

## NEW THINKING. NEW POSSIBILITIES.

People's expectation toward individual mobility requires more than just a convenient means of transportation. The old understanding of cars has become outdated. A car represents individuals' lifestyles, and it became an integral part of their lives. At the same time, the automobile industry has experienced seismic change. Hyundai Motor Company has grown rapidly to become one of the largest automakers, backed by world class production capability and superior quality. We have now reached a point where we need a qualitative approach to bring bigger ideas and relevant solutions to our customers. This is an opportunity to move forward and we have developed a new brand slogan that encapsulates our willingness to take a big leap. Led by our new slogan and the new thinking underlying it, we will become a company that keeps challenging itself to unlock new possibilities for people and the planet.



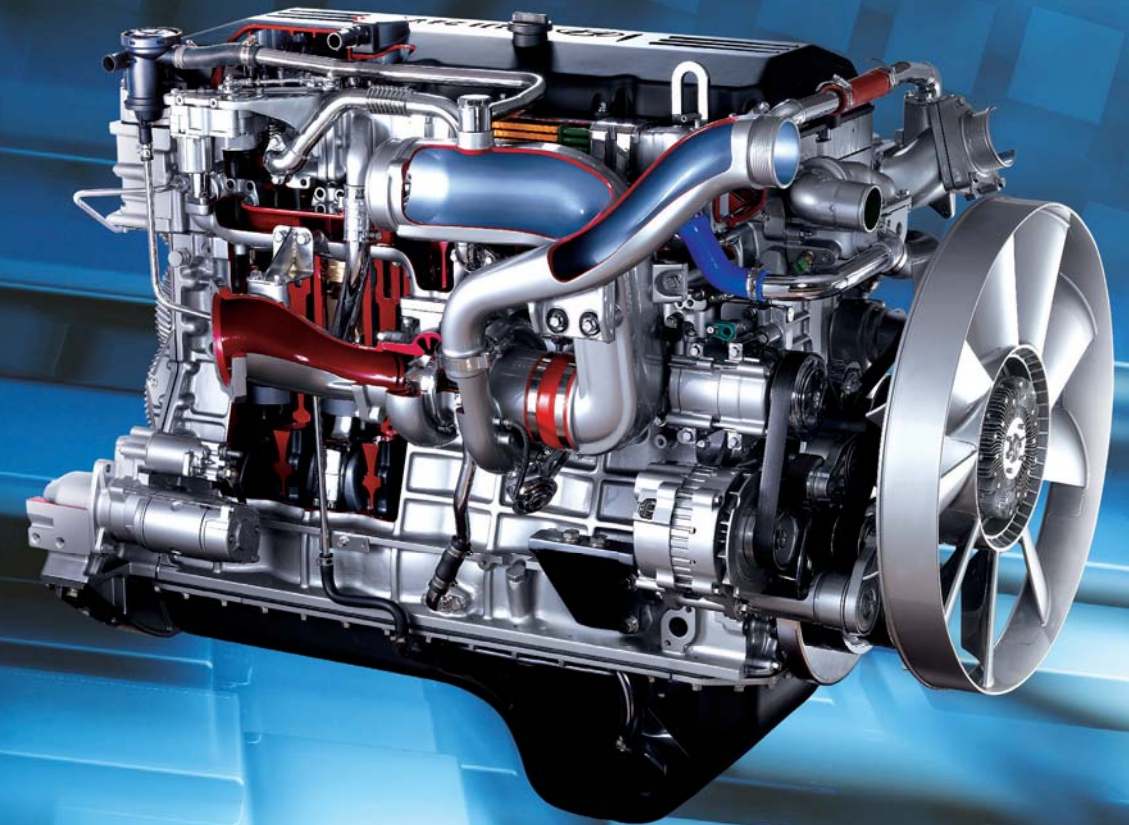
**Hyundai Motor Company**  
12, Heolleung-ro, Seochogu, Seoul, Korea 06797, Special Vehicle Team  
Tel : 82-2-3464-3321~3324 | Fax : 82-2-3464-3502

This catalog images may be different from the real engines and the specifications and features may be changed without prior notice in order to improve the products.

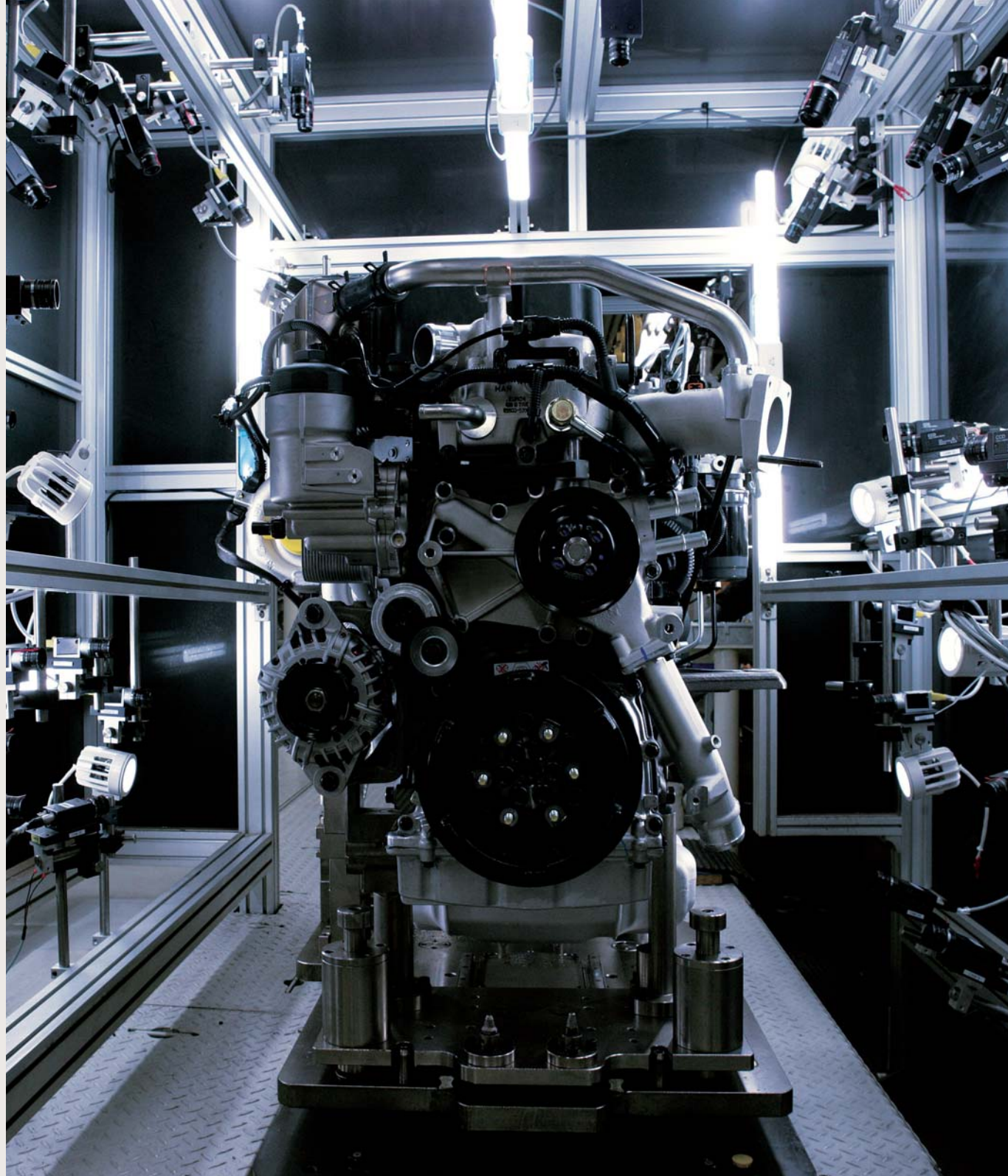
www.hyundai.com  
2016.12 CP / ENG



# HYUNDAI ENGINE







## The Strengths of HMC Industrial Engines

When it comes to the strengths of HMC's industrial engines, one can easily list the following three points. HMC has accomplished economies of scale with manufacturing capacity of over 5 million units per year. This allows stable supply of engines at competitive prices. HMC engines are of the best quality and performance. Behind the positive ratings of Hyundai Motors by JD Power,

AutoPacific and many other automotive rating organizations lie the high-quality engines. The strength of HMC engine is the diverse engine line-up ranging from gasoline engines (53~375hp), diesel engines (40~530 hp), to CNG engines that can easily meet our clients' various needs. In addition, HMC's engines are also eco-friendly and conform to all the international standards that are getting tougher and tougher.

## HYUNDAI ENGINE IS YOUR PARTNER TO SUCCESS



### World's largest scale commercial vehicle production plant-Jeonju Plant

The Jeonju Plant occupies a total of 400,000 pyong (317 acres) of land and has 4.3 million sq. ft. in production space. It specializes in producing mid to large-sized buses, trucks and specialty vehicles.

The Jeonju Plant is capable of producing 100,000 vehicles per year and in terms of the plant's scale, it is deemed to be the world's largest commercial vehicle production plant.

In order to facilitate the development of eco-friendly new products that can satisfy the demands of the international export markets in the 21st century and the development of environmentally-conscious management systems, the Jeonju Plant is making an all-out effort.



### The Ulsan Plant-the world's single largest automobile plant in the world

The mammoth-sized Ulsan complex sits on a 1,200 acres site and it is Hyundai's main production plant comprised of five independent plants capable of producing 1,392,000 vehicles per year. This plant has over 35,000 employees and its annual average production capacity is 1,392,000 vehicles. The plant also has its own port where up to three 50,000 ton ships can anchor at the same time. Being the world's largest in scale of its kind, the Ulsan plant is the birth place of the Korean automobile industry and is a self-contained facility that operates its own fire station, hospital and security vehicles. The Ulsan Plant is also equipped with cutting-edge facilities to protect the environment, such as a waste water and sewage treatment plant securing Hyundai's position as a green-minded company.



### A Facility of the Future Focusing on export strategy-Asan Plant

The Asan Plant, which mainly produces passenger vehicles for export, rests on a 440 acres site with a 4 million sq. ft. building that consists of production lines for machine press, auto frame, paint, assembly, engine and a materials plant. It is an entirely self contained independent automobile production complex that is capable of an output of 300,000 mid to large size passenger vehicles annually. The Asan plant was established with the grand proposition of creating a safety-first work environment which is people oriented all the while putting into practice our management philosophy of eco-friendliness.



# Tier-4 Diesel Engines

Hyundai's capacity for research and development has led to mass production of various engines since Hyundai produced its own automobile Alpha engine for the first time in Korea in 1991. Upon this foundation we launch the industrial engines of R 2.2 and F 3.9 which are eco-friendly and famous for their durability, reliability and economy.

Through the technology of performance-proven automobile engines, we have developed these two industrial engines of R 2.2 and F 3.9 which squeeze the maximum amount of energy out of each drop of fuel and provide fantastic pulling power across a wide rpm range. These engines satisfy Korea Tier-4 regulation applying common rail direct injection system, exhaust gas recycling device, three way catalytic convertor and NOx reduction technology.

Many customers are satisfied with the quality and the performance of Hyundai's Tier-4 diesel engines and we anticipate an increase in the demand for these engines.



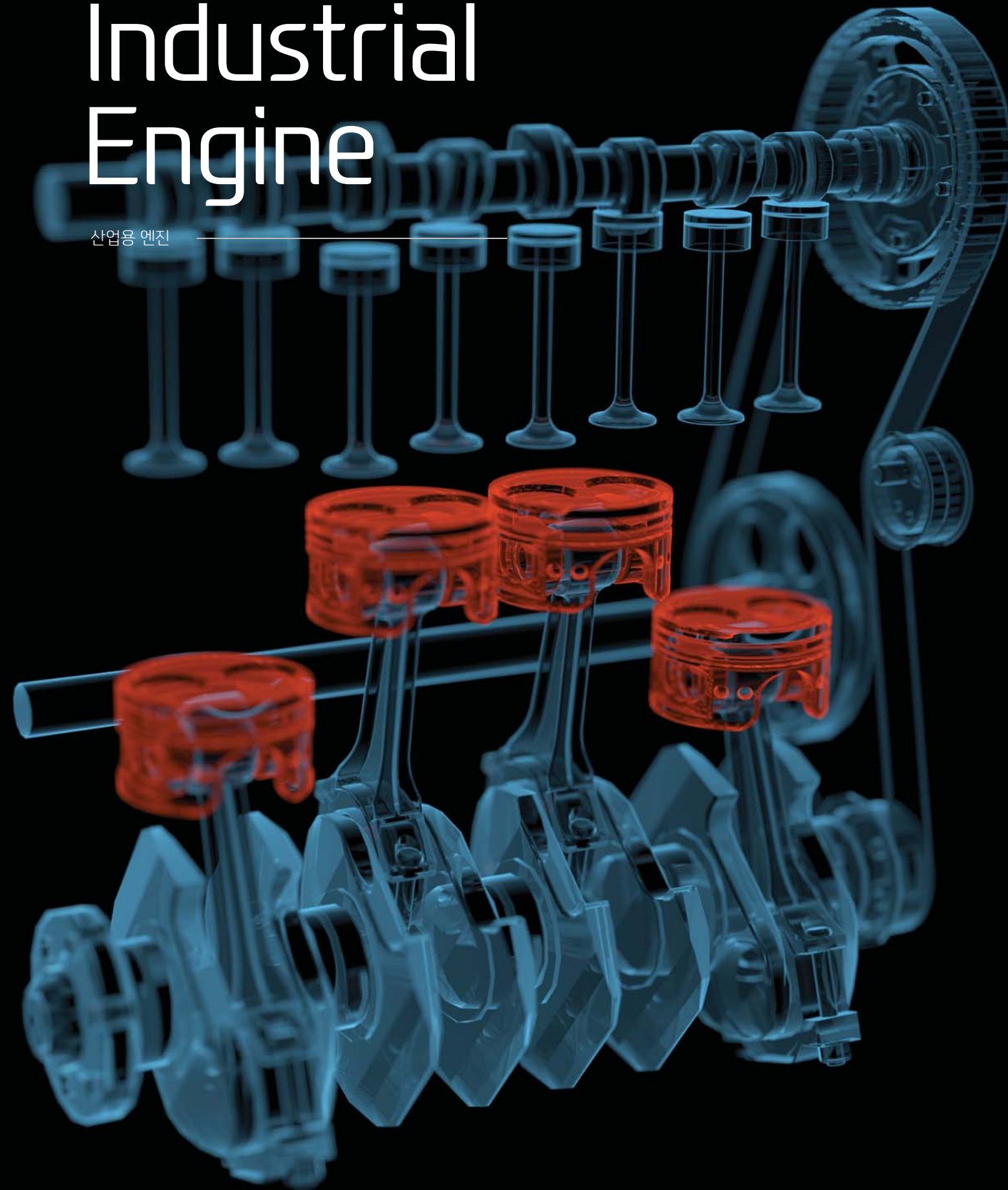
**NEW** R 2.2  
**D4HB-C1**  
65PS/24.1kg·m



