

# ***DOOSAN MARINE DIESEL ENGINES***

**Doosan Infracore**  
Engine



# CORPORATE PROFILE



Doosan Infracore ranks among the world's leading makers of construction equipment, machine tools and engines required to build and maintain infrastructure. We were founded in 1937 and have since achieved an unrivalled position in the world. In the 1990s, we has grown to become a truly global player through technological advancements, acquisitions and new product developments.

Doosan Infracore built a global network of large production facilities and sales subsidiaries, long with extensive dealer networks in all regions of the world including North America, Europe and China. Doosan Infracore continues to secure the latest products and technologies in line with the growing demand for green engines and boosting customer value.

## Introduction of Engine Business Group

The history of the Doosan Infracore Engine BG goes back to 1958 by offering diesel engines, and the unit today produces and supplies diesel and natural gas engines with highperformance and fuel-efficiency for commercial vehicles, military vehicles, construction equipment, generators and ships around the world. Doosan Infracore is emerging as a global engine producer by developing a full line-up of diesel and gas models that meet increasingly strict environmental regulatory standards.

With the introduction of our new compact diesel Tier 4 final and EU Stage IIIB & IV compliant engines, Doosan Infracore is positioned to become one of the world's top 5 engine makers with advanced environmentally-friendly technology.

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# HISTORY & AWARD



1950~70's 1980~90's 2000's 2010's

1950's

1958 Marine Engine (AVL)

1970's

1975 Medium duty Engines (MAN license) - D0846, D2156

1979 Light duty Engines (ISUZU license) - 4BA1, 6BB1 (2.8, 5.4L)

1980's

1983 Large Engines (MAN license) - D28 Series (15, 18, 22L)

Grand Prix of Quality Control (Honor of President/ Korea)

1985 'STORM' engine, (the first in-house designed model, 8, 12L)

1986 Iron Medal of Industry with STORM engine (Honor of President/ Korea)

1988 Small Engines - 3AB1, C223, C240, 4BC2 (1.8, 2.2, 2.4, 3.3L)

1990's

1994 Acquire ISO 9001/9002

1995 'DE & DV' series (8, 12, 15L)

Gold Medal of Q.C.C. Contest (Honor of President/ Korea)

1996 Grand Prix Tech. of Environmental Reservation with DE12Ti engine (Honor of President/ Korea)

1997 Grand Prix of Quality Management (Honor of President/ Korea) Acquire ISO 14001

1999 'GE' series - CNG engine for city bus (12L)

2000's

2000 Best Award on Engine with GE12Ti engine (NGV2000)

2001 Tier II engine

2004 Euro III engine with Common-rail system

2006 GM Group Supplier of the Year (SOY) award

2007 Euro IV engine

2008 CNG engine assembly plant in Atlanta - US07 certified

2009 Joint Venture with XCMG in China : XDEC

2010's

2010 Euro V engine. US10 CNG engine (supplied to LA Metro Bus)

2011 Tier IV-Interim engine

2012 XDEC, start of production

Engine plant in China

Start of production of Doosan Compact Diesel Engines (1.8, 2.4, 3.4L)

# DOOSAN MARINE DIESEL ENGINES SPECIFICATION



## POWER RATINGS OF DOOSAN ENGINES



### Marine rating to ISO 3046

#### (1) Heavy Duty

- Operation hours : unlimited per year, unlimited per day
- Average load application : up to 90%
- Percentages of time at full load : up to 80%
- Typical gearbox ratio : 2.5~6

\* Application : Fishing trawler, Tug boat, Pushing vessel, Cargo boat, Freighter, Ferry

#### (2) Medium Duty

- Operation hours : up to 3,000hr per year, up to 10hrs per day
- Average load application : up to 70%
- Percentages of time at full load : up to 30%
- Typical gearbox ratio : 2~3.5

\* Application : Fishing trawler, Pilot boat, Escort boat, Passenger boat, Freighter, Ferry, Cruising vessel

#### (3) Light Duty

- Operation hours : up to 1,000hr per year, up to 5hrs per day
- Average load application : up to 50%
- Percentages of time at full load : up to 20%
- Typical gearbox ratio : 1~2.5

\* Application : Light weight fishing boat, Yacht, Cruising vessel, Fast boat, Fire pump

### Conversion data

$$1 \text{ hp} = 0.7457 \text{ kW}$$

$$1 \text{ hp} = 1.01387 \text{ PS}$$

$$1 \text{ lbft} = 0.138255 \text{ kgfm}$$

$$760 \text{ mmHg} = 1,013 \text{ mbar} = 101.3 \text{ kPa}$$

$$1 \text{ kgf/cm}^2 = 98 \text{ kPa}$$

$$1 \text{ g/PS-h} = 1.359 \text{ g/kW-h}$$

$$1 \text{ PS} = 0.98632 \text{ hp}$$

$$1 \text{ PS} = 0.7355 \text{ kW}$$

$$1 \text{ kgfm} = 9.8066 \text{ Nm}$$

$$1 \text{ cid} = 16.38 \text{ cm}^3$$

$$1 \text{ Lb/hph} = 447.38 \text{ g/PS-h}$$

$$T(\text{Nm}) = \frac{9549.3 \times P(\text{kW})}{N(\text{min}^{-1})}$$

$$T(\text{kgfm}) = \frac{716.2 \times P(\text{PS})}{N(\text{min}^{-1})}$$

$$T(\text{lbft}) = \frac{5252 \times P(\text{hp})}{N(\text{min}^{-1})}$$

# DOOSAN MARINE DIESEL ENGINES



# DOOSAN MARINE DIESEL ENGINES



## Marine Propulsion Engines

| Model   | Type        |            | Displacement<br>(Liter) | Bore x Stroke<br>(mm) | Output<br>(ISO 3046 kW(ps)/rpm) |                       |                      | Dimension (L x W x H)<br>(mm) | Dry<br>Weight<br>(kg) | Emission |
|---------|-------------|------------|-------------------------|-----------------------|---------------------------------|-----------------------|----------------------|-------------------------------|-----------------------|----------|
|         | No. of Cyl. | Aspiration |                         |                       | Heavy Duty<br>kW(PS)            | Medium Duty<br>kW(PS) | Light Duty<br>kW(PS) |                               |                       |          |
| L066TI  | L6          | TI         | 5.8                     | 102*118               | 132(180) / 2,200                | -                     | -                    | 1,352 * 800 * 917             | 535                   | TIER-II  |
| L136    | L6          | NA         | 8.1                     | 111*139               | 118(160) / 2,200                | -                     | -                    | 1,266 * 875 * 937             | 743                   | TIER-I   |
| L136T   | L6          | TC         | 8.1                     | 111*139               | 147(200) / 2,200                | -                     | 177(240) / 2,500     | 1,351 * 893 * 937             | 748                   | TIER-I   |
| L136TI  | L6          | TI         | 8.1                     | 111*139               | 169(230) / 2,200                | -                     | -                    | 1,364 * 911 * 937             | 773                   | TIER-II  |
| L086TI  | L6          | TI         | 8.1                     | 111*139               | 210(285) / 2,100                | 232(315) / 2,300      | 265(360) / 2,500     | 1,364 * 919 * 965             | 790                   | TIER-II  |
| MD196T  | L6          | TC         | 11.1                    | 123*155               | 206(280) / 2,000                | -                     | -                    | 1,397 * 931 * 1,077           | 975                   | TIER-I   |
| MD196TI | L6          | TI         | 11.1                    | 123*155               | 235(320) / 2,000                | -                     | -                    | 1,397 * 933 * 1,077           | 1,009                 | TIER-II  |
| L126TI  | L6          | TI         | 11.1                    | 123*155               | 265(360) / 2,000                | 294(400) / 2,100      | -                    | 1,414 * 933 * 1,077           | 1,060                 | TIER-II  |
| V158TI  | V8          | TI         | 14.6                    | 128*142               | 353(480) / 1,800                | 397(540) / 2,100      | 500(680) / 2,300     | 1,657 * 1,226 * 1,397         | 1,350                 | TIER-II  |
| V180TI  | V10         | TI         | 18.3                    | 128*142               | 441(600) / 1,800                | 478(650) / 2,100      | 603(820) / 2,300     | 1,815 * 1,227 * 1,576         | 1,550                 | TIER-II  |
| V222TI  | V12         | TI         | 21.9                    | 128*142               | 530(720) / 1,800                | 588(800) / 2,100      | 736(1,000) / 2,300   | 1,973 * 1,233 * 1,606         | 1,750                 | TIER-II  |
| 4V158TI | V8          | TI         | 14.6                    | 128*142               | 390(530) / 1,800                | 441(600) / 2,100      | 588(800) / 2,300     | 1,558 * 1,237 * 1,334         | 1,540                 | TIER-II  |
| 4V222TI | V12         | TI         | 21.9                    | 128*142               | 588(800) / 1,800                | 647(880) / 2,100      | 883(1,200) / 2,300   | 1,874 * 1,243 * 1,548         | 1,920                 | TIER-II  |

