

DRESSER-RAND®

A Siemens Business



DIESEL ENGINES

Guascor® Marine Diesel Engines and Systems

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At your service since 1966.



CONTENTS

Power definition	6
Rating definitions	7
Fuel consumption	9
Emission certifications	10
Marine classification societies	11
Marine products summary	12
Propulsion engines	19
Gear box	25
Hydraulic clutch	37
Auxiliary engines	41
Auxiliary generator sets	47
Propulsion generator sets	53
Worldwide offices	58
Unit equivalences for conversion	59

1. Power definition

Dresser-Rand's Guascor® diesel engines ratings stated in this document are based on ISO3046-1:2002(E), ISO3046-3:2006(E) and ISO15550:2002(E) standards. These ratings have been measured (including all engine driven mechanical pumps).

Abbreviations ICFN / IFN

I = ISO Standard (3046)

C = Continuous

F = Fuel stop power

N = Net power

Our Guascor diesel engines are designed following the reference conditions. On vessels approved and/or surveyed by IACS members, "standard design conditions" are to be observed.

Standard reference conditions ISO 15550:2002

- Total barometric pressure: 100 kPa / 1,000 mbar
- Air temperature: 25°C (77°F) / 298 K
- Relative humidity: 30%
- Charge air coolant (raw): 25°C (77°F) / 298 K
- Charge air coolant (treated): 29°C (84°F) / 302 K

Standard design conditions ISO 3046-1:2002 & 3046-3:2006

- Total barometric pressure: 100 kPa / 1,000 mbar
- Air temperature: 45°C (113°F) / 318 K
- Relative humidity: 60%
- Charge air coolant (raw): 32°C (89°F) / 305 K
- Charge air coolant (treated): 36°C (96°F) / 309 K

2. Rating definitions

Propulsion

A - Rating (unrestricted continuous duty)

Rated power intended for continuous use in applications requiring uninterrupted service with high load factors; this is an ISO standard (continuous) fuel stop power (ICFN)

Typical load factors:	80-100% of rated power
Full load operation time:	100% of time or 24/24h
Operation time:	5,000 - 8,000 h/year
Operation type:	Displacement hull vessels for unrestricted use at full speed and load
Typical applications:	Fishing trawlers, bottom trawlers, freighters, tankers, tow & push boats, long distance ferries, dredgers, cabin cruiser, research vessels

B - Rating (variable continuous duty)

Rated power intended for use in variable load applications, medium-high load factors; this is an ISO 3046 fuel stop power (IFN)

Typical load factors:	40-80% of rated power
Full load operation time:	80% of time or 10/12h
Operation time:	3,000 - 5,000 h/year
Hull type:	Semi-planning or semi-displacement hulls for restricted use at full load
Typical applications:	Mid-water trawlers, fishing long liners, purse seiners, harbour tow & push boats, passenger cruiser, tugboats, short distance ferries

C - Rating (intermittent duty)

Power intended for use in variable load applications with moderate load factors. This is an ISO 3046 fuel stop power (IFN)

Typical load factors:	20-80% of rated power
Full load operation time:	50% of time or 6/12h
Operation time:	1,500-3,000 h/year
Hull type:	Semi-planning or planning hulls, fast commercial and passenger vessels for restricted use with moderate load factors and high demands on vessel's speed
Typical applications:	Passenger boats, high-speed fishing boats, crew and service boats, moto-pumps, pilot boats

Diesel electric propulsion

COP (continuous power)

Rated power (ISO8528) intended for continuous use in applications requiring uninterrupted service with high load factors for an unlimited number of hours per year; 10% overload available in a period of time of 1/12 operation hours and maximum 25 h/year

Typical load factors:	<80% of rated power
Full load operation time:	100% of time or 24/24h
Overload:	110% overload available 1/12h and max. 25 h/year
Operation time:	5,000 - 8,000 h/year
Typical applications:	Ferries, research vessels, passenger cruiser, tugboats, offshore vessels, freighters, and tankers

Auxiliary and generator set

COP (continuous power)

Engines with this rating (ISO 8528) are available for supplying utility power at a constant 100% load for an unlimited number of hours per year. A 10% overload capability for a period of time of 1/12 operation hours and maximum 25 h/year is additionally allowed to that specified on ISO 8528

Typical load factors:	80-100% of rated power
Full load operation time:	100% of time or 24/24h
Overload:	110% overload available 1/12h and max. 25 h/year
Operation time:	5,000 - 8,000 h/year

3. Fuel consumption

The fuel consumption values published in this document have been calculated according to ISO8178 standard test cycles (ISO8178 E3 propulsion, E2 electric propulsion and D2 auxiliary applications). These values must be considered as indicative guidance but not considered absolute values. Fuel consumption may vary as it can be influenced by external factors such as ship application, different environmental conditions, particular propeller design, hull form, etc.

ISO 8178 test cycles and weighting factors

E3 Test Cycle: Main propulsion and auxiliary engines adapted to propeller demand

Mode Number	1	2	3	4	5
% Speed	100	91	80	63	-
% Power	100	75	50	25	-
Weight Factor	0.2	0.5	0.15	0.15	-

E2 Test Cycle: Main propulsion engines at a constant speed

Mode Number	1	2	3	4	5
% Speed	100	100	100	100	-
% Power	100	75	50	25	-
Weight Factor	0.20	0.50	0.15	0.15	-

D2 Test Cycle: Auxiliary engines at a constant speed

Mode Number	1	2	3	4	5
% Speed	100	100	100	100	100
% Power	100	75	50	25	10
Weight Factor	0.05	0.25	0.30	0.30	0.10

Fuel consumption rates are based on ISO3046-1 with a tolerance of +5% and is based on diesel gasoil B with LHV 42,700 kJ/kg (18358 Btu/lb) when used at 29°C (85°F) and weighing 836 g/liter (6,977 lb/US gal)

Extensions of this information should be compared with the specifications indicated in the mentioned standards.

All technical information and data within this document is subject to modification without prior notice.

4. Emission certifications

IMO (International Maritime Organization)

On January 1, 2000, annex VI of MARPOL 73 / 78 went into effect for all marine diesel engines above 130 kW / 177 HP installed on vessels whose keel is laid after January 1 and which do not operate exclusively in national waters. Current revision (Tier II) entered into force from January 1, 2011.

- IMO apply to sea going vessels
- IMO apply on engines rated above 130 kW / 177 mHP
- Emergency on-board engines are exempt to accomplish IMO regulations

CCNR (Central Commission for the Navigation on the Rhine)

Effective January 1, 2003, the CCNR regulates exhaust emissions limits for all marine diesel engines above 37kW / 50HP installed on inland waterway-going vessels running through the Rhine or its tributary rivers. Members of the CCNR include: Belgium, Netherlands, Germany, France, Luxembourg, and Switzerland. Current revision (CCNR II) entered into force effective January 1, 2007.

- CCNR rules apply to inland waterway-going vessels
- Applies on engines rated above 37 kW / 50 mHP
- Equivalent to EU directive for non-road mobile machinery 97 / 68 / EC, as amended by directive 2004 / 26/EC, mutual recognition agreement effective July 1, 2007

Abbreviations

This document contents the following abbreviations which will appear on subsequent pages to identify the emission regulation compliance of each engine type and/or rating.

- N.C. Not compliant or not applicable
- N.A. Not applicable
- IMO1 IMO Tier I compliant (see IMO2) EIAPP certificates available for engine replacement only for all diesel engines placed on a vessel before December 31, 2010

- IMO2 IMO Tier II compliant;
EIAPP certificates available since January 1, 2011
- CCNR2CCNR Stage II compliant
- DEP Diesel electric propulsion
- COP Continuous power
- mHP Metric horsepower (DIN)
- kW Kilowatt
- KVA Kilovolt amper

5. Marine classification societies

Dresser-Rand's Guascor marine engines, gen-sets and gear boxes are designed and built according to the rules of major marine classification societies worldwide. Approvals from major marine classification societies worldwide include:

- **ABS** American Bureau of Shipping
- **BV** Bureau Veritas
- **GL** Germanischer Lloyd
- **LR** Lloyds Register
- **RINA** Registro Italiano Navale

Some marine products or ratings may differ depending upon class society.

For more information on emission or marine classification society certifications, please contact your local Dresser-Rand office for Guascor marine engines, gen-sets and gear boxes.

All information published in this booklet may be modified without prior notice.

6. Marine product summary

Propulsion engines

kW	HP	RPM	Type	Rating	Page
184	250	1,800	F180	A	20
279	380	1,800	F180T	A	
294	400	1,800	F180TB	A	
331	450	1,800	F180TA	A	21
368	500	1,800	F180TAB	A	
412	560	1,600	SF180TA	A	
441	600	1,800	SF180TA	A	
452	615	1,800	SF180TA	A	
478	650	1,800	F240TAB	A	22
552	750	1,600	SF240TA	A	
577	785	1,800	SF240TA	A	
588	800	1,800	SF240TA	A	
610	830	1,800	SF240TA	A	
662	900	1,800	F360TA	A	23
735	1,000	1,800	SF360TA	A	
824	1,120	1,600	SF360TA	A	
868	1,180	1,800	SF360TA	A	
882	1,200	1,800	SF360TA	A	
934	1,270	1,800	F480TA	A	24
1,103	1,500	1,600	SF480TA	A	
1,155	1,571	1,800	SF480TA	A	
1,177	1,600	1,800	SF480TA	A	
1,221	1,660	1,800	SF480TA	A	
191	260	1,800	F180	B	20
294	400	1,800	F180T	B	
312	425	1,800	F180TB	B	
353	480	1,800	F180TA	B	21
382	520	1,800	F180TAB	B	
474	645	1,800	SF180TA	B	
493	670	1,800	F240TAB	B	22
635	864	1,800	SF240TA	B	
706	960	1,800	F360TA	B	
949	1,290	1,800	SF360TA	B	23
993	1,350	1,800	F480TA	B	
1,268	1,725	1,800	SF480TA	B	
220	300	2,000	F180	C	20
305	415	1,900	F180T	C	
331	450	1,800	F180TB	C	
404	550	1,800	F180TAB	C	21
504	685	1,800	SF180TA	C	
662	900	1,800	SF240TA	C	
1,000	1,360	1,800	SF360TA	C	22
1,029	1,400	1,800	F480TA	C	23
1,324	1,800	1,800	SF480TA	C	24

