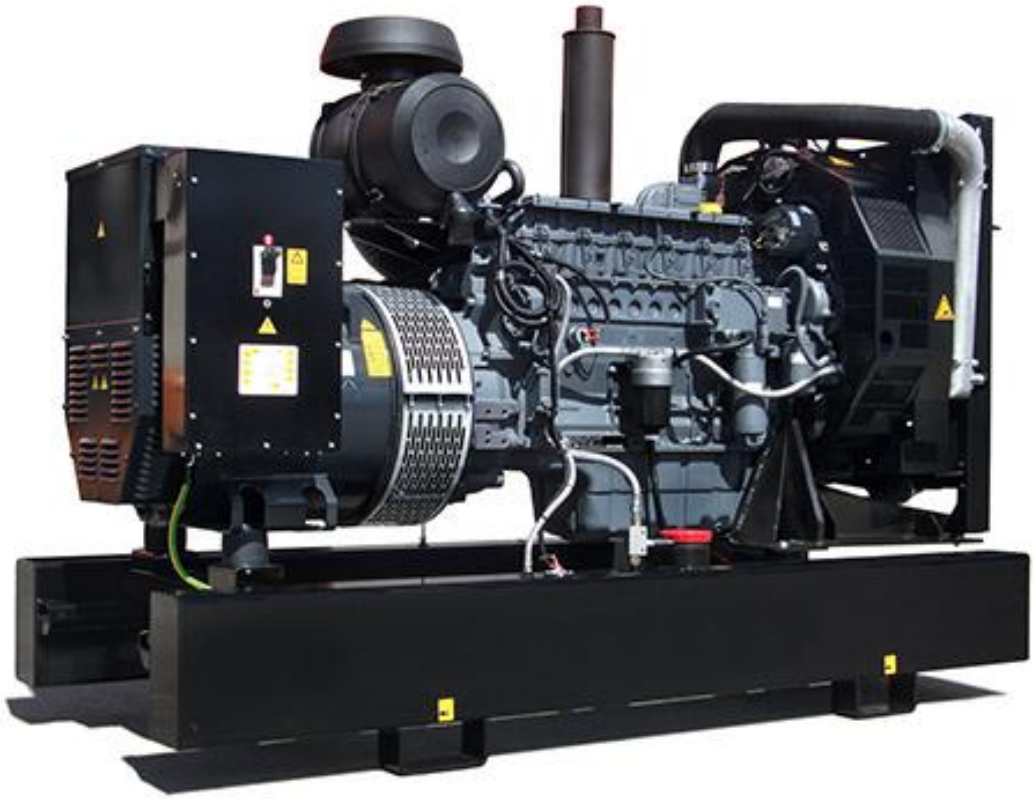
| موتور دیزل : Deutz | ژنراتور : MeccAlte |
|---|---|

| | Prime | | Standby | |
|---|---|---|---|---|
| | KW | KVA | KW | KVA |
| دیزل ژنراتور | - | 350 | - | - |





ABYARAN Copyright © 2014 - All Rights Reserved

# ENSD500-1（BF6M1015C-G2）

**DEUTZ Generating set**

***Technical Data Sheet***

☆ **Pictures are for your reference:**

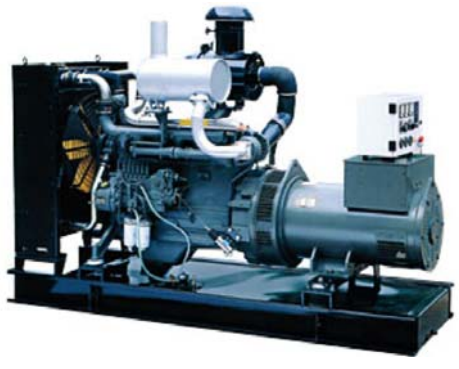
Features,Specifications and accessories are subject to changes without prior notice.

***Cooperator:***

Cummins Perkins DEUTZ STAMFORD LEROY SOMER

DOOSAN YANMAR mtu MARATHON ELECTRIC

# Standard Specification

| General features: | |
|---|---|
| • Composed of DEUTZ diesel engine and Stamford or ENMC alternator |  |
| • 24V DC start motor and storage battery | |
| • Brushless, Self-excited, IP23, insulation class H alternator | |
| • Engine cooling system: water-cooled | |
| ● Key start panel control system as standard, digital auto-start panel is optional | |
| • 8-hour operation base tank | |
| • Optional open type or silent type |  |
| ● All generator sets are gone through rigorous testing before being released to the market place, including 50% load, 75load, 100% load , 110% load and all protection function (overspeed stop, high water temperature, low oil pressure, battery charging fail, emergency stop) | |

# Engine Specification

**3-PH, 50Hz@1500RPM, 400/230V** (Also Can Be Made According To Customers' Special Requirements)

| Genset Model | Genset Specification | | | | | Engine Specification | | | | Alternator Model |
|---|---|---|---|---|---|---|---|---|---|---|
| | KVA | | Cons.100% (L/H) | dB(A)@7m | Tank (L) | Model | Cyl. | Gov. | Asp. | |
| | ESP | PRP | | | | | | | | |
| ENSD500B | 550 | 500 | 127 | N/A | 1524 | BF6M1015C-G2 | 4 | M | TC | HCI 544D |
| ENSD500S-1B | 550 | 500 | 127 | 70 | 1524 | BF6M1015C-G2 | 4 | M | TC | HCI 544D |
| ENSD500-1B | 550 | 500 | 127 | N/A | 1524 | BF6M1015C-G2 | 4 | M | TC | ENI 544D |
| ENSD500S-1B | 550 | 500 | 127 | 70 | 1524 | BF6M1015C-G2 | 4 | M | TC | ENI 544D |

1) Available in various voltages

2) To show ENEC Generating Sets Model
For example: ENM38-1A, it is the open generation set.
ENM38S-1A, it is the silent generating set.