**NEW** F 3.9  
**D4GB-C1**  
110PS/42kg·m

# Industrial Engine

산업용 엔진





# D4BB-C4

53PS/16.8kg.m

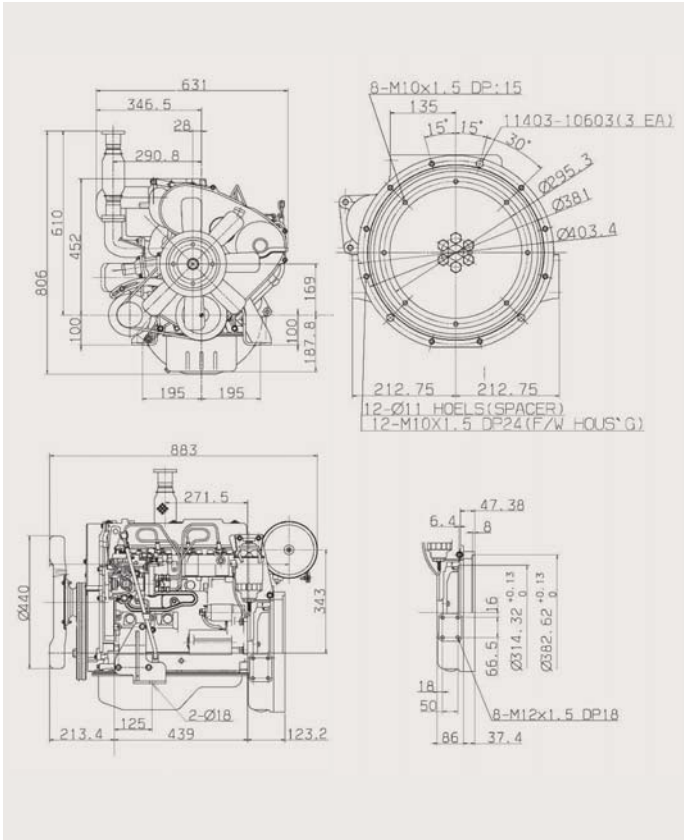
Industrial Engine



## Specifications

| Engine model                  |             | D4BB-C4(AG35)                                    |
|-------------------------------|-------------|--|
| Engine type                   |             | 4 Cycle, water cooled                            |
| Injection type                |             | Indirect injection                               |
| No. of cyl. And configuration |             | 4-in line  |
| Aspiration                    |             | Π.A  |
| Displacement (cc)             |             | 2,607  |
| Bore × Stroke (mm)            |             | 91.1 × 100                                       |
| Compression ratio             |             | 22 : 1   |
| Dry weight (kg)               |             | 200  |
| Dimension                     | Length (mm) | 883  |
|                               | Width (mm)  | 631  |
|                               | Height (mm) | 806  |
| Max power                     | PS/rpm      | 53/2,500   |
| Max torque                    | kg.m/rpm    | 16.8/1,600                                       |
| Governor                      |             | -  |
| Alternator                    |             | 12V - 65A  |
| Starting motor                |             | 12V - 2.2kW                                      |
| Certification                 |             | EC Stage-3A / China Tier-2                       |
| Application                   |             | Construction equipment<br>Agricultural machinery |

## General View of Engine



# D4BB-C8

64PS/19.2kg.m

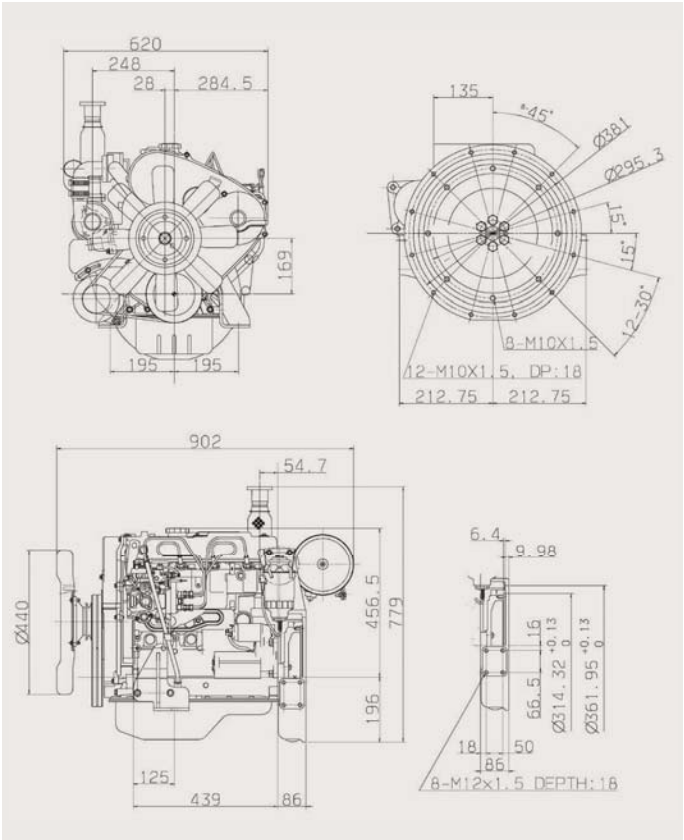
Industrial Engine



## Specifications

| Engine model                  |             | D4BB-C8(AG50)                                    |
|-------------------------------|-------------|--|
| Engine type                   |             | 4 Cycle, water cooled                            |
| Injection type                |             | Indirect injection                               |
| No. of cyl. And configuration |             | 4-in line  |
| Aspiration                    |             | T.C  |
| Displacement (cc)             |             | 2,607  |
| Bore × Stroke (mm)            |             | 91.1 × 100                                       |
| Compression ratio             |             | 22 : 1   |
| Dry weight (kg)               |             | 215  |
| Dimension                     | Length (mm) | 902  |
|                               | Width (mm)  | 620  |
|                               | Height (mm) | 779  |
| Max power                     | PS/rpm      | 64/2,500   |
| Max torque                    | kg.m/rpm    | 19.9/2,000                                       |
| Governor                      |             | -  |
| Alternator                    |             | 12V - 65A  |
| Starting motor                |             | 12V - 2.2kW                                      |
| Certification                 |             | -  |
| Application                   |             | Construction equipment<br>Agricultural machinery |

## General View of Engine





# D4BB-P1

40PS/15kg.m

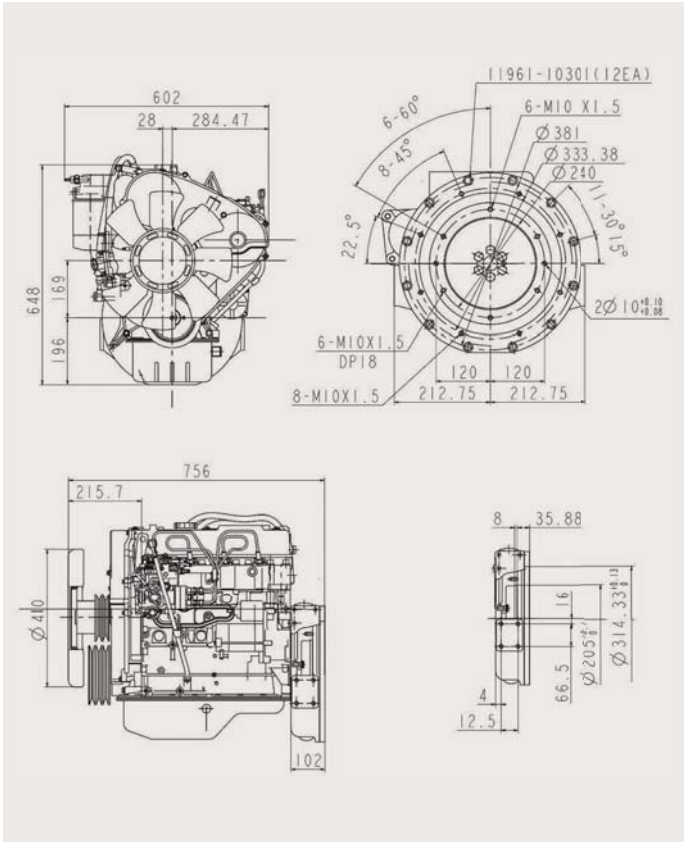
Industrial Engine



### Specifications

| Engine model                  |             | D4BB-P1(AG32)         |
|-------------------------------|-------------|-----------------------|
| Engine type                   |             | 4 Cycle, water cooled |
| Injection type                |             | Indirect injection    |
| No. of cyl. And configuration |             | 4-in line             |
| Aspiration                    |             | Н.А                   |
| Displacement (cc)             |             | 2,607                 |
| Bore × Stroke (mm)            |             | 91.1 × 100            |
| Compression ratio             |             | 22 : 1                |
| Dry weight (kg)               |             | 200                   |
| Dimension                     | Length (mm) | 756                   |
|                               | Width (mm)  | 602                   |
|                               | Height (mm) | 648                   |
| Max power                     | PS/rpm      | 40/2,000              |
| Max torque                    | kg.m/rpm    | 15/1,500              |
| Governor                      |             | -                     |
| Alternator                    |             | -                     |
| Starting motor                |             | 24V - 5.0kW           |
| Certification                 |             | -                     |
| Application                   |             | Bus cooler            |

### General View of Engine



# G4FC-F1

55PS/13.9kg.m

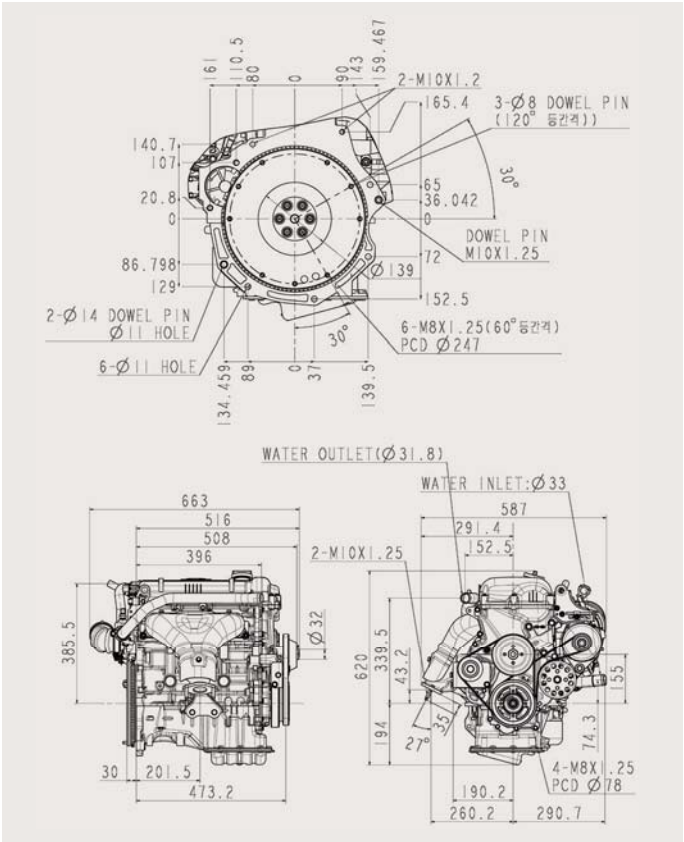
Industrial Engine



### Specifications

| Engine model                  |             | G4FC-F1(NG97)         |
|-------------------------------|-------------|-----------------------|
| Engine type                   |             | 4 Cycle, water cooled |
| Injection type                |             | MPI                   |
| No. of cyl. And configuration |             | 4-in line             |
| Aspiration                    |             | Н.А                   |
| Displacement (cc)             |             | 1,591                 |
| Bore × Stroke (mm)            |             | 77.0 × 85.44          |
| Compression ratio             |             | 10.5 : 1              |
| Dry weight (kg)               |             | 95                    |
| Dimension                     | Length (mm) | 663                   |
|                               | Width (mm)  | 587                   |
|                               | Height (mm) | 620                   |
| Max power                     | PS/rpm      | 55/2,800              |
| Max torque                    | kg.m/rpm    | 13.9/2,800            |
| Governor                      |             | -                     |
| Alternator                    |             | 13.5V - 90A           |
| Starting motor                |             | 12V - 0.9kW           |
| Certification                 |             | -                     |
| Application                   |             | Speed sprayer         |

