

CONTEC

Comissão de Normalização
Técnica

SC-11

Machines

Internal Combustion Engine - Data Sheet

Revalidation

Revalidated in 03/2020.

Internal Combustion Engine - Data Sheet

Procedure

This Standard replaces and cancels its previous revision.

The CONTEC - Authoring Subcommittee provides guidance on the interpretation of this Standard when questions arise regarding its contents. The Department of PETROBRAS that uses this Standard is responsible for adopting and applying the sections, subsections and enumerates thereof.

Technical Requirement: A provision established as the most adequate and which shall be used strictly in accordance with this Standard. If a decision is taken not to follow the requirement ("non-conformity" to this Standard) it shall be based on well-founded economic and management reasons, and be approved and registered by the Department of PETROBRAS that uses this Standard. It is characterized by imperative nature.

Recommended Practice: A provision that may be adopted under the conditions of this Standard, but which admits (and draws attention to) the possibility of there being a more adequate alternative (not written in this Standard) to the particular application. The alternative adopted shall be approved and registered by the Department of PETROBRAS that uses this Standard. It is characterized by verbs of a nonmandatory nature. It is indicated by the expression: **[Recommended Practice]**.

Copies of the registered "non-conformities" to this Standard that may contribute to the improvement thereof shall be submitted to the CONTEC - Authoring Subcommittee.

Proposed revisions to this Standard shall be submitted to the CONTEC - Authoring Subcommittee, indicating the alphanumeric identification and revision of the Standard, the section, subsection and enumerate to be revised, the proposed text, and technical/economic justification for revision. The proposals are evaluated during the work for alteration of this Standard.

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Introduction

PETROBRAS Technical Standards are prepared by Working Groups - WG (consisting specialized of Technical Collaborators from Company and its Subsidiaries), are commented by Company Units and its Subsidiaries, are approved by the Authoring Subcommittees - SCs (consisting of technicians from the same specialty, representing the various Company Units and its Subsidiaries), and ratified by the Executive Nucleus (consisting of representatives of the Company Units and its Subsidiaries). A PETROBRAS Technical Standard is subject to revision at any time by its Authoring Subcommittee and shall be reviewed every 5 years to be revalidated, revised or cancelled. PETROBRAS Technical Standards are prepared in accordance with PETROBRAS Technical Standard [N-1](#). For complete information about PETROBRAS Technical Standards see PETROBRAS Technical Standards Catalog.

Foreword

This Standard is the English version (issued in 11/2012) of PETROBRAS N-2915 REV. A 11/2012. In case of doubt, the Portuguese version, which is the valid document for all intents and purposes, shall be used.

1 Scope

1.1 This Standard rules the Data Sheet for Internal Combustion Engine used in the projects for PETROBRAS.

1.2 This Standard is applicable to procedures started as from the date of its edition.


1.3 This Standard only contains Technical Requirements.


2 General Conditions


2.1 For acquisition of Internal Combustion Engine, the Data Sheet, in Annex A, after completed, shall be attached to a Material Requisition (RM) for constituting a purchasing document.

2.2 The Data Sheet after completed by the designer and complemented by the manufacturer, whenever the case, shall constitute a permanent document for the equipment.

2.3 The blank field on the right of the page number shall be eventually completed by the issuer in order to allow some internal reference.

 PETROBRAS	DATA SHEET		No.							
	CLIENT:							SHEET 1 of 8		
	JOB:									
	AREA:									
		TITLE: INTERNAL COMBUSTION ENGINE								
INDEX OF REVISIONS										
REV.	DESCRIPTION AND/OR REVISED SHEETS									
	REV. D	REV. A	REV. B	REV. C	REV. D	REV. E	REV. F	REV. G	REV. H	
DATE										
DESIGN										
EXECUTION										
CHECK										
APPROVAL										
INFORMATION IN THIS DOCUMENT IS PROPERTY OF PETROBRAS, BEING PROHIBITED OUTSIDE OF THEIR PURPOSE.										
FORM OWNED TO PETROBRAS N-2915 REV. A ANNEX A - SHEET 01/08.										