Gear box

Gear box type	Reduction Ratio	Power		RPM	Page
		kW	mHP		
R100	1.6	184	250	1,800	28
	1.9	184	250	1,800	
	3.0	184	250	1,800	
R160	1.5	294	400	1,800	29
	2.0	294	400	1,800	
	3.1	294	400	1,800	
	4.1	294	400	1,800	
	4.9	294	400	1,800	
R160T	1.5	294	400	1,800	30
	2.0	294	400	1,800	
	3.1	294	400	1,800	
	4.1	294	400	1,800	
	4.9	294	400	1,800	
	6.0	294	400	1,800	
R240	2.9	515	700	1,800	31
	3.9	515	700	1,800	
	5.0	515	700	1,800	
RE240	3.6	441	600	1,800	32
	4.8	441	600	1,800	
	6.1	441	600	1,800	
R360	2.0	662	900	1,800	33
	3.3	662	900	1,800	
	4.4	662	900	1,800	
	5.1	662	900	1,800	
	6.0	662	900	1,800	
RV360	2.0	662	900	1,800	34
	3.3	662	900	1,800	
	4.4	662	900	1,800	
	5.1	662	900	1,800	
	6.0	662	900	1,800	
RE360	.2	515	700	1,800	35
	8.9	441	600	1,800	
REV360	7.2	515	700	1,800	36
	8.9	441	600	1,800	
R500HT	2.7	1,228	1,670	1,800	37
	3.3	1,228	1,670	1,800	
	4.0	1,228	1,670	1,800	
	4.9	1,228	1,670	1,800	
	6.1	1,228	1,670	1,800	
	7.03	1,228	1,670	1,800	
RV500HT	2.7	1,228	1,670	1,800	38
	3.3	1,228	1,670	1,800	
	4.0	1,228	1,670	1,800	
	4.9	1,228	1,670	1,800	
	6.1	1,228	1,670	1,800	
	7.03	1,228	1,670	1,800	

Auxiliary engines

kW	HP	rpm	Type	Rating	Page
265	360	1,500	F180TA	A	46
294	400	1,500	F180TA	A	
383	521	1,500	SF180TA	A	
396	539	1,500	SF180TA	A	
426	580	1,500	F240TAB	A	47
510	694	1,500	SF240TA	A	
540	734	1,500	SF240TA	A	
588	800	1,500	F360TA	A	48
765	1,040	1,500	SF360TA	A	
800	1,088	1,500	SF360TA	A	
846	1,150	1,500	F480TA	A	49
1,020	1,388	1,500	SF480TA	A	
1,050	1,428	1,500	SF480TA	A	
309	420	1,800	F180TA	A	46
346	470	1,800	F180TA	A	
433	589	1,800	SF180TA	A	
441	600	1,800	SF180TA	A	
478	650	1,800	F240TAB	A	47
577	785	1,800	SF240TA	A	
588	800	1,800	SF240TA	A	
699	950	1,800	F360TA	A	48
868	1,180	1,800	SF360TA	A	
883	1,201	1,800	SF360TA	A	
934	1,270	1,800	F480TA	A	49
1,154	1,570	1,800	SF480TA	A	
1,177	1,600	1,800	SF480TA	A	

Hydraulic clutch

kW	HP	rpm	Type	Rating	Page
294	400	1,800	E160	A	42
662	400	1,800	E360	A	43
728	440	1,800	E360	B	43
324	440	1,800	E160	B	42

Auxiliary generator sets

kVA	kWe	Hz	Type	Rating	Page
310	248	50	F180	COP	52
345	276	50	F180	COP	
400	320	50	SF180	COP	
460	368	50	SF180	COP	
500	400	50	F240	COP	53
600	480	50	SF240	COP	
640	512	50	SF240	COP	
700	560	50	F360	COP	54
860	688	50	SF360	COP	
950	760	50	SF360	COP	
1,000	800	50	F480	COP	55
1,100	880	50	SF480	COP	
1,250	1,000	50	SF480	COP	
360	288	60	F180	COP	52
400	320	60	F180	COP	
440	352	60	SF180	COP	
520	416	60	SF180	COP	
560	448	60	F240	COP	53
600	480	60	SF240	COP	
650	520	60	SF240	COP	
675	540	60	SF240	COP	
690	552	60	SF240	COP	
830	664	60	F360	COP	54
950	760	60	SF360	COP	
1,050	840	60	SF360	COP	
1,100	880	60	F480	COP	55
1,200	960	60	SF480	COP	
1,300	1,040	60	SF480	COP	
1,400	1,120	60	SF480	COP	

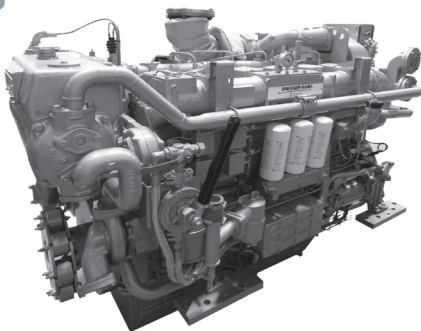
Propulsion generator sets

kVA	kWe	Hz	Type	Rating	Page
310	248	50	F180	COP	58
345	276	50	F180	COP	
400	320	50	SF180	COP	
460	368	50	SF180	COP	
500	400	50	F240	COP	59
600	480	50	SF240	COP	
640	512	50	SF240	COP	
700	560	50	F360	COP	60
860	688	50	SF360	COP	
950	760	50	SF360	COP	
1,000	800	50	F480	COP	61
1,100	880	50	SF480	COP	
1,250	1,000	50	SF480	COP	
360	288	60	F180	COP	58
400	320	60	F180	COP	
440	352	60	SF180	COP	
520	416	60	SF180	COP	
560	448	60	F240	COP	59
600	480	60	SF240	COP	
650	520	60	SF240	COP	
675	540	60	SF240	COP	
690	552	60	SF240	COP	
830	664	60	F360	COP	60
950	760	60	SF360	COP	
1,050	840	60	SF360	COP	
1,100	880	60	F480	COP	61
1,200	960	60	SF480	COP	
1,300	1,040	60	SF480	COP	
1,400	1,120	60	SF480	COP	

7. Propulsion engines

F180 Series

Propulsion



Main data

Cycle (ISO 8178)	E3 (propulsion)
Disposition	6 L
Displacement	17.96 liter
Cycle	4-stroke diesel
Combustion system	Direct injection
Aspiration	Nat. aspirated / turbocharged
Bore and stroke	152 x 165 mm (5.9 x 6.5 in)
Rotation (from flywheel)	Counterclockwise

Propulsion ratings

Rating	kW	mHP	RPM	Series	Fuel consumption (ISO 8178)		Emissions
					L/h	Gal/h	
A	184	250	1,800	F	N.A.	N.A.	N.C.
A	279	380	1,800	F	47.7	12.6	N.C.
A	294	400	1,800	F	50.4	13.3	N.C.
B	191	260	1,800	F	N.A.	N.A.	N.C.
B	294	400	1,800	F	N.A.	N.A.	N.C.
B	313	425	1,800	F	N.A.	N.A.	N.C.
C	221	300	2,000	F	N.A.	N.A.	N.C.
C	305	415	1,900	F	N.A.	N.A.	N.C.
C	331	450	1,800	F	N.A.	N.A.	N.C.

Dimensions & weight

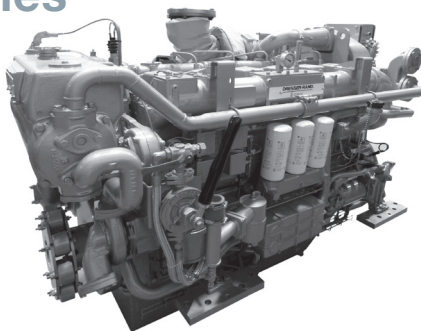
Length (mm / in)	1,850	73
Width (mm / in)	900	35
Height (mm / in)	1,300	51
Dry weight (kg / lb)	2,600	5,732

Dimensions and weight may vary depending upon engine configuration.

Data subject to further modifications without prior notice.

F/SF180 Series

Propulsion



Main data

Cycle (ISO 8178)	E3 (propulsion)
Disposition	6 L
Displacement	17.96 liter
Cycle	4-stroke diesel
Combustion system	Direct injection
Aspiration	Turbocharged and aftercooled
Bore and stroke	152 x 165 mm (5.9 x 6.5 in)
Rotation (from flywheel)	Counterclockwise

Propulsion ratings

Rating	kW	mHP	RPM	Series	Fuel consumption (ISO 8178)		Emissions
					L/h	Gal/h	
A	331	450	1,800	F	58.3	15.4	IMO2
A	368	500	1,800	F	64.6	17.1	IMO2
A	412	560	1,600	SF	69.4	18.4	IMO2
A	441	600	1,800	SF	77.4	20.5	IMO2
A	452	615	1,800	SF	79.3	21.0	IMO2
B	353	480	1,800	F	62.1	16.4	IMO2
B	382	520	1,800	F	67.0	17.7	IMO2
B	474	645	1,800	SF	83.5	22.1	IMO2
C	404	550	1,800	F	70.8	18.7	IMO2
C	504	685	1,800	SF	89.5	23.7	IMO2

Dimensions & weight

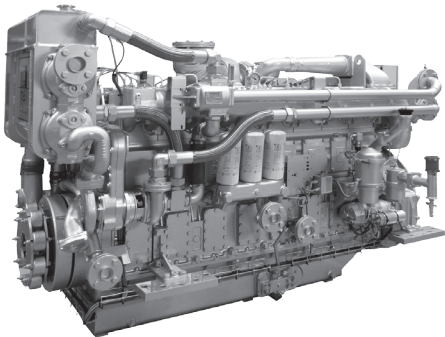
Length (mm / in)	2,200	87
Width (mm / in)	1,100	43
Height (mm / in)	1,500	59
Dry weight (kg / lb)	2,700	5,952

Dimensions and weight may vary depending upon engine configuration.