### General View of Engine

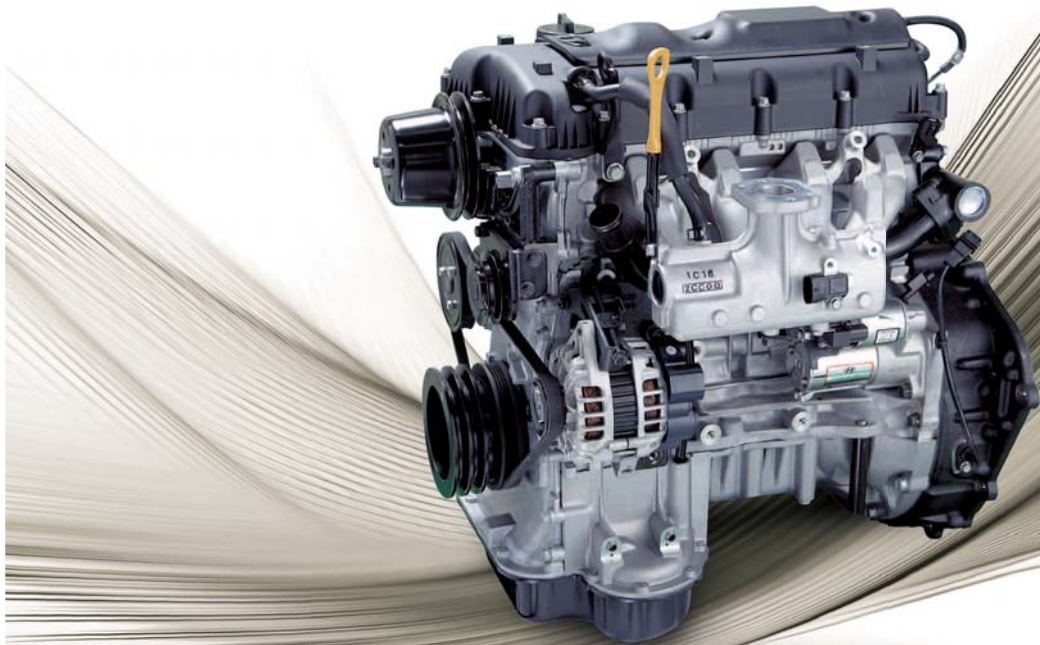




# L4KB-C1

65PS/18.5kg.m

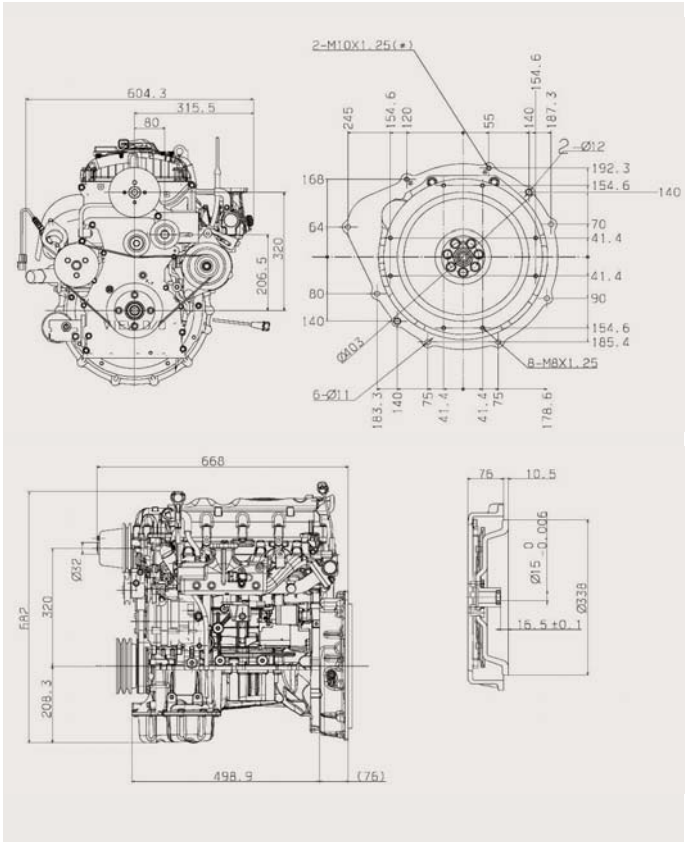
Industrial Engine



## Specifications

| Engine model                  |             | L4KB-C1(CF11)         |
|-------------------------------|-------------|-----------------------|
| Engine type                   |             | 4 Cycle, water cooled |
| Injection type                |             | -                     |
| No. of cyl. And configuration |             | 4-in line             |
| Aspiration                    |             | N.A                   |
| Displacement (cc)             |             | 2,359                 |
| Bore × Stroke (mm)            |             | 88.0 × 97.0           |
| Compression ratio             |             | 10.5 : 1              |
| Dry weight (kg)               |             | 153                   |
| Dimension                     | Length (mm) | 668                   |
|                               | Width (mm)  | 604                   |
|                               | Height (mm) | 682                   |
| Max power                     | PS/rpm      | 65/2,500              |
| Max torque                    | kg.m/rpm    | 18.5/1,600            |
| Governor                      |             | -                     |
| Alternator                    |             | 13.5V - 90A           |
| Starting motor                |             | 12V - 1.4kW           |
| Certification                 |             | EPA Tier-4            |
| Application                   |             | Forklift truck        |

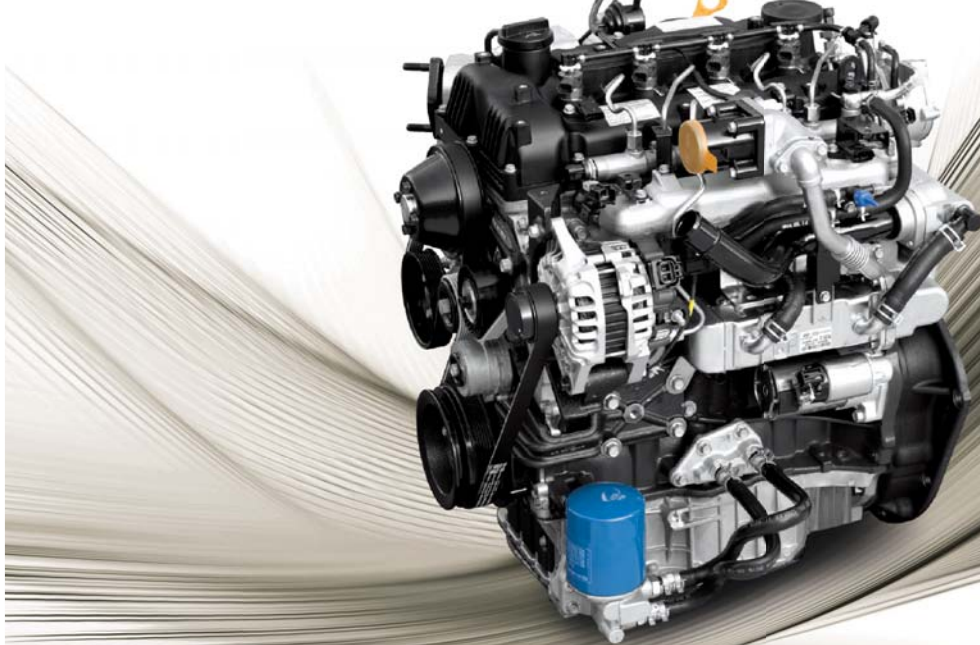
## General View of Engine



# D4HB-C1

65PS/24.1kg.m

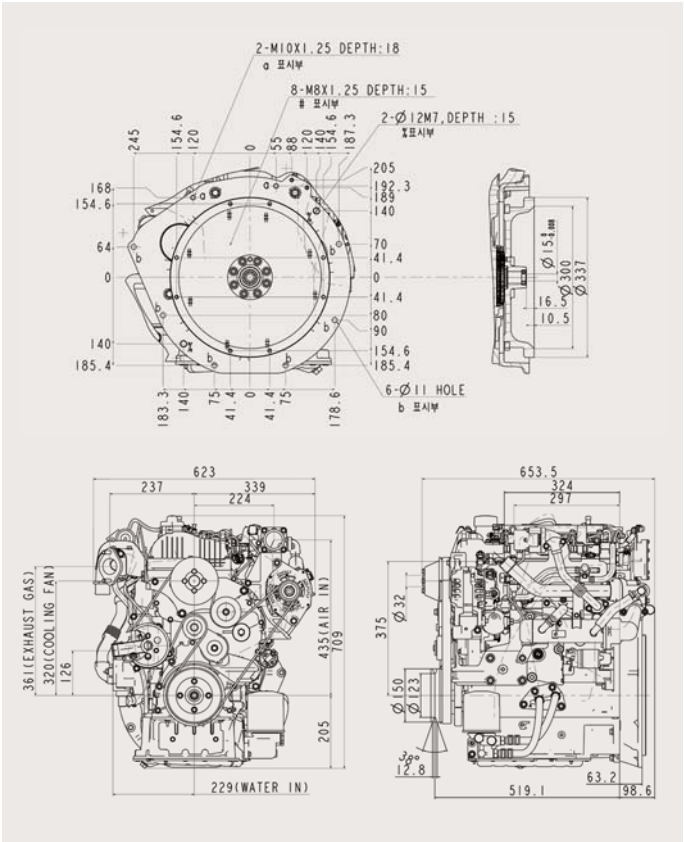
Industrial Engine



## Specifications

| Engine model                  |             | D4HB-C1(KS95)         |
|-------------------------------|-------------|-----------------------|
| Engine type                   |             | 4 Cycle, water cooled |
| Injection type                |             | CRDi                  |
| No. of cyl. And configuration |             | 4-in line             |
| Aspiration                    |             | TCI                   |
| Displacement (cc)             |             | 2,199                 |
| Bore × Stroke (mm)            |             | 85.4 × 96.0           |
| Compression ratio             |             | 16:01                 |
| Dry weight (kg)               |             | 210                   |
| Dimension                     | Length (mm) | 654                   |
|                               | Width (mm)  | 623                   |
|                               | Height (mm) | 709                   |
| Max power                     | PS/rpm      | 65.0/2,300            |
| Max torque                    | kg.m/rpm    | 24.1/1,600            |
| Governor                      |             | ECU                   |
| Alternator                    |             | 13.5V - 90A           |
| Starting motor                |             | 12V - 2.0kW           |
| Certification                 |             | DOM Tier-4            |
| Application                   |             | Forklift truck        |

## General View of Engine





# D4AK-P

85PS/25.5kg.m

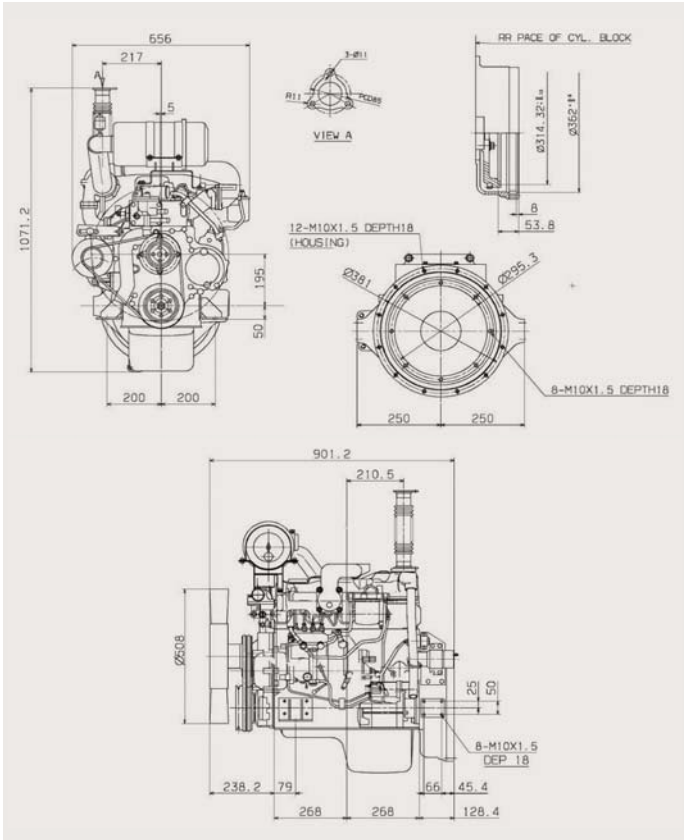
Industrial Engine



## Specifications

| Engine model                  |             | D4AK-P(EM2B)            |
|-------------------------------|-------------|-------------------------|
| Engine type                   |             | 4 Cycle, water cooled   |
| Injection type                |             | Direct injection        |
| No. of cyl. And configuration |             | 4-in line               |
| Aspiration                    |             | T.C                     |
| Displacement (cc)             |             | 3,298                   |
| Bore × Stroke (mm)            |             | 100 × 105               |
| Compression ratio             |             | 16 : 1                  |
| Dry weight (kg)               |             | 334                     |
| Dimension                     | Length (mm) | 901                     |
|                               | Width (mm)  | 656                     |
|                               | Height (mm) | 1,071                   |
| Max power                     | PS/rpm      | 85/2,400                |
| Max torque                    | kg.m/rpm    | 25.5/1,800              |
| Governor                      |             | Bosch RSV type          |
| Alternator                    |             | 24V - 50A               |
| Starting motor                |             | 24V - 5.0kW             |
| Certification                 |             | -                       |
| Application                   |             | Pump, General power use |

