

**DATA SHEET****Three Phase Induction Motor - Squirrel Cage**

Customer :

 Product line : Special Motor  
 Product code : 14352421

|                       |                           |                               |                          |
|-----------------------|---------------------------|-------------------------------|--------------------------|
| Frame                 | : L180L                   | Locked rotor time             | : 12 s (hot) 22 s (cold) |
| Output                | : 40 HP (30 kW)           | Temperature rise <sup>4</sup> | : 80 K                   |
| Poles                 | : 2                       | Duty cycle                    | : Cont.(S1)              |
| Frequency             | : 60 Hz                   | Ambient temperature           | : -20 °C to +40 °C       |
| Rated voltage         | : 460 V                   | Altitude                      | : 1000 m.a.s.l           |
| Rated current         | : 45.5 A                  | Protection degree             | : IP55                   |
| L. R. Amperes         | : 364 A                   | Cooling method                | : IC411 - TFVE           |
| LRC                   | : 8.0 Code J              | Mounting                      | : B5T                    |
| No load current       | : 10.8 A                  | Rotation <sup>1</sup>         | : Both                   |
| Rated speed           | : 3550 rpm                | Noise level <sup>2</sup>      | : 72 dB(A)               |
| Slip                  | : 1.39 %                  | Starting method               | : Inverter               |
| Rated torque          | : 8.18 kgfm               | Approx. weight <sup>3</sup>   | : 226 kg                 |
| Locked rotor torque   | : 310 %                   | Design                        | : N                      |
| Pull up torque        | : 250 %                   |                               |                          |
| Breakdown torque      | : 260 %                   |                               |                          |
| Insulation class      | : F                       |                               |                          |
| Service factor        | : 1.15                    |                               |                          |
| Moment of inertia (J) | : 0.1517 kgm <sup>2</sup> |                               |                          |

|                |       |      |      |      |                                     |     |
|----------------|-------|------|------|------|-------------------------------------|-----|
| Output         | Start | 50%  | 75%  | 100% | Load type                           | : - |
| Efficiency (%) | -     | 93.0 | 94.0 | 93.0 | Load torque                         | : - |
| Power Factor   | 0.00  | 0.80 | 0.86 | 0.89 | Load inertia (J=GD <sup>2</sup> /4) | : - |

**Operation limits with inverter**

|                      |                  |               |
|----------------------|------------------|---------------|
|                      | Drive end        | Non drive end |
| Bearing type         | 6311-C3          | 6211-C3       |
| Lubrication interval | 14000 h          | 17000 h       |
| Lubricant amount     | 18 g             | 11 g          |
| Lubricant type       | MOBIL POLYREX EM |               |

 Notes:  
 W22 - Tru metric Premium Efficiency
**Losses at normative operating points (speed;torque), in percentage of rated output power**

| P1 (0,9;1,0) | P2 (0,5;1,0) | P3 (0,25;1,0) | P4 (0,9;0,5) | P5 (0,5;0,5) | P6 (0,5;0,25) | P7 (0,25;0,25) |
|--------------|--------------|---------------|--------------|--------------|---------------|----------------|
| 7.08         | 5.35         | 4.84          | 3.51         | 2.06         | 1.29          | 0.73           |

|           |               |               |           |                |
|-----------|---------------|---------------|-----------|----------------|
| Standards | Specification | : IEC 60034-1 | Vibration | : IEC 60034-14 |
|           | Test          | : IEC 60034-2 | Tolerance | : IEC 60034-1  |
|           | Noise         | : IEC 60034-9 |           |                |

This revision replaces and cancel the previous one, which must be eliminated..

(1) Looking the motor from the shaft end.

(2) Measured without tolerance.

(3) Approximate weight, subject to be changed after manufacturing process.

(4) At 100% of full load.

