

**ژنراتور : Mecc Alte**

**موتور دیزل : Benz**

| Standby |     | Prime |     | دیزل ژنراتور |
|---------|-----|-------|-----|--------------|
| KVA     | KW  | KVA   | KW  |              |
| 275     | 220 | 250   | 200 |              |



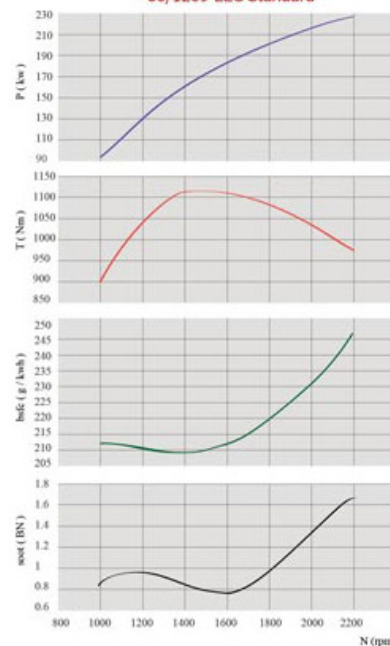
موتور دیزلی OM357 با توان ۳۰۰ اسب و استاندارد آلایندگی یورو ۲، دارای گواهینامه عملکرد و آلایندگی معتبر اروپائی از موسسه TUV NORD آلمان می باشد. طبق گواهینامه، قدرت و گشتاور این موتور نسبت به نوع تنفس طبیعی (بدون توربو) به مقدار ۳۷ درصد بیشتر و مصرف سوخت آن ۱.۸ درصد کمتر است. قطعات اصلی این موتور مثل میل لنگ، شاتون و پمپ روغن، سرسیلندر و... برای قدرت بالاتر تقویت شده و طراحی جدید می باشند. این موتور برای انواع اتوبوس های شهری، بین شهری و کامیون مناسب است.

The OM 357 engine with power of 300 hp and EURO II emission standard has performance and emission certification from TUV NORD company of Germany. According to certification the power and torque of this engine is 37 percent more than OM355 EUII naturally aspirated engine and also its fuel consumption is 1.8 percent less than naturally aspirated engine.

The main engine part such as crankshaft, connecting rod, oil pump, cylinder head and etc. were redesigned for high power. This engine is suitable for city and intercity buses as well as trucks.

| Technical Specification |                     | مشخصات فنی                     |
|-------------------------|---------------------|--------------------------------|
| Type                    | 355.930             | نوع                            |
| No. of cylinders        | 6                   | تعداد سیلندر                   |
| Max power               | 225 kw @ 2200 rpm   | حداکثر توان                    |
| Max torque              | 1140 N.m @ 1400 rpm | حداکثر گشتاور                  |
| Compression ratio       | 16.82 :1            | نسبت تراکم                     |
| Cylinder bore           | 128 mm              | قطر سیلندر                     |
| Stroke                  | 150 mm              | کورس پیستون                    |
| Volume                  | 11.98 lit           | حجم جابجائی                    |
| Weight to power ratio   | 4.0 Kg / KW         | نسبت وزن به قدرت               |
| Min. Fuel consumption   | 208.7 gr / kw-hr    | حداقل مصرف سوخت                |
| Total engine weight     | 900 Kg              | وزن کلی موتور                  |
| Aspiration              | Turbocharged        | دارای توربوشاژ / نوع تنفس      |
| Application             | Bus-Truck           | انواع اتوبوس و کامیون / کاربری |
| Emission Standard       | Euro II             | استاندارد آلایندگی             |

