

# DATA SHEET

## Three Phase Induction Motor - Squirrel Cage



Customer :

Product line : W22 NEMA Premium Efficiency Three-Phase Product code : 11441798

|                     |                  |                             |                           |
|---------------------|------------------|-----------------------------|---------------------------|
| Frame               | : 254/6T         | Cooling method              | : IC411 - TEFC            |
| Insulation class    | : F              | Mounting                    | : F-1                     |
| Duty cycle          | : Cont.(S1)      | Rotation <sup>1</sup>       | : Both (CW and CCW)       |
| Ambient temperature | : -20°C to +40°C | Starting method             | : Direct On Line          |
| Altitude            | : 1000 m.a.s.l.  | Approx. weight <sup>3</sup> | : 133 kg                  |
| Protection degree   | : IP55           | Moment of inertia (J)       | : 0.0647 kgm <sup>2</sup> |
| Design              | : B              |                             |                           |

|                          |                         |                         |                         |                         |                        |                        |                         |
|--------------------------|-------------------------|-------------------------|-------------------------|-------------------------|------------------------|------------------------|-------------------------|
| Output [HP]              | 20                      | 15                      | 15                      | 15                      | 20                     | 20                     | 20                      |
| Poles                    | 2                       | 2                       | 2                       | 2                       | 2                      | 2                      | 2                       |
| Frequency [Hz]           | 60                      | 50                      | 50                      | 50                      | 50                     | 50                     | 50                      |
| Rated voltage [V]        | 230/460                 | 380                     | 400                     | 415                     | 380                    | 400                    | 415                     |
| Rated current [A]        | 46.5/23.3               | 20.6                    | 19.8                    | 19.3                    | 28.9                   | 27.2                   | 26.2                    |
| L. R. Amperes [A]        | 284/142                 | 144                     | 154                     | 156                     | 148                    | 155                    | 160                     |
| LRC [A]                  | 6.1x(Code G)            | 7.0x(Code H)            | 7.8x(Code J)            | 8.1x(Code J)            | 5.1x(Code E)           | 5.7x(Code F)           | 6.1x(Code G)            |
| No load current [A]      | 11.2/5.60               | 5.50                    | 6.00                    | 6.10                    | 5.50                   | 6.00                   | 6.10                    |
| Rated speed [RPM]        | 3530                    | 2940                    | 2945                    | 2950                    | 2885                   | 2905                   | 2915                    |
| Slip [%]                 | 1.94                    | 2.00                    | 1.83                    | 1.67                    | 3.83                   | 3.17                   | 2.83                    |
| Rated torque [kgfm]      | 4.11                    | 3.70                    | 3.70                    | 3.69                    | 5.03                   | 5.00                   | 4.98                    |
| Locked rotor torque [%]  | 200                     | 220                     | 240                     | 270                     | 160                    | 180                    | 200                     |
| Breakdown torque [%]     | 240                     | 260                     | 280                     | 310                     | 200                    | 210                    | 229                     |
| Service factor           | 1.25                    | 1.15                    | 1.15                    | 1.15                    | 1.00                   | 1.00                   | 1.00                    |
| Temperature rise         | 80 K                    | 80 K                    | 80 K                    | 80 K                    | 105 K                  | 105 K                  | 105 K                   |
| Locked rotor time        | 25s (cold)<br>14s (hot) | 28s (cold)<br>16s (hot) | 28s (cold)<br>16s (hot) | 28s (cold)<br>16s (hot) | 10s (cold)<br>6s (hot) | 16s (cold)<br>9s (hot) | 18s (cold)<br>10s (hot) |
| Noise level <sup>2</sup> | 72.0 dB(A)              | 67.0 dB(A)              | 67.0 dB(A)              | 67.0 dB(A)              | 67.0 dB(A)             | 67.0 dB(A)             | 67.0 dB(A)              |
| Efficiency (%)           | 25%                     | 0.000                   |                         |                         |                        |                        |                         |
|                          | 50%                     | 90.7                    | 90.6                    | 90.4                    | 89.8                   | 87.2                   | 89.2                    |
|                          | 75%                     | 91.0                    | 90.9                    | 91.2                    | 91.1                   | 87.5                   | 89.5                    |
|                          | 100%                    | 91.0                    | 91.2                    | 91.2                    | 91.2                   | 87.5                   | 89.5                    |
| Power Factor             | 25%                     | 0.00                    |                         |                         |                        |                        |                         |
|                          | 50%                     | 0.79                    | 0.78                    | 0.75                    | 0.73                   | 0.85                   | 0.80                    |
|                          | 75%                     | 0.86                    | 0.86                    | 0.84                    | 0.83                   | 0.89                   | 0.87                    |
|                          | 100%                    | 0.89                    | 0.89                    | 0.88                    | 0.87                   | 0.90                   | 0.89                    |