3) ESP=Standby power standby duty, operation under variable load, without overload.
PRP=Prime power continuous duty operation, under variable load, 10% overload permissible 1/12hr.

4) E=Electronic speed governor;



**FUZHOU EN E&M CO.,LTD**
Address:_NO. 13 , ChangTing Industrial Zone, Fuan City, Fujian Province, China
Tel: 86-591-87880061 Fax: +86-591-87549089
Website: http://www.e-ngenerator.com E-mail:service@e-ngenerator.com

*product development,we reserve the right to change specification without notice*

## DEUTZ Diesel Engine Technical Data

| | |
|---|---|
| Engine Model | BF6M1015C-G1 |
| Number of Cylinders | 4 |
| Cylinder arrangement | Vertical in-line |
| Cycle | Four stroke |
| Aspiration | Turbocharged |
| Bore×Stroke (mm×mm) | 105x 120 |
| Displacement (Liter) | 4 |
| Compression Ratio | 17:1 |
| Prime Power/Speed (kW/rpm) | 60/1500 |
| Standby Power/Speed (kW/rpm) | 66/1500 |
| Speed Governor | Mechanical |
| Cooling System | water-cooled |
| Fuel Consumption at 100% Load (g/kWh) | 288 (at 1500RPM) |
| Starter Motor | 24V |
| Alternator | 24V |

## Alternator Specification

**Stamford Alternator (Standard)**

| | |
|---|---|
| Alternator Model | HCI 544C(Stamford)<br>EN544C(ENEC)<br>Please Refer To The“ Genset Main Technical Data” |
| Phase/Connect | 3-phase 4-wire ,Y type connection |
| Excition Model | Self-excite,automatic voltage regulation,In sulation:H,Bruhless,Enclosure:IP21—IP23 |
| Power Factor | 0.8 |
| The regulating rate of instantaneous voltage: | -15%~ +20% |
| The time of steady voltage: | ≤1.5sec |
| The waving rate of voltage: | ≤1.0% |
| The regulating rate of steady frequency: | ≤5% |
| regulating rate of instantaneous frequency: | ≤±10% |
| The time of steady frequency: | 3sec |
| The waving rate of frequency: | ≤1% |

**ENEA Alternator (Option) Technical Data**

*Cooperator:*

## Reliable Performance

**Voltage regulation**

Voltage regulation maintained within ±0.5% as follow:

- Power factor Between 0.8～1.0 lag
- From no load to full load, any steady load
- Speed droop variation under 4.5%

**Frequency/Speed undulation**

- Change load from 0-100%, Frequency/Speed Droop Ratio within 5% .
- Load from 25-100%, any steady load Frequency/Speed undulation within 0.25%

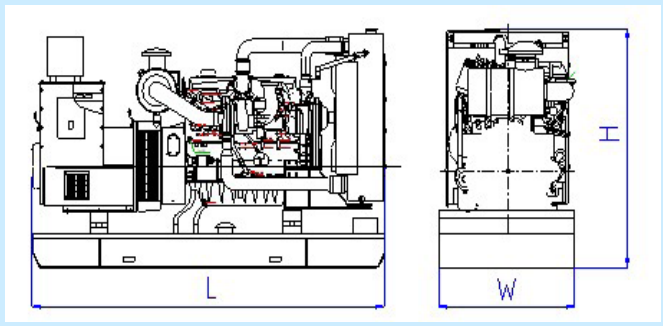
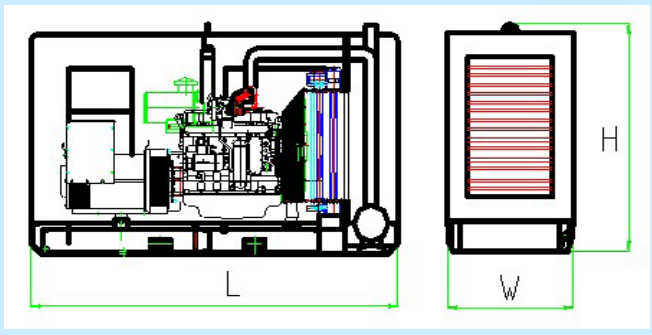
**Effect factor of telecom**

- TIF( MA MG1-22) better than 50
- THF( BS EN60034) better than 2%

## Criterion

- ISO8528, GB/T2820
- EN12601:2001, EN60034-22:1997, EN60204-1:2006
- ISO9001:2000 Quality Control System

## Dimension and Weight

| | |
|---|---|
|  | **Open Type**<br>Overall size (L*W*H)<br>3100×1900×2100<br>Weight: 2000kg |
|  | **Silent Type**<br>Overall size (L*W*H)<br>3600×2000×2200<br>Weight: 3200kg |



**FUZHOU EN E&M CO.,LTD**

Address:_NO. 13 , ChangTing Industrial Zone, Fuan City, Fujian Province, China

Tel: 86-591-87880061 Fax: +86-591-87549089

Website: http://www.e-ngenerator.com E-mail:service@e-ngenerator.com

*product development,we reserve the right to change specification without notice*

# Control System

**1. Standard: EN170HC Key Start**

Providing the standard functions as follows:
(Also can be made according to the customers' special requirements)

- Start/Stop controller
- Ampere meter
- Voltmeter and selector switch
- Frequency meter/ Water temperature gauge/ Oil pressure gauge/ Hour counter/ Battery voltage meter
- Emergency stop pushbutton
- Alarm System: Over speed、High Engine Temperature Low Oil Pressure、Charge Fail
- Protection System：Over speed、High Engine Temperature、Low Oil Pressure、Emergency Stop. And the other protection function pre-setting

