



# **SPECIFICATION**

**FOR**

## **S28LH**

**AUXILIARY DIESEL GENERATING SETS**

**B&W Holeby Diesel AS**

A. DIESEL ENGINE:

B&W diesel engine, four-stroke type, with cylinders in line, pressure lubricated, with oil cooled cast iron pistons, charging air intermediate cooler, Brown Boveri exhaust turbocharger with filter and exhaust outlet with compensator.

The diesel engine is delivered with flywheel and hand operated turning gear, Bosch fuel pump for each cylinder, Bosch injectors and Woodward governor with aut. overspeed stop, stop for low lubricating oil pressure and high fresh water temperature.

The engine is as standard delivered for gas or diesel oil. On request it can be delivered for light fuel.

Accessories mounted on diesel engine:

- 1 fuel oil booster pump
- 1 lub.oil pump
- 1 fuel oil filter
- 1 lub.oil filter, double with paper cartridges.

Diesel engine and generator are mounted on common bedplate.

B. GENERATOR

The generator is of brushless type, frame size Bl6. The sleeve bearing is sustained on one bracket rigidly bolted to the endshield. The standard enclosure is dripproof protection IP23 according to I.E.C. with built in space heaters.

I. CERTIFICATE

Certificate from NV or BV or LR or GL or ABS or RINA.

J. CALCULATIONS AND TESTBED RUNNING

Torsional vibration and testbed running of the system diesel engine generator carried out according to the rules of the classification society.

K. INSTRUCTION AND DRAWINGS

- 3 instruction books including operation, maintenance and spare parts catalog.
- 3 sets of installation instructions and drawings.

L. STARTING-UP AND TRIAL TEST

- 1 service engineer for 5 days incl. travelling and living expenses.

S. SPARE PARTS

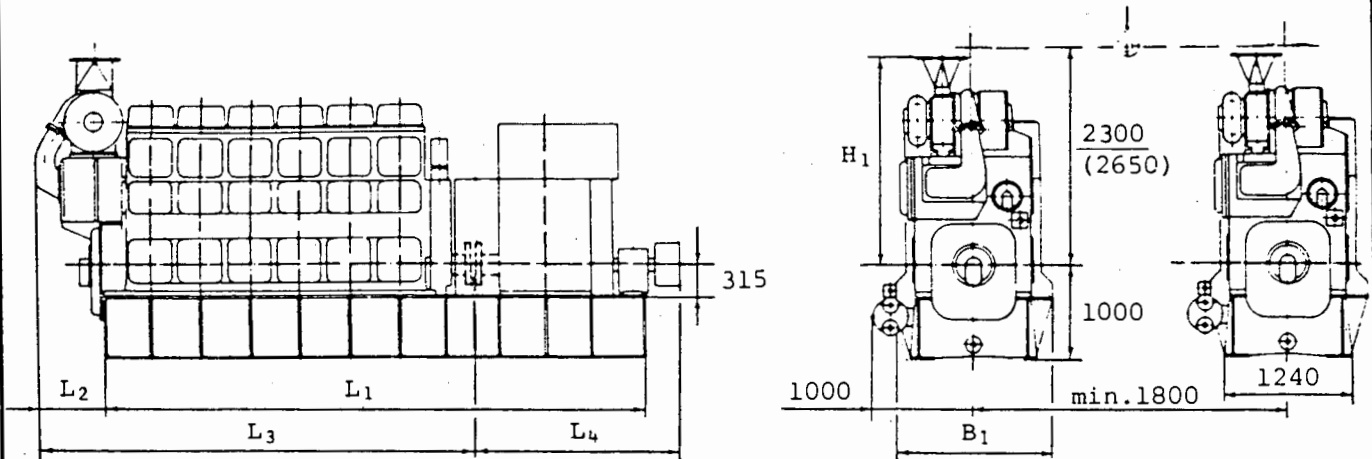
Spare parts according to classification society.

T. TOOLS

- 1 set of standard tools for normal overhaul and maintenance.

BORE: 280 mm

STROKE: 320 mm



**THE AMBIENT AND OPERATING CONDITIONS:**

The maximum engine power at disposal from the flywheel shaft is valid at sea level under tropical conditions, normally sea water temperature up to 32°C and barometric pressure 1013 mbar, and engine room temperature of max. 40°C.

**STATEMENT OF DIMENSIONS:**

Dimensions B<sub>1</sub>-L<sub>1</sub>-L<sub>4</sub> may vary according to make of generator.  
The stated height to crane hook for dismantling is valid when using a traveling crane.  
Values in bracket are valid for mono-rail arrangement.

