



Project Title:




5/98 Hejre Development Project / Platform EPC

Document Title:

EQUIPMENT DATA SHEETS - DIESEL ENGINE

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Z	15-01-2014	As-Built	AB	MTU	TEH	TEH
0	21-02-2013	Issued for Construction (IFC)	IFC	MTU	TEH	TEH
A	16-10-2012	Issued for Review (IFR)	IFR	TMe	TEH	TEH
Rev.	Revision Date (dd-mm-yyyy)	Reason for Issue		Prepared by	Verified by	Approved by

 	Supplier Name:		FRANK MOHN FLATØY AS	
	Supplier Project No.:		623708	
	Supplier Doc. No.:		1750-004-4	Rev: B
 Frank Mohn Flatøy AS Oil & Gas Division	Tag No's.:			
71-DD-1101/1201/1301				

System No: 71	Area Code: U100	Project No.: 61039X	Denominator: N/A
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PO No.: 61040Y-400-PO-0960-0001-4501	DONG Energy Contract No.: C086-C0001	Page: 1 of 7
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Dong Document No.:

C086-TECH-R-DS-3050

NORSOK R-001	DIESEL ENGINE DATA SHEET	RDS-008 Rev. 1, Dec. 1994 Page 2 of 7
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Package no. 71-PA-0001 A/B/C	Doc. no. C086-TECH-R-DS-3050	Rev. Z	rev
Tag no.	71-DD-1101/1201/1301	Location/module	Hejre Platform-Cellar Deck
Unit	71	No. req'd	3
Service	Fire Water Pumps (diesel engine driver) (1)		
Size & type	16V Turbo Charged	Quote no.	2011035
Supplier	M/s Frank Mohn Flatoy AS	P.O. no.	61040Y-400-PO-0960-0001-4501
Manufacturer	(3) MTU	Job no.	
Model	16V-4000 P83	Serial no.	527109879, 527109919, 527109920

1 SITE DATA	See Project Design Basis 61039X-000-PP-0205 (C086-TECH-Z-FD-0001)		
2 Hazardous area zone	ZONE 2		
3 Gas group	II B	Temp. class.	T3
4 Ambient temp. (°C)	Min. -7	Max.	25
5 Wet bulb temp. (°C)	Min.	Max.	
6 Humidity (% R.H.)	Min. 28	Max.	100
7 Temp. engine room (°C)	Min.	Max.	
8 Elevation (metres above sea level)	27.5 m (cellar deck level)		
9 Other data			
10			

11 ENGINE DATA (to be completed by SUPPLIER)			
12 Continuous	<input checked="" type="checkbox"/> Yes (4) <input type="checkbox"/> No	Intermit	<input type="checkbox"/> Yes <input type="checkbox"/> No
13 Rated kW:	1940	Note 6	
14 Rated rpm:	1800	Note 7	
15 Rated torque Nm:			
16 Cycles :	4		
17 Type	<input type="checkbox"/> Na <input checked="" type="checkbox"/> Sc		
18 Rated BMEP barg:	21,6		
19 Minimum rpm:	600		
20 Overspeed trip rpm:	2070		
21 Turbocharger rpm:			
22 No of cylinders :	16		
23 Bore :	170		Z
24 Stroke mm:	210		Z
25 Configuration	<input type="checkbox"/> St. <input checked="" type="checkbox"/> V		
26 Fuel rate (g/kWh) at rated load :	205		
27 75% load :	206		
28 50% load :	213		
29 Cylinder liners type	<input checked="" type="checkbox"/> Wet <input type="checkbox"/> Dry		
30 No. of rings & size of compression	3 & 18,7 bar	Oil 15W40	0
31 No. main bearings	Size: 172mm	Type: Sleeve Bearing	Material: C10
32 Flywheel bearing	Size: 223mm	Type: Sleeve Bearing	Material: C10
33 Thrust bearing	Size: 292mm	Type: Thrust Washer	Material: CuSn8-C P
34 Con rod bearings	Size: 126mm	Type: Sleeve Bearing	Material: C10
35 Wristpin bearing	Size: 75mm	Type: Sleeve Bearing	Material: CuZn31Si1
36 Exhaust valve	No. 2	Size: 56mm	Facing: X45CrSi9-3 Seat: 45°30'
37 Inlet Valve	No. 2	Size: 57mm	Facing: X45CrSi9-3 Seat: 60°30'
38 Exhaust manifold	<input checked="" type="checkbox"/> Wet <input type="checkbox"/> Dry	<input type="checkbox"/> Insulated	<input type="checkbox"/> Shielded <input checked="" type="checkbox"/> Cooled
39 Exhaust manifold material	C360		
40 Vibration dampers	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Size 440mm	Type D44/4/1
41 Torsional calculations	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

