



Smart solutions.
Strong relationships.

AC Generators

5 kVA to 1010 kVA



USTAD

Robust and Reliable...



AVANTHA
GROUP COMPANY





Crompton Greaves (CG) is part of the US\$ 4 bn Avantha Group, a conglomerate with an impressive global footprint.

Since its inception CG has been synonymous with electricity. CG's India operations were established in 1937, and since then the company has retained its leadership position in the management and application of electrical energy.

Today, Crompton Greaves India's largest private sector enterprise. It has diversified extensively and is engaged in designing, manufacturing and marketing technologically advanced electrical products and services related to power generation, transmission and distribution, besides executing turnkey projects. The company is customer-centric in its focus and is the single largest source for a wide variety of electrical equipments and products.

With several international acquisitions, Crompton Greaves is fast emerging as a first choice global supplier for high quality equipment through its three business groups viz;

Power Systems :

- Transformer ● Switchgear ● Power Quality
- Engineering Projects

Industrial Systems :

- Motors ● Alternators ● Drives
- Railway Signalling ● Stampings

Consumer Products :

- Fans ● Appliances ● Lighting
- Integrated Security Solutions & Home Automation
- Pumps

Crompton Greaves AC Generators are state-of-the-art, self-excited, self-regulated and dependable source of power.

A modern integrated manufacturing facility for rotating machines, ISO 9001 certified by BVQI UK, with structured TQM and 6 SIGMA implementation and SAP/R3 enabled, also houses dedicated plant for AC Generators deploying superior techniques and processes in each specialized field of design, material specifications and procurement, CNC machining, assembly, testing & packing.... with stringent quality standards predominating throughout.

These generators incorporate advanced European Technology and are designed for optimum performance using high-end software solutions. With well-qualified engineers and technocrats, backed by a strong R & D Team, Crompton Greaves have fully harnessed long experience in design and software to offer a range of innovative, reliable and efficient AC Generators.

SPECIAL FEATURES

- Parallel Operation Provision ≥ 45 kVA as a Standard Feature
- Analogue Input facility for ≥ 180 kVA as a Standard Feature ($\pm 5V$ DC)
- QDC CT for Parallel Operation ≥ 180 kVA as a Standard Feature
- Short Circuit Maintenance ≥ 750 kVA as standard feature
- Special marine alternators with short circuit maintenance.
- Ease of maintenance with integrated components and outboard Exciter/Rotating Rectifier.
- A reliable long life with superior class 'H' insulation.
- Higher motor starting capability.
- Compact, light and sturdy die cast aluminum stator for frames upto 250, offer superior finish.
- Specially designed compact slipring and brush assembly.
- High thyristor load withstand capability for Cell-Phone and Telecom applications.
- Wide range of coupling discs / adaptor for single bearing construction suitable for wide range of Engine makers.

APPLICATIONS

- Industries
- Telecom, Cell-Phone Towers
- Defense
- Agriculture
- Marine.
- Hotels, Hospitals, Commercial & Residential Complexes, Petrol pumps
- Construction sites, Stone Crushers & hot Mixing plants.
- Trailer mounted mobile sets for rental markets
- Trailer mounted mobile sets for Air Force.
- Railways

RANGE :

Brushless AC Generators :

Three Phase Series :

- 5 kVA to 1010 kVA, in 3 phase, 415 V, 50 Hz, 0.8 pf (lag)
Single or Double bearing.

Dedicated Single Phase Series :

- 5 kVA to 50 kVA in single phase, 240 V, 50 Hz, 0.8 pf (lag)
Single & Double bearing.

Brushless Alternators with SCM as standard :

- 680 kVA to 1010 kVA, in Three phase, 415 V, 50 Hz, 0.8 pf (lag)

'Ustad' Series Slip-Ring AC Generators :

- 5 kVA to 82.5 kVA, in Three phase, 415 V, 50 Hz, 0.8 pf (lag)
Single or double bearing.
- 5 kVA to 25 kVA in single phase, 240 V, 50 Hz, 0.8 pf (lag)
Double bearing
- Also available in Single Bearing

2 Pole Brushless AC Generators :

- 5 kVA to 30 kVA, in 3 phase, 415 V, 50 Hz, 0.8 pf (lag)
Single or double bearing.
- 5 kVA to 15 kVA in single phase, 240 V, 50 Hz, 0.8 pf (lag)
Single & double bearing.

OPERATING IN DIFFERENT ENVIRONMENTS

- For use of the AC Generator at altitudes higher than 1000 m. above the sea level, it is necessary to derate by a factor of 4% for every 500 m above 1000 m.
- If the ambient temperature exceeds 40 deg. C, the derating factor to be incorporated is 4% for every 5 deg. C of increase.

STANDARDS COMPLIANCE

- IEC : 34
- BS : 5000 (Part 99)
- EN : 50081
- IS : 4722 & 13364 (Part I & II) with CE mark for brushless designs.

MECHANICAL FEATURES

- Aluminium frame die - cast stator upto 250 and steel stator for higher frames.
- Sturdy cast iron endshields fixed on to the stator frame by high tensile screws.
- High quality steel shafts are amply designed to take care of overload and short circuit stressed conditions.

- Sturdy, dynamically balanced rotors are designed for withstanding the runaway engine speed and are with continuous damper cage for high performance under arduous conditions of parallel operations.
- Screens or louvered covers on all openings for safety.
- Easy mount SAE round adaptors are offered with single bearing AC Generators to simplify coupling with popular engines.

AUTOMATIC VOLTAGE REGULATOR (AVR)

| Model | Frame |
|--------|-----------------------------------------|
| SR 7/3 | 132, 160 & 200S1 Frame |
| SR 7/6 | 200, 250S & 250M Frame |
| UVR 7 | 250L & Above |
| SMR | For 400 Frame & Marine Duty Alternators |
| SR 7/5 | For Slipring (on request) |

- Under Speed Protection with LED indicator.
- Over Excitation Protection with LED indicator
- 2 Phase sensing with Senseless LED Indicator
- Designed for Thyristor load without additional filter circuits.
- Moulded construction for protection against shocks, vibrations and adverse atmospheric conditions.
- QDC CT & Analogue Input facility. (SMR & UVR 7)

UNDER SPEED PROTECTION (with AVR)

Protects both the AC Generator and V/f sensitive loads. The AVR has provision for setting the frequency below which voltage dropping occurs linear to speed. This feature also enables the prime mover to recover the speed faster during motor starting

WINDING AND INSULATION SYSTEM

The armature coils of the stator main winding are made from dual coated, class 'H' copper wires, Single/Double Layer concentric / Lap fractional pitched winding offers simplicity, reduced overhangs, neat look while reducing voltage distortion and superior capability to cope with non-linear loads. The auxiliary winding in stator provides power to the AVR, improving the motor starting capability of the AC Generator.