## General View of Engine



# D4DA-P

100PS/37kg.m

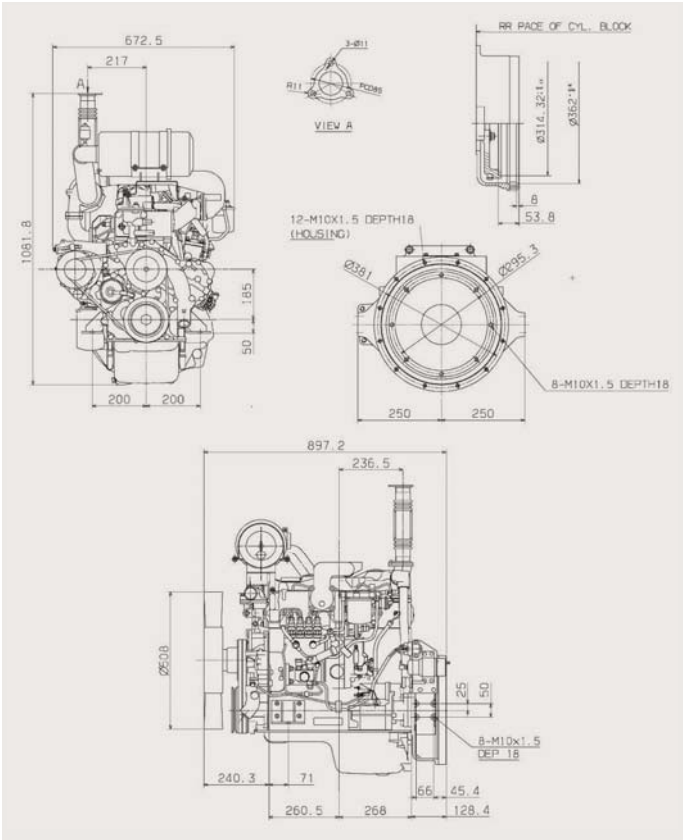
Industrial Engine



## Specifications

| Engine model                  |             | D4DA-P(EM1P)            |
|-------------------------------|-------------|-------------------------|
| Engine type                   |             | 4 Cycle, water cooled   |
| Injection type                |             | Direct injection        |
| No. of cyl. And configuration |             | 4-in line               |
| Aspiration                    |             | T.C                     |
| Displacement (cc)             |             | 3,907                   |
| Bore × Stroke (mm)            |             | 104 × 115               |
| Compression ratio             |             | 16.5 : 1                |
| Dry weight (kg)               |             | 350                     |
| Dimension                     | Length (mm) | 897                     |
|                               | Width (mm)  | 673                     |
|                               | Height (mm) | 1,082                   |
| Max power                     | PS/rpm      | 100/2,000               |
| Max torque                    | kg.m/rpm    | 37/1,700                |
| Governor                      |             | Bosch RSV type          |
| Alternator                    |             | 24V - 40A               |
| Starting motor                |             | 24V - 5.0kW             |
| Certification                 |             | -                       |
| Application                   |             | Pump, General power use |

## General View of Engine





# D4GB-C1

110PS/42kg.m

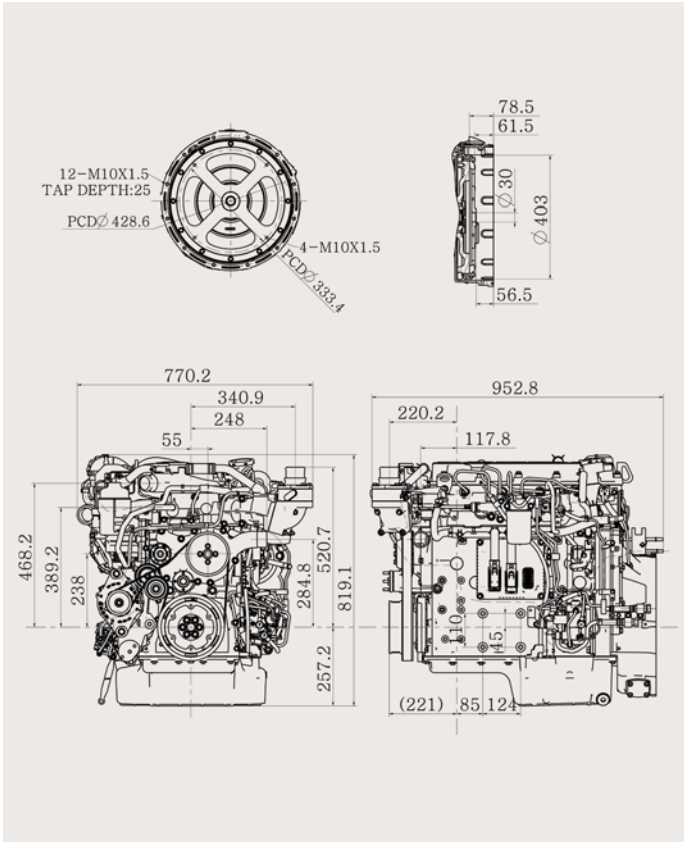
Industrial Engine



## Specifications

| Engine model                  |             | D4GB-C1(QF99)         |
|-------------------------------|-------------|-----------------------|
| Engine type                   |             | 4 Cycle, water cooled |
| Injection type                |             | CRDi                  |
| No. of cyl. And configuration |             | 4-in line             |
| Aspiration                    |             | TCI                   |
| Displacement (cc)             |             | 3,933                 |
| Bore × Stroke (mm)            |             | 103 × 118             |
| Compression ratio             |             | 17.1 : 1              |
| Dry weight (kg)               |             | 430                   |
| Dimension                     | Length (mm) | 953                   |
|                               | Width (mm)  | 770                   |
|                               | Height (mm) | 819                   |
| Max power                     | PS/rpm      | 110/2,250             |
| Max torque                    | kg.m/rpm    | 42/1,600              |
| Governor                      |             | ECU                   |
| Alternator                    |             | 24V - 70A             |
| Starting motor                |             | 24V - 5.5Kw           |
| Certification                 |             | KOR Tier-4            |
| Application                   |             | Forklift              |

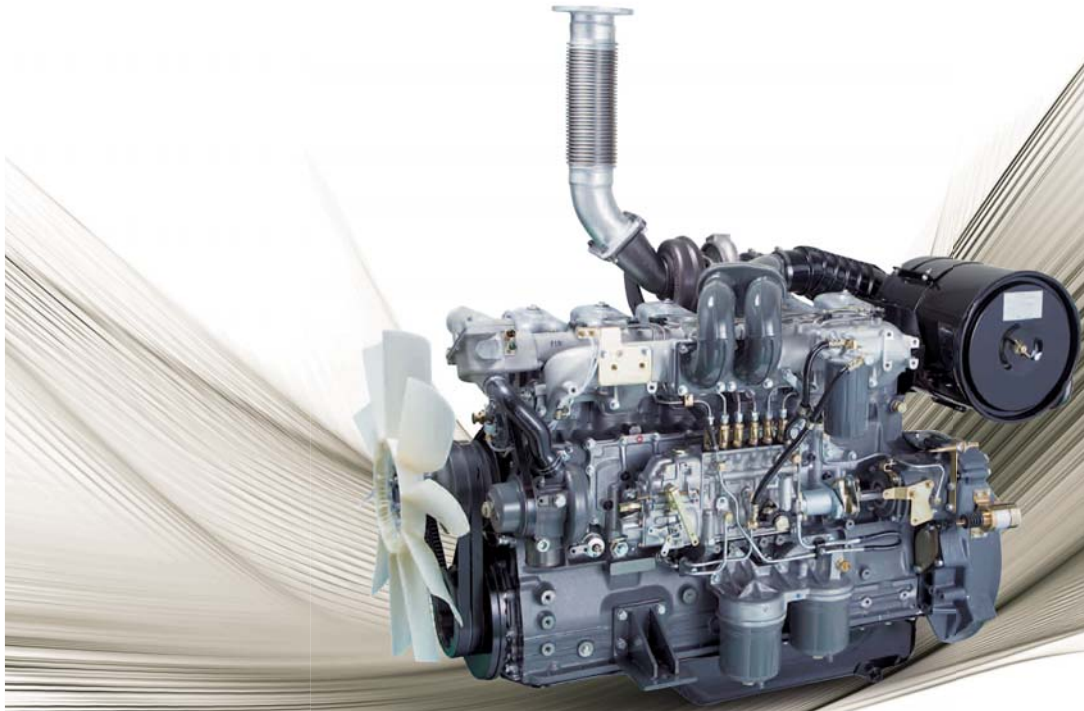
## General View of Engine



# D6AZ-P

280PS/115kg.m

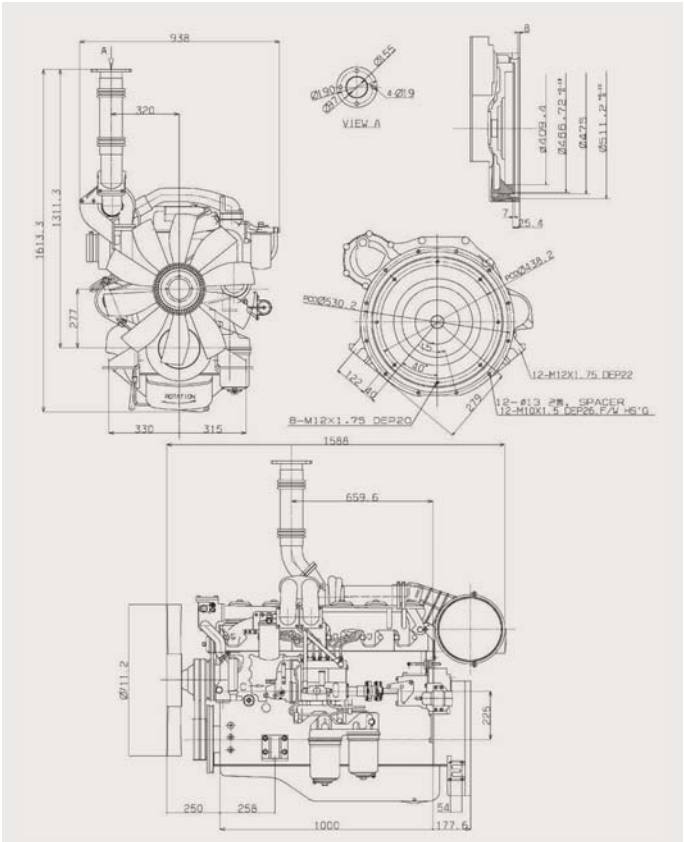
Industrial Engine



## Specifications

| Engine model                  |             | D6AZ-P(EH3P)            |
|-------------------------------|-------------|-------------------------|
| Engine type                   |             | 4 Cycle, water cooled   |
| Injection type                |             | Direct injection        |
| No. of cyl. And configuration |             | 6-in line               |
| Aspiration                    |             | T.C                     |
| Displacement (cc)             |             | 11,149                  |
| Bore × Stroke (mm)            |             | 130 × 140               |
| Compression ratio             |             | 16.5 : 1                |
| Dry weight (kg)               |             | 1,010                   |
| Dimension                     | Length (mm) | 1,588                   |
|                               | Width (mm)  | 938                     |
|                               | Height (mm) | 1,613                   |
| Max power                     | PS/rpm      | 280/2,100               |
| Max torque                    | kg.m/rpm    | 115/1,400               |
| Governor                      |             | Bosch RSV type          |
| Alternator                    |             | 24V - 70A               |
| Starting motor                |             | 24V - 5.5kW             |
| Certification                 |             | -                       |
| Application                   |             | Pump, General power use |

## General View of Engine





| Engine model | D4BB-C1 | D4BB-C2 | D4BB-C4 | D4BB-C8 | D4BB-C5 | D4BB-C7 | D4BB-M | D4BB-P1 | D4BB-G6 | D4BB-P9 |
|--------------|---------|---------|---------|---------|---------|---------|--------|---------|---------|---------|
| Engine code  | AG90    | AG89    | AG35    | AG50    | AG43    | AG45    | AG36   | AG32    | AH23    | AH24    |

General

|                               |        |                    |     |     |     |     |     |     |     |          |     |
|-------------------------------|--------|--------------------|-----|-----|-----|-----|-----|-----|-----|----------|-----|
| Fuel                          |        | Diesel             |     |     |     |     |     |     |     |          |     |
| Injection type                |        | Indirect injection |     |     |     |     |     |     |     |          |     |
| No. of cyl. And configuration |        | 4-in line          |     |     |     |     |     |     |     |          |     |
| Aspiration                    |        | N.A                |     |     | T.C | N.A |     |     |     | T.C(N.A) | T.C |
| Displacement (cc)             |        | 2,607              |     |     |     |     |     |     |     |          |     |
| Bore x Stroke (mm)            |        | 91.1 x 100         |     |     |     |     |     |     |     |          |     |
| Compression ratio             |        | 22 : 1             |     |     |     |     |     |     |     |          |     |
| Dry weight (kg)               |        | 200                | 200 | 200 | 215 | 200 | 200 | 190 | 200 | 200      | 207 |
| Dimension (mm)                | Length | 669                | 756 | 883 | 902 | 683 | 655 | 615 | 756 | 780      | 738 |
|                               | Width  | 602                | 602 | 631 | 620 | 611 | 602 | 597 | 602 | 604      | 604 |
|                               | Height | 648                | 648 | 806 | 779 | 659 | 660 | 633 | 648 | 844      | 844 |

Performance

|                       |            |            |            |            |            |            |          |          |            |            |
|-----------------------|------------|------------|------------|------------|------------|------------|----------|----------|------------|------------|
| Max power (PS/rpm)    | 53/2,500   | 47/2,400   | 53/2,500   | 64/2,500   | 53/2,500   | 53/2,500   | 80/4,000 | 40/2,000 | 64/2,500   | 38.6/1,600 |
| Max torque (kg.m/rpm) | 16.8/1,600 | 14.3/2,300 | 16.8/1,600 | 19.9/2,000 | 16.8/1,600 | 16.8/1,600 | 17/2,200 | 15/1,500 | 19.9/2,000 | 17.3/1,600 |