42 NOTES:	
43 (1) : Common for Hydraulic Pack Unit and Booster Pump	
44 (2) : Diesel engine drive. The unit shall be complete with diesel tank, associated piping, instrumentation, and pressure relief valve if needed	
45 (3) : Motor NFPA 20 listed	
(4) : Fire water pump to be designed for continuous service even if normal service is intermittent	
(5) : Diesel engines are ATEX certified and complying to EN1834-1	0
(6) : Fuel stop power rating 2134 kW (IMO II 3A rating), with 10% spare acc. to NFPA20 this gives a Continuous rating: 1940 kW	0
(7) : Running speed 1760rpm	Z

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46	ENGINE DATA (CONTINUED) (1)				
47	Starting system				
48	<input type="checkbox"/> Air	NA			0
49	Make	NA			0
50	Model	NA			0
51	Air press	barg NA			0
52	No/size air tanks	NA			0
53	No of starts	NA			0
54	• Electric				
55	Make	BOSCH Slidinggear starter motor			0
56	Model	005 151 30 01			0
57	Voltage	24			
58	Battery capacity	Ah 2 x 222			0
59	Mains battery charger	Ah 300			0
60	Generator charger	Ah NA			0
61	• Hydraulic				
62	Make	HUEGLI TECH - Sized for 3 x 5sec starts			
63	Model	Start Motor: CME-5A-141-BE (Breylium - Ritzel)			0
64	<input type="checkbox"/> Glow plug start	<input type="checkbox"/> Other			
65	Fuel system				
66	Fuel type	Diesel oil			
67	Tank	Sized for 18 hours at pump full load (or) NFPA 20, whichever is greater (Tank in SS 316L) (3)			
68	Capacity	m ³ High Level: 12,578 - Filling Level: 12,146 - Low Level: 11,628			0
69	Fuel pump				
70	Pump driver	<input type="checkbox"/> Prechamber <input checked="" type="checkbox"/> Dir. Inject. <input type="checkbox"/> Fuel Pressure Regulator			
71	Water separator	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Automatic drain <input checked="" type="checkbox"/> Manual drain			
72	Type				
73	Manufacturer	MTU - Standard			
74	Model	SEPAR SWK-2000/40/UMS			0
75	Oil filter	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
76	Type	Duplex			
77	Filter to	Microns 50			0
78	Manufacturer	BOLLFILTER Protection System			0
79	Model	Automaticfilter Typ 6.48 DN65 MTU- Anbaufilter (horizontal)			0
80	Governor	<input checked="" type="checkbox"/> Constant speed <input type="checkbox"/> Variable speed			
81	Make	MTU - Standard (2)			
82	Model	ADEC			
83	Reset by	<input type="checkbox"/> Manual <input type="checkbox"/> Pneum.signal <input type="checkbox"/> Electric signal <input type="checkbox"/> Other			
84	Speed range	rpm Max 2000 Min 600			
85	Regulation	%			
86	Signal range				
87	Tachometer	<input type="checkbox"/> Mechanical <input checked="" type="checkbox"/> Electrical <input type="checkbox"/> Other			
88	Make	NA, signal from ADEC to UCP provided.			0
89	Model	NA			0
90	Pyrometer required	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No points			
91	Make				
92	Model				
93	Engine gauge board furnished with (*)	<input type="checkbox"/> Pyrometer <input type="checkbox"/> Tachometer <input type="checkbox"/> Oil Pressure Gauge <input type="checkbox"/> Oil Temp. Gauge			0
94		<input type="checkbox"/> J.W.temp gauge <input type="checkbox"/> Fuel Press. Gauge <input type="checkbox"/> Air Press. Gauge <input type="checkbox"/> Hours Run Meter			0
95	NOTES:				
96					
97	(1) : Drive controller shall be specifically listed				
98	(2) : Dual ECM (Engine control module) with automatic change over is provided.				
99	(3) : The fuel tank is provided with necessary automatic system with controls for filling and further emergency shut-off valve (engine supply)				0
100	(remote controlled from the emergency Fuel Stop Panel, located external enclosure beside the entrance door.				0
	(*) : Engine gauge board is not applicable. All engine parameters are available on the HMI panel on the unit control panel located adjacent to the engine.				

