



GENERATOR TYPE ECP 32-3L/4 A

Document : **DS290A/1**

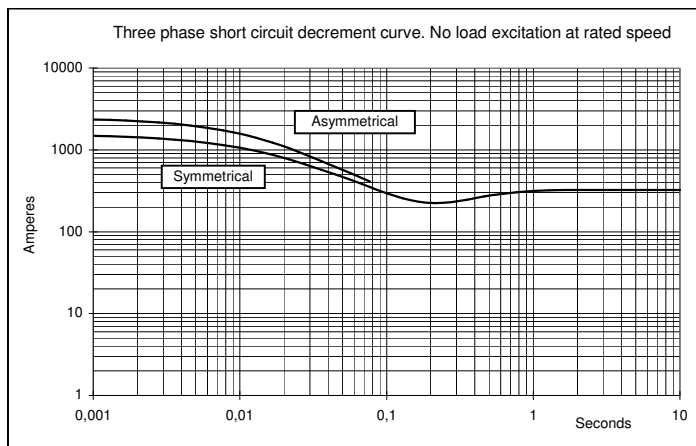
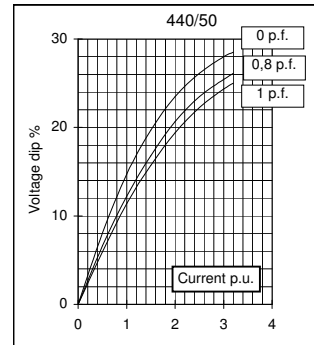
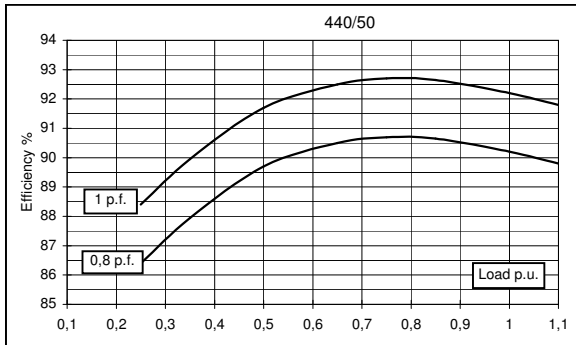
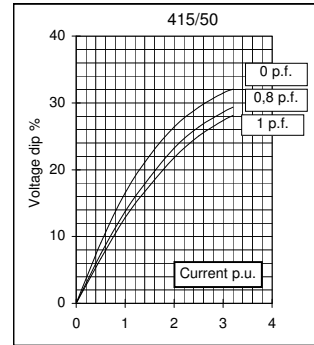
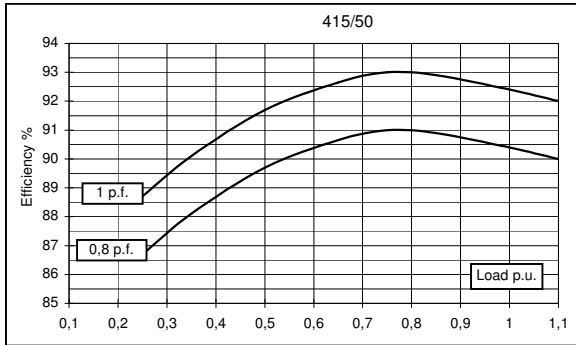
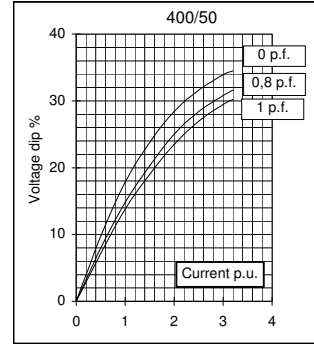
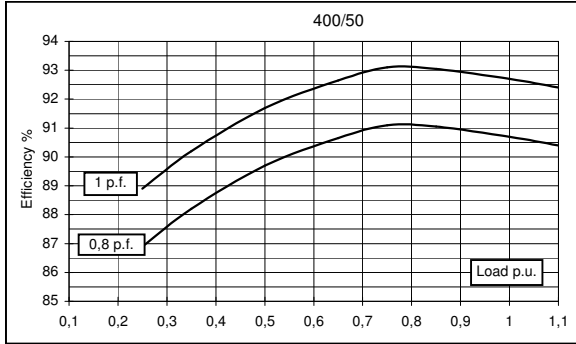
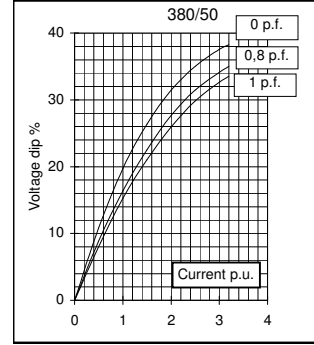
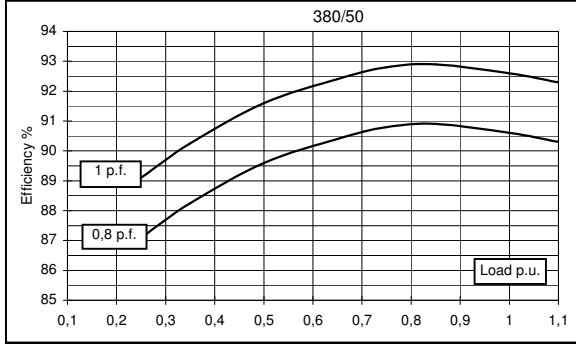
issue 000 date 30/08/2013