The insulation system is class 'H'. All wound components are impregnated in an unsaturated polyester resin of 200 class temperature. The impregnation provides much needed rigidity and protection against the harsh environment, typical for the AC Generators applications

RADIO INTERFERENCE

The AC Generators are having negligible Radio Frequency Interference and meets in general the limits permitted by VDE 0875 (N)

WAVE FORMS

A.C. Generators are designed to give an excellent output wave-form. The total harmonic content of line-to-line voltage wave-form on no load is less than 5% as per the limits specified by IEC/IS Standards.

OVERLOADS

A.C. Generators are capable of delivering an overload of 10% for one hour after every six hours of running.

MOTOR STARTING DUTY

Each kVA of Slipring AC Generator is capable of starting 1 HP of Induction Motor with use of auxiliary winding except for Submersible Pump & Lift Duty applications.

VIBRATION AND NOISE

CNC machining with close tolerances and repeat accuracy for uniform air - gap and rotor dynamic balancing for low vibrations ensure efficient, smooth and silent performance.

TERMINATION

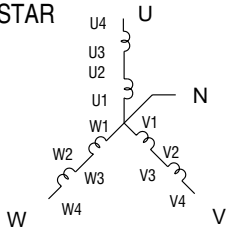
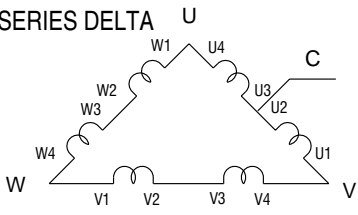
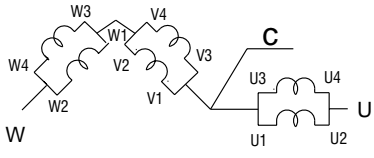
- Integral Terminal Box is provided for higher reliability.
- Top Terminal Box with side cable entry ensures wiring flexibility.
- Spacious terminal box accommodates all types of cables including aluminum cables
- Anti - Loosening Fasteners ensure stable cable termination.

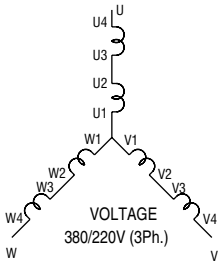
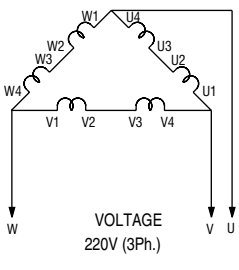
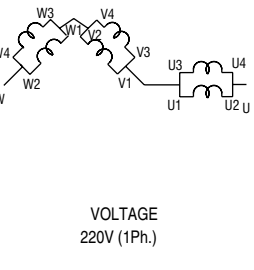
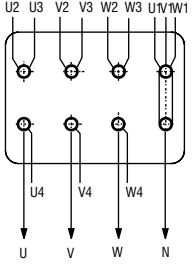
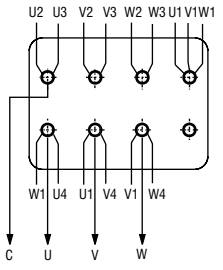
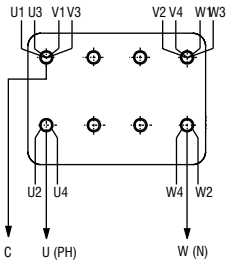
SPECIFICATIONS AND OPTIONAL FEATURES :

| Specifications | Standard | Optional |
|--------------------------------------------------|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Rated Voltage | 415 V - 3 PH & 240 V - 1 PH | 380, 400 - 3 Ph & 220 V - 1 Ph (Only for 160 & 200 Frame ratings i.e. 12.5-90 kVA) (For other ratings in consultation with Works) |
| Terminals | 6 Leads | 12 lead reconnectable only for 160 & 200 Frame Brushless alternators i.e. 12.5 to 90 kVA. (For other ratings in consultation with Works) |
| Voltage Regulation | ± 1% (Brushless) ± 5% (Slipring) | Nil |
| Speed | 1500 RPM | 1800 RPM in consultation with Works |
| Direction of rotation | CW from drive end | Nil |
| Phase Sequence | UVW | Nil |
| Overspeed | 1.2 times of normal speed for 2 min. | Nil |
| Insulation Class | Class 'H' with Class 'H' Temperature rise | For Temperature rise restrictions to other class of insulation, refer to works |
| Type of Mounting | B3 & B2 | For availability of different SAE Housings & C. Disc refer Table. |
| Degree of Protection | IP21 & IP23 | Nil |
| Duty Rating | Continuous (S1) | Nil |
| Short circuit withstand capability & maintenance | 3 Times FLC for 3 Sec withstand capability | 3 Times FLC for 3 Sec maintenance |
| 10% Overload | 1 Hour in 6 Hours | Nil |
| Harmonic Distortion Factor at NL L-L | < 3% | Nil |
| Max Unbalanced Load | Max 25% | Nil |
| TVD (AT FL 0.8 PF) | 15-20% | Please refer for better TVD |
| TVR (AT FL 0.8 PF) | 18-20% | Please refer for better TVR |
| Epoxy Gelcoat or Ranbar Coat | Main Stator and Exciter Rotor | Main Rotor and Exciter Stator |

STANDARD SAE HOUSING & COUPLING DISC COMBINATION :

| Frame | SAE5 | SAE4 | SAE3 | SAE2 | SAE1 | SAE1/2 | SAE0 |
|--------|-------------|-------------|------------|------------|------------|------------|----------|
| 132 | ● | ● | ● | ● | | | |
| 160 | ● | ● | ● | ● | | | |
| 200 | | | ● | ● | ● | | |
| 250 | | | ● | ● | ● | | |
| 315 | | | ● | ● | ● | ● | |
| 355 | | | | | ● | ● | ● |
| 400 | | | | | ● | ● | ● |
| C.Disc | 6.5" & 7.5" | 6.5" & 7.5" | 10", 11.5" | 10", 11.5" | 11.5", 14" | 11.5", 14" | 14", 18" |

| 12 WIRES CONNECTIONS | | | | | |
|----------------------------------------------------------------------------------------------------------------|-----------|-----------|--------------------------|------|------|
| G1R/G2R (FRAMES 160-200-250-315) | | | | | |
| SERIES STAR  | Frequency | Terminals | Different Voltage Levels | | |
| | 50Hz | U-V | 380* | 400* | 415* |
| | 50Hz | U-N | 220 | 230 | 240 |
| | 60Hz | U-V | 460 | 480 | 500 |
| | 60Hz | U-N | 265 | 277 | 290 |
| SERIES DELTA  | 50Hz | U-V | 220 | 230 | 240 |
| | 50Hz | U-C | 110 | 115 | 120 |
| | 60Hz | U-V | 265 | 277 | 290 |
| | 60Hz | U-C | 133 | 138 | 145 |
| PARALLEL ZIG-ZAG  | 50Hz | U-W | 220 | 230 | 240 |
| | 50Hz | U-C | 110 | 115 | 120 |
| | 60Hz | U-W | 265 | 277 | 290 |
| | 60Hz | U-C | 133 | 138 | 145 |

| 12 LEAD TERMINAL CONNECTIONS (160/200/250/315 Frame) | | |
|----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| SERIES STAR  <p>VOLTAGE 380/220V (3Ph.)</p> | SERIES DELTA  <p>VOLTAGE 220V (3Ph.)</p> | PARALLEL ZIG-ZAG  <p>VOLTAGE 220V (1Ph.)</p> |
|  |  |  |
| NOTE:-ADJUST 'VOLT' POTENTIOMETER OF AVR (IF REQD) TO GET REQUIRED VOLTAGE | | |