		DATA SHEET		No.	REV.	
				SHEET 2 of 8		
TITLE:		INTERNAL COMBUSTION ENGINE				
1	APPLICABLE TO:	<input type="checkbox"/> PROPOSAL	<input type="checkbox"/> PURCHASE	<input type="checkbox"/> AS BUILT		
2	FUEL:	<input type="checkbox"/> GAS	<input type="checkbox"/> DIESEL	<input type="checkbox"/> DUAL		
3	FOR:					
4	SITE:	UNIT:				
5	Nº REQ'D:	SERVICE:				
6	MODEL:	MANUFACTURER:				
7	SIZE / TYPE:	VENDOR:				
8	SERIAL Nº:	DRIVEN:				
9		MANUFACTURER Nº:				
ENGINE FEATURES						
OPERATION CONDITIONS:						
12	CONT. BRAKE POWER	kW @	rpm	DRIVEN EQUIP. SPEED/SLOW ROLL	/ rpm	
13	MAX. BRAKE POWER:	kW @	rpm	ROTATION (FROM COUPLING END / FLYWHEEL):	<input type="checkbox"/> CW <input type="checkbox"/> CCW	
14	CONT. TORQUE:	kgf.m @	rpm	SERVICE:	<input type="checkbox"/> CONT <input type="checkbox"/> INTERM <input type="checkbox"/> SPARE	
15	MAX. TORQUE:	kgf.m @	rpm	LOAD:	<input type="checkbox"/> CONSTANT <input type="checkbox"/> VARIABLE	
PERFORMANCE:						
17	BRAKE HORSE POWER				MECH. EFFICIENCY:	%
18	CONTINUE (Note 1)	kW, A	rpm	THERMAL EFFICIENCY:	%	
19	(Note 2)	kW, A	rpm			
20	OVERLOAD (Note 1)	% OF:	h, EVERY	h	* CONDITION 27 °C @ 1 atm	
21	(Note 2)	% OF:	h, EVERY	h	NOISE LEVEL:	dB
22	POWER ISO:	kW, ±	%, A	rpm	MAXIMUM VIBRATION LEVEL RMS:	µm (Note 3)
23	50 % LOAD:			g/kWh	LUB OIL CONSUMP:	l/day
24	SPECIFIC DIESEL	75 % LOAD:		g/kWh	MAX. TEMP. OF EXHAUST GASES:	°C
25	CONSUMP.	100 % LOAD:		g/kWh	MEAN TIME BETWEEN OVER HAULING:	h
26	POWER @:			CN		
27	SPECIFIC	50 % LOAD:		Nm³/h		
28	FUEL GAS	75 % LOAD:		Nm³/h		
29	CONSUMP	100 % LOAD:		Nm³/h		
30	EXHAUST	50 % LOAD:		°C		
31	GAS TEMP	75 % LOAD:		°C		
32		100 % LOAD:		°C		
POWER REDUCTION BY CHANGES IN STAND CONDITIONS						
34	AIR TEMPERATURE	%		kW	ELAPSED TIME TO ACHIEVE NOM. LOAD:	s
35	RELATIVE HUMIDITY	%		kW	MEAN EFFECTIVE PRESSURE AT CONT. POWER	kgf/cm² g
36	COOLING WATER	%		kW	MEAN EFFECTIVE AT PRESSURE AT MAX. POWER:	kgf/cm² g
37	ALTITUDE	%		kW	MAXIMUM PRESSURE AT CONT. POWER:	kgf/cm² g
38	INTERMITTENT POWER	%		kW	MAXIMUM PRESSURE AT MAX. POWER:	kgf/cm² g
39	OVERLOAD	%		kW	EXHAUST GASES TEMP. AT CONT. POWER (Note 4):	°C
40	MAX TORQUE	%		kW	EXHAUST GASES TEMP. AT MAX. POWER (Note 4):	°C
41	TOTAL REDUCTION	%		kW	CARTER PRESSURE, kPa g : MAX	/ NORM
42	CORRECTED POWER			kW	NOMINAL SPEED:	m/s
43	INLET ΔP (MAX/NOR/MIN), kgf/cm² :	/	/		MEAN PISTON SPEED:	m/s
44	OUTLET ΔP (MAX/NOR/MIN), kgf/cm² :	/	/		IDLE SPEED:	m/s
45	AUXIL. ΔP, kgf/cm² :	TOTAL, kgf/cm² :			OPER. SPEED RANGE:	rpm
46	WEIGHT				COMPRESSION RATIO:	
47	ASSEMBLY (EMPTY/OPER):			kg	LUBRICATION OIL CONSUMPTION:	kg/h
48	MAX. FOR LIFTING:			kg	HEAT POWER CONSIDERED:	kJ/kg
49	MAX. FOR MAINTENANCE:			kg	ESTIMATED PERIOD FOR LUBE OIL CHANGE:	h
50	ENGINE:			kg	FUEL LHV/HHV, kcal/kg	/
51	DRIVEN EQUIP.:			kg	FUEL CONSUMPTION/LOAD	% Kg
52	GEAR BOX:			kg		% kg
53	SKID:			kg		% kg
54						% kg
55	NOTE 1					REFERRED TO MOST CRITICAL LOCAL CONDITIONS.
56	NOTE 2					REFERRED TO NORMAL LOCAL CONDITIONS.
57	NOTE 3					NORMAL SERVICE CONTINUE POWER.
58	NOTE 4					BEFORE TURBINE
59						
60						
61						

