

Production tolerance : ± 3%

| Spec.                              | Model        | Units              | Auxiliary  |  |  |
|------------------------------------|--------------|--------------------|--|--|--|
|                                    |              |                    | AD158TI  | AD180TI                                    | AD222TI                                    |
| Engine type                        |              |                    | 4 cycle, V-type, direct- injection, water cooled<br>with wet- turbo charger & inter-cooler |  |  |
| Rating output<br>(B.H.P)           | 50 Hz        | PS(kW)<br>/ rpm    | 410(302)/1,500<br>(AD158TIF)   | 485(357)/1,500<br>(AD180TIF)               | 606(446) /1,500<br>(AD222TIF)              |
|                                    | 60 Hz        |                    | 480(353)/1,800<br>(AD158TIS)   | 600(441)/1,800<br>(AD158TIS)               | 720(530) /1,800<br>(AD222TIS)              |
| Displacement                       |              | cc                 | 14,618   | 18,273                                     | 21,927                                     |
| Cyl. No. – bore(φ) x stroke        |              | mm                 | 8 - Φ128 x 142   | 10 - Φ128 x 142                            | 12 - Φ128 x 142                            |
| Valve clearance at cold            |              | mm                 | 0.3 / 0.3  |  |  |
| Low idling rpm                     |              | rpm                | 800 ± 50   |  |  |
| No load max. rpm<br>(50Hz / 60Hz)  |              | rpm                | 1,500 / 1,800  |  |  |
| Mean effective press. (Initial)    |              | kg/cm <sup>2</sup> | 16.83 / 16.42  | 15.93 / 16.42                              | 16.58 / 16.42                              |
| Mean piston speed<br>(50Hz / 60Hz) |              | m/sec.             | 7.1 / 8.52   |  |  |
| Compression ratio                  |              |                    | 15.5 : 1   |  |  |
| Governor type of inj. pump         |              |                    | Electric Governor  |  |  |
| Fuel consumption                   |              | g/PS.h             | 153 / 157  | 155 / 156                                  | 155 / 154                                  |
|                                    |              | liter/h            | 76 / 91  | 91 / 113                                   | 113 / 134                                  |
| Injection timing<br>(B.T.D.C)      | 50 Hz        | deg.               | 14° ± 1°   | 16° ± 1°                                   | 16° ± 1°                                   |
|                                    | 60 Hz        | deg.               | 15° ± 1°   | 18° ± 1                                    | 18° ± 1°                                   |
| Starting system                    |              |                    | Electric Starting by starter motor   |  |  |
| Starter motor capacity             |              | V- kW              | 24 V – 6.6   |  |  |
| Alternator capacity                |              | V- A               | 24 V – 80  |  |  |
| Battery                            |              | V- Ah              | 24V – 200  |  |  |
| Cooling system                     |              |                    | Indirect cooling by sea water with heat exchanger  |  |  |
| Cooling water capacity             |              | lit                | 89 / 78  | 92 / 81                                    | 98 / 87                                    |
| Fresh water pump type              |              |                    | Centrifugal type driven by V - belt  |  |  |
| Sea water pump type                |              |                    | Rubber impeller type driven by V - belt  |  |  |
| Lub. Oil<br>(Engine)               | Pan capacity | lit                | Max : 31, Min : 25<br>( Engine total : 35)   | Max : 35, Min : 28<br>( Engine total : 38) | Max : 40, Min : 33<br>( Engine total : 43) |
|                                    | Pressure     | kg/cm <sup>2</sup> | Full : 3.5 , Idle: 1.2   |  |  |
| Revolution of Crankshaft           |              |                    | Counter clockwise viewed from flywheel side  |  |  |
| Engine size (L x W x H)            |              | mm                 | 1,037 x 1,222 x 1,074  | 1,195 x 1,222 x 1,169                      | 1,353 x 1,222 x 1,199                      |
| Engine dry weight                  |              | kg                 | 1295   | 1545                                       | 1735                                       |

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| Spec.                              | Model        | Units              | Emergency  |  |  |
|------------------------------------|--------------|--------------------|--|--|--|
|                                    |              |                    | AD158TI  | AD180TI                                    | AD222TI                                    |
| Engine type                        |              |                    | 4 cycle, V-type, direct- injection, water cooled<br>with wet- turbo charger & inter-cooler |  |  |
| Rating output<br>(B.H.P)           | 60 Hz        | PS(kW)<br>/ rpm    | 480(353)/1,800<br>(AD158TIS)   | 600(441)/1,800<br>(AD158TIS)               | 720(530) /1,800<br>(AD222TIS)              |
| Displacement                       |              | cc                 | 14,618   | 18,273                                     | 21,927                                     |
| Cyl. No. – bore(φ) x stroke        |              | mm                 | 8 - Φ128 x 142   | 10 - Φ128 x 142                            | 12 - Φ128 x 142                            |
| Valve clearance at cold            |              | mm                 | 0.3 / 0.3  |  |  |
| Low idling rpm                     |              | rpm                | 800 ± 50   |  |  |
| No load max. rpm<br>(50Hz / 60Hz)  |              | rpm                | 1,500 / 1,800  |  |  |
| Mean effective press. (Initial)    |              | kg/cm <sup>2</sup> | 16.83 / 16.42  | 15.93 / 16.42                              | 16.58 / 16.42                              |
| Mean piston speed<br>(50Hz / 60Hz) |              | m/sec.             | 7.1 / 8.52   |  |  |
| Compression ratio                  |              |                    | 16.0 : 1   |  |  |
| Governor type of inj. pump         |              |                    | Electric Governor  |  |  |
| Fuel consumption                   |              | g/PS.h             | 153 / 157  | 155 / 156                                  | 155 / 154                                  |
|                                    |              | liter/h            | 76 / 91  | 91 / 113                                   | 113 / 134                                  |
| Injection timing<br>(B.T.D.C)      | 50 Hz        | deg.               | 14° ± 1°   | 16° ± 1°                                   | 16° ± 1°                                   |
|                                    | 60 Hz        |                    | 15° ± 1°   | 18° ± 1                                    | 18° ± 1°                                   |
| Starting system                    |              |                    | Electric Starting by starter motor   |  |  |
| Starter motor capacity             |              | V- kW              | 24 V – 6.6   |  |  |
| Alternator capacity                |              | V- A               | 24 V – 80  |  |  |
| Battery                            |              | V- Ah              | 24V – 200  |  |  |
| Cooling system                     |              |                    | Indirect cooling by sea water with heat exchanger  |  |  |
| Cooling water capacity             |              | lit                | 89 / 78  | 92 / 81                                    | 98 / 87                                    |
| Fresh water pump type              |              |                    | Centrifugal type driven by V - belt  |  |  |
| Sea water pump type                |              |                    | Rubber impeller type driven by V - belt  |  |  |
| Lub. Oil<br>(Engine)               | Pan capacity | lit                | Max : 31, Min : 25<br>( Engine total : 35)   | Max : 35, Min : 28<br>( Engine total : 38) | Max : 40, Min : 33<br>( Engine total : 43) |
|                                    | Pressure     | kg/cm <sup>2</sup> | Full : 3.5 , Idle: 1.2   |  |  |
| Revolution of Crankshaft           |              |                    | Counter clockwise viewed from flywheel side  |  |  |
| Engine size (L x W x H)            |              | mm                 | 1,037 x 1,222 x 1,074  | 1,195 x 1,222 x 1,169                      | 1,353 x 1,222 x 1,199                      |
| Engine dry weight                  |              | kg                 | 1295   | 1545                                       | 1735                                       |

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