



## **ALTERNATOR PRO35L H/4**

*three-phase brushless synchronous alternator with AVR - 4 poles*

Technical Data Sheet

## PRO35L H/4

### COMMON DATA

|                      |                     |                                                        |
|----------------------|---------------------|--------------------------------------------------------|
| Rated Power at 50Hz  | kVA                 | 800                                                    |
| Rated Power at 60Hz  | kVA                 | 960                                                    |
| Rated Power Factor   |                     | 0.8                                                    |
| Nominal Temperature  | °C                  | 40                                                     |
| Control System       |                     | self excited                                           |
| Execution            |                     | brushless                                              |
| Regulation Type      |                     | AVR                                                    |
| Insulation Class     |                     | H                                                      |
| Protection           |                     | IP23                                                   |
| Maximum Overspeed    | rpm                 | 2250                                                   |
| Overload             |                     | 110% of rated power for one hour in a cycle of 6 hours |
| Air Flow Requirement | m <sup>3</sup> /min | 54.5 at 50Hz      64 at 60Hz                           |
| R.F.I. Suppression   |                     | Standard EN55011                                       |

### REGULATION DATA

|                         |                         |
|-------------------------|-------------------------|
| AVR                     | HVR30                   |
| Sensing                 | three-phase             |
| Voltage Regulation      | ±1%                     |
| Sustained Short Circuit | > 300% of rated current |

### WINDING DATA

|                           |                                     |
|---------------------------|-------------------------------------|
| Stator Winding            | Double layer with auxiliary winding |
| Rotor Winding             | with damping cage                   |
| Winding Pitch             | 2/3                                 |
| Number of Leads of Stator | 6                                   |
| Stator Winding Resistance | Ω      0.0026 at 20°C               |
| Rotor Winding Resistance  | Ω      2.1 at 20°C                  |
| Exciter Stator Resistance | Ω      12.5 at 20°C                 |
| Exciter Rotor Resistance  | Ω      0.095 at 20°C                |
| THD at full load          | <3%                                 |
| THD at no load            | <2,5%                               |
| Excitation at no load     | A <sub>dc</sub> 0.52                |
| Excitation at full load   | A <sub>dc</sub> 2.3                 |

### STANDARD

|            |                             |
|------------|-----------------------------|
| References | EN60034-1 ISO8528-3 EN55011 |
|------------|-----------------------------|

## PRO35L H/4

### ELECTRICAL DATA

| Frequency                              |     | 50Hz - 1500rpm |         |         |         | 60Hz - 1800rpm |         |         |         |
|----------------------------------------|-----|----------------|---------|---------|---------|----------------|---------|---------|---------|
| Voltage Series Star                    | V   | 380/220        | 400/230 | 415/240 | 440/254 | 415/240        | 440/254 | 460/266 | 480/277 |
| Rated Power in Class H<br>(125°C/40°C) | kVA | 800            | 800     | 790     | 730     | 870            | 900     | 960     | 960     |
|                                        | kW  | 640            | 640     | 632     | 584     | 696            | 720     | 768     | 768     |
| Rated Power in Class F<br>(105°C/40°C) | kVA | 780            | 780     | 760     | 700     | 860            | 875     | 935     | 935     |
|                                        | kW  | 624            | 624     | 608     | 560     | 688            | 700     | 748     | 748     |
| Rated Power Standby<br>(150°C/40°C)    | kVA | 870            | 870     | 860     | 780     | 915            | 975     | 1040    | 1040    |
|                                        | kW  | 696            | 696     | 688     | 624     | 732            | 780     | 832     | 832     |
| Rated Power Standby<br>(163°C/27°C)    | kVA | 900            | 900     | 880     | 810     | 950            | 1010    | 1080    | 1080    |
|                                        | kW  | 720            | 720     | 704     | 648     | 760            | 808     | 864     | 864     |