DATA SHEET		No.	REV.
		SHEET 3 of 8	
		TITLE: INTERNAL COMBUSTION ENGINE	
1 CONSTRUCTIVES CHARACTERISTICS			
2	STROKE CYCLES:		CYLINDER COOLING SYSTEM:
3	CYLINDERS ARRANG. <input type="checkbox"/> HORIZ <input type="checkbox"/> VERT <input type="checkbox"/> V <input type="checkbox"/> INCLINED		VALVES PER CYLINDER:
4	<input type="checkbox"/> OTHER		CARTER VOLUME.: m ³
5	CYLINDERS HEADS: <input type="checkbox"/> SINGLE <input type="checkbox"/> MULT QTY		SAE CASING N°
6	DIAMETER: mm / STROKE mm		CASING ASSEMBLY <input type="checkbox"/> INTEGRAL <input type="checkbox"/> SEPARATED
7	DISPLACEMENT INDIVIDUAL TOTAL		
8	CYLINDER WITH JACKET: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DRY <input type="checkbox"/> WET		
9			
10 MATERIAL (ACCORDING TO MANUFACTURE STANDARDS)			
11	CYLINDER BLOCKS:		RINGS:
12	CRANKSHAFT		CYL. HEAD:
13	CONNECTING ROD:		VALVES:
14	MAIN BEARING:		VALVE SEAT:
15	CONNECTING ROD BEARINGS:		SPRING:
16	PISTONS:		CAMS:
17	JACKETS:		CAM SHAFT:
18			
19 STARTING SYSTEM			
20	MANUFACTURER		MODEL/TYPE:
21	<input type="checkbox"/> ELECTRIC MOTOR / SYSTEM		
22	SOURCE: <input type="checkbox"/> V <input type="checkbox"/> DC <input type="checkbox"/> AC		BATTERY CHARGE: ALTERNATOR kW
23	HZ		<input type="checkbox"/> EXT. SOURCE V
24	PHASES		HZ
25	BATTERY MANUF.:		PHASES
26	MODEL:		kW
27	TYPE:		Ah
28	QTY:		
29	VOLTS:		
30	<input type="checkbox"/> PNEUMATIC MOTOR: <input type="checkbox"/> AIR DRIVEN <input type="checkbox"/> GAS DRIVEN		
31	SPEED: rpm		OPERATION PRESS. kgf/cm ² g
32	TORQUE: kg-m		COMSUMPTION: Nm ³ /h
33	<input type="checkbox"/> COMPRESSOR <input type="checkbox"/> DISC. PRESS		<input type="checkbox"/> FLOW <input type="checkbox"/> DRIVER
34	<input type="checkbox"/> CYLINDER CAPACITY m ³		QUANTITY:
35	SELF-SUSTAIN: min		PRESS. (STOR./DESIGN) kgf/cm ² g / kgf/cm ² g
36	FITTINGS <input type="checkbox"/> MANOMETER		<input type="checkbox"/> PSV <input type="checkbox"/> FILTER
37	<input type="checkbox"/> DRAIN WITH PURGE TRAP		<input type="checkbox"/> CHECK VALVE
38	<input type="checkbox"/> VENT		<input type="checkbox"/> BLOCK VALVE (INLET/OUTLET)
39	<input type="checkbox"/> PRESSURE GAUGE		<input type="checkbox"/> MANHOLE FOR INSPECTION AND CLEANING
40	<input type="checkbox"/> LUBRICATOR/FILTER/REGULATOR MANUF./MODEL:		NORM. OPER. PRESS.:
41	MAX. OPER. PRESS.		MIN. OPER. PRESS.:
42	<input type="checkbox"/> OPER. FLOW RANGE: MANUF./MODEL:		
43	PIPING (MATERIAL):		FLEXIBLE (MAT. TYPE):
44	<input type="checkbox"/> OTHER		
45 FOR EMERGENCY GENERATOR SYSTEM, STARTING SYSTEM SHALL BE DESIGNED AT LEAST SIX CONSECUTIVE CRANKS OR 180 CONTINUE RUNNING.			
46 TRANSMISSION SYSTEM			
47	<input type="checkbox"/> DIRECT <input type="checkbox"/> EXISTING <input type="checkbox"/> TO BE FURNISHED		<input type="checkbox"/> FLEXIBLE MANUF. / MODEL:
48	<input type="checkbox"/> GEARBOX MANUF. / MODEL:		COUPLING TYPE:
49	TYPE:		<input type="checkbox"/> TORQUE MANUF. / MODEL:
50	AGMA SERVICE FACTOR: EFFIC.:		CONVERTER TYPE:
51	SAE CASING N°		SAE CASING N°
52	<input type="checkbox"/> CLUTCH MANUF. / MODEL:		RESERVOIR: <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/> YES
53	TYPE:		CAPACITY:
54	SAE N°		COOLING OIL CIRCUIT <input checked="" type="checkbox"/> NO <input checked="" type="checkbox"/> YES
55	<input type="checkbox"/> TRANSMISSION MANUF. / MODEL:		
56	SHAFT TYPE:		<input type="checkbox"/> OTHER
57			
58 GENERAL NOTES			
59			
60			
61			
62			



