

# AC INDUCTION MOTOR DATA SHEET

| Model No.or RFQ No.  |   | Item No.   |   | Rev. No. [ 0 ]  |                               |
|--|---|--|---|---|-------------------------------|
| Project Name   |   | Project No.  |   | Quantity sets   |                               |
| GENERAL SPECIFICATION  |   |  | PERFORMANCE DATA  |   |                               |
| Frame Size   | 280S  |  | Rated Output  | 90 kW 120 HP  |                               |
| Type   | HS-90/6   |  | Number of Poles   | 6   |                               |
| Enclosure(Protection)  | Totally Enclosed ( IP55 )   |  | Rotor Type  | Squirrel Cage   |                               |
| Method of Cooling  | IC411(FC)   |  | Starting Method*  | <input checked="" type="checkbox"/> D.O.L <input type="checkbox"/> Y- Δ |                               |
| Rated Frequency  | 60 Hz   |  | Rated Voltage   | 440 V   | 380 V    220 V                |
| Number of Phases   | 3   |  | Current   | Full Load   | 145.9 A    169.0 A    291.9 A |
| Insulation Class   | <input checked="" type="checkbox"/> F <input type="checkbox"/> B <input type="checkbox"/> H |  |   | Locked-rotor**  | 650 %    650 %    650 %       |
| Temp. Rise at full load (by resistance method)   |   |  | Efficiency  |   |                               |
| at 1.0 S.F      80 deg. C  |   |  | 50% Load      93.6 %                                    |   |                               |
| Motor Location <input checked="" type="checkbox"/> Indoor <input type="checkbox"/> Outdoor   |   |  | 75% Load      94.2 %                                    |   |                               |
| Altitude      Less than 1000 meter   |   |  | 100% Load     94.1 %                                    |   |                               |
| Relative Humidity    Less than 80 %  |   |  | Power Factor(p.u)                                       |   |                               |
| Ambient Temp.      40 deg. C (Max.)  |   |  | 50% Load      0.771                                     |   |                               |
| Duty Type      Continuous ( S1 )   |   |  | 75% Load      0.839                                     |   |                               |
| Service Factor      1.15   |   |  | 100% Load     0.860                                     |   |                               |
| Mounting <input checked="" type="checkbox"/> B3 <input type="checkbox"/> B5 <input type="checkbox"/> V1 <input type="checkbox"/> B3/B5 |   |  | Speed at Full Load      1185 r.p.m                      |   |                               |
| Bearing  | Type  | Anti-Friction  |   | Torque  |                               |
|  | DE/N-DE   | 6318C3 / 6316C3  |   | Full Load   | 74.0 kg·m                     |
|  | Lubricant   | Grease(Gadus S2 V 100 2)   |   | Locked-rotor**  | 170 %                         |
| External Thrust      Not applicable  |   |  | Breakdown**      250 %                                  |   |                               |
| Coupling Method <input checked="" type="checkbox"/> Direct <input type="checkbox"/> V-Belt   |   |  | Moment of Inertia (J)                                   |   |                               |
| Shaft Extension <input checked="" type="checkbox"/> Single <input type="checkbox"/> Double   |   |  | Load(Max.)      130.225 kg·m <sup>2</sup>               |   |                               |
| Terminal Box   | Main  | <input type="checkbox"/> Steel <input checked="" type="checkbox"/> Cast Iron |   | Motor              4.135 kg·m <sup>2</sup>                              |                               |
|  | Aux.  | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No          |   | Sound Pressure Level (No-load & mean value at 1m from motor)            |                               |
| Location      Refer to Outline Drawing   |   |  | 77 dB(A)  |   |                               |
| Application  |   |  | Vibration              2.2 mm/sec (r.m.s)               |   |                               |
| Area classification    Non-Hazardous   |   |  | Permissible number of consecutive starts                |   |                               |
| Type of Ex-Protection    Not applicable  |   |  | Cold      3 times                                       |   |                               |
| Applicable Standard    KS,IEC,NEMA MG1 Part30(Vpeak)   |   |  | Hot        2 times                                      |   |                               |
|  |   |  | Paint   | Munsell No.   | 4.0PB5.4/5.5(VL-451)          |
| ACCESSORIES  |   |  | SUBMITTAL DRAWING                                       |   |                               |
|  |   |  | Outline Dimension Drawing \ Motor Weight(Approx.)       |   |                               |
|  |   |  | B3  | TJ8SAP51  | 690 kg                        |
|  |   |  | B5  | TJ80BP51  | 760 kg                        |
|  |   |  | V1  | TJ80PP51  | 760 kg                        |
|  |   |  | B3/B5   | TJ8SCP51  | 725 kg                        |
|  |   |  | Main T-Box Ass'y  |   |                               |
| SPARE PARTS  |   |  | REMARK  |   |                               |
|  |   |  | High Efficiency   |   |                               |
|  |   |  | *, For use on PWM VFD 10:1VT, 3:1CT@1.0S.F&F Temp. rise |   |                               |
|  |   |  | Date  | DSND  | CHKD                          |
| 2010-05-28   | R.G. KIM  | O.J. KIM   | J.H. KIM  | K.J. KANG   |                               |