### EFFICIENCY IN CL. H

|     |  |       |  |  |  |  |  |       |
|-----|--|-------|--|--|--|--|--|-------|
| 4/4 |  | 95.4% |  |  |  |  |  | 96.5% |
| 3/4 |  | 96.0% |  |  |  |  |  | 97.0% |
| 2/4 |  | 95.0% |  |  |  |  |  | 95.5% |
| 1/4 |  | 93.4% |  |  |  |  |  | 94.0% |

### REACTANCES AND TIME CONSTANTS

|                                                |        |       |       |       |       |       |       |       |       |
|------------------------------------------------|--------|-------|-------|-------|-------|-------|-------|-------|-------|
| pcc                                            |        |       | 0.37  |       |       |       |       |       |       |
| X <sub>d</sub> - dir. axis synchronous         |        | 372%  | 336%  | 308%  | 253%  | 407%  | 375%  | 366%  | 336%  |
| X' <sub>d</sub> - dir. axis transient          |        | 19.4% | 17.5% | 16.1% | 13.2% | 21.2% | 19.5% | 19.1% | 17.5% |
| X'' <sub>d</sub> - dir. axis subtransient      |        | 13.3% | 12.0% | 11.0% | 9.0%  | 14.5% | 13.4% | 13.1% | 12.0% |
| X <sub>q</sub> - quad. axis reactance          |        | 235%  | 212%  | 194%  | 160%  | 257%  | 237%  | 231%  | 212%  |
| T' <sub>do</sub> - O.C. field time constant    | 2650ms |       |       |       |       |       |       |       |       |
| T' <sub>d</sub> - Transient time constant      | 150ms  |       |       |       |       |       |       |       |       |
| T'' <sub>d</sub> - Sub-transient time constant | 10ms   |       |       |       |       |       |       |       |       |

### MECHANICAL DATA

|                                 |           |    |              |
|---------------------------------|-----------|----|--------------|
| Bearing non drive end           |           |    | 6316-2RS-C3  |
| Bearing drive end (B3/B14 form) |           |    | 6319-2RS1-C3 |
| Weight of generator             | in B2     | kg | 1867         |
|                                 | in B3/B14 | kg | 1891         |
|                                 | in B3/B9  | kg | \            |

