

# DATA SHEET

## Three Phase Induction Motor - Squirrel Cage



Customer :

Product line : W22 Close Coupled Pump JM NEMA Premium Efficiency Three-Phase  
Product code : 11641169

|                     |                  |                             |                           |
|---------------------|------------------|-----------------------------|---------------------------|
| Frame               | : 254/6JM        | 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> | : 135 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]      | 13.0/6.50               | 6.20                    | 6.60                    | 6.90                    | 6.20                   | 6.60                   | 6.90                    |
| Rated speed [RPM]        | 3525                    | 2935                    | 2945                    | 2950                    | 2885                   | 2905                   | 2915                    |
| Slip [%]                 | 2.08                    | 2.17                    | 1.83                    | 1.67                    | 3.83                   | 3.17                   | 2.83                    |
| Rated torque [kgfm]      | 4.12                    | 3.71                    | 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                     | 190                    | 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%                     | 90.5                    | 90.2                    | 90.2                    | 89.5                   | 86.9                   | 89.0                    |
|                          | 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%                     | 0.56                    | 0.54                    | 0.50                    | 0.48                   | 0.64                   | 0.57                    |
|                          | 50%                     | 0.80                    | 0.78                    | 0.75                    | 0.73                   | 0.85                   | 0.82                    |
|                          | 75%                     | 0.87                    | 0.86                    | 0.84                    | 0.83                   | 0.89                   | 0.88                    |
|                          | 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)   | 9.0 | 8.8 | 8.8 | 8.8 | 13.0 | 10.7 | 10.7 |
|            | P2 (0,5;1,0)   | 6.6 | 6.5 | 6.5 | 6.5 | 9.6  | 7.9  | 7.9  |
|            | P3 (0,25;1,0)  | 6.2 | 6.0 | 6.0 | 6.0 | 8.9  | 7.3  | 7.3  |
|            | P4 (0,9;0,5)   | 4.9 | 4.8 | 4.8 | 4.8 | 7.1  | 5.8  | 5.8  |
|            | P5 (0,5;0,5)   | 2.7 | 2.6 | 2.6 | 2.6 | 3.9  | 3.2  | 3.2  |
|            | P6 (0,5;0,25)  | 1.8 | 1.7 | 1.7 | 1.7 | 2.6  | 2.1  | 2.1  |
|            | P7 (0,25;0,25) | 1.0 | 1.0 | 1.0 | 1.0 | 1.5  | 1.2  | 1.2  |

|              |                    |               |         |                  |                         |                            |
|--------------|--------------------|---------------|---------|------------------|-------------------------|----------------------------|
| Bearing type | : 6309 C3          | Non drive end | 6209 C3 | Foundation loads | Max. traction : 113 kgf | Max. compression : 247 kgf |
|              | : V'Ring           | V'Ring        |         |                  |                         |                            |
|              | : 19000 h          | 20000 h       |         |                  |                         |                            |
|              | : 13 g             | 9 g           |         |                  |                         |                            |
|              | : Mobil Polyrex EM |               |         |                  |                         |                            |

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.

|              |                 |           |         |          |
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## 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