Losses at normative operating points (speed;torque), in percentage of rated output power

|            |                |     |     |     |     |      |      |      |
|------------|----------------|-----|-----|-----|-----|------|------|------|
| Losses (%) | P1 (0,9;1,0)   | 9.5 | 9.3 | 9.3 | 9.3 | 13.8 | 11.3 | 11.3 |
|            | P2 (0,5;1,0)   | 7.9 | 7.7 | 7.7 | 7.7 | 11.4 | 9.4  | 9.4  |
|            | P3 (0,25;1,0)  | 7.3 | 7.2 | 7.2 | 7.2 | 10.6 | 8.7  | 8.7  |
|            | P4 (0,9;0,5)   | 4.4 | 4.3 | 4.3 | 4.3 | 6.3  | 5.2  | 5.2  |
|            | P5 (0,5;0,5)   | 2.7 | 2.6 | 2.6 | 2.6 | 3.9  | 3.2  | 3.2  |
|            | P6 (0,5;0,25)  | 1.5 | 1.5 | 1.5 | 1.5 | 2.2  | 1.8  | 1.8  |
|            | P7 (0,25;0,25) | 1.0 | 0.9 | 0.9 | 0.9 | 1.4  | 1.1  | 1.1  |

|                |                      |                  |                            |
|----------------|----------------------|------------------|----------------------------|
| Bearing type   | Drive end            | Non drive end    | Foundation loads           |
|                | : 6309 C3            | : 6209 C3        |                            |
|                | Sealing              | V'Ring           |                            |
|                | Lubrication interval | 19000 h          |                            |
|                | Lubricant amount     | 13 g             |                            |
| Lubricant type |                      | Mobil Polyrex EM | Max. traction : 113 kgf    |
|                |                      |                  | Max. compression : 246 kgf |

This revision replaces and cancel the previous one, which must be eliminated.  
(1) Looking the motor from the shaft end.

These are average values based on tests with sinusoidal power supply, subject to the tolerances stipulated in NEMA MG-1.

|              |                 |  |  |           |               |          |
|--------------|-----------------|--|--|-----------|---------------|----------|
| Rev.         | Changes Summary |  |  | Performed | Checked       | Date     |
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# DATA SHEET

## Three Phase Induction Motor - Squirrel Cage



Customer :

Notes  
USABLE @208V 51.3A SF 1.15 SFA 59.0A

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# LOAD PERFORMANCE CURVE

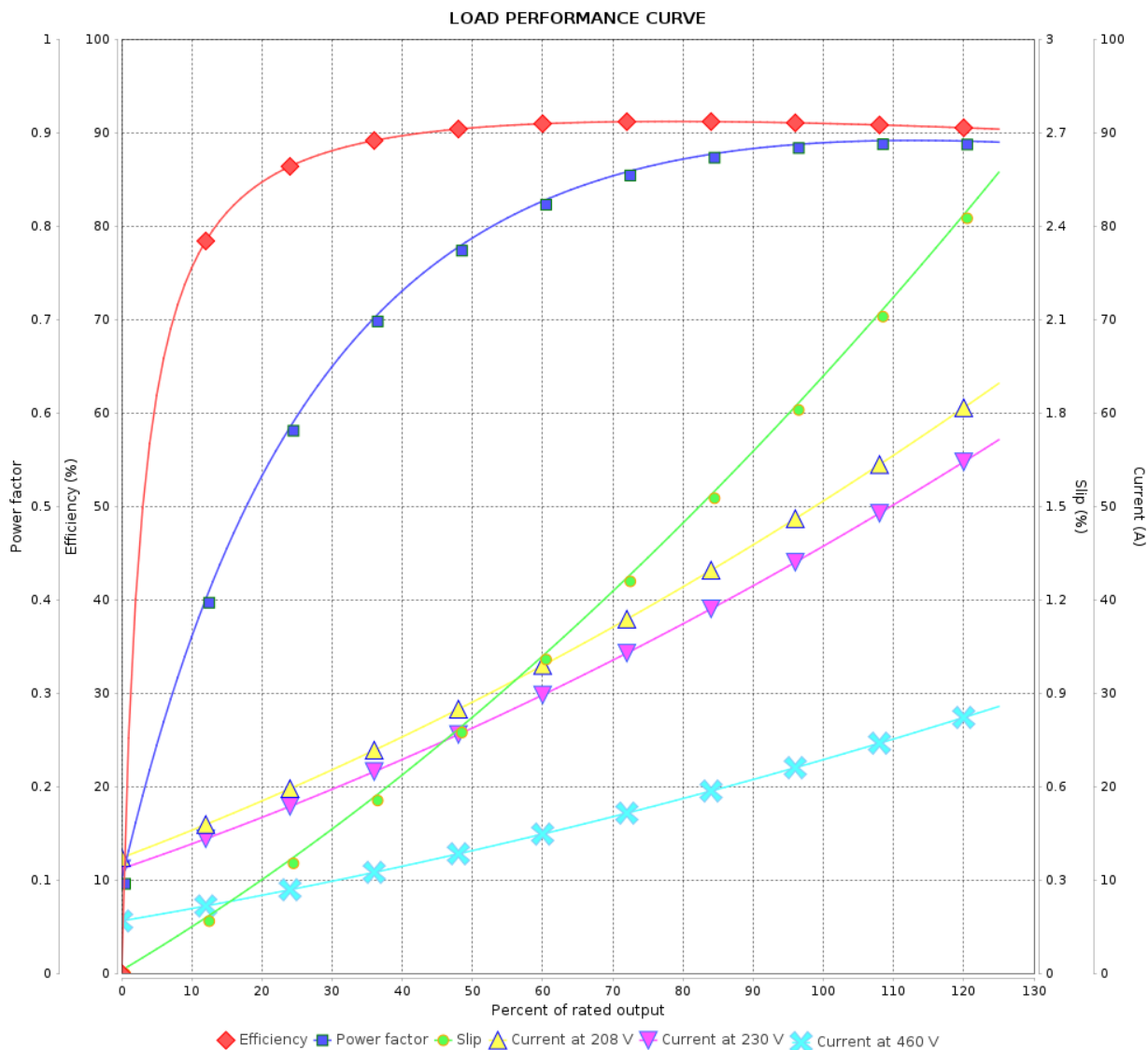
## Three Phase Induction Motor - Squirrel Cage