PETROBRAS


N-2915


REV. A


ENGLISH


11 / 2012

DATA SHEET		No.	REV.
		SHEET 4 of 8	
		TITLE: Internal Combustion Engine	
1 COUPLING			
2 TYPE: MANUFACTURER: MODEL:			
3 SERVICE FACTOR: COUPLING PROTECTOR MATERIAL:			
4 FLYWHEEL: <input type="checkbox"/> YES <input type="checkbox"/> NO CRANKING GEAR: <input type="checkbox"/> YES <input type="checkbox"/> NO LUBRICATION: <input type="checkbox"/> YES <input type="checkbox"/> NO			
5			
6 IGNITION SYSTEM <input type="checkbox"/> N/A			
7 IGNITOR: <input type="checkbox"/> STANDARD <input type="checkbox"/> EXPLOSION PROOF <input type="checkbox"/> OTHER			
8 N° OF IGNITOR PER CYLINDER N° OF COIL			
9 ELECTRONIC MAGNETO <input type="checkbox"/> BENDIX-1800 <input type="checkbox"/> AUTRONIC III <input type="checkbox"/> OTHER			
10 COOLING SYSTEM			
11 <input type="checkbox"/> COOLING WATER INDEPENDENT COMPLETE SYSTEM (CLOSED CIRCUIT)			
12 <input type="checkbox"/> OIL COOLER <input type="checkbox"/> COMBUSTION AIR			
13 <input type="checkbox"/> FLUID <input type="checkbox"/> AIR <input type="checkbox"/> WATER <input type="checkbox"/> OTHER			
14 <input type="checkbox"/> RADIATOR <input type="checkbox"/> SINGLE <input type="checkbox"/> DOUBLE <input type="checkbox"/> VERTICAL <input type="checkbox"/> ON SKID			
15 <input type="checkbox"/> HEAT EXCHANGER <input type="checkbox"/> SHELL-TUBE <input type="checkbox"/> PLATE <input type="checkbox"/> AIR COOLER <input type="checkbox"/> OTHER			
16 <input type="checkbox"/> FAN <input type="checkbox"/> BLOWER <input type="checkbox"/> EXHAUST <input type="checkbox"/> PROTECTION SCREEN <input type="checkbox"/> DRIVER			
17 <input type="checkbox"/> PRE-HEATING <input type="checkbox"/> WATER CONSUMPTION m³/h			
18 <input type="checkbox"/> AFTER COOLER PUMP. TYPE: DRIVER			
19 <input type="checkbox"/> COOLING WATER PUMP TYPE: DRIVER			
20 <input type="checkbox"/> EXPANSION VESSEL FOR HOT WATER AND MAKE-UP WATER COOLING			
21 <input type="checkbox"/> HIGH TEMPERATURE CIRCUIT <input type="checkbox"/> LOW TEMPERATURE CIRCUIT			
22 LUBRICATION SYSTEM			
23 TYPE: <input type="checkbox"/> FORCED <input type="checkbox"/> OTHER OIL PRESSURE, kgf/cm²: MIN.: NORM. MAX.			
24 LUBE OIL VOLUME: m³ OIL TEMP.: °C: MIN.: NORM. MAX.			
25 <input type="checkbox"/> FILTER / TYPE: MANUF.: QUANTITY: MESH:			
26 <input type="checkbox"/> SINGLE <input type="checkbox"/> DOUBLE <input type="checkbox"/> RENEWABLE <input type="checkbox"/> WASHABLE <input type="checkbox"/> W / CONT. FLOW TRANSFER VALVES			
27 <input type="checkbox"/> HEAT EXCHANGER: TYPE: MANUFACTURER:			
28 <input type="checkbox"/> STANDARD DESIGN <input type="checkbox"/> OTHER ΔP/ ΔT OIL: kgf/cm² / °C			
29 SHELL MTL: FLUID			
30 TUBES MTL: FLUID			
31 HEAD / TUBESHEET MTL:			
32 <input type="checkbox"/> PUMP TYPE: MANUFACTURER: DRIVER:			
33 FLOW m³/h HEAD m			
34 PRESSURE kgf/cm² NPSH, m			
35 <input type="checkbox"/> BLOCK, PRESSURE, RELIEF, NON-RETURNING AND AMOT VALVE			
36 <input type="checkbox"/> CARTER NOZZLE FILTER <input type="checkbox"/> AIR <input type="checkbox"/> STEAM <input type="checkbox"/> ELETRIC			
37 <input type="checkbox"/> COMPLEMENTARY FILTERING TYPE: HALF / TOTAL FLOW:			
38 <input type="checkbox"/> RECOMMENDED LUBE OIL			
39 <input type="checkbox"/> PRE-LUBIFICATION <input type="checkbox"/> MANUAL <input type="checkbox"/> AUTOMATIC <input type="checkbox"/> DRIVER: POT.: Kw			
40 <input type="checkbox"/> OIL SAMPLE DRAIN <input type="checkbox"/> MAGNETIC PARTICLE DETECTOR			
41 INLET AIR AND EXHAUST GASES SYSTEM			
42 <input type="checkbox"/> AIR INTEKE LACATION: <input type="checkbox"/> INTERNAL <input type="checkbox"/> EXTERNAL <input type="checkbox"/> INLET AIR CUTOFF DEVICE			
43 <input type="checkbox"/> AIR FILTER: MANUF.: MODEL: QTY: TYPE ELEM.:			
44 <input type="checkbox"/> SINGLE <input type="checkbox"/> DOUBLE <input type="checkbox"/> OIL FLOOD <input type="checkbox"/> DRY			
45 <input type="checkbox"/> AIR DUCT: MATERIAL DIMENSIONS:			
46 <input type="checkbox"/> FLEXIBLE JOINT FOR AIR DUCT TYPE: MATERIAL:			
47 <input type="checkbox"/> AIR CLOSING ARRANGEMENT: TYPE: LOCATION:			
48 <input type="checkbox"/> TURBO CHARGER MANUF.: MODEL: QTY:			
49 BEARING TYPE: LUBRICATION: COOLING:			
50 <input type="checkbox"/> AFTER-COOLER MANUF.: MODEL: QTY:			
51 MATERIAL: COOLANT FLUID:			
52 <input type="checkbox"/> EXHAUST MANIFOLD: <input type="checkbox"/> INSULATED <input type="checkbox"/> WATER COOLED <input type="checkbox"/> OTHER			
53 <input type="checkbox"/> EXHAUST FLEX. JOINT: TYPE: MATERIAL:			
54 <input type="checkbox"/> SILENCER: MANUF.: MODEL: TYPE: <input type="checkbox"/> INSULATED			
55 <input type="checkbox"/> SPARK ARRESTOR: <input type="checkbox"/> YES <input type="checkbox"/> NO MATERIAL (BODY / RETAINER):			
56 <input type="checkbox"/> EXHAUST PIPE: MATERIAL: INSULATION TYPE:			
57 <input type="checkbox"/> RAIN CAPS (HEAVY DUTY AUTOMATIC EXHAUST PROTECTION)			
58 <input type="checkbox"/> DRAIN: TYPE (VALVE / PURGE): DIMENSIONS			
59			
60			
61			
62			