Data subject to further modifications without prior notice.

F/SF240 Series

Propulsion



Main data

Cycle (ISO 8178)	E3 (propulsion)
Disposition	8 L
Displacement	23.96 liter
Cycle	4-stroke diesel
Combustion system	Direct injection
Aspiration	Turbocharged and aftercooled
Bore and stroke	152 x 165 mm (5.9 x 6.5 in)
Rotation (from flywheel)	Counterclockwise

Propulsion ratings

Rating	kW	mHP	RPM	Series	Fuel consumption (ISO 8178)		Emissions
					L/h	Gal/h	
A	478	650	1,800	F	80.7	21.3	IMO2
A	552	750	1,600	SF	92.8	24.6	IMO2
A	577	785	1,800	SF	97.0	25.6	IMO2/CCNR2
A	588	800	1,800	SF	99.1	26.2	IMO2
A	610	830	1,800	SF	102.7	27.2	IMO2
B	493	670	1,800	F	83.1	22.0	IMO2
B	635	864	1,800	SF	107.2	28.4	IMO2
C	662	900	1,800	SF	112.1	29.6	IMO2

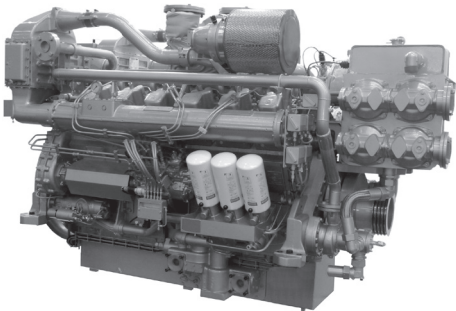
Dimensions & weight

Length (mm / in)	2,600	102
Width (mm / in)	1,200	47
Height (mm / in)	1,600	63
Dry weight (kg / lb)	3,500	7,716

Dimensions and weight may vary depending upon engine configuration.
Data subject to further modifications without prior notice.

F/SF360 Series

Propulsion



Main data

Cycle (ISO 8178)	E3 (propulsion)
Disposition	V 12
Displacement	35.93 liter
Cycle	4-stroke diesel
Combustion system	Direct injection
Aspiration	Turbocharged and aftercooled
Bore and stroke	152 x 165 mm (5.9 x 6.5 in)
Rotation (from flywheel)	Counterclockwise

Propulsion ratings

Rating	kW	mHP	RPM	Series	Fuel consumption (ISO 8178)		Emissions
					L/h	Gal/h	
A	662	900	1,800	F	114.7	30.3	IMO2
A	824	1,120	1,600	SF	139.0	36.8	IMO2
A	868	1,180	1,800	SF	150.1	39.7	IMO2/CCNR2
A	883	1,200	1,800	SF	152.6	40.4	IMO2
B	706	960	1,800	F	122.0	32.3	IMO2
B	949	1,290	1,800	SF	165.1	43.7	IMO2
C	1,000	1,360	1,800	SF	174.6	46.2	IMO2

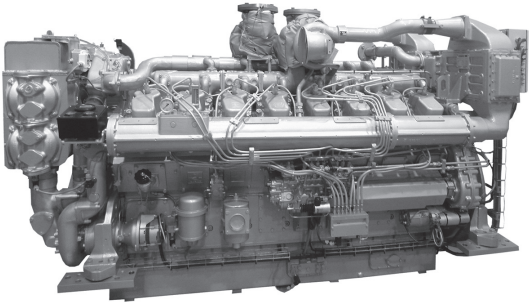
Dimensions & weight

Length (mm / in)	2,900	114
Width (mm / in)	1,400	55
Height (mm / in)	1,740	69
Dry weight (kg / lb)	5,000	11,023

Dimensions and weight may vary depending upon engine configuration.
Data subject to further modifications without prior notice.

F/SF480 Series

Propulsion



Main data

Cycle (ISO 8178)	E3 (propulsion)
Disposition	V 16
Displacement	47.9 liter
Cycle	4-stroke diesel
Combustion system	Direct injection
Aspiration	Turbocharged and aftercooled
Bore and stroke	152 x 165 mm (5.9 x 6.5 in)
Rotation (from flywheel)	Counterclockwise

Propulsion ratings

Rating	kW	mHP	RPM	Series	Fuel consumption (ISO 8178)		Emissions
					L/h	Gal/h	
A	934	1,270	1,800	F	156.1	41.3	IMO2
A	1,103	1,500	1,600	SF	184.6	48.8	IMO2
A	1,155	1,571	1,800	SF	207.2	54.8	IMO2/CCNR2
A	1,177	1,600	1,800	SF	196.1	51.9	IMO2
A	1,221	1,660	1,800	SF	203.5	53.8	IMO2
B	993	1,350	1,800	F	165.7	43.8	IMO2
B	1,268	1,724	1,800	SF	211.8	56.0	IMO2
C	1,029	1,400	1,800	F	171.6	45.4	IMO2
C	1,324	1,800	1,800	SF	221.9	58.7	IMO2

Dimensions & weight

Length (mm / in)	3,300	130
Width (mm / in)	1,400	55
Height (mm / in)	1,740	69
Dry weight (kg / lb)	6,000	13,228

Dimensions and weight may vary depending upon engine configuration.
Data subject to further modifications without prior notice.

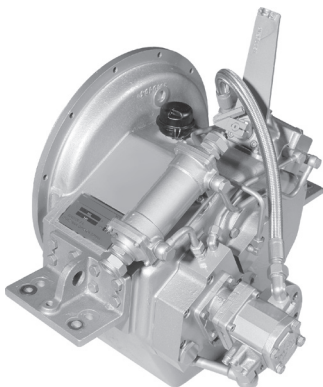
8. Gear box

R 100

Gear Box

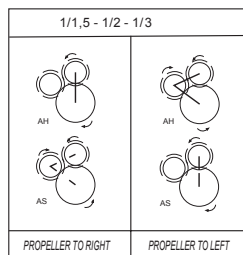
Main data

FP gear box
 Hydraulic multi-disc clutches
 Case-hardened grinded helical gears
 Thrust bearings
 Heat exchanger
 Oil pressure damper tank
 Mounting brackets
 Emergency mechanical clutch
 Oil filtering full flow
 Oil capacity: 10l

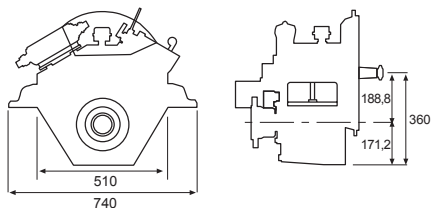


Red.	Bell Housg. (SAE)	Rating	Rotation sense	Power kW / HP						RPM max.	Weight kg.
				1,200		1,600		1,800			
1.58	2	A	L / R	123	167	163	222	184	250	2,500	218
1.91	2	A	L / R	123	167	163	222	184	250	2,500	218
3.04	2	A	L / R	123	167	163	222	184	250	2,500	218
1.58	2	B	L / R	123	167	163	222	202	275	2,500	218
1.91	2	B	L / R	123	167	163	222	202	275	2,500	218
3.04	2	B	L / R	123	167	163	222	202	275	2,500	218

Rotation sense



Dimensions



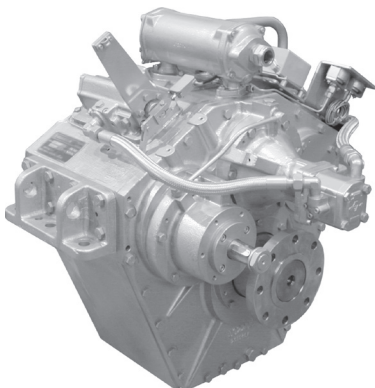
Dimensions and weight may vary depending upon engine configuration.
 Data subject to further modifications without prior notice.

R 160

Gear Box

Main data

FP gear box
 Hydraulic multi-disc clutches
 Case-hardened grinded helical gears
 Thrust bearings
 Heat exchanger
 Oil pressure damper tank
 Mounting brackets
 Emergency mechanical clutch
 Oil filtering full flow
 Oil capacity: 14l

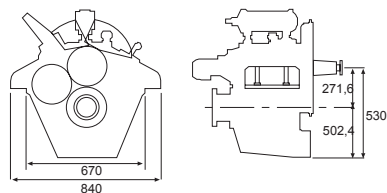


Red.	Bell Housg. (SAE)	Rating	Rotation sense	Power kW / HP						RPM max.	Weight kg.
				1,200		1,600		1,800			
1.53	1 , 2	A	L / R	196	267	262	356	294	400	2,500	560
2.03	1 , 2	A	L / R	196	267	262	356	294	400	2,500	560
3.14	1 , 2	A	L / R	196	267	262	356	294	400	2,500	560
4.06	1 , 2	A	L / R	196	267	262	356	294	400	2,500	560
4.91	1 , 2	A	R	196	267	262	356	294	400	2,500	560
1.53	1 , 2	B	L / R	216	293	288	391	324	440	2,500	560
2.03	1 , 2	B	L / R	216	293	288	391	324	440	2,500	560
3.14	1 , 2	B	L / R	216	293	288	391	324	440	2,500	560
4.06	1 , 2	B	L / R	216	293	288	391	324	440	2,500	560
4.91	1 , 2	B	R	216	293	288	391	324	440	2,500	560

Rotation sense

1/1, 5 - 1/2 - 1/3 - 1/4		1/5 - 1/6
 AH  AS	 AH  AS	 AH  AS
PROPELLER TO RIGHT		PROPELLER TO LEFT

Dimensions

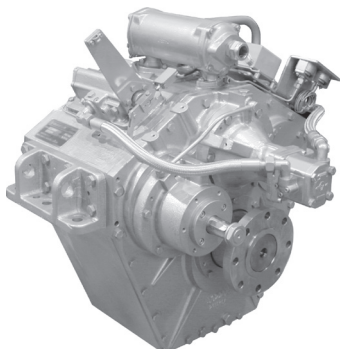


Dimensions and weight may vary depending upon engine configuration.