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101 ENGINE DATA (CONTINUED)			rev
102	Weights		
103	Net	Max. kg 9560 (engine with base frame and all auxiliaries)	0
104	Erection	Max. kg 10160 (wet weight)	0
105	Maintenance	kg 400 (Max)	
106	Flywheel	kg	
107	Approx floor space	mm Length : 3117 Width : 1581 Height : 2066	0
108	Additional maintenance clearance	mm Note 1	0
109	Min. ctr. distances between units	mm 2581mm	0
110	Connection	No Size Rating	
111	Exhaust	see page 7	0
112	Air inlet	see page 7	0
113	Starting air	NA	0
114	Jacket water inlet	see page 7	0
115	Jacket water outlet	see page 7	0
116	Oil inlet	see page 7	0
117	Oil outlet	see page 7	0
118	Jacket water (1)		
119	Capacity	m ³ 0,26	0
120	Flow	m ³ 80 dP(bar) 2	0
121	Inlet temperature	°C 85 dT(°C) 14	0
122	Oil cooler cooling water	incorporated in Jacket Water System	0
123	Flow	m ³ /h NA dP(bar) NA	0
124	Inlet temperature	°C NA dT(°C) NA	0
125	Air cooler	NA	0
126	Type	NA	0
127	Electric fan	NA	0
128	Engine driven fan	NA	0
129			
130	AUXILLARY EQUIPMENT		
131	Lube oil pump	<input checked="" type="checkbox"/> Integral <input type="checkbox"/> Separate type	
132	Drive	Engine drive	
133	Capacity	m ³ /h 840	0
134	Pressure	barg 15	0
135	Speed	2541	0
136	Impeller or gear material	16MnCrS5+FP (16MnCrS5BG)	0
137	Case material	EN-GJL-250 (GG25)	0
138	Manufacturer	Rickmeier	0
139	Model	Typ R69/380 Rickmeier No.: 411925 / MTU No.: 002 180 62 01	0
140	Pre-lub. pump	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
141	Type	Gear Pump	
142	Drive	Electric Drive	
143	Capacity	m ³ /h 29,5	0
144	Minimum pressure	barg 2	
145	Jacket water pump	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No see note (1)	
146	Drive	Engine drive	
147	Capacity	m ³ /h 80	0
148	Head	m NA Seal NA	0
149	Speed	rpm 2700	0
150	Impeller material	EN-GJS-400-15	0
151	Case material	GG-25	0
152	Manufacturer	MTU	0
153	driving end	--> 1720mm (for Crankshaft)	0
	non driving end	--> 260mm (for automatic lube oil filter)	0
	A-side	--> 550mm (for automatic lube oil filter)	0
	B-side	--> 300mm (for mounting tool)	0
	top space	--> 450mm (for exhaust turbocharger)	0
	space below	--> 260mm (for oil sump)	0
	(1) Closed loop		