Note : AVR ADJUSTMENT FOR 1 PHASE / 3 PHASE LOW VOLTAGE CONNECTIONS :

When terminal connections are changed at site, Voltage Setting of AVR should be reset accordingly as per following steps :

1. In case of single phase connection, isolate the Auxiliary Winding and connect the sensing wires to phase and Neutral.
2. Rotate 'Volt' POT in anticlockwise direction by 15 turns.
3. Start the D.G. Set and adjust to required voltage using 'Volt' POT.



CG make Slipring Alternators easiest and economical way of power generation.

CG's new generation Alternators, built to cater applications in Agro, Welding, Construction Sector, Commercial places efficiently with enhanced reliability through new RPU Protection.

Manufacturing Range :

5 kVA to 82.5 kVA, Three Phase, 415 V, 50 Hz, 0.8 pf (lag), Single or Double Bearing.

5 kVA to 25 kVA, Single Phase, 240 V, 50 Hz, 0.8 pf (lag), Single or Double Bearing.

Normal operating conditions and Standards :

Ambient temperature < 40 Deg. C, Altitude < 1000 Mtr. m.s.l., continuous Duty.

IS : 4722 & IS 13364 (Part I & II), BS 5000, IEC 34.

Electrical Features :

Single Phase (240 V) and Three Phase (415 V)

50 Hz, with ambient temperature of 40 Deg. C.,

Voltage Regulation of $\pm 5\%$

Special Features :

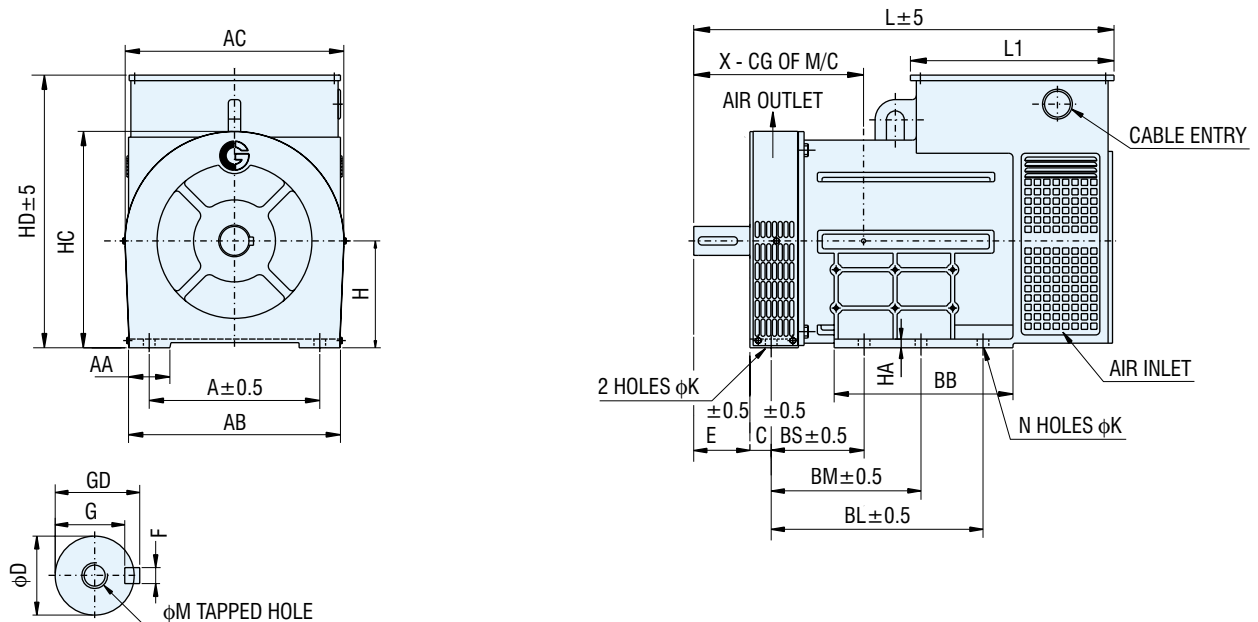
- RPU for enhancing the reliability of rectifiers in adverse conditions.
- Higher efficiency : Less fuel consumption.
- Compact, Light Weight
- Unique look and sturdy die cast aluminium stator.
- Class 'H' insulation : Unbeatable performance.
- Life long lubricated Bearings.
- Specially designed compact Slipring and Brush Assembly.
- Patented Brushholder Assembly Fixings for reliability and low wear.

| Slipring AC Generators - Voltage Reg. ± 5% | | | |
|----------------------------------------------|---------------------|--------------|--------|
| kVA | Frame (G2S/ G1S) | % Efficiency | |
| | | FL | 3/4 FL |
| 3 PH, 415V, 50 Hz, 4 Pole, 1500 RPM, 0.8 pf, | | | |
| 5.0 | 132 MR | 80.8 | 81.6 |
| 6.5 | 132MR | 81.0 | 82.0 |
| 7.5 | 132MA | 82.5 | 83.5 |
| 10.0 | 132MC | 83.8 | 84.5 |
| 12.5 | 160S1E | 84.0 | 85.0 |
| 15.0 | 160S1B | 85.0 | 86.0 |
| 20.0 | 160SC | 85.0 | 85.5 |
| 25.0 | 160MC | 86.0 | 86.6 |
| 30.0 | 160M2R | 87.0 | 87.5 |
| 32.5 | 160M2R | 87.5 | 88.0 |
| 35.0 | 200SE | 88.0 | 88.4 |
| 40.0 | 200SE | 88.0 | 89.0 |
| 45.0 | 200SB | 89.0 | 89.5 |
| 50.0 | 200SB | 88.1 | 89.2 |
| 55.0 | 200SB | 89.0 | 89.5 |
| 63.0 | 200SD | 89.2 | 90.1 |
| 75.0 | 200MD | 90.9 | 92.0 |
| 82.5 | 200MD | 90.3 | 91.2 |

| Slipring AC Generators - Voltage Reg. (Cold) $\pm 5\%$ | | | |
|--------------------------------------------------------|--------|------|------|
| 1 Phase, 240V, 50 Hz, 4 Pole, 1500RPM, 0.8pf, | | | |
| 5 | 132MA | 76.0 | 76.5 |
| 6 | 132MC | 77.2 | 77.8 |
| 7.5 | 160S1E | 77.5 | 78.0 |
| 10 | 160S1B | 83.5 | 84.0 |
| 12.5 | 160SC | 84.0 | 84.5 |
| 15 | 160MC | 87.0 | 87.2 |
| 20 | 200SE | 84.1 | 84.5 |
| 25 | 200SA | 87.0 | 87.5 |