## Marine Auxiliary Engines

| Model    | Type        |            | Displacement<br>(Liter) | Bore x Stroke<br>(mm) | Output<br>(ISO 3046) |                | Dimension (L x W x H)<br>(mm) | Dry<br>Weight<br>(kg) | Emission |
|----------|-------------|------------|-------------------------|-----------------------|----------------------|----------------|-------------------------------|-----------------------|----------|
|          | No. of Cyl. | Aspiration |                         |                       | kW(PS)@1800rpm       | kW(PS)@1500rpm |                               |                       |          |
| AD066TI  | L6          | TI         | 5.8                     | 102*118               | 110(150)             | 96(130)        | 1,042 * 800 * 891             | 535                   | TIER-II  |
| AD136    | L6          | NA         | 8.1                     | 111*139               | 93(126)              | 77(105)        | 1,182 * 770 * 925             | 735                   | TIER-I   |
| AD136T   | L6          | TC         | 8.1                     | 111*139               | 125(170)             | 107(145)       | 1,182 * 770 * 925             | 748                   | TIER-I   |
| AD136TI  | L6          | TI         | 8.1                     | 111*139               | 138(188)             | 115(157)       | 1,182 * 825 * 925             | 773                   | TIER-II  |
| AD086TI  | L6          | TI         | 8.1                     | 111*139               | 186(253)             | 151(205)       | 1,182 * 825 * 962             | 790                   | TIER-II  |
| AD196T   | L6          | TC         | 11.1                    | 123*155               | 181(246)             | 154(210)       | 1,193 * 854 * 1,072           | 975                   | TIER-I   |
| AD196TI  | L6          | TI         | 11.1                    | 123*155               | 199(270)             | 173(235)       | 1,193 * 854 * 1,072           | 1,009                 | TIER-II  |
| AD126TI  | L6          | TI         | 11.1                    | 123*155               | 247(336)             | 206(280)       | 1,193 * 854 * 1,072           | 1,060                 | TIER-II  |
| AD158TI  | V8          | TI         | 14.6                    | 128*142               | 353(480)             | 302(410)       | 1,037 * 1,222 * 1,074         | 1,295                 | TIER-II  |
| AD180TI  | V10         | TI         | 18.3                    | 128*142               | 441(600)             | 357(485)       | 1,195 * 1,222 * 1,169         | 1,545                 | TIER-II  |
| AD222TI  | V12         | TI         | 21.9                    | 128*142               | 530(720)             | 446(606)       | 1,353 * 1,222 * 1,199         | 1,735                 | TIER-II  |
| 4AD158TI | V8          | TI         | 14.6                    | 128*142               | 390(530)             | 325(442)       | 1,205 * 1,237 * 1,117         | 1,540                 | TIER-II  |
| 4AD222TI | V12         | TI         | 21.9                    | 128*142               | 588(800)             | 491(661)       | 1,521 * 1,243 * 1,236         | 1,920                 | TIER-II  |

# **DOOSAN MARINE DIESEL ENGINES SPECIFICATION**

## **DOOSAN MARINE DIESEL ENGINES LINE-UP IN-LINE TYPE**

IN-LINE TYPE



L066TI



L136



L136T



L136TI



L086TI



MD196T



MD196TI



L126TI

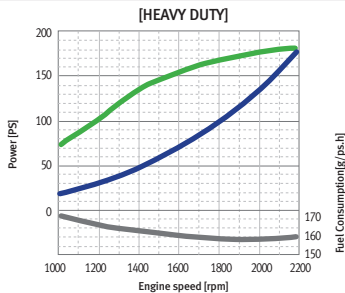
# DOOSAN MARINE DIESEL ENGINES

## L066TI



- MODEL : L066TIH
- CONDITIONS : HEAVY DUTY
- POWER : 180PS (132kW)
- rpm : 2,200
- Base Engine : DB58TI

Performance Curve



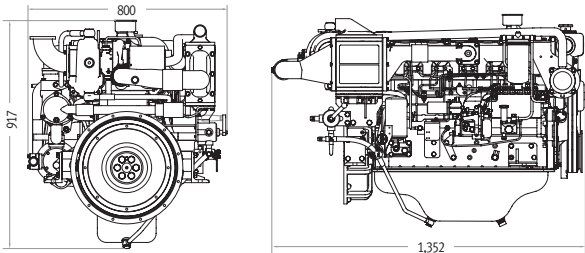
## L066TI Specification



IN-LINE TYPE

| Engine Specification               |              |                                                                                     |                                          |
|------------------------------------|--------------|-------------------------------------------------------------------------------------|------------------------------------------|
| Model                              | Units        | L066TIH                                                                             |                                          |
| Engine type                        |              | 4 cycle, In line, direct- injection, water cooled with turbo charger & inter-cooler |                                          |
| Rating output (B.H.P)              | PS(kW)/rpm   | 180(132)/2,200                                                                      |                                          |
| Displacement                       | cc           | 5,785                                                                               |                                          |
| Cylinder number - bore(ø) x stroke | mm           | 6 -ø102 x 118                                                                       |                                          |
| Flywheel housing & fly wheel       |              | SAE 3 & 11 1/2                                                                      |                                          |
| Low idling rpm                     | rpm          | 750 ± 25                                                                            |                                          |
| No load max. rpm                   | rpm          | below2,420                                                                          |                                          |
| Compression ratio                  |              | 19.5 : 1                                                                            |                                          |
| Firing order                       |              | 1 – 5 – 3 – 6 – 2 – 4                                                               |                                          |
| Governor type of injection pump    |              | Mechanical all speed (R.S.V)                                                        |                                          |
| Fuel consumption                   | g/PS.h       | 159                                                                                 |                                          |
|                                    | lit / h      | 34.5                                                                                |                                          |
| Starting system                    |              | Electric Starting by starter motor                                                  |                                          |
| Starter motor capacity             | V- kW        | 24 – 4.5                                                                            |                                          |
| Alternator capacity                | V- A         | 24 – 45                                                                             |                                          |
| Battery                            | V- Ah        | 24 – 100                                                                            |                                          |
| Cooling system                     |              | Indirect sea water cooling with heat exchanger                                      |                                          |
| Cooling water capacity             | Max. / Min.  | lit                                                                                 | 25 / 20                                  |
| Fresh water pump type              |              | Centrifugal type, driven by V- belt                                                 |                                          |
| Sea water pump type                |              | Rubber impeller type driven by V- belt                                              |                                          |
| Lubricating oil(Engine)            | pan capacity | lit                                                                                 | Max : 19 , Min : 14 ( Engine total : 21) |
|                                    | pressure     | kg/cm <sup>2</sup>                                                                  | Full : 3.5, Idle : 1.0                   |
| Direction of revolution            | crankshaft   | Counter clockwise viewed from stern side                                            |                                          |
| Engine size(L x W x H)             | without M/G  | mm                                                                                  | 1,352 x 800 x 917                        |
| Engine dry weight                  | without M/G  | kg                                                                                  | 535                                      |

Engine Dimension



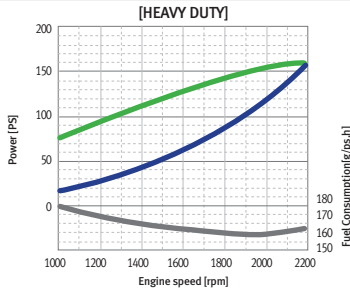
DOOSAN MARINE DIESEL ENGINES

L136



- MODEL : L136
- CONDITIONS : HEAVY DUTY
- POWER : 160PS (118kW)
- rpm : 2,200
- Base Engine : D1146

