

**OPEN SET**  
WATER COOLED

# SERIES PSW<sub>60-505</sub>

## GSW60-505: Energy for public and industrial uses

With reliable and versatile accessories, these generators are able to meet many different needs, suitable for specific applications such as telecommunications.



### Large autonomy

Extended fuel capacity means continuous performance.

### Ease of handling

Easy transportation – less effort required to move the generator.

### Security

Gensets are safeguarded against unauthorised use and minimise the potential of accidental damage.

### Economic

A long life time and very little maintenance mean very low operation costs.

| MODEL                            |         | PSW60         | PSW75         | PSW105        | PSW135         | PSW16          | PSW230         | PSW315         | PSW380         | PSW430         | PSW505         |
|----------------------------------|---------|---------------|---------------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| PRIME POWER                      | kVA/kWe | 56/45         | 70/56         | 102/82        | 136/109        | 157/126        | 230/184        | 313/251        | 376/301        | 427/341        | 500/400        |
| EMERGENCY POWER                  | kVA/kWe | 60/48         | 73/58         | 108/86        | 143/114        | 165/132        | 254/203        | 347/278        | 407/326        | 471/376        | 525/420        |
| ENGINE                           | DEUTZ   | BF4M 1012 E   | BF4M 1012 EC  | BF4M 1013 EC  | BF6M 1013 E    | BF6M 1013 EC   | BF6M 1015      | BF6M 1015 C    | BF6M 1015 CP   | BF8M 1015 C    | BF8M 1015 CP   |
| AUTONOMY<br>(APPROX.)( 75% LOAD) | h       | 10,7          | 9,2           | 8,2           | 9,6            | 8,4            | 11,8           | 9,4            | 11,4           | 11,8           | 9,8            |
| DIMENSIONS (LXWXH)               | mm      | 2000x750x1154 | 2000x750x1203 | 2000x750x1336 | 2500x1000x1336 | 2500x1000x1458 | 3000x1400x2075 | 3000x1400x1950 | 3000x1600x2261 | 3200x1600x2205 | 3200x1600x2205 |
| WEIGHT                           | kg      | 890           | 945           | 1100          | 1200           | 1590           | 2400           | 2600           | 2800           | 3400           | 3500           |

PRIME POWER (PRP) (ISO 3046) RATING: PERMISSIBLE POWER OUTPUT WITH NO TIME LIMITATION, PLUS 5% EXTRA POWER FOR GOVERNING PURPOSES

EMERGENCY POWER (LTP) (ISO 3046) RATING: MAXIMUM POWER WHICH CAN BE DELIVERED FOR UP TO 500 HOURS PER YEAR OF WHICH A MAXIMUM OF 300 HOURS IS CONTINUOUS RUNNING

ALL MODELS COMPLY WITH TA LUFT-4000 REGULATION

# PowerSources

**... WHERE THE POWER COMES FROM ...**

**OPEN SET  
WATER COOLED**

# SERIES PSW<sub>60-505</sub>



## Large autonomy

- High capacity fuel tank for longer work without fuel refilling (t) (i)
- All metal parts are connected to an external grounding point. Fault currents are connected to the ground for your safety.

## Economic

- The brushless construction of the generator (t) (i) assures a long service life
- Engines with long maintenance intervals and low fuel consumption

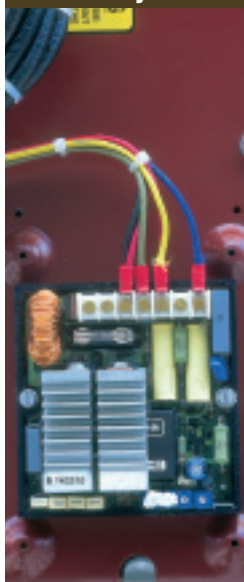


## Safety

- Visible and accessible emergency shutdown switch (t) (i) protects against incorrect use of the generator.



## Reliability



- Deutz engines extremely high load acceptance capacity ensures instant electricity supply
- They respond quickly to load fluctuations. In addition, the application will not suffer from frequency deviations
- Highly efficient alternators
- Constant supply guaranteed by the electronic voltage regulator under any generator operating condition (t) (i)



## Easier to use

- Generating sets are delivered ready to start and they require no special foundations, so that they can be installed anywhere
- A large number of optional available for any kind of special use you may require
- Easy access to the fuel filling cap which is mounted on the base frame
- High efficiency air filter (t) (i) with easy removable cartridge

## Security

- The exhaust gas emissions meet the most restrictive regulations.
- Hot parts protection against accidental contact.
- The engine protection (stop solenoid) guarantees the shutdown of the machine when an engine failure occurs.
- Moving and rotating parts protection (t) (i) against accidental contacts.
- Industrial silencer to reduce engine noise emissions.