| Electrical Characteristics | | | | | | | | | | |
|--------------------------------------|---------------------|--|--------|-------|-------|----------------|-------|-------|-------|-------|
| Frequency | Hz | 50 | | | | 60 | | | | |
| Voltage (series star) | V | 380 | 400 | 415 | 440 | 415 | 440 | 460 | 480 | |
| Rated power class H | kVA | 75 | 75 | 75 | 70 | 80 | 86 | 90 | 90 | |
| | kW | 60 | 60 | 60 | 56 | 64 | 69 | 72 | 72 | |
| Rated power class F | kVA | 67 | 67 | 67 | 62 | 73 | 80 | 83 | 83 | |
| | kW | 53,6 | 53,6 | 53,6 | 49,6 | 58,4 | 64 | 66,4 | 66,4 | |
| 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 | % | 90,6 | 90,7 | 90,4 | 90,2 | 92,5 | 93 | 93,1 | 93,2 |
| (see graph. for details) | 3/4 | % | 90,8 | 91,1 | 91 | 90,7 | 92,8 | 93 | 93,2 | 93,4 |
| | 2/4 | % | 89,6 | 89,7 | 89,7 | 89,7 | 90,8 | 90,9 | 91 | 91,1 |
| | 1/4 | % | 87,1 | 86,9 | 86,7 | 86,4 | 88,1 | 88,1 | 88,1 | 87,9 |
| Reactances (f. l.cl. F) | Xd | % | 338,3 | 305,4 | 283,7 | 235,5 | 363,1 | 347,2 | 332,5 | 305,4 |
| | Xd' | % | 14,84 | 13,4 | 12,44 | 10,33 | 15,93 | 15,23 | 14,58 | 13,4 |
| | Xd'' | % | 7,72 | 7 | 6,47 | 5,37 | 8,28 | 7,92 | 7,58 | 7 |
| | Xq | % | 130,6 | 117,9 | 109,5 | 90,9 | 140,1 | 134,0 | 128,3 | 117,9 |
| | Xq' | % | 130,6 | 117,9 | 109,5 | 90,9 | 140,1 | 134,0 | 128,3 | 117,9 |
| | Xq'' | % | 38,0 | 34,3 | 31,9 | 26,4 | 40,8 | 39,0 | 37,3 | 34,3 |
| | X ₂ | % | 25,88 | 23,4 | 21,70 | 18,02 | 27,77 | 26,56 | 25,43 | 23,4 |
| | X ₀ | % | 3,68 | 3,3 | 3,09 | 2,56 | 3,95 | 3,78 | 3,62 | 3,3 |
| Short Circuit Ratio | Kcc | | 0,48 | 0,57 | 0,64 | 1,19 | 0,36 | 0,40 | 0,48 | 0,57 |
| Time Constants | Td' | sec. | 0,065 | | | | | | | |
| | Td'' | sec. | 0,0135 | | | | | | | |
| | Tdo' | sec. | 1,30 | | | | | | | |
| | Tα | sec. | 0,027 | | | | | | | |
| Short Circuit Current Capacity | | % | >300 | | | | >350 | | | |
| Excitation at no load | Amp. | | 0,5 | 0,6 | 0,7 | 1,2 | 0,25 | 0,3 | 0,4 | 0,5 |
| Excitation at full load | Amp. | | 2,1 | 2,2 | 2,4 | 2,8 | 1,8 | 1,7 | 1,9 | 2,1 |
| Overload (long-term) | % | 1 hour in a 6 hours period 110% rated load | | | | | | | | |
| Overload per 20 sec. | % | 300 | | | | | | | | |
| Stator Winding Resistance (20°C) | Ω | 0,035 | | | | | | | | |
| Rotor Winding Resistance (20°C) | Ω | 3,171 | | | | | | | | |
| Exciter Resistance (20 °C) | Ω | Rotor : 0,442 | | | | Stator : 11,35 | | | | |
| Heat dissipation at f.l.cl.H | W | 6225 | 6152 | 6372 | 6084 | 5189 | 5178 | 5336 | 5253 | |
| Telephone Interference | | THF < 2% | | | | TIF < 45 | | | | |
| Radio interference | | EN61000-6-3, EN61000-6-1. For others standards apply to factory | | | | | | | | |
| Waveform Distors.(THD) at f. load | LL/LN % | 3,9 / 3,7 | | | | | | | | |
| Waveform Distors.(THD) at no load | LL/LN % | 3,3 / 3,1 | | | | | | | | |
| Mechanical characteristics | | | | | | | | | | |
| Protection | | IP 21 (other protection on request) | | | | | | | | |
| DE bearing | | 6312-2RS | | | | | | | | |
| NDE bearing | | 6309-2RS | | | | | | | | |
| Weight of wound stator assembly | kg | 110 | | | | | | | | |
| Weight of wound rotor assembly | kg | 74 | | | | | | | | |
| Weight of complete generator | kg | 293 | | | | | | | | |
| Maximun overspeed | rpm | 2250 | | | | | | | | |
| Unbalanced magnetic pull at f.l.cl.F | kN/mm | 5,2 | | | | | | | | |
| Cooling air requirement | m ³ /min | 11,8 | | | | 14,5 | | | | |
| Inertia Constant (H) | sec. | 0,094 | | | | 0,113 | | | | |
| Noise level at 1m/7m | dB(A) | 75 / 60 | | | | 79 / 64 | | | | |