**MASSES:**

The engine masses do not include: flywheel, generator and generator bed-plate.  
All dimensions and masses are approximate.

No. of cyl. in line	Engine power r/min		L <sub>1</sub> mm	L <sub>2</sub> mm	L <sub>3</sub> mm	L <sub>4</sub> mm	B <sub>1</sub> mm	H <sub>1</sub> mm	Mass (dry) in 1000 kg
	720 MCR kW	750 MCR kW							
5	875	925	4930	870	3980	1735	1680	1990	13
6	1050	1110	5580	870	4460	1905	1680	1990	15
7	1225	1295	5915	870	4940	1765	1680	2320	17,5
8	1400	1480	6595	870	5420	1965	1680	2320	20

n	r/min nominal	Overload rating = OR			
		720	750	720	750
P <sub>b</sub>	bar	14,9	14,9	16,5	16,5
	(kp/cm <sup>2</sup> )	15,2	15,2	16,8	16,8
P <sub>b</sub>	kW/cyl.	175	185	195	205
	(BHP/cyl.)	238	252	265	279



**S 28 LH** FOUR-STROKE, SINGLE-ACTING, TRUNK-PISTON, DIESEL ENGINE  
WITH TURBOCHARGER STROKE 320 MM BORE 280 MM

	UNITS	5 cyl.	6 cyl.	7 cyl.	8 cyl.
Max cont rating at 720 rpm	kW/BHP	875 / 1190	1050 / 1430	1225 / 1665	1400 / 1900
- - - - 750 -	- -	925 / 1260	1110 / 1510	1295 / 1765	1480 / 2015

**PUMPS:**

			m <sup>3</sup> /h	1,4	1,4	1,4	1,4
Fuel oil	x) B	2,5-3 bar					
Nozzle cool. oil	xx) S	2,5-3 -	-	0,5	0,6	0,7	0,8
SW	B	1-2,5-	-	45	45	60	60
SW	S	1-2,5-	-	37	45	52	60
FW	B	1-2,5-	-	45	45	60	60
FW	S	1-2,5-	-	37	45	52	60
Lub. oil	x) B	3-4 -	-	24	24	24	24
Lub. oil	xxx) S	3-4 -	-	15	18	21	24

xxx) If lub. oil is not pre-heated before starting, the oil pressure may increase to 8 - 10 bar and the pump must be designed for this pressure.

**COOLERS:**

Lub. oil. x)  B

Heat dissipation appr.	370 kJ/kWh ( 65 kcal/BHP)				
SW quantity	m <sup>3</sup> /h	37	45	52	60
Lub. oil inlet temp. appr.	°C	65			
SW inlet temp.	°C	36,5			

Scav. air. x)  B

Heat dissipation appr.	770 kJ/kWh ( 135 kcal/BHP)				
SW quantity	m <sup>3</sup> /h	37	45	52	60
SW inlet temp.	°C	32			

FW  S

Heat dissipation appr.	1710 kJ/kWh ( 300 kcal/BHP)				
SW quantity	m <sup>3</sup> /h	37	45	52	60
FW inlet temp. appr.	°C	65			
SW inlet temp.	°C	39			

Nozzle cooling oil.  S

Heat dissipation appr.	1800 kJ/h ( 430 kcal/h) per cyl.				
Fuel oil quantity	m <sup>3</sup> /h	0,5	0,6	0,7	0,8
SW quantity	m <sup>3</sup> /h	0,35	0,4	0,45	0,5
Fuel oil inlet temp. appr.	°C	60			
SW inlet temp.	°C	32			

Pre-heater for engine fuel oil 60 c St. at 40 °C ( 250 sec Redw I at 100°F) to be heated from 40 C° to 95 C°  
 Heat transmission to oil appr. 16800 kJ/h ( 4000 kcal/h) per cyl.

Exhaust gas boiler. ( 400-425°C after turbocharger)

Gas amount	kg/h	7500	9000	10500	12000
Air consumption. ( Excl. margin for engine room fans )					
	m <sup>3</sup> /min	110	130	150	170

STARTING AIR. 25-30 bar (kp/cm<sup>2</sup>) ( Non-reversible engine )

Receiver ( 8 Starts )	m <sup>3</sup>	0,3	0,35	0,35	0,4
Compressor ( No. x capacity )	m <sup>3</sup> /h	2 x 4,5	2 x 5,5	2 x 5,5	2 x 6,0

TURBOCHARGER (No x type )		1 x VTR 250	1 x VTR 250	1 x VTR 320	1 x VTR 320
AIR COOLER (No x type )		1 x LK66S	1 x LK66S	1 x LK66S	1 x LK66S