Specifications

|                            |             |       |       |           |         |       |             |             |             |       |
|----------------------------|-------------|-------|-------|-----------|---------|-------|-------------|-------------|-------------|-------|
| Cooling water capacity (ℓ) | 3.9         |       |       |           |         |       |             |             |             |       |
| Oil capacity (ℓ)           | 5.4         |       |       |           |         |       |             |             |             |       |
| Governor                   | -           |       |       |           |         |       |             |             |             |       |
| Alternator                 | 12V - 65A   |       |       | 13.5V-70A | 12V-65A | -     |             | 12V-65A     | -           |       |
| Starting motor             | 12V - 2.2kW |       |       |           |         |       | 12V - 2.0kW | 24V - 5.0kW | 12V - 2.2kW |       |
| rpm                        | 2,500       | 2,400 | 2,500 | 2,500     | 2,500   | 2,500 | 4,000       | 2,000       | 2,500       | 1,600 |
| Fuel consumption (g/ps.h)  | 182.0       | 177.0 | 182.0 | 180.0     | 182.0   | 182.0 | 220.0       | 177.1       | 180.0       | 187.9 |

Performance

|               |               |  |              |   |                |  |        |            |               |           |
|---------------|---------------|--|--------------|---|----------------|--|--------|------------|---------------|-----------|
| Certification | EC Stage-3A   | -  | EC Stage-3A  | - | EC Stage-3A    |  | -      | -          | -             | -         |
|               | China Tier-2  | -  | China Tier-2 | - | China Tier-2   |  | -      | -          | -             | -         |
| Application   | Speed sprayer | Construction equipment<br>Agricultural machinery |              |   | Forklift truck |  | Marine | Bus cooler | General Power | Fire pump |

| Engine model | G4FC-F1 | L4KB-C1 | D4HB-C1 | D4AK-P | D4DA-P | D4DD-C | D4GB-C1 | D6AZ-P | D6AC-C | D6CC-P |
|--------------|---------|---------|---------|--------|--------|--------|---------|--------|--------|--------|
| Engine code  | ΠG97    | CF11    | KS95    | EM2B   | EM1P   | EM2G   | QF99    | EH3P   | EH3Π   | EH5G   |

General

|                               |              |             |             |                  |           |                  |                  |           |                  |
|-------------------------------|--------------|-------------|-------------|------------------|-----------|------------------|------------------|-----------|------------------|
| Fuel                          | Gasoline     | LPG         | Diesel      | Diesel           |           | Diesel           | Diesel           |           | Diesel           |
| Injection type                | MPI          | -           | CRDi        | Direct injection |           | Direct injection | Direct injection |           | Direct injection |
| No. of cyl. And configuration | 4-in line    | 4-in line   | 4-in line   | 4-in line        |           | 4-in line        | 6-in line        |           | 6-in line        |
| Aspiration                    | N.A          | N.A         | T.C.I       | T.C              |           | T.C.I            | T.C.I            | T.C       | T.C.I            |
| Displacement (cc)             | 1,591        | 2,359       | 2,199       | 3,298            | 3,907     | 3,907            | 3,933            | 11,149    |                  |
| Bore x Stroke (mm)            | 77.0 x 85.44 | 88.0 x 97.0 | 85.4 x 96.0 | 100 x 105        | 104 x 115 | 104 x 115        | 103 x 118        | 130 x 140 |                  |
| Compression ratio             | 10.5 : 1     | 10.5 : 1    | 16 : 1      | 16 : 1           | 16.5 : 1  | 17.5 : 1         | 17.1 : 1         | 16.5 : 1  |                  |
| Dry weight (kg)               | 95           | 153         | 210         | 334              | 350       | 345              | 430              | 1,010     | 1,050            |
| Dimension (mm)                | Length       | 663         | 668         | 654              | 901       | 897              | 834              | 953       | 1,588            |
|                               | Width        | 587         | 604         | 623              | 656       | 673              | 663              | 770       | 938              |
|                               | Height       | 620         | 682         | 709              | 1,071     | 1,082            | 800              | 819       | 1,613            |

Performance

|                       |            |            |            |            |           |           |           |           |           |           |
|-----------------------|------------|------------|------------|------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Max power (PS/rpm)    | 55/2,800   | 65/2,500   | 65/2,300   | 85/2,400   | 100/2,000 | 100/2,300 | 110/2,250 | 280/2,100 | 280/1,900 | 440/2,000 |
| Max torque (kg.m/rpm) | 13.9/2,800 | 18.5/1,600 | 24.1/1,600 | 25.5/1,800 | 37/1,700  | 38/1,600  | 42/1,600  | 115/1,400 | 120/1,400 | 216/1,200 |

Specifications

|                            |             |             |             |                |           |           |             |                |             |
|----------------------------|-------------|-------------|-------------|----------------|-----------|-----------|-------------|----------------|-------------|
| Cooling water capacity (ℓ) | 3.0         | 2.2         | 5.0         | 8.3            |           | 8.1       | 22.0        | 22.0           | 42.0        |
| Oil capacity (ℓ)           | 3.3         | 5.1         | 6.3         | 8.5            |           | 14.0      | 24.0        | 27.3           | 28.0        |
| Governor                   | -           | -           | ECU         | Bosch RSV type |           | ECU       | ECU         | Bosch RSV type |             |
| Alternator                 | 13.5V - 90A | 13.5V - 90A | 13.5V - 90A | 24V -50A       | 24V - 40A | 24V - 50A | 24V-70A     | 24V - 70A      |             |
| Starting motor             | 12V - 0.9kW | 12V - 1.4kW | 12V - 2.0kw | 24V - 5.0kW    |           | 24V-5.5kW | 24V - 5.5kW |                | 24V - 6.0kW |
| rpm                        | 2,800       | -           | 2,450       | 2,400          | 2,300     | 1,700     | 2,250       | 2,100          | 1,400       |
| Fuel consumption (g/ps.h)  | 207.4       | -           | 161.0       | 171.0          | 157.0     | 139.2     | 159.0       | 162.0          | 143.0       |

Performance

|               |               |                |                |                            |   |                |                |      |           |             |
|---------------|---------------|----------------|----------------|----------------------------|---|----------------|----------------|------|-----------|-------------|
| Certification | -             | EPA Tier-4     | KOR Tier-4     | -                          | - | EC Stage-3A    | KOR Tier-4     | -    | -         | -           |
|               | -             | -              | -              | -                          | - | EPA Tier-3     | -              | -    | -         | -           |
| Application   | Speed sprayer | Forklift truck | Forklift truck | Pump,<br>General power use |   | Forklift truck | Forklift truck | Pump | Excavator | Transporter |



# Generator Engine

발전기용 엔진

## D4BB-G1, G2

20kWe, 26kWe Grade

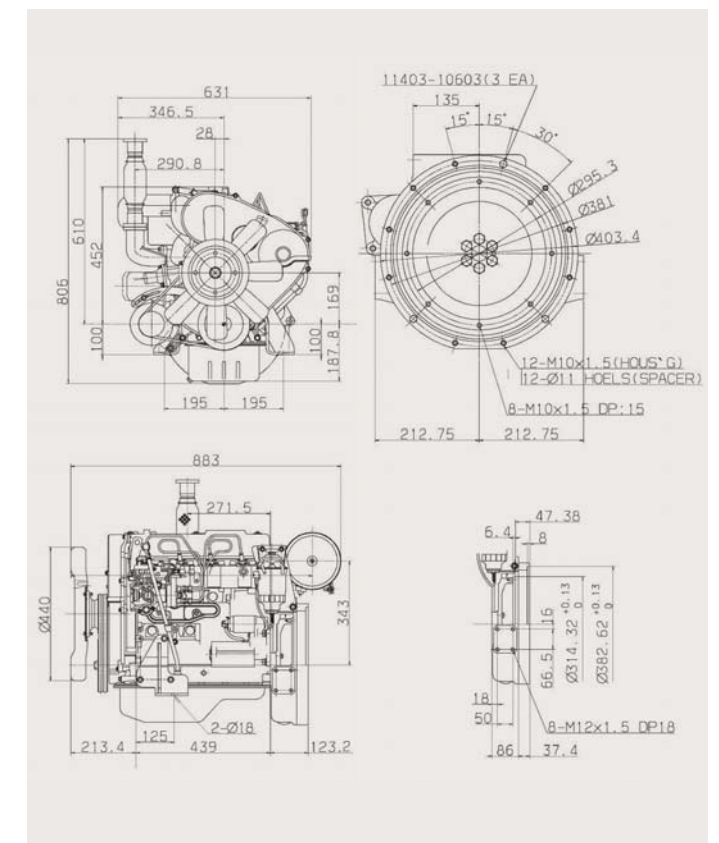
Generator Engine



### Specifications

| Engine model                  |             | D4BB-G1(AG31)         | D4BB-G2(AG39) |
|-------------------------------|-------------|-----------------------|---------------|
| Engine type                   |             | 4 Cycle, water cooled |               |
| Injection type                |             | Indirect injection    |               |
| No. of cyl. And configuration |             | 4-in line             |               |
| Aspiration                    |             | N.A                   |               |
| Displacement (cc)             |             | 2,607                 |               |
| Bore × stroke (mm)            |             | 91.1 × 100            |               |
| Compression ratio             |             | 22 : 1                |               |
| Dry weight (kg)               |             | 210                   |               |
| Dimension                     | Length (mm) | 883                   |               |
|                               | Width (mm)  | 631                   |               |
|                               | Height (mm) | 806                   |               |
| rpm                           |             | 1,800                 | 1,800         |
| Stand-by power                | PS          | 28                    | 45            |
|                               | kW          | 21                    | 33            |
| Prime power                   | PS          | 25                    | 41            |
|                               | kW          | 19                    | 30            |
| Governor                      |             | -                     |               |
| Flywheel                      |             | SAE #10               |               |
| Flywheel housing              |             | SAE #4                |               |
| Alternator                    |             | 12V - 65A             |               |
| Starting motor                |             | 12V - 2.2kW           |               |

### General View of Engine





# D4AF-G

## 40kWe Grade

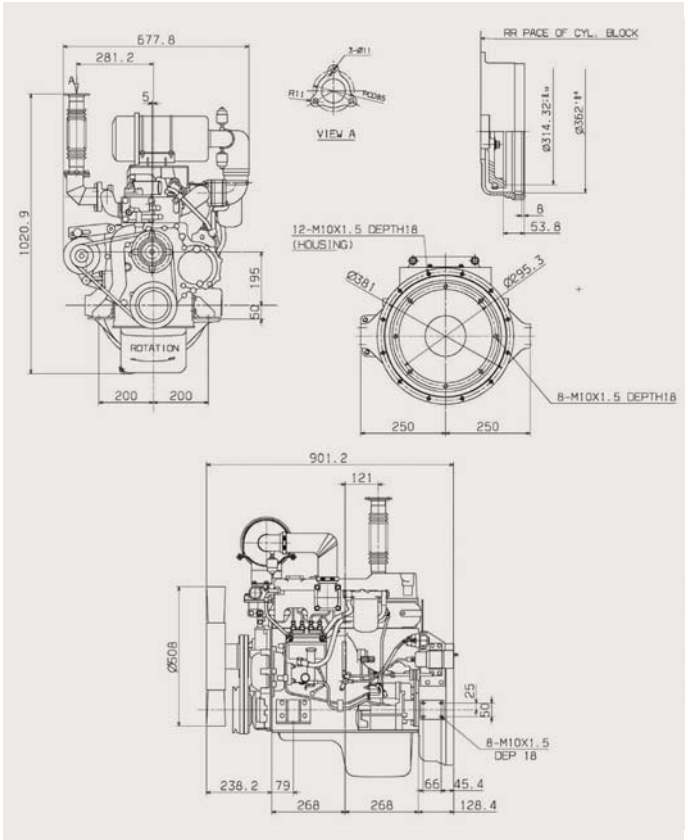
Generator Engine



### Specifications

| Engine model                  |             | D4AF-G(EM68)          |       |
|-------------------------------|-------------|-----------------------|-------|
| Engine type                   |             | 4 Cycle, water cooled |       |
| Injection type                |             | Direct injection      |       |
| No. of cyl. And configuration |             | 4-in line             |       |
| Aspiration                    |             | N.A                   |       |
| Displacement (cc)             |             | 3,568                 |       |
| Bore × stroke (mm)            |             | 104 × 105             |       |
| Compression ratio             |             | 17.5 : 1              |       |
| Dry weight (kg)               |             | 324                   |       |
| Dimension                     | Length (mm) | 901                   |       |
|                               | Width (mm)  | 678                   |       |
|                               | Height (mm) | 1,021                 |       |
| rpm                           |             | 1,500                 | 1,800 |
| Stand-by power                | PS          | 50                    | 60    |
|                               | kW          | 37                    | 44    |
| Prime power                   | PS          | 45                    | 54    |
|                               | kW          | 33                    | 40    |
| Governor                      |             | Bosch RSV type        |       |
| Flywheel                      |             | SAE #10               |       |
| Flywheel housing              |             | SAE #4                |       |
| Alternator                    |             | 24V - 50A             |       |
| Starting motor                |             | 24V - 5.0kW           |       |

