

# Synchronous motors

## Linear motors for SINAMICS S120

### 1FN6 standard type linear motors Natural cooling

#### Selection and Ordering Data

| Feedrate force              |                    |           |                    | Maximum velocity <sup>3)</sup> |          |                          |          | 1FN6 linear motors<br>Natural cooling |                           | Weight, approx. |                   |     |         |
|-----------------------------|--------------------|-----------|--------------------|--------------------------------|----------|--------------------------|----------|---------------------------------------|---------------------------|-----------------|-------------------|-----|---------|
| $F_{rated}$ <sup>1)2)</sup> |                    | $F_{MAX}$ |                    | $v_{MAX}$ at $F_{MAX}$         |          | $v_{MAX}$ at $F_{rated}$ |          | Primary section                       | Secondary section         | Primary section | Secondary section |     |         |
| N                           | (lb <sub>f</sub> ) | N         | (lb <sub>f</sub> ) | m/min                          | (ft/min) | m/min                    | (ft/min) | Order No.                             | Order No.                 | kg              | (lb)              | kg  | (lb)    |
| 235                         | (52.8)             | 900       | (202)              | 263                            | (863)    | 103                      | (338)    | <b>1FN6008-1LC17-0KA1</b>             | <b>1FN6008-1SC00-0AA0</b> | 16.5            | (36.4)            | 2.0 | (4.41)  |
| 235                         | (52.8)             | 900       | (202)              | 541                            | (1 775)  | 224                      | (735)    | <b>1FN6008-1LC37-0KA1</b>             |                           | 16.5            | (36.4)            |     |         |
| 470                         | (106)              | 1 800     | (405)              | 260                            | (853)    | 96                       | (315)    | <b>1FN6008-1LE16-0KA1</b>             |                           | 25.7            | (56.7)            |     |         |
| 470                         | (106)              | 1 800     | (405)              | 532                            | (1 745)  | 206                      | (676)    | <b>1FN6008-1LE34-0KA1</b>             |                           | 25.7            | (56.7)            |     |         |
| 705                         | (158)              | 2 690     | (605)              | 257                            | (843)    | 93                       | (305)    | <b>1FN6008-1LG16-0KA1</b>             |                           | 34.9            | (77.0)            |     |         |
| 705                         | (158)              | 2 690     | (605)              | 528                            | (1 732)  | 200                      | (656)    | <b>1FN6008-1LG33-0KA1</b>             |                           | 34.9            | (77.0)            |     |         |
| 470                         | (106)              | 1 800     | (405)              | 268                            | (879)    | 109                      | (358)    | <b>1FN6016-1LC18-0KA1</b>             | <b>1FN6016-1SC00-0AA0</b> | 33.0            | (72.8)            | 4.0 | (8.82)  |
| 470                         | (106)              | 1 800     | (405)              | 419                            | (1 375)  | 176                      | (577)    | <b>1FN6016-1LC30-0KA1</b>             |                           | 33.0            | (72.8)            |     |         |
| 935                         | (210)              | 3 590     | (807)              | 263                            | (863)    | 101                      | (331)    | <b>1FN6016-1LE17-0KA1</b>             |                           | 51.4            | (113)             |     |         |
| 935                         | (210)              | 3 590     | (807)              | 411                            | (1 348)  | 162                      | (532)    | <b>1FN6016-1LE27-0KA1</b>             |                           | 51.4            | (113)             |     |         |
| 1 405                       | (316)              | 5 390     | (1 212)            | 261                            | (856)    | 98                       | (322)    | <b>1FN6016-1LG16-0KA1</b>             |                           | 69.8            | (154)             |     |         |
| 1 405                       | (316)              | 5 390     | (1 212)            | 408                            | (1 339)  | 157                      | (515)    | <b>1FN6016-1LG26-0KA1</b>             |                           | 69.8            | (154)             |     |         |
| 705                         | (158)              | 2 690     | (605)              | 176                            | (577)    | 69                       | (226)    | <b>1FN6024-1LC12-0KA1</b>             | <b>1FN6024-1SC00-0AA0</b> | 49.5            | (109)             | 6.0 | (13.23) |
| 705                         | (158)              | 2 690     | (605)              | 277                            | (909)    | 114                      | (374)    | <b>1FN6024-1LC20-0KA1</b>             |                           | 49.5            | (109)             |     |         |
| 1 405                       | (316)              | 5 390     | (1 212)            | 173                            | (568)    | 64                       | (210)    | <b>1FN6024-1LE11-0KA1</b>             |                           | 77.1            | (170)             |     |         |
| 1 405                       | (316)              | 5 390     | (1 212)            | 272                            | (892)    | 106                      | (348)    | <b>1FN6024-1LE18-0KA1</b>             |                           | 77.1            | (170)             |     |         |
| 2 110                       | (474)              | 8 080     | (1 816)            | 172                            | (564)    | 62                       | (203)    | <b>1FN6024-1LG10-0KA1</b>             |                           | 104.7           | (231)             |     |         |
| 2 110                       | (474)              | 8 080     | (1 816)            | 270                            | (886)    | 102                      | (335)    | <b>1FN6024-1LG17-0KA1</b>             |                           | 104.7           | (231)             |     |         |

