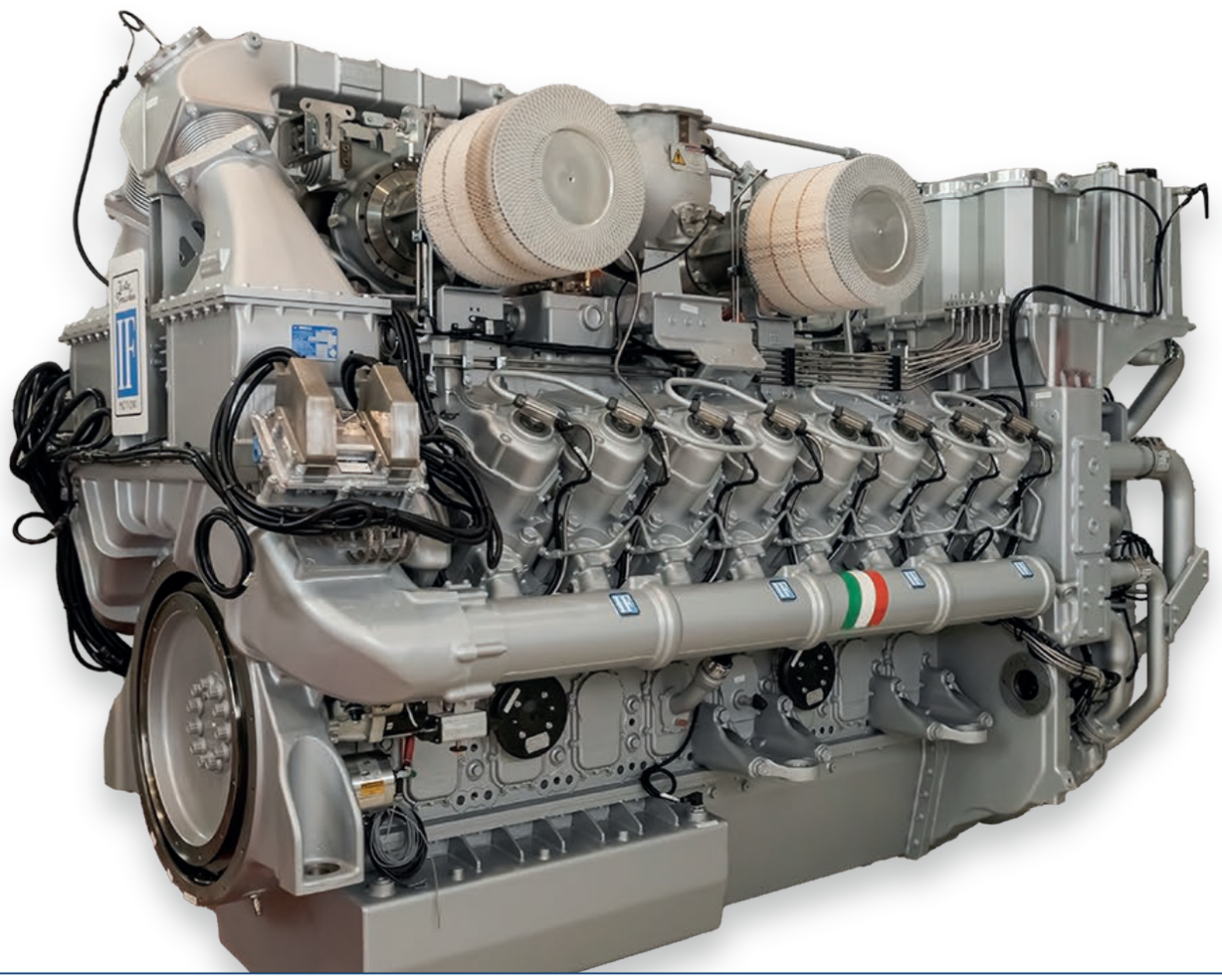
Isotta Fraschini Motori
a FINCANTIERI company

V180 SERIES

POWER GENERATION & PROPULSION SOLUTIONS

A series of high-performance, reliable and efficient marine engines, engineered for the demanding requirements of today's maritime industry.



HIGH POWER DENSITY
Optimized performance for maximum efficiency.

PROVEN RELIABILITY
Built for endurance in harsh marine conditions

MODULAR BY DESIGN
Flexible configurations for multiple applications

20V180C2ME
GENSET

High-efficiency marine generator set engine for continuos power.

20V180C2
PROPULSIVE

High-performance propulsion engine for demanding marine applications.