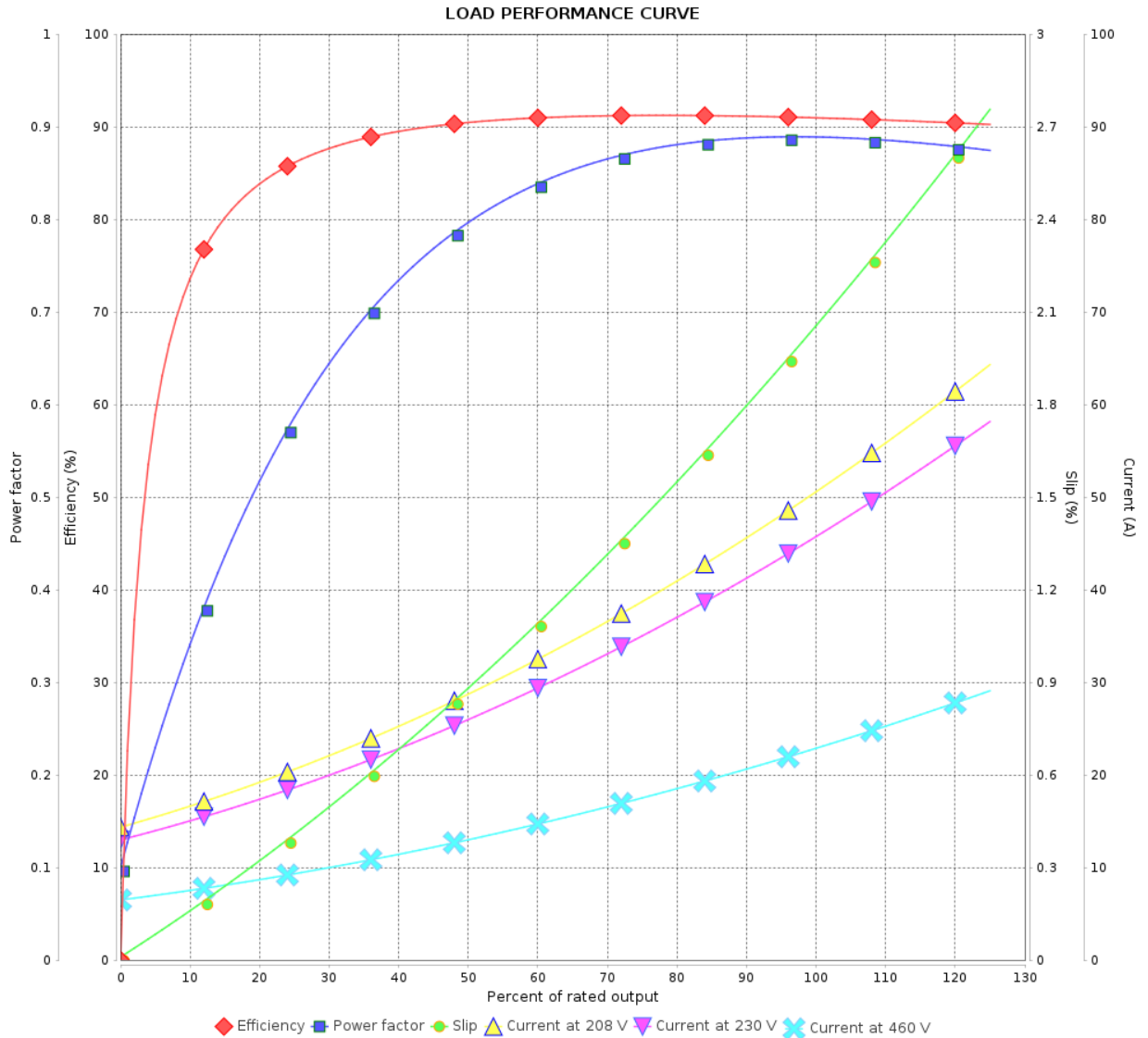
## Three Phase Induction Motor - Squirrel Cage



Customer :

Product line : W22 Close Coupled Pump JM NEMA  
Premium Efficiency Three-Phase

Product code : 11641169



Performance : 230/460 V 60 Hz 2P

Rated current : 46.5/23.3 A  
LRC : 6.1  
Rated torque : 4.12 kgfm  
Locked rotor torque : 200 %  
Breakdown torque : 240 %  
Rated speed : 3525 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