Note: Others not mentioned in this data sheet shall be in accordance with maker standard.

Above technical data are only design values and shall be guaranteed with tolerance of applicable standard.

Inspection and performance test shall be maker standard, if not mentioned.

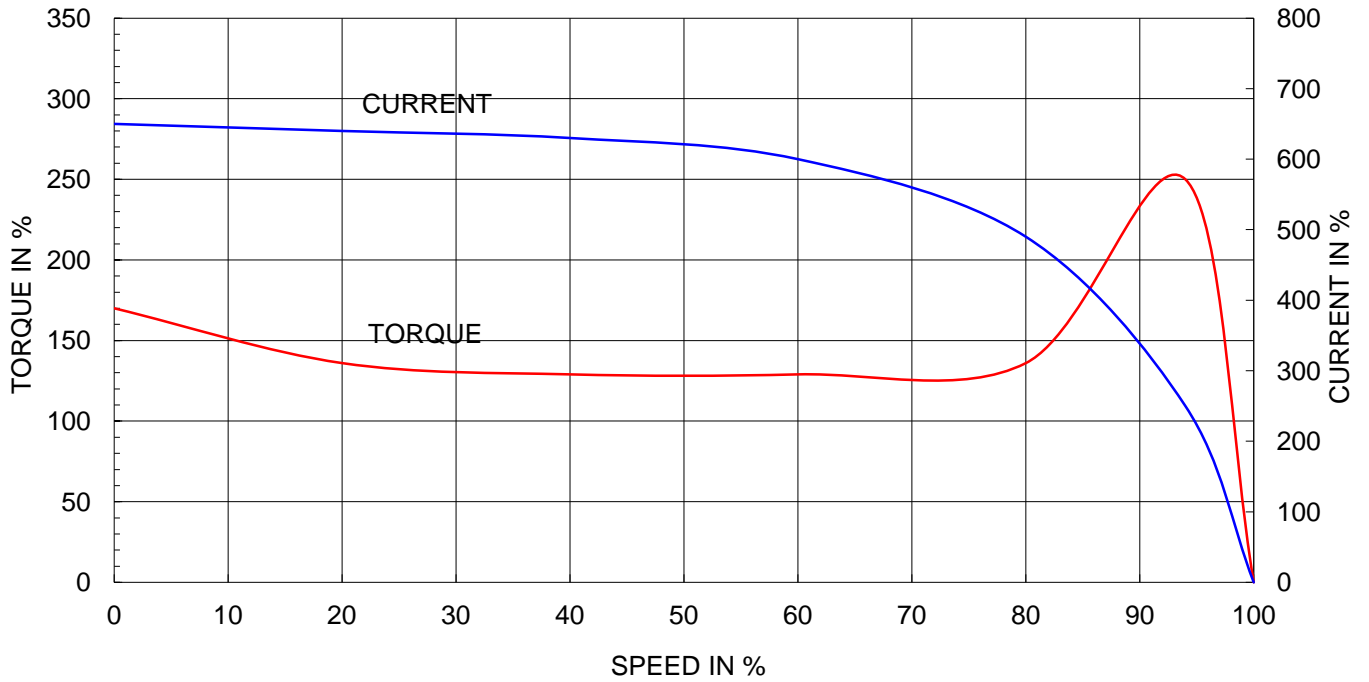
\* In case of Inverter-Fed Motor, performance data is based on sine wave tests.