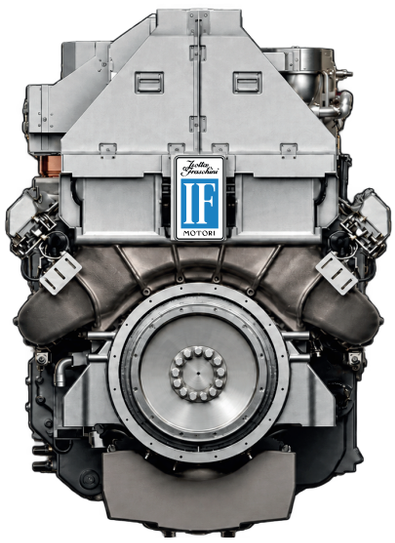
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20V180C2ME
Marine Diesel Genset

20	112 L	up to 4880 kW	1500/1800	180x220mm	~16.000 kg
Cylinders	Total Displacement	Stand-by	rpm	Bore x Stroke	Engine dry mass

High-performance marine diesel generator platform for power generation applications.

The 20V180C2ME is a robust and efficient 20-cylinder high-speed diesel engine, designed for reliable power generation in marine environments. Engineered for durability, fuel efficiency and ease of maintenance, it delivers outstanding performance across a wide range of operating conditions.



Technical Specifications & Ratings

1. Engine Identity

Engine model	20V180C2ME
Application	Genset
No. of cylinders	20
Arrangement	V - 90°
Bore / Stroke	180 / 220 mm
Total displacement	112 L
Compression ratio	18
Idle speed	500 rpm
Emissions compliance	**IMO MARPOL Tier II** *Without after Treatment System* **IMO Marpol Tier III** *With after Treatments System*

4-Stroke diesel engine with Bosch High Pressure Common Rail fuel injection system. Single modular cylinder head with 4 valves to optimize combustion and reduce fuel consumption and pollutant emissions, in full compliance with the most stringent regulations in force. Supercharging system optimized for an efficient performance provision in all operating conditions, even in extreme environmental conditions. Low level of stress to increase overall reliability. Engine with high power to weight ratio.
On Request can be tailor made to Military Specifications.

2. Ratings

20V180C2ME 5							
RATINGS @ 1500 RPM-50Hz							
MECHANICAL OUTPUT				ELECTRICAL OUTPUT			
PRIME		STAND-BY		PRIME		STAND-BY	
kWm bkW	P.M.E. B.M.E.P. [bar]	kWm bkW	P.M.E. B.M.E.P. [bar]	kWe ekW	kVA	kWe ekW	kVA
3810	27,2	4190	29,9	3660	4570	4020	5030
20V180C2ME 8							
RATINGS @ 1800 RPM-60Hz							
MECHANICAL OUTPUT				ELECTRICAL OUTPUT			
PRIME		STAND-BY		PRIME		STAND-BY	
kWm bkW	P.M.E. B.M.E.P. [bar]	kWm bkW	P.M.E. B.M.E.P. [bar]	kWe ekW	kVA	kWe ekW	kVA
4380	26,1	4880	29,0	4210	5260	4690	5860

3. Ambient Reference Conditions

According to Marine Classification Societies requirements (ISO 3046-1 for unrestricted navigation)	
Ambient temperature	45°C
Sea water temperature	32°C
Barometric pressure	1000 mbar
Relative humidity	60%
Rated power available without any derating up to:	
Ambient temperature	55°C
Sea water temperature	36°C
Relative humidity	100%

4. Technical notes

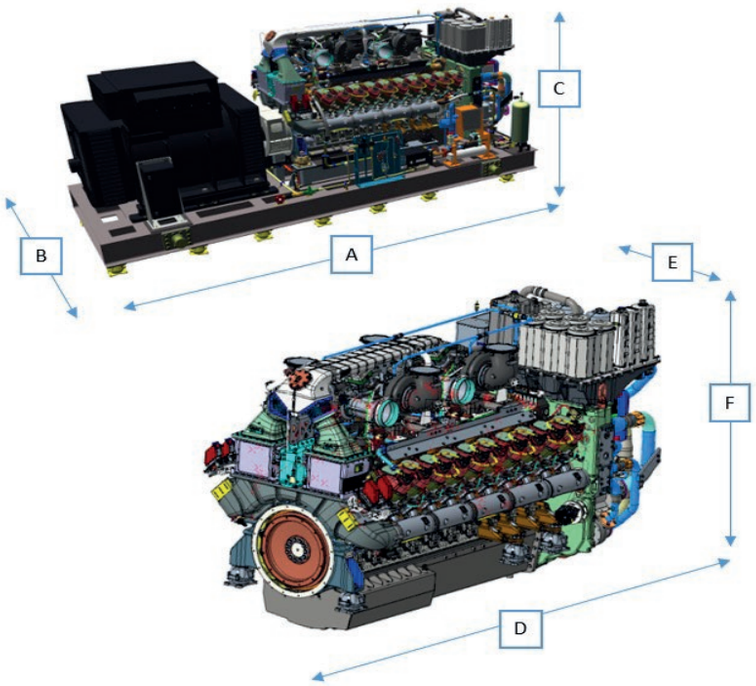
Engines Power in reference to ISO 3046-1
All technical data are subject to variation without notice. To be used only as indicative.
To be confirmed with a purchase order.