Customer :

Product line : W22 NEMA Premium Efficiency  
Three-Phase

Product code : 11441798



Performance : 230/460 V 60 Hz 2P

Rated current : 46.5/23.3 A  
LRC : 6.1  
Rated torque : 4.11 kgfm  
Locked rotor torque : 200 %  
Breakdown torque : 240 %  
Rated speed : 3530 rpm

Moment of inertia (J) : 0.0647 kgm<sup>2</sup>  
Duty cycle : Cont.(S1)  
Insulation class : F  
Service factor : 1.25  
Temperature rise : 80 K  
Design : B

|              |                 |  |           |               |          |
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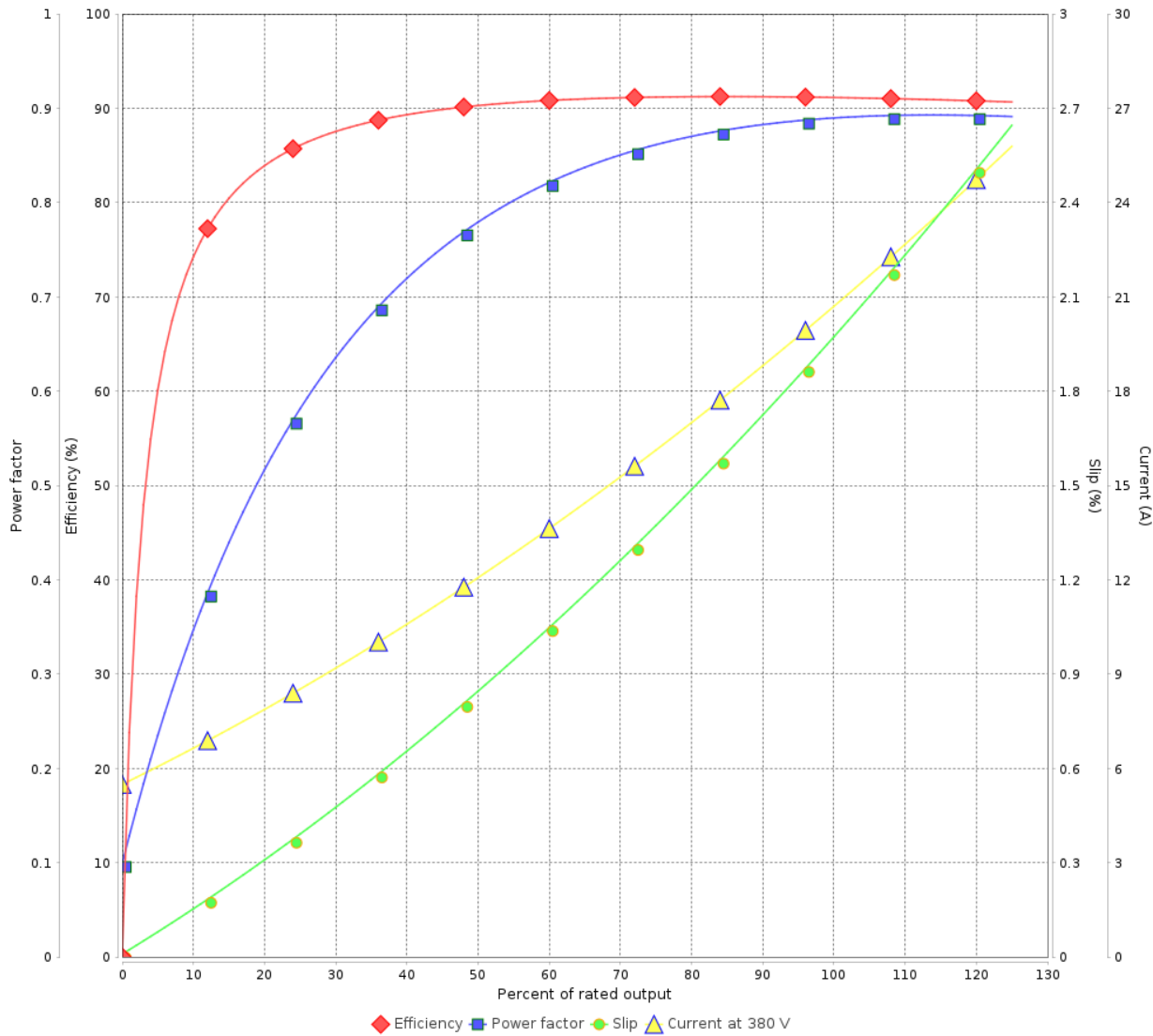
Three Phase Induction Motor - Squirrel Cage