Output power, torque and fuel consumption according to 80/1269 EEC Standard



### ژنراتور

|                                     |                   |                            |
|-------------------------------------|-------------------|----------------------------|
| Manufacturer                        | Mecc Alte         | تولید کننده                |
| Type                                | ECO38-1LN/4       | تیپ                        |
| Maximum over Speed                  | 2250 rev/min      | مداکثر سرعت مجاز           |
| Standby power at rated voltage ,KVA | 250               | توان standby در ولتاژ نامی |
| Power factor                        | 0.8               | ضریب قدرت                  |
| Phase                               | 3                 | فاز                        |
| Frequency, Hz                       | 50                | فرکانس                     |
| Voltage, V                          | 380~440           | ولتاژ                      |
| Rotor                               | with damping cage | روتور                      |
| Stator windings                     | 12 ends           | سیم پیچ استاتور            |
| Voltage Regulation, %               | $-1 < x < +1$     | تنظیم ولتاژ                |
| Rotor WDG. Resistance               | 4.887 اهم         | مقاومت سیم پیچ روتور       |
| Short circuit ratio                 | 0.41~1.11         | نسبت اتصال کوتاه           |
| Protection                          | IP21              | کلاس حفاظتی                |
| Insulation Class                    | H                 | کلاس عایق                  |