Data subject to further modifications without prior notice.

R 160T

Gear Box

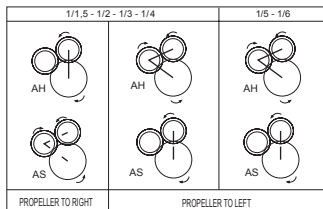


Main data

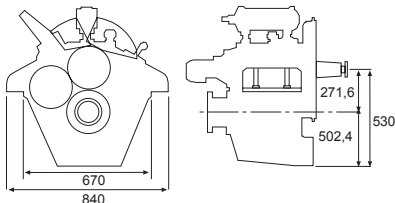
FP gear box
 Hydraulic multi-disc clutches
 Case-hardened grinded helical gears
 Thrust bearings
 Heat exchanger
 Oil pressure damper tank
 Mounting brackets
 Emergency mechanical clutch
 Oil filtering full flow
 Oil capacity: 14l

Red.	Bell Housg. (SAE)	Rating	Rotation sense	Power kW / HP						RPM max.	Weight kg.
				1,200		1,600		1,800			
1.53	1, 2	A	L / R	196	267	262	356	294	400	2,500	590
2.03	1, 2	A	L / R	196	267	262	356	294	400	2,500	590
3.14	1, 2	A	L / R	196	267	262	356	294	400	2,500	590
4.06	1, 2	A	L / R	196	267	262	356	294	400	2,500	590
4.91	1, 2	A	R	196	267	262	356	294	400	2,500	590
5.99	1, 2	A	R	196	267	262	356	294	400	2,500	590
1.53	1, 2	B	L / R	216	293	288	391	324	440	2,500	590
2.03	1, 2	B	L / R	216	293	288	391	324	440	2,500	590
3.14	1, 2	B	L / R	216	293	288	391	324	440	2,500	590
4.06	1, 2	B	L / R	216	293	288	391	324	440	2,500	590
4.91	1, 2	B	R	216	293	288	391	324	440	2,500	590
5.99	1, 2	B	R	216	293	288	391	324	440	2,500	590

Rotation sense



Dimensions

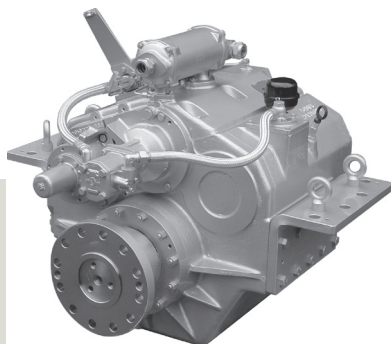


Dimensions and weight may vary depending upon engine configuration.

Data subject to further modifications without prior notice.

R 240

Gear Box

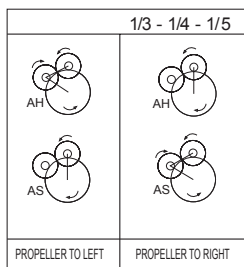


Main data

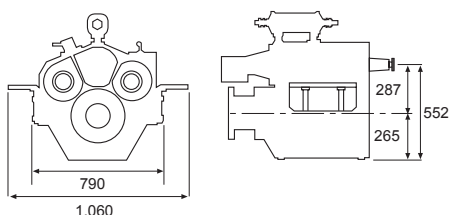
FP gear box
 Hydraulic multi-disc clutches
 Case-hardened grinded helical gears
 Thrust bearings
 Heat exchanger
 Oil pressure damper tank
 Mounting brackets
 Emergency mechanical clutch
 Oil filtering full flow
 Oil capacity: 25l

Red.	Bell Housg. (SAE)	Rating	Rotation sense	Power kW / HP						RPM max.	Weight kg.
				1,200		1,600		1,800			
2.90	1, 1/2, 0	A	L / R	343	467	458	622	515	700	2,500	1,035
3.91	1, 1/2, 0	A	L / R	343	467	458	622	515	700	2,500	975
4.95	1, 1/2, 0	A	L / R	343	467	458	622	515	700	2,500	970
2.90	1, 1/2, 0	B	L / R	378	513	503	684	566	770	2,500	1,035
3.91	1, 1/2, 0	B	L / R	378	513	503	684	566	770	2,500	975
4.95	1, 1/2, 0	B	L / R	378	513	503	684	566	770	2,500	970

Rotation sense



Dimensions



Dimensions and weight may vary depending upon engine configuration.

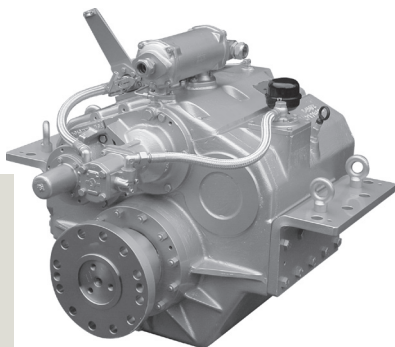
Data subject to further modifications without prior notice.

RE 240

Gear Box

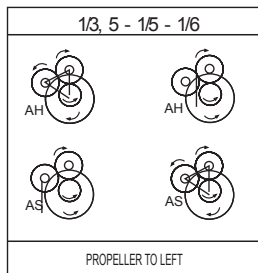
Main data

FP gear box
 Hydraulic multi-disc clutches
 Case-hardened grinded helical gears
 Thrust bearings
 Heat exchanger
 Oil pressure damper tank
 Mounting brackets
 Emergency mechanical clutch
 Oil filtering full flow
 Oil capacity: 25l

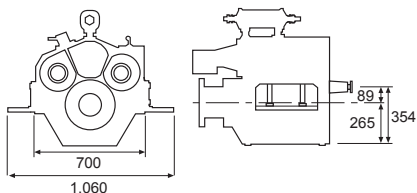


Red.	Bell Housg. (SAE)	Rating	Rotation sense	Power kW / HP						RPM max.	Weight kg.
				1,200		1,600		1,800			
3.56	1, 1/2, 0	A	L / R	294	400	392	533	441	600	2,500	1,057
4.80	1, 1/2, 0	A	L / R	294	400	392	533	441	600	2,500	997
6.08	1, 1/2, 0	A	L / R	294	400	392	533	441	600	2,500	992
3.56	1, 1/2, 0	B	L / R	324	440	431	587	485	660	2,500	1,057
4.80	1, 1/2, 0	B	L / R	324	440	431	587	485	660	2,500	997
6.08	1, 1/2, 0	B	L / R	324	440	431	587	485	660	2,500	992

Rotation sense



Dimensions

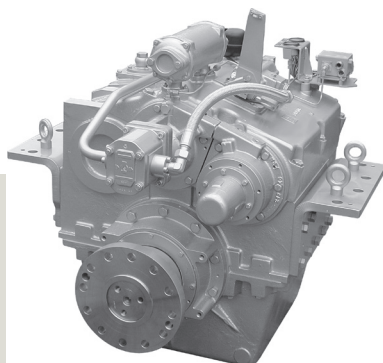


Dimensions and weight may vary depending upon engine configuration.

Data subject to further modifications without prior notice.

R 360

Gear Box



Main data

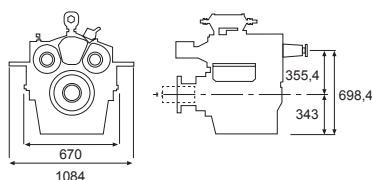
FP gear box
 Hydraulic multi-disc clutches
 Case-hardened grinded helical gears
 Thrust bearings
 Heat exchanger
 Oil pressure damper tank
 Mounting brackets
 Emergency mechanical clutch
 Oil filtering full flow
 Oil capacity: 60l

Red.	Bell Housg. (SAE)	Rating	Rotation sense	Power kW / HP						RPM max.	Weight kg.
				1,200		1,600		1,800			
2.04	1/2, 0, 00	A	L / R	441	600	588	800	662	900	2,000	1,270
3.25	1/2, 0, 00	A	L / R	441	600	588	800	662	900	2,000	1,270
4.38	1/2, 0, 00	A	L / R	441	600	588	800	662	900	2,000	1,270
5.10	1/2, 0, 00	A	L / R	441	600	588	800	662	900	2,000	1,270
6.00	1/2, 0, 00	A	L / R	441	600	588	800	662	900	2,000	1,270
2.04	1/2, 0, 00	B	L / R	485	660	647	880	728	990	2,000	1,270
3.25	1/2, 0, 00	B	L / R	485	660	647	880	728	990	2,000	1,270
4.38	1/2, 0, 00	B	L / R	485	660	647	880	728	990	2,000	1,270
5.10	1/2, 0, 00	B	L / R	485	660	647	880	728	990	2,000	1,270
6.00	1/2, 0, 00	B	L / R	485	660	647	880	728	990	2,000	1,270

Rotation sense

1/2 - 1/3 - 1/4 - 1/5 - 1/6	
PROPELLER TO LEFT	PROPELLER TO RIGHT

Dimensions



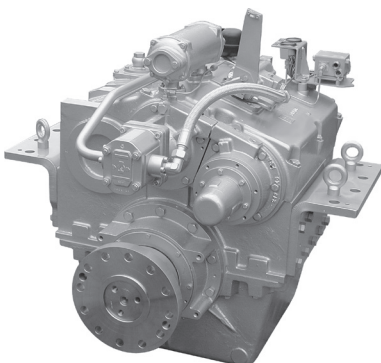
Dimensions and weight may vary depending upon engine configuration.
 Data subject to further modifications without prior notice.