Customer :

Product line : W22 NEMA Premium Efficiency Three-Phase      Product code : 11441798

LOAD PERFORMANCE CURVE



|                                  |             |                       |               |
|----------------------------------|-------------|-----------------------|---------------|
| Performance : 380 V 50 Hz 2P IE3 |             |                       |               |
| Rated current                    | : 20.6 A    | Moment of inertia (J) | : 0.0647 kgm² |
| LRC                              | : 7.0       | Duty cycle            | : Cont.(S1)   |
| Rated torque                     | : 3.70 kgfm | Insulation class      | : F           |
| Locked rotor torque              | : 220 %     | Service factor        | : 1.15        |
| Breakdown torque                 | : 260 %     | Temperature rise      | : 80 K        |
| Rated speed                      | : 2940 rpm  | Design                | : B           |

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# LOAD PERFORMANCE CURVE

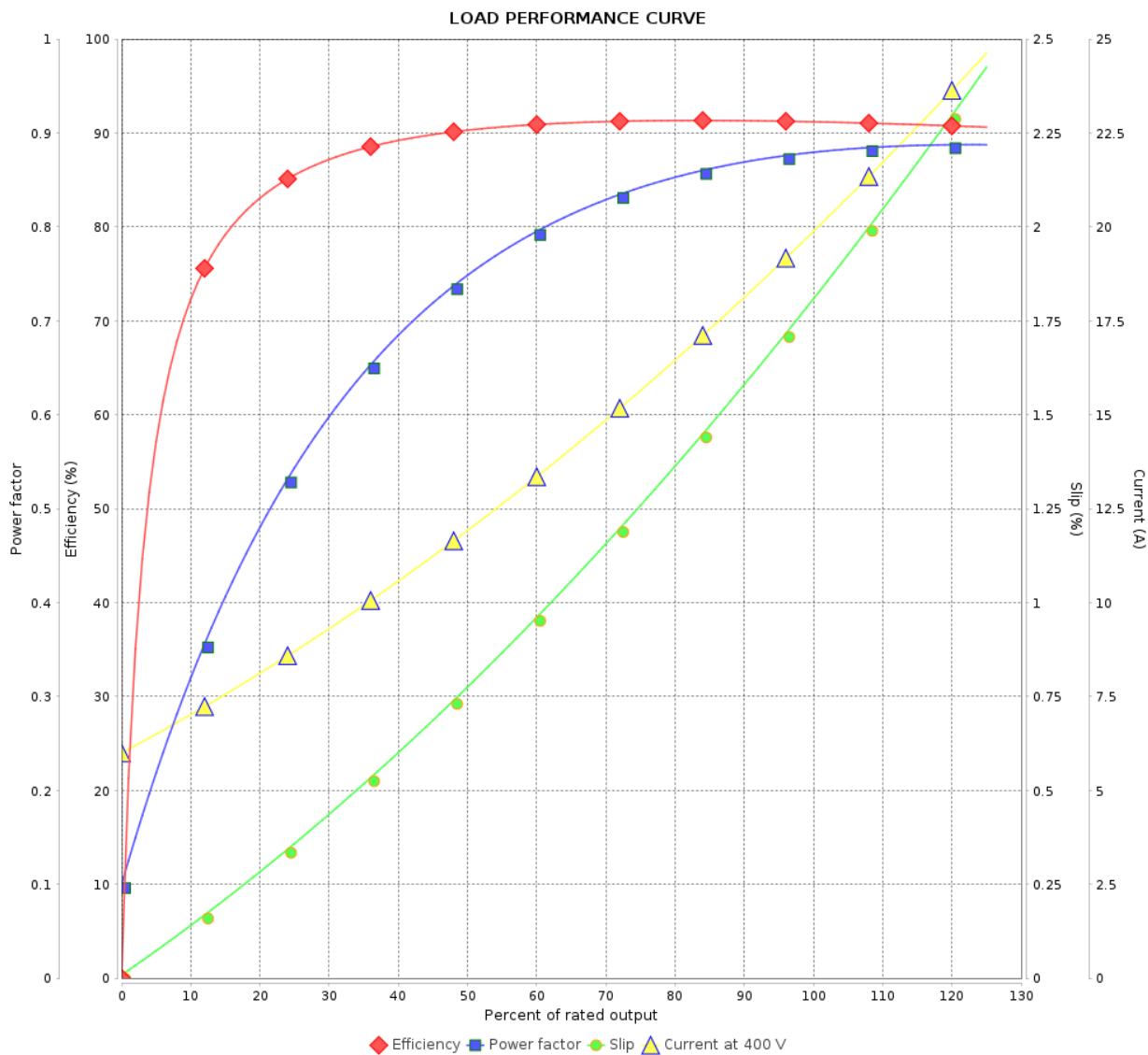
## Three Phase Induction Motor - Squirrel Cage