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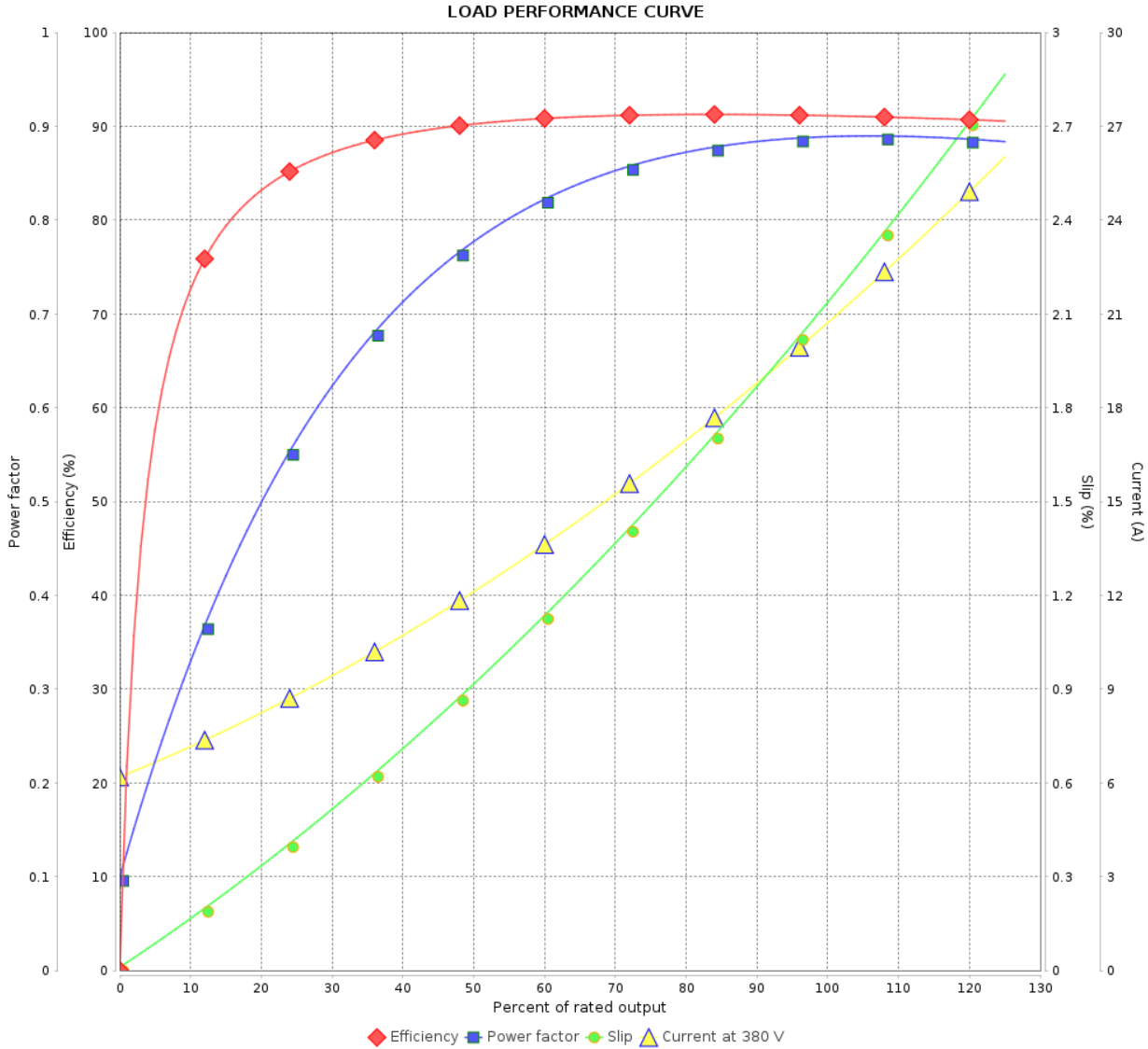
Three Phase Induction Motor - Squirrel Cage



Customer :