**2. Option: Smartgen HGM6110 Digital Auto Start**

**3. Option: Smartgen HGM6120 Digital Auto Start**
**(Option assembled with the ATS)**

**4. Option: Deep Sea DSE5210 Digital Auto Start**

**5. Option: Deep Sea DSE5220 Digital Auto Start**
**(Option assembled with the ATS)**

Digital Auto-start Generator controller integrating digital, intelligent and network techniques is used for automatic control system of diesel generator. It can carry out functions including automatic start/stop, data measure and alarming. Optionally assembled with the ATS, it can carry out auto-switching between the outer power and generating set power. (AMF)

**Functions:**

- Automatic Start/Stop
- 3 start attempts failure and Automatic Crank Disconnect
- Parameters display (V/A/Hz/Hour)
- Engine monitoring and protection
- Charge alternator exciting and Charge alternator fail alarm
- Running hour counting
- Settings can be adjustable via key buttons on front panel

**6. option: BGC-L (Main used in Multiple gen-sets, load sharing)**

**( 1 )**



**( 2 )**

**( 3 )**

**( 4 )**

**( 5 )**

**( 6 )**

*Cooperator:*

# GENERATOR TYPE ECO 38-3LN/4

Document : **DS075A/1**

issue 004 date 28/10/2013

| **Electrical Characteristics** | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Frequency | | Hz | 50 | | | | 60 | | | |
| Voltage (series star) | | V | 380 | 400 | 415 | 440 | 415 | 440 | 460 | 480 |
| Rated power class H | | kVA | 350 | 350 | 350 | 340 | 380 | 420 | 420 | 420 |
| | | kW | 280 | 280 | 280 | 272 | 304 | 336 | 336 | 336 |
| Rated power class F | | kVA | 320 | 320 | 320 | 310 | 350 | 385 | 385 | 385 |
| | | kW | 256 | 256 | 256 | 248 | 280 | 308 | 308 | 308 |
| Regulation with | | DSR | ±1 % with any power factor and speed variations between -5% +30% | | | | | | | |
| Insulation class | | | H | | | | | | | |
| Execution | | | Brushless | | | | | | | |
| Stator winding | | | 12 ends | | | | | | | |
| Rotor | | | with damping cage | | | | | | | |
| Efficiencies class H | 4/4 | % | 93,4 | 93,5 | 93,2 | 93 | 93,6 | 94,1 | 94,2 | 94,3 |
| (see graph. for details) | 3/4 | % | 93,4 | 93,7 | 93,6 | 93,3 | 93,9 | 94,1 | 94,3 | 94,5 |
| | 2/4 | % | 92,5 | 92,6 | 92,6 | 92,4 | 93 | 93,1 | 93,2 | 93,3 |
| | 1/4 | % | 90,1 | 89,9 | 89,7 | 89,5 | 90,6 | 90,6 | 90,6 | 90,4 |
| Reactances (f. l.cl. F) | Xd | % | 238,2 | 215 | 199,7 | 172,6 | 260,2 | 255,9 | 234,1 | 215 |
| | Xd' | % | 19,1 | 17,2 | 16,0 | 13,8 | 20,8 | 20,5 | 18,7 | 17,2 |
| | Xd" | % | 10,4 | 9,4 | 8,7 | 7,5 | 11,4 | 11,2 | 10,2 | 9,4 |
| | Xq | % | 139,6 | 126 | 117,1 | 101,2 | 152,5 | 150,0 | 137,2 | 126 |
| | Xq' | % | 139,6 | 126 | 117,1 | 101,2 | 152,5 | 150,0 | 137,2 | 126 |
| | Xq" | % | 22,3 | 20,1 | 18,7 | 16,1 | 24,3 | 23,9 | 21,9 | 20,1 |
| | $X_2$ | % | 17,4 | 15,7 | 14,6 | 12,6 | 19,0 | 18,7 | 17,1 | 15,7 |
| | $X_0$ | % | 2,4 | 2,2 | 2,0 | 1,8 | 2,7 | 2,6 | 2,4 | 2,2 |
| Short Circuit Ratio | Kcc | | 0,37 | 0,42 | 0,57 | 0,92 | 0,24 | 0,32 | 0,37 | 0,42 |
| Time Constants | Td' | sec. | 0,099 | | | | | | | |
| | Td" | sec. | 0,0127 | | | | | | | |
| | Tdo' | sec. | 1,50 | | | | | | | |
| | Tα | sec. | 0,013 | | | | | | | |
| Short Circuit Current Capacity | | % | >300 | | | | >350 | | | |
| Excitation at no load | | Amp. | 0,55 | 0,72 | 0,95 | 1,2 | 0,35 | 0,35 | 0,6 | 0,7 |
| Excitation at full load | | Amp. | 3,5 | 3,9 | 4,1 | 4,3 | 3,3 | 3,5 | 3,7 | 3,9 |
| Overload (long-term) | | % | 1 hour in a 6 hours period 110% rated load | | | | | | | |
| Overload per 20 sec. | | % | 300 | | | | | | | |
| Stator Winding Resistance (20°C) | | Ω | 0,0042 | | | | | | | |
| Rotor Winding Resistance (20°C) | | Ω | 6,780 | | | | | | | |
| Exciter Resistance (20 °C) | | Ω | Rotor : 0,685 | | | | Stator : 15,28 | | | |
| Heat dissipation at f.l.cl.H | | W | 19786 | 19465 | 20429 | 20473 | 20786 | 21067 | 20688 | 20310 |
| Telephone Interference | | | THF < 2% | | | | TIF < 40 | | | |
| Radio interference | | | EN61000-6-3, EN61000-6-2. For others standards apply to factory | | | | | | | |
| Waveform Distors.(THD) at f. load | | LL/LN % | 3,1 / 2,9 | | | | | | | |
| Waveform Distors.(THD) at no load | | LL/LN % | 2,7 / 2,7 | | | | | | | |
| **Mechanical characteristics** | | | | | | | | | | |
| Protection | | | IP 21 (other protection on request ) | | | | | | | |
| DE bearing | | | 6318.2RS | | | | | | | |
| NDE bearing | | | 6314.2RS | | | | | | | |
| Weight of wound stator assembly | | kg | 347 | | | | | | | |
| Weight of wound rotor assembly | | kg | 230 | | | | | | | |
| Weight of complete generator | | kg | 905 | | | | | | | |
| Maximun overspeed | | rpm | 2250 | | | | | | | |
| Unbalanced magnetic pull at f.l.cl.F | | kN/mm | 6,2 | | | | | | | |
| Cooling air requirement | | $m^3$/min | 32 | | | | 39 | | | |
| Inertia Constant (H) | | sec. | 0,123 | | | | 0,147 | | | |
| Noise level at 1m/7m | | dB(A) | 82 / 69 | | | | 86 / 73 | | | |