Customer :

Product line : W22 NEMA Premium Efficiency  
Three-Phase

Product code : 11441798



Performance : 400 V 50 Hz 2P IE3

Rated current : 19.8 A  
LRC : 7.8  
Rated torque : 3.70 kgfm  
Locked rotor torque : 240 %  
Breakdown torque : 280 %  
Rated speed : 2945 rpm

Moment of inertia (J) : 0.0647 kgm<sup>2</sup>  
Duty cycle : Cont.(S1)  
Insulation class : F  
Service factor : 1.15  
Temperature rise : 80 K  
Design : B

| Rev.         | Changes Summary |  | Performed | Checked       | Date     |
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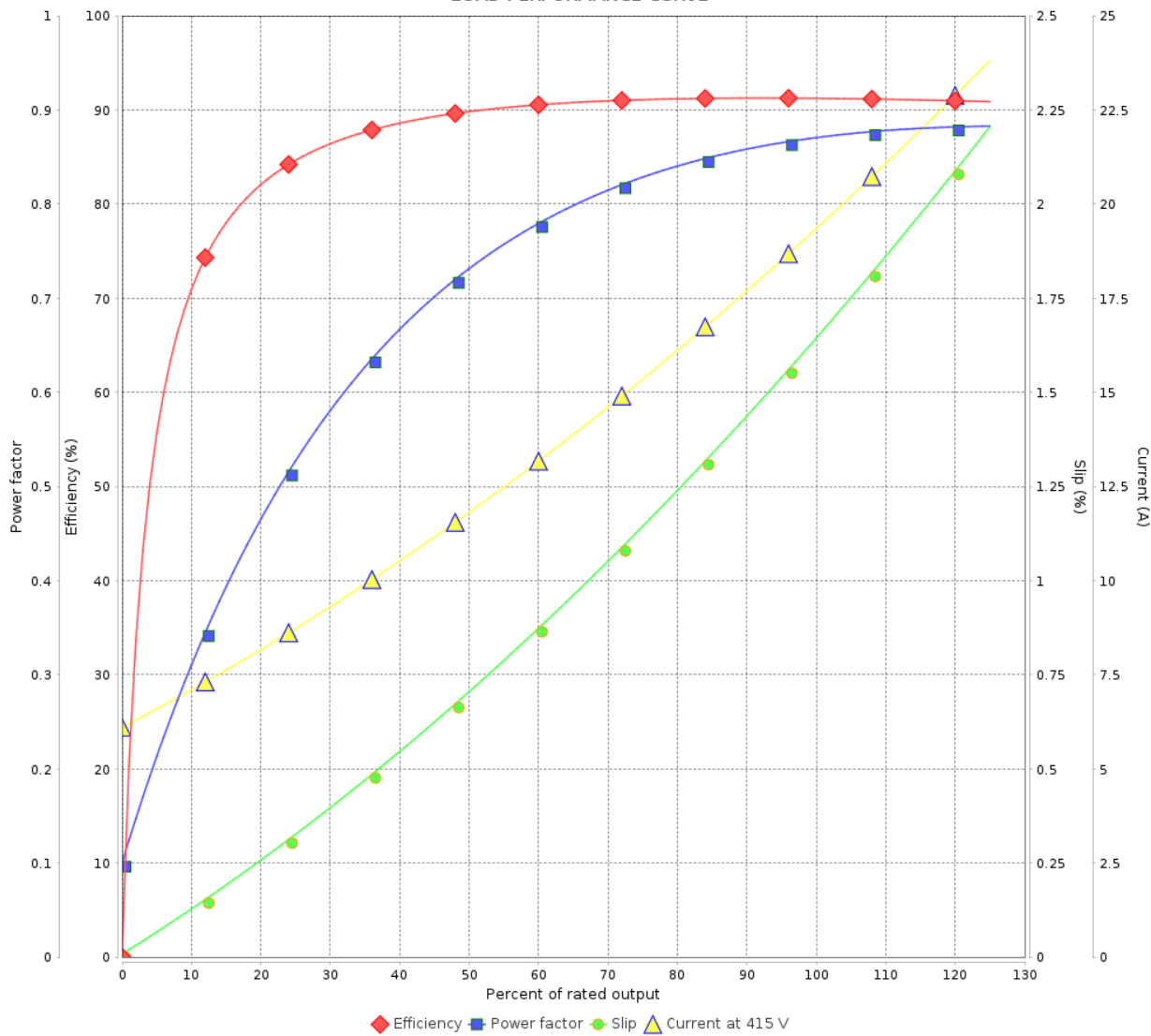
Three Phase Induction Motor - Squirrel Cage