RV 360

Gear Box

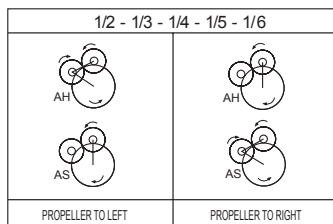
Main data

CPP gear box
 Hydraulic multi-disc clutches
 Case-hardened grinded helical gears
 Thrust bearings
 Heat exchanger
 Oil pressure damper tank
 Mounting brackets
 Emergency mechanical clutch
 Oil filtering full flow
 Oil capacity: 60l

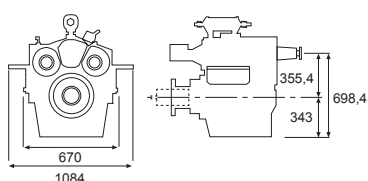


Red.	Bell Housg. (SAE)	Rating	Rotation sense	Power kW / HP						RPM max.	Weight kg.
				1,200		1,600		1,800			
2.04	1/2, 0, 00	A	L / R	441	600	588	800	662	900	2,000	1,280
3.25	1/2, 0, 00	A	L / R	441	600	588	800	662	900	2,000	1,280
4.38	1/2, 0, 00	A	L / R	441	600	588	800	662	900	2,000	1,280
5.10	1/2, 0, 00	A	L / R	441	600	588	800	662	900	2,000	1,280
6.00	1/2, 0, 00	A	L / R	441	600	588	800	662	900	2,000	1,280
2.04	1/2, 0, 00	B	L / R	485	660	647	880	728	990	2,000	1,280
3.25	1/2, 0, 00	B	L / R	485	660	647	880	728	990	2,000	1,280
4.38	1/2, 0, 00	B	L / R	485	660	647	880	728	990	2,000	1,280
5.10	1/2, 0, 00	B	L / R	485	660	647	880	728	990	2,000	1,280
6.00	1/2, 0, 00	B	L / R	485	660	647	880	728	990	2,000	1,280

Rotation sense



Dimensions



Dimensions and weight may vary depending upon engine configuration.

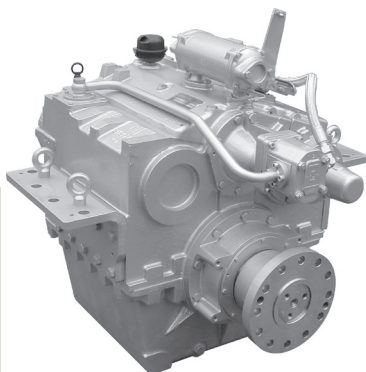
Data subject to further modifications without prior notice.

RE 360

Gear Box

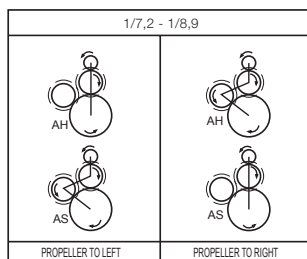
Main data

FP gear box
 Hydraulic multi-disc clutches
 Case-hardened grinded helical gears
 Thrust bearings
 Heat exchanger
 Oil pressure damper tank
 Mounting brackets
 Emergency mechanical clutch
 Oil filtering full flow
 Oil capacity: 60l

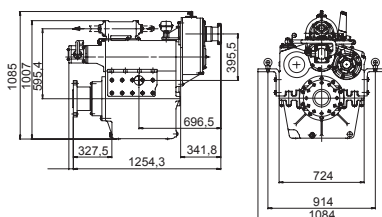


Red.	Bell Housg. (SAE)	Rating	Rotation sense	Power kW / HP						RPM max.	Weight kg.
				1,200		1,600		1,800			
7.20	N.A.	A	L / R	343	467	458	622	515	700	2,000	1,350
8.90	N.A.	A	L / R	294	400	392	533	441	600	2,000	1,350
7.20	N.A.	B	L / R	378	513	503	684	566	770	2,000	1,350
8.90	N.A.	B	L / R	324	440	431	587	485	660	2,000	1,350

Rotation sense



Dimensions



Dimensions and weight may vary depending upon engine configuration.

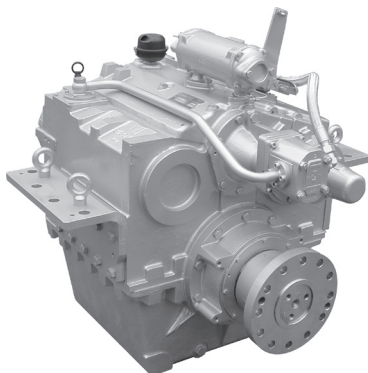
Data subject to further modifications without prior notice.

REV 360

Gear Box

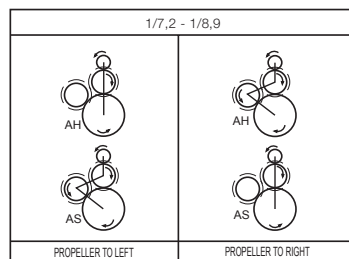
Main data

CPP gear box
Hydraulic multi-disc clutches
Case-hardened grinded helical gears
Thrust bearings
Heat exchanger
Oil pressure damper tank
Mounting brackets
Emergency mechanical clutch
Oil filtering full flow
Oil capacity: 60l

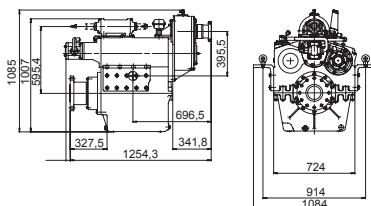


Red.	Bell Housg. (SAE)	Rating	Rotation sense	Power kW / HP						RPM max.	Weight kg.
				1,200		1,600		1,800			
7.20	N.A.	A	L / R	343	467	458	622	515	700	2,000	1,360
8.90	N.A.	A	L / R	294	400	392	533	441	600	2,000	1,360
7.20	N.A.	B	L / R	378	513	503	684	566	770	2,000	1,360
8.90	N.A.	B	L / R	324	440	431	587	485	660	2,000	1,360

Rotation sense



Dimensions

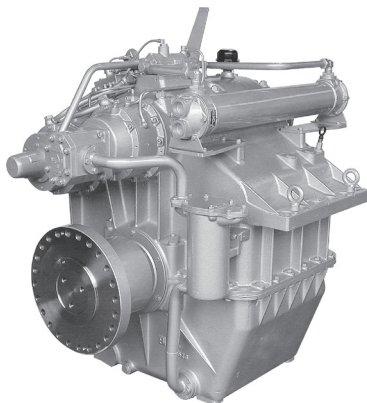


Dimensions and weight may vary depending upon engine configuration.

Data subject to further modifications without prior notice.

R 500HT

Gear Box



Main data

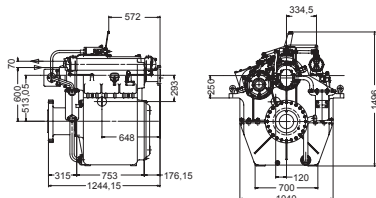
FP gear box
 Hydraulic multi-disc clutches
 Case-hardened grinded helical gears
 Thrust bearings
 Heat exchanger
 Oil pressure damper tank
 Mounting brackets
 Emergency mechanical clutch
 Oil filtering full flow
 Oil capacity: 100l

Red.	Bell Housg. (SAE)	Rating	Rotation sense	Power kW / HP						RPM max.	Weight kg.
				1,200		1,600		1,800			
2.69	N.A.	A	L / R	819	1,113	1,092	1,483	1,228	1,670	1,900	2,700
3.25	N.A.	A	L / R	819	1,113	1,092	1,483	1,228	1,670	1,900	2,700
3.97	N.A.	A	L / R	819	1,113	1,092	1,483	1,228	1,670	1,900	2,700
4.86	N.A.	A	L / R	819	1,113	1,092	1,483	1,228	1,670	1,900	2,700
6.08	N.A.	A	L / R	819	1,113	1,092	1,483	1,228	1,670	1,900	2,700
7.03	N.A.	A	R	819	1,113	1,092	1,483	1,228	1,670	1,900	2,700
2.69	N.A.	B	L / R	901	1,225	1,201	1,632	1,351	1,837	1,900	2,700
3.25	N.A.	B	L / R	901	1,225	1,201	1,632	1,351	1,837	1,900	2,700
3.97	N.A.	B	L / R	901	1,225	1,201	1,632	1,351	1,837	1,900	2,700
4.86	N.A.	B	L / R	901	1,225	1,201	1,632	1,351	1,837	1,900	2,700
6.08	N.A.	B	L / R	901	1,225	1,201	1,632	1,351	1,837	1,900	2,700
7.03	N.A.	B	R	901	1,225	1,201	1,632	1,351	1,837	1,900	2,700

Rotation sense

1/2,5 - 1/3 - 1/4 - 1/5 - 1/6		1/7
PROPELLER TO RIGHT		PROPELLER TO LEFT

Dimensions



Dimensions and weight may vary depending upon engine configuration.

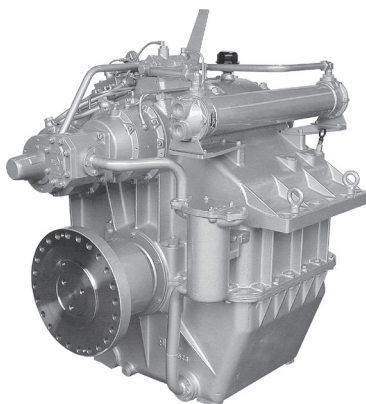
Data subject to further modifications without prior notice.