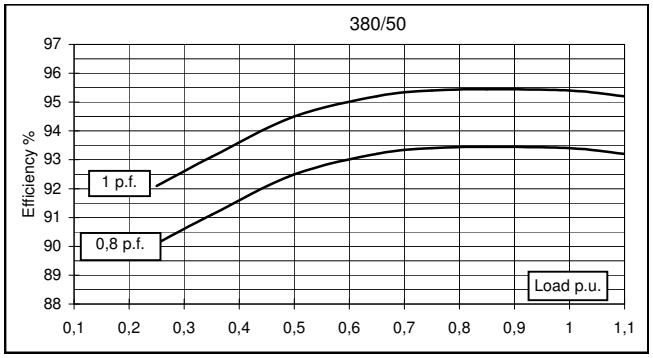
All technical data are to be considered as a reference and they can be modified without any notice.

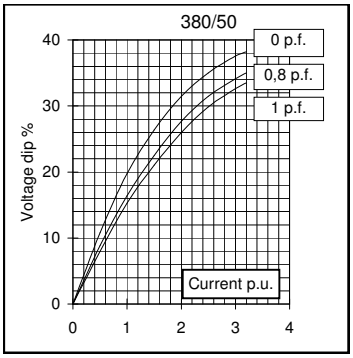
This document is a propriety of Mecc Alte S.p.a..All rights reserved.

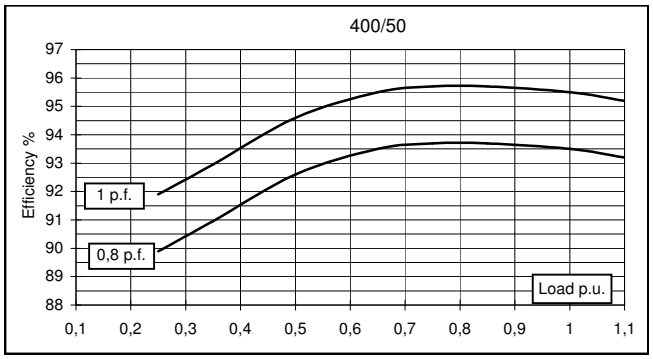
# GENERATOR TYPE ECO 38-3LN/4

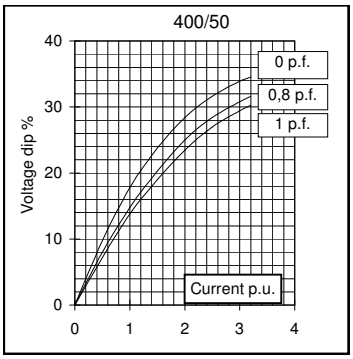
Document : **DS075A/2**
issue 004 date : 28/10/2013