\*\* Data is based on when the motor is supplied at rated voltage & frequency, and the data is expressed as a percentage of full-load value.

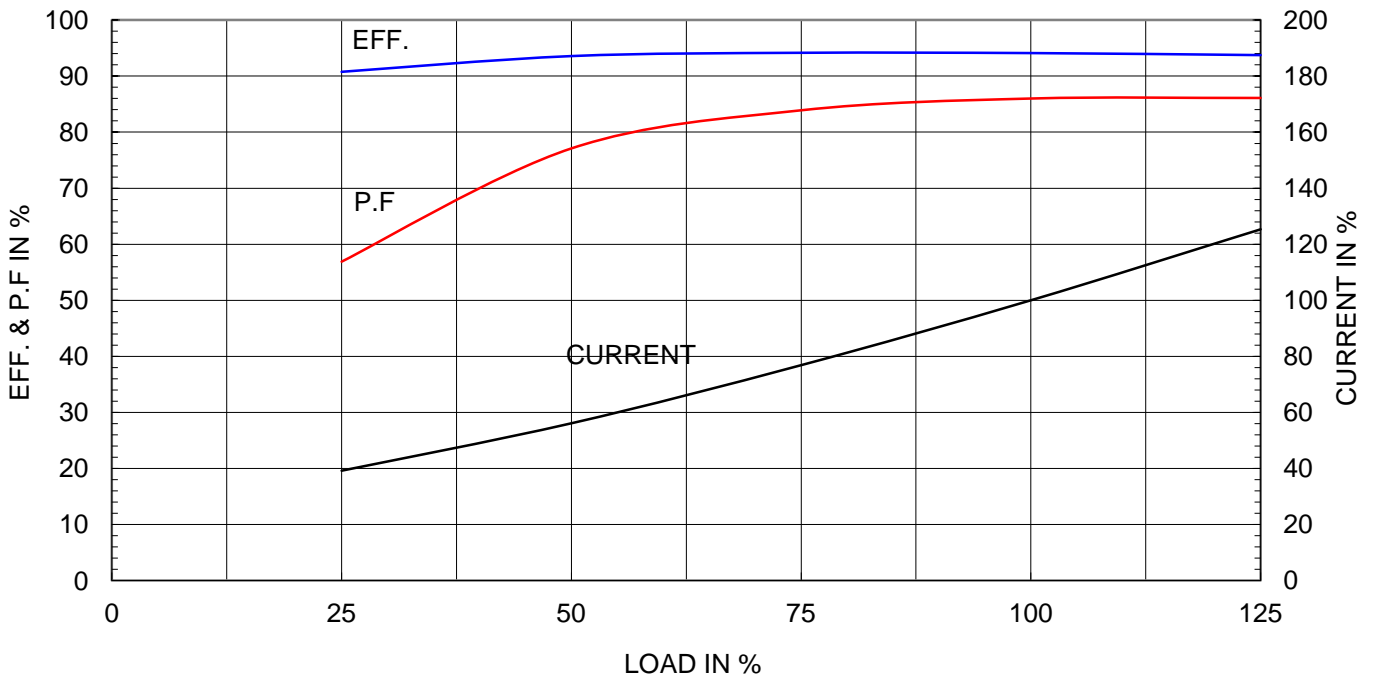
|                             |   |                           |
|-----------------------------|---|---------------------------|
| Type                        | : | HS                        |
| Full Load Torque            | : | 74.0 Kg.m                 |
| Motor moment of Inertia (J) | : | 4.135 Kg.m <sup>2</sup>   |
| Load moment of Inertia (J)  | : | 130.225 Kg.m <sup>2</sup> |