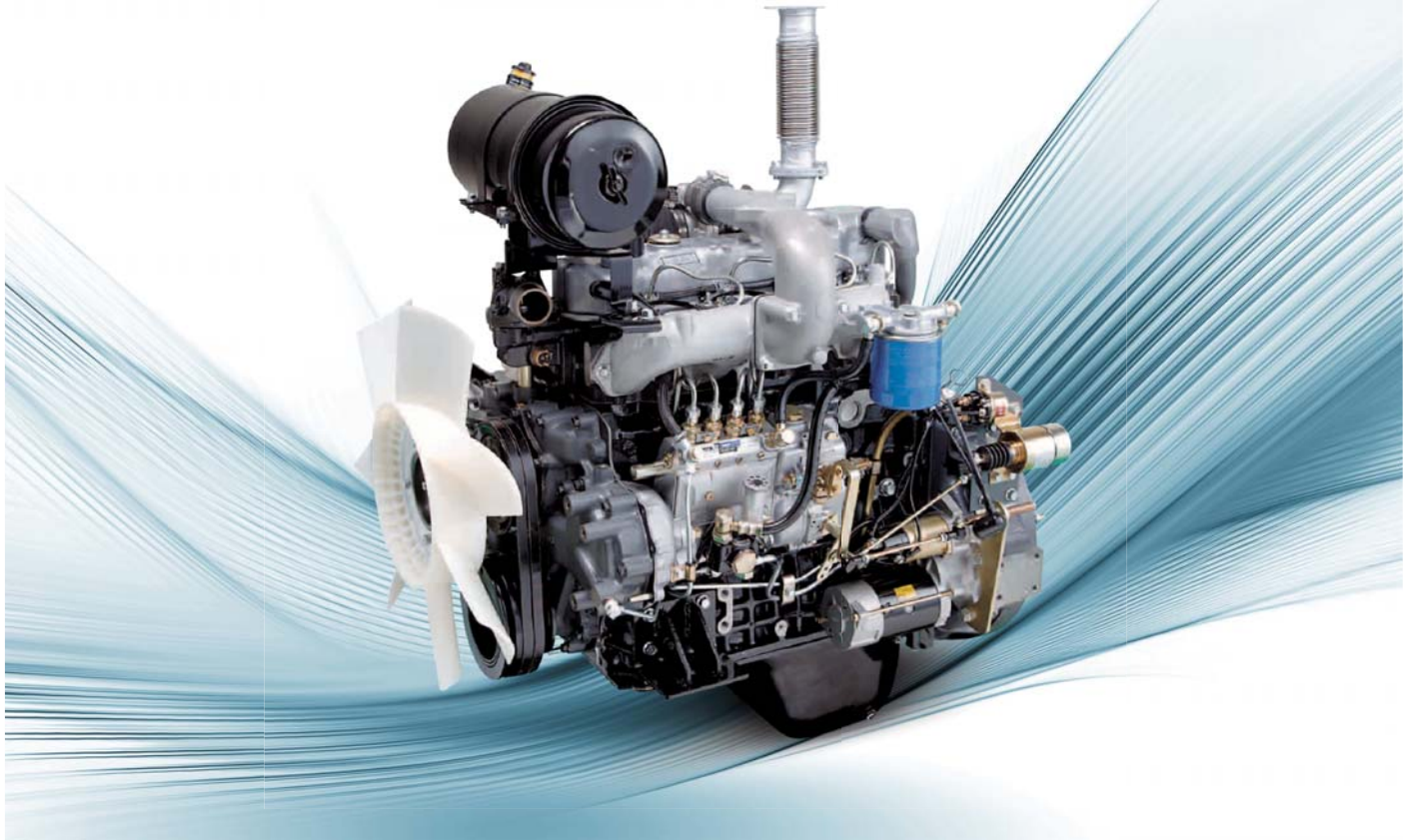
### General View of Engine



# D4AK-G

## 55kWe Grade

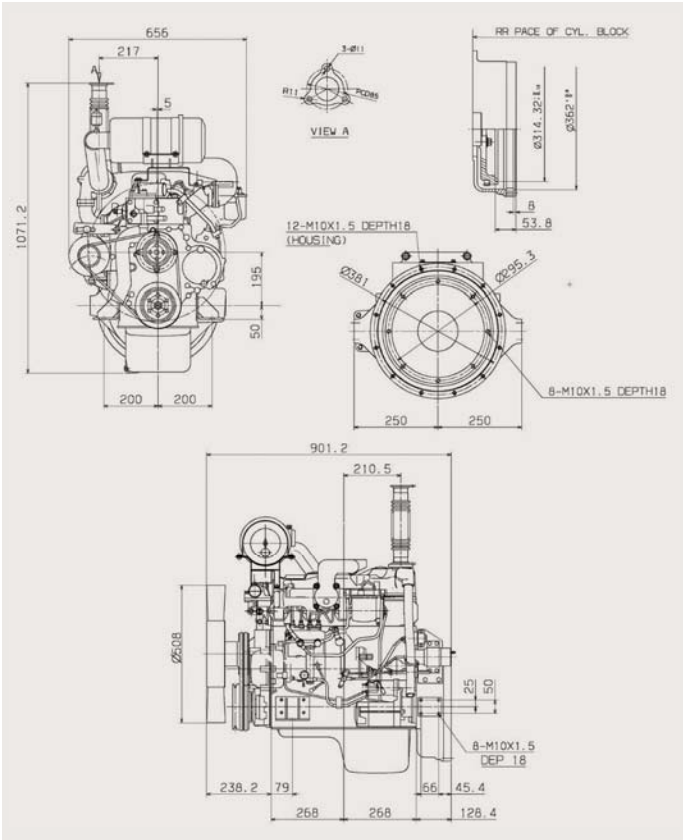
Generator Engine



### Specifications

| Engine model                  |             | D4AK-G(EM69)          |       |
|-------------------------------|-------------|-----------------------|-------|
| Engine type                   |             | 4 Cycle, water cooled |       |
| Injection type                |             | Direct injection      |       |
| No. of cyl. And configuration |             | 4-in line             |       |
| Aspiration                    |             | T.C                   |       |
| Displacement (cc)             |             | 3,298                 |       |
| Bore × stroke (mm)            |             | 100 × 105             |       |
| Compression ratio             |             | 16 : 1                |       |
| Dry weight (kg)               |             | 334                   |       |
| Dimension                     | Length (mm) | 901                   |       |
|                               | Width (mm)  | 656                   |       |
|                               | Height (mm) | 1,071                 |       |
| rpm                           |             | 1,500                 | 1,800 |
| Stand-by power                | PS          | 60                    | 82    |
|                               | kW          | 44                    | 60    |
| Prime power                   | PS          | 54                    | 74    |
|                               | kW          | 40                    | 54    |
| Governor                      |             | Bosch RSV type        |       |
| Flywheel                      |             | SAE #10               |       |
| Flywheel housing              |             | SAE #4                |       |
| Alternator                    |             | 24V - 50A             |       |
| Starting motor                |             | 24V - 5.0kW           |       |

### General View of Engine





# D4DA-G

70kWe Grade

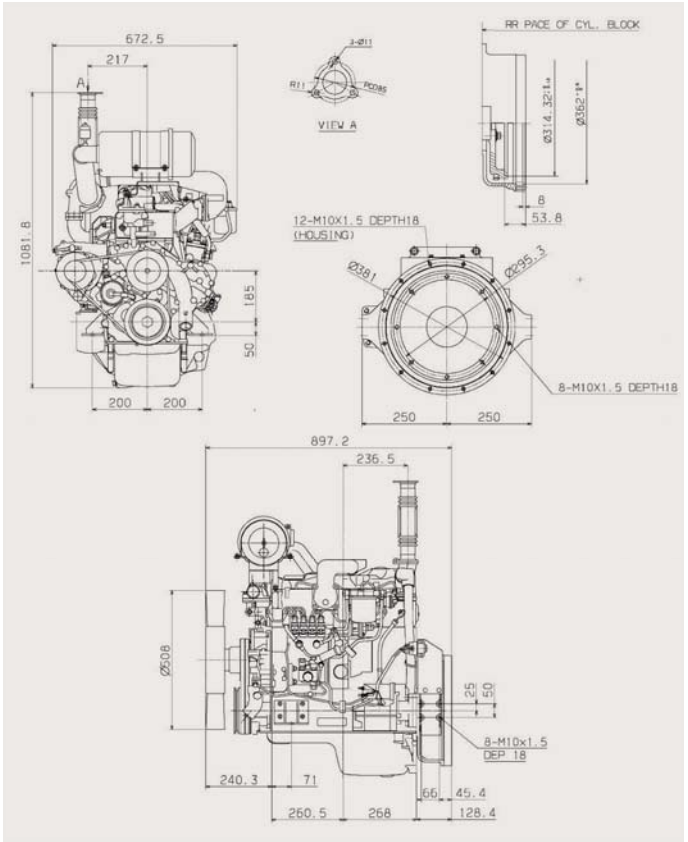
Generator Engine



## Specifications

| Engine model                  |             | D4DA-G(EM2D)          |       |
|-------------------------------|-------------|-----------------------|-------|
| Engine type                   |             | 4 Cycle, water cooled |       |
| Injection type                |             | Direct injection      |       |
| No. of cyl. And configuration |             | 4-in line             |       |
| Aspiration                    |             | T.C                   |       |
| Displacement (cc)             |             | 3,907                 |       |
| Bore × stroke (mm)            |             | 104 × 115             |       |
| Compression ratio             |             | 16.5 : 1              |       |
| Dry weight (kg)               |             | 360                   |       |
| Dimension                     | Length (mm) | 897                   |       |
|                               | Width (mm)  | 673                   |       |
|                               | Height (mm) | 1,082                 |       |
| rpm                           |             | 1,500                 | 1,800 |
| Stand-by power                | PS          | 85                    | 107   |
|                               | kW          | 62                    | 79    |
| Prime power                   | PS          | 75                    | 95    |
|                               | kW          | 55                    | 70    |
| Governor                      |             | Electric              |       |
| Flywheel                      |             | SAE #10               |       |
| Flywheel housing              |             | SAE #4                |       |
| Alternator                    |             | 24V - 40A             |       |
| Starting motor                |             | 24V - 5.0kW           |       |