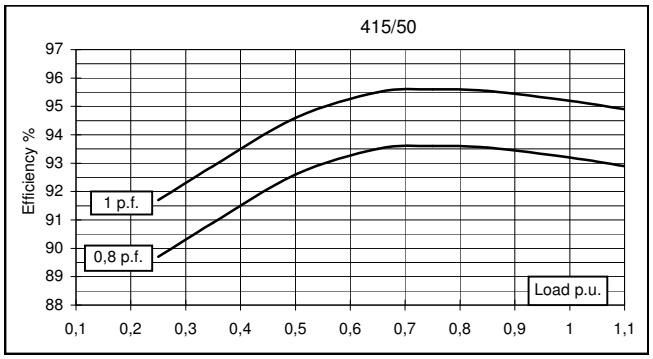
**50 Hz**

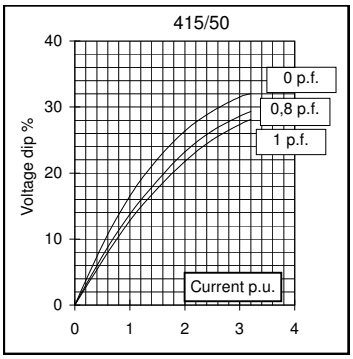


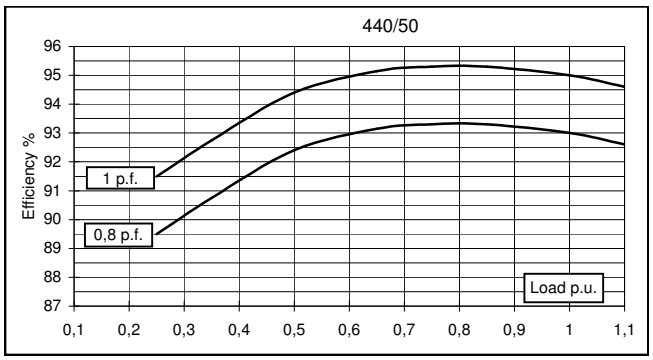



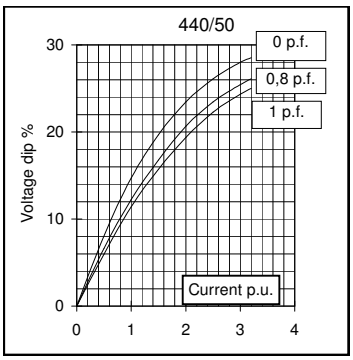



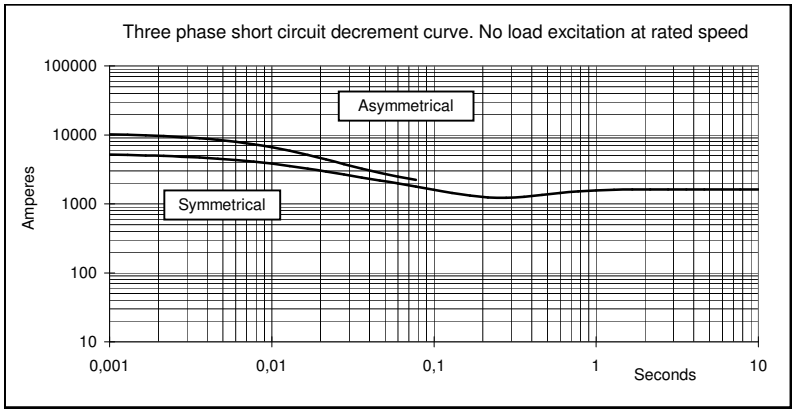



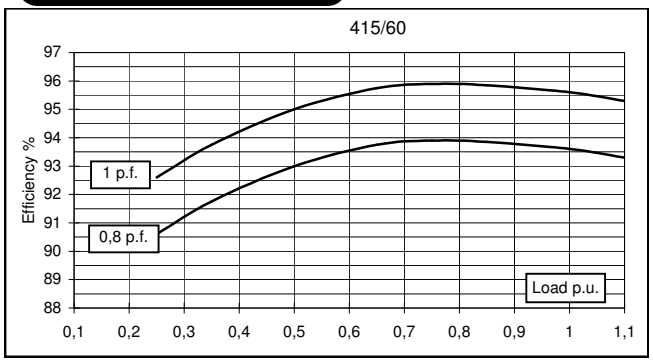



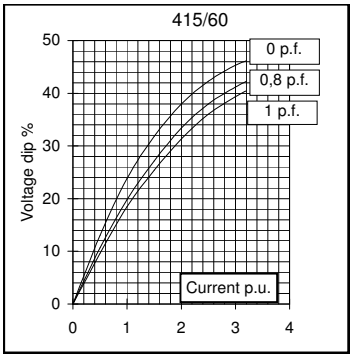

This document is a propriety of Mecc Alte S.p.a.. All rights reserved.

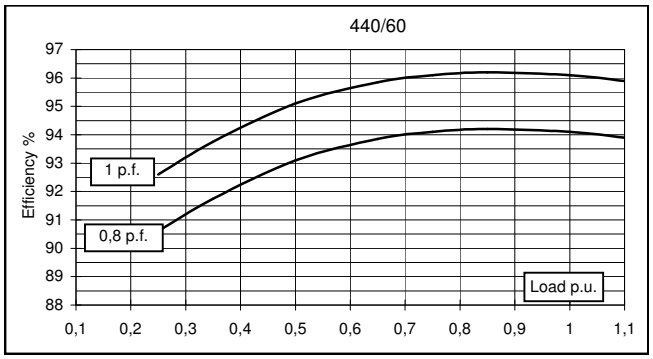
# GENERATOR TYPE ECO 38-3LN/4

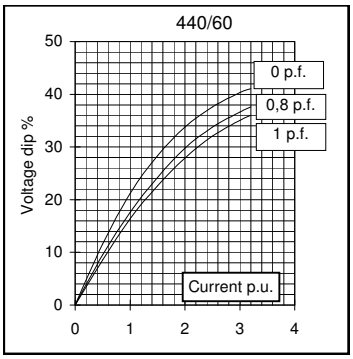
Document : **DS075A/3**
issue 004 date : 28/10/2013