Product line : W22 Close Coupled Pump JM NEMA  
Premium Efficiency Three-Phase

Product code : 11641169



Performance : 380 V 50 Hz 2P IE3

Rated current : 20.6 A  
LRC : 7.0  
Rated torque : 3.71 kgfm  
Locked rotor torque : 220 %  
Breakdown torque : 260 %  
Rated speed : 2935 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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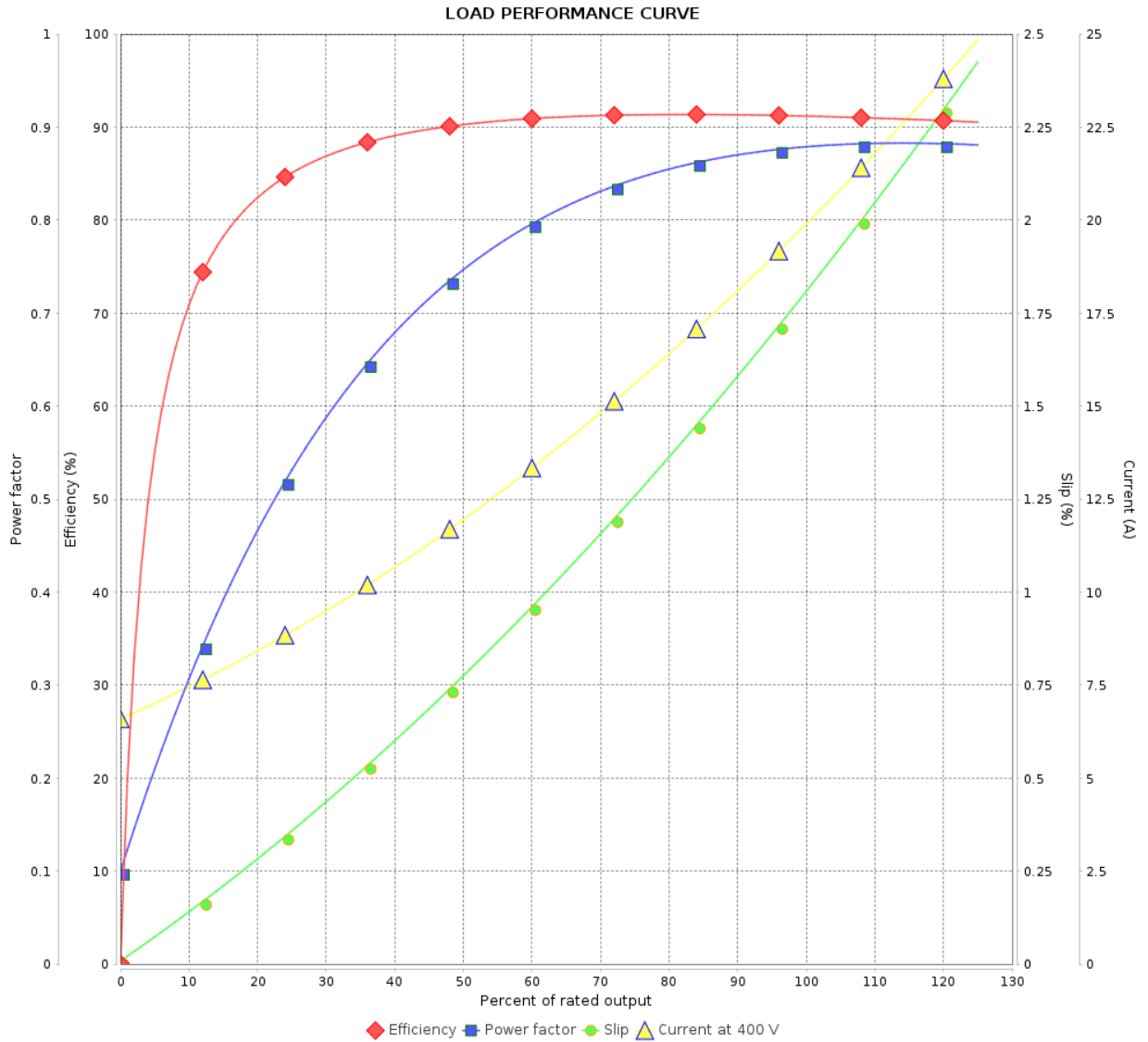
## Three Phase Induction Motor - Squirrel Cage



Customer :