RV 500HT

Gear Box

Main data

CPP gear box
 Hydraulic multi-disc clutches
 Case-hardened grinded helical gears
 Thrust bearings
 Heat exchanger
 Oil pressure damper tank
 Mounting brackets
 Emergency mechanical clutch
 Oil filtering full flow
 Oil capacity: 100l

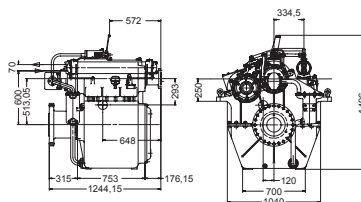


Red.	Bell Housg. (SAE)	Rating	Rotation sense	Power kW / HP						RPM max.	Weight kg.
				1,200		1,600		1,800			
2.69	N.A.	A	L / R	819	1,113	1,092	1,483	1,228	1,670	1,900	2,650
3.25	N.A.	A	L / R	819	1,113	1,092	1,483	1,228	1,670	1,900	2,650
3.97	N.A.	A	L / R	819	1,113	1,092	1,483	1,228	1,670	1,900	2,650
4.86	N.A.	A	L / R	819	1,113	1,092	1,483	1,228	1,670	1,900	2,650
6.08	N.A.	A	L / R	819	1,113	1,092	1,483	1,228	1,670	1,900	2,650
7.03	N.A.	A	R	819	1,113	1,092	1,483	1,228	1,670	1,900	2,650
2.69	N.A.	B	L / R	901	1,225	1,201	1,632	1,351	1,837	1,900	2,650
3.25	N.A.	B	L / R	901	1,225	1,201	1,632	1,351	1,837	1,900	2,650
3.97	N.A.	B	L / R	901	1,225	1,201	1,632	1,351	1,837	1,900	2,650
4.86	N.A.	B	L / R	901	1,225	1,201	1,632	1,351	1,837	1,900	2,650
6.08	N.A.	B	L / R	901	1,225	1,201	1,632	1,351	1,837	1,900	2,650
7.03	N.A.	B	R	901	1,225	1,201	1,632	1,351	1,837	1,900	2,650

Rotation Sense

1/2,5 - 1/3 - 1/4 - 1/5 - 1/6		1/7
PROPELLER TO RIGHT		PROPELLER TO LEFT

Dimensions



Dimensions and weight may vary depending upon engine configuration.

Data subject to further modifications without prior notice.

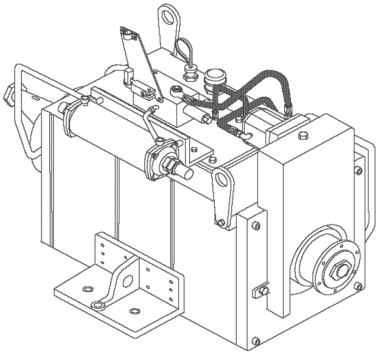
9. Hydraulic clutch

E 160

Hydraulic Clutch

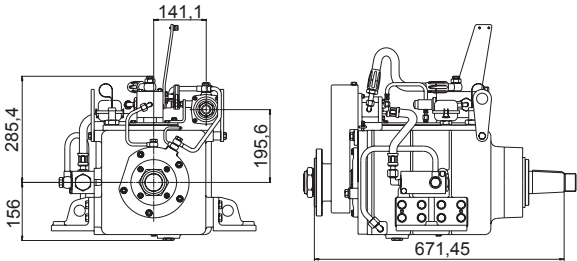
Main data

- Hydraulic clutch P.T.O.
- Cast iron casing
- Inlet and outlet shafts
- Oil cooler
- Oil pump
- Full flow oil filter
- Oil distributor with control valve
- Mounting brackets



Reduction	Rating	Rotation sense	Power kW / HP						RPM max.	Weight kg.
			1,200		1,600		1,800			
1.00	A	L / R	196	267	262	356	294	400	2,500	140
1.00	B	L / R	216	293	288	391	324	440	2,500	140

Dimensions



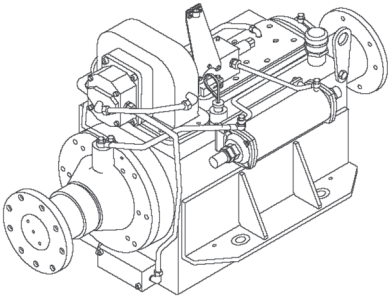
Dimensions and weight may vary depending upon engine configuration.
Data subject to further modifications without prior notice.

E 360

Hydraulic Clutch

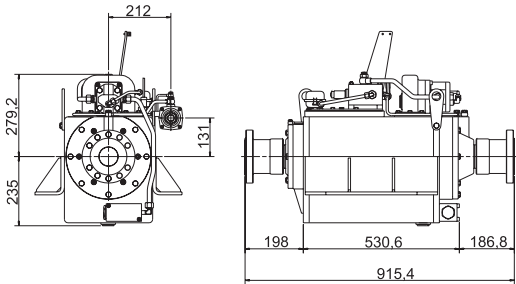
Main data

- Hydraulic clutch P.T.O.
- Cast iron casing
- Inlet and outlet shafts
- Oil cooler
- Oil pump
- Full flow oil filter
- Oil distributor with control valve
- Mounting brackets



Reduction	Rating	Rotation sense	Power kW / HP						RPM max.	Weight kg.
			1,200		1,600		1,800			
1.00	A	L / R	441	600	588	800	662	900	2,000	300
1.00	B	L / R	485	660	647	880	728	990	2,000	300

Dimensions

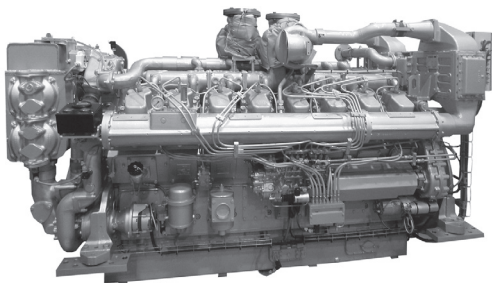


Dimensions and weight may vary depending upon engine configuration.
Data subject to further modifications without prior notice.

10. Auxiliary engines

F/SF 180

Auxiliary



Main data

Cycle (ISO 8178)	D2 (auxiliary)
Disposition	6 L
Displacement	17.96 liter
Cycle	4-stroke diesel
Combustion system	Direct injection
Aspiration	Turbocharged and aftercooled
Bore and stroke	152 x 165 mm (5.9 x 6.5 in)
Rotation (from flywheel)	Counterclockwise

Auxiliary ratings

Rating	kW	mHP	RPM	Series	Fuel consumption (ISO 8178)		Emissions
					L/h	Gal/h	
A	265	360	1,500	F	34.2	9.0	IMO2
A	294	400	1,500	F	37.1	9.8	IMO2
A	383	521	1,500	SF	46.1	12.2	IMO2
A	396	539	1,500	SF	47.5	12.6	IMO2
A	309	420	1,800	F	42.4	11.2	IMO2
A	346	471	1,800	F	46.3	12.3	IMO2
A	433	589	1,800	SF	55.2	14.6	IMO2
A	441	600	1,800	SF	56.0	14.8	IMO2

Dimensions & weight

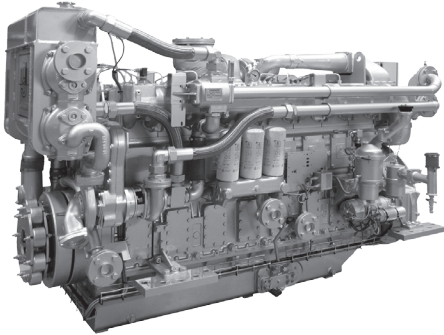
Length (mm / in)	2,200	87
Width (mm / in)	1,100	43
Height (mm / in)	1,500	59
Dry weight (kg / lb)	2,700	5,952

Dimensions and weight may vary depending upon engine configuration.

Data subject to further modifications without prior notice.

F/SF 240

Auxiliary



Main data

Cycle (ISO 8178)	D2 (auxiliary)
Disposition	8 L
Displacement	23.96 liter
Cycle	4-stroke diesel
Combustion system	Direct injection
Aspiration	Turbocharged and aftercooled
Bore and stroke	152 x 165 mm (5.9 x 6.5 in)
Rotation (from flywheel)	Counterclockwise

Auxiliary ratings

Rating	kW	mHP	RPM	Series	Fuel consumption (ISO 8178)		Emissions
					L/h	Gal/h	
A	426	580	1,500	F	51.8	13.7	IMO2
A	510	694	1,500	SF	60.5	16.0	IMO2
A	540	734	1,500	SF	63.6	16.8	IMO2
A	478	650	1,800	F	62.3	16.5	IMO2
A	577	785	1,800	SF	72.6	19.2	IMO2/CCNR2
A	588	800	1,800	SF	73.9	19.6	IMO2

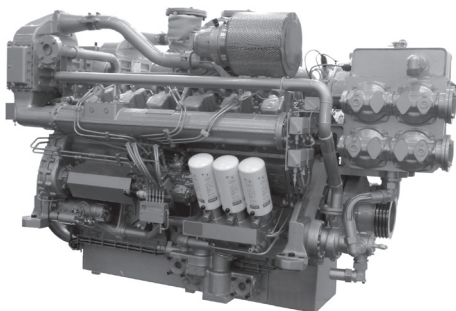
Dimensions & weight

Length (mm / in)	2,600	102
Width (mm / in)	1,200	47
Height (mm / in)	1,600	63
Dry weight (kg / lb)	3,500	7,716

Dimensions and weight may vary depending upon engine configuration.
Data subject to further modifications without prior notice.