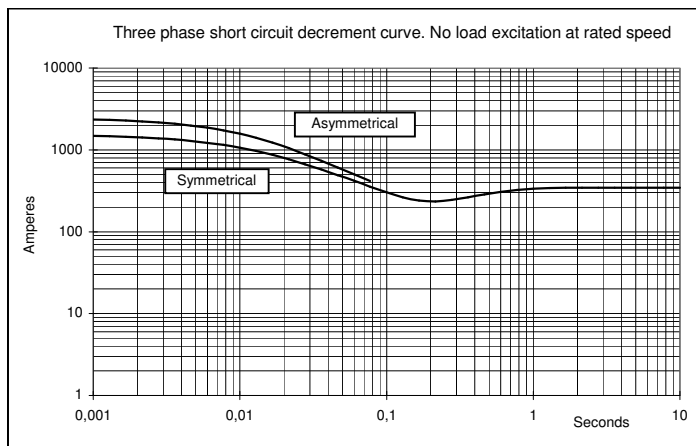
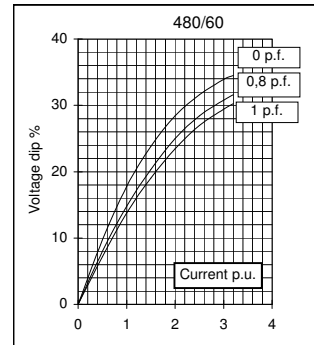
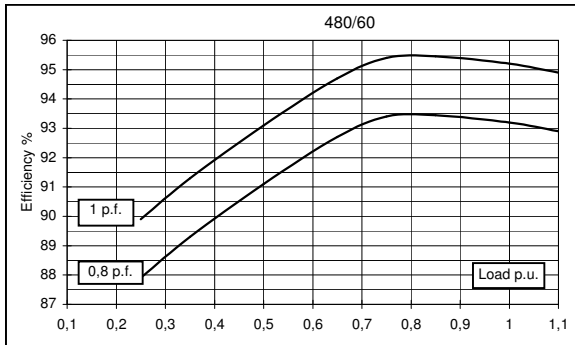
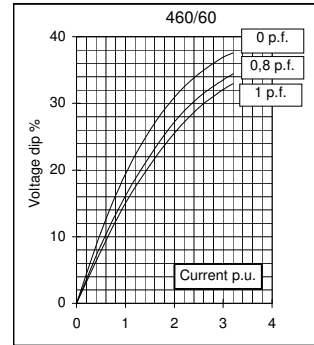
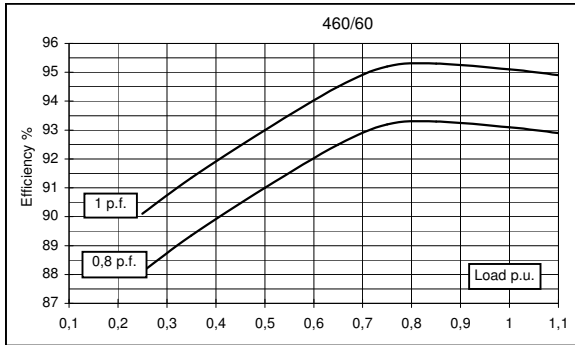
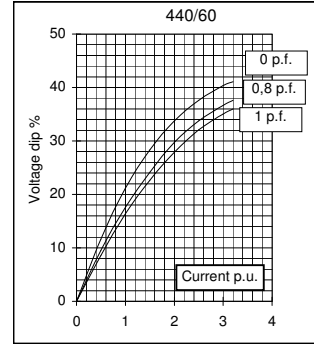