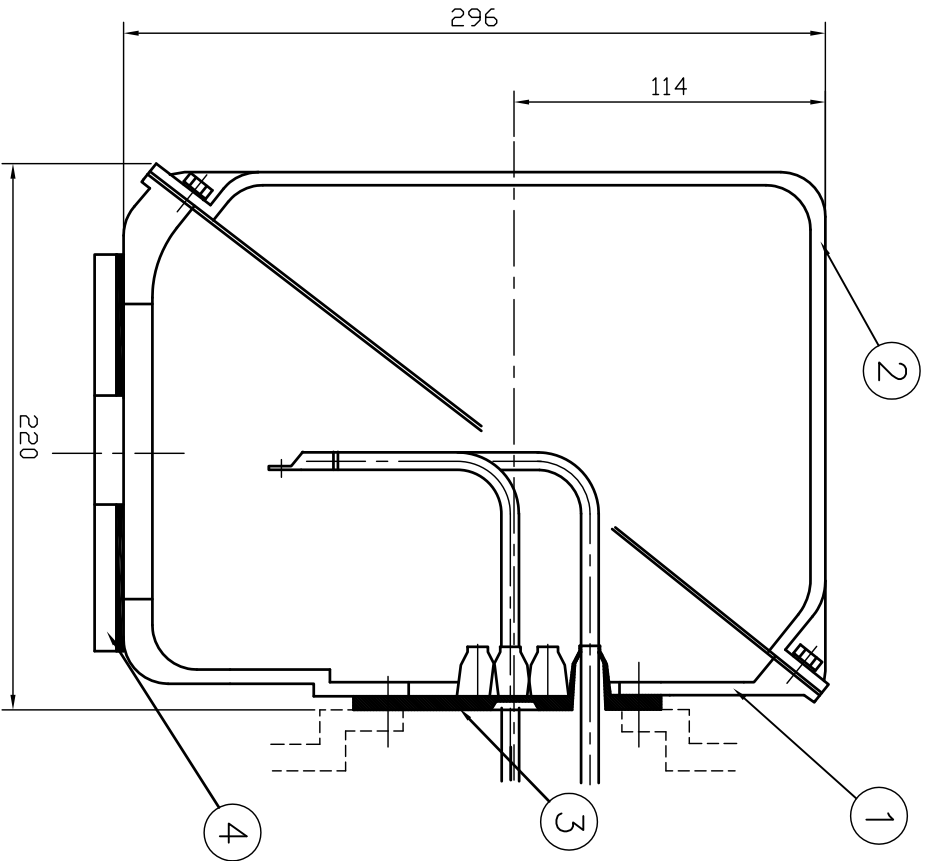
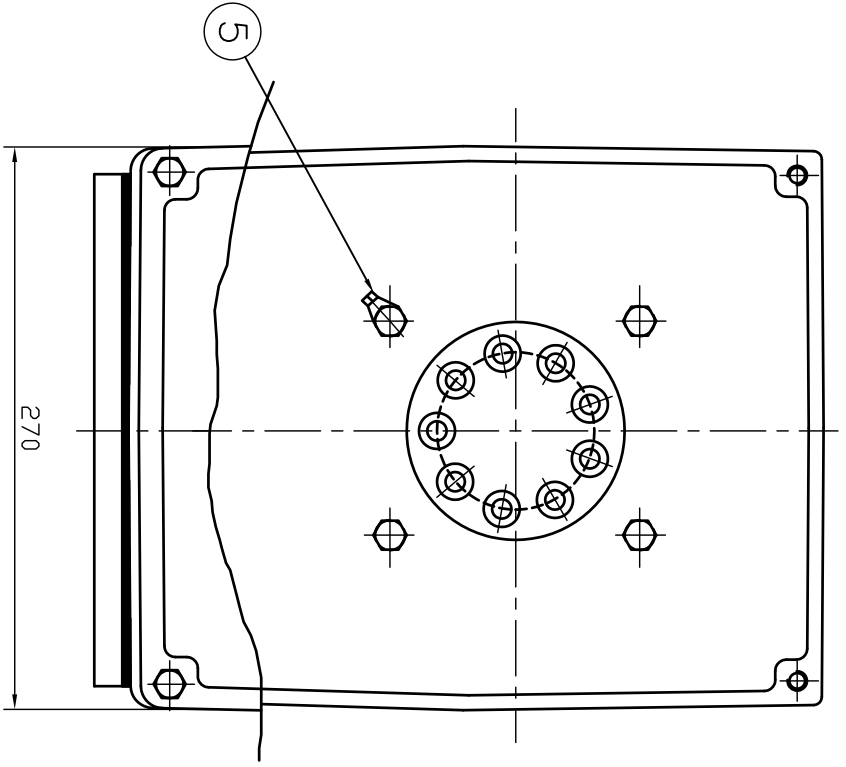
|                      |        |          |        |
|----------------------|--------|----------|--------|
| 90 kW                | 6 P    | 60 Hz    |        |
| Speed at Full Load : |        | 1185 RPM |        |
| Rated Voltage        | 440V   | 380V     | 220V   |
| Full Load Current    | 145.9A | 169.0A   | 291.9A |