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Technical Specifications

1. Dimensions & Weights

A	DGS Length	10500 mm
B	DGS Width	2500 mm
C	DGS Heigth	3500 mm
D	Engine Length	4490 mm
E	Engine Width	1830 mm
F	Engine Height	2600 mm
G	DGS Dry mass without enclosure	50000 kg
	Weight and dimensions can vary according to application	
H	Engine dry mass	16000 kg
I	Flywheel and Housing size	SAE 21 / SAE 00

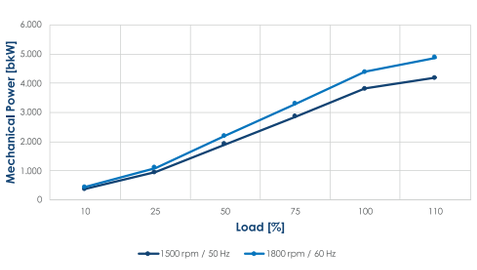


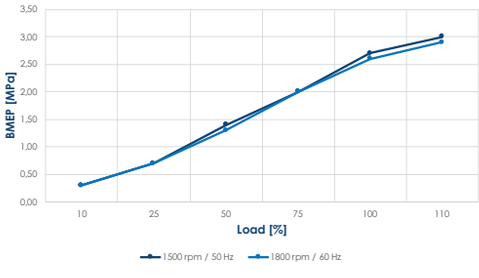
2. Performance Diagram (Environment conditions according to ISO 3046-1)

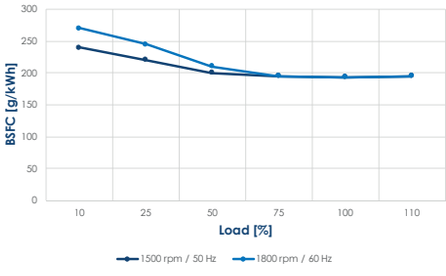
Max power prime: 3810 kW @1500 min-1 [cod. ISO ICXN]
Max power stand-by: 4190 kW @1500 min-1 [cod. ISO IOFN]
Max power prime: 4380 kW @1800 min-1 [cod. ISO ICXN]
Max power stand-by: 4880 kW @1800 min-1 [cod. ISO IOFN]

- intake air temperature: 45°C
- ambient pressure 100 kPa
- sea water temperature: 32°C
- relative umidity: 30%

All technical data are subject to variation without notice.
To be confirmed with a purchase order.







3. Basic DGS Build Standard / Optional Items / Sensors

BASIC DGS BUILD STANDARD

- High temperature (HT), Low temperature (LT), and sea water engine cooling circuits with engine-driven centrifugal pumps (sea water pump of self-priming type)
- Forced engine lubrication by engine-driven gear type pump, plate-type oil/fresh water cooler unit, cartridge type oil filter unit, centrifuge filters
- Fuel system complete with BOSCH High Pressure pump with feeding pump
- Duplex fuel filter, cartridge replaceable whilst running
- Electric system provided with terminal box
- Pneumatic starting motor
- Exhaust gas bellows
- Intake air bellows
- Flexible mountings
- Electric pre-lubrication pump
- Fresh water pre-heating system with thermostat system
- Lube oil pre-heating system with thermostat system
- Shielded high pressure injection pipes
- Torsional vibration damper
- Local Control Panel (LCP)
- Standard tools
- Operating and maintenance manual (commercial type)
- Illustrated spare parts catalogue (commercial type)