## PRO35L H/4

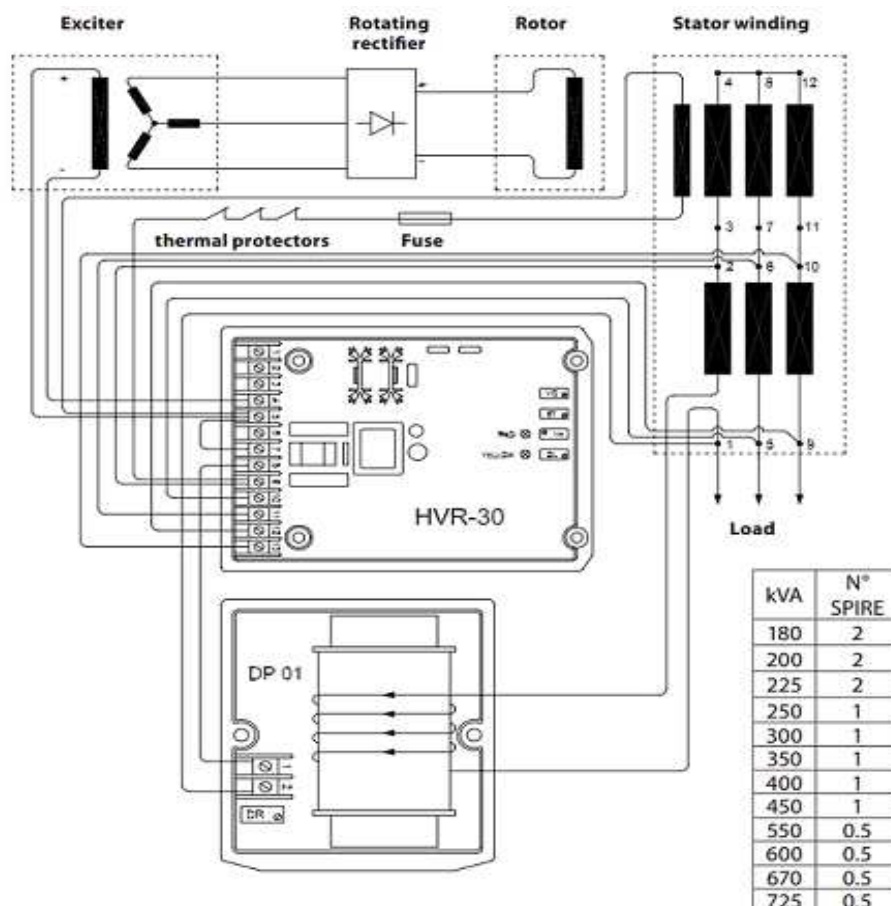
### MOMENT OF INERZIA

|         |                   |        |
|---------|-------------------|--------|
| B3/B9   | kg·m <sup>2</sup> | \      |
| SAE 7½  | kg·m <sup>2</sup> | \      |
| SAE 8   | kg·m <sup>2</sup> | \      |
| SAE 10  | kg·m <sup>2</sup> | \      |
| SAE 11½ | kg·m <sup>2</sup> | \      |
| SAE 14  | kg·m <sup>2</sup> | 14.854 |
| SAE 18  | kg·m <sup>2</sup> | 15.194 |
| B3/B14  | kg·m <sup>2</sup> | 14.352 |

### POWER VARIATION ACCORDING TO TEMPERATURE AND ALTITUDE

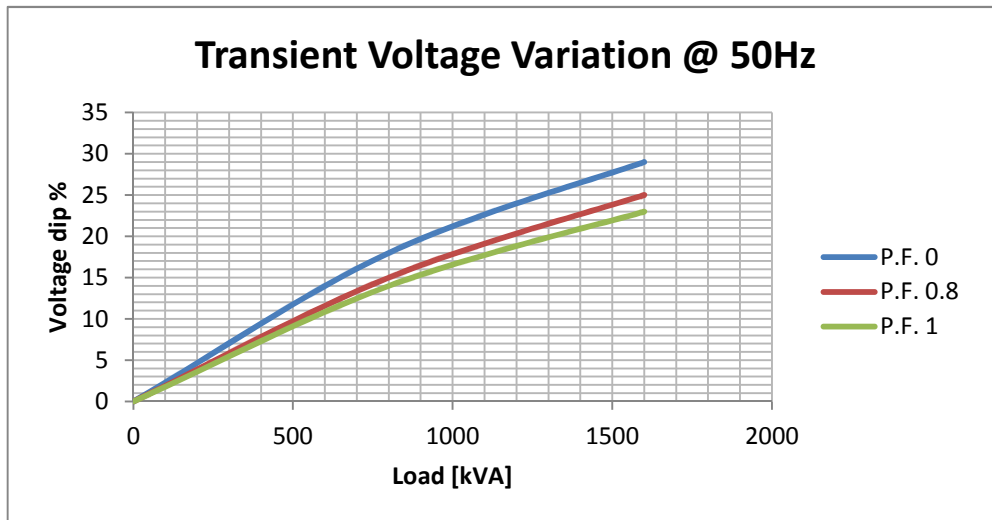
| Altitude      | Ambient temperature |      |      |      |      |
|---------------|---------------------|------|------|------|------|
|               | 25°C                | 40°C | 45°C | 50°C | 55°C |
| < 1000m       | 1.09                | 1    | 0.96 | 0.93 | 0.91 |
| 1000m - 1500m | 1.01                | 0.96 | 0.92 | 0.89 | 0.87 |
| 1500m - 2000m | 0.96                | 0.91 | 0.87 | 0.84 | 0.83 |
| 2000m - 3000m | 0.9                 | 0.85 | 0.81 | 0.78 | 0.76 |