SPEED VS TORQUE & CURRENT CURVE



OUTPUT VS EFF., P.F & CURRENT CURVE





| REV | DATE | CONTENTS | REV'D BY | CHKD BY | Q.P. CHK | APP'D BY |
|-----|------|----------|----------|---------|----------|----------|
| 1   |      |          |          |         |          |          |
| 2   |      |          |          |         |          |          |
| 3   |      |          |          |         |          |          |
| 4   |      |          |          |         |          |          |

|   |                    |           |  |  |  |  |  |  |  |  |  |  |
|---|--------------------|-----------|--|--|--|--|--|--|--|--|--|--|
| 1 | EARTH TERMINAL LUG |           |  |  |  |  |  |  |  |  |  |  |
| 1 | CABLE ENTRY PLATE  |           |  |  |  |  |  |  |  |  |  |  |
| 1 | GASKET             | NBR       |  |  |  |  |  |  |  |  |  |  |
| 1 | TERMINAL BOX COVER | CAST IRON |  |  |  |  |  |  |  |  |  |  |
| 1 | TERMINAL BOX BODY  | CAST IRON |  |  |  |  |  |  |  |  |  |  |

| QTY | DESCRIPTION | MATERIAL | DIMENSION | WEIGHT          | PART NO. | REMARK | NO. |
|-----|-------------|----------|-----------|-----------------|----------|--------|-----|
|     | APP'D BY    | 권진오      | UNIT      | MM              |          |        |     |
|     | Q.P. CHK    | 주영철      | SCALE     | NONE            |          |        |     |
|     | CHKD BY     | 권오철      | PROJEC'N  | 3 레벨(3rd Angle) |          |        |     |
|     | DSND BY     | 김헌태      | DATE      | 92.06.05        |          |        |     |

| REF. NO | DWG NO    | SHEET NO | TITLE              |
|---------|-----------|----------|--------------------|
|         | 3M-016882 |          | TERMINAL BOX ASS'Y |
|         |           |          | (CAST IRON)        |

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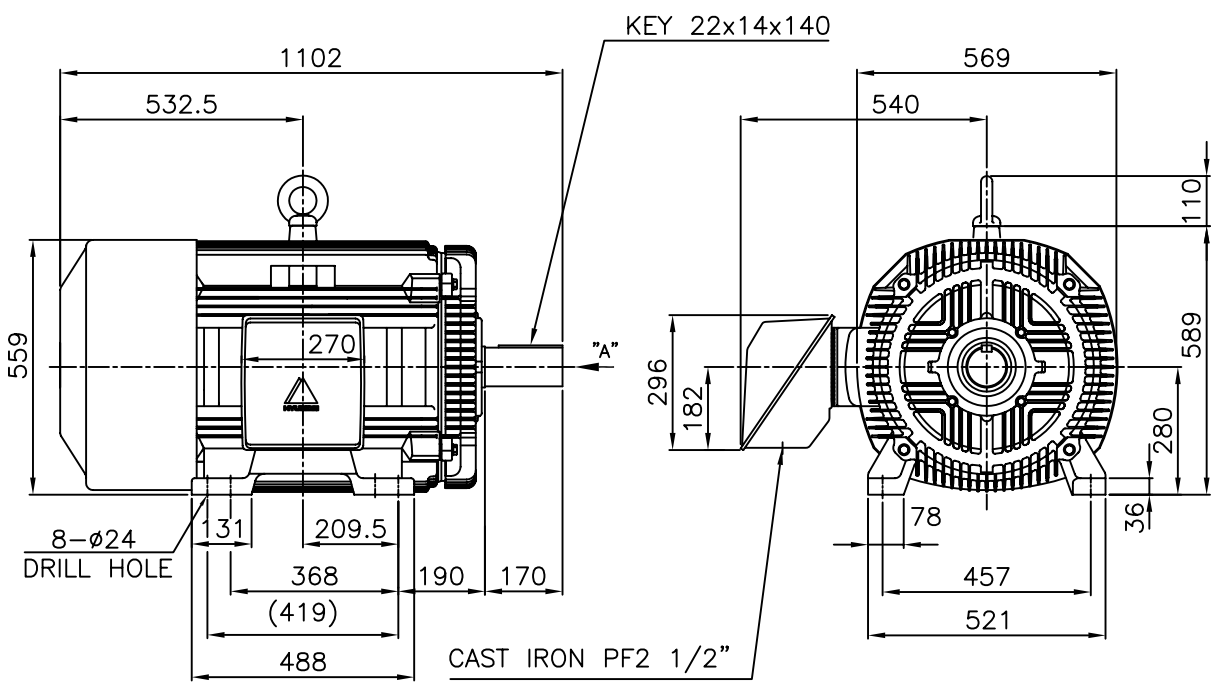
  