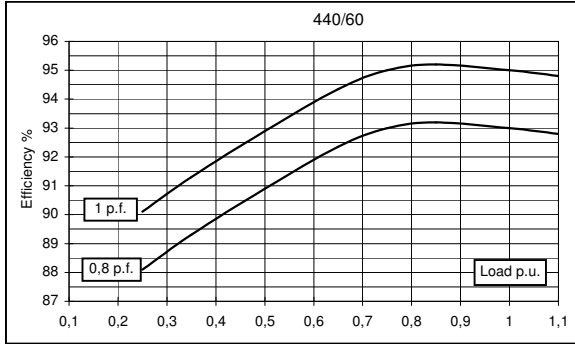
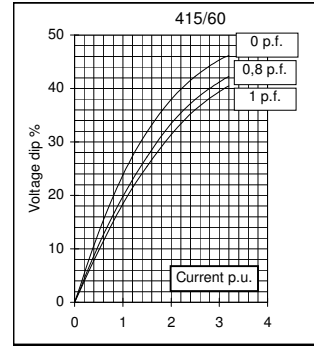
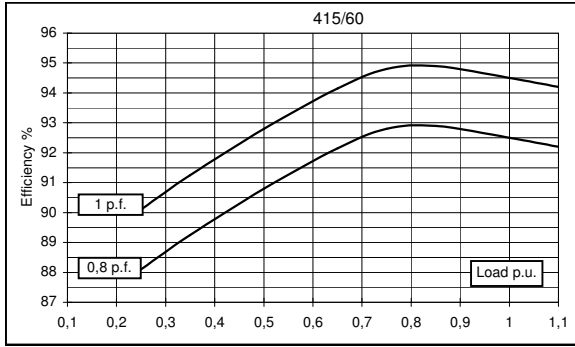
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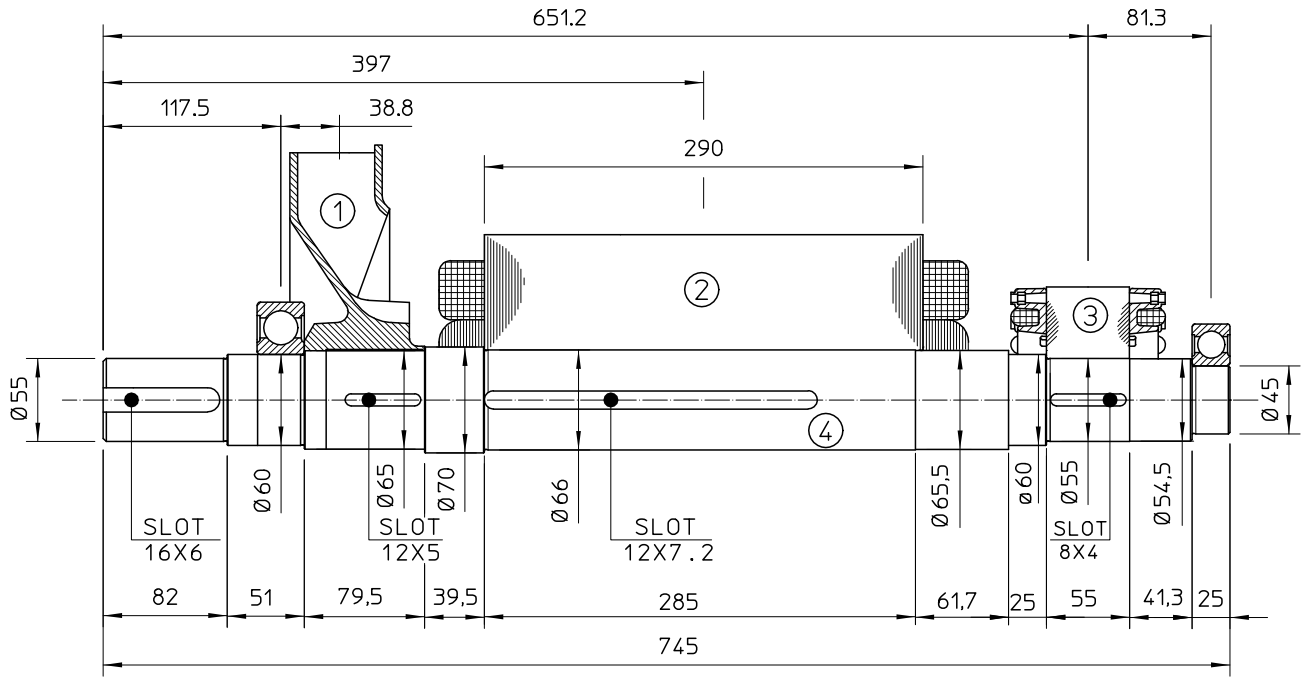
50 Hz