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## Linear motors for SINAMICS S120

**1FN6 standard type linear motors**  
**Natural cooling**

### Selection and Ordering Data

| Motor type<br>Primary section<br>(continued)                                              | Rated<br>current        | Maxi-<br>mum<br>current | Calculated<br>power |        | SINAMICS S120 Motor Module              |                          | Power cable with complete shield<br>Motor connection via power connector<br>for increased velocity/acceleration |                                       |                                           |
|-------------------------------------------------------------------------------------------|-------------------------|-------------------------|---------------------|--------|-----------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------|---------------------------------------|-------------------------------------------|
|                                                                                           | $I_{\text{rated}}^{1)}$ | $I_{\text{MAX}}$        | $P_{\text{calc}}$   |        | Required<br>rated<br>current            | Booksize format          | Power<br>connector                                                                                              | Cable cross-<br>section <sup>4)</sup> | Pre-assembled basic<br>cable to converter |
|                                                                                           | A                       | A                       | kW                  | (HP)   | $I_{\text{rated}}/$<br>$I_{\text{MAX}}$ |                          |                                                                                                                 |                                       |                                           |
| 1FN6008-1LC17-...                                                                         | 1.7                     | 9                       | 3.2                 | (4.29) | 5/10                                    | 6SL312 - ■ - ■ TE15-0AA3 | 1                                                                                                               | 4 x 2.5                               | 6FX8002-5CS11- ....                       |
| 1FN6008-1LC37-...                                                                         | 3.5                     | 18                      | 5.0                 | (6.71) | 9/18                                    | 6SL312 - ■ - ■ TE21-0AA3 | 1                                                                                                               | 4 x 2.5                               | 6FX8002-5CS11- ....                       |
| 1FN6008-1LE16-...                                                                         | 3.5                     | 18                      | 6.2                 | (8.31) | 9/18                                    | 6SL312 - ■ - ■ TE21-0AA3 | 1                                                                                                               | 4 x 2.5                               | 6FX8002-5CS11- ....                       |
| 1FN6008-1LE34-...                                                                         | 7.0                     | 36                      | 9.6                 | (12.9) | 18/36                                   | 6SL312 - ■ - ■ TE21-8AA3 | 1                                                                                                               | 4 x 2.5                               | 6FX8002-5CS11- ....                       |
| 1FN6008-1LG16-...                                                                         | 5.2                     | 27                      | 9.2                 | (12.3) | 18/36                                   | 6SL312 - ■ - ■ TE21-8AA3 | 1                                                                                                               | 4 x 2.5                               | 6FX8002-5CS11- ....                       |
| 1FN6008-1LG33-...                                                                         | 10.5                    | 54                      | 14.1                | (18.9) | 30/56                                   | 6SL312 - ■ - 1 TE23-0AA3 | 1                                                                                                               | 4 x 2.5                               | 6FX8002-5CS11- ....                       |
| 1FN6016-1LC18-...                                                                         | 3.5                     | 18                      | 6.0                 | (8.05) | 9/18                                    | 6SL312 - ■ - ■ TE21-0AA3 | 1                                                                                                               | 4 x 2.5                               | 6FX8002-5CS11- ....                       |
| 1FN6016-1LC30-...                                                                         | 5.4                     | 28                      | 8.0                 | (10.7) | 18/36                                   | 6SL312 - ■ - ■ TE21-8AA3 | 1                                                                                                               | 4 x 2.5                               | 6FX8002-5CS11- ....                       |
| 1FN6016-1LE17-...                                                                         | 7.0                     | 36                      | 11.6                | (15.6) | 18/36                                   | 6SL312 - ■ - ■ TE21-8AA3 | 1                                                                                                               | 4 x 2.5                               | 6FX8002-5CS11- ....                       |
| 1FN6016-1LE27-...                                                                         | 10.8                    | 56                      | 15.2                | (20.4) | 30/56                                   | 6SL312 - ■ - 1 TE23-0AA3 | 1                                                                                                               | 4 x 2.5                               | 6FX8002-5CS11- ....                       |
| 1FN6016-1LG16-...                                                                         | 10.5                    | 54                      | 17.1                | (22.9) | 30/56                                   | 6SL312 - ■ - 1 TE23-0AA3 | 1                                                                                                               | 4 x 2.5                               | 6FX8002-5CS11- ....                       |