For external pipe connection we prescribe the following velocities:	Max. allowable pressure drop in coolers:	The symbolic indicate following:
Lub. oil : 1.8 m/sec	Lub. oil and fuel oil : 5 MWC	Standard equipment x )
FW and SW : 3.0 m/sec	FW. and SW. : 3 MWC	Only for separat nozzle cool. oil system. xx )
Light fuel oil : 1.0 m/sec	Pressure drop across the engine:	Built on the engine: <input checked="" type="checkbox"/> B
Max. allowable back-pressure in exhaust system : 350 mm W.C.	FW : ab. 3 MWC	Separate: <input checked="" type="checkbox"/> S
	S.W. : ab. 5 MWC	

1978.06.21	NECESS. CAPS. OF AUX.MACHINERY ETC. Based on 32°C S.W.temp.-40°C airtemp.-760 mm Hg.	783977-9
EAP		
B&W Holeby Diesel A/S		



FOUR STROKE

TRUNK MARINE DIESEL ENGINES

WITH TURBOCHARGE

FUELOIL CONSUMPTION  
LUBOIL CONSUMPTION

B&W ENG. TYPE	Output at CSR		Expected consumption		Recomm. feed rate CYL. LUBOIL kg/cyl/24hr g/BHP/hr
	BHP/CYL	RPM	FUELOIL g/BHP/hr	LUBOIL (circulating) kg/cyl/24hr	
23LH	145	720	165	2-3	_____
	150	750			
28LH	240	720	165	6-7	_____
	250	750			

FUEL OIL CONSUMPTION.

The expected fuel oil consumption values are based on use of diesel- or gas oil with a lower calorific value of 10.250 Kcal/kg.

LUBOIL CONSUMPTION

For circulating oils and cylinder oils, guide lists are available upon request from our B&W head office.

For heavy fueloil

the expected consumption can normally be assumed to be as specified above and corrected for differences in the heating values.

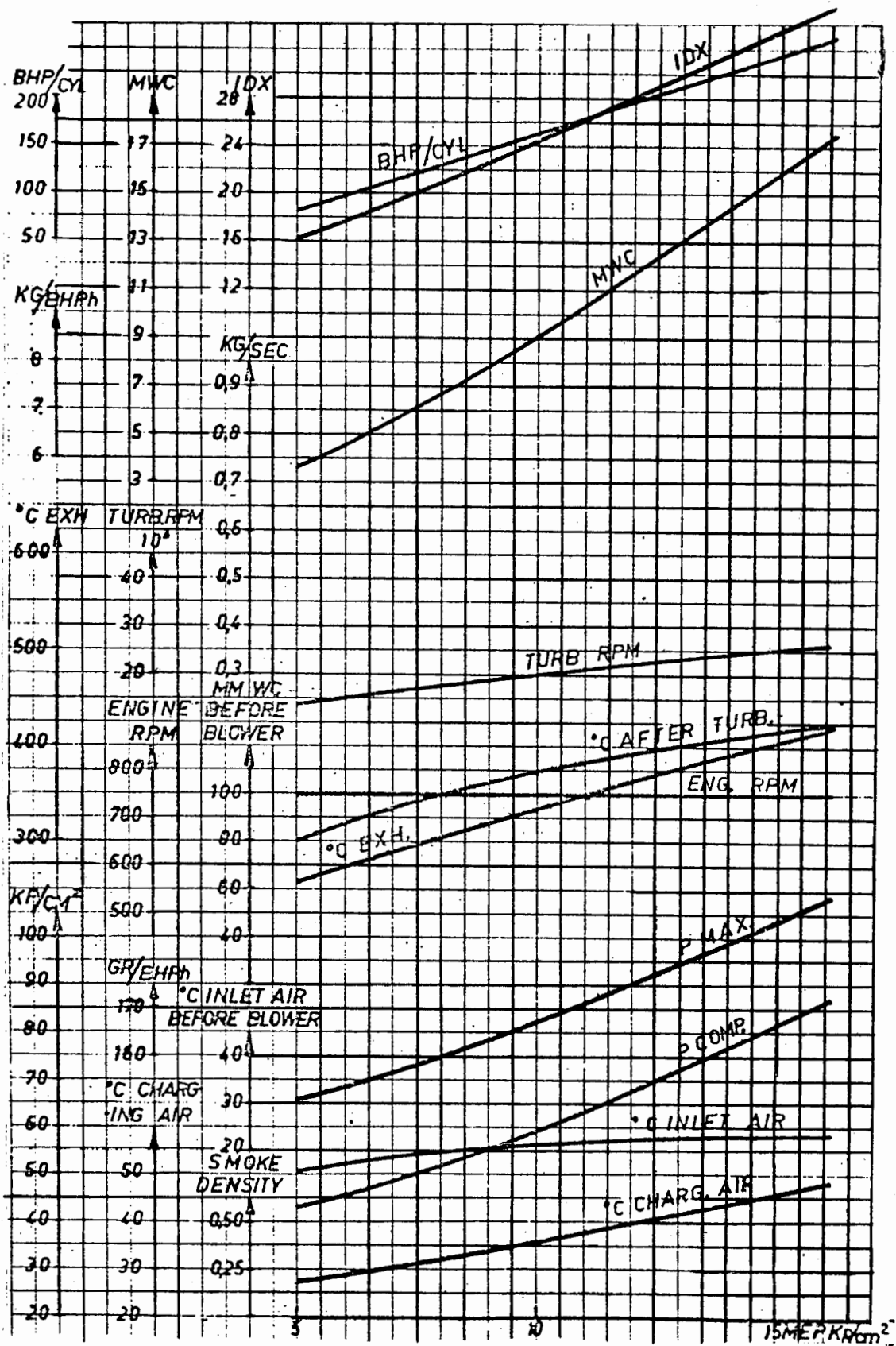
Example:

If a fuel oil with a calorific value of 10.100 Kcal/kg, the expected consumption will be:

$$165 \frac{10.250}{10.100} = 167.45 \text{ g/BHP/hr.}$$

Liable to change without notice.

1978.05.12	AUXILIARY DIESEL ENGINE CONSUMPTIONS	229575
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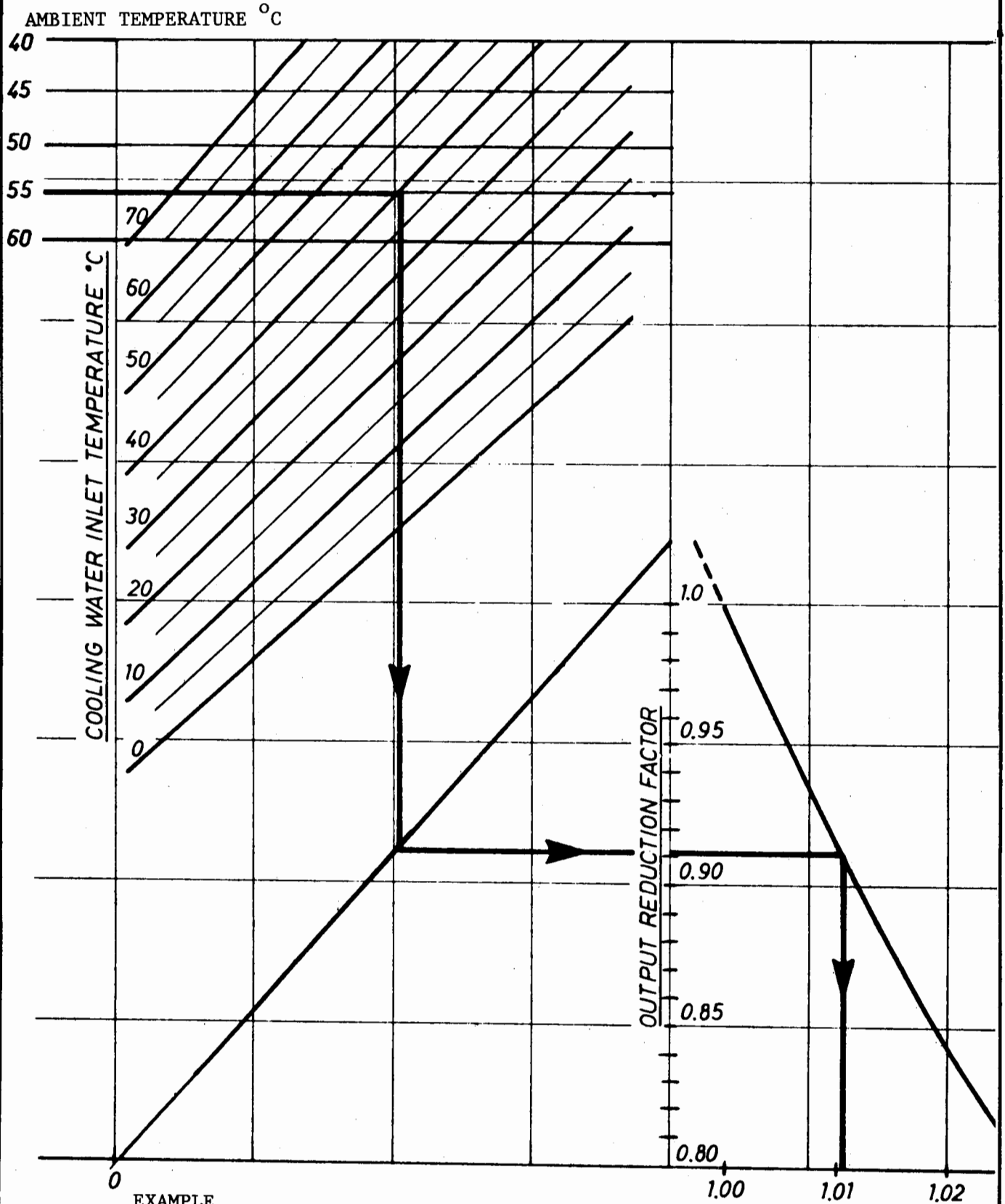
Performance Curve S28LH