These are average values based on tests with sinusoidal power supply, subject to the tolerances stipulated in IEC 60034-1.

| Rev.         | Changes Summary |  | Performed | Checked     | Date       |
|--------------|-----------------|--|-----------|-------------|------------|
|              |                 |  |           |             | 21/12/2020 |
| Performed by | dmendes         |  |           | 279966/2018 |            |
| Checked by   | elianes         |  |           | Page        | Revision   |
| Date         | 21/12/2020      |  |           | 1/5         | 6          |

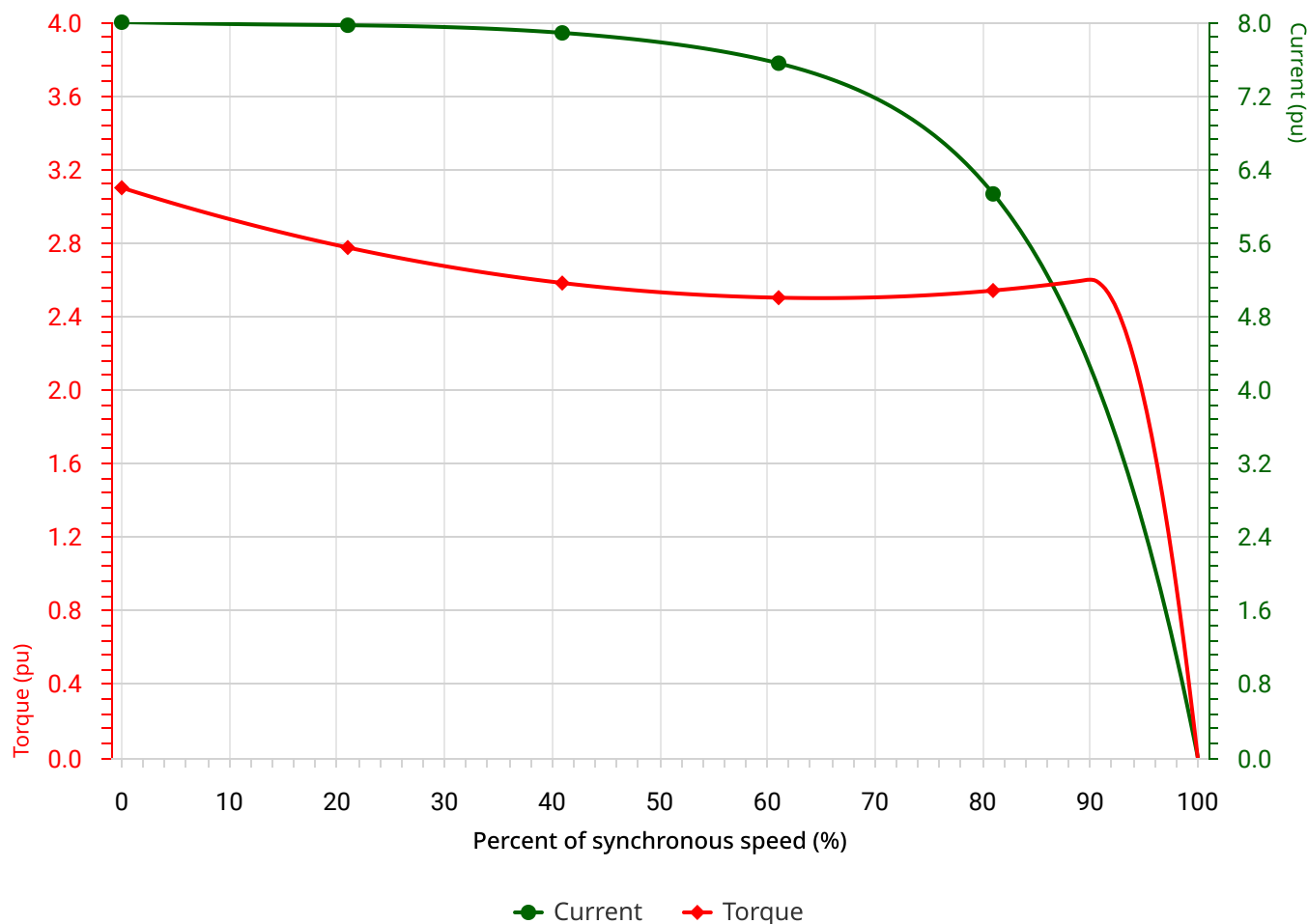
# TORQUE AND CURRENT VS SPEED CURVE



## Three Phase Induction Motor - Squirrel Cage

Customer :