		DATA SHEET		No.		REV.	
				SHEET		5 of 8	
TITLE:				INTERNAL COMBUSTION ENGINE			
FUEL SYSTEM							
<input type="checkbox"/> GAS <input type="checkbox"/> FILTER <input type="checkbox"/> SIMPLE <input type="checkbox"/> DOBLE <input type="checkbox"/> MULTIPLE <input type="checkbox"/> DISPOS. <input type="checkbox"/> S/CLEAN <input type="checkbox"/> AUTOMATIC <input type="checkbox"/> PRESS. CONTROL, BLOCK, RELIEF, N-RETURNING AND AMOT VALVE <input type="checkbox"/> RESERVOIR CAPACITY m ³ HEIGHT m DIAMETER m <input type="checkbox"/> FLEXIBLE CONNECTION WITH FIRE PROTECTION <input type="checkbox"/> NATURAL GAS CARBURATOR <input type="checkbox"/> CUSTOM ENGINE CONTROL SYST. GAS INJECTION, TYPE: MANUFAC: CARBURATOR MODEL: REQ. FEED GAS PRESSURE MIN.: kPa REQ. FEED GAS PRESSURE MAX.: kPa MAX FUEL CONSUMPTION: Nm ³ /h <input type="checkbox"/> FUEL GAS VALVE MANUFAC: TYPE: PRESSURE RANGE (kPa): A RANGE CONTROL SIGNAL (kPa/Ma): A SIGNAL FAULT: <input type="checkbox"/> FUEL CUT. <input type="checkbox"/> STILL FUELLING.				<input type="checkbox"/> LIQUID <input type="checkbox"/> FILTER <input type="checkbox"/> SIMPLE <input type="checkbox"/> DOBLE <input type="checkbox"/> MULTIPLE <input type="checkbox"/> DISPOS. <input type="checkbox"/> S/CLEAN <input type="checkbox"/> AUTOMATIC <input type="checkbox"/> PRESS. CONTROL, BLOCK, RELIEF, N-RETURNING AND AMOT VALVE <input type="checkbox"/> RESERVOIR CAPACITY m ³ HEIGHT m DIAMETER m <input type="checkbox"/> FLEXIBLE CONNECTION WITH FIRE PROTECTION <input type="checkbox"/> INJECTION PUMP <input type="checkbox"/> CUSTOM ENGINE CONTROL SYST. MANUF / MODEL / TYPE: <input type="checkbox"/> FEED PUMP MANUF / MODEL / TYPE:			
GENERAL NOTES							
SPEED GOVERNOR							
TYPE: <input type="checkbox"/> HYDRAULIC <input type="checkbox"/> PNEUMATIC <input type="checkbox"/> ELETRONIC <input type="checkbox"/> OTHER MANUFACTURER: MODEL: NEMA CLASS: <input type="checkbox"/> INCORPORATED TO INJECT PUMP <input type="checkbox"/> SEPARATED FROM INJECT PUMP <input type="checkbox"/> PARALLEL OPERATION VELOCITY: <input type="checkbox"/> CONSTANT <input type="checkbox"/> VARIABLE ADJUST: <input type="checkbox"/> AUTOMATIC <input type="checkbox"/> MANUAL SIGNAL RANGE: kgf/cm ² / mA SIGNAL FAILURE: <input type="checkbox"/> STOP FEED <input type="checkbox"/> MAINTAIN FEED OPER. RANGE JOINT: OPER. SPEED: rpm							
SITE AND LOCATION DATA							
LOCATION <input type="checkbox"/> INDOOR <input type="checkbox"/> OUTDOOR <input type="checkbox"/> GRADE <input type="checkbox"/> HEATED <input type="checkbox"/> UNDER ROOF <input type="checkbox"/> MEZZANINE <input type="checkbox"/> UNHEATED <input type="checkbox"/> PARTIAL SLIDES <input type="checkbox"/> <input type="checkbox"/> ELEC. AREA CLASSIFICATION CL GR ZN				NOISE SPECIFICATIONS <input type="checkbox"/> APPLICABLE TO MACHINE: SEE SPECIFICATION <input type="checkbox"/> APPLICABLE TO NEIGHBORHOOD: SEE SPECIFICATION ACOUSTIC HOUSING: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> NOISE LEVEL dBA @ m <input type="checkbox"/> MAX. VIBRATION LEVEL (P-TO-P) μ m			
SITE DATA				APPLICABLE SPECIFICATIONS			
<input type="checkbox"/> ELEVATION m BAROMETER kgf/cm ² a <input type="checkbox"/> RELATIVE HUMIDITY % <input type="checkbox"/> RANGE OF AMBIENT TEMPS: °C DRY BULB WET BULB NORMAL MAXIMUM MINIMUM UNUSUAL CONDITIONS: <input type="checkbox"/> DUST <input type="checkbox"/> FUMES <input type="checkbox"/> SALT ATMOSPHERE <input type="checkbox"/> OTHER <input type="checkbox"/> COPPER AND COPPER ALLOYS <input type="checkbox"/> CORROSION				<input type="checkbox"/> VENDOR HAVING UNIT RESPONSIBILITY <input type="checkbox"/> GOVERNING SPECIFICATION (IF DIFFERENT) PAINTING <input type="checkbox"/> MANUFACTURED STD <input type="checkbox"/> OTHER NAMEPLATE <input type="checkbox"/> US CUSTOMARY <input type="checkbox"/> METRIC			
COATING				SHIPMENT			
<input type="checkbox"/> ROTATING COMPONENTS <input type="checkbox"/> STATIONARY COMPONENTS				<input type="checkbox"/> DOMESTIC <input type="checkbox"/> EXPORT <input type="checkbox"/> EXPORT BOXING REQ'D <input type="checkbox"/> OUTDOOR STORAGE MORE THAN MONTHS			
GENERAL NOTES							