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|         | 3M-016882 |          | TERMINAL BOX ASS'Y |
|         |           |          | (CAST IRON)        |

본 도면은 현대중공업(주) 재산이므로  
허가없이 복사할 수 없습니다 (취급유의)

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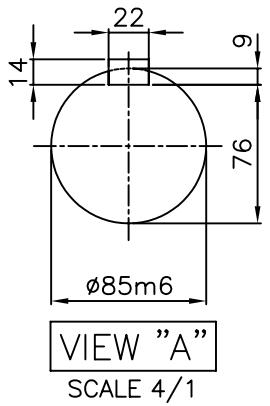
|  |  |                                    |  |   |
|--|--|------------------------------------|--|---|
|  |  | <h1>TEFC</h1>                      |  | <b>TYPE</b><br>(1) TNB , TDB<br>CAST IRON FRAME |
|  |  | <b>THREE PHASE INDUCTION MOTOR</b> |  |   |



**NOTE**

1. TOLERANCE :

|                |           |  |
|----------------|-----------|--|
| CENTER HEIGHT  | 280       | $\begin{matrix} 0 \\ -1.0 \end{matrix}$        |
| BASE HOLE      | $\phi 24$ | $\begin{matrix} +0.43 \\ 0 \end{matrix}$       |
| SHAFT DIAMETER | $\phi 85$ | $\begin{matrix} +0.035 \\ +0.013 \end{matrix}$ |
| KEYWAY WIDTH   | 22        | $\begin{matrix} -0.022 \\ -0.074 \end{matrix}$ |
| KEYWAY DEPTH   | 9         | $\begin{matrix} +0.2 \\ 0 \end{matrix}$        |
| KEYWAY WIDTH   | 22        | $\begin{matrix} 0 \\ -0.052 \end{matrix}$      |
| KEYWAY DEPTH   | 14        | $\begin{matrix} 0 \\ -0.110 \end{matrix}$      |



2. The type (1) - "TNB , TDB" is for HHI's standard products and it can be changed for customer's requirements or detail designing.

|         |               |          |            |   |                 |                 |
|---------|---------------|----------|------------|---|-----------------|-----------------|
|         |               |          |            | TEFC STANDARD                                   |                 |                 |
| APPD BY | KANG K.J.     | UNIT     | MM         | SUBJECT   | KS Fr.280S TEFC |                 |
| CHKD BY | KIM O.J.      | SCALE    | 1/17       |   |                 | CAD PROJ \ FILE |
| CHKD BY | LEE N.D.      | PROJEC'N | 3rd Angle  | TITLE<br>OUTLINE<br>THREE-PHASE INDUCTION MOTOR |                 |                 |
| DSND BY | KIM RYANG GYU | DATE     | 2007.03.23 |   |                 |                 |
|         |               |          |            | REF. NO   | L2-Series       | Sheet No. of    |
|         |               |          |            | DWG NO  | TJ8SAP51        | Revision No. 0  |