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154 AUXILLARY EQUIPMENT (CONTINUED)				rev
155		Volts	Watts	Phase
156	■ Jacket water heater (1)	690	12000	3
157	■ Lube oil heater (1)	NA	NA	NA
158	Exhaust Silencer	■ Yes <input type="checkbox"/> No	■ Spark Arrestor	<input type="checkbox"/> Std/Hospital
159	Manufacturer	SILENTOR		
160	Model	35 dBA		
161	Mounting	■ Horizontal <input type="checkbox"/> Vertical <input type="checkbox"/> Saddles <input type="checkbox"/> Trunions <input type="checkbox"/> Other	Supported at the enclosure	
162	Air Filter	■ Yes <input type="checkbox"/> No <input type="checkbox"/> Dry <input type="checkbox"/> Oil Bath		
163	Manufacturer	PERMABERG		
164	Model	P2XLP & 2- stage Separator (filter) Type A' PF20 Coalescer Panel followed by P25J assembled on common frame		
165	Connection	<input type="checkbox"/> Side <input type="checkbox"/> Top <input type="checkbox"/> Bottom		
166	Max. allowable dP	mbar		
167	Lub.oil filter	■ Yes <input type="checkbox"/> No		
168	Type	Duplex		
169	Filter to	Microns	50	
170	Manufacturer	Bollfilter		
171	Model	Automaticfilter Typ 6.48 DN65 MTU- Anbaufilter (horizontal)		
172	Lub. oil level controllers	Lubricator <input type="checkbox"/> Yes <input type="checkbox"/> No	Crankcase <input type="checkbox"/> Yes <input type="checkbox"/> No	
173	Manufacturer			
174	Model			
175	Lub.oil dipstick	■ Yes <input type="checkbox"/> No	Magnetic Filter <input type="checkbox"/> Yes <input type="checkbox"/> No	
176	Slow flow oil meter	<input type="checkbox"/> Yes <input type="checkbox"/> No		
177	Manufacturer			
178	Model			
179	Flywheel bearing	<input type="checkbox"/> Manual <input type="checkbox"/> Air Jack	Flywheel Guard ■ Yes <input type="checkbox"/> No	
180	Type			
181	Lub.oil cooler	Nos.		
182	Manufacturer	MTU - Standard	Note 2)	0
183	Type	Plate		
184	Duty	kJ/h	Not available	
185	Surface	m²	Not available	
186	Code			
187	Shell O.D.	mm	NA	
188	Thickness	mm	NA	
189	Design pressure	barg	NA	
190	Tubes O.D.	mm	NA	
191	Length	NA		
192	BWG.	NA	No	0
193	Material shell	NA		
194	Material tubes	NA		
195	Material channel	NA		
196	Material baffles	NA		
197				
198 WINTERIZATION				
199	Item			
200	1	Jacket water heater and circulation pump provided.		
201	2			
202	3			
203	4			
204	5			
205	6			
206	7			
207	8			
208	9			
NOTES:				
(1) : Lube oil is indirectly heated by jacket water and separate heater is not required.				
(2) : The materials for construction of the internal engine lube oil heat exchanger is not available for clients.				