**DIMENSION DRAWING FOR DOUBLE BEARING 'USTAD' SERIES SLIP RING & BRUSHLESS AC GENERATOR
(132 - 200 FRAME)**

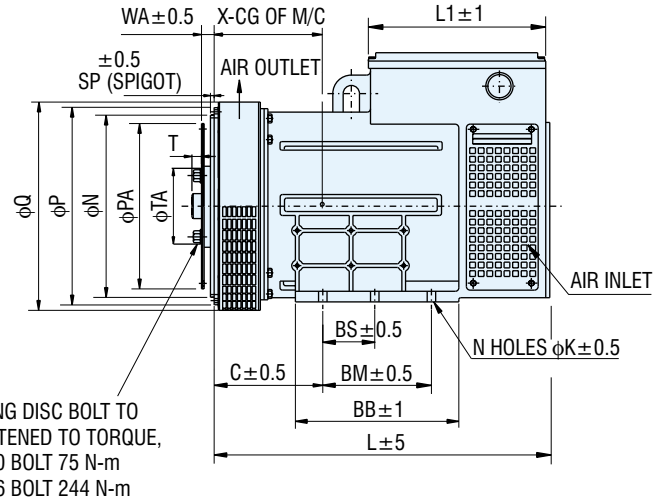
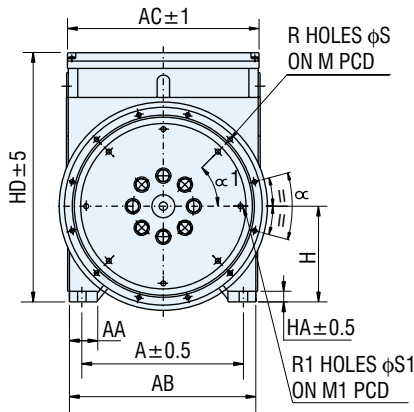


G2R:-BRUSHLESS TYPE DOUBLE BRG. ALTERNATOR
G2S:-SLIPRING TYPE DOUBLE BRG. ALTERNATOR

DIMENSIONS in Millimeters

| FRAME | M/C WT.(Kg) | | FOOT FIXING | | | | | | | | | | | SHAFT & KEY | | | | | | | OVERALL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|-------------|-----|-------------|----|-----|-------|-----|-----|-----|-----|-----|-----|-----|-------------|-----|----|------|------|-----|----|---------|-----|-----|-----|-----|-----|-----|-----|-----|---------|---------|-----|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|--|-----|-----|-----|-----|--|--|--|--|-----|--|--|-----|-----|
| | G2R | G2S | A | AA | AB | H | BB | BS | BM | BL | C | N | φK | φD | E | F | G | GD | φM | HA | HC | HD | | AC | L | | L1 | X | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | G2R | G2S | | G2R | G2S | | | G2R | G2S | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 132 MR | 70 | 70 | 206 | 56 | 256 | 132.0 | 122 | 316 | 372 | -- | 45 | 4 | 12 | φ38.018 | 80 | 10 | 33.0 | 41.0 | M12 | 12 | 260 | 345 | 365 | 272 | 611 | 581 | 296 | 284 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 132 MA | 77 | 77 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 299 | | | | | | | | | | |
| 132 MC | 86 | 86 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 322 | | | | | | | | | |
| 132 MD | 94 | 94 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 339 | | | | | | | | | |
| 160 S1E | 85 | 85 | 254 | 60 | 340 | 160.0 | 335 | 79 | 119 | 149 | 66 | 6 | 15 | φ48.018 | 110 | 14 | 42.5 | 51.5 | M16 | 16 | 323 | 385 | -- | 370 | 570 | 262 | 330 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 160 S1A | 94 | -- | | | | 159.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 335 | | | | | | | | | | | | |
| 160 S1B | 103 | 103 | 279 | | | 160.0 | 196 | 197 | 227 | 292 | 66 | 6 | 15 | φ48.002 | 110 | 14 | 42.3 | 51.3 | M16 | 16 | 323 | 385 | 430 | 370 | 570 | 262 | 350 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 160 SB | 118 | -- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 350 | | | | | | | | | | | | | | | |
| 160 SC | 128 | 128 | 270 | 70 | 340 | 160.0 | | | | | | | | | | | | | | | | | | | | | | | | φ48.018 | 110 | 14 | 42.5 | 51.5 | M16 | 16 | 323 | 418 | 370 | 658 | 300 | 360 | | | | | | | | | | | | | | | |
| 160 MC | 152 | 143 | | | | 159.5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 380 | | | | |
| 160 M2A | 154 | 145 | | | | | | | 227 | 197 | 307 | 342 | | | | | | | | | | | | | | | | | 380 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 160 M2R | 164 | 155 | | | | | | | | | 307 | 342 | | | | | | | | | | | | | | | | | 390 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 200 SE | 162 | 152 | 340 | 75 | 410 | 200.0 | 220 | 155 | 275 | - | 57 | 4 | 19 | φ60.030 | 140 | 18 | 53.0 | 64.0 | M20 | 20 | 403 | 510 | 454 | 705 | 350 | 335 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 200 SF | 172 | -- | | | | | | | | | | | | | | | | | | | | | | | | 280 | | | | | | | | | | | | | | | | | | | | 340 | | | | | | | | | | | |
| 200 SA | 213 | -- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 400 | | | | | | | | | | | |
| 200 SB | 232 | 219 | | | | | | | | | | | | | | | | | | | | | | | | | | 225 | 280 | 400 | - | | | | | | | | | | | | | | | 420 | | | | | | | | | | | |
| 200 SC | 246 | -- | | | | | | | | | | | | | | | | | | | | | | | | | 405 | | 6 | 19 | φ60.011 | 140 | 18 | 53.0 | 64.0 | M20 | 20 | 403 | 510 | 454 | 830 | 350 | 435 | | | | | | | | | | | | | | |
| 200 SD | 247 | 247 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 450 | |
| 200 MB | 296 | -- | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 495 |
| 200 MD | 335 | 322 | | | | | | | | 325 | | | | | | | | | | | | | | | | 270 | 380 | 500 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 200 MDX | 342 | -- | | | | | | | | | | | 505 | | | | | | | | | | | | | | | | | 550 | | | | | | | | | | | | | | | | | | | | | | | | | | | |