Performance Curve



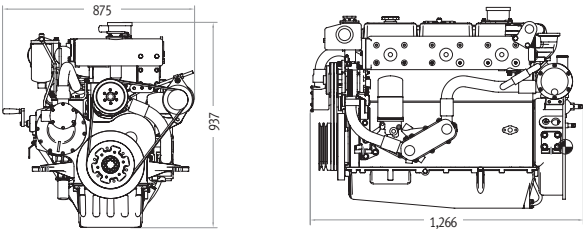
L136 Specification



IN-LINE TYPE

| Engine Specification               |              |                                                                       |                                           |
|------------------------------------|--------------|-----------------------------------------------------------------------|-------------------------------------------|
| Model                              | Units        | L136                                                                  |                                           |
| Engine type                        |              | 4 cycle, In line, direct- injection, water cooled aspirated naturally |                                           |
| Rating output (B.H.P)              | PS(kW)/rpm   | 160(118)/2,200                                                        |                                           |
| Displacement                       | cc           | 8,071                                                                 |                                           |
| Cylinder number - bore(ø) x stroke | mm           | 6 -ø111 x 139                                                         |                                           |
| Flywheel housing & fly wheel       |              | SAE 2 & 11 1/2                                                        |                                           |
| Low idling rpm                     | rpm          | 725 ± 25                                                              |                                           |
| No load max. rpm                   | rpm          | below 2,420                                                           |                                           |
| Compression ratio                  |              | 17.6 : 1                                                              |                                           |
| Firing order                       |              | 1 - 5 - 3 - 6 - 2 - 4                                                 |                                           |
| Governor type of injection pump    |              | Mechanical all speed (R.S.V)                                          |                                           |
| Fuel consumption                   | g/PS.h       | 165                                                                   |                                           |
|                                    | lit / h      | 32                                                                    |                                           |
| Starting system                    |              | Electric Starting by starter motor                                    |                                           |
| Starter motor capacity             | V- kW        | 24 - 4.5                                                              |                                           |
| Alternator capacity                | V- A         | 24 - 50                                                               |                                           |
| Battery                            | V- Ah        | 24 - 100                                                              |                                           |
| Cooling system                     |              | Indirect sea water cooling with heat exchanger                        |                                           |
| Cooling water capacity             | Max. / Min.  | lit                                                                   | 25 / 23                                   |
| Fresh water pump type              |              | Centrifugal type, driven by V- belt                                   |                                           |
| Sea water pump type                |              | Rubber impeller type driven by gear                                   |                                           |
| Lubricating Oil (Engine)           | pan capacity | lit                                                                   | Max : 23 , Min : 17 ( Engine total : 25 ) |
|                                    | pressure     | kg/cm <sup>2</sup>                                                    | Full : 3.5 , Idle : 1.5                   |
| Direction of revolution            | crankshaft   | Counter clockwise viewed from stern side                              |                                           |
| Engine size(L x W x H)             | without M/G  | mm                                                                    | 1,266 x 875 x 937                         |
| Engine dry weight                  | without M/G  | kg                                                                    | 743                                       |

Engine Dimension



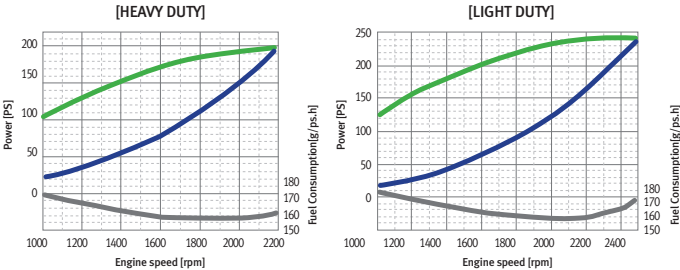
DOOSAN MARINE DIESEL ENGINES

L136T



- MODEL : L136T/136TL
- CONDITIONS : HEAVY DUTY/  
LIGHT DUTY
- POWER : 200PS (147kW) /  
240PS(177kW)
- rpm : 2,200/2,500
- Base Engine : D1146T

Performance Curve



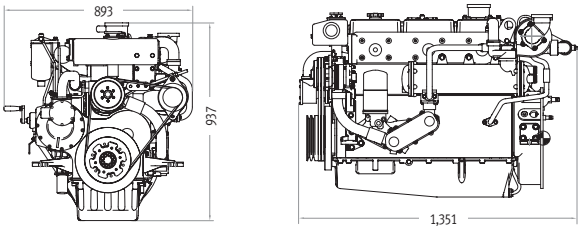
L136T Specification



IN-LINE TYPE

| Engine Specification               |              |                                                                      |                                           |
|------------------------------------|--------------|----------------------------------------------------------------------|-------------------------------------------|
| Model                              | Units        | L136T                                                                | L136TL                                    |
| Engine type                        |              | 4 cycle, In line, direct- injection, water cooled with turbo charger |                                           |
| Rating output (B.H.P)              | PS(kW)/rpm   | 200(147)/2,200                                                       | 240(177)/2,500                            |
| Displacement                       | cc           | 8,071                                                                |                                           |
| Cylinder number - bore(ø) x stroke | mm           | 6 -ø111 x 139                                                        |                                           |
| Flywheel housing & fly wheel       |              | SAE 2 & 11 1/2                                                       |                                           |
| Low idling rpm                     | rpm          | 725 ± 25                                                             |                                           |
| No load max. rpm                   | rpm          | below 2,400                                                          | below 2,750                               |
| Compression ratio                  |              | 16.7 : 1                                                             | 16.7 : 1                                  |
| Firing order                       |              | 1 - 5 - 3 - 6 - 2 - 4                                                |                                           |
| Governor type of injection pump    |              | Mechanical all speed (R.S.V)                                         |                                           |
| Fuel consumption                   | g/PS.h       | 155                                                                  | 167                                       |
|                                    | lit / h      | 37                                                                   | 48                                        |
| Starting system                    |              | Electric Starting by starter motor                                   |                                           |
| Starter motor capacity             | V- kW        | 24 - 4.5                                                             |                                           |
| Alternator capacity                | V- A         | 24 - 50                                                              |                                           |
| Battery                            | V- Ah        | 24 - 100                                                             |                                           |
| Cooling system                     |              | Indirect sea water cooling with heat exchanger                       |                                           |
| Cooling water capacity             | Max. / Min.  | lit 27 / 25                                                          |                                           |
| Fresh water pump type              |              | Centrifugal type, driven by V- belt                                  |                                           |
| Sea water pump type                |              | Rubber impeller type driven by gear                                  |                                           |
| Lubricating Oil (Engine)           | pan capacity | lit                                                                  | Max : 23 , Min : 17 ( Engine total : 25 ) |
|                                    | pressure     | kg/cm <sup>2</sup>                                                   | Full : 3.5, Idle : 1.2                    |
| Direction of revolution            | crankshaft   | Counter clockwise viewed from stern side                             |                                           |
| Engine size(L x W x H)             | without M/G  | mm                                                                   | 1,351 x 893 x 937                         |
| Engine dry weight                  | without M/G  | kg                                                                   | 748                                       |

Engine Dimension



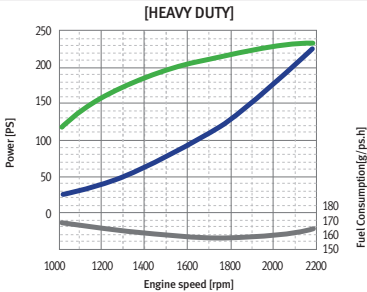
DOOSAN MARINE DIESEL ENGINES

L136TI



- MODEL : L136TI
- CONDITIONS : HEAVY DUTY
- POWER : 230PS (169kW)
- rpm : 2,200
- Base Engine : D1146TI