Customer :

Product line : W22 NEMA Premium Efficiency Three-Phase      Product code : 11441798

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|                                  |             |                       |                           |
|----------------------------------|-------------|-----------------------|---------------------------|
| Performance : 415 V 50 Hz 2P IE3 |             |                       |                           |
| Rated current                    | : 19.3 A    | Moment of inertia (J) | : 0.0647 kgm <sup>2</sup> |
| LRC                              | : 8.1       | Duty cycle            | : Cont.(S1)               |
| Rated torque                     | : 3.69 kgfm | Insulation class      | : F                       |
| Locked rotor torque              | : 270 %     | Service factor        | : 1.15                    |
| Breakdown torque                 | : 310 %     | Temperature rise      | : 80 K                    |
| Rated speed                      | : 2950 rpm  | Design                | : B                       |

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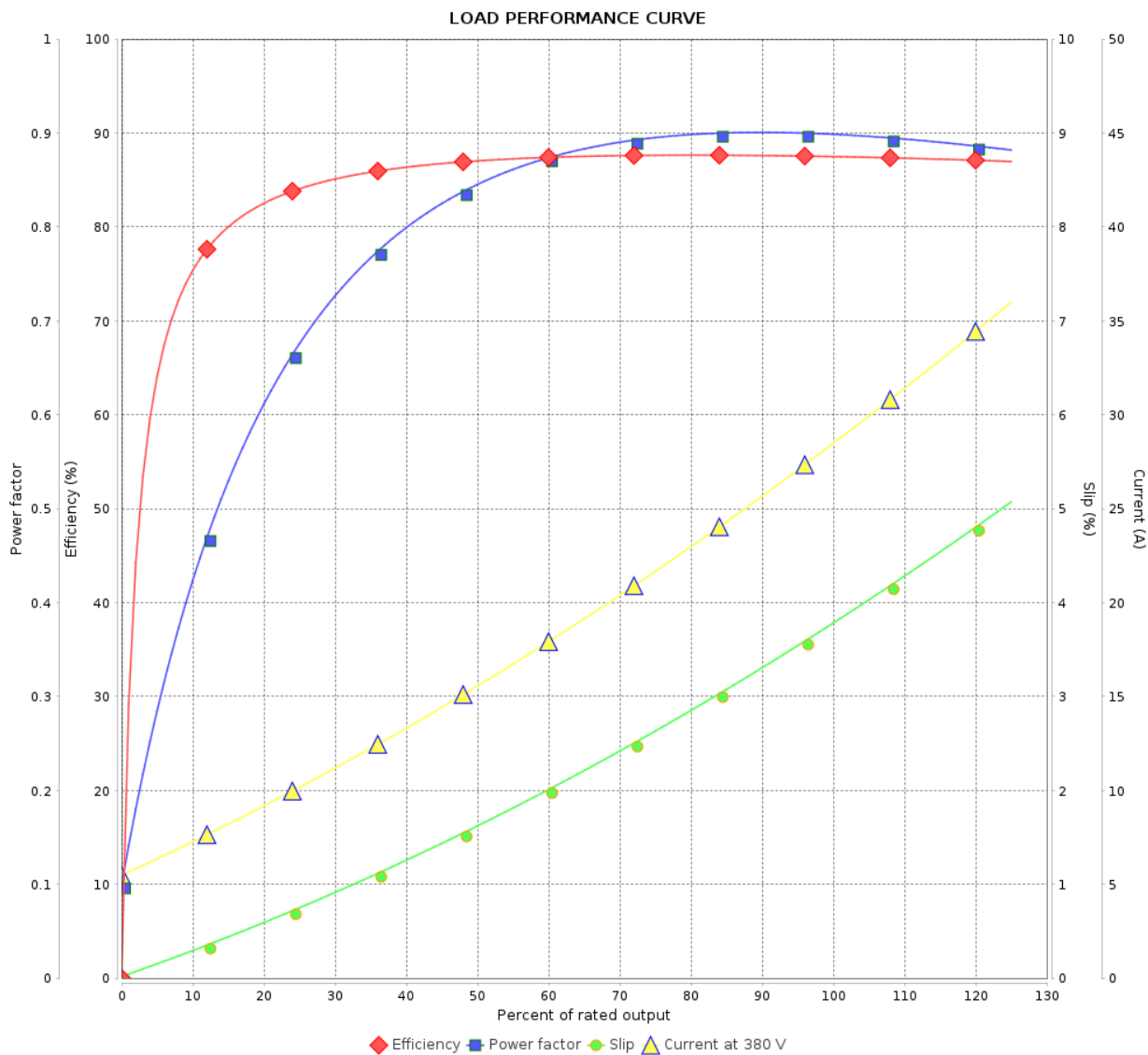
## Three Phase Induction Motor - Squirrel Cage