		DATA SHEET		No.		REV.	
		TITLE:		SHEET		6 of 8	
		INTERNAL COMBUSTION ENGINE					
UTILITIES							
1							
2	INSTRUMENT AIR			START UP AIR			
3	PRESSURE	MAX.	kgf/cm ² g	PRESSURE	MAX.	kgf/cm ² g	
4		NOR.	kgf/cm ² g		NOR.	kgf/cm ² g	
5		MIN.	kgf/cm ² g		MIN.	kgf/cm ² g	
6	TEMPERATURE	MAX.	°C	TEMPERATURE	MAX.	°C	
7		NOR.	°C		NOR.	°C	
8		MIN.	°C		MIN.	°C	
9	QUALITY			ELECTRIC POWER			
10	DEW POINT:	°C @	kgf/cm ² a	RESISTIVE LOAD kW			
11	OIL CONTENT:	ppm VOL.	m ³	RESISTIVE LOAD OVER 4 kW			
12	MAX PARTICLE SIZE:		µm	MOTORS TILL 150 kW			
13	COOLING WATER:			FUEL GAS			
14	SOURCE			FUEL CATEGORY: METHANE INDEX :			
15	INLET TEMPERATURE:	°C		NORMAL OPERATION PRESSURE:			
16	INLET PRESSURE:	kgf/cm ² g		MAX/MIN OPER. PRESSURE /			
17	RETURN TEMPERATURE:	°C		NORMAL OPERATION TEMPERATURE			
18	RETURN PRESSURE:	kgf/cm ² g		MAX/MIN OPER. FLOW /			
19	LOW HEAT VALUE (LHV)	Kcal/kg		NORMAL OPERATION FLOW			
20				MAX/MIN OPER. FLOW /			
21				LOW HEAT VALUE (LHV)			
22	FUEL OIL			COMPOSITION MOLEC. WEIGHT			
23	<input type="checkbox"/> COMPOSITION COMPONENT	% MOL		STANDART START			
24				WOUBE INDEX			
25				H ₂			
26				H ₂ O			
27				H ₂ S			
28				CO			
29				CO ₂			
30	<input type="checkbox"/> CONTAMINANTS COMPONENT	% MOL		N ₂			
31				METANE			
32	<input type="checkbox"/> VISCOSITY	est		ETANE			
33	<input type="checkbox"/> DENSITY	NORM	kg/m ³	PROPANE			
34		MAX	kg/m ³	I-BUTANE			
35		MIN	kg/m ³	BUTANE			
36				I-PENTANE			
37				PENTANE			
38				HEXANE			
39				OCTANE			
40				NONANE			
41				DECANE			
42				SULPHUR			
43							
44	GENERAL NOTES						
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		DATA SHEET		No.		REV.	
						SHEET 7 of 8	
		TITLE:					
INTERNAL COMBUSTION ENGINE							
1 INSTRUMENTATION							
2	FUNCTION	LOCALLY MOUNTED	LOCAL PANEL	CONTROL ROOM	FUNCTION	LOCALLY MOUNTED	LOCAL PANEL
3							
4	SERVICE HOUR METER	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	COMBUSTION SENSOR	<input type="checkbox"/>	<input type="checkbox"/>
5	STARTING / STOPPING CONTROL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	COOLING WATER PRESSURE GAUGE (Note 2)	<input type="checkbox"/>	<input type="checkbox"/>
6	VOLTMETER / AMMETER	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	COOLING WATER TEMP. GAUGE (Note 2)	<input type="checkbox"/>	<input type="checkbox"/>
7	GOVERNOR BATTERY VOLTAGE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	COOLING WATER FILTER ΔP GAUGE	<input type="checkbox"/>	<input type="checkbox"/>
8	ACCELEROMETER (MOTOR CASE)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	WATER RESERVOIR LEVEL GAUGE	<input type="checkbox"/>	<input type="checkbox"/>
9	DIGITAL TACHOMETER	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	INLET AIR FILTER ΔP GAUGE	<input type="checkbox"/>	<input type="checkbox"/>
10	INLET FUEL FLOW METER (Note 1)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	COMPRESSED AIR PRESS. GAUGE	<input type="checkbox"/>	<input type="checkbox"/>
11	INLET FUEL PRESSURE GAUGE (Note 1)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	START AIR PRESSURE GAUGE	<input type="checkbox"/>	<input type="checkbox"/>
12	INLET FUEL TEMPERATURE GAUGE (Note 1)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EXHAUST GAS TEMPERATURE GAUGE (Note 3)	<input type="checkbox"/>	<input type="checkbox"/>