DIMENSION DRAWING FOR SINGLE BEARING AC GENERATOR (132 - 250 FRAME)



DIMENSIONS in Millimeters

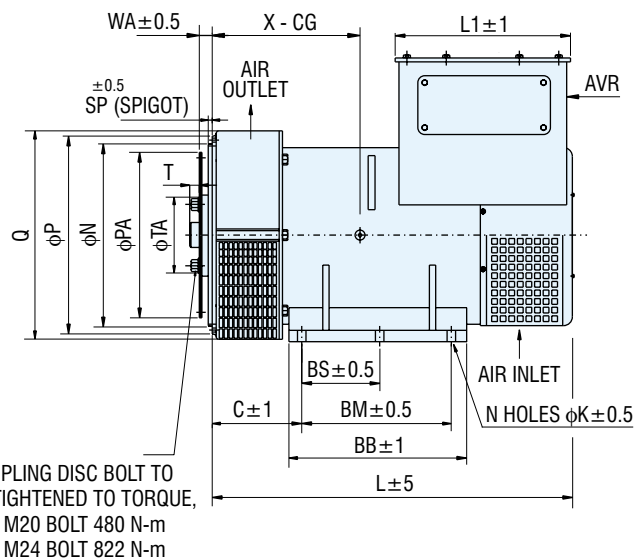
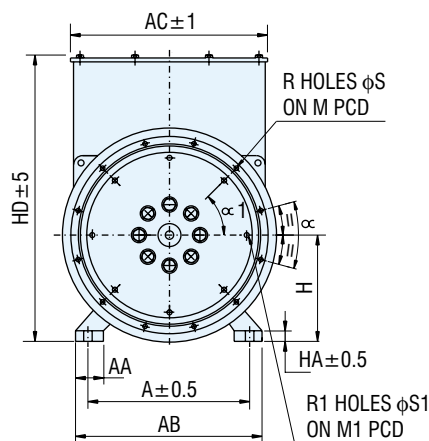
G1R:-BRUSHLESS TYPE SINGLE BRG. ALTERNATOR
G1S:-SLIPRING TYPE SINGLE BRG. ALTERNATOR

| FRAME | M/C WT.(Kg) | | FOOT FIXING | | | | | | | | | | COUPLING DETAILS | | | OVERALL | | | | | | | | |
|---------|-------------|-----|-------------|----|-----|-------|-----|-----|------------|----------------------------------------------------------------------------------------|---|----|------------------|----|-----|---------|-----|-----|----------------------------------------------------------------------------------|--------------------------|-----|-----|-----|-----|
| | | | A | AA | AB | H | BB | BS | BM | C | N | φK | SP | T | TA | HA | HD | | AC | L | | L1 | X | |
| | G1R | G1S | | | | | | | | | | | | | | | G1R | G1S | | G1R | G1S | | | |
| 132 MR | 70 | 70 | 206 | 56 | 256 | 132.0 | 122 | - | 56 | 380 | 4 | 12 | 5 | 12 | 165 | 12 | 345 | 365 | 272 | 550 | 520 | 296 | 284 | |
| 132 MA | 77 | 77 | | | | 131.5 | | | | | | | | | | | | | | | | | 299 | |
| 132 MC | 86 | 86 | | | | | | | | | | | | | | | | | | | | | 322 | |
| 132 MD | 94 | 94 | | | | | | | | | | | | | | | | | | | | | 339 | |
| 160 S1E | 85 | 85 | 254 279 | 60 | 340 | 160.0 | 335 | 40 | 70 | 145 | 6 | 15 | 5 | 17 | 62 | 16 | 385 | 430 | 297 | 462 | 262 | | 170 | |
| 160 S1A | 94 | -- | | | | 159.5 | | | | | | | | | | | | | | | | | 175 | |
| 160 S1B | 103 | 103 | | | | | | | | | | | | | | | | | | | | | 190 | |
| 160 S2C | 122 | -- | | | | 350 | | | | | | | | | | | | | | | | | 200 | |
| 160 SB | 118 | -- | 270 | 70 | 340 | 160.0 | 196 | 30 | 95 | 263 | 6 | 15 | 5 | 17 | 62 | 16 | 418 | 350 | 548 | 567 | 300 | | 190 | |
| 160 SC | 128 | 128 | | | | 159.0 | | | | | | | | | | | | | | | | | 200 | |
| 160 MC | 152 | 152 | | | | 225 | | | | | | | | | | | | | | | | | 225 | |
| 160 M2A | 154 | 154 | | | | 277 | | | | | | | | | | | | | | | | | 270 | |
| 160 M2R | 164 | 164 | 340 | 75 | 410 | 160.0 | 225 | 110 | 145 160 | 263 | 6 | 15 | 5 | 17 | 62 | 16 | 418 | 350 | 567 | 300 | | | 280 | |
| 200 SE | 162 | 162 | | | | 159.0 | | | | | | | | | | | | | | | | | 200 | |
| 200 SF | 172 | -- | | | | | | | | | | | | | | | | | | | | | 200 | |
| 200 SA | 213 | -- | | | | 225 | | | | | | | | | | | | | | | | | 200 | |
| 200 SB | 232 | 232 | 340 | 75 | 410 | 200.0 | 225 | -- | 120 125 | SAE 2,3=363 SAE 1=377 | 4 | 19 | 5 | 12 | 165 | 20 | 510 | 424 | 590 | SAE 2,3=716 SAE 1=730 | 350 | | 205 | |
| 200 SC | 246 | -- | | | | 199.5 | | | | | | | | | | | | | | | | | 280 | |
| 200 SD | 247 | 247 | | | | | | | | | | | | | | | | | | | | | 300 | |
| 200 MB | 296 | -- | | | | | | | | | | | | | | | | | | | | | 315 | |
| 200 MD | 335 | 335 | 340 | 75 | 410 | 200.0 | 325 | 110 | 230 235 | SAE 2,3=353 SAE 1=367 | 6 | 19 | 5 | 12 | 165 | 20 | 510 | 424 | 590 | SAE 2,3=816 SAE 1=830 | 350 | | | 345 |
| 200 MDX | 342 | -- | | | | 199.5 | | | | | | | | | | | | | | | | | | 370 |
| 250 SB | 341 | -- | | | | | | | | | | | | | | | | | | | | | | 400 |
| 250 SD | 385 | -- | | | | | | | | | | | | | | | | | | | | | | 400 |
| 250 MA | 427 | -- | 420 | 90 | 510 | 250.0 | 305 | 116 | 216 | SAE 2,3=308 SAE 1=322.2 SAE 2,3=378 SAE 1=392.2 SAE 2,3=458 SAE 1=472.2 | 6 | 19 | 6 | 18 | 165 | 20 | 615 | 530 | SAE 2,3=750 SAE 1=763 SAE 2,3=820 SAE 1=833 SAE 2,3=900 SAE 1=913 | 376 | | | 370 | |
| 250 MB | 458 | -- | | | | 249.5 | | | | | | | | | | | | | | | | | 415 | |
| 250 LB | 504 | -- | | | | | | | | | | | | | | | | | | | | | 435 | |
| 250 LD | 526 | -- | | | | | | | | | | | | | | | | | | | | | 435 | |