Performance Curve



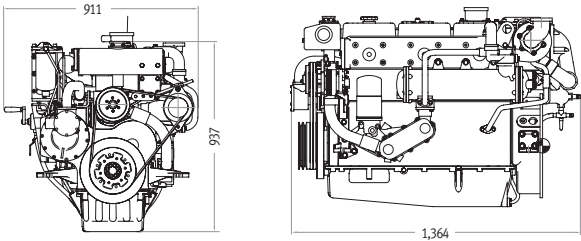
L136TI Specification



IN-LINE TYPE

| Engine Specification               |              |                                                                                    |                                           |
|------------------------------------|--------------|------------------------------------------------------------------------------------|-------------------------------------------|
| Model                              | Units        | L136TI                                                                             |                                           |
| Engine type                        |              | 4 cycle, In line, direct-injection, water cooled with turbo charger & inter-cooler |                                           |
| Rating output (B.H.P)              | PS(kW)/rpm   | 230(169)/2,200                                                                     |                                           |
| Displacement                       | cc           | 8,071                                                                              |                                           |
| Cylinder number - bore(ø) x stroke | mm           | 6 - ø111 x 139                                                                     |                                           |
| Flywheel housing & fly wheel       |              | SAE 2 & 11 1/2                                                                     |                                           |
| Low idling rpm                     | rpm          | 725 ± 25                                                                           |                                           |
| No load max. rpm                   | rpm          | below 2,400                                                                        |                                           |
| Compression ratio                  |              | 16.7 : 1                                                                           |                                           |
| Firing order                       |              | 1 - 5 - 3 - 6 - 2 - 4                                                              |                                           |
| Governor type of injection pump    |              | Mechanical all speed (R.S.V)                                                       |                                           |
| Fuel consumption                   | g/PS.h       | 162                                                                                |                                           |
|                                    | lit / h      | 45                                                                                 |                                           |
| Starting system                    |              | Electric Starting by starter motor                                                 |                                           |
| Starter motor capacity             | V- kW        | 24 - 4.5                                                                           |                                           |
| Alternator capacity                | V- A         | 24 - 50                                                                            |                                           |
| Battery                            | V- Ah        | 24 - 100                                                                           |                                           |
| Cooling system                     |              | Indirect sea water cooling with heat exchanger                                     |                                           |
| Cooling water capacity             | Max. / Min.  | lit                                                                                | 27 / 25                                   |
| Fresh water pump type              |              | Centrifugal type, driven by V- belt                                                |                                           |
| Sea water pump type                |              | Rubber impeller type driven by gear                                                |                                           |
| Lubricating Oil (Engine)           | pan capacity | lit                                                                                | Max : 23 , Min : 17 ( Engine total : 25 ) |
|                                    | pressure     | kg/cm <sup>2</sup>                                                                 | Full : 3.5 , Idle : 1.2                   |
| Direction of revolution            | crankshaft   | Counter clockwise viewed from stern side                                           |                                           |
| Engine size(L x W x H)             | without M/G  | mm                                                                                 | 1,364 x 911 x 937                         |
| Engine dry weight                  | without M/G  | kg                                                                                 | 773                                       |

Engine Dimension



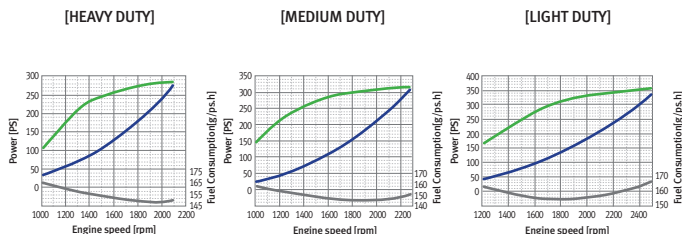
## DOOSAN MARINE DIESEL ENGINES

# L086TI



- MODEL : L086TIH/086TIM / 086TIL
- CONDITIONS : HEAVY DUTY/ MEDIUM DUTY/ LIGHT DUTY
- POWER : 285PS (210kW)/ 315PS (232kW)/ 360PS (265kW)
- rpm : 2,100/2,300/2,500
- Base Engine : D1146TIB

Performance Curve



## L086TI Specification

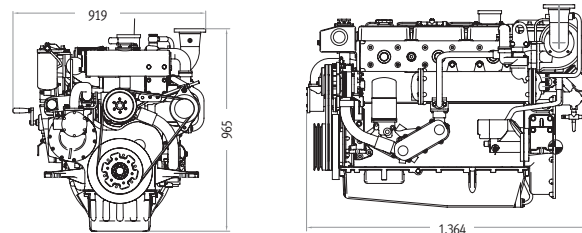


IN-LINE TYPE

Engine Specification

| Model                              | Units        |                    | L086TIH                                                                                 | L086TIM        | L086TIL        |
|------------------------------------|--------------|--------------------|-----------------------------------------------------------------------------------------|----------------|----------------|
| Engine type                        |              |                    | 4 cycle, In line, direct- injection, water cooled with wet turbo charger & inter-cooler |                |                |
| Rating output (B.H.P)              | PS(kW)/rpm   |                    | 285(210)/2,100                                                                          | 315(232)/2,300 | 360(265)/2,500 |
| Displacement                       | cc           |                    | 8,071                                                                                   |                |                |
| Cylinder number - bore(ø) x stroke | mm           |                    | 6-ø111 x 139                                                                            |                |                |
| Flywheel housing & fly wheel       |              |                    | SAE 2 & 11 1/2                                                                          |                |                |
| Low idling rpm                     | rpm          |                    | 750 ± 25                                                                                |                |                |
| No load max. rpm                   | rpm          |                    | below 2,310                                                                             | below 2,530    | below 2,750    |
| Compression ratio                  |              |                    | 16.7 : 1                                                                                | 16.7 : 1       | 15.3:1         |
| Firing order                       |              |                    | 1 – 5 – 3 – 6 – 2 – 4                                                                   |                |                |
| Governor type of injection pump    |              |                    | Mechanical all speed (R.S.V)                                                            |                |                |
| Fuel consumption                   | g/PS.h       |                    | 152                                                                                     | 163            | 167            |
|                                    | lit / h      |                    | 52                                                                                      | 62             | 72             |
| Starting system                    |              |                    | Electric Starting by starter motor                                                      |                |                |
| Starter motor capacity             | V- kW        |                    | 24 - 4.5                                                                                |                |                |
| Alternator capacity                | V- A         |                    | 24 - 50                                                                                 |                |                |
| Battery                            | V- Ah        |                    | 24 - 100                                                                                |                |                |
| Cooling system                     |              |                    | Indirect sea water cooling with heat exchanger                                          |                |                |
| Cooling water capacity             | Max. / Min.  | lit                | 27 / 25                                                                                 |                |                |
| Fresh water pump type              |              |                    | Centrifugal type, driven by V- belt                                                     |                |                |
| Sea water pump type                |              |                    | Rubber impeller type driven by gear                                                     |                |                |
| Lubricating oil (Engine)           | pan capacity | lit                | Max : 23, Min : 17 ( Engine total : 25)                                                 |                |                |
|                                    | pressure     | kg/cm <sup>2</sup> | Full : 3.5, Idle : 1.2                                                                  |                |                |
| Direction of revolution            | crankshaft   |                    | Counter clockwise viewed from stern side                                                |                |                |
| Engine size(L x W x H)             | without M/G  | mm                 | 1,364 x 919 x 965                                                                       |                |                |
| Engine dry weight                  | without M/G  | kg                 | 790                                                                                     |                |                |

Engine Dimension



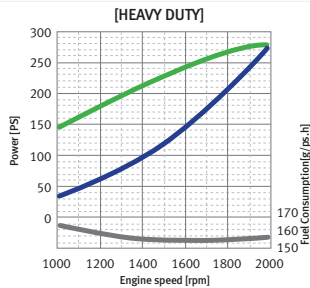
# DOOSAN MARINE DIESEL ENGINES

## MD196T



- MODEL : MD196T
- CONDITIONS : HEAVY DUTY
- POWER : 280PS (206kW)
- rpm : 2,000
- Base Engine : DE12T