60 Hz

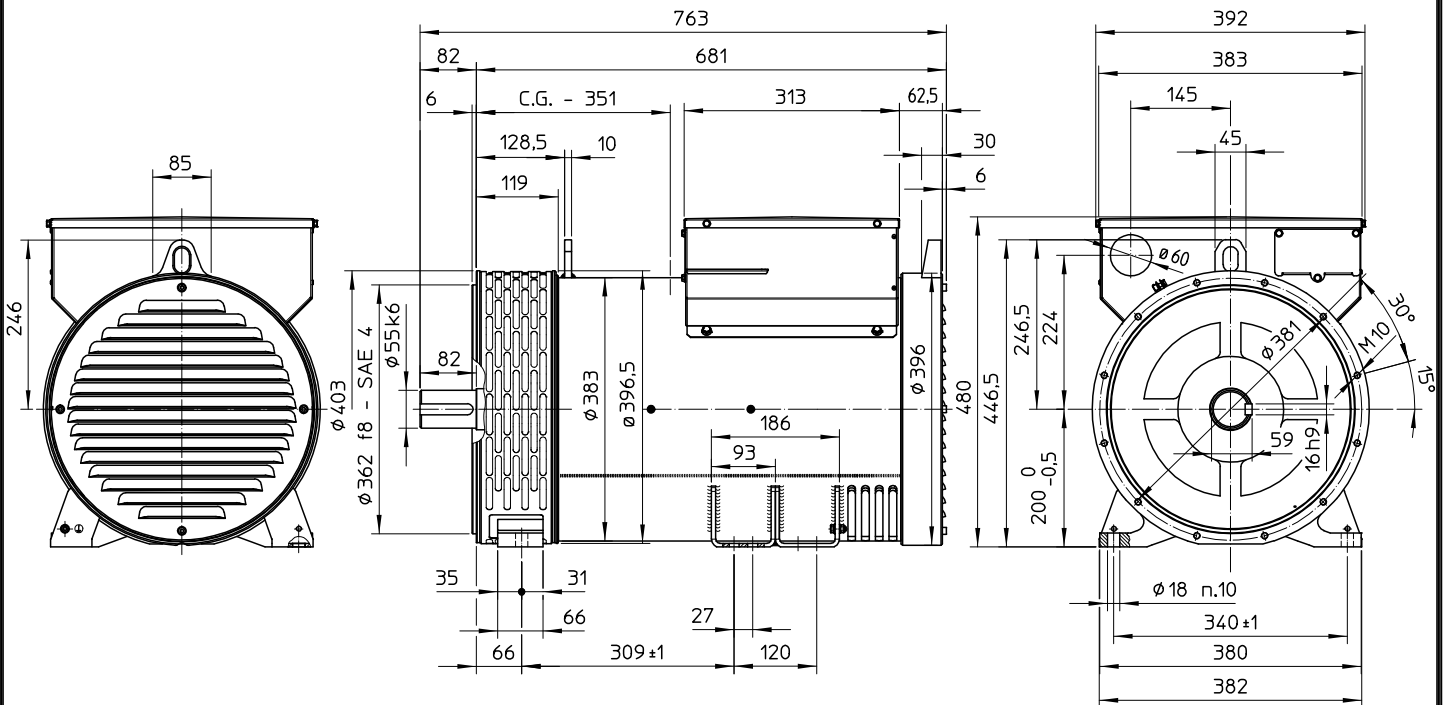


TWO BEARING MOMENTS OF INERTIA



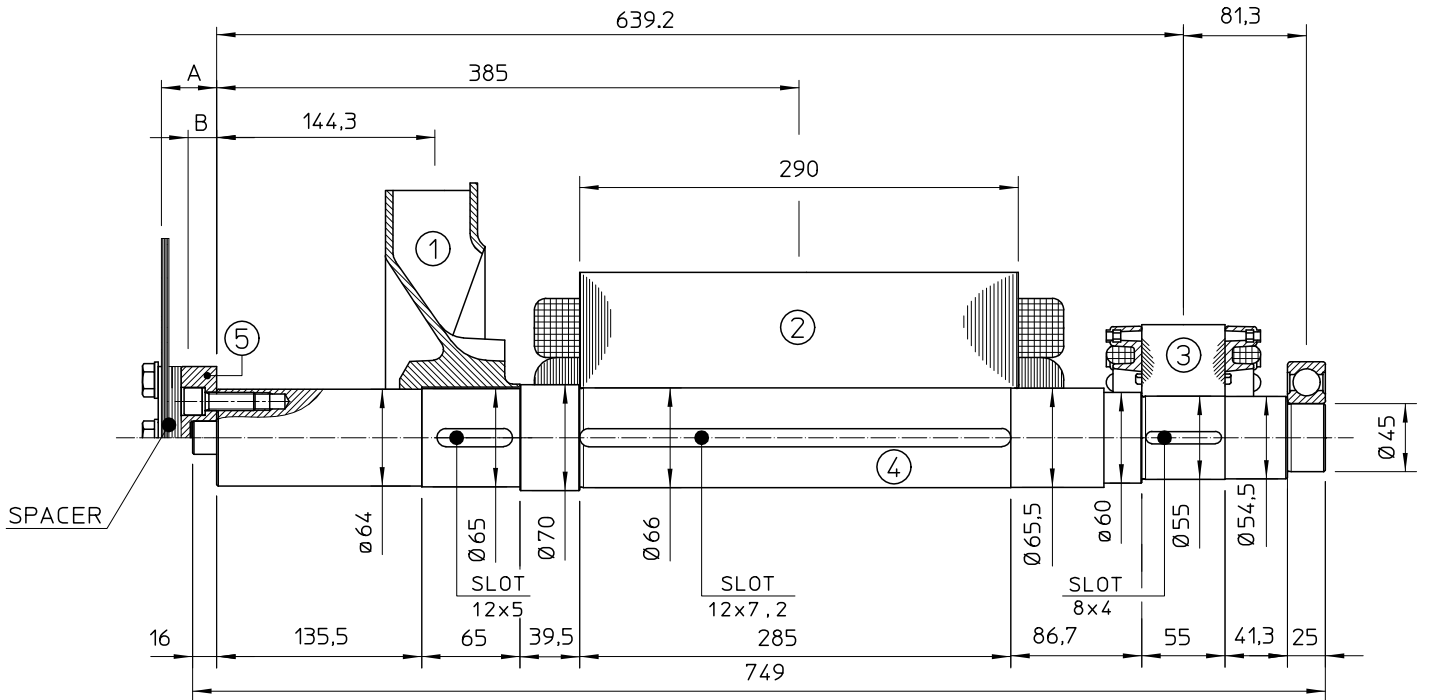
| POS. | COMPONENT | WEIGHT (kg) | J (kgm ²) |
|-------|------------|-------------|-----------------------|
| 1 | FAN | 2.3 | 0.0224 |
| 2 | MAIN ROTOR | 74 | 0.5254 |
| 3 | EX. ROTOR | 7 | 0.016 |
| 4 | SHAFT | 17.3 | 0.0087 |
| TOTAL | | 100.6 | 0.5725 |