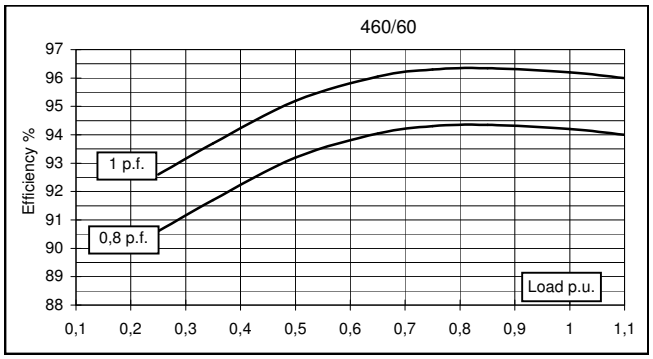
**60 Hz**

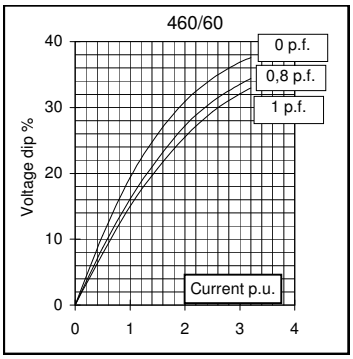


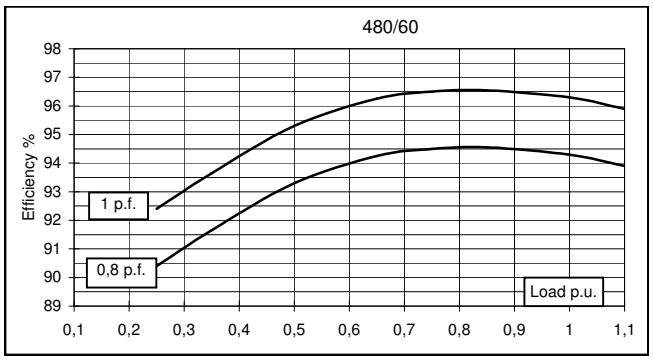



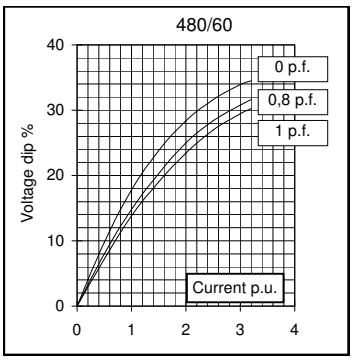



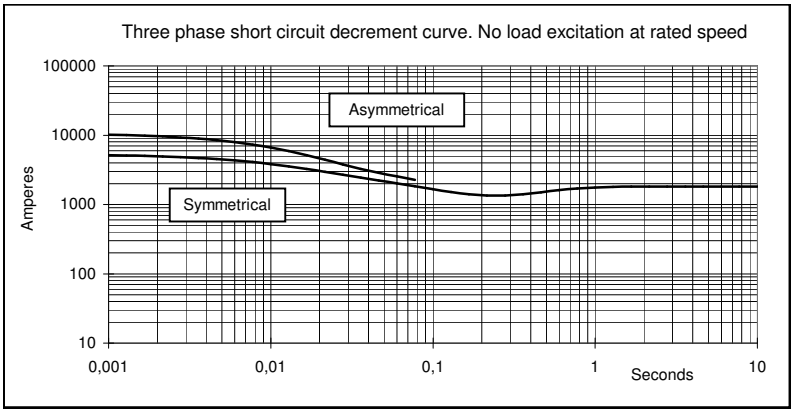



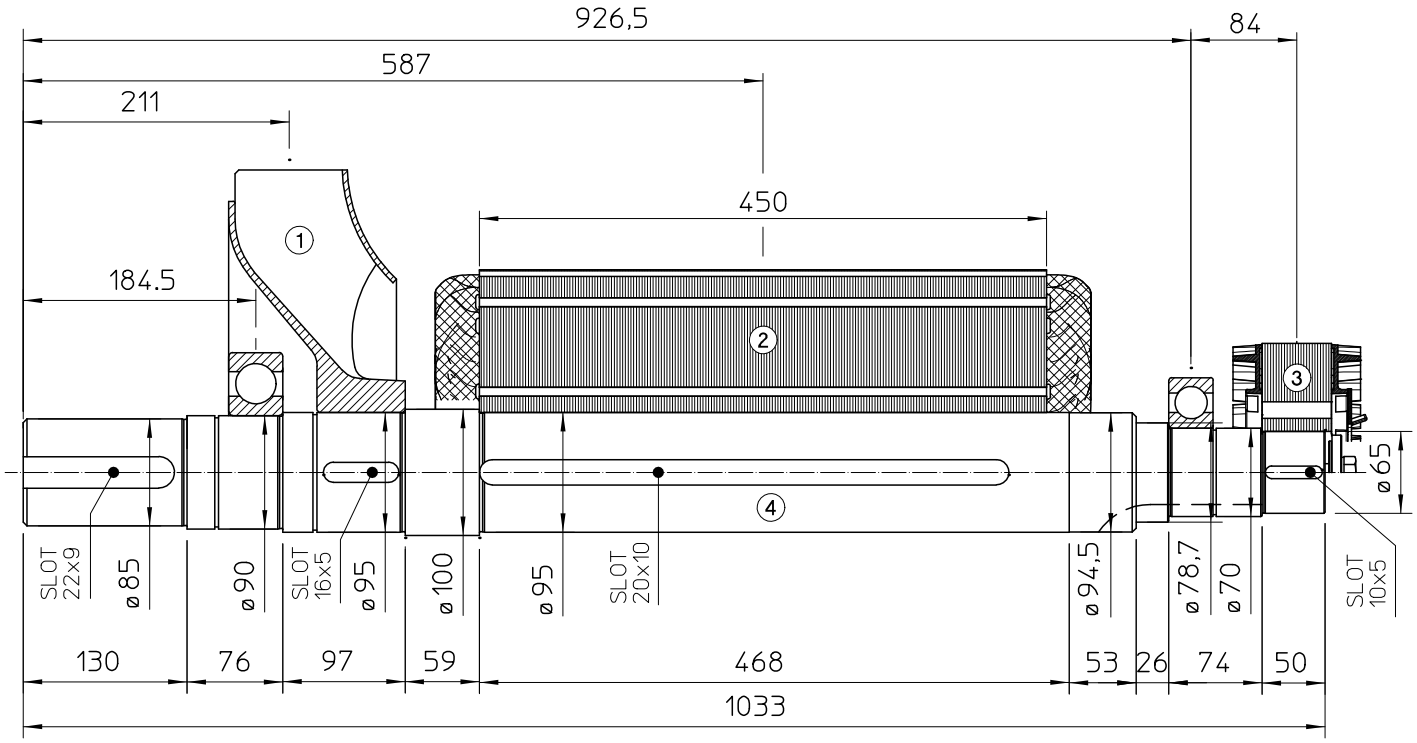



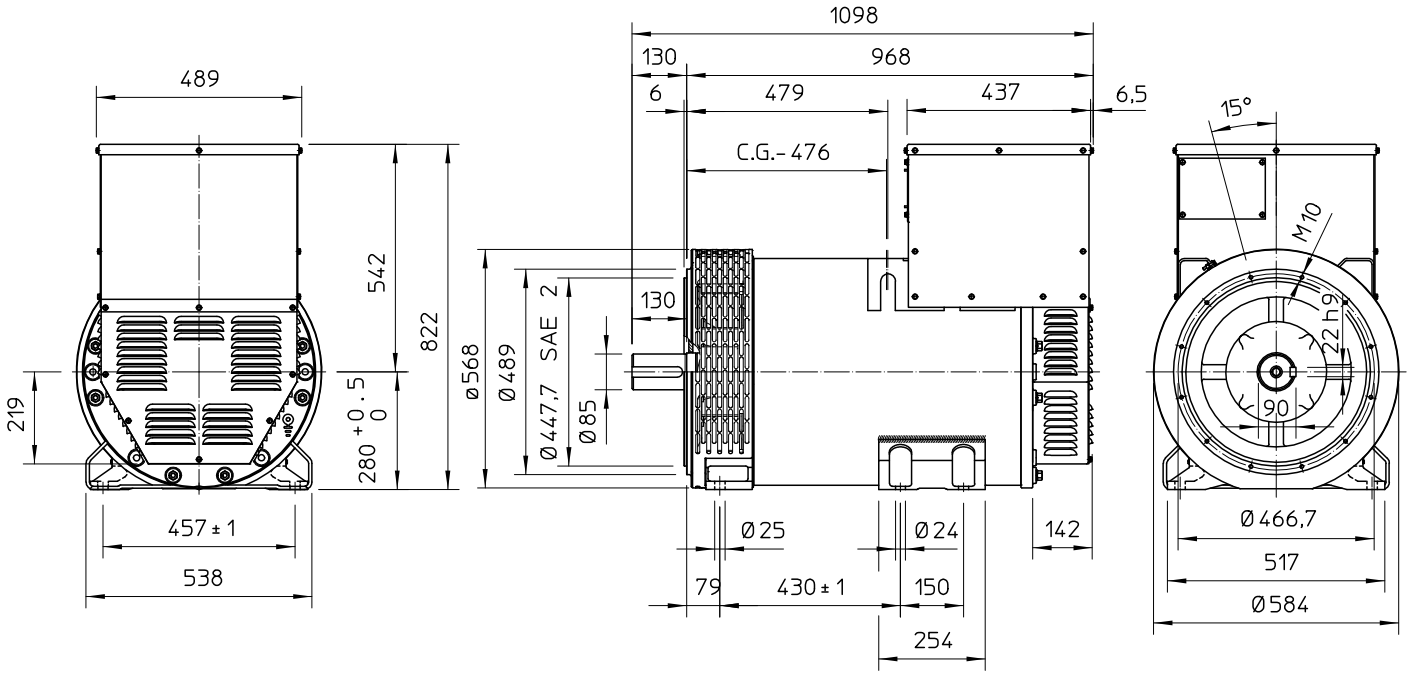