Product line : Special Motor  
Product code : 14352421



Performance : 40 HP (30 kW) 460V 60Hz 2P L180L

|                             |                                                 |
|-----------------------------|-------------------------------------------------|
| Rated current : 45.5 A      | Moment of inertia (J) : 0.1517 kgm <sup>2</sup> |
| LRC : 8.0 Code J            | Duty cycle : Cont.(S1)                          |
| Rated torque : 8.18 kgfm    | Insulation class : F                            |
| Locked rotor torque : 310 % | Service factor : 1.15                           |
| Breakdown torque : 260 %    | Temperature rise : 80 K                         |
| Rated speed : 3550 rpm      | Design : N                                      |

Locked rotor time 100% : 12 s (hot) 22 s (cold)  
Load Inertia (J=GD<sup>2</sup>/4) : 0.1517 kgm<sup>2</sup>

| Rev.         | Changes Summary |  | Performed | Checked     | Date       |
|--------------|-----------------|--|-----------|-------------|------------|
|              |                 |  |           |             | 21/12/2020 |
| Performed by | dmendes         |  |           | 279966/2018 |            |
| Checked by   | elianes         |  |           | Page        | Revision   |
| Date         | 21/12/2020      |  |           | 2/5         | 6          |

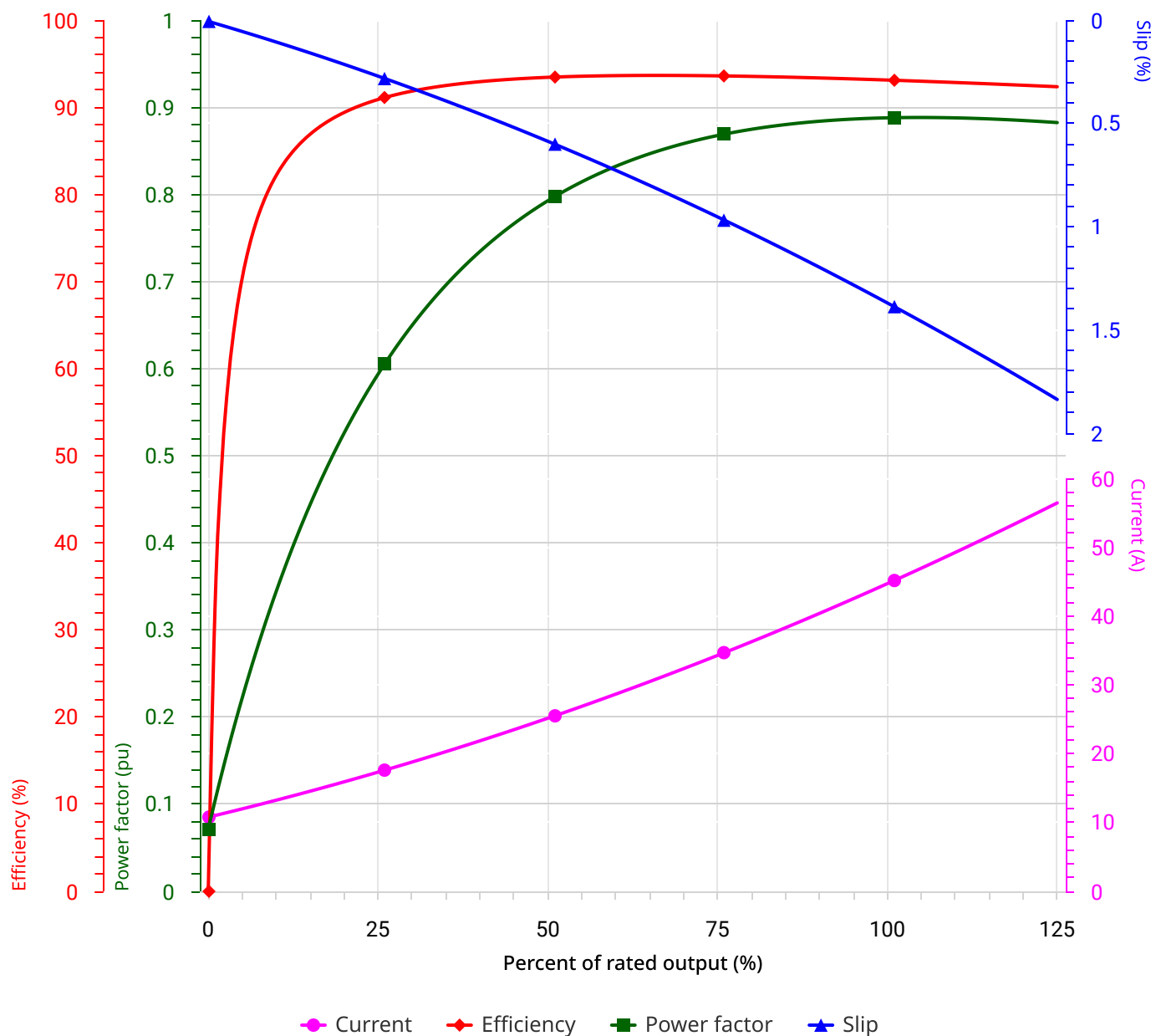
# LOAD PERFORMANCE CURVE



## Three Phase Induction Motor - Squirrel Cage

Customer :

Product line : Special Motor  
Product code : 14352421



Performance : 40 HP (30 kW) 460V 60Hz 2P L180L

|                     |              |                       |                           |
|---------------------|--------------|-----------------------|---------------------------|
| Rated current       | : 45.5 A     | Moment of inertia (J) | : 0.1517 kgm <sup>2</sup> |
| LRC                 | : 8.0 Code J | Duty cycle            | : Cont.(S1)               |
| Rated torque        | : 8.18 kgfm  | Insulation class      | : F                       |
| Locked rotor torque | : 310 %      | Service factor        | : 1.15                    |
| Breakdown torque    | : 260 %      | Temperature rise      | : 80 K                    |
| Rated speed         | : 3550 rpm   | Design                | : N                       |

| Rev.         | Changes Summary |  | Performed | Checked     | Date       |
|--------------|-----------------|--|-----------|-------------|------------|
|              |                 |  |           |             | 21/12/2020 |
| Performed by | dmendes         |  |           | 279966/2018 |            |
| Checked by   | elianes         |  |           | Page        | Revision   |
| Date         | 21/12/2020      |  |           | 3/5         | 6          |