| SAE No | FLANGE | | | | | | | COUPLING DISC SAE |
|--------|--------|-----|-------|-------------|----|------|-----|-------------------|
| | φ N | φ P | M | Q 250 FR | R | φ S | α | |
| 5 | 314.3 | 356 | 333.4 | - | 8 | 11 | 45° | 6.5"-7.5" |
| 4 | 362 | 405 | 381.0 | - | 12 | 11 | 30° | 6.5"-7.5"-10" |
| 3 | 409.6 | 450 | 428.6 | 540 | 12 | 11 | 30° | 10"-11.5" |
| 2 | 447.7 | 490 | 466.7 | 540 | 12 | 11 | 30° | 10"-11.5" |
| 1 | 511.18 | 553 | 530.2 | 553 | 12 | 12.5 | 30° | 14" |

| SAE No | COUPLING DISC | | | | | |
|--------|---------------|-------|----|------|-----|------|
| | φ PA | M1 | R1 | φ S1 | α1 | WA |
| 6.5" | 215.9 | 200.0 | 6 | 9 | 60° | 30.2 |
| 7.5" | 241.3 | 222.3 | 8 | 9 | 45° | 30.2 |
| 10" | 314.32 | 295.3 | 8 | 11 | 45° | 53.8 |
| 11.5" | 352.42 | 333.4 | 8 | 11 | 45° | 39.6 |
| 14" | 466.72 | 438.2 | 8 | 13.5 | 45° | 25.4 |

DIMENSION DRAWING FOR SINGLE BEARING AC GENERATOR (315 - 400 FRAME)



DIMENSIONS in Millimeters

| FRAME | M/C WT.(Kg) | FOOT FIXING | | | | | | | | | | COUPLING DETAILS | | | | OVERALL | | | | |
|--------|-------------|-------------|-----|-----|------------------|-----|-------|-----|-----|---|----|------------------|----|-----|----|---------|-----|------|-----|-----|
| | | A | AA | AB | H | BB | BS | BM | C | N | φK | SP | T | TA | HA | HD | AC | L | L1 | X |
| 315 SE | 732 | 508 | 75 | 570 | 315.00 314.50 | 520 | 228.5 | 457 | 242 | 6 | 28 | 6 | 21 | 237 | 17 | 850 | 640 | 980 | 415 | 380 |
| 315 SA | 812 | | | | | | | | | | | | | | | | | 1085 | | 460 |
| 315 SB | 899 | | | | | | | | | | | | | | | | | 1155 | | 480 |
| 315 MB | 1029 | | | | | | | | | | | | | | | | | 1140 | | 520 |
| 355 SB | 1114 | 610 | 80 | 670 | 355.0 354.5 | 570 | 250 | 500 | 297 | 6 | 28 | 6 | 21 | 237 | 17 | 940 | 685 | 1245 | 560 | 445 |
| 355 SC | 1285 | | | | | | | | | | | | | | | | | 1345 | | 570 |
| 355 SE | 1341 | | | | | | | | | | | | | | | | | 1225 | | 590 |
| 355 ME | 1384 | | | | | | | | | | | | | | | | | 1275 | | 580 |
| 355 MA | 1494 | 686 | 100 | 786 | 400.0 399.5 | 660 | 350 | 560 | 350 | 6 | 35 | 6 | 21 | 275 | 29 | 1100 | 795 | 1460 | 600 | 620 |
| 400 SB | 1680 | | | | | | | | | | | | | | | | | 1225 | | 542 |
| 400 SC | 1790 | | | | | | | | | | | | | | | | | 1275 | | 590 |
| 400 MA | 2290 | | | | | | | | | | | | | | | | | 1460 | | 680 |

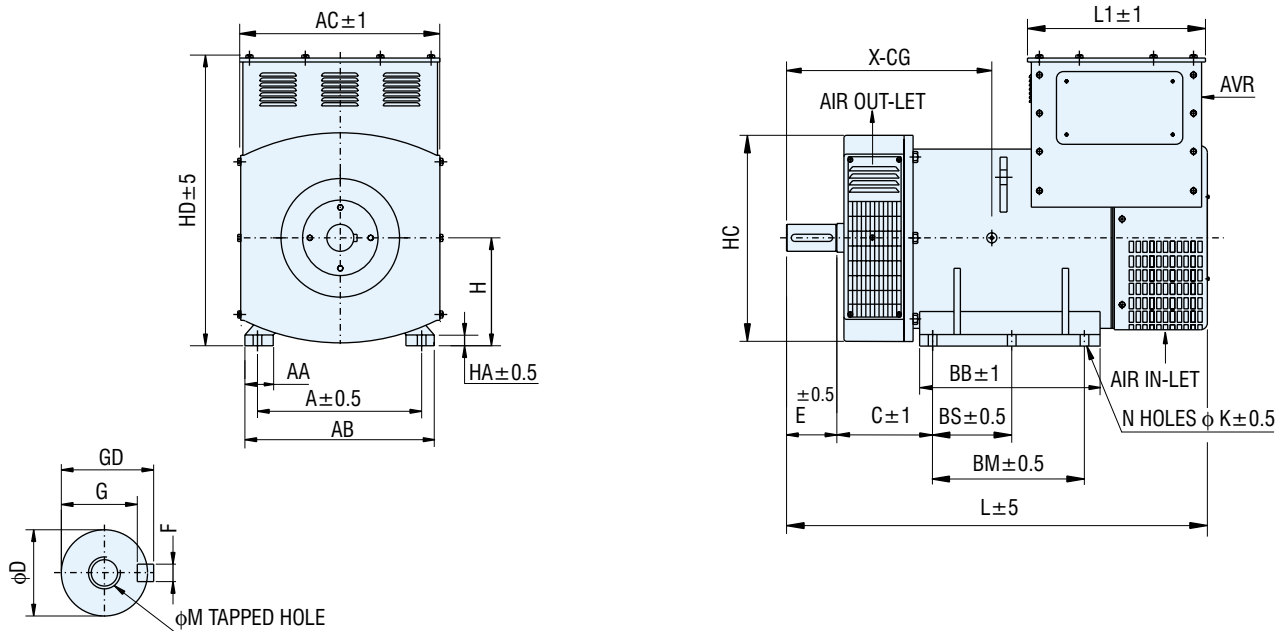
| SAE No | FLANGE | | | | | | | | | COUPLING DISC SAE |
|-----------|--------|-----|-------|-----|-----|-----|----|------|-------|----------------------|
| | φ N | φ P | M | Q | | | R | φ S | ∞ | |
| | | | | 315 | 355 | 400 | | | | |
| 3 | 409.6 | 450 | 428.6 | 620 | - | - | 12 | 11 | 30° | 11.5" |
| 2 | 447.7 | 490 | 466.7 | 620 | - | - | 12 | 11 | 30° | 11.5" |
| 1 | 511.18 | 553 | 530.4 | 620 | 708 | 775 | 12 | 12.5 | 30° | 11.5"-14" |
| 1/2 | 584.1 | 648 | 619.0 | 680 | 715 | 775 | 12 | 14 | 30° | 14"-18" |
| 0 | 647.7 | 712 | 679.5 | - | 715 | 775 | 12 | 14 | 22.5° | 14"-18" |