The producer reserves the right to introduce changes to models and features without prior notice. Models, version and associated products characteristics can vary according to the markets.

## CERTIFICATION

Production sites according to ISO 9001 directions



CONFORMS  
TO THE EUROPEAN  
SAFETY RULES

## SERVICE

After sales service world wide.  
12 months warranty.  
All the gensets are completely  
tested before dispatch.

|                                   |         | YANMAR                                                                             |            | DEUTZ        |                   |              |             |               |           |                   |             |            |             |
|-----------------------------------|---------|------------------------------------------------------------------------------------|------------|--------------|-------------------|--------------|-------------|---------------|-----------|-------------------|-------------|------------|-------------|
|                                   |         | WATER COOLED                                                                       |            | WATER COOLED |                   |              |             |               |           |                   |             |            |             |
|                                   |         | PSW15                                                                              | PSW20      | PSW60        | PSW75             | PSW105       | PSW135      | PSW160        | PSW230    | PSW315            | PSW380      | PSW430     | PSW505      |
| GEN SET                           |         |                                                                                    |            |              |                   |              |             |               |           |                   |             |            |             |
| Prime power [PRP]                 | kVA/kWe | 13.5/10.8                                                                          | 18.0/14.4  | 56/45        | 70/56             | 102/82       | 136/109     | 157/126       | 230/184   | 313/251           | 376/301     | 427/341    | 500/400     |
| Emergency power [LTP]             | kVA/kWe | 15.0/12.0                                                                          | 20.0/16.0  | 60/48        | 73/58             | 108/86       | 143/114     | 165/132       | 254/203   | 347/278           | 407/326     | 471/376    | 525/420     |
| Frequency                         | Hz      | 50                                                                                 | 50         | 50           | 50                | 50           | 50          | 50            | 50        | 50                | 50          | 50         | 50          |
| Three Phases Voltage              | V       | 400/230                                                                            | 400/230    | 400/230      | 400/230           | 400/230      | 400/230     | 400/230       | 400/230   | 400/230           | 400/230     | 400/230    | 400/230     |
| Power Factor                      | Cos phi | 0.8                                                                                | 0.8        | 0.8          | 0.8               | 0.8          | 0.8         | 0.8           | 0.8       | 0.8               | 0.8         | 0.8        | 0.8         |
| ENGINE                            |         |                                                                                    |            |              |                   |              |             |               |           |                   |             |            |             |
| Brand                             |         | YANMAR                                                                             |            | DEUTZ        |                   |              |             |               |           |                   |             |            |             |
| Model                             |         | 3TNE 88ACG                                                                         | 4TNE 88ACG | BF4M 1012 E  | BF4M 1012 EC      | BF4M 1013 EC | BF6M 1013 E | BF6M 1013 EC  | BF6M 1015 | BF6M1015C         | BF6M1015 CP | BF8M1015 C | BF8M1015 CP |
| Prime power                       | kWm     | 12,3                                                                               | 16,4       | 50,9         | 62,8              | 90,6         | 117,8       | 137,8         | 199,3     | 271,2             | 327,3       | 369,3      | 437,3       |
| Speed                             | rpm     | 1500                                                                               | 1500       | 1500         | 1500              | 1500         | 1500        | 1500          | 1500      | 1500              | 1500        | 1500       | 1500        |
| Intake                            |         | NATURAL                                                                            |            | TURBO        | TURBO-INTERCOOLER |              | TURBO       | T-INTERCOOLER | TURBO     | TURBO-INTERCOOLER |             |            |             |
| Cooling                           |         | WATER                                                                              |            |              |                   |              |             |               |           |                   |             |            |             |
| Injection                         |         | DIRECT                                                                             |            |              |                   |              |             |               |           |                   |             |            |             |
| Cylinders                         |         | 3 LINE                                                                             | 4 LINE     | 4 LINE       | 4 LINE            | 4 LINE       | 6 LINE      | 6 LINE        | V-6       | V-6               | V-6         | V-8        | V-8         |
| Displacement                      | cm³     | 1642                                                                               | 2190       | 3192         | 3192              | 4764         | 7146        | 7146          | 11906     | 11906             | 11906       | 15874      | 15874       |
| Bore/Stroke                       | mm      | 88/90                                                                              | 88/91      | 94/115       | 94/115            | 108/130      | 108/130     | 108/130       | 132/145   | 132/145           | 132/145     | 132/145    | 132/145     |
| Compression ratio                 |         | 18.0:1                                                                             | 18.0:1     | 17.5:1       | 17.5:1            | 17.5:1       | 17.5:1      | 17.5:1        | 17:1      | 17:1              | 17:1        | 17:1       | 17:1        |
| Standard governor                 |         | MECHANICAL                                                                         |            |              |                   |              |             |               | EMR       | EMR               | EMR         | EMR        | EMR         |
| Governing control quality (1)     |         | G2                                                                                 | G2         | G2           | G2                | G2           | G2          | G2            | G3        | G3                | G3          | G3         | G3          |
| Exhaust gases temperature (2)     | °C      | 450                                                                                | 460        | 530          | 515               | 560          | 537         | 463           | 530       | 450               | 505         | 455        | 505         |
