm	

TUBES

MATERIAL	ASTM	
OUTSIDE DIAMETER	mm	
WALL THICK (min) (avg)	mm	
OVERALL TUBE LENGTH	m	
DESCRIPTION of EXTENDED SURFACE		
TYPE		
FIN or STUD MATERIAL		
FIN or STUD MATERIAL		
FIN or STUD DIMENSIONS	mm	
FIN or STUD DIMENSIONS	mm	
FIN or STUD SPACING	per mm	
FIN or STUD SPACING	per mm	
MAX FIN or STUD TEMP	°C	
MAX FIN or STUD TEMP	°C	

MECHANICAL DESIGN (COIL DATA) (cont'd)

COIL (cont'd)

PLUG - TYPE HEADERS

LOCATION		
MANUFACTURER & TYPE		
NOMINAL RATING		
WELDED or ROLLED JOINT		

RETURN BENDS

LOCATION		
MATERIAL	ASTM	
WALL THICKNESS or SCHEDULE		

CROSSOVERS

LOCATION (internal) (external)		
PIPE MATERIAL	ASTM	
WALL THICKNESS (min) (avg)	mm	
FLANGE MATERIAL	ASTM	
FLANGE SIZE & RATING		

TERMINALS or MANIFOLDS

LOCATION		
WELDED or FLANGED		
WALL THICKNESS (min) (avg)	mm	
FLANGE MATERIAL	ASTM	
FLANGE SIZE & RATING		

TUBE SUPPORTS

LOCATION (end) (top) (bottom)		
MATERIAL	ASTM	
WEB THICKNESS	mm	
INSULATION (type & thickness)	mm	
ANCHOR TYPE & MATERIAL		

INTERMEDIATE TUBE SUPPORTS

MATERIAL	ASTM	
SPACING	m	
COATING (type & thickness)		

TUBE GUIDES

LOCATION (top) (bottom) (intermediate)		
MATERIAL	ASTM	

COIL TERMINAL MOVEMENTS & FORCES

NOZZLE MOVEMENT	mm	
DIRECTION		
EXTERNAL NOZZLE LOAD	kg	
DIRECTION		
PIPE LOAD SUPPORTED BY HEATER		
SPECIAL SUPPORTS BRACKETS REQ'D		

NOTES:

MECHANICAL DESIGN (CONSTRUCTION DATA)

SETTINGS

FLOOR

REFRACTORY

THICKNESS (mm)	
HOT FACE TEMP	
CALCULATED (°C)	DESIGN (°C)
CONSTRUCTION	

CASING

MATERIAL	
THICKNESS (mm)	TEMPERATURE (°C)

REMARKS: INFORMATION TO BE COMPLETED BY: WP SELLER

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DIRECT FIRED HEATER DATA SHEET

SHT 3 OF 4

CLIENT **DEVON CANADA**

PROJECT **FERRIER CENTRAL PROCESSING FACILITY**

ITEM NO. **001-H-21-1010**

FABR SPEC **Exempt**

SERVICE **Utility Heat Medium Heater for Central Oil Battery(COB)**

MECHANICAL DESIGN (CONSTRUCTION DATA) (cont'd)

SETTINGS (cont'd)

EXPOSED VERTICAL WALLS

REFRACTORY

THICKNESS (mm)

HOT FACE TEMP

CALCULATED (°C) DESIGN (°C)

CONSTRUCTION

ANCHOR TYPE & MATERIAL

METHOD of ATTACHING ANCHOR to CASING

CASING

MATERIAL

THICKNESS (mm) TEMPERATURE (°C)

SHIELDED VERTICAL WALLS

REFRACTORY

THICKNESS (mm)

HOT FACE TEMP

CALCULATED (°C) DESIGN (°C)

CONSTRUCTION

ANCHOR TYPE & MATERIAL

METHOD of ATTACHING ANCHOR to CASING

CASING

MATERIAL

THICKNESS (mm) TEMPERATURE (°C)

ARCH

REFRACTORY

THICKNESS (mm)

HOT FACE TEMP

CALCULATED (°C) DESIGN (°C)

CONSTRUCTION

ANCHOR TYPE & MATERIAL

METHOD of ATTACHING ANCHOR to CASING

CASING

MATERIAL

THICKNESS (mm) TEMPERATURE (°C)