| SAE No | COUPLING DISC | | | | | |
|--------|---------------|-------|----|------|-----|-------|
| | φ PA | M1 | R1 | φ S1 | α1 | WA |
| 11.5" | 352.42 | 333.4 | 8 | 11 | 45° | 39.6 |
| 14" | 466.72 | 438.2 | 8 | 13.5 | 45° | 25.4 |
| 18" | 571.4 | 543.0 | 6 | 16.7 | 60° | 15.87 |

G2R:-BRUSHLESS TYPE DOUBLE BRG. ALTERNATOR

| FRAME | M/C WT.(Kg) | FOOT FIXING | | | | | | | | | | | SHAFT & KEY | | | | | | | OVERALL | | | | | |
|--------|-------------|-------------|----|-----|----------------|-----|-----|-----|-----|----|---|----|--------------------|-----|----|--------------|--------------|-----|----|---------|-----|-----|-----|-----|-----|
| | G2R | A | AA | AB | H | BB | BS | BM | BL | C | N | φK | φD | E | F | G | GD | φM | HA | HC | HD | AC | L | L1 | X |
| 250 SB | 341 | 420 | 90 | 510 | 250.0 249.5 | 305 | 225 | 341 | 441 | 66 | 6 | 19 | φ70.030 φ70.011 | 140 | 20 | 62.5 62.3 | 74.5 74.3 | M20 | 20 | 510 | 615 | 530 | 885 | 376 | 425 |
| 250 SD | 385 | | | | | | 450 | | | | | | | | | | | | | | | | | | |
| 250 MA | 427 | | | | | | 465 | | | | | | | | | | | | | | | | | | |
| 250 MB | 458 | | | | | | 520 | | | | | | | | | | | | | | | | | | |
| 250 LB | 504 | | | | | | 535 | | | | | | | | | | | | | | | | | | |
| 250 LD | 526 | | | | | | 555 | | | | | | | | | | | | | | | | | | |

DIMENSION DRAWING FOR DOUBLE BEARING AC GENERATOR (315 - 400 FRAME)



DIMENSIONS in Millimeters

| FRAME | M/C WT.(Kg) | FOOT FIXING | | | | | | | | | | SHAFT & KEY | | | | | | OVERALL | | | | | | | |
|--------|-------------|-------------|-----|-----|--------|-----|-------|-----|-----|---|----|-------------|-----|----|------|------|-----|---------|-----|------|-----|------|-----|-----|--|
| | | A | AA | AB | H | BB | BS | BM | C | N | φK | φD | E | F | G | GD | φM | HA | HC | HD | AC | L | L1 | X | |
| 315 SE | 732 | 508 | 75 | 570 | 315.00 | 520 | 228.5 | 457 | 216 | 6 | 28 | 80.030 | 170 | 22 | 71.0 | 85.0 | M20 | 17 | 620 | 850 | 640 | 1150 | 415 | 380 | |
| 315 SA | 812 | | | | 314.50 | | | | | | | 1255 | | | | | | | | | | 460 | | | |
| 315 SB | 899 | | | | | | | | | | | 1325 | | | | | | | | | | 480 | | | |
| 315 MB | 1029 | | | | | | | | | | | | | | | | | | | | | 520 | | | |
| 355 SB | 1114 | 610 | 80 | 670 | 355.00 | 570 | 250 | 500 | 254 | 6 | 28 | 95.035 | 170 | 25 | 86.0 | 100 | M24 | 17 | 706 | 940 | 685 | 1255 | 560 | 555 | |
| 355 SC | 1285 | | | | 354.50 | | | | | | | 1360 | | | | | | | | | | 660 | | | |
| 355 SE | 1341 | | | | | | | | | | | 1360 | | | | | | | | | | 690 | | | |
| 355 ME | 1384 | | | | | | | | | | | | | | | | | | | | | 710 | | | |
| 355 MA | 1494 | | | | | | | | | | | | | | | | | | | | | 750 | | | |
| 400 SB | 1680 | | | | 400.00 | | | | | | | 1365 | | | | | | | | | | 700 | | | |
| 400 SC | 1790 | 686 | 100 | 786 | 399.50 | 660 | 350 | 560 | 280 | 6 | 35 | 110.035 | 210 | 28 | 100 | 116 | M24 | 29 | 775 | 1100 | 795 | 1415 | 600 | 730 | |
| 400 MA | 2290 | | | | | | | | | | | 1600 | | | | | | | | | | 820 | | | |

PERFORMANCE DATA

Dedicated Single Phase Series

| Brushless AC Generators - Voltage Reg. $\pm 1\%$ | | | |
|--------------------------------------------------|---------------------|--------------|--------|
| kVA | Frame (G2R/ G1R) | % Efficiency | |
| | | FL | 3/4 FL |
| 1 Phase, 230V, 50 Hz, 4 Pole,1500 RPM, 0.8pf. | | | |
| 5 | 132MA | 74.5 | 75.2 |
| 6 | 132MC | 76.0 | 77.0 |
| 7.5 | 160S1E | 76.5 | 77.0 |
| 10 | 160S1B | 82.5 | 83.0 |
| 12.5 | 160SB | 82.3 | 82.8 |
| 15 | 160S2C | 84.0 | 84.5 |
| 15 | 160MC | 87.0 | 87.2 |
| 20 | 160M2R | 85.5 | 85.9 |
| 25 | 200SF | 86.0 | 86.3 |
| 30 | 200SB | 87.0 | 87.5 |
| 35 | 200SC | 87.2 | 87.8 |
| 40 | 200SD | 88.0 | 88.4 |
| 45 | 200MD | 88.1 | 88.6 |
| 50 | 200MDX | 89.0 | 89.5 |

Note: 1. The efficiency figures are subject to the tolerance as per IS: 13364 (Part II & I).