Customer :

Product line : W22 NEMA Premium Efficiency  
Three-Phase

Product code : 11441798



Performance : 380 V 50 Hz 2P

Rated current : 28.9 A  
LRC : 5.1  
Rated torque : 5.03 kgfm  
Locked rotor torque : 160 %  
Breakdown torque : 200 %  
Rated speed : 2885 rpm

Moment of inertia (J) : 0.0647 kgm<sup>2</sup>  
Duty cycle : Cont.(S1)  
Insulation class : F  
Service factor : 1.00  
Temperature rise : 105 K  
Design : B

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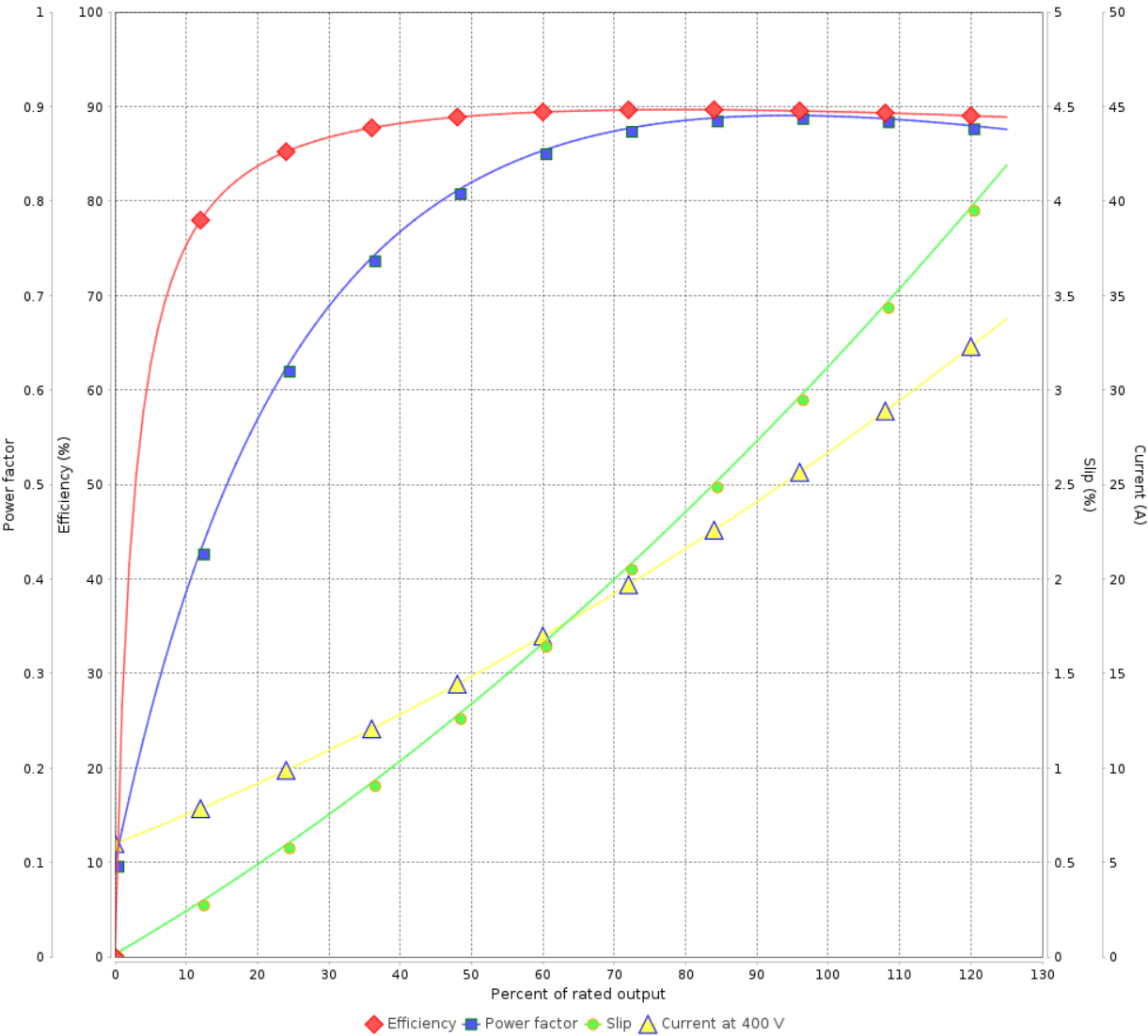
Three Phase Induction Motor - Squirrel Cage



Customer :

Product line : W22 NEMA Premium Efficiency Three-Phase      Product code : 11441798

LOAD PERFORMANCE CURVE



|                                  |             |                       |                           |
|----------------------------------|-------------|-----------------------|---------------------------|
| Performance : 400 V 50 Hz 2P IE1 |             |                       |                           |
| Rated current                    | : 27.2 A    | Moment of inertia (J) | : 0.0647 kgm <sup>2</sup> |
| LRC                              | : 5.7       | Duty cycle            | : Cont.(S1)               |
| Rated torque                     | : 5.00 kgfm | Insulation class      | : F                       |
| Locked rotor torque              | : 180 %     | Service factor        | : 1.00                    |
| Breakdown torque                 | : 210 %     | Temperature rise      | : 105 K                   |
| Rated speed                      | : 2905 rpm  | Design                | : B                       |