Product line : W22 Close Coupled Pump JM NEMA  
Premium Efficiency Three-Phase

Product code : 11641169



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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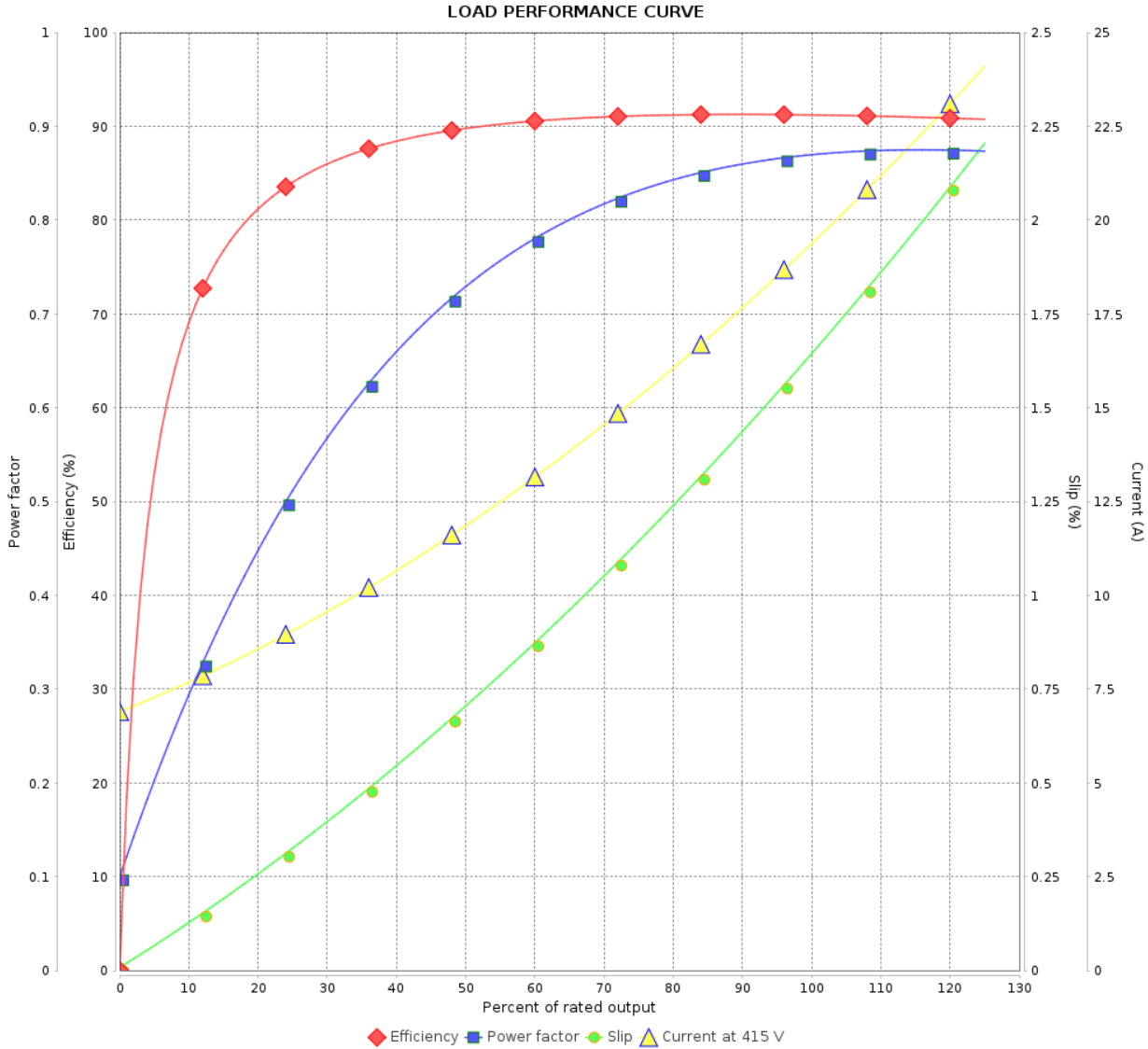
Three Phase Induction Motor - Squirrel Cage



Customer : \_\_\_\_\_

Product line : W22 Close Coupled Pump JM NEMA  
Premium Efficiency Three-Phase

Product code : 11641169



Performance : 415 V 50 Hz 2P IE3

Rated current : 19.3 A  
 LRC : 8.1  
 Rated torque : 3.69 kgfm  
 Locked rotor torque : 270 %  
 Breakdown torque : 310 %  
 Rated speed : 2950 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