This document is a propriety of Mecc Alte S.p.a.. All rights reserved.

# TWO BEARING MOMENTS OF INERTIA



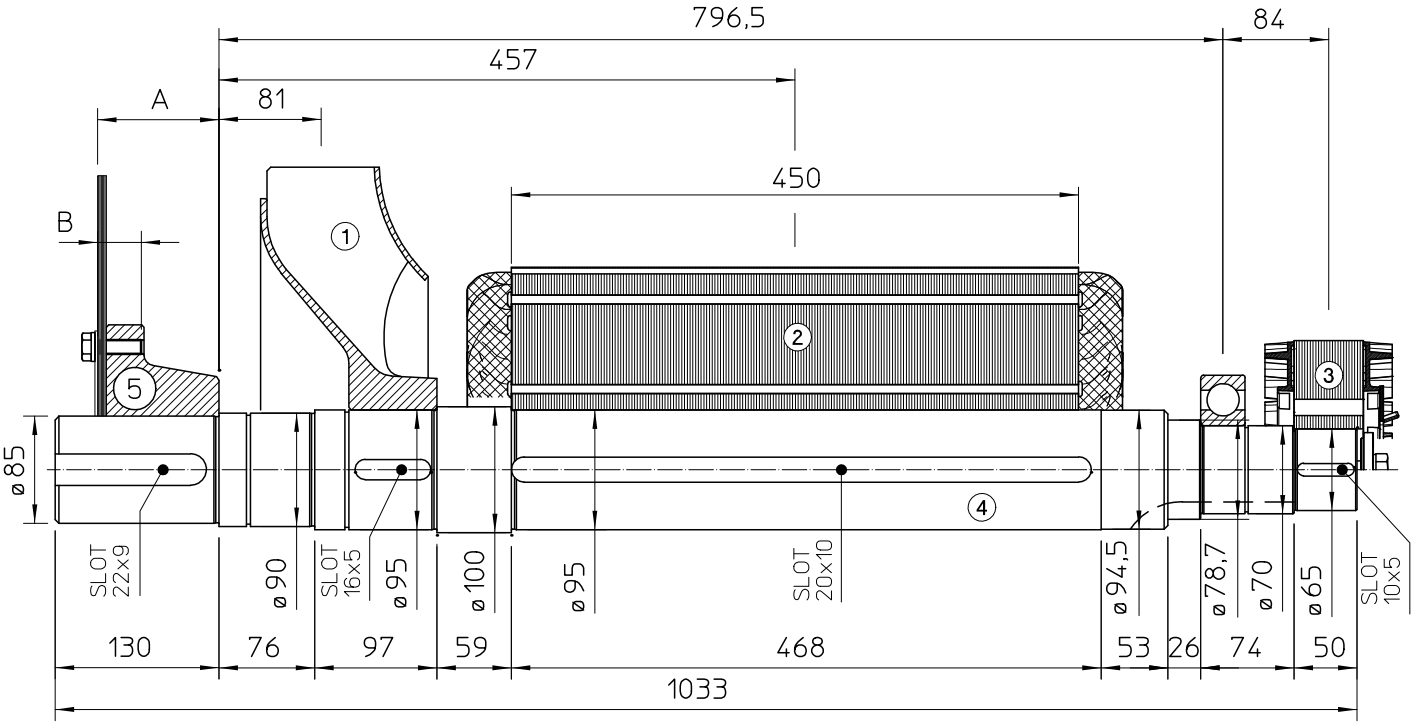

| POS. | COMPONENT | WEIGHT (kg) | J (kgm$^2$) |
|---|---|---|---|
| 1 | FAN | 6.1 | 0.1887 |
| 2 | MAIN ROTOR | 230 | 3.1461 |
| 3 | EX. ROTOR | 14.5 | 0.0874 |
| 4 | SHAFT | 49.9 | 0.0525 |
| TOTAL | | 300.5 | 3.4747 |