2. * Represent the alternator with 0.5% regulation.

| Brushless AC Generators - Voltage Reg. $\pm 1\%$ | | | |
|--------------------------------------------------|---------------------|--------------|--------|
| kVA | Frame (G2R/ G1R) | % Efficiency | |
| | | FL | 3/4 FL |
| 3 PH, 415V, 50 Hz, 4 Pole, 1500 RPM, 0.8 pf, | | | |
| 5.0 | 132MR | 80.4 | 81.3 |
| 7.5 | 132MA | 82.5 | 83.0 |
| 10.0 | 132MC | 83.8 | 84.5 |
| 12.5 | 160S1A | 81.0 | 81.2 |
| 15.0 | 160S1B | 83.5 | 84.5 |
| 20.0 | 160SB | 85.5 | 86.1 |
| 25.0 | 160SC | 86.9 | 87.5 |
| 30.0 | 160M2A | 88.5 | 89.0 |
| 32.5 | 160M2R | 88.2 | 88.9 |
| 35.0 | 200SE | 87.9 | 88.4 |
| 40.0 | 200SE | 88.1 | 88.8 |
| 45.0 | 200SA | 89.0 | 89.7 |
| 50.0 | 200SB | 88.5 | 89.2 |
| 55.0 | 200SB | 89.5 | 90.2 |
| 63.0 | 200SC | 90.6 | 90.9 |
| 75.0 | 200MB | 90.9 | 92.0 |
| 82.5 | 200MD | 90.5 | 91.2 |
| 90.0 | 200MDX | 91.5 | 92.0 |
| 100 | 250SB | 90.8 | 91.2 |
| 110 | 250SD | 92.5 | 93.0 |
| 125 | 250SD | 92.3 | 92.8 |
| 140 | 250MA | 92.3 | 92.8 |
| 150 | 250MB | 92.3 | 92.9 |
| 160 | 250MB | 92.5 | 93.0 |
| 180 | 250LB | 92.9 | 93.6 |
| 200 | 250 LD | 93.1 | 93.7 |
| 225 | 315SE | 93.3 | 93.8 |
| 250 | 315SE | 93.2 | 93.9 |
| 275 | 315SA | 93.4 | 93.5 |
| 285 | 315SA | 93.6 | 93.7 |
| 300 | 315SB | 94.1 | 94.2 |
| 320 | 315SB | 94.0 | 94.1 |
| 350 | 315MB | 94.0 | 94.1 |
| 380 | 315MB | 94.2 | 94.3 |
| 400 | 355SB | 94.4 | 94.6 |
| 437.5 | 355SB | 94.1 | 94.7 |
| 475 | 355SC | 94.2 | 94.9 |
| 500 | 355SE | 94.4 | 95.0 |
| 550 | 355ME | 94.6 | 95.1 |
| 625 | 355MA | 94.9 | 95.4 |
| * 680 | 400SB | 94.4 | 94.9 |
| * 750 | 400SC | 94.7 | 95.3 |
| * 1010 | 400MA | 95.5 | 95.9 |

HIGH SPEED BRUSHLESS ALTERNATOR (5 kVA - 30 kVA)

Rating Chart

2 Pole, 3000 RPM Brushless Alternator

Voltage Regulation $\pm 2.5\%$, IP21/23, 40 Deg. C Amb.

Brushless Alternator : 1 Phase, 240 V

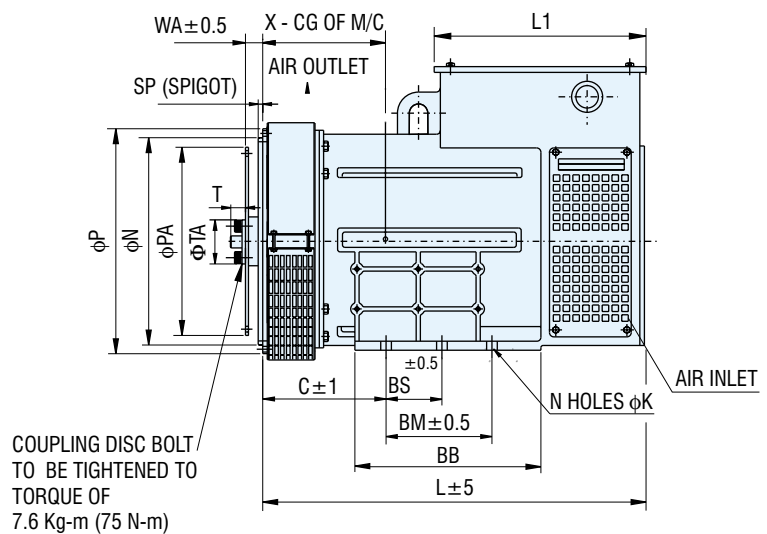
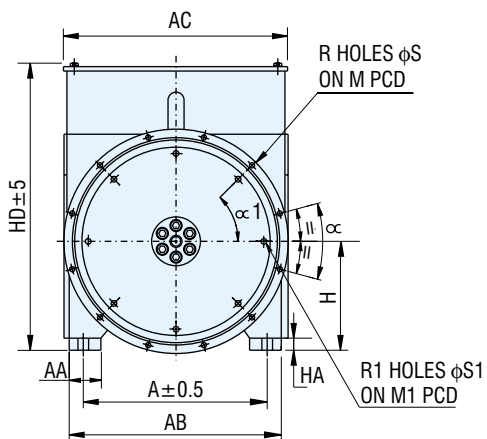
| kVA | FRAME SIZE | Efficiency | |
|------|--------------|------------|-------|
| | | 75 % | 100 % |
| 5.0 | G1R 132MR/2 | 73.3 | 72.3 |
| 6.0 | G1R 132MA/2 | 76.2 | 75.1 |
| 7.5 | G1R 160S1E | 78.1 | 77.2 |
| 10.0 | G1R 160S1A/2 | 79.0 | 78.3 |
| 12.5 | G1R 160SB/2 | 79.1 | 78.5 |
| 15.0 | G1R 160SC/2 | 79.8 | 79.3 |

2 Pole, 3000 RPM Brushless Alternator

Voltage Regulation $\pm 2.5\%$, IP21/23, 40 Deg. C Amb.

Brushless Alternator : 3 Phase, 415 V

| kVA | FRAME SIZE | Efficiency | |
|------|--------------|------------|-------|
| | | 75 % | 100 % |
| 5.0 | G1R 132MR/2 | 76.0 | 75.6 |
| 7.5 | G1R 132MA/2 | 79.2 | 78.1 |
| 10.0 | G1R 132MC/2 | 80.2 | 81.9 |
| 12.5 | G1R 160S1E | 82.2 | 81.8 |
| 15.0 | G1R 160S1A/2 | 84.5 | 84.0 |
| 20.0 | G1R 160SB/2 | 85.8 | 85.2 |
| 25.0 | G1R 160SC/2 | 87.2 | 86.5 |
| 30.0 | G1R 160M2A/2 | 87.4 | 86.8 |



Note : For dimensional details refer Dimension Drawing of Single Bearing AC Generator (132 - 250 Frame)
Coupling Combination : SAE 3 - 10" & 11.5", SAE 4 - 6.5" & 7.5", SAE 5 - 6.5" & 7.5".
Also available in Double Bearing Construction.

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