



### *Data sheet for motors*

|  |                         |   |      |  |                                 |                            |           |
|--|-------------------------|---|------|--|---------------------------------|----------------------------|-----------|
| 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   |                                 | 2.2                        | / 8P      |
| BBL type Ref.  |                         | MD13S8B5                                |      | Frame size   |                                 | MJ132                      |           |
| 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)  |                                 | 350                        |           |
| Load speed (rpm)   |                         | CUSTOMER TO FURNISH                     |      | Starting torque (%FLT)   |                                 | 180                        |           |
| Motor GD <sup>2</sup> (kgm <sup>2</sup> )  |                         | 0.099                                   |      | Pull out torque (%FLT)   |                                 | 230                        |           |
| Load GD <sup>2</sup> (kgm <sup>2</sup> )   |                         | CUSTOMER TO FURNISH                     |      | Locked rotor withstand time (hot/cold) (sec)                                 |                                 | 30                         | / 60      |
| 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.  |                         | 5.0                                     |      | Rotor type (Squirrel Cage/ Slip ring )                                       |                                 | Squirrel Cage              |           |
| Full load speed (rpm)  |                         | 705                                     |      | Rotor voltage/rotor current (RV/RA) (Volts/Amps)                             |                                 | Not applicable             |           |
| Full load torque (FLT) kg-m  |                         | 3.04                                    |      | Stator/rotor time constant (min)   |                                 | 72/97                      |           |
| Efficiency in % at FL/0.75FL/0.5FL   |                         | 78.0                                    | 78.0 | 75.0   | Power factor at FL/0.75FL/0.5FL | 0.78                       | 0.74 0.64 |
| 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)   |                         | 100                                     |      | 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)   |                                 | 1R X 3C X 16 SQ MM         |           |
| Bearing size DE/NDE  |                         | 6208 2Z C3/6208 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 <sup>2</sup> = Load GD <sup>2</sup> 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                |           |

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