| Exhaust gases flow                | m³/h    | -                                                                                  | -          | 481          | 575               | 946          | 1242        | 1655          | 2795      | 3465              | 3750        | 4642       | 5079        |
| Max. exhaust back pressure        | mbar    | -                                                                                  | -          | 30           | 30                | 30           | 30          | 30            | 50        | 50                | 50          | 50         | 50          |
| Cooling air flow                  | m³/h    | -                                                                                  | -          | 7560         | 6840              | 7920         | 10080       | 14400         | 19800     | 20952             | 24120       | 24120      | 32940       |
| Max. allowed intake dep.          | mbar    | 196                                                                                | 196        | 20           | 20                | 20           | 20          | 20            | 50        | 50                | 50          | 50         | 50          |
| Combustion air flow               | m³/h    | 2                                                                                  | 2.7        | 177          | 213               | 351          | 460         | 614           | 970       | 1360              | 1462        | 1822       | 1958        |
| LUBRICATION SYSTEM                |         |                                                                                    |            |              |                   |              |             |               |           |                   |             |            |             |
| Oil consumption (% of fuel cons.) | %       | -                                                                                  | -          | MAX. 0.3 %   |                   |              |             |               |           |                   |             |            |             |
| Lubricating oil capacity (3)      | l       | 7,2                                                                                | 8,6        | 9,5          | 9,5               | 13           | 20          | 20            | 34        | 34                | 34          | 45         | 45          |
| Minimum oil pressure              | bar     | 2,9                                                                                | 2,9        | 3            | 3                 | 2            | 2           | 2             | 3         | 3                 | 3           | 3          | 3           |
| FUEL CONSUMPTION                  |         |                                                                                    |            |              |                   |              |             |               |           |                   |             |            |             |
| 75% load                          | l/h     | 2,61                                                                               | 3,49       | 9,8          | 11,4              | 16,3         | 21,3        | 24,3          | 40,2      | 50,4              | 59,9        | 67,2       | 80,5        |
| 100% load                         | l/h     | 3,48                                                                               | 4,64       | 13,1         | 15,2              | 21,6         | 28,6        | 32,3          | 54,6      | 68,6              | 80,6        | 91,9       | 111,1       |
| ELECTRIC SYSTEM                   |         |                                                                                    |            |              |                   |              |             |               |           |                   |             |            |             |
| Voltage                           | V       | 12                                                                                 | 12         | 12           | 12                | 12           | 12          | 12            | 24        | 24                | 24          | 24         | 24          |
| Type                              |         | NEG. TO GND.                                                                       |            |              |                   |              |             |               |           |                   |             |            |             |
| Battery (ACP)                     | Ah      | 45                                                                                 | 45         | 95           | 95                | 145          | 145         | 145           | 2X145     | 2X145             | 2X145       | 2X145      | 2X145       |
| Starting motor                    | kW      | 0,4                                                                                | 0,4        | 3.1          | 3.1               | 3.1          | 3.1         | 3.1           | 5.4       | 5.4               | 5.4         | 5,4        | 5.4         |
| ALTERNATOR                        |         |                                                                                    |            |              |                   |              |             |               |           |                   |             |            |             |
| Brand                             |         | MECC ALTE                                                                          |            |              |                   |              |             |               |           |                   |             |            |             |
| Model                             |         | ECO 28 1S                                                                          | ECO 28 1L  | ECO 32 2L    | ECO 32 3L         | ECO 34 2S    | ECO 34 2L   | ECO 37 1S     | ECO 37 1L | ECO 37 3L         | ECO 40 1S   | ECO 40 2S  | ECO 40 3S   |
| Nº of poles                       |         | 4                                                                                  | 4          | 4            | 4                 | 4            | 4           | 4             | 4         | 4                 | 4           | 4          | 4           |
| Efficiency at 3/4                 | %       | 84                                                                                 | 84,7       | 89           | 89,1              | 90.4         | 92.3        | 91,5          | 92.8      | 92.8              | 92,5        | 92,6       | 92,7        |
| Power at 40º C                    | kVA/kWe | 16/13                                                                              | 20/16      | 60/48        | 70/56             | 105/84       | 150/120     | 170/136       | 250/200   | 340/272           | 400/320     | 450/360    | 500/400     |
| Nº of wires                       |         | 12                                                                                 | 12         | 12           | 12                | 12           | 12          | 12            | 12        | 12                | 12          | 12         | 12          |
| Insulation                        |         | CLASS H                                                                            |            |              |                   |              |             |               |           |                   |             |            |             |
| Protection                        |         | IP23                                                                               | IP23       | IP 21        | IP 21             | IP 21        | IP 21       | IP 21         | IP 21     | IP 21             | IP 21       | IP 21      | IP 21       |
| Regulation                        |         | ELECTRONIC (±1.5% WITH ANY POWER FACTOR AND SPEED VARIATIONS BETWEEN -5% AND +30%) |            |              |                   |              |             |               |           |                   |             |            |             |