F/SF 360

Auxiliary



Main data

Cycle (ISO 8178)	D2 (auxiliary)
Disposition	V 12
Displacement	35.93 liter
Cycle	4-stroke diesel
Combustion system	Direct injection
Aspiration	Turbocharged and aftercooled
Bore and stroke	152 x 165 mm (5.9 x 6.5 in)
Rotation (from flywheel)	Counterclockwise

Auxiliary ratings

Rating	kW	mHP	RPM	Series	Fuel consumption (ISO 8178)		Emissions
					L/h	Gal/h	
A	588	800	1,500	F	73.9	19.6	IMO2/CCNR2
A	765	1,040	1,500	SF	92.1	24.4	IMO2/CCNR2
A	800	1,088	1,500	SF	95.7	25.3	IMO2
A	699	950	1,800	F	91.1	24.1	IMO2/CCNR2
A	866	1,178	1,800	SF	108.1	28.6	IMO2/CCNR2
A	883	1,200	1,800	SF	109.7	29.0	IMO2

Dimensions & weight

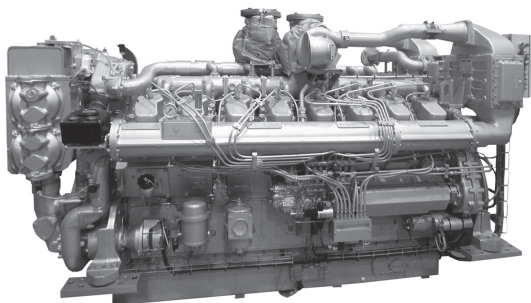
Length (mm / in)	2,900	114
Width (mm / in)	1,400	55
Height (mm / in)	1,740	69
Dry weight (kg / lb)	5,000	11,023

Dimensions and weight may vary depending upon engine configuration.

Data subject to further modifications without prior notice.

F/SF 480

Auxiliary



Main data

Cycle (ISO 8178)	D2 (auxiliary)
Disposition	V 16
Displacement	47.9 liter
Cycle	4-stroke diesel
Combustion system	Direct injection
Aspiration	Turbocharged and aftercooled
Bore and stroke	152 x 165 mm (5.9 x 6.5 in)
Rotation (from flywheel)	Counterclockwise

Auxiliary ratings

Rating	kW	mHP	RPM	Series	Fuel consumption (ISO 8178)		Emissions
					L/h	Gal/h	
A	846	1,151	1,500	F	101.2	26.8	IMO2/CCNR2
A	1,020	1,388	1,500	SF	119.7	31.7	IMO2/CCNR2
A	1,050	1,428	1,500	SF	123.1	32.6	IMO2
A	934	1,270	1,800	F	122.2	32.3	IMO2/CCNR2
A	1,154	1,570	1,800	SF	144.8	38.3	IMO2/CCNR2
A	1,177	1,601	1,800	SF	147.0	38.9	IMO2

Dimensions & weight

Length (mm / in)	3,300	130
Width (mm / in)	1,400	55
Height (mm / in)	1,740	69
Dry weight (kg / lb)	6,000	13,228

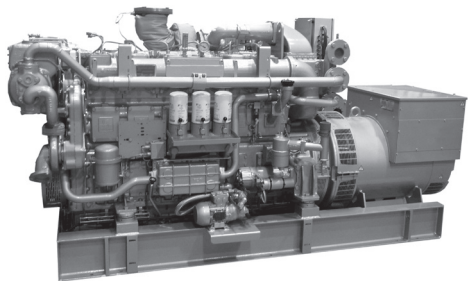
Dimensions and weight may vary depending upon engine configuration.

Data subject to further modifications without prior notice.

11. Auxiliary generator sets

F/SF 180

Auxiliary Gen-set



Main data

Cycle (ISO 8178)	D2 (auxiliary generator set)
Engine type	F/SF180
Generator type	LSAM47
Generator characteristics	Synchronous, 4-pole
Voltage regulation	AVR electronic
Excitation	AREP self-excited, brushless
Generator protection	IP23
Heating class	F
Insulation class	H
Construction	Double bearing

Auxiliary generator set COP ratings

Speed (f)	Electrical power (cosφ 0,8)		Voltage V	Series	Fuel consumption (ISO 8178)		Emissions
	kVA	kWe			L/h	gal/h	
1,500 (50Hz)	310	248	380/400	F	34.2	9.0	IMO2
	345	276		F	37.1	9.8	IMO2
	400	320		SF	41.8	11.1	IMO2
	460	368		SF	47.5	12.6	IMO2
1,800 (60Hz)	360	288	450/480	F	42.4	11.2	IMO2
	400	320		F	46.3	12.3	IMO2
	440	352		SF	49.8	13.2	IMO2
	520	416		SF	56.0	14.8	IMO2

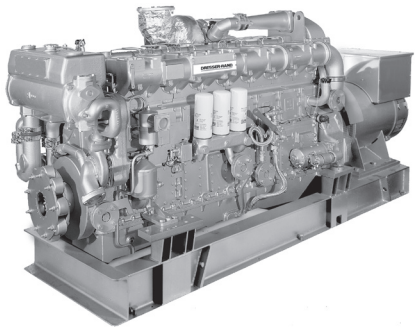
Dimensions & weight

Length (mm / in)	2,300	91
Width (mm / in)	1,100	43
Height (mm / in)	1,500	59
Dry weight (kg / lb)	3,500	7,716

Dimensions and weight may vary depending upon engine configuration.
Data subject to further modifications without prior notice.

F/SF 240

Auxiliary Gen-set



Main data

Cycle (ISO 8178)	D2 (auxiliary generator set)
Engine type	F/SF240
Alternator type	LSAM47 & LSAM49
Generator characteristics	Synchronous, 4-pole
Voltage regulation	AVR electronic
Excitation	AREP self-excited, brushless
Generator protection	IP23
Heating class	F
Insulation class	H
Construction	Double bearing

Auxiliary generator set COP ratings

Speed (f)	Electrical power (cosφ 0,8)		Voltage V	Series	Fuel consumption (ISO 8178)		Emissions
	kVA	kWe			L/h	gal/h	
1,500 (50Hz)	500	400	380/400	F	51.8	13.7	IMO2
	600	480		SF	60.5	16.0	IMO2
	640	512		SF	63.6	16.8	IMO2
1,800 (60Hz)	560	448	450/480	F	62.3	16.5	IMO2
	600	480		SF	65.7	17.4	IMO2
	650	520		SF	70.4	18.6	IMO2
	675	540		SF	77.8	20.6	CCNR2
	690	552		SF	73.9	19.6	IMO2

Dimensions & weight

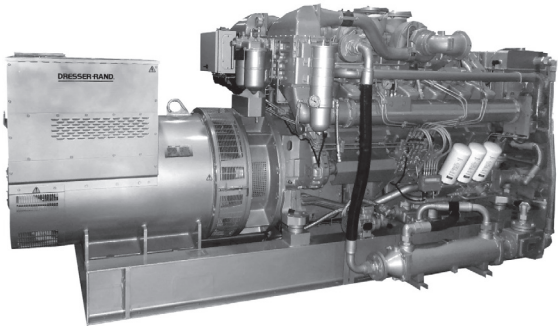
Length (mm / in)	3,800	150
Width (mm / in)	1,200	47
Height (mm / in)	2,000	79
Dry weight (kg / lb)	5,500	12,125

Dimensions and weight may vary depending upon engine configuration.

Data subject to further modifications without prior notice.

F/SF 360

Auxiliary Gen-set



Main data

Cycle (ISO 8178)	D2 (auxiliary generator set)
Engine type	F/SF360
Alternator type	LSAM49 & LSAM50
Generator characteristics	Synchronous, 4-pole
Voltage regulation	AVR electronic
Excitation	AREP self-excited, brushless
Generator protection	IP23
Heating class	F
Insulation class	H
Construction	Double bearing

Auxiliary generator set COP ratings

Speed (f)	Electrical power (cosφ 0,8)		Voltage V	Series	Fuel consumption (ISO 8178)		Emissions
	kVA	kWe			L/h	gal/h	
1,500 (50Hz)	700	560	380/400	F	73.9	19.6	IMO2/CCNR2
	860	688		SF	88.0	23.3	IMO2/CCNR2
	950	760		SF	95.7	25.3	IMO2
1,800 (60Hz)	830	664	450/480	F	91.1	24.1	IMO2/CCNR2
	950	760		F	101.9	27.0	IMO2/CCNR2
	1,050	840		SF	109.7	29.0	IMO2

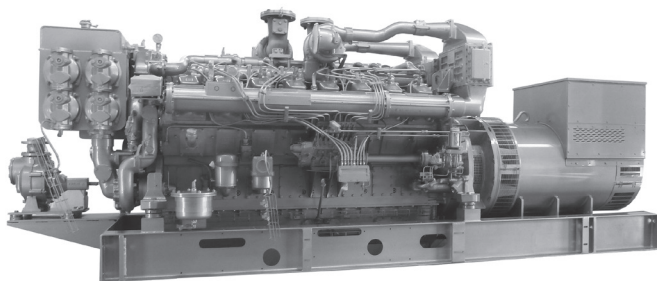
Dimensions & weight

Length (mm / in)	3,900	154
Width (mm / in)	1,800	71
Height (mm / in)	2,300	91
Dry weight (kg / lb)	7,700	16,976

Dimensions and weight may vary depending upon engine configuration.
Data subject to further modifications without prior notice.

F/SF 480

Auxiliary Gen-set



Main data

Cycle (ISO 8178)	D2 (auxiliary generator set)
Engine type	F/SF480
Alternator type	LSAM 50
Generator characteristics	Synchronous, 4-pole
Voltage regulation	AVR electronic
Excitation	AREP self-excited, brushless
Generator protection	IP23
Heating class	F
Insulation class	H
Construction	Double bearing

Auxiliary generator set COP ratings

Speed (f)	Electrical power ($\cos \phi$ 0,8)		Voltage V	Series	Fuel consumption (ISO 8178)		Emissions
	kVA	kWe			L/h	gal/h	
1,500 (50Hz)	1,000	800	380/400	F	101.2	26.8	IMO2/CCNR2
	1,100	880		SF	109.6	29.0	IMO2/CCNR2
	1,250	1,000		SF	123.1	32.6	IMO2
1,800 (60Hz)	1,100	880	450/480	F	122.2	32.3	IMO2/CCNR2
	1,200	960		SF	130.5	34.5	IMO2/CCNR2
	1,300	1,040		SF	138.7	36.7	IMO2/CCNR2
	1,400	1,120		SF	147.0	38.9	IMO2

Dimensions & weight

Length (mm / in)	4,500	177
Width (mm / in)	1,800	71
Height (mm / in)	2,300	91
Dry weight (kg / lb)	9,700	21,385

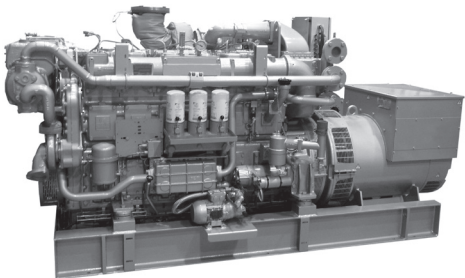
Dimensions and weight may vary depending upon engine configuration.