13	INLET FUEL FILTER ΔP GAUGE (Note 1)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	BEARINGS TEMPERATURE GAUGE	<input type="checkbox"/>	<input type="checkbox"/>
14	FUEL LEAKAGE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LUBE OIL HEADER PRESSURE GAUGE	<input type="checkbox"/>	<input type="checkbox"/>
15	FUEL RESERVOIR LEVEL GAUGE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LUBE OIL COOLER TEMP. GAUGE (Note 4)	<input type="checkbox"/>	<input type="checkbox"/>
16	GAS DETECT. SYSTEM IN CARTER	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LUBE OIL FILTER ΔP GAUGE	<input type="checkbox"/>	<input type="checkbox"/>
17	CRANKCASE PRESSURE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LUBE OIL RESERV. LEVEL GAUGE	<input type="checkbox"/>	<input type="checkbox"/>
18	TURBOCHARGE TEMPERATURE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LUBE OIL MAGNETIC PARTICLE DETECT.	<input type="checkbox"/>	<input type="checkbox"/>
19	INLET/OUTLET GAUGE OF FUEL GAS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	FUEL GAS CONTROL MODULE	<input type="checkbox"/>	<input type="checkbox"/>
20	CONTROL MODULE FUEL GAS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CUT OFF FUEL GAS VALVE	<input type="checkbox"/>	<input type="checkbox"/>
21 ALARM & SHUTDOWN							
22		ALARM		TRIP		ALARM	TRIP
23	LOW FUEL PRESSURE	<input type="checkbox"/>		<input type="checkbox"/>	HIGH COOLING WATER TEMPERATURE	<input type="checkbox"/>	<input type="checkbox"/>
24	HIGH FUEL FILTER ΔP	<input type="checkbox"/>		<input type="checkbox"/>	LOW COOLING WATER PRESSURE	<input type="checkbox"/>	<input type="checkbox"/>
25	LOW FUEL LEVEL	<input type="checkbox"/>		<input type="checkbox"/>	LOW COOLING WATER LEVEL	<input type="checkbox"/>	<input type="checkbox"/>
26	HIGH BEARING TEMPERATURE	<input type="checkbox"/>		<input type="checkbox"/>	HIGH COOLING WATER FILTER ΔP	<input type="checkbox"/>	<input type="checkbox"/>
27	HIGH GAS EXHAUST TEMPERATURE	<input type="checkbox"/>		<input type="checkbox"/>	LOW / HIGH LUBE OIL PRESSURE	<input type="checkbox"/>	<input type="checkbox"/>
28	INLET AIR RESTRICTION SENSOR	<input type="checkbox"/>		<input type="checkbox"/>	LOW / HIGH LUBE OIL TEMPERATURE	<input type="checkbox"/>	<input type="checkbox"/>
29	HIGH AIR FILTER ΔP	<input type="checkbox"/>		<input type="checkbox"/>	HIGH LUBE OIL FILTER ΔP	<input type="checkbox"/>	<input type="checkbox"/>
30	LOW STARTING AIR PRESSURE	<input type="checkbox"/>		<input type="checkbox"/>	LOW LUBE OIL LEVEL	<input type="checkbox"/>	<input type="checkbox"/>
31	OVERSPEED	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
32	EXCESSIVE VIBRATION	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>
33	FUEL LEAKAGE / GAS IN CARTER	<input type="checkbox"/>		<input type="checkbox"/>			
34 ATMOSPHERIC EMISSIONS							
35		IDLE	NORMAL	OVERL.		IDLE	NORMAL
36	<input type="checkbox"/> EMISSION SUPPRESSION				<input type="checkbox"/> CO REQUIREMENTS		
37	<input type="checkbox"/> NOx REQUIREMENTS				<input type="checkbox"/> CO GUARANTEE		
38	<input type="checkbox"/> NOx GUARANTEE				<input type="checkbox"/> PARTICULATE REQUIREMENTS		