(1) according to ISO8528

(2) full load and 25°C

(3) sump, including filters

For other voltages, please request to factory

|                               |         | VOLVO PENTA                                                                        |            |            |           |           |           |             |             |             |
|-------------------------------|---------|------------------------------------------------------------------------------------|------------|------------|-----------|-----------|-----------|-------------|-------------|-------------|
|                               |         | WATER COOLED                                                                       |            |            |           |           |           |             |             |             |
|                               |         | PSW185                                                                             | PSW200     | PSW250     | PSW300    | PSW325    | PSW375    | PSW400      | PSW450      | PSW500      |
| <b>GEN SET</b>                |         |                                                                                    |            |            |           |           |           |             |             |             |
| Prime power [PRP]             | kVA/kWe | 181/145                                                                            | 200/160    | 250/200    | 300/240   | 327/262   | 371/297   | 400/320     | 450/360     | 500/400     |
| Emergency power [LTP]         | kVA/kWe | 205/164                                                                            | 210/168    | 263/210    | 315/252   | 350/280   | 407/326   | 420/336     | 473/378     | 525/420     |
| Frequency                     | Hz      | 50                                                                                 | 50         | 50         | 50        | 50        | 50        | 50          | 50          | 50          |
| Three Phases Voltage          | V       | 400/230                                                                            | 400/230    | 400/230    | 400/230   | 400/230   | 400/230   | 400/230     | 400/230     | 400/230     |
| Power Factor                  | Cos phi | 0.8                                                                                | 0.8        | 0.8        | 0.8       | 0.8       | 0.8       | 0.8         | 0.8         | 0.8         |
| <b>ENGINE</b>                 |         |                                                                                    |            |            |           |           |           |             |             |             |
| Brand                         |         | VOLVO                                                                              | VOLVO      | VOLVO      | VOLVO     | VOLVO     | VOLVO     | VOLVO       | VOLVO       | VOLVO       |
| Model                         |         | TWD 710 G                                                                          | TWD 740 GE | TAD 740 GE | TAD1032GE | TAD1240GE | TAD1241GE | TAD 1242 GE | TAD 1630 GE | TAD 1631 GE |
| Prime power                   | kWm     | 158                                                                                | 178        | 217        | 262       | 283       | 323       | 352         | 395         | 435         |
| Speed                         | rpm     | 1500                                                                               | 1500       | 1500       | 1500      | 1500      | 1500      | 1500        | 1500        | 1500        |
| Intake                        |         | TURBO-W/A                                                                          | TURBO-W/A  | TURBO-A/A  | TURBO-A/A | TURBO-A/A | TURBO-A/A | TURBO-A/A   | TURBO-A/A   | TURBO-A/A   |
| Cooling                       |         | WATER                                                                              | WATER      | WATER      | WATER     | WATER     | WATER     | WATER       | WATER       | WATER       |
| Injection                     |         | DIRECT                                                                             | DIRECT     | DIRECT     | DIRECT    | DIRECT    | DIRECT    | DIRECT      | DIRECT      | DIRECT      |
| Cylinders                     |         | 6 LINE                                                                             | 6 LINE     | 6 LINE     | 6 LINE    | 6 LINE    | 6 LINE    | 6 LINE      | 6 LINE      | 6 LINE      |
| Displacement                  | cm3     | 6730                                                                               | 7280       | 7280       | 9,6       | 12130     | 12130     | 12130       | 16120       | 16120       |
| Bore/Stroke                   | mm      | 105/130                                                                            | 107/135    | 107/135    | 120/140   | 131/150   | 131/150   | 131/150     | 144/165     | 144/165     |
| Compression ratio             |         | 14.5:1                                                                             | 17.2:1     | 17.2:1     | 17:1      | 18.5:1    | 17.5:1    | 17.5:1      | 15:1        | 15:1        |
| Standard governor             |         | MECH                                                                               | GAC        | GAC        | GAC       | EDC III   | EDC III   | EDC III     | GAC         | GAC         |
| Governing control quality (1) |         | G2                                                                                 | G3         | G3         | G3        | G3        | G3        | G3          | G3          | G3          |
| Exhaust gases temperature (2) | °C      | 565                                                                                | 525        | 525        | 510       | 480       | 490       | 490         | 490         | 550         |
| Exhaust gases flow            | m³/h    | 1692                                                                               | 1860       | 2352       | 2760      | 3174      | 3480      | 3480        | 4902        | 5418        |