Data subject to further modifications without prior notice.

12. Propulsion generator sets

F/SF 180

Propulsion Gen-set



Main data

Cycle (ISO 8178)	E2 (diesel-electric propulsion)
Engine type	F/SF180
Generator type	LSAM47
Generator characteristics	Synchronous, 4-pole
Voltage regulation	AVR electronic
Excitation	AREP self-excited, brushless
Generator protection	IP23
Heating class	F
Insulation class	H
Construction	Double bearing

DEP generator set COP ratings

Speed (f)	Electrical power (cosφ 0,8)		Voltage V	Series	Fuel cons. (ISO 8178)		Emissions
	kVA	kWe			L/h	gal/h	
1,500 (50Hz)	310	248	380/400	F	45.9	12.1	IMO2
	345	276		F	50.2	13.3	IMO2
	400	320		SF	57.4	15.2	IMO2
	460	368		SF	66.1	17.5	IMO2
1,800 (60Hz)	360	288	450/480	F	56.1	14.8	IMO2
	400	320		F	62.0	16.4	IMO2
	440	352		SF	67.5	17.9	IMO2
	520	416		SF	77.3	20.4	IMO2

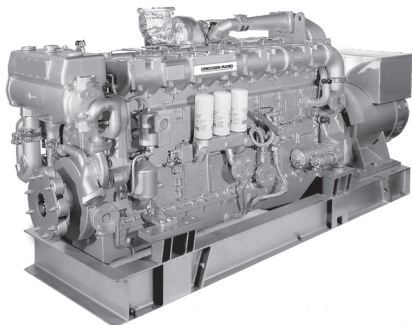
Dimensions & weight

Length (mm / in)	2,300	91
Width (mm / in)	1,100	43
Height (mm / in)	1,500	59
Dry weight (kg / lb)	3,500	7,716

Dimensions and weight may vary depending upon engine configuration.
Data subject to further modifications without prior notice.

F/SF 240

Propulsion Gen-set



Main data

Cycle (ISO 8178)	E2 (diesel-electric propulsion)
Engine type	F/SF240
Alternator type	LSAM49
Generator characteristics	Synchronous, 4-pole
Voltage regulation	AVR electronic
Excitation	AREP self-excited, brushless
Generator protection	IP23
Heating class	F
Insulation class	H
Construction	Double bearing

DEP generator set COP ratings

Speed (f)	Electrical power (cosφ 0,8)		Voltage V	Series	Fuel cons. (ISO 8178)		Emissions
	kVA	kWe			L/h	gal/h	
1,500 (50Hz)	500	400	380/400	F	71.2	18.8	IMO2
	600	480		SF	84.3	22.3	IMO2
	640	512		SF	89.1	23.6	IMO2
1,800 (60Hz)	560	448	450/480	F	84.4	22.3	IMO2
	600	480		SF	89.5	23.7	IMO2
	650	520		SF	96.8	25.6	IMO2
	675	540		SF	106.5	28.2	CCNR2
	690	552		SF	102.2	27.0	IMO2

Dimensions & weight

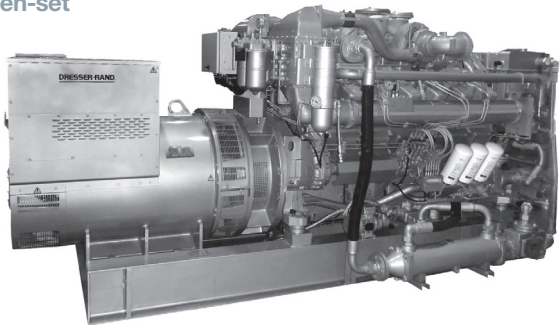
Length (mm / in)	3,800	150
Width (mm / in)	1,200	47
Height (mm / in)	2,000	79
Dry weight (kg / lb)	5,500	12,125

Dimensions and weight may vary depending upon engine configuration.

Data subject to further modifications without prior notice.

F/SF 360

Propulsion Gen-set



Main data

Cycle (ISO 8178)	E2 (diesel-electric propulsion)
Engine type	F/SF360
Alternator type	LSAM49 & LSAM50
Generator characteristics	Synchronous, 4-pole
Voltage regulation	AVR electronic
Excitation	AREP self-excited, brushless
Generator protection	IP23
Heating class	F
Insulation class	H
Construction	Double bearing

DEP generator set COP ratings

Speed (f)	Electrical power (cosφ 0,8)		Voltage V	Series	Fuel cons. (ISO 8178)		Emissions
	kVA	kWe			L/h	gal/h	
1,500 (50Hz)	700	560	380/400	F	100.4	26.6	IMO2/CCNR2
	860	688		SF	121.8	32.2	IMO2/CCNR2
	950	760		SF	133.7	35.4	IMO2
1,800 (60Hz)	830	664	450/480	F	122.4	32.4	IMO2/CCNR2
	950	760		F	139.1	36.8	IMO2/CCNR2
	1,050	840		SF	15.3	40.0	IMO2

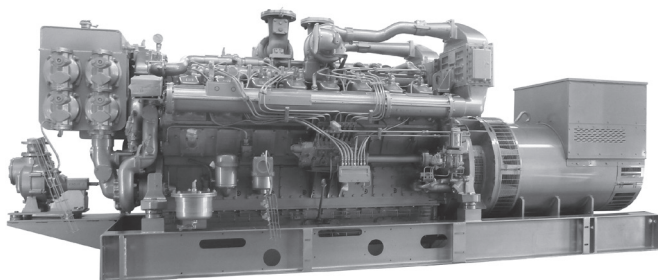
Dimensions & weight

Length (mm / in)	3,900	154
Width (mm / in)	1,800	71
Height (mm / in)	2,300	91
Dry weight (kg / lb)	7,700	16,976

Dimensions and weight may vary depending upon engine configuration.
Data subject to further modifications without prior notice.

F/SF 480

Propulsion Gen-set



Main data

Cycle (ISO 8178)	E2 (diesel-electric propulsion)
Engine type	F/SF480
Alternator type	LSAM50
Generator characteristics	Synchronous, 4-pole
Voltage regulation	AVR electronic
Excitation	AREP self-excited, brushless
Generator protection	IP23
Heating class	F
Insulation class	H
Construction	Double bearing

DEP generator set COP ratings

Speed (f)	Electrical power (cos φ 0,8)		Voltage V	Series	Fuel cons. (ISO 8178)		Emissions
	kVA	kWe			L/h	gal/h	
1,500 (50Hz)	1,000	800	380/400	F	141.4	37.4	IMO2/CCNR2
	1,100	880		SF	154.1	40.8	IMO2/CCNR2
	1,250	1,000		SF	174.3	46.1	IMO2
1,800 (60Hz)	1,100	880	450/480	F	164.1	43.4	IMO2/CCNR2
	1,200	960		SF	176.8	46.8	IMO2/CCNR2
	1,300	1,040		SF	189.4	50.1	IMO2/CCNR2
	1,400	1,120		SF	202.2	53.5	IMO2

Dimensions & weight

Length (mm / in)	4,500	177
Width (mm / in)	1,800	71
Height (mm / in)	2,300	91
Dry weight (kg / lb)	9,700	21,385

Dimensions and weight may vary depending upon engine configuration.

Data subject to further modifications without prior notice.

13. Worldwide offices

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14. Unit equivalences for conversion

Power

1 W	=	1VA = 1J/s = 1 Nm/s
1 kW	=	1.360 metric HP (DIN)
1 kW	=	1.341 HP (UK-USA)
1 HP (UK-USA)	=	1.0138 metric HP (DIN)
1 HP (DIN)	=	0.7355 kW
1HP (UK-USA)	=	0.7457 kW
1 HP (DIN)	=	0.9863 HP (UK-USA)

Torque

1 Nm	=	0.102 mkg	
1 Nm	=	0.7376 ft.lbF	
1 Nm	=	8.8495 in.lbF	1 mkg = 9.81 Nm
1 ft.lbF	=	1.356 Nm	
1 ft.lbF	=	0.113 Nm	

Mass

1 g	=	0.035 oz (ounce)	
1 kg	=	2.2046 lb (pound)	
1 met ton	=	1.100 ton	1 oz = 28.5 g
1 lb	=	0.4536 kg	
1 ton	=	0.909 metric ton	

Consumption

g/HPh	=	g/gkWh x 0.7355	g/kWh = g/HPh x 1.360
-------	---	-----------------	-----------------------

Temperature

1°C	=	5/9 x (t(°F)-32)	
1°K	=	t(°C) + 273,15	1°F = 9/5 x (t(°C) + 32)
1°C	=	t(°K) - 273,15	

Volume

1 l	=	0.26 gallon (US)	
1 l	=	0.21 gallon (UK)	1 gal (US) = 3.78541 liter
1 gal (UK)	=	4.54609 liter	

Length

1 mm	=	0.03937 in (Inch)	
1 m	=	1.0936 yd	
1 m	=	3.28 ft (Feet)	
1 km	=	0.535 Nautical Mile	
1 km	=	0.621 Statute Mile	1 in = 25.4 mm
1 yd	=	0.9144 m	
1 ft	=	304.8 mm	
1 NM	=	1852 m	
1 SM	=	1609.344 m	

Energy

1J	=	1Nm - 1Ws - 1VAs
1kcal	=	4186.8 J
1 J	=	0.00023 kcal

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