| 1FN6016-1LG26-...                                                                         | 16.2                    | 84                      | 22.3                | (29.9) | 45/85                                   | 6SL312 - ■ - 1 TE24-5AA3 | 1.5                                                                                                             | 4 x 6                                 | 6FX8002-5CS54- ....                       |
| 1FN6024-1LC12-...                                                                         | 3.5                     | 18                      | 7.0                 | (9.4)  | 9/18                                    | 6SL312 - ■ - ■ TE21-0AA3 | 1                                                                                                               | 4 x 2.5                               | 6FX8002-5CS11- ....                       |
| 1FN6024-1LC20-...                                                                         | 5.4                     | 28                      | 8.9                 | (11.9) | 18/36                                   | 6SL312 - ■ - ■ TE21-8AA3 | 1                                                                                                               | 4 x 2.5                               | 6FX8002-5CS11- ....                       |
| 1FN6024-1LE11-...                                                                         | 7.0                     | 36                      | 13.4                | (18.0) | 18/36                                   | 6SL312 - ■ - ■ TE21-8AA3 | 1                                                                                                               | 4 x 2.5                               | 6FX8002-5CS11- ....                       |
| 1FN6024-1LE18-...                                                                         | 10.8                    | 56                      | 17.1                | (22.9) | 30/56                                   | 6SL312 - ■ - 1 TE23-0AA3 | 1                                                                                                               | 4 x 2.5                               | 6FX8002-5CS11- ....                       |
| 1FN6024-1LG10-...                                                                         | 10.5                    | 54                      | 19.9                | (26.7) | 30/56                                   | 6SL312 - ■ - 1 TE23-0AA3 | 1                                                                                                               | 4 x 2.5                               | 6FX8002-5CS11- ....                       |
| 1FN6024-1LG17-...                                                                         | 16.2                    | 84                      | 25.2                | (33.8) | 45/85                                   | 6SL312 - ■ - 1 TE24-5AA3 | 1.5                                                                                                             | 4 x 6                                 | 6FX8002-5CS54- ....                       |
| Cooling:                                                                                  |                         |                         |                     |        |                                         |                          |                                                                                                                 |                                       |                                           |
| Internal air cooling                                                                      |                         |                         |                     |        |                                         | 0                        |                                                                                                                 |                                       |                                           |
| External air cooling                                                                      |                         |                         |                     |        |                                         | 1                        |                                                                                                                 |                                       |                                           |
| Motor Module:                                                                             |                         |                         |                     |        |                                         |                          |                                                                                                                 |                                       |                                           |
| Single Motor Module                                                                       |                         |                         |                     |        |                                         | 1                        |                                                                                                                 |                                       |                                           |
| Double Motor Module                                                                       |                         |                         |                     |        |                                         | 2                        |                                                                                                                 |                                       |                                           |
| For length code as well as power and signal cables, see Connection system MOTION-CONNECT. |                         |                         |                     |        |                                         |                          |                                                                                                                 |                                       |                                           |

<sup>1)</sup> At a magnet temperature of 70 °C (158 °F).

<sup>2)</sup> A reduction of up to 30 % must be expected in case of motor standstill, at very low speeds, or with very short traverse paths.

<sup>3)</sup> Velocity values refer to a converter DC link voltage of 600 V DC.

<sup>4)</sup> The current carrying capacity of the power cables complies with EN 60204-1 for installation type C under continuous operating conditions at an ambient air temperature of 40 °C (104 °F).