TWO BEARING DIMENSIONS



C.G.= GRAVITY CENTER

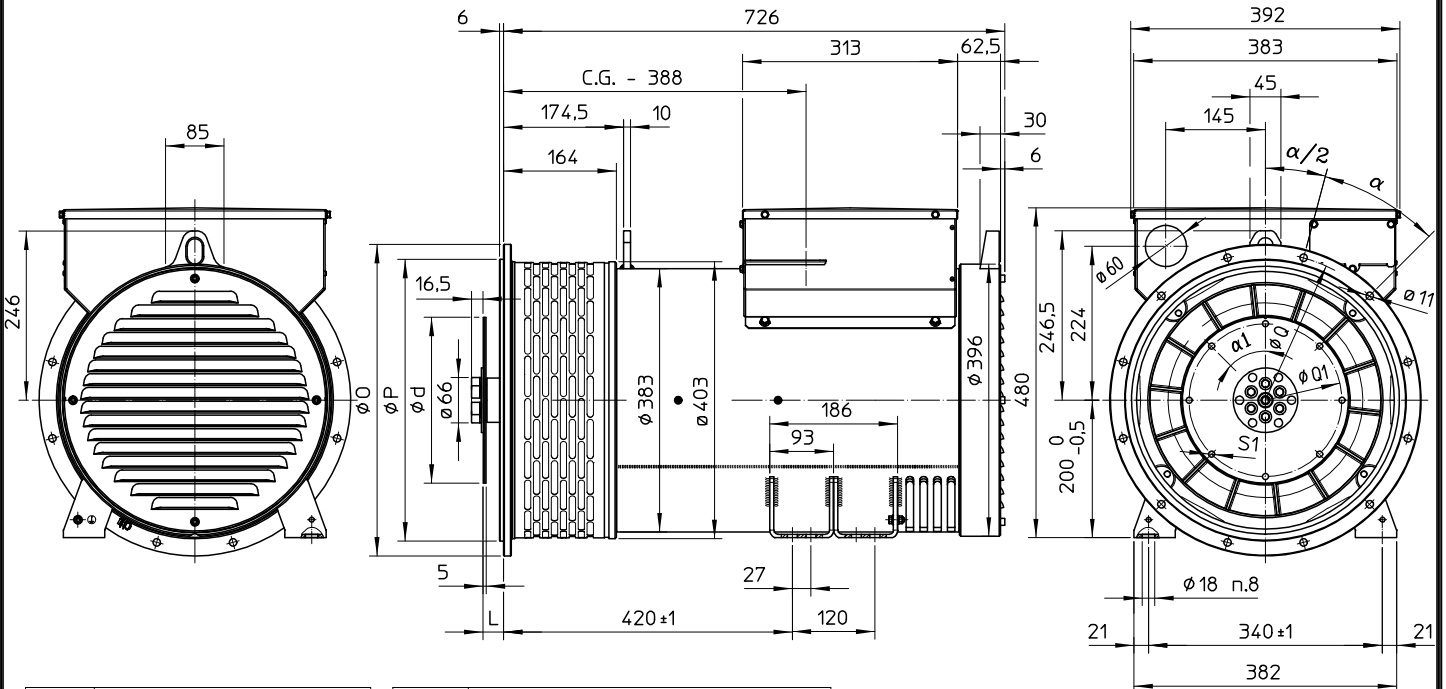
SINGLE BEARING MOMENTS OF INERTIA



| POS. | COMPONENT | WEIGHT (kg) | J (kgm ²) |
|-------|------------|-------------|-----------------------|
| 1 | FAN | 2.3 | 0.0224 |
| 2 | MAIN ROTOR | 74 | 0.5254 |
| 3 | EX. ROTOR | 7 | 0.016 |
| 4 | SHAFT | 17.6 | 0.0090 |
| TOTAL | | 100.9 | 0.5728 |

| SAE N° | 5 | | SHAFTS COUPLING FLEX PLATE | |
|--------|------|------|----------------------------|--------------------|
| | A | B | WEIGHT kg | J kgm ² |
| 6.5 | 5 | 2.5 | 1.74 | 0.0084 |
| 7.5 | 5 | 2.5 | 2.1 | 0.013 |
| 8 | 36.6 | 28.1 | 3.9 | 0.02 |
| 10 | 28.6 | 21.6 | 4.47 | 0.038 |
| 11.5 | 15 | 11.5 | 4.51 | 0.059 |

SINGLE BEARING DIMENSIONS



| SAE N. | FLANGIA / FLANGE BRIDE / FLANSCH | | | |
|--------|-------------------------------------|-------|-------|-----|
| | O | P | Q | α |
| 5 | 356 | 314.3 | 333.4 | 45° |
| 4 | 403 | 362 | 381 | 30° |
| 3 | 451 | 409.6 | 428.6 | 30° |
| 2 | 490 | 447.7 | 466.7 | 30° |
| 1 | 552 | 511.2 | 530.2 | 30° |

| SAE N. | GIUNTI A DISCHI / DISC COUPLING DISCQUE DE MONOPALIER / SCHEIBENKUPPLUNG | | | | |
|--------|---|------|--------|----|-----|
| | d | L | Q1 | S1 | α1 |
| 6 1/2 | 215.9 | 30.2 | 200 | 9 | 60° |
| 7 1/2 | 241.3 | 30.2 | 222.25 | 9 | 45° |
| 8 | 263.52 | 62 | 244.47 | 11 | 60° |
| 10 | 314.32 | 53.8 | 295.27 | 11 | 45° |
| 11 1/2 | 352.42 | 39.6 | 333.37 | 11 | 45° |

C.G.= GRAVITY CENTER