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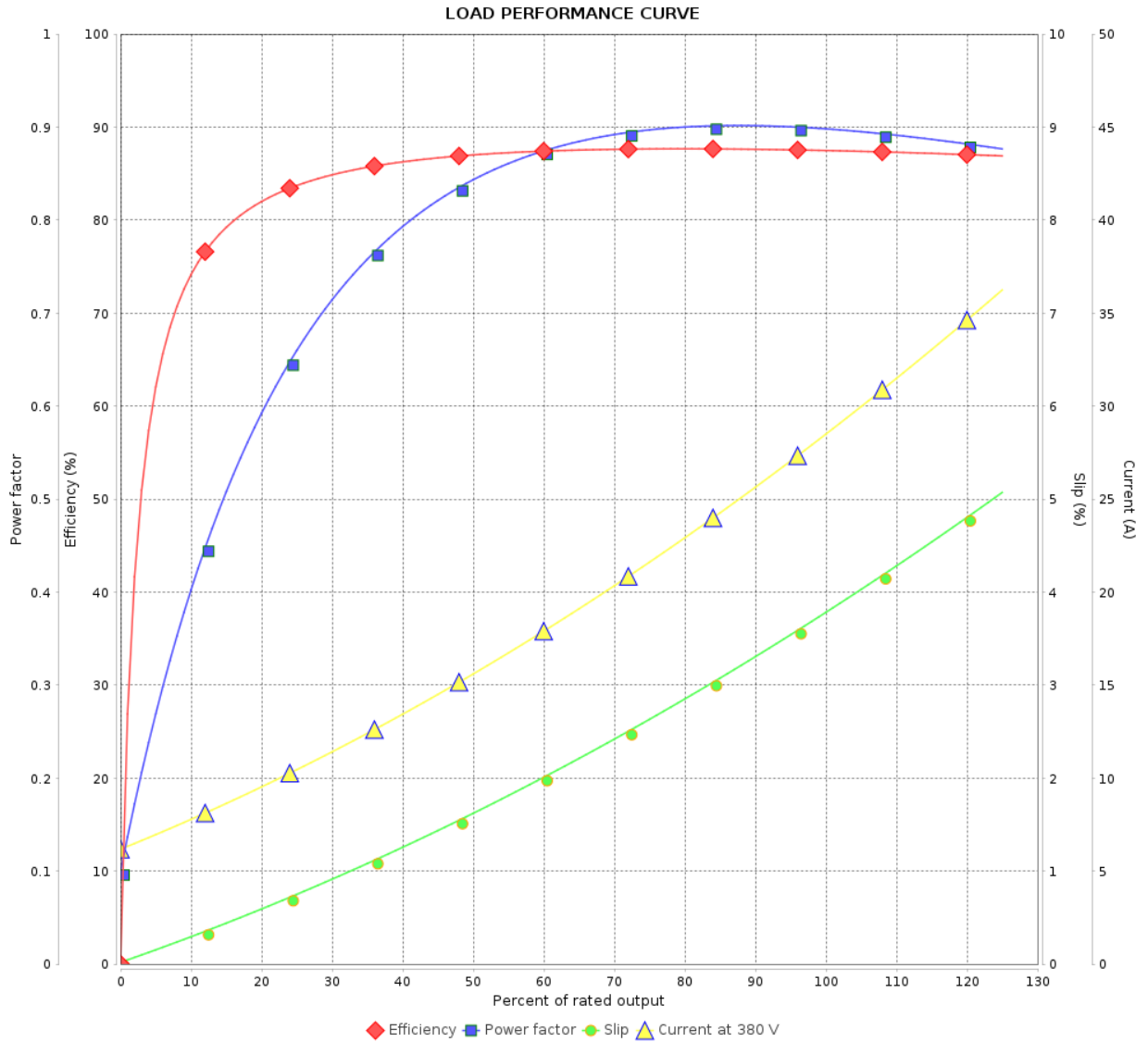
## Three Phase Induction Motor - Squirrel Cage



Customer :

Product line : W22 Close Coupled Pump JM NEMA  
Premium Efficiency Three-Phase

Product code : 11641169



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 : 190 %  
 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

