Bharat Bijlee

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	90 / 2P
BBL type Ref.	MD28M235	Frame size	MJ280
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 permisible variation	415 ±10%
Temp.class	T4	Frequency (Hz) and permissible variation	50 ±5%
Type of Explosion protection (FLP/Type 'e'/Type 'n')	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)	180
Motor GD^2 (kgm^2)	3.01	Pull out torque (%FLT)	270
Load GD^2 (kgm^2)	CUSTOMER TO FURNISH	Locked rotor withstand time (hot/cold) (sec)	20 / 40
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.	146.0	Rotor type (Squirrel Cage/ Slip ring)	Squirrel Cage
Full load speed (rpm)	2970	Rotor voltage/rotor current (RV/RA) (Volts/Amps)	Not applicable
Full load torque (FLT) kg-m	29.5	Stator/rotor time constant (min)	144/194
Efficiency in % at FL/0.75FL/0.5FL	94.0 93.0 91.0	Power factor at FL/0.75FL/0.5FL	0.91 0.89 0.84
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)	740	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 120 SQ MM
Bearing size DE/NDE	6316 C3/6316 C3	Earthing provision (one terminal in TB)	Yes
Type of lubrication	SKF LGMT3- 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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Project:		**Contractor/Client**		**Date:**	
Consultant		**Package**			