CONVECTION SIDEWALLS

REFRACTORY

THICKNESS (mm)

HOT FACE TEMP

CALCULATED (°C) DESIGN (°C)

CONSTRUCTION

ANCHOR TYPE & MATERIAL

METHOD of ATTACHING ANCHOR to CASING

CASING

MATERIAL

THICKNESS (mm) TEMPERATURE (°C)

BREECHING

REFRACTORY

THICKNESS (mm)

HOT FACE TEMP

CALCULATED (°C) DESIGN (°C)

CONSTRUCTION

ANCHOR TYPE & MATERIAL

METHOD of ATTACHING ANCHOR to CASING

CASING

MATERIAL

THICKNESS (mm) TEMPERATURE (°C)

REMARKS: INFORMATION TO BE COMPLETED BY:

☐ WP

SELLER



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FABR SPEC Exempt

SERVICE Utility Heat Medium Heater for Central Oil Battery(COB)

MECHANICAL DESIGN (CONSTRUCTION DATA) (cont'd)

MISCELLANEOUS

PLATFORMS

TYPE OF FLOORING

RADIANT SECTION (width & location)

CONVECTION SECTION (width & location)

STAIRS (width & location)

LADDERS (location)

DOORS

RADIANT (access) (size & location)

CONVECTION / STACK (access) (size & location)

OBSERVATION (size & location)

TUBE REMOVAL (size & location)

EXPLOSION (size & location)

INSTRUMENT CONNECTIONS

	NUMBER	SIZE
DRAFT		
TEMPERATURE		
FLUE GAS SAMPLE		
SMOTHERING STEAM		
PURGE		
DRAINS		

PAINTING & GALVANIZING REQUIREMENTS

AUXILIARY EQUIPMENT

BURNERS

MANUFACTURER & TYPE Saskatoon Boiler/Forced Draft, LoNox

QUANTITY 1 DESIGN & SIZE

LOCATION & ORIENTATION Horizontal

HEAT RELEASE per BURNER @ DESIGN EXCESS AIR & DRAFT (kJ / hr)

MINIMUM NORMAL MAXIMUM

DESIGN DRAFT LOSS ACROSS BURNERS (mm H₂O)

BURNER PILOT

HEAT RELEASE (capacity)

kJ / hr FUEL

TYPE OF IGNITION

SPECIAL REQUIREMENTS (flame detection devices) (etc)

SOOTBLOWERS

NUMBER		
TYPE		
SPACING & ARRANGEMENT		
DRAWING REFERENCE		
ORIENTATION		
BLOWING MEDIUM		
BLOWING MEDIUM CONDITIONS		
MATERIALS OF CONSTRUCTION		
TYPE DRIVER		
CONTROL SYSTEM TYPE		

PAINTERS TROLLEY & RAIL INCLUDED

EXTENT OF TUBE HANDLING FACILITIES

THERMOCOUPLES (number & location)

THERMOWELLS (number & location)

MECHANICAL DESIGN (CONSTRUCTION DATA) (cont'd)

AIR HEATER

	AIR SIDE CONDITIONS	FLUE GAS - HEATING FLUID SIDE COND.
DUTY	kJ / hr	
QUANTITY		
ENTERING	kg / hr	
LEAVING	kg / hr	
TEMPERATURE		
ENTERING	°C	
LEAVING	°C	
PRESSURE DROP		
ALLOWABLE	mm-H ₂ O	
CALCULATED	mm-H ₂ O	

SOOTBLOWER

WATER WASH FACILITIES

MATERIALS OF CONSTRUCTION

COLD AIR BYPASS DESCRIPTION

	F.D.	I.D.
FANS		
MASS FLOW	kg / hr	
TEMPERATURE	°C	
STATIC PRESSURE	mm	
SPEED	rpm	
POWER	kW	
TYPE		
ARRANGEMENT		
DAMPER CONTROL		
DRIVES		
ELECTRIC MOTOR		
INSTALLED POWER	kW	
VOLTAGE		
RPM		
TURBINE		
RATED POWER	kW	
NORMAL POWER	kW	
STERAM RATE	kg / kW / hr	
STEAM CONDITION		
INLET		
OUTLET		

DAMPERS ACTUATORS

TYPE - SIZE

NOTES

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