750 RPM

228675

REFERENCE CONDITIONS:

TEMPERATURE OF AMBIENT AIR 40°C  
 TEMPERATURE OF COOLING WATER  
 AT INLET TO AIR COOLERS 32°C



EXAMPLE

AMBIENT TEMPERATURE 55°C  
 COOLING WATER INLET TEMP. 40°C  
 OUTPUT REDUCTION FACTOR 0.912  
 FUEL OIL CONSUMPTION FACTOR 1.011

FUEL OIL CONSUMPTION FACTOR

1978.05.12	Reduction factors for output and fuel consumption 23LH, 23LU, 28LH, 28LU	2130D88
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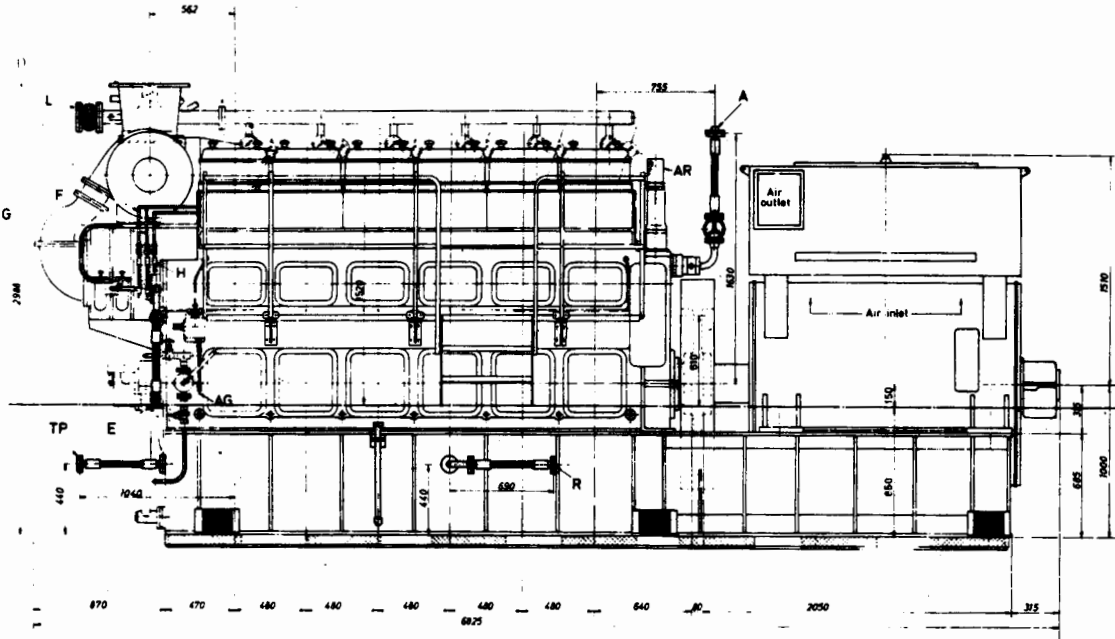
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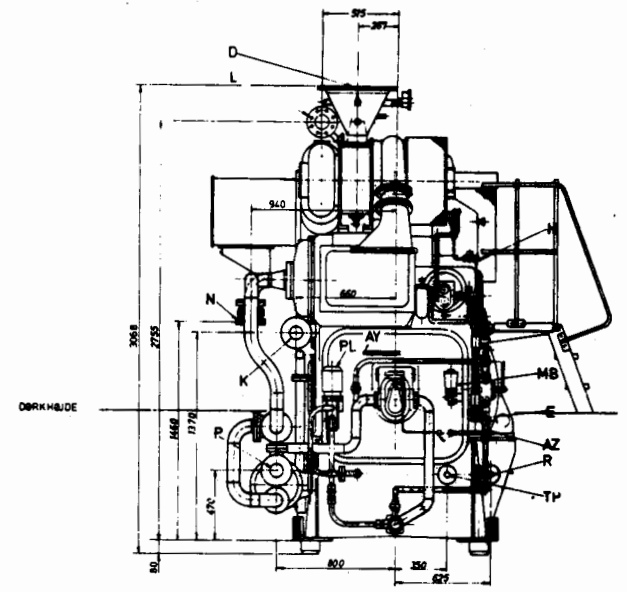
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Outline of 6S28LH