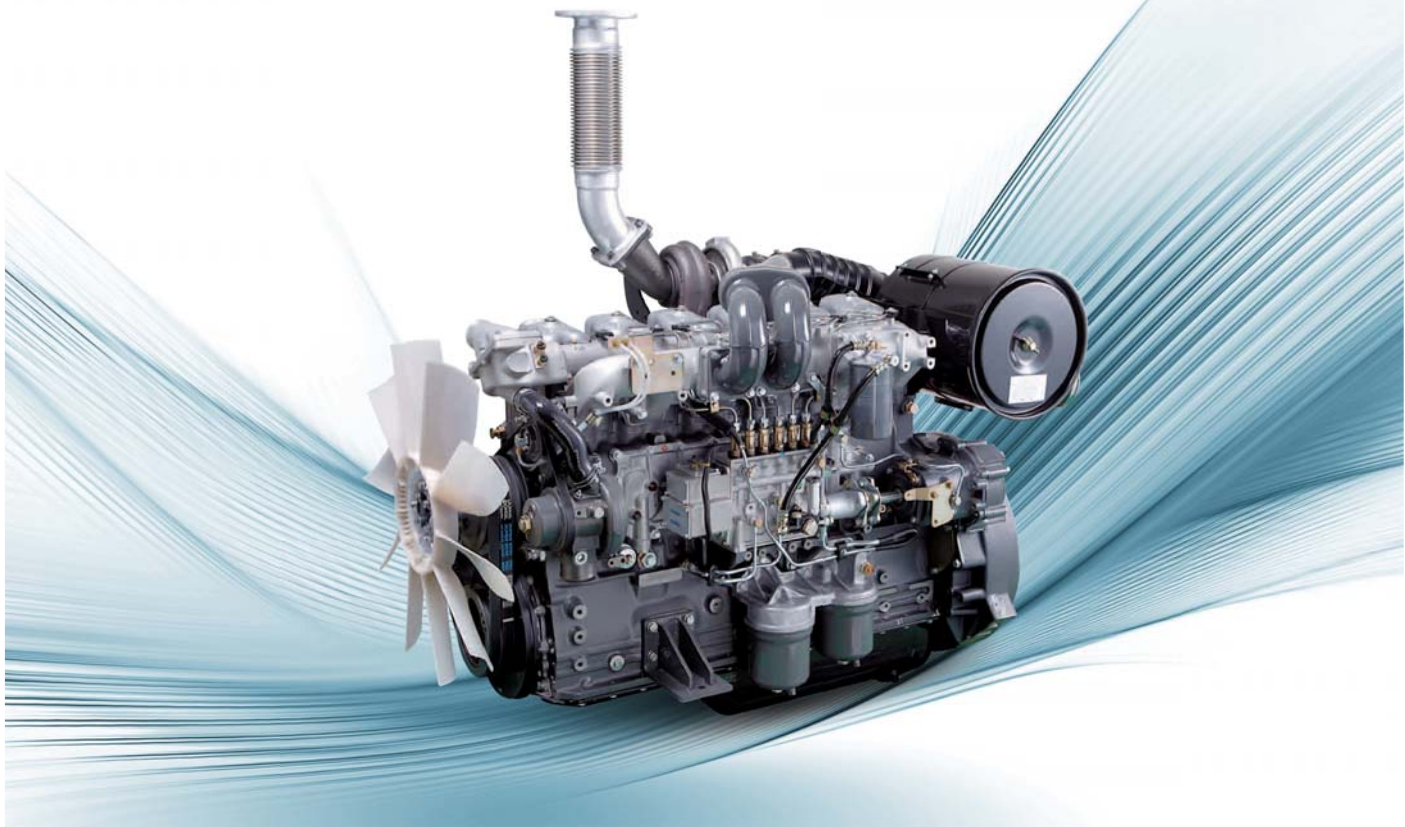
## General View of Engine



# D6AZ-G1,G2

200kWe, 170kWe Grade

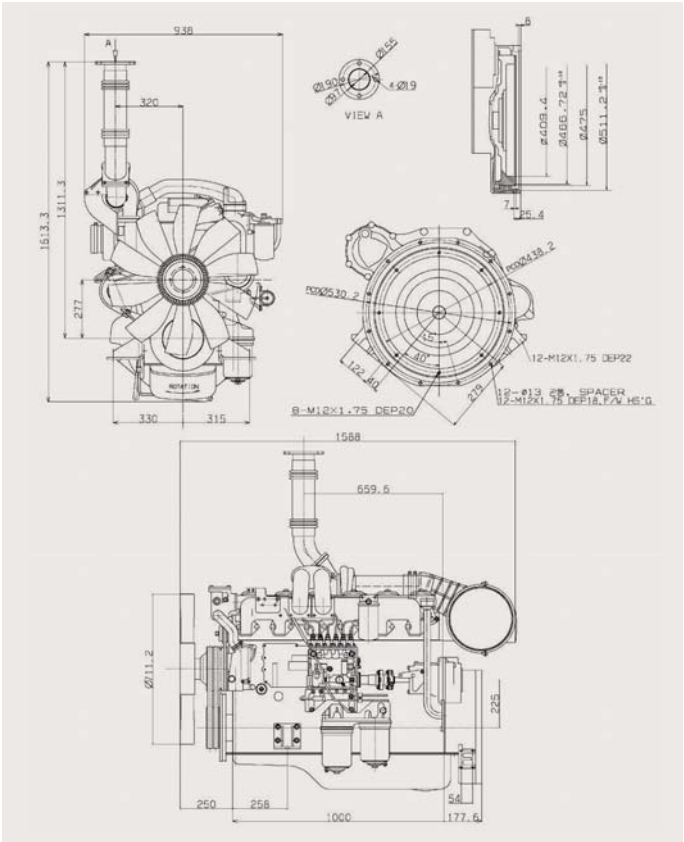
Generator Engine



## Specifications

| Engine model                  |             | D6AZ-G1(EH1X)         |       | D6AZ-G2(EH2X)  |       |
|-------------------------------|-------------|-----------------------|-------|----------------|-------|
| Engine type                   |             | 4 Cycle, water cooled |       |                |       |
| Injection type                |             | Direct injection      |       |                |       |
| No. of cyl. And configuration |             | 6-in line             |       |                |       |
| Aspiration                    |             | T.C                   |       |                |       |
| Displacement (cc)             |             | 11,149                |       |                |       |
| Bore × stroke (mm)            |             | 130 × 140             |       |                |       |
| Compression ratio             |             | 16.5 : 1              |       |                |       |
| Dry weight (kg)               |             | 1,010                 |       |                |       |
| Dimension                     | Length (mm) | 1,588                 |       |                |       |
|                               | Width (mm)  | 938                   |       |                |       |
|                               | Height (mm) | 1,613                 |       |                |       |
| rpm                           |             | 1,500                 | 1,800 | 1,500          | 1,800 |
| Stand-by power                | PS          | 270                   | 309   | 235            | 260   |
|                               | kW          | 199                   | 227   | 173            | 191   |
| Prime power                   | PS          | 243                   | 278   | 212            | 234   |
|                               | kW          | 179                   | 204   | 156            | 172   |
| Governor                      |             | Electric              |       | Bosch RSV type |       |
| Flywheel                      |             | SAE #14               |       |                |       |
| Flywheel housing              |             | SAE #1                |       |                |       |
| Alternator                    |             | 24V – 70A             |       |                |       |
| Starting motor                |             | 24V – 5.5Kw           |       |                |       |

## General View of Engine

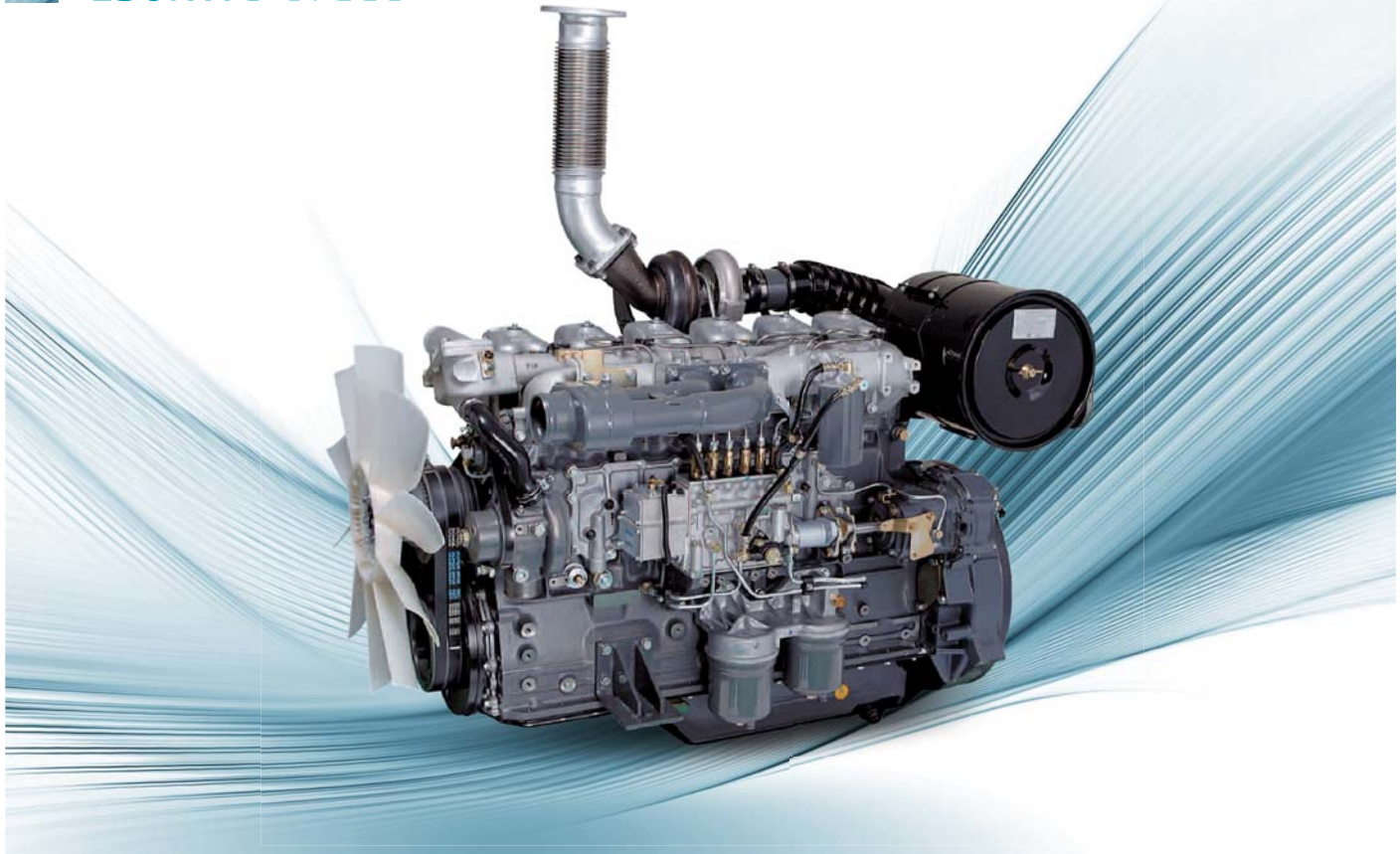




# D6AC-G

## 230kWe Grade

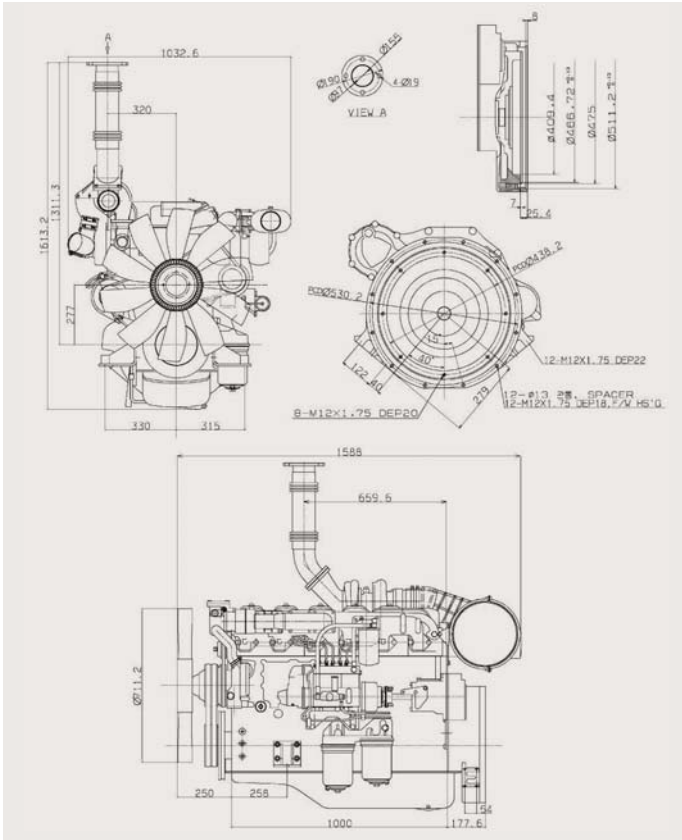
Generator Engine



### Specifications

| Engine model                  |             | D6AC-G(BB17)          |       |
|-------------------------------|-------------|-----------------------|-------|
| Engine type                   |             | 4 Cycle, water cooled |       |
| Injection type                |             | Direct injection      |       |
| No. of cyl. And configuration |             | 6-in line             |       |
| Aspiration                    |             | T.C.I                 |       |
| Displacement (cc)             |             | 11,149                |       |
| Bore × stroke (mm)            |             | 130 × 140             |       |
| Compression ratio             |             | 16.5 : 1              |       |
| Dry weight (kg)               |             | 1,050                 |       |
| Dimension                     | Length (mm) | 1,588                 |       |
|                               | Width (mm)  | 1,033                 |       |
|                               | Height (mm) | 1,613                 |       |
| rpm                           |             | 1,500                 | 1,800 |
| Stand-by power                | PS          | 320                   | 350   |
|                               | kW          | 235                   | 257   |
| Prime power                   | PS          | 288                   | 315   |
|                               | kW          | 219                   | 232   |
| Governor                      |             | Electric              |       |
| Flywheel                      |             | SAE #14               |       |
| Flywheel housing              |             | SAE #1                |       |
| Alternator                    |             | 24V - 70A             |       |
| Starting motor                |             | 24V - 5.5kW           |       |

