



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		11	/ 4P
BBL type Ref.		MD16M4C3		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		B3		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	

				Revision	
Project:		Contractor/Client		Date:	
Consultant		Package			