| Max. exhaust back pressure    | mbar    | 50                                                                                 | 100        | 100        | 50        | 100       | 100       | 100         | 50          | 50          |
| Cooling air flow              | m³/h    | 9720                                                                               | 10980      | 10980      | 16020     | 14760     | 16740     | 29520       | 25560       | 26100       |
| Max. allowed intake dep.      | mbar    | 50                                                                                 | 50         | 50         | 50        | 50        | 50        | 50          | 50          | 50          |
| Combustion air flow           | m³/h    | 600                                                                                | 696        | 882        | 1074      | 1284      | 1410      | 1410        | 1920        | 1908        |
| <b>LUBRICATION SYSTEM</b>     |         |                                                                                    |            |            |           |           |           |             |             |             |
| Oil consumption               | l/h     | 0,17                                                                               | 0,03       | 0,04       | 0,05      | 0,10      | 0,11      | 0,12        | 0,11        | 0,12        |
| Lubricating oil capacity (3)  | l       | 29                                                                                 | 29         | 29         | 36        | 35        | 35        | 35          | 64          | 64          |
| Minimum oil pressure          | bar     | 0,7                                                                                | 0,7        | 0,7        | 0,7       | 0,7       | 0,7       | 0,7         | 0,7         | 0,7         |
| <b>FUEL CONSUMPTION</b>       |         |                                                                                    |            |            |           |           |           |             |             |             |
| 75% load                      | l/h     | 29,48                                                                              | 32,58      | 38,36      | 47,74     | 49,78     | 56,24     | 61,29       | 71,24       | 79,62       |
| 100% load                     | l/h     | 39,31                                                                              | 43,02      | 51,67      | 65,55     | 66,71     | 76,14     | 82,97       | 98,28       | 108,23      |
| <b>ELECTRIC SYSTEM</b>        |         |                                                                                    |            |            |           |           |           |             |             |             |
| Voltage                       | V       | 24                                                                                 | 24         | 24         | 24        | 24        | 24        | 24          | 24          | 24          |
| Type                          |         | NEG. TO GND.                                                                       |            |            |           |           |           |             |             |             |
| Battery (ACP)                 | Ah      | 2X145                                                                              | 2X145      | 2X145      | 2X145     | 2X145     | 2X145     | 2X145       | 2X145       | 2X145       |
| Starting motor                | kW      | 5.4                                                                                | 5.4        | 5.4        | 6.6       | 6         | 6         | 6           | 7.5         | 7.5         |
| <b>ALTERNATOR</b>             |         |                                                                                    |            |            |           |           |           |             |             |             |
| Brand                         |         | MECC ALTE                                                                          | MECC ALTE  | MECC ALTE  | MECC ALTE | MECC ALTE | MECC ALTE | MECC ALTE   | MECC ALTE   | MECC ALTE   |
| Model                         |         | ECO 37 2S                                                                          | ECO 37 2S  | ECO 37 1L  | ECO 37 2L | ECO 37 3L | ECO 40 1S | ECO 40 1S   | ECO 40 2S   | ECO 40 3S   |
| N° of poles                   |         | 4                                                                                  | 4          | 4          | 4         | 4         | 4         | 4           | 4           | 4           |
| Efficiency at 3/4             | %       | 92                                                                                 | 92         | 92,8       | 93        | 92,8      | 92,5      | 92,5        | 92,6        | 92,7        |
| Power at 40° C                | kVA/kWe | 200/160                                                                            | 200/160    | 250/200    | 300/240   | 340/272   | 400/320   | 400/320     | 450/360     | 500/400     |
| N° of wires                   |         | 12                                                                                 | 12         | 12         | 12        | 12        |           | 12          | 12          | 12          |
| Insulation                    |         | CLASS H                                                                            | CLASS H    | CLASS H    | CLASS H   | CLASS H   | CLASS H   | CLASS H     | CLASS H     | CLASS H     |
| Protection                    |         | IP 21                                                                              | IP 21      | IP 21      | IP 21     | IP 21     | IP 21     | IP 21       | IP 21       | IP 21       |
| Regulation                    |         | ELECTRONIC (±1,5% WITH ANY POWER FACTOR AND SPEED VARIATIONS BETWEEN -5% AND +30%) |            |            |           |           |           |             |             |             |