Performance Curve



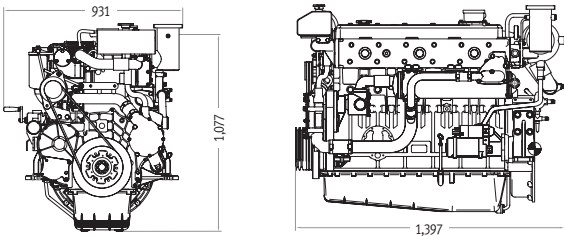
## MD196T Specification



IN-LINE TYPE

| Engine Specification               |              |                                                                          |                                         |
|------------------------------------|--------------|--------------------------------------------------------------------------|-----------------------------------------|
| Model                              | Units        | MD196T                                                                   |                                         |
| Engine type                        |              | 4 cycle, In line, direct- injection, water cooled with wet turbo charger |                                         |
| Rating output (B.H.P)              | PS(kW)/rpm   | 280(206)/2,000                                                           |                                         |
| Displacement                       | cc           | 11,051                                                                   |                                         |
| Cylinder number - bore(ø) x stroke | mm           | 6 - ø123 x 155                                                           |                                         |
| Flywheel housing & fly wheel       |              | SAE 1 & 14                                                               |                                         |
| Low idling rpm                     | rpm          | 725 ± 25                                                                 |                                         |
| No load max. rpm                   | rpm          | below 2,200                                                              |                                         |
| Compression ratio                  |              | 17.1 : 1                                                                 |                                         |
| Firing order                       |              | 1 - 5 - 3 - 6 - 2 - 4                                                    |                                         |
| Governor type of injection pump    |              | Mechanical variable speed (R.S.V)                                        |                                         |
| Fuel consumption                   | g/PS.h       | 156                                                                      |                                         |
|                                    | lit / h      | 49                                                                       |                                         |
| Starting system                    |              | Electric Starting by starter motor                                       |                                         |
| Starter motor capacity             | V- kW        | 24 - 6.0                                                                 |                                         |
| Alternator capacity                | V- A         | 24 - 50                                                                  |                                         |
| Battery                            | V- Ah        | 24 - 150                                                                 |                                         |
| Cooling system                     |              | Indirect sea water cooling with heat exchanger                           |                                         |
| Cooling water capacity             | Max. / Min.  | lit                                                                      | 24 / 19                                 |
| Fresh water pump type              |              | Centrifugal type, driven by gear                                         |                                         |
| Sea water pump type                |              | Rubber impeller type driven by gear                                      |                                         |
| Lubricating oil (Engine)           | Pan capacity | lit                                                                      | Max : 25, Min : 19 ( Engine total : 27) |
|                                    | Pressure     | kg/cm <sup>2</sup>                                                       | Full : 3.5, Idle : 1.2                  |
| Direction of revolution            | Crankshaft   | Counter clockwise viewed from stern side                                 |                                         |
| Engine size (L x W x H)            | Without M/G  | mm                                                                       | 1,397 x 931 x 1,077                     |
| Engine dry weight                  | Without M/G  | kg                                                                       | 975                                     |

Engine Dimension



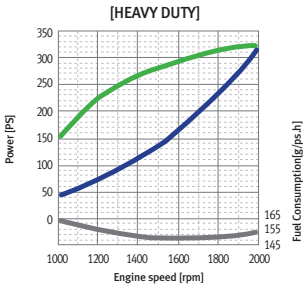
DOOSAN MARINE DIESEL ENGINES

MD196TI



- MODEL : MD196TI
- CONDITIONS : HEAVY DUTY
- POWER : 320PS (235kW)
- rpm : 2,000
- Base Engine : DE12TI

Performance Curve



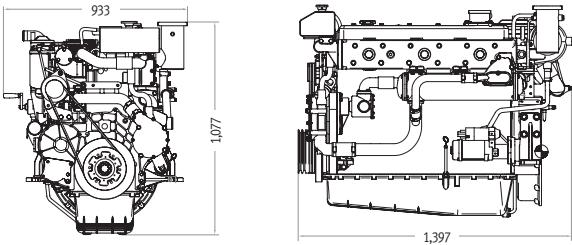
MD196TI Specification



IN-LINE TYPE

| Engine Specification               |              |            |                                                                                         |
|------------------------------------|--------------|------------|-----------------------------------------------------------------------------------------|
| Model                              |              | Units      | MD196TI                                                                                 |
| Engine type                        |              |            | 4 cycle, In line, direct- injection, water cooled with wet turbo charger & inter-cooler |
| Rating output (B.H.P)              |              | PS(kW)/rpm | 320(235)/2,000                                                                          |
| Displacement                       |              | cc         | 11,051                                                                                  |
| Cylinder number - bore(ø) x stroke |              | mm         | 6 -ø123 x 155                                                                           |
| Flywheel housing & fly wheel       |              |            | SAE 1 & 14                                                                              |
| Low idling rpm                     |              | rpm        | 750 ± 50                                                                                |
| No load max. rpm                   |              | rpm        | below 2,200                                                                             |
| Compression ratio                  |              |            | 16.5 : 1                                                                                |
| Firing order                       |              |            | 1 – 5 – 3 – 6 – 2 – 4                                                                   |
| Governor type of injection pump    |              |            | Mechanical variable speed (R.S.V)                                                       |
| Fuel consumption                   |              | g/PS.h     | 158                                                                                     |
|                                    |              | lit / h    | 61                                                                                      |
| Starting system                    |              |            | Electric Starting by starter motor                                                      |
| Starter motor capacity             |              | V- kW      | 24 - 6.0                                                                                |
| Alternator capacity                |              | V- A       | 24 - 50                                                                                 |
| Battery                            |              | V- Ah      | 24 - 150                                                                                |
| Cooling system                     |              |            | Indirect sea water cooling with heat exchanger                                          |
| Cooling water capacity             | Max. / Min.  | lit        | 24 / 19                                                                                 |
| Fresh water pump type              |              |            | Centrifugal type, driven by gear                                                        |
| Sea water pump type                |              |            | Rubber impeller type driven by gear                                                     |
| Lubricating oil(Engine)            | Pan capacity | lit        | Max : 25, Min : 19 ( Engine total : 27)                                                 |
|                                    | Pressure     | kg/cm²     | Full : 3.5, Idle : 1.2                                                                  |
| Direction of revolution            | Crankshaft   |            | Counter clockwise viewed from stern side                                                |
| Engine size(L x W x H)             | Without M/G  | mm         | 1,397 x 933 x 1,077                                                                     |
| Engine dry weight                  | Without M/G  | kg         | 1,009                                                                                   |

Engine Dimension



DOOSAN MARINE DIESEL ENGINES

L126TI



- MODEL : L126TIH/L126TIM
- CONDITIONS : HEAVY DUTY/  
MEDIUM DUTY
- POWER : 360PS (265kW)/  
400PS (294kW)
- rpm : 2,000/2,100
- Base Engine : DE12TIB

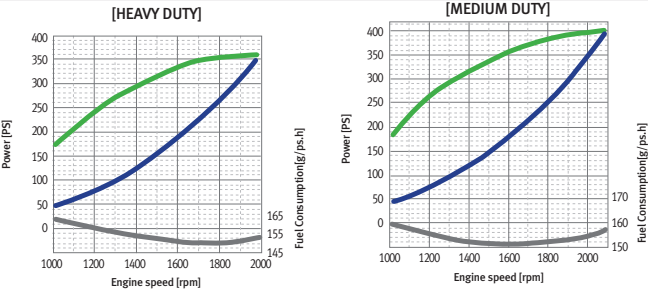
L126TI Specification



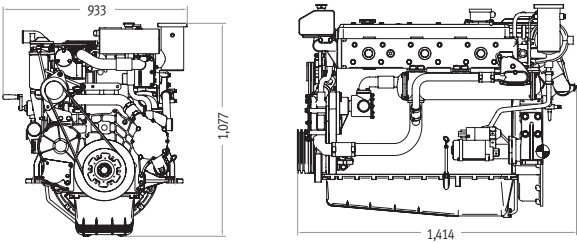
IN-LINE TYPE

| Engine Specification               |              |                                                                                         |                                         |
|------------------------------------|--------------|-----------------------------------------------------------------------------------------|-----------------------------------------|
| Model                              | Units        | L126TIH                                                                                 | L126TIM                                 |
| Engine type                        |              | 4 cycle, In line, direct- injection, water cooled with wet turbo charger & inter-cooler |                                         |
| Rating output (B.H.P)              | PS(kW)/rpm   | 360(265)/2,000                                                                          | 400(294)/2,100                          |
| Displacement                       | cc           | 11,051                                                                                  |                                         |
| Cylinder number - bore(ø) x stroke | mm           | 6 - ø123 x 155                                                                          |                                         |
| Flywheel housing & fly wheel       |              | SAE 1 & 14                                                                              |                                         |
| Low idling rpm                     | rpm          | 725 ± 25                                                                                |                                         |
| No load max. rpm                   | rpm          | below 2,200                                                                             | below 2,310                             |
| Compression ratio                  |              | 17 : 1                                                                                  | 17 : 1                                  |
| Firing order                       |              | 1 - 5 - 3 - 6 - 2 - 4                                                                   |                                         |
| Governor type of injection pump    |              | Mechanical variable speed (R.S.V)                                                       |                                         |
| Fuel consumption                   | g/PS.h       | 154                                                                                     | 159                                     |
|                                    | lit / h      | 67                                                                                      | 77                                      |
| Starting system                    |              | Electric Starting by starter motor                                                      |                                         |
| Starter motor capacity             | V- kW        | 24 - 6.0                                                                                |                                         |
| Alternator capacity                | V- A         | 24 - 50                                                                                 |                                         |
| Battery                            | V- Ah        | 24 - 150                                                                                |                                         |
| Cooling system                     |              | Indirect sea water cooling with heat exchanger                                          |                                         |
| Cooling water capacity             | Max. / Min.  | lit<br>24 / 19                                                                          |                                         |
| Fresh water pump type              |              | Centrifugal type, driven by gear                                                        |                                         |
| Sea water pump type                |              | Rubber impeller type driven by gear                                                     |                                         |
| Lubricating oil (Engine)           | Pan capacity | lit                                                                                     | Max : 25, Min : 19 ( Engine total : 27) |
|                                    | Pressure     | kg/cm <sup>2</sup>                                                                      | Full : 3.5, Idle : 1.2                  |
| Direction of revolution            | Crankshaft   | Counter clockwise viewed from stern side                                                |                                         |
| Engine size(L x W x H)             | Without M/G  | mm                                                                                      | 1,414 x 933 x 1,077                     |
| Engine dry weight                  | Without M/G  | kg                                                                                      | 1,060                                   |

