



Data sheet for motors

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|--|-------------------------|---|----------|--|---------------------------------|----------------------------|------|-----------|
| Manufacturer | Bharat Bijlee Ltd. | | | Customer | | | | |
| Type of motor | 3 phase Induction Motor | | | BBL Enquiry reference No | | | | |
| Quantity | | | | Customer P.O.Number | | | | |
| Application | CUSTOMER TO FURNISH | | | W.O. No. / SAP No. | | | | |
| Tag no. | | | | Output kW / Pole | | 11 | / | 4P |
| BBL type Ref. | | | MD16M4C5 | Frame size | | MJ160 | | |
| Installation details | | | | Applicable standards (latest edition) | | | | |
| Area classification (Safe / Hazardous) | | Hazardous area | | Performance: IS/IEC 60034-1 Maintenance IS:900 | | FLP Motors: IS/IEC 60079-1 | | |
| Location: indoor/outdoor/deck | | Indoor | | Dimensions: IS 1231/IS 2223/IS:8223 | | | | |
| Altitude (meters) | | 1000 or less | | Vibrations: IS 12075 | | | | |
| | | | | Noise level: IS 12065 | | | | |
| Hazardous area details | | | | Supply conditions and permissible variations (grid supply) | | | | |
| Area classification GAS (Zone 1/Zone 2) | | ZONE I | | Number of phases | | Three | | |
| Gas group | | IIA, IIB | | Voltage (Volts) and permissible variation | | 415 | ±10% | |
| Temp.class | | T5 | | Frequency (Hz) and permissible variation | | 50 | ±5% | |
| Type of Explosion protection (FLP/Type 'a'/Type 'b') | | Ex 'd' | | Combined variation (absolute sum) | | ±10% | | |
| Approving authority for hazardous area | | If Mine application then DGMS else PESO | | | | | | |
| Electrical parameters | | | | | | | | |
| Starting performance | | | | | | | | |
| Method of starting | | DOL | | Starting current (%FLC) | | 600 | | |
| Load speed (rpm) | | CUSTOMER TO FURNISH | | Starting torque (%FLT) | | 210 | | |
| Motor GD ² (kgm ²) | | 0.177 | | Pull out torque (%FLT) | | 250 | | |
| Load GD ² (kgm ²) | | CUSTOMER TO FURNISH | | Locked rotor withstand time (hot/cold) (sec) | | 8 | / | 16 |
| Load torque-speed curve | | Parabolic TS curve | | Number of consecutive starts (hot/cold) (nos.) provided Load GD2 = Motor GD2 | | 2 / 3 | | |
| Starting time at rated voltage (sec) | | PLEASE FURNISH ALL ABOVE DETAILS | | | | | | |
| Running Performance | | | | | | | | |
| Efficiency class | | - | | Duty and designation | | Continuous (S1) | | |
| Ambient temp./temp.rise by resistance (deg.C) | | 45 / 75 | | CDF/Equivalent starts per hour/FI | | - | | |
| Enclosure | | TEFC (TOTALLY ENCLOSED FAN COOLED) | | Insulation class / utilisation class on DOL | | F/B | | |
| Full load current (FLC) amps. | | 20.5 | | Rotor type (Squirrel Cage/ Slip ring) | | Squirrel Cage | | |
| Full load speed (rpm) | | 1450 | | Rotor voltage/rotor current (RV/RA) (Volts/Amps) | | Not applicable | | |
| Full load torque (FLT) kg-m | | 7.39 | | Stator/rotor time constant (min) | | 90/122 | | |
| Efficiency in % at FL/0.75FL/0.5FL | | 89.0 | 89.0 | 86.0 | Power factor at FL/0.75FL/0.5FL | | 0.84 | 0.81 0.76 |
| Mechanical parameters | | | | | | | | |
| Mounting | | B5 | | Mounting dimensions | | Refer GA drawing | | |
| Shaft extention | | Single cylindrical | | Direction of rotation viewed from DE | | Clockwise | | |
| Degree of protection | | IP 55 | | Suitable for bidirectional rotation | | Yes | | |
| Method of cooling (TEFC/forced cooled/TESC) | | TEFC (IC 411) | | Paint type | | Acid Alkali Proof | | |
| Net weight of motor (kg) | | 143 | | Paint shade | | 632 as per IS 5 | | |
| | | | | Earthing provision (two terminals on stator body) | | Yes | | |
| Bearings | | | | Terminal box | | | | |
| Coupling (Direct/flexible/Belt & Pulley/Gearbox) | | Direct | | Terminal box location when viewed from DE | | As per GA drawing | | |
| Dimenssions of pulley (OD x width) mm | | - | | Direction of cable entry | | As per GA drawing | | |
| Bearings (roller/ball/angular contact) | | Ball /Ball | | Cable size and type(Aluminium) | | 2R X 3C X 35 SQ MM | | |
| Bearing size DE/NDE | | 6209 2Z C3/6209 2Z C3 | | Earthing provision (one terminal in TB) | | Yes | | |
| Type of lubrication | | LITHIUM SOAP BASE GREASE | | No. of phase/ winding connection/number of terminals | | 3 / DELTA / 6 | | |
| Accessories | | | | | | | | |
| RTDs - 3 numbers simplex(w/o controller) | | | | Arrow plate for direction of rotation | | | | |
| BTDs - 1 number per bearing(w/o controller) | | | | Double compression glands (main cable) | | | | |
| Space heaters - single phase 50z, 230V | | | | Double compression glands (Space heater/Thermisters/RTDs) | | | | |
| Thermisters - PTC | | | | Brake (Type/voltage/torque) | | | | |
| Additional T-Box for Accessories | | | | | | | | |
| Additional nameplate | | | | | | | | |
| Notes: | | | | | | | | |
| 1) All performance values are subject to IS/IEC 60034-1 tolerances, unless otherwise specified. | | | | | | | | |
| 2) Performance values are at rated voltage and rated frequency condition and for DOL starting condition. | | | | | | | | |
| 3) Motor GD ² = Load GD ² assumed wherever not mentioned. | | | | | | | | |
| 4) Where starting time is more than 10 seconds, provision of heavy duty relays is mandatory. | | | | | | | | |
| 5) Kilowatt rating is mandatory and HP is approximate. | | | | | | | | |
| 6) Accessories provided are marked as "YES" | | | | | | | | |
| | | | | | | Prepared by | | |
| | | | | | | Approved by | | |

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|------------|--|-------------------|--|----------|--|
| | | | | Revision | |
| Project: | | Contractor/Client | | Date: | |
| Consultant | | Package | | | |