(1) according to ISO8528

(2) prime power (after turbine)

(3) including filters

For other voltages, please request to factory

**OPTIONS**
**SERIES WATER COOLED**

|                                                                                                                                                                                                       | YANMAR                        | DEUTZ     |           |                |            |                |            |                | VOLVO      |                |                |                |                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-----------|-----------|----------------|------------|----------------|------------|----------------|------------|----------------|----------------|----------------|----------------|
|                                                                                                                                                                                                       | WATER COOLED                  |           |           |                |            |                |            |                |            |                |                |                |                |
|                                                                                                                                                                                                       | PSW<br>15-20                  | PSW<br>60 | PSW<br>75 | PSW<br>105-135 | PSW<br>160 | PSW<br>230-315 | PSW<br>380 | PSW<br>430-505 | PSW<br>185 | PSW<br>200-250 | PSW<br>300-325 | PSW<br>375-400 | PSW<br>450-500 |
| GEN SET                                                                                                                                                                                               |                               |           |           |                |            |                |            |                |            |                |                |                |                |
| Battery isolation switch                                                                                                                                                                              | X                             | X         | X         | X              | X          | X              | X          | X              | X          | X              | X              | X              | X              |
| Galvanized skid base frame<br>with integrated drip tray<br>and fork lift channels<br>(only soundproof versions)                                                                                       | X                             | X         | -         | -              | -          | -              | -          | -              | -          | -              | -              | -              | -              |
| Leak proof tray<br>(only for soundproof versions)                                                                                                                                                     | -                             | -         | X         | X              | X          | X              | X          | X              | X          | X              | X              | X              | X              |
| Site trailer<br>(only for soundproof versions)                                                                                                                                                        | X                             | X         | X         | X              | X          | -              | -          | -              | X          | X              | -              | -              | -              |
| Road trailer-rigid bar<br>(only for soundproof versions)                                                                                                                                              | X                             | X         | X         | X              | X          | -              | -          | -              | X          | X              | -              | -              | -              |
| Sockets kit<br>(only soundproof versions)                                                                                                                                                             | X                             | X         | X         | X              | X          | X              | X          | X              | X          | X              | X              | X              | X              |
| Rental kit (battery switch,<br>socket panel according to size,<br>Fuel filter with water separator<br>and drain, earth rod with cable<br>and three way fuel valve<br>for connection to external tank) | X                             | X         | -         | -              | -          | -              | -          | -              | -          | -              | -              | -              | -              |
| ENGINE                                                                                                                                                                                                |                               |           |           |                |            |                |            |                |            |                |                |                |                |
| Engine electronic governor                                                                                                                                                                            | -                             | X         | X         | X              | X          | S              | S          | S              | X          | S              | S              | S              | S              |
| Coolant pre-heating system<br>(for automatic start)                                                                                                                                                   | X                             | X         | X         | X              | X          | X              | X          | X              | X          | X              | X              | X              | X              |
| Low temperature engine starting kit                                                                                                                                                                   | -                             | X         | X         | X              | X          | X              | X          | X              | X          | X              | X              | X              | X              |
| Oil pressure indicator                                                                                                                                                                                | S                             | X         | X         | X              | X          | S              | S          | S              | S          | S              | S              | S              | S              |
| Manual oil drain pump<br>(standard on soundproof versions)                                                                                                                                            | S                             | X         | X         | X              | X          | X              | X          | X              | S          | S              | S              | S              | S              |
| Residential silencer<br>(standard on soundproof versions)                                                                                                                                             | S                             | X         | X         | X              | X          | X              | X          | X              | X          | X              | X              | X              | X              |