Performance Curve



Engine Dimension



# DOOSAN MARINE DIESEL ENGINES LINE-UP

## DOOSAN MARINE DIESEL ENGINES LINE-UP V TYPE

V TYPE



V158TI



V180TI



V222TI



4V158TI



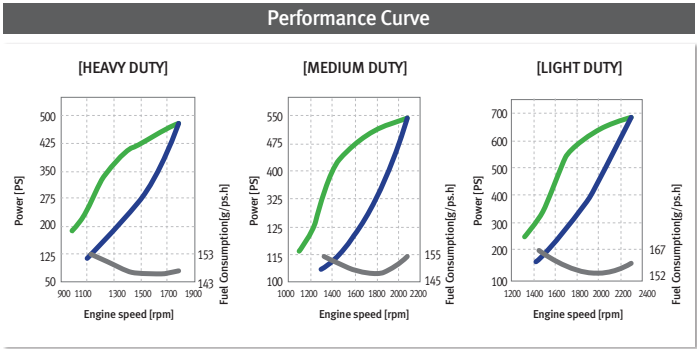
4V222TI

# DOOSAN MARINE DIESEL ENGINES

## V158TI



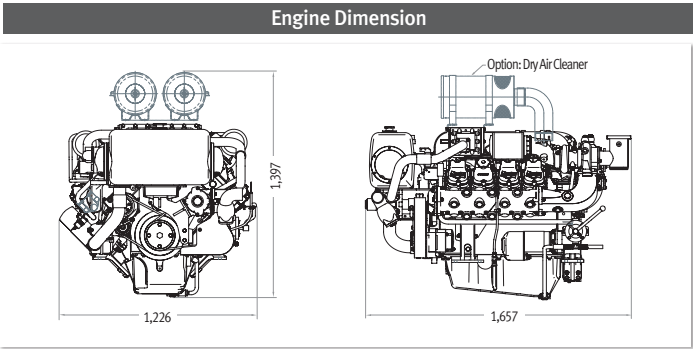
- MODEL : V158TIH/ V158TIM/ V158TIL
- CONDITIONS : HEAVY DUTY/ MEDIUM DUTY/ LIGHT DUTY
- POWER : 480PS (353kW) / 540PS (397kW)/ 680PS (500kW)
- rpm : 1,800/2,100/2,300
- Base Engine : D2848LB



## V158TI Specification



| Engine Specification               |              |             |                                                                                        |                |                |
|------------------------------------|--------------|-------------|----------------------------------------------------------------------------------------|----------------|----------------|
| Model                              |              | Units       | V158TIH                                                                                | V158TIM        | V158TIL        |
| Engine type                        |              |             | 4 cycle, V type, direct- injection, water cooled with wet turbo charger & inter-cooler |                |                |
| Rating output (B.H.P)              |              | PS(kW)/rpm  | 480(353)/1,800                                                                         | 540(397)/2,100 | 680(500)/2,300 |
| Displacement                       |              | cc          | 14,618                                                                                 |                |                |
| Cylinder number - bore(ø) x stroke |              | mm          | 8 - ø128 x 142                                                                         |                |                |
| Flywheel housing & fly wheel       |              |             | SAE 1 & 14                                                                             |                |                |
| Low idling rpm                     |              | rpm         | 725 ± 25                                                                               |                |                |
| No load max. rpm                   |              | rpm         | below 2,070                                                                            | below 2,415    | below 2,645    |
| Compression ratio                  |              |             | 15 : 1                                                                                 | 15:1           | 14.6:1         |
| Firing order                       |              |             | 1 – 5 – 7 – 2 – 6 – 3 – 4 – 8                                                          |                |                |
| Governor type of injection pump    |              |             | Mechanical variable speed (R.Q.V)                                                      |                |                |
| Fuel consumption                   |              | g / PS.h    | 147                                                                                    | 154            | 159            |
|                                    |              | Lit / h     | 85                                                                                     | 100            | 130            |
| Starting system                    |              |             | Electric Starting by starter motor                                                     |                |                |
| Starter motor capacity             |              | V – kW      | 24 - 6.6                                                                               |                |                |
| Alternator capacity                |              | V – A       | 24 - 50                                                                                |                |                |
| Battery                            |              | V – Ah      | 24 - 200                                                                               |                |                |
| Cooling system                     |              |             | Indirect sea water cooling with heat exchanger                                         |                |                |
| Cooling water capacity             |              | Max. / Min. | lit. 89 / 78                                                                           |                |                |
| Fresh water pump type              |              |             | Centrifugal type, driven by belt                                                       |                |                |
| Sea water pump type                |              |             | Bronze impeller type driven by belt                                                    |                |                |
| Lubricating oil (Engine)           | pan capacity | lit.        | Max : 31, Min : 25 (Engine total : 35)                                                 |                |                |
|                                    | pressure     | kg/cm²      | Full : 3.5, Idle : 1.2                                                                 |                |                |
| Direction of revolution            |              | crankshaft  | Counter clockwise viewed from stern side                                               |                |                |
| Engine Size ( L x W x H )          |              | without M/G | mm 1,657 x 1,226 x 1,397                                                               |                |                |
| Engine dry weight                  |              | without M/G | kg 1,350                                                                               | 1,350          | 1,435          |



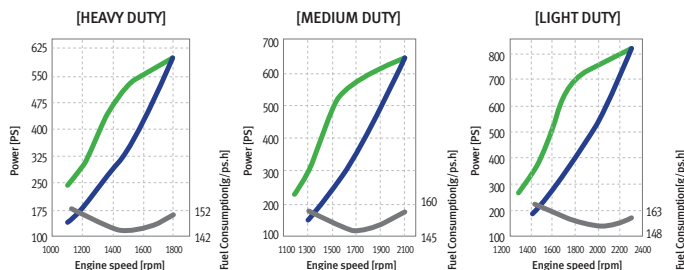
## DOOSAN MARINE DIESEL ENGINES

# V180TI



- MODEL : V180TIH / V180TIM / V180TIL
- CONDITIONS : HEAVY DUTY / MEDIUM DUTY / LIGHT DUTY
- POWER : 600PS (441kW) / 650PS (478kW) / 820PS (603kW)
- rpm : 1,800/2,100/2,300
- Base Engine : D2840LB