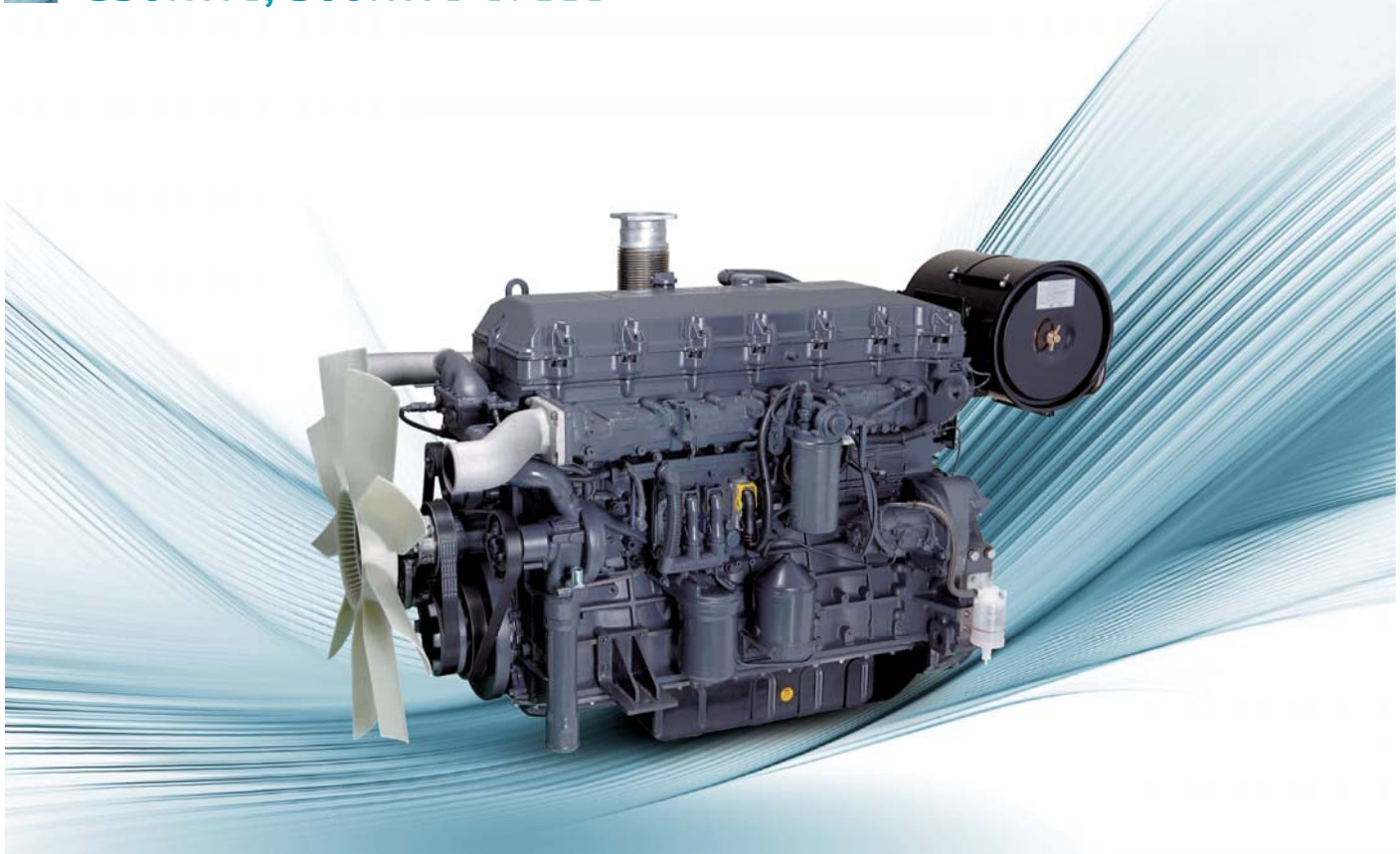
### General View of Engine



# D6CC-G1,G2

## 350kWe, 300kWe Grade

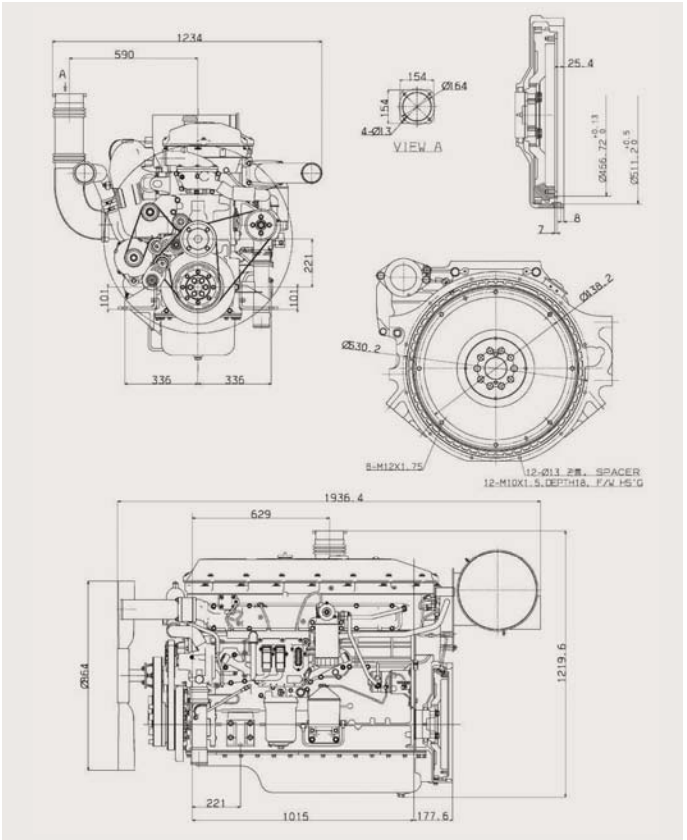
Generator Engine



### Specifications

| Engine model                  |             | D6CC-G1(EH9G)         |       | D6CC-G2(EH7G) |       |
|-------------------------------|-------------|-----------------------|-------|---------------|-------|
| Engine type                   |             | 4 Cycle, water cooled |       |               |       |
| Injection type                |             | Direct injection      |       |               |       |
| No. of cyl. And configuration |             | 6-in line             |       |               |       |
| Aspiration                    |             | T.C.I                 |       |               |       |
| Displacement (cc)             |             | 12,344                |       |               |       |
| Bore × stroke (mm)            |             | 130 × 155             |       |               |       |
| Compression ratio             |             | 17.2 : 1              |       |               |       |
| Dry weight (kg)               |             | 1,210                 |       |               |       |
| Dimension                     | Length (mm) | 1,936                 |       |               |       |
|                               | Width (mm)  | 1,234                 |       |               |       |
|                               | Height (mm) | 1,219                 |       |               |       |
| rpm                           |             | 1,500                 | 1,800 | 1,500         | 1,800 |
| Stand-by power                | PS          | 450                   | 530   | 400           | 460   |
|                               | kW          | 331                   | 390   | 294           | 338   |
| Prime power                   | PS          | 405                   | 477   | 400           | 460   |
|                               | kW          | 298                   | 351   | 294           | 338   |
| Governor                      |             | ECU                   |       |               |       |
| Flywheel                      |             | SAE #14               |       |               |       |
| Flywheel housing              |             | SAE #1                |       |               |       |
| Alternator                    |             | 24V – 80A             |       |               |       |
| Starting motor                |             | 24V – 6.0kW           |       |               |       |

### General View of Engine





# Generator Engine

| Engine model | D4BB-G1 | D4BB-G2 | D4BB-G4 | D4BB-G5 | D4AF-G | D4AK-G | D4DA-G |
|--------------|---------|---------|---------|---------|--------|--------|--------|
| Engine code  | AG31    | AG39    | AG41    | AG49    | EM68   | EM69   | EM2D   |

|                               |                    |     |     |                  |           |           |       |
|-------------------------------|--------------------|-----|-----|------------------|-----------|-----------|-------|
| General                       |                    |     |     |                  |           |           |       |
| Fuel                          | Diesel             |     |     | Diesel           |           |           |       |
| Injection type                | Indirect injection |     |     | Direct injection |           |           |       |
| No. of cyl. And configuration | 4-in line          |     |     | 4-in line        |           |           |       |
| Aspiration                    | П.А                |     | T.C | П.А              | T.C       | T.C       |       |
| Displacement (cc)             | 2,607              |     |     | 3,568            | 3,298     | 3,907     |       |
| Bore x Stroke (mm)            | 91.1 x 100         |     |     | 104 x 105        | 100 x 105 | 104 x 115 |       |
| Compression ratio             | 22 : 1             |     |     | 17.5 : 1         | 16 : 1    | 16.5 : 1  |       |
| Dry weight (kg)               | 210                |     | 215 | 324              | 334       | 360       |       |
| Dimension (mm)                | Length             | 883 |     | 800              | 901       | 901       | 897   |
|                               | Width              | 631 |     | 604              | 678       | 656       | 673   |
|                               | Height             | 806 |     | 844              | 1,021     | 1,071     | 1,082 |

|                |    |       |       |       |       |       |       |       |       |       |       |
|----------------|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Performance    |    |       |       |       |       |       |       |       |       |       |       |
| rpm            |    | 1,800 | 1,800 | 1,500 | 1,800 | 1,500 | 1,800 | 1,500 | 1,800 | 1,500 | 1,800 |
| Stand-by power | PS | 28    | 45    | 26    | 53    | 50    | 60    | 60    | 82    | 85    | 107   |
|                | kW | 21    | 33    | 19    | 39    | 37    | 44    | 44    | 60    | 62    | 79    |
| Prime power    | PS | 26    | 41    | 23    | 48    | 45    | 54    | 54    | 74    | 75    | 95    |
|                | kW | 19    | 30    | 17    | 35    | 33    | 40    | 40    | 54    | 55    | 70    |

|                    |                               |  |  |                               |  |  |  |
|--------------------|-------------------------------|--|--|-------------------------------|--|--|--|
| Lubrication system |                               |  |  |                               |  |  |  |
| Oil capacity (ℓ)   | 5.4                           |  |  | 8.5                           |  |  |  |
| Oil filter         | Paper element(cartridge) type |  |  | Paper element(cartridge) type |  |  |  |

| Fuel system         |                    |                    |          |
|---------------------|--------------------|--------------------|----------|
| Governor            | –                  | Paper element type | Electric |
| Fuel injection pump | Bosch VE type      | Bosch PES4A type   |          |
| Fuel filter         | Paper element type | Paper element type |          |

|                    |                           |  |  |                           |  |             |  |
|--------------------|---------------------------|--|--|---------------------------|--|-------------|--|
| Standard equipment |                           |  |  |                           |  |             |  |
| Flywheel           | SAE #10                   |  |  | SAE #10                   |  |             |  |
| Flywheel housing   | SAE #4                    |  |  | SAE #4                    |  |             |  |
| Air cleaner        | Cyclone filter paper type |  |  | Cyclone filter paper type |  |             |  |
| Alternator         | 12V - 65A                 |  |  | 24V - 50A                 |  | 24V - 40A   |  |
| Starting motor     | 12V - 2.2kW               |  |  | 24V - 5.0kW               |  | 24V - 5.0kW |  |

|                                |        |        |        |        |        |        |        |
|--------------------------------|--------|--------|--------|--------|--------|--------|--------|
| Technical data                 |        |        |        |        |        |        |        |
| Heat rejection (kcal/h)        | 13,598 | 22,450 | 11,903 | 24,012 | 23,700 | 30,400 | 49,700 |
| Intake air flow rate (m³/min)  | 1.9    | 1.9    | 1.6    | 3.5    | 2.9    | 3.6    | 5.0    |
| Exhaust gas flow rate (m³/min) | 5.4    | 5.4    | 4.5    | 5.4    | 8.5    | 10.5   | 16.0   |
| Cooling water capacity (ℓ)     | 3.9    |        |        | 8.3    | 8.3    | 8.3    |        |
| rpm                            | 1,800  | 1,800  | 1,500  | 1,800  | 1,800  | 1,800  | 1,800  |
| Fuel consumption (g/ps.h)      | 185.0  | 190.0  | 174.4  | 172.6  | 166.5  | 157.4  | 154.0  |

|             |           |      |           |
|-------------|-----------|------|-----------|
| Application | Generator | Pump | Generator |
|-------------|-----------|------|-----------|

\* Power is only for engine without cooling fan.

| Engine model | D6AZ-G1 | D6AZ-G2 | D6AC-G | D6CC-G1 | D6CC-G2 |
|--------------|---------|---------|--------|---------|---------|
| Engine code  | EH1X    | EH2X    | BB17   | EH9G    | EH7G    |

|                               |                  |       |       |                  |       |
|-------------------------------|------------------|-------|-------|------------------|-------|
| General                       |                  |       |       |                  |       |
| Fuel                          | Diesel           |       |       | Diesel           |       |
| Injection type                | Direct injection |       |       | Direct injection |       |
| No. of cyl. And configuration | 6-in line        |       |       | 6-in line        |       |
| Aspiration                    | T.C              |       | T.C.I | T.C.I            |       |
| Displacement (cc)             | 11,149           |       |       | 12,344           |       |
| Bore x Stroke (mm)            | 130 x 140        |       |       | 130 x 155        |       |
| Compression ratio             | 16.5 : 1         |       |       | 17.2 : 1         |       |
| Dry weight (kg)               | 1,010            |       | 1,050 | 1,210            |       |
| Dimension (mm)                | Length           | 1,588 |       | 1,588            | 1,936 |
|                               | Width            | 938   |       | 1,033            | 1,234 |
|                               | Height           | 1,613 |       | 1,613            | 1,219 |

|                |    |       |       |       |       |       |       |       |       |       |       |
|----------------|----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Performance    |    |       |       |       |       |       |       |       |       |       |       |
| rpm            |    | 1,500 | 1,800 | 1,500 | 1,800 | 1,500 | 1,800 | 1,500 | 1,800 | 1,500 | 1,800 |
| Stand-by power | PS | 270   | 309   | 235   | 260   | 320   | 350   | 450   | 530   | 400   | 460   |
|                | kW | 199   | 227   | 173   | 191   | 235   | 257   | 331   | 390   | 294   | 338   |
| Prime power    | PS | 243   | 278   | 212   | 234   | 288   | 315   | 405   | 477   | 400   | 460   |
|                | kW | 179   | 204   | 156   | 172   | 219   | 232   | 298   | 351   | 294   | 338   |

|                    |  |  |  |  |  |  |  |
|--------------------|--|--|--|--|--|--|--|
| Lubrication system |  |  |  |  |  |  |  |
| Oil capacity (ℓ)   | 24.0                                   |  |  | 28.0                                   |  |  |  |
| Oil filter         | Paper element type with by-pass filter |  |  | Paper element type with by-pass filter |  |  |  |

|                     |                    |                  |                 |                        |  |  |  |
|---------------------|--------------------|------------------|-----------------|------------------------|--|--|--|
| Fuel system         |                    |                  |                 |                        |  |  |  |
| Governor            | Electric           | Bosch RSV type   | Electric        | ECU                    |  |  |  |
| Fuel injection pump | Bosch PE6A type    | Bosch PE6AD type | Bosch PE6P type | Electric unit injector |  |  |  |
| Fuel filter         | Paper element type |                  |                 | Paper element type     |  |  |  |

|                    |                           |  |  |                           |  |  |  |
|--------------------|---------------------------|--|--|---------------------------|--|--|--|
| Standard equipment |                           |  |  |                           |  |  |  |
| Flywheel           | SAE #14                   |  |  | SAE #14                   |  |  |  |
| Flywheel housing   | SAE #1                    |  |  | SAE #1                    |  |  |  |
| Air cleaner        | Cyclone filter paper type |  |  | Cyclone filter paper type |  |  |  |
| Alternator         | 24V - 70A                 |  |  | 24V - 80A                 |  |  |  |
| Starting motor     | 24V - 5.5kW               |  |  | 24V - 6.0kW               |  |  |  |

| Technical data                 |        |        |         |         |         |
|--------------------------------|--------|--------|---------|---------|---------|
| Heat rejection (kcal/h)        | 99,000 | 90,000 | 120,000 | 240,000 | 210,000 |
| Intake air flow rate (m³/min)  | 14.0   | 14.0   | 17.2    | 29.5    | 24.2    |
| Exhaust gas flow rate (m³/min) | 41.5   | 38.4   | 50.4    | 62.5    | 52.1    |
| Cooling water capacity (ℓ)     | 24.0   |        |         | 42.0    | 42.0    |
| rpm                            | 1,800  | 1,800  | 1,800   | 1,800   | 1,800   |
| Fuel consumption (g/ps.h)      | 162.5  | 154.0  | 152.6   | 149.0   | 148.0   |

|             |           |  |  |           |  |  |  |
|-------------|-----------|--|--|-----------|--|--|--|
| Application | Generator |  |  | Generator |  |  |  |
|-------------|-----------|--|--|-----------|--|--|--|

\* Power is only for engine without cooling fan.