| FUEL SYSTEM                                                                                                                                                                                           |                               |           |           |                |            |                |            |                |            |                |                |                |                |
| Extended fuel tank capacity                                                                                                                                                                           | -                             | X         | X         | X              | X          | X              | X          | -              | X          | X              | X              | X              | -              |
| Automatic fuel transfer pump                                                                                                                                                                          | X                             | X         | X         | X              | X          | X              | X          | X              | X          | X              | X              | X              | X              |
| ALTERNATOR (MECC ALTE)                                                                                                                                                                                |                               |           |           |                |            |                |            |                |            |                |                |                |                |
| IP 23 protected alternator                                                                                                                                                                            | S                             | X         | X         | X              | X          | X              | X          | X              | X          | X              | X              | X              | X              |
| Tropicalized alternator                                                                                                                                                                               | X                             | X         | X         | S              | S          | S              | S          | S              | S          | S              | S              | S              | S              |
| Anti-condensation heater                                                                                                                                                                              | X                             | X         | X         | X              | X          | X              | X          | X              | X          | X              | X              | X              | X              |
| Alternator parallel kit (with mains)                                                                                                                                                                  | X                             | X         | X         | X              | X          | X              | X          | X              | X          | X              | X              | X              | X              |
| Alternator parallel kit<br>(with other alternator)                                                                                                                                                    | X                             | X         | X         | X              | X          | X              | S          | S              | X          | X              | X              | S              | S              |
| Stamford alternator variant                                                                                                                                                                           | X                             | X         | X         | X              | X          | X              | X          | X              | X          | X              | X              | X              | X              |
| OTHER OPTIONS                                                                                                                                                                                         |                               |           |           |                |            |                |            |                |            |                |                |                |                |
| Manual Control Panel<br>with analogue instrumentation                                                                                                                                                 | UNDER DEVELOPMENT DURING 2003 |           |           |                |            |                |            |                |            |                |                |                |                |
| Single phase version                                                                                                                                                                                  | X                             | X         | X         | X              | X          | -              | -          | -              | -          | -              | -              | -              | -              |
| Load Transfer Switch Panel (LTS)<br>for ACP versions                                                                                                                                                  | X                             | X         | X         | X              | X          | X              | X          | X              | X          | X              | X              | X              | X              |
| Remote start by external signal                                                                                                                                                                       | X                             | X         | X         | X              | X          | X              | X          | X              | X          | X              | X              | X              | X              |
| Free voltage terminals<br>for remote indications (max 3)                                                                                                                                              | X                             | X         | X         | X              | X          | X              | X          | X              | X          | X              | X              | X              | X              |
| Connection kit for communication<br>via Modem / GSM<br>(only for automatic versions)                                                                                                                  | X                             | X         | X         | X              | X          | X              | X          | X              | X          | X              | X              | X              | X              |
| Timer (programmable clock)                                                                                                                                                                            | X                             | X         | X         | X              | X          | X              | X          | X              | X          | X              | X              | X              | X              |

S : Standard  
 X : Optional  
 - : Not available