# TWO BEARING DIMENSIONS




C.G.= GRAVITY CENTER

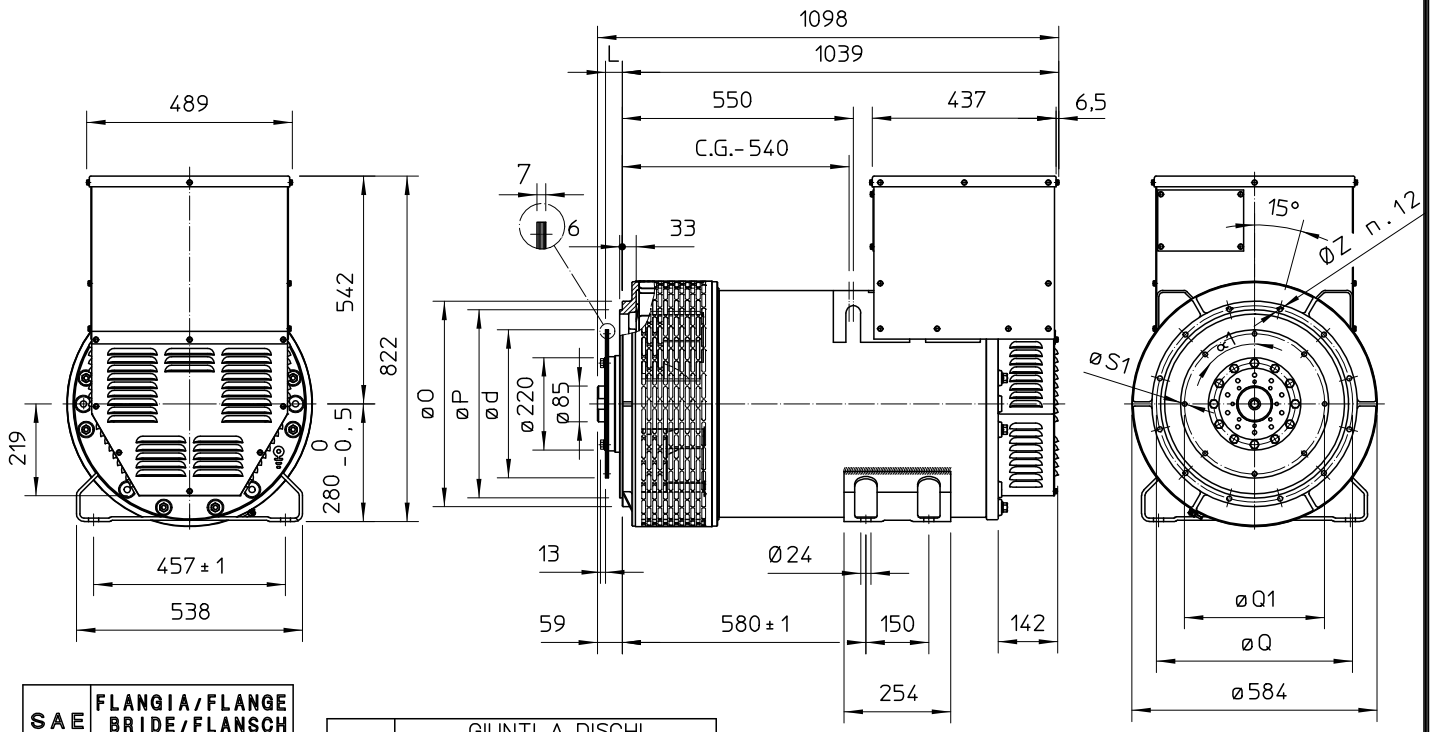
# SINGLE BEARING MOMENTS OF INERTIA




| POS. | COMPONENT | WEIGHT (kg) | J (kgm$^2$) |
|---|---|---|---|
| 1 | FAN | 6.1 | 0.1887 |
| 2 | MAIN ROTOR | 230 | 3.1461 |
| 3 | EX. ROTOR | 14.5 | 0.0874 |
| 4 | SHAFT | 49.9 | 0.0525 |
| TOTAL | | 300.5 | 3.4747 |

| SAE N° | 5 SHAFTS COUPLING FLEX PLATE | | | |
|---|---|---|---|---|
| | A | B | WEIGHT kg | J kgm$^2$ |
| 11.5 | 110.4 | 41.1 | 20.5 | 0.174 |
| 14 | 96.4 | 34.7 | 23.5 | 0.275 |

# SINGLE BEARING DIMENSIONS




| SAE N. | FLANGIA/FLANGE BRIDE/FLANSCH | | |
|---|---|---|---|
| | O | P | Q |
| 3 | 451 | 409,6 | 428,6 |
| 2 | 489 | 447,7 | 466,7 |
| 1 | 552 | 511,2 | 530,2 |
| 1/2 | 648 | 584,2 | 619,1 |

| SAE N. | GIUNTI A DISCHI DISC COUPLING DISQUE DE MONOPALIER SCHEIBENKUPPLUNG | | | | | |
|---|---|---|---|---|---|---|
| | L | d | Q1 | n. fori | S1 | ∝1 |
| 11 1/2 | 39,6 | 352,42 | 333,37 | 8 | 11 | 45° |
| 14 | 25,4 | 466,72 | 438,15 | 8 | 14 | 45° |

C.G.= GRAVITY CENTER