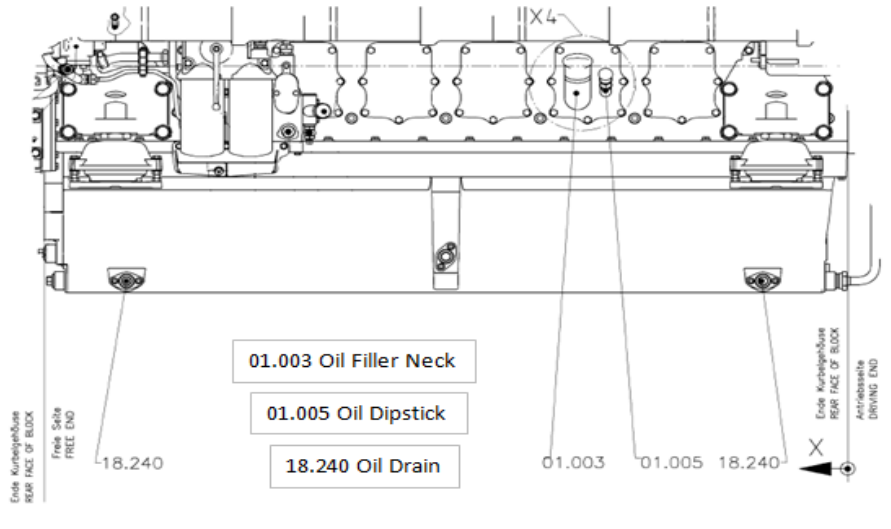
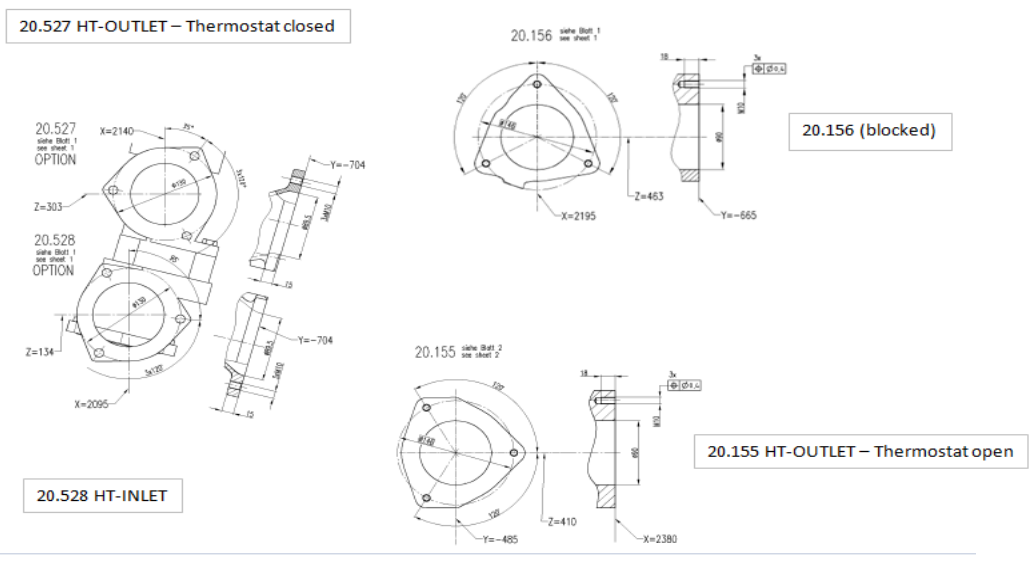
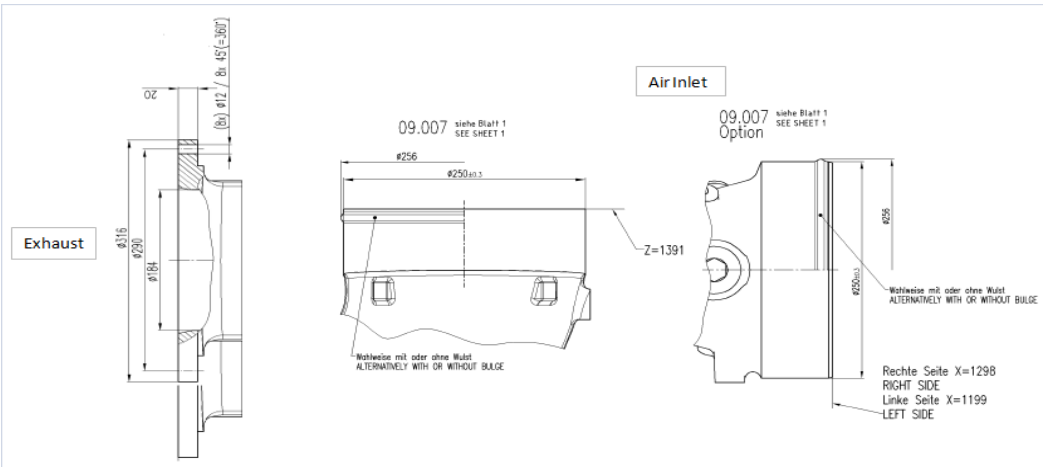
209 ALARM AND SAFETY SHUT DOWN							rev
210	Condition	Alarm Set	S D Set	Condition	Alarm Set	S D Set	
211	Overspeed	■ 2070 rpm	■ 2070 rpm	High J.W. Temp	■ 102°C	■ 104°C	0
212	Low L.O. Press.	■ 4,3 barg	■ 4 barg	High fan Vibr.	■ NA	■ NA	0
213	High L.O. Temp.	■ 99°C	■ 102°C		■ NA	■ NA	0
214							
215 INSPECTION AND TESTS							
216		Required		Witnessed			
217		Yes	No	Yes	No		
218	Shop inspection	■	□	□	■		
219	Mechanical run	■	□	■	□		
220	Performance	■	□	■	□		
221	Bearings	□	□	□	□		
222	Auxillary equipment	■	□	■	□		
223	With driven equipment	■	□	■	□		
224	Other	□	□	□	□		
225							
226	UTILITIES	See Project Design Basis 61039X-000-PP-0205 (C086-TECH-Z-FD-0001)				Note 1	0
227	Steam	kg/h		barg		°C	
228	Water	m³/h		barg		°C	
229	Electric	Volts		Amps	Hz	Ph	
230	Starting air	Scm³/Start		Minimum barg			
231	Instrument air	m³/h		Minimum barg			
232	Service air	m³/h		Minimum barg			
233	Fuel	barg		L/hr		Min. °C	
234							
235 ATMOSPHERIC EMISSIONS							
236	Content O ₂ in combustion		% NA				0
237	Guaranteed NO _x		g/kWh NA				0
238	Guaranteed NO _x		ppm NA				0
239	Unburnt Hydrocarbons VOC		ppm NA				0
240	Guaranteed CO ₂		g/kWh NA				0
241	Guaranteed		ppm NA				0
242	NOTES:						
243	1) Refer document C086-TECH-O-SA-3050 for detailed utility consumption						0
244							
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