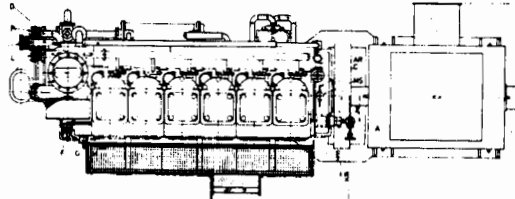
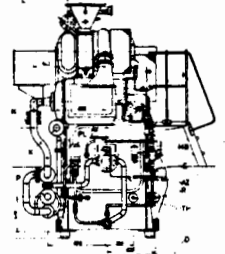
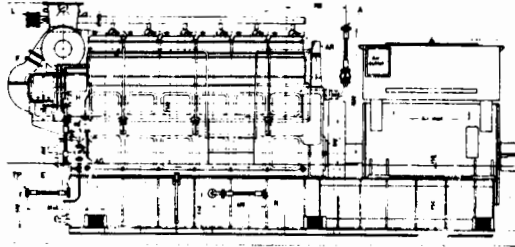
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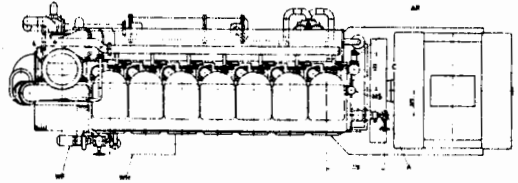
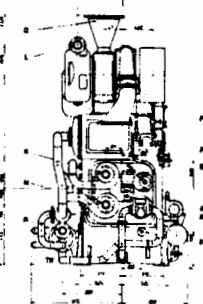
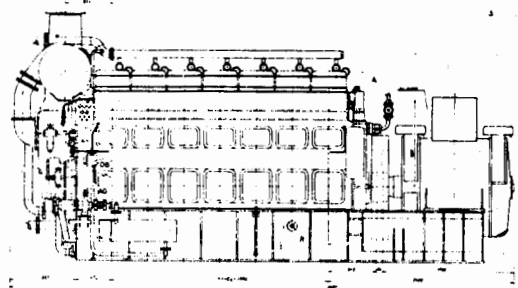
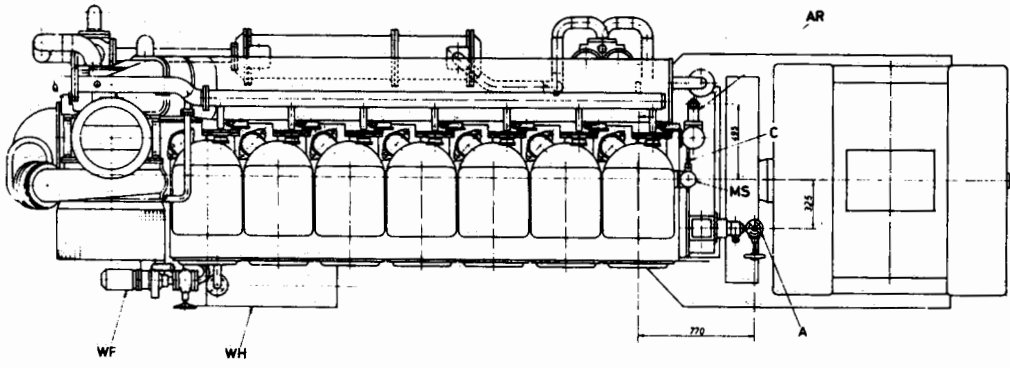
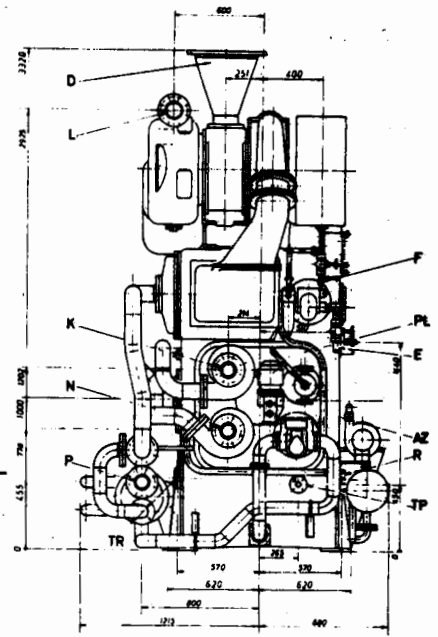
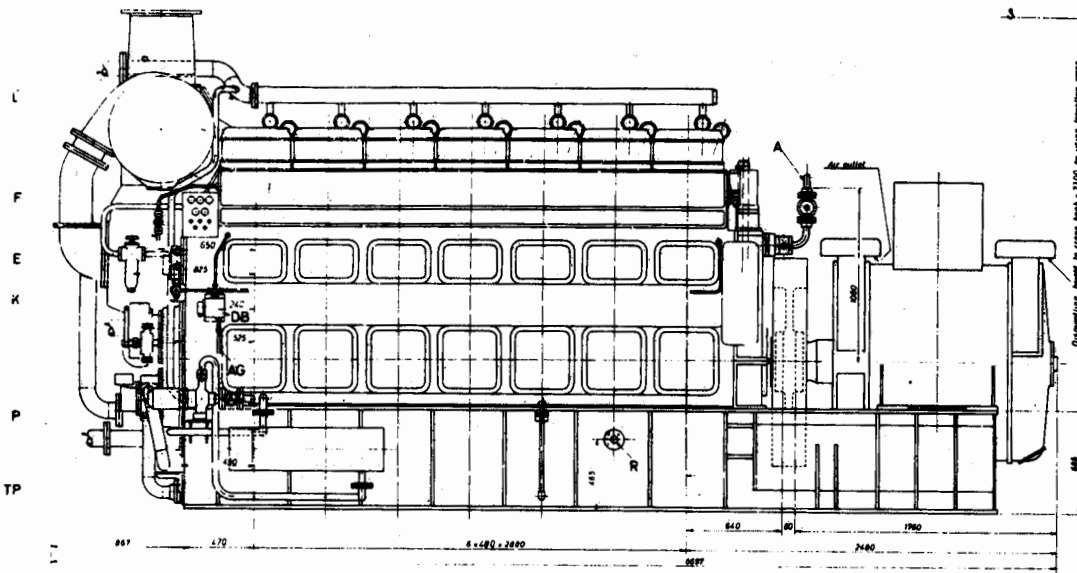