OPTIONAL ITEMS

- Marine painting
- Remote Panel-Dashboard
- Condition based maintenance system
- Remote Monitoring System
- Classification society test certificate
- Torsional vibration analysis calculation (TVC)
- Long storage preservation treatment
- Electric starting motor with battery pack
- Intake air dry type filters
- After Treatment System (SCR)
- Noise Reduction Enclosure
- Spark arrester
- Exhaust silencer

PRESSURE SENSORS:

- Charge air pressure
- Lube oil pressure
- HT Fresh water pressure
- LT Fresh water pressure
- Sea water pressure
- Fuel oil pressure

TEMPERATURE SENSORS:

- Charge air temperature
- HT Fresh water temperature
- LT Fresh water temperature

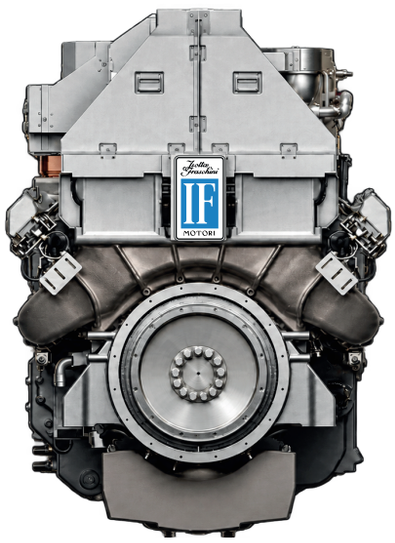
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20V180C2
Marine Diesel Propulsion Engine

20	112 L	up to 5400 kW	1800/1900	180x220mm	~16.000 kg
Cylinders	Total Displacement	Rated Power	rpm ratings	Bore x Stroke	Engine dry mass

High-performance marine diesel engine platform for propulsion applications.

The 20V180C2 is a robust and efficient 20-cylinder high-speed diesel engine, designed for marine propulsion, reliable high output power and outstanding low-end torque.



4-stroke diesel engine Bosch high pressure common rail fuel injection system, sequential type supercharging system with exhaust gas operated turbochargers and tube-type low temperature fresh water/charge air intercoolers, engine cooling system with fresh water/sea water plate type heat exchanger with integrated header tank and thermostatic control, thermal insulated exhaust gas manifolds. Single cylinder heads with 4 valve technology; efficient combustion with low fuel consumption; outstanding low end torque for excellent acceleration and reliable high output power, in all operating conditions. Engine with exclusive power to weight ratio.

Technical Specifications & Ratings

1. Engine Identity

Engine model	20V180C2ME
Application	Propulsion
No. of cylinders	20
Arrangement	V - 90°
Bore / Stroke	180 / 220 mm
Total displacement	112 L
Compression ratio	18
Idle speed	500 rpm
Emissions compliance	**IMO MARPOL Tier II** *Without after Treatment System* **IMO Marpol Tier III** *With after Treatments System*

2. Performances

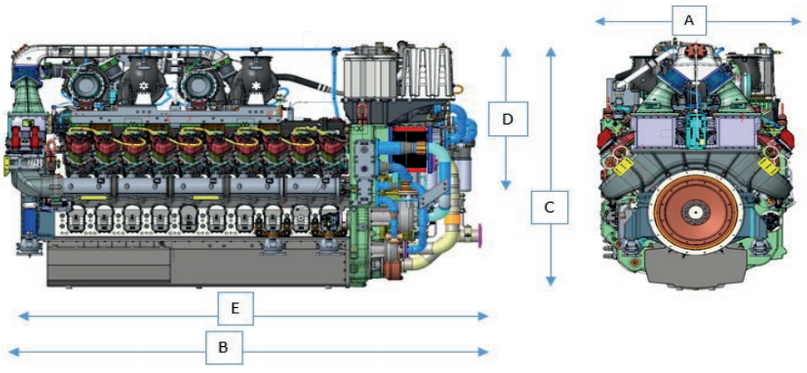
20V180C2MSD		20V180C2MLL		20V180C2MLH	
Rated Power ICFN 5400 kW		**Rated Power ICFN 4320 kW**		**Rated Power ICFN 3780 kW**	
Speed [rpm]	1900	Speed [rpm]	1800	Speed [rpm]	1800
B.M.E.P. [bar]	30,5	B.M.E.P. [bar]	25,7	B.M.E.P. [bar]	22,5
Emissions compliance	IMO MARPOL Tier II Without After Treatment System IMO Marpol Tier III With After Treatment System	Emissions compliance	IMO MARPOL Tier II Without After Treatment System IMO Marpol Tier III With After Treatment System	Emissions compliance	IMO MARPOL Tier II Without After Treatment System IMO Marpol Tier III With After Treatment System
Mean piston speed [m/s]	13,9	Mean piston speed [m/s]	13,2	Mean piston speed [m/s]	13,2
idle speed [rpm]	500	idle speed [rpm]	500	idle speed [rpm]	500