### WIRING DIAGRAM

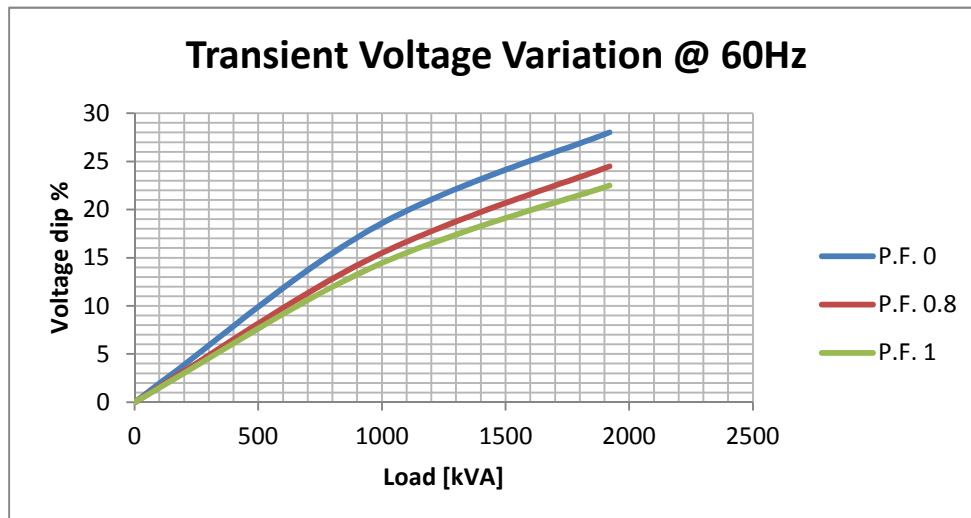


## PRO35L H/4

### TRANSIENT VOLTAGE VARIATION 50Hz

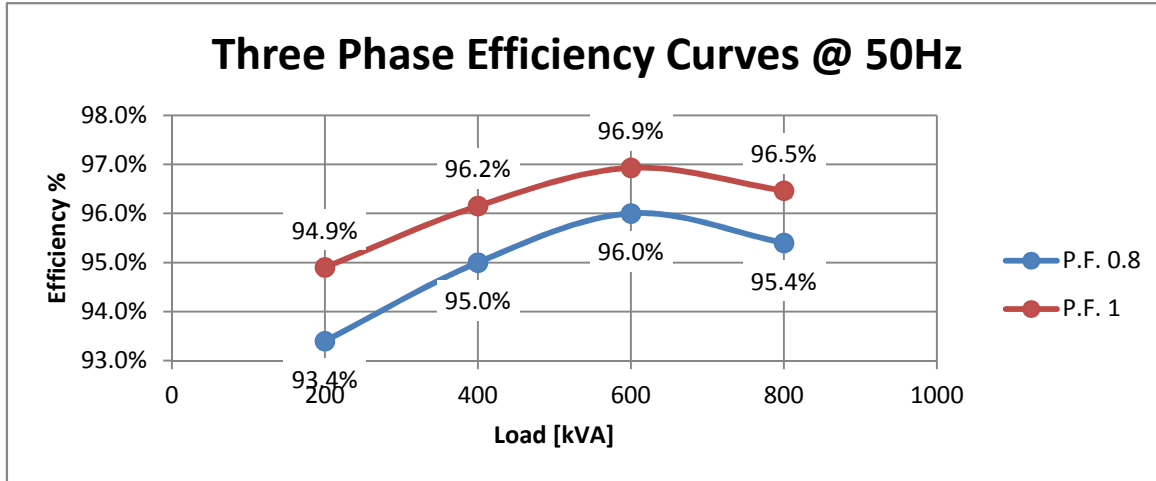


### TRANSIENT VOLTAGE VARIATION 60Hz

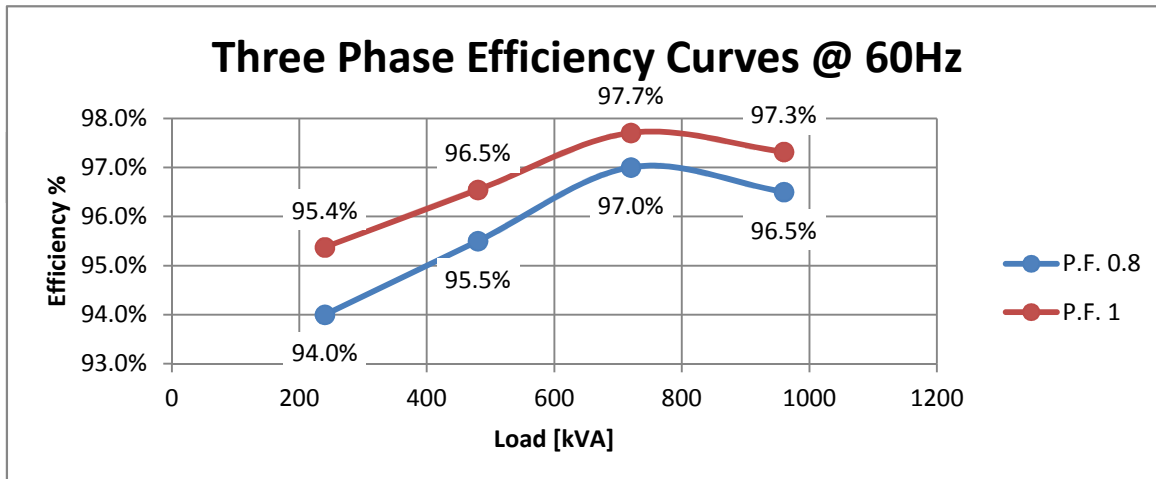


## PRO35L H/4

### EFFICIENCY 50Hz

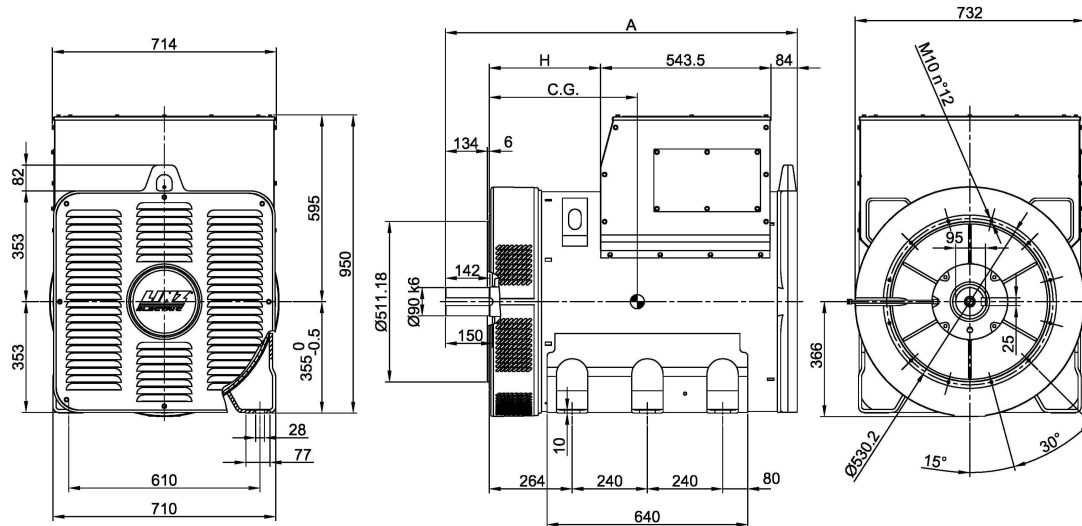


### EFFICIENCY 60Hz

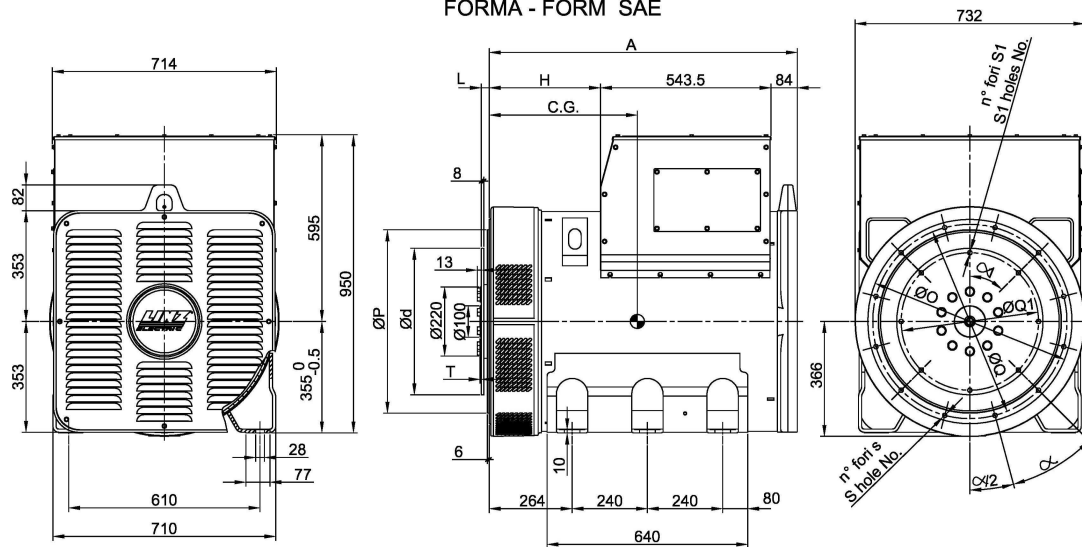


## PRO35L H/4

FORMA - FORM B3/B14



FORMA - FORM SAE



| FORMA - FORM |         | A    | H     | TIPO - TYPE |     | C.G. |
|--------------|---------|------|-------|-------------|-----|------|
| B3/B14       | PRO35 S | 1122 | 354.5 | PRO35S B/4  | 455 |      |
|              | PRO35 M | 1247 | 479.5 | PRO35S C/4  | 465 |      |
|              | PRO35 L | 1347 | 579.5 | PRO35S D/4  | 478 |      |