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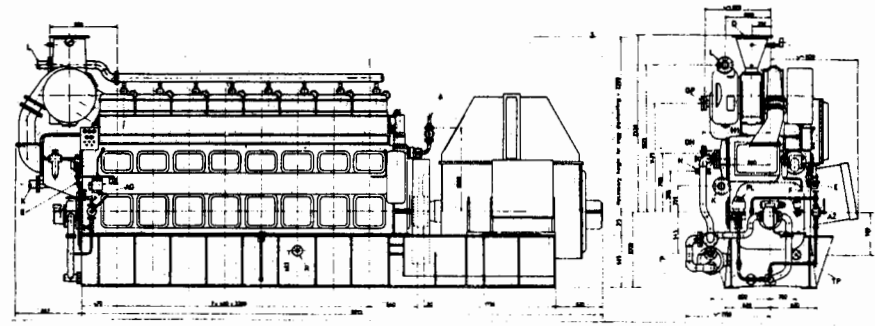
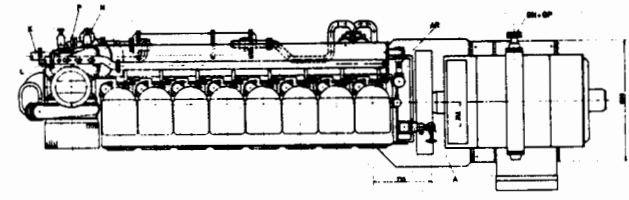