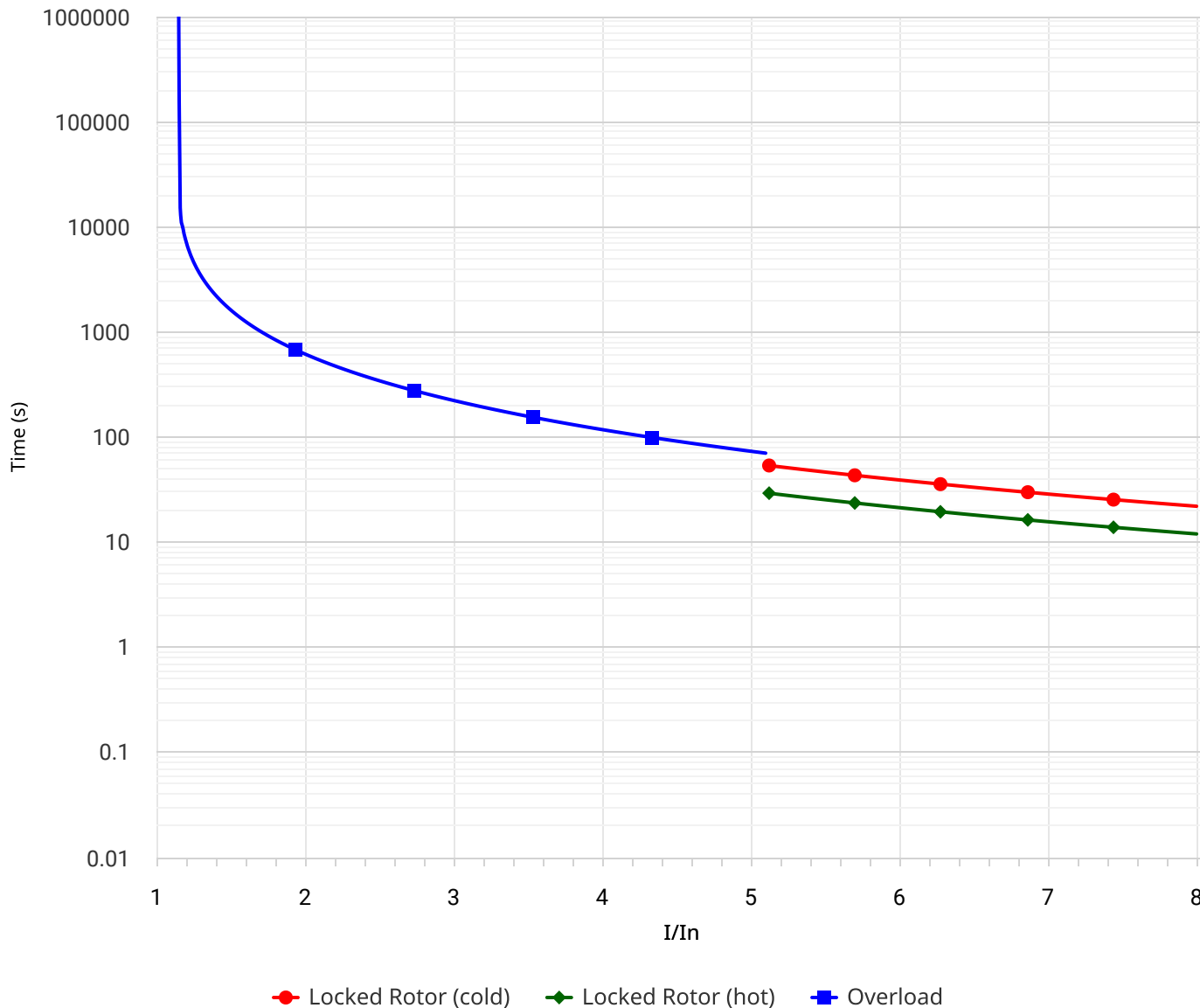
# THERMAL LIMIT CURVE

## Three Phase Induction Motor - Squirrel Cage



Customer :

Product line : Special Motor  
Product code : 14352421



Performance : 40 HP (30 kW) 460V 60Hz 2P L180L

|                     |              |                       |                           |
|---------------------|--------------|-----------------------|---------------------------|
| Rated current       | : 45.5 A     | Moment of inertia (J) | : 0.1517 kgm <sup>2</sup> |
| LRC                 | : 8.0 Code J | Duty cycle            | : Cont.(S1)               |
| Rated torque        | : 8.18 kgfm  | Insulation class      | : F                       |
| Locked rotor torque | : 310 %      | Service factor        | : 1.15                    |
| Breakdown torque    | : 260 %      | Temperature rise      | : 80 K                    |
| Rated speed         | : 3550 rpm   | Design                | : N                       |

Heating constant : 29.9 min  
Cooling constant : 89.7 min

| Rev.         | Changes Summary |  | Performed | Checked     | Date       |
|--------------|-----------------|--|-----------|-------------|------------|
|              |                 |  |           |             | 21/12/2020 |
| Performed by | dmendes         |  |           | 279966/2018 |            |
| Checked by   | elianes         |  |           | Page        | Revision   |
| Date         | 21/12/2020      |  |           | 4/5         | 6          |