| SAE          | PRO35 S | 982  | 354.5 | PRO35M E/4  | 516 |      |
|              | PRO35 M | 1107 | 479.5 | PRO35M F/4  | 516 |      |
|              | PRO35 L | 1207 | 579.5 | PRO35M G/4  | 539 |      |
|              |         |      |       | PRO35L H/4  | 588 |      |

| SAE<br>N. | FLANGIE - FLANGES - BRIDAS |        |       |                      |    |       |
|-----------|----------------------------|--------|-------|----------------------|----|-------|
|           | Ø O                        | Ø P    | Ø Q   | n. fori<br>holes No. | S  | α     |
| 0         | 710                        | 647.7  | 679.5 | 16                   | 14 | 22.5° |
| 1/2       | 650                        | 584.2  | 619.2 | 12                   | 14 | 30°   |
| 1         | 552                        | 511.18 | 530.2 | 12                   | 12 | 30°   |

| SAE<br>N. | GIUNTI A DISCO - COUPLING DISCS - JUNTAS A DISCOS |        |        |                      |    |     |     |
|-----------|---------------------------------------------------|--------|--------|----------------------|----|-----|-----|
|           | L                                                 | Ø d    | Ø Q1   | n. fori<br>holes No. | S1 | α1  | T   |
| 14        | 25.4                                              | 466.72 | 438.15 | 8                    | 14 | 45° | 4.3 |
| 18        | 15.7                                              | 571.5  | 542.92 | 6                    | 17 | 60° | 14  |