Performance Curve

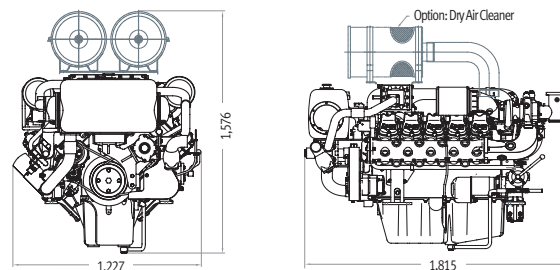


## V180TI Specification



| Engine Specification               |              |                    |                                                                                        |                |                |
|------------------------------------|--------------|--------------------|----------------------------------------------------------------------------------------|----------------|----------------|
| Model                              |              | Units              | V180TIH                                                                                | V180TIM        | V180TIL        |
| Engine type                        |              |                    | 4 cycle, V type, direct- injection, water cooled with wet turbo charger & inter-cooler |                |                |
| Rating output (B.H.P)              |              | PS(kW) / rpm       | 600(441)/1,800                                                                         | 650(478)/2,100 | 820(603)/2,300 |
| Displacement                       |              | cc                 | 18,273                                                                                 |                |                |
| Cylinder number - bore(ø) x stroke |              | mm                 | 10 - ø128 x 142                                                                        |                |                |
| Flywheel housing & fly wheel       |              |                    | SAE 1 & 14                                                                             |                |                |
| Low idling rpm                     |              | rpm                | 725 ± 25                                                                               |                |                |
| No load max. rpm                   |              | rpm                | below 2,070                                                                            | below 2,415    | below 2,645    |
| Compression ratio                  |              |                    | 15 : 1                                                                                 | 15:1           | 14.6:1         |
| Firing order                       |              |                    | 1 – 6 – 5 – 10 – 2 – 7 – 3 – 8 – 4 – 9                                                 |                |                |
| Governor type of injection pump    |              |                    | Mechanical variable speed (R.Q.V)                                                      |                |                |
| Fuel consumption                   |              | g / PS.h           | 150                                                                                    | 156            | 158            |
|                                    |              | Lit / h            | 109                                                                                    | 122            | 156            |
| Starting system                    |              |                    | Electric Starting by starter motor                                                     |                |                |
| Starter motor capacity             |              | V – kW             | 24 - 6.6                                                                               |                |                |
| Alternator capacity                |              | V – A              | 24 - 50                                                                                |                |                |
| Battery                            |              | V – Ah             | 24 - 200                                                                               |                |                |
| Cooling system                     |              |                    | Indirect sea water cooling with heat exchanger                                         |                |                |
| Cooling water capacity             | Max. / Min.  | lit.               | 92 / 81                                                                                |                |                |
| Fresh water pump type              |              |                    | Centrifugal type, driven by belt                                                       |                |                |
| Sea water pump type                |              |                    | Bronze impeller type driven by belt                                                    |                |                |
| Lubricating oil (Engine)           | pan capacity | lit.               | Max: 35, Min : 28 (Engine total : 38)                                                  |                |                |
|                                    | pressure     | kg/cm <sup>2</sup> | Full : 3.5, Idle : 1.2                                                                 |                |                |
| Direction of revolution            | crankshaft   |                    | Counter clockwise viewed from stern side                                               |                |                |
| Engine Size ( L x W x H )          | without M/G  | mm                 | 1,815 x 1,227 x 1,576                                                                  |                |                |
| Engine dry weight                  | without M/G  | kg                 | 1,550                                                                                  | 1,550          | 1,630          |

Engine Dimension

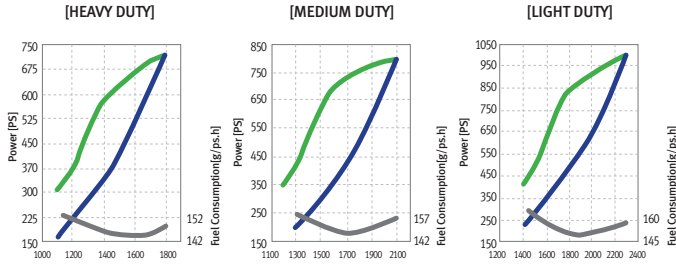


# DOOSAN MARINE DIESEL ENGINES

## V222TI



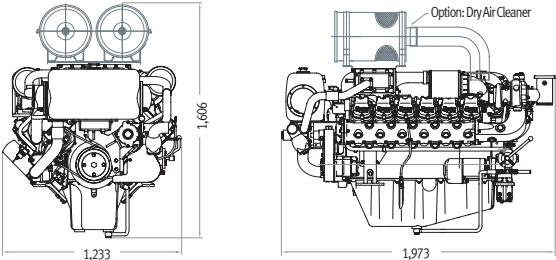
- MODEL : V222TIH/V222TIM/V222TIL
- CONDITIONS : HEAVY DUTY/  
MEDIUM DUTY/  
LIGHT DUTY
- POWER : 720PS (530kW)/  
800PS (588kW)/  
1,000PS (736kW)
- rpm : 1,800/2,100/2,300
- Base Engine : D2842LB



## V222TI Specification



| Engine Specification               |              |                                                                                        |                       |                  |
|------------------------------------|--------------|----------------------------------------------------------------------------------------|-----------------------|------------------|
| Model                              | Units        | V222TIH                                                                                | V222TIM               | V222TIL          |
| Engine type                        |              | 4 cycle, V type, direct- injection, water cooled with wet turbo charger & inter-cooler |                       |                  |
| Rating output (B.H.P)              | PS(kW) /rpm  | 720(530)/1,800                                                                         | 800(588)/2,100        | 1,000(736)/2,300 |
| Displacement                       | cc           | 21,927                                                                                 |                       |                  |
| Cylinder number - bore(ø) x stroke | mm           | 12 - ø128 x 142                                                                        |                       |                  |
| Flywheel housing & fly wheel       |              | SAE 1 & 14                                                                             |                       |                  |
| Low idling rpm                     | rpm          | 725 ± 25                                                                               |                       |                  |
| No load max. rpm                   | rpm          | below 2,070                                                                            | below 2,415           | below 2,645      |
| Compression ratio                  |              | 15 : 1                                                                                 | 15:1                  | 14.6:1           |
| Firing order                       |              | 1 - 12 - 5 - 8 - 3 - 10 - 6 - 7 - 2 - 11 - 4 - 9                                       |                       |                  |
| Governor type of injection pump    |              | Mechanical variable speed (R.Q.V)                                                      |                       |                  |
| Fuel consumption                   | g / PS.h     | 148                                                                                    | 154                   | 159              |
|                                    | Lit / h      | 129                                                                                    | 148                   | 191              |
| Starting system                    |              | Electric Starting by starter motor                                                     |                       |                  |
| Starter motor capacity             | V - kW       | 24 - 6.6                                                                               |                       |                  |
| Alternator capacity                | V - A        | 24 - 50                                                                                |                       |                  |
| Battery                            | V - Ah       | 24 - 200                                                                               |                       |                  |
| Cooling system                     |              | Indirect sea water cooling with heat exchanger                                         |                       |                  |
| Cooling water capacity             | Max. / Min.  | lit. 98 / 87                                                                           |                       |                  |
| Fresh water pump type              |              | Centrifugal type, driven by belt                                                       |                       |                  |
| Sea water pump type                |              | Bronze impeller type driven by belt                                                    |                       |                  |
| Lubricating oil (Engine)           | pan capacity | lit. Max : 40, Min : 33 (Engine total : 43)                                            |                       |                  |
|                                    | pressure     | kg/cm <sup>2</sup> Full : 3.5, Idle : 1.2                                              |                       |                  |
| Direction of revolution            | crankshaft   | Counter clockwise viewed from stern side                                               |                       |                  |
| Engine Size ( L x W x H )          | without M/G  | mm                                                                                     | 1,973 x 1,233 x 1,606 |                  |
| Engine dry weight                  | without M/G  | kg                                                                                     | 1,750                 | 1,830            |



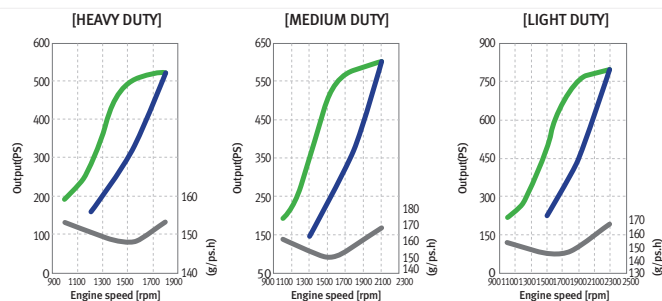
# DOOSAN MARINE DIESEL ENGINES

## 4V158TI



- MODEL : 4V158TIH/4V158TIM  
4V158TIL
- CONDITIONS : HEAVY DUTY/  
MEDIUM DUTY/  
LIGHT DUTY
- POWER : 530PS (390kW)/  
600PS (441kW)/  
800PS (588kW)
- rpm : 1,800/2,100/2,300
- Base Engine : D2848LB