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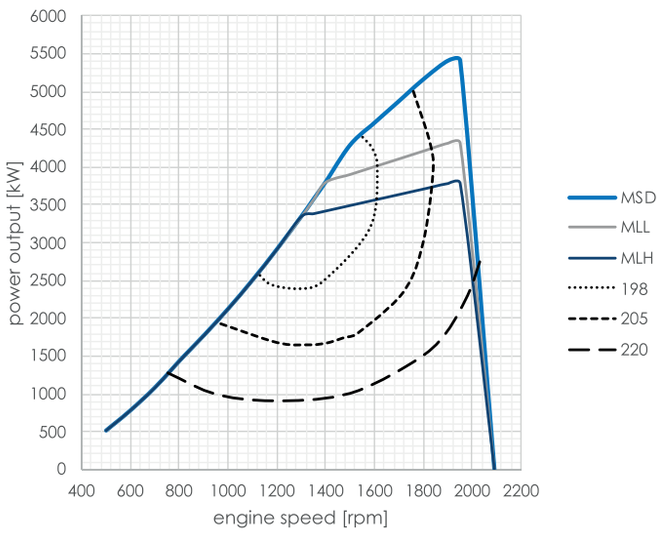
Technical Specifications

1. Dimensions & Weights

A	Engine Width	1830 mm
B	Engine Length	4490 mm
C	Engine Height	2600 mm
D	Heigth at engine shaft	1800 mm
E	Length at Flywheel	4330 mm
F	Engine dry mass	16000 kg
I	Flywheel and Housing size	SAE 21 / SAE 00



2. Performance diagram



3. Ambient Reference Conditions

According to Marine Classification Societies requirements (ISO 3046-1 for unrestricted navigation)	
Ambient temperature	45°C
Sea water temperature	32°C
Barometric pressure	1000 mbar
Relative humidity	60%
Rated power available without any derating up to:	
Ambient temperature	55°C
Sea water temperature	36°C
Relative humidity	100%
Intake air temperature	45° C
Sea water temperature	32°C
Intake air depression	15 mbar
Exhaust backpressure	30 mbar
Specific fuel consuption in g/kWh	
Referred to diesel fuel with LHV 42700 kJ/kg (tolerance +5%)	

4. Technical notes

Engines Power in reference to ISO 3046-1
All technical data are subject to variation without notice. To be used only as indicative.
To be confirmed with a purchase order.

3. Basic DGS Build Standard / Optional Items / Sensors

BASIC DGS BUILD STANDARD

- High temperature (HT), Low temperature (LT), and sea water engine cooling circuits with engine-driven centrifugal pumps (sea water pump of self-priming type)
- Forced engine lubrication by engine-driven screw type pump, plate-type oil/fresh water cooler unit, cartridge type oil filter unit, centrifuge filters
- Fuel system complete with BOSCH High Pressure pump with feeding pump
- Duplex fuel filter, cartridge replaceable whilst running
- Electric system provided with terminal box
- Pneumatic starting motor
- Exhaust gas bellows
- Intake air bellows
- Flexible mountings
- Electric pre-lubrication pump
- Fresh water pre-heating system with thermostat system
- Lube oil pre-heating system with thermostat system
- Shielded high pressure injection pipes
- Torsional vibration damper
- Local Control Panel (LCP)
- Standard tools
- Operating and maintenance manual (commercial type)
- Illustrated spare parts catalogue (commercial type)

OPTIONAL ITEMS

- Marine painting
- Remote Panel-Dashboard
- Condition based maintenance system
- Remote Monitoring System
- Classification society test certificate
- Torsional vibration analysis calculation (TVC)
- Torsional coupling for reverse and reduction gear box
- Cardan shaft
- Long storage preservation treatment
- Electric starting motor with battery pack
- Alternator for battery charging
- Intake air dry type filters
- Turning gear

PRESSURE SENSORS:

- Charge air pressure
- Lube oil pressure
- HT Fresh water pressure
- LT Fresh water pressure
- Sea water pressure
- Fuel oil pressure

TEMPERATURE SENSORS:

- Charge air temperature
- HT Fresh water temperature
- LT Fresh water temperature
- Lube oil temperature
- Fuel oil temperature
- Exhaust gas temperature