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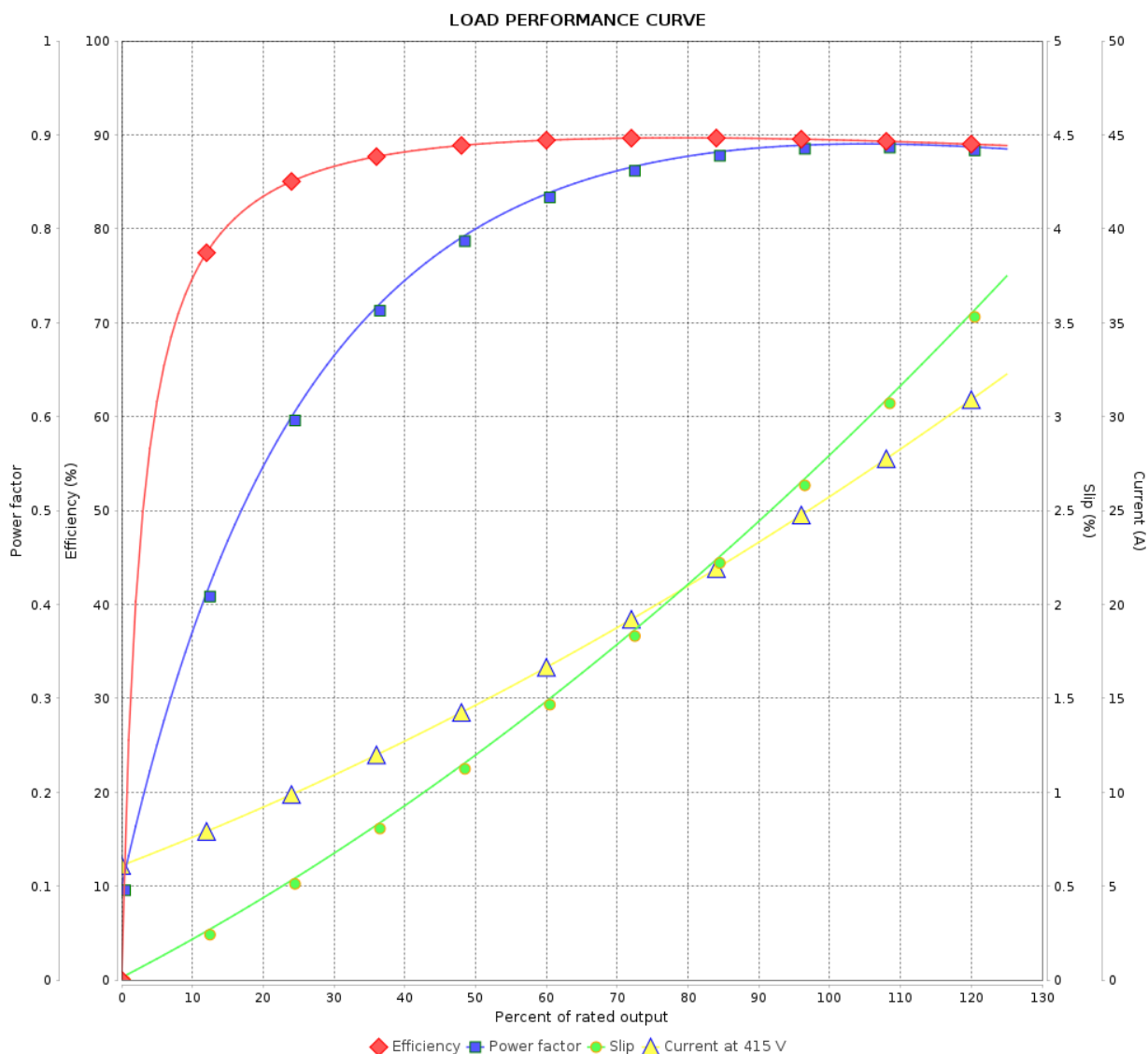
## Three Phase Induction Motor - Squirrel Cage



Customer :

Product line : W22 NEMA Premium Efficiency  
Three-Phase

Product code : 11441798



Performance : 415 V 50 Hz 2P IE1

Rated current : 26.2 A  
LRC : 6.1  
Rated torque : 4.98 kgfm  
Locked rotor torque : 200 %  
Breakdown torque : 229 %  
Rated speed : 2915 rpm

Moment of inertia (J) : 0.0647 kgm<sup>2</sup>  
Duty cycle : Cont.(S1)  
Insulation class : F  
Service factor : 1.00  
Temperature rise : 105 K  
Design : B

|              |                 |  |           |               |          |
|--------------|-----------------|--|-----------|---------------|----------|
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