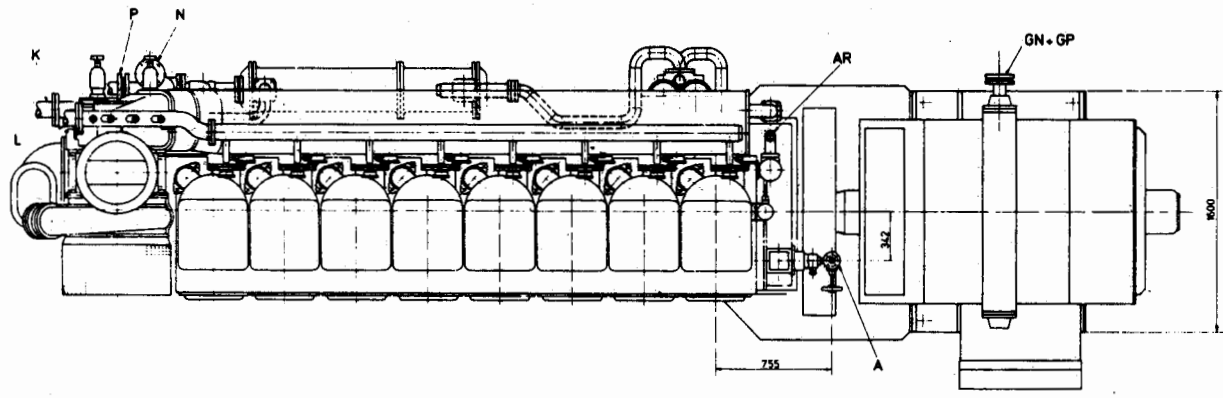
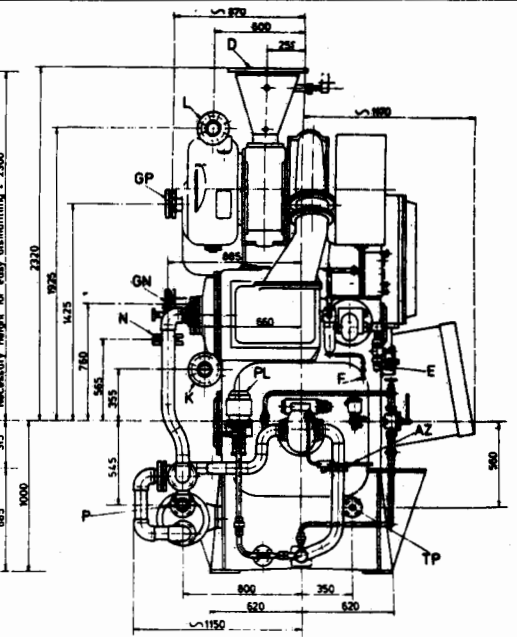
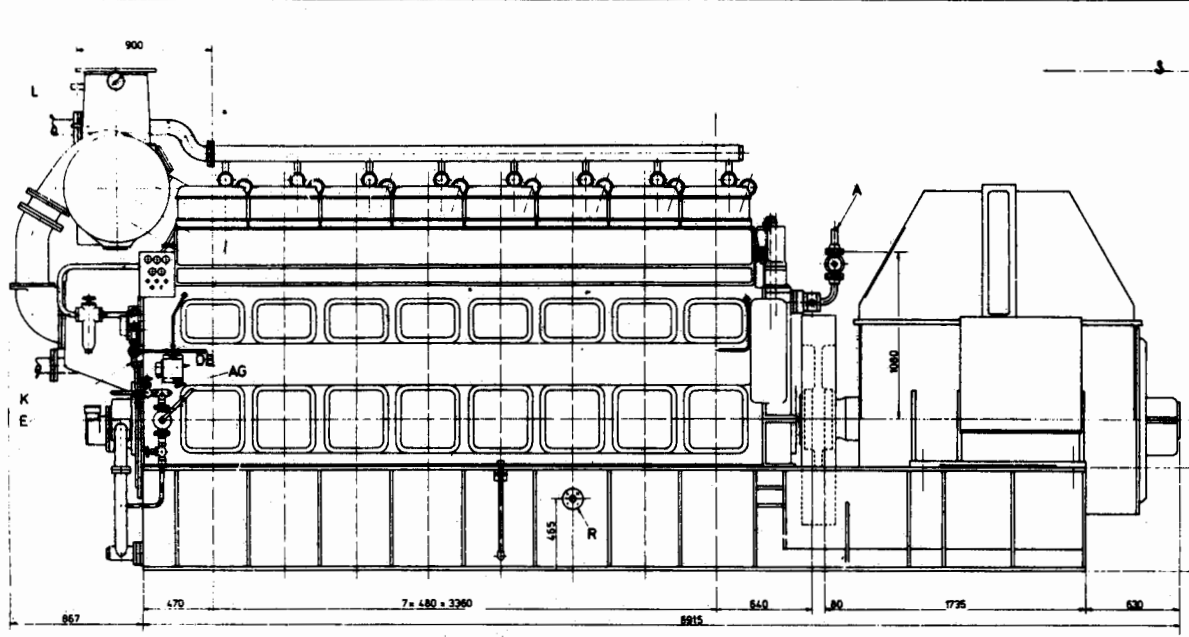
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