| Electrical Characteristics           |                |                                                                 |                                                                  |       |       |                |          |       |       |      |
|--------------------------------------|----------------|-----------------------------------------------------------------|------------------------------------------------------------------|-------|-------|----------------|----------|-------|-------|------|
| Frequency                            |                | Hz                                                              | 50                                                               |       |       |                | 60       |       |       |      |
| Voltage (series star)                |                | V                                                               | 380                                                              | 400   | 415   | 440            | 415      | 440   | 460   | 480  |
| Rated power class H                  |                | kVA                                                             | 250                                                              | 250   | 250   | 230            | 290      | 300   | 300   | 300  |
|                                      |                | kW                                                              | 200                                                              | 200   | 200   | 184            | 232      | 240   | 240   | 240  |
| Rated power class F                  |                | kVA                                                             | 230                                                              | 230   | 230   | 215            | 270      | 280   | 280   | 280  |
|                                      |                | kW                                                              | 184                                                              | 184   | 184   | 172            | 216      | 224   | 224   | 224  |
| 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            | %                                                               | 93,3                                                             | 93,4  | 93,1  | 92,9           | 93,8     | 94,3  | 94,4  | 94,5 |
| (see graph. for details)             | 3/4            | %                                                               | 93,4                                                             | 93,7  | 93,6  | 93,3           | 94,3     | 94,5  | 94,7  | 94,9 |
|                                      | 2/4            | %                                                               | 92,3                                                             | 92,4  | 92,4  | 92,2           | 93,4     | 93,5  | 93,6  | 93,7 |
|                                      | 1/4            | %                                                               | 90,1                                                             | 89,9  | 89,7  | 89,5           | 90,6     | 90,6  | 90,6  | 90,4 |
| Reactances (f. l.cl. F)              |                |                                                                 |                                                                  |       |       |                |          |       |       |      |
|                                      | Xd             | %                                                               | 229,4                                                            | 207   | 192,3 | 157,4          | 267,7    | 246,3 | 225,4 | 207  |
|                                      | Xd'            | %                                                               | 15,5                                                             | 14,0  | 13,0  | 10,6           | 18,1     | 16,7  | 15,2  | 14,0 |
|                                      | Xd''           | %                                                               | 8,0                                                              | 7,2   | 6,7   | 5,5            | 9,3      | 8,6   | 7,8   | 7,2  |
|                                      | Xq             | %                                                               | 129,6                                                            | 117   | 108,7 | 89,0           | 151,3    | 139,2 | 127,4 | 117  |
|                                      | Xq'            | %                                                               | 129,6                                                            | 117   | 108,7 | 89,0           | 151,3    | 139,2 | 127,4 | 117  |
|                                      | Xq''           | %                                                               | 24,4                                                             | 22    | 20,4  | 16,7           | 28,5     | 26,2  | 24,0  | 22   |
|                                      | X <sub>2</sub> | %                                                               | 17,7                                                             | 16,0  | 14,9  | 12,2           | 20,7     | 19,0  | 17,4  | 16,0 |
|                                      | X <sub>0</sub> | %                                                               | 2,7                                                              | 2,4   | 2,2   | 1,8            | 3,1      | 2,9   | 2,6   | 2,4  |
| Short Circuit Ratio                  | Kcc            |                                                                 | 0,41                                                             | 0,44  | 0,68  | 1,11           | 0,32     | 0,38  | 0,41  | 0,44 |
| Time Constants                       | Td'            | sec.                                                            | 0,085                                                            |       |       |                |          |       |       |      |
|                                      | Td''           | sec.                                                            | 0,013                                                            |       |       |                |          |       |       |      |
|                                      | Tdo'           | sec.                                                            | 1,30                                                             |       |       |                |          |       |       |      |
|                                      | Tα             | sec.                                                            | 0,017                                                            |       |       |                |          |       |       |      |
| Short Circuit Current Capacity       |                | %                                                               | >300                                                             |       |       |                | >350     |       |       |      |
| Excitation at no load                | Amp.           |                                                                 | 0,6                                                              | 0,71  | 0,8   | 0,95           | 0,4      | 0,5   | 0,58  | 0,7  |
| Excitation at full load              | Amp.           |                                                                 | 2,7                                                              | 2,8   | 3     | 3,2            | 2,4      | 2,6   | 2,7   | 2,8  |
| Overload (long-term)                 | %              | 1 hour in a 6 hours period 110% rated load                      |                                                                  |       |       |                |          |       |       |      |
| Overload per 20 sec.                 | %              | 300                                                             |                                                                  |       |       |                |          |       |       |      |
| Stator Winding Resistance (20 °C)    | Ω              | 0,0065                                                          |                                                                  |       |       |                |          |       |       |      |
| Rotor Winding Resistance (20 °C)     | Ω              | 4,887                                                           |                                                                  |       |       |                |          |       |       |      |
| Exciter Resistance (20 °C)           | Ω              | Rotor : 0,685                                                   |                                                                  |       |       | Stator : 15,28 |          |       |       |      |
| Heat dissipation at f.l.cl.H         | W              | 14362                                                           | 14133                                                            | 14823 | 14062 | 15335          | 14507    | 14237 | 13968 |      |
| 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 %        | 2 / 2,1                                                         |                                                                  |       |       |                |          |       |       |      |
| Waveform Distors.(THD) at no load    | LL/LN %        | 2,9 / 3,1                                                       |                                                                  |       |       |                |          |       |       |      |
| Mechanical characteristics           |                |                                                                 |                                                                  |       |       |                |          |       |       |      |
| Protection                           |                | IP 21 (other protection on request )                            |                                                                  |       |       |                |          |       |       |      |
| DE bearing                           |                | 6318.2RS                                                        |                                                                  |       |       |                |          |       |       |      |
| NDE bearing                          |                | 6314.2RS                                                        |                                                                  |       |       |                |          |       |       |      |
| Weight of wound stator assembly      | kg             | 231                                                             |                                                                  |       |       |                |          |       |       |      |
| Weight of wound rotor assembly       | kg             | 147,5                                                           |                                                                  |       |       |                |          |       |       |      |
| Weight of complete generator         | kg             | 680                                                             |                                                                  |       |       |                |          |       |       |      |
| Maximun overspeed                    | rpm            | 2250                                                            |                                                                  |       |       |                |          |       |       |      |
| Unbalanced magnetic pull at f.l.cl.F | kN/mm          | 5,1                                                             |                                                                  |       |       |                |          |       |       |      |
| Cooling air requirement              | m³/min         | 32                                                              |                                                                  |       |       |                | 39       |       |       |      |
| Inertia Constant (H)                 | sec.           | 0,116                                                           |                                                                  |       |       |                | 0,139    |       |       |      |
| 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.