Performance Curve

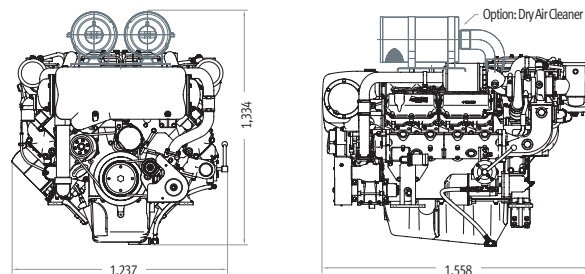


## 4V158TI Specification



| Engine Specification               |              |                    |                                                                                                 |             |             |
|------------------------------------|--------------|--------------------|-------------------------------------------------------------------------------------------------|-------------|-------------|
| Model                              |              | Units              | 4V158TIH                                                                                        | 4V158TIM    | 4V158TIL    |
| Engine type                        |              |                    | 4 valve, 4 cycle, V type, direct- injection, water cooled with wet turbo charger & inter-cooler |             |             |
| Rating output (B.H.P)              |              | PS(kW)/rpm         | 530(390)/1,800 600(441)/2,100 800(588)/2,300                                                    |             |             |
| Displacement                       |              | cc                 | 14,618                                                                                          |             |             |
| Cylinder number - bore(ø) x stroke |              | mm                 | 8 - ø128 x 142                                                                                  |             |             |
| Flywheel housing & fly wheel       |              |                    | SAE 1 & 14                                                                                      |             |             |
| Low idling rpm                     |              | rpm                | 725 ± 25                                                                                        |             |             |
| No load max. rpm                   |              | rpm                | below 2,070                                                                                     | below 2,415 | below 2,645 |
| Compression ratio                  |              |                    | 14.3 : 1                                                                                        | 14.3:1      | 14.3:1      |
| Firing order                       |              |                    | 1 – 5 – 7 – 2 – 6 – 3 – 4 – 8                                                                   |             |             |
| Governor type of injection pump    |              |                    | Mechanical variable speed (R.Q.V)                                                               |             |             |
| Fuel consumption                   |              | g / PS.h           | 153                                                                                             | 167         | 166         |
|                                    |              | Lit / h            | 97                                                                                              | 120         | 159         |
| Starting system                    |              |                    | Electric Starting by starter motor                                                              |             |             |
| Starter motor capacity             |              | V – kW             | 24 - 6.6                                                                                        |             |             |
| Alternator capacity                |              | V – A              | 24 - 55                                                                                         |             |             |
| Battery                            |              | V – Ah             | 24 - 200                                                                                        |             |             |
| Cooling system                     |              |                    | Indirect sea water cooling with heat exchanger                                                  |             |             |
| Cooling water capacity             | Max. / Min.  | lit.               | 94 / 83                                                                                         |             |             |
| Fresh water pump type              |              |                    | Centrifugal type, driven by belt                                                                |             |             |
| Sea water pump type                |              |                    | Bronze impeller type driven by belt                                                             |             |             |
| Lubricating oil (Engine)           | pan capacity | lit.               | Max : 31, Min : 25 (Engine total : 35)                                                          |             |             |
|                                    | pressure     | kg/cm <sup>2</sup> | Full : 3.5, Idle : 1.2                                                                          |             |             |
| Direction of revolution            | crankshaft   |                    | Counter clockwise viewed from stern side                                                        |             |             |
| Engine Size ( L x W x H )          | without M/G  | mm                 | 1,558 x 1,237 x 1,334                                                                           |             |             |
| Engine dry weight                  | without M/G  | kg                 | 1,540                                                                                           | 1,540       | 1,580       |

Engine Dimension



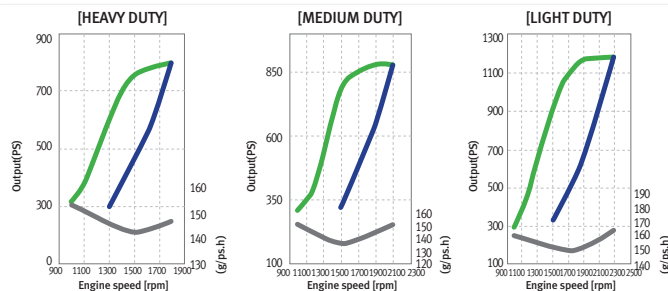
## DOOSAN MARINE DIESEL ENGINES

# 4V222TI



- MODEL : 4V222TIH/4V222TIM  
4V222TIL
- CONDITIONS : HEAVY DUTY/  
MEDIUM DUTY/  
LIGHT DUTY
- POWER : 800PS (588kW)/  
880PS (647kW)/  
1,200PS (883kW)
- rpm : 1,800/2,100/2,300
- Base Engine : D2842LB

Performance Curve

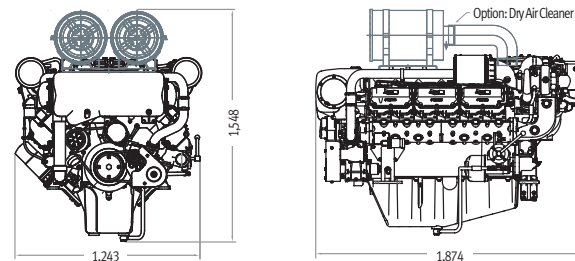


## 4V222TI Specification



| Engine Specification               |              |                    |                                                                                                |             |             |          |
|------------------------------------|--------------|--------------------|------------------------------------------------------------------------------------------------|-------------|-------------|----------|
| Model                              |              | Units              | 4V222TIH                                                                                       |             | 4V222TIM    | 4V222TIL |
| Engine type                        |              |                    | 4 valve, 4 cycle, V type, direct-injection, water cooled with wet turbo charger & inter-cooler |             |             |          |
| Rating output (B.H.P)              |              | PS(kW)/rpm         | 800(588)/1,800 880(647)/2,100 1,200(883)/2,300                                                 |             |             |          |
| Displacement                       |              | cc                 | 21,927                                                                                         |             |             |          |
| Cylinder number - bore(ø) x stroke |              | mm                 | 12 - ø128 x 142                                                                                |             |             |          |
| Flywheel housing & fly wheel       |              |                    | SAE 1 & 14                                                                                     |             |             |          |
| Low idling rpm                     |              | rpm                | 725 ± 25                                                                                       |             |             |          |
| No load max. rpm                   |              | rpm                | below 2,070                                                                                    | below 2,415 | below 2,645 |          |
| Compression ratio                  |              |                    | 14.3 : 1                                                                                       | 14.3 : 1    | 14.3 : 1    |          |
| Firing order                       |              |                    | 1 - 12 - 5 - 8 - 3 - 10 - 6 - 7 - 2 - 11 - 4 - 9                                               |             |             |          |
| Governor type of injection pump    |              |                    | Mechanical variable speed (R.Q.V)                                                              |             |             |          |
| Fuel consumption                   |              | g / PS.h           | 147                                                                                            | 150         | 164         |          |
|                                    |              | Lit / h            | 143                                                                                            | 160         | 239         |          |
| Starting system                    |              |                    | Electric Starting by starter motor                                                             |             |             |          |
| Starter motor capacity             |              | V – kW             | 24 - 6.6                                                                                       |             |             |          |
| Alternator capacity                |              | V – A              | 24 - 55                                                                                        |             |             |          |
| Battery                            |              | V – Ah             | 24 - 200                                                                                       |             |             |          |
| Cooling system                     |              |                    | Indirect sea water cooling with heat exchanger                                                 |             |             |          |
| Cooling water capacity             | Max. / Min.  | lit.               | 103 / 92                                                                                       |             |             |          |
| Fresh water pump type              |              |                    | Centrifugal type, driven by belt                                                               |             |             |          |
| Sea water pump type                |              |                    | Bronze impeller type driven by belt                                                            |             |             |          |
| Lubricating oil (Engine)           | pan capacity | lit.               | Max : 40, Min : 33 (Engine total : 43)                                                         |             |             |          |
|                                    | pressure     | kg/cm <sup>2</sup> | Full : 3.5, Idle : 1.2                                                                         |             |             |          |
| Direction of revolution            | crankshaft   |                    | Counter clockwise viewed from stern side                                                       |             |             |          |
| Engine Size ( L x W x H )          | without M/G  | mm                 | 1,874 x 1,243 x 1,548                                                                          |             |             |          |
| Engine dry weight                  | without M/G  | kg                 | 1,920                                                                                          |             | 1,920       | 1,960    |

Engine Dimension



NOTES



NOTES





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AUTHORIZED DEALER

\* Specifications are subject to change without prior notice.