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

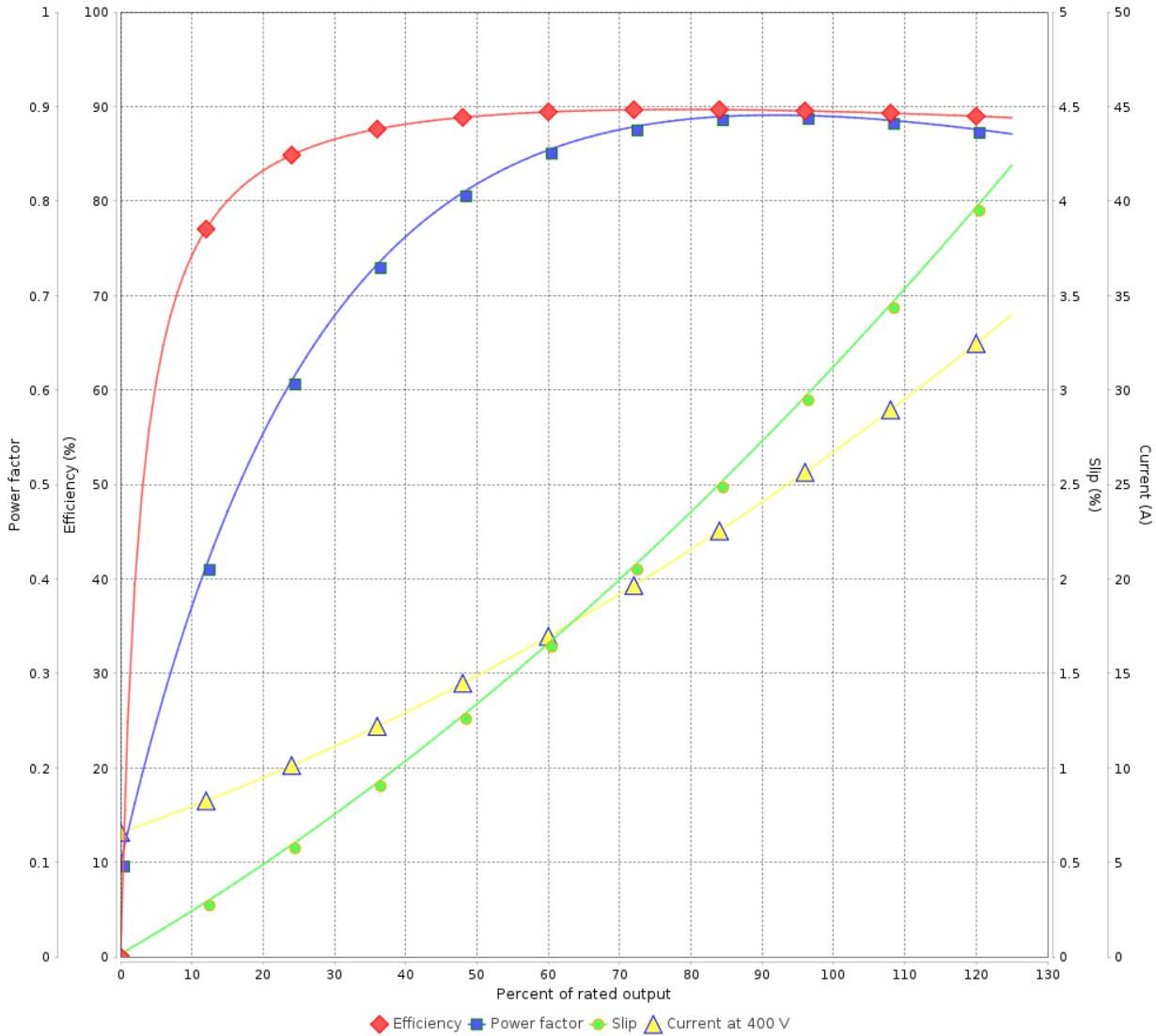


Customer :

Product line : W22 Close Coupled Pump JM NEMA  
Premium Efficiency Three-Phase

Product code : 11641169

LOAD PERFORMANCE CURVE



Performance : 400 V 50 Hz 2P IE1

Rated current : 27.2 A  
LRC : 5.7  
Rated torque : 5.00 kgfm  
Locked rotor torque : 180 %  
Breakdown torque : 210 %  
Rated speed : 2905 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