39	<input type="checkbox"/> SOx REQUIREMENTS				<input type="checkbox"/> PARTICULATE GUARANTEE		
40	<input type="checkbox"/> SULFUR CONTENT OF FUEL				<input type="checkbox"/> UNBURNED HC REQUIREMENTS		
41	<input type="checkbox"/> SOx GUARANTEE				<input type="checkbox"/> UNBURNED HC GUARANTEE		
42	<input type="checkbox"/> COx REQUIREMENTS				APPLICABLE EMISSION CODES OR REGULATIONS		
43	<input type="checkbox"/> COx GUARANTEE				<input type="checkbox"/> EPA - TITLE 40 - CFR <input type="checkbox"/> OTHERS		
44 TESTS AND INSPECTION							
45		REQ'D	WIT	OBS		REQ'D	WIT
46	TESTS ACCORDING MANUF. STD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SOUND LEVEL TEST	<input type="checkbox"/>	<input type="checkbox"/>
47	MECHANICAL RUNNING	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	FULL LOAD / SPEED TEST	<input type="checkbox"/>	<input type="checkbox"/>
48	HYDROSTATIC	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	HYDRAULIC COUPLING INSPECTION	<input type="checkbox"/>	<input type="checkbox"/>
49	POST TEST INTERNAL INSPECTION	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SPARE PARTS TEST	<input type="checkbox"/>	<input type="checkbox"/>
50	COMPLETE UNIT TEST	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	INSPECT. CHECKLIST COMPLIANCE	<input type="checkbox"/>	<input type="checkbox"/>
51	PERFORMANCE TEST	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TEST REPORT	<input type="checkbox"/>	<input type="checkbox"/>
52	PENETRATING LIQUID INSP.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	X-RAY INSPECTION OF WELDS	<input type="checkbox"/>	<input type="checkbox"/>
53	MAGNAFLUX INSPECTION	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AUXILIARY SYSTEM TESTS	<input type="checkbox"/>	<input type="checkbox"/>
54	STATIC AND DYNAMIC BALANCING	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
55							
56	NOTE 1 FOR ALL FUELS USED						
57	NOTE 2 WATER INLET & OUTLET						
58	NOTE 3 FOR EACH CYLINDER						
59	NOTE 4 OIL INLET & OUTLET						
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	DATA SHEET		No.		REV.
					SHEET 8 of 8
	TITLE: Internal Combustion Engine				
1	MISCELLANEOUS				
2	AREA TO MAINTENANCE	FRONT SIDE	mm	RIGHT SIDE	mm
3		BACK SIDE	mm	LEFT SIDE	mm
4		VERTICAL	mm		
5	MAINTENANCE SCHEDULE (HOURS OF OPERATION)				
6	ROUTINE (FILTERS, SPRK PLUGS, OIL, EVERY ...):		h	MAJOR MAINTENANCE - OVER HAULING: EVERY	h
7	SPECIAL PARTS				
8	<input type="checkbox"/> FLYWHEEL:	<input type="checkbox"/> STD	<input type="checkbox"/> SPECIAL. TYPE:	INERTIA MOMENT	
9	<input type="checkbox"/> MOTOR	<input type="checkbox"/> MOTOR AND ACCESSORIES	<input type="checkbox"/> MOTOR, ACCESSORIES AND DRIVEN EQUIPMENT		
10	<input type="checkbox"/> SILENCER	<input type="checkbox"/> HORZ.	<input type="checkbox"/> VERT	<input type="checkbox"/> MANUF/MODEL	
11	<input type="checkbox"/> BASEPLATE/SKID	FURNISHED BY:	<input type="checkbox"/> DRIVEN MANUFACTURER	<input type="checkbox"/> DRIVER MANUF.	
12			<input type="checkbox"/> OTHER	TYPE:	
13	<input type="checkbox"/> CRANK GEAR				
14	<input type="checkbox"/> FLY WHELL TURNING DEVICE:		<input type="checkbox"/> MANUAL	<input type="checkbox"/> PNEUMÁTC	
15					
16	GENERAL NOTES				
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