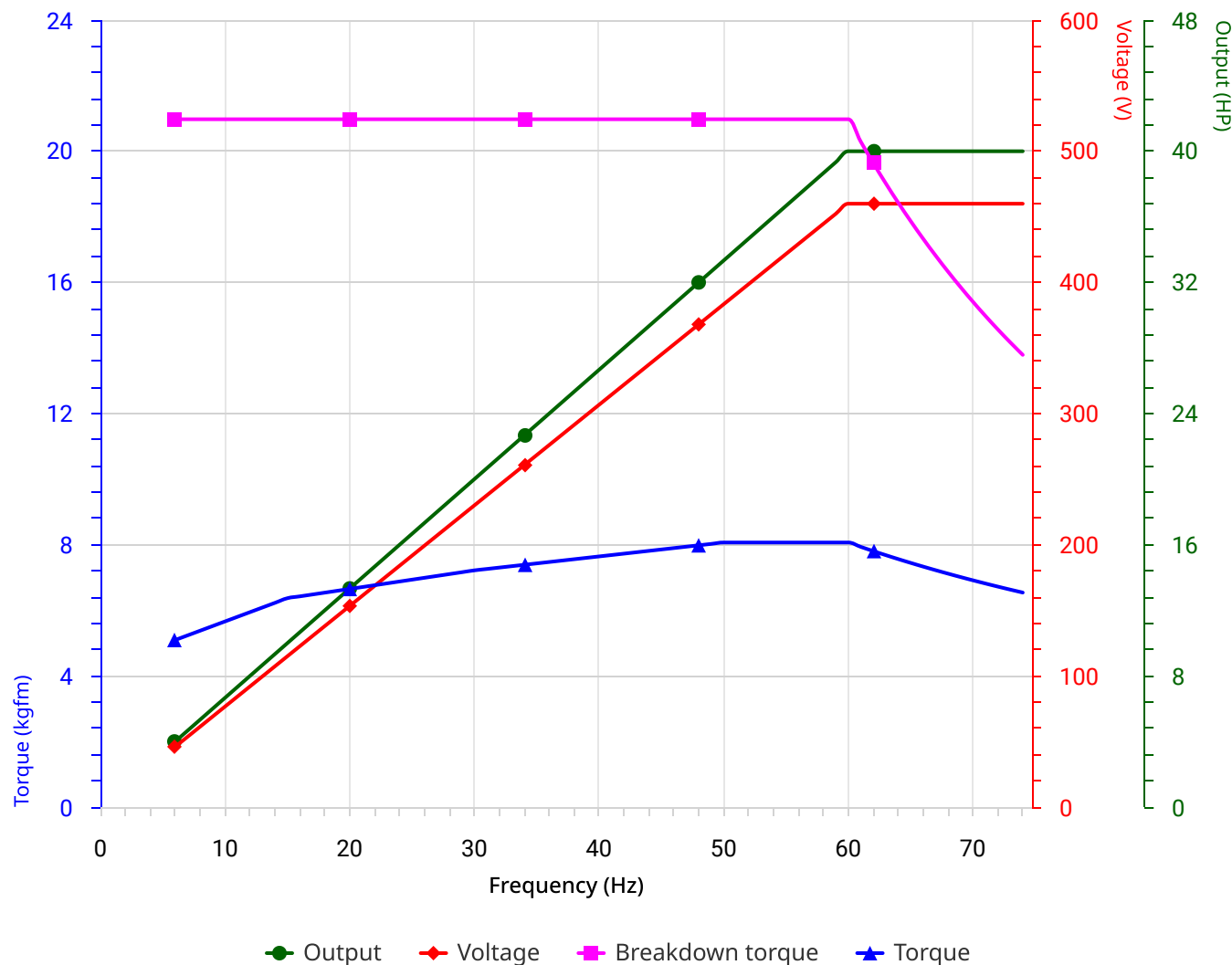
# VFD OPERATION CURVE



## Three Phase Induction Motor - Squirrel Cage

Customer :

Product line : Special Motor  
Product code : 14352421



Performance : 40 HP (30 kW) 460V 60Hz 2P L180L

|                     |              |                       |                           |
|---------------------|--------------|-----------------------|---------------------------|
| Rated current       | : 45.5 A     | Moment of inertia (J) | : 0.1517 kgm <sup>2</sup> |
| LRC                 | : 8.0 Code J | Duty cycle            | : Cont.(S1)               |
| Rated torque        | : 8.18 kgfm  | Insulation class      | : F                       |
| Locked rotor torque | : 310 %      | Service factor        | : 1.15                    |
| Breakdown torque    | : 260 %      | Temperature rise      | : 80 K                    |
| Rated speed         | : 3550 rpm   | Design                | : N                       |

| Rev.         | Changes Summary |  | Performed | Checked     | Date       |
|--------------|-----------------|--|-----------|-------------|------------|
|              |                 |  |           |             | 21/12/2020 |
| Performed by | dmendes         |  |           | 279966/2018 |            |
| Checked by   | elianes         |  |           | Page        | Revision   |
| Date         | 21/12/2020      |  |           | 5/5         | 6          |