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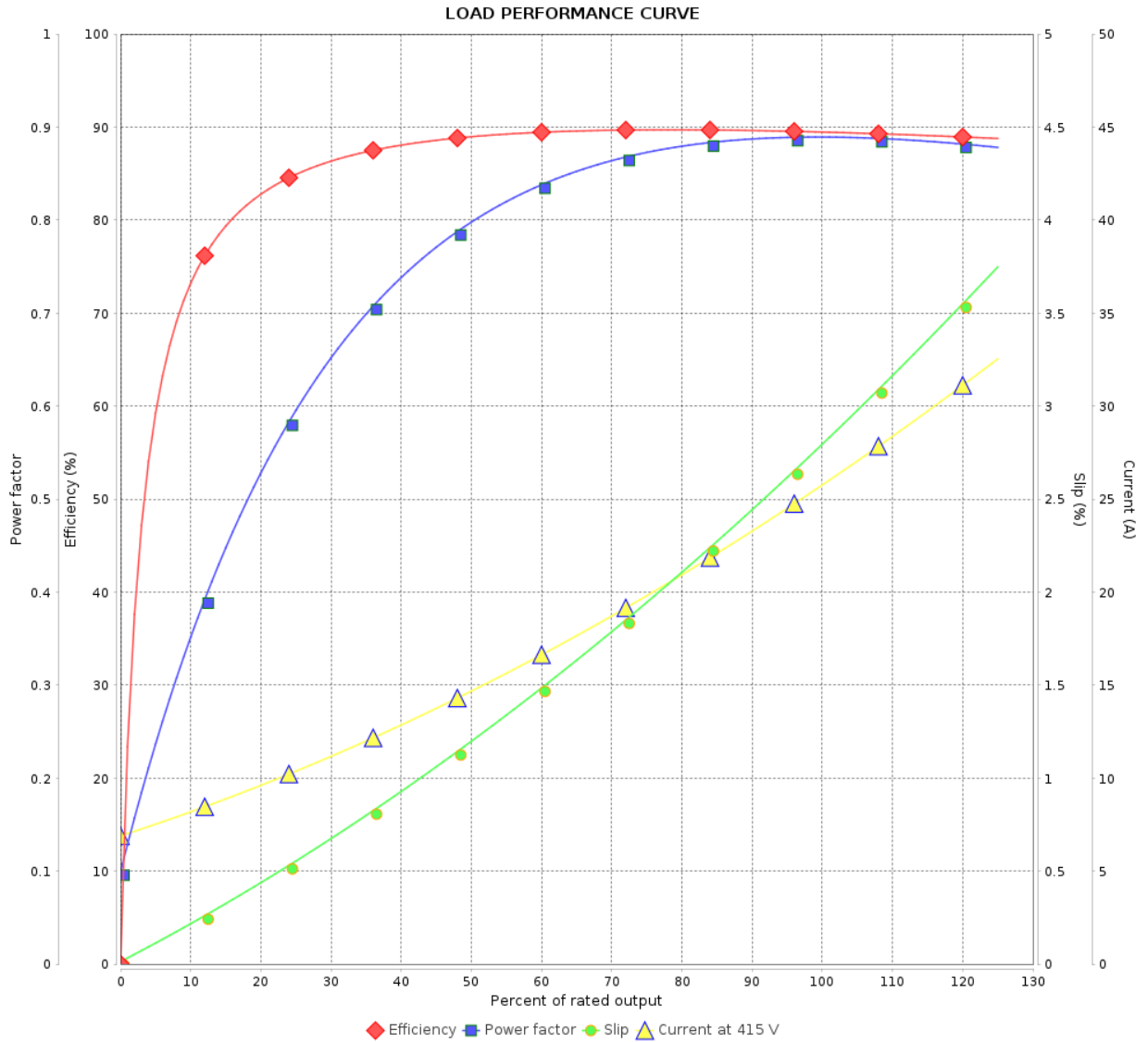
## Three Phase Induction Motor - Squirrel Cage



Customer : \_\_\_\_\_

Product line : W22 Close Coupled Pump JM NEMA  
Premium Efficiency Three-Phase

Product code : 11641169



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

| Rev.         | Changes Summary | Performed | Checked | Date     |
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