

## Appendix 1 Type Description System

### ■ Standard specifications

#### ■ 200V Series VT240S-0P7L to 045L

| Item                 |   | Specifications                             |  |      |      |      |      |                     |                                    |      |  |                     |      |      |     |  |
|----------------------|---|--|--|------|------|------|------|---------------------|------------------------------------|------|--|---------------------|------|------|-----|--|
| System               |   | 200V Series                                |  |      |      |      |      |                     |                                    |      |  |                     |      |      |     |  |
| Type (VT240S-□□□□)   |   | 0P7L                                       | 1P5L                                   | 2P2L | 4P0L | 5P5L | 7P5L | 011L                | 015L                               | 018L | 022L   | 030L                | 037L | 045L |     |  |
| Inverter rating      | Normal-duty   | Rated capacity [kVA] (Note 1)              | 1.7                                    | 2.8  | 3.8  | 5.5  | 8.3  | 11                  | 16                                 | 21   | 26   | 30                  | 41   | 51   | 60  |  |
|                      |   | Max. continuous rated current [A] (Note 2) | 5.0                                    | 8.0  | 11   | 16   | 24   | 33                  | 46                                 | 61   | 76   | 88                  | 118  | 146  | 174 |  |
|                      |   | Max. applicable motor [kW] (Note 3)        | 0.75                                   | 1.5  | 2.2  | 3.7  | 5.5  | 7.5                 | 11                                 | 15   | 18.5   | 22                  | 30   | 37   | 45  |  |
|                      |   | Carrier frequency (Note 4)                 | 1 to 15kHz (Default : Soft sound 4kHz) |      |      |      |      |                     |                                    |      |  |                     |      |      |     |  |
|                      |   | Overload current rating                    | 120% for 1 min., 140% for 2.5 seconds  |      |      |      |      |                     |                                    |      |  |                     |      |      |     |  |
|                      | Heavy-duty  | Rated capacity [kVA] (Note 1)              | 1.0                                    | 1.7  | 2.8  | 3.8  | 5.5  | 8.3                 | 11                                 | 16   | 21   | 26                  | 30   | 41   | 51  |  |
|                      |   | Max. continuous rated current [A] (Note 2) | 3.0                                    | 5.0  | 8.0  | 11   | 16   | 24                  | 33                                 | 46   | 61   | 76                  | 88   | 118  | 146 |  |
|                      |   | Max. applicable motor [kW] (Note 3)        | 0.4                                    | 0.75 | 1.5  | 2.2  | 3.7  | 5.5                 | 7.5                                | 11   | 15   | 18.5                | 22   | 30   | 37  |  |
|                      |   | Carrier frequency (Note 4)                 | 1 to 15kHz (Default : Soft sound 4kHz) |      |      |      |      |                     |                                    |      |  |                     |      |      |     |  |
|                      |   | Overload current rating                    | 150% for 1 min., 175% for 2.5 seconds  |      |      |      |      |                     |                                    |      |  |                     |      |      |     |  |
| Power supply         | Rated input voltage: rated input frequency  | 200 to 240V ±10%<br>50 or 60Hz ±5%         |  |      |      |      |      |                     | 200 to 230V ±10%<br>50 or 60Hz ±5% |      |  |                     |      |      |     |  |
| Output               | Rated output voltage (Note 5) (Note 6)  | 200 to 240V (Max.)                         |  |      |      |      |      |                     |                                    |      |  |                     |      |      |     |  |
|                      | Output frequency  | 0.1 to 440Hz                               |  |      |      |      |      |                     |                                    |      |  |                     |      |      |     |  |
| Main circuit devices | EMI filter  | Built-in (option)                          |  |      |      |      |      | Standalone (option) |                                    |      |  |                     |      |      |     |  |
|                      | DC reactor  | Standalone (option)                        |  |      |      |      |      |                     |                                    |      | Built-in (option)                                      |                     |      |      |     |  |
|                      | Dynamic braking circuit   | Built-in (standard)                        |  |      |      |      |      |                     |                                    |      |  | Standalone (option) |      |      |     |  |
|                      | Dynamic braking resistor  | Built-in (option)                          |  |      |      |      |      |                     | Standalone (option)                |      |  |                     |      |      |     |  |
| Construction         | Structure   | Wall-mounted                               |  |      |      |      |      |                     |                                    |      | Wall-mounted (standard)<br>Free-standing type (option) |                     |      |      |     |  |
|                      | Enclosure   | IP20                                       |  |      |      |      |      |                     |                                    |      | IP00 (standard)<br>IP20 (option)                       |                     |      |      |     |  |
|                      | Cooling method  | Self-cooling                               | Forced air cooling                     |      |      |      |      |                     |                                    |      |  |                     |      |      |     |  |
|                      | Approx. weight (kg)   | 3  |  |      |      |      | 5    |                     |                                    | 12   |  | 23                  |      | 30   |     |  |
|                      | Paint color   | Munsell N4.0                               |  |      |      |      |      |                     |                                    |      |  |                     |      |      |     |  |
| Working environment  | Indoors, Working ambient temperature: -10 to 50°C (Note 7)<br>Relative humidity: 95%RH or below (no dew condensation),<br>Altitude: 1000m or less, Vibration: 4.9m/s <sup>2</sup> or less<br>Freedom from corrosive or explosive gases, steam, dust, oil mist or cotton lint. |  |  |      |      |      |      |                     |                                    |      |  |                     |      |      |     |  |

## Appendix

### ■ 400V Series VT240S-0P7H to 055H

| Item                 |  | Specifications   |  |                    |      |      |                     |      |      |      |      |  |      |      |      |     |
|----------------------|--|--|--|--------------------|------|------|---------------------|------|------|------|------|--|------|------|------|-----|
| System               |  | 400V Series  |  |                    |      |      |                     |      |      |      |      |  |      |      |      |     |
| Type (VT240S-□□□□)   |  | 0P7H   | 1P5H                                   | 2P2H               | 4P0H | 5P5H | 7P5H                | 011H | 015H | 018H | 022H | 030H   | 037H | 045H | 055H |     |
| Inverter rating      | Normal-duty                                | Rated capacity [kVA] (Note 1)  | 1.7                                    | 2.5                | 3.8  | 6.0  | 9.0                 | 12   | 16   | 21   | 26   | 30   | 42   | 51   | 60   | 75  |
|                      |  | Max. continuous rated current [A] (Note 2)   | 2.5                                    | 3.6                | 5.5  | 8.6  | 13                  | 17   | 23   | 31   | 37   | 44   | 60   | 73   | 87   | 108 |
|                      |  | Max. applicable motor [kW] (Note 3)  | 0.75                                   | 1.5                | 2.2  | 3.7  | 5.5                 | 7.5  | 11   | 15   | 18.5 | 22   | 30   | 37   | 45   | 55  |
|                      |  | Carrier frequency (Note 4)   | 1 to 15kHz (Default : Soft sound 4kHz) |                    |      |      |                     |      |      |      |      |  |      |      |      |     |
|                      |  | Overload current rating  | 120% for 1 min., 140% for 2.5 seconds  |                    |      |      |                     |      |      |      |      |  |      |      |      |     |
|                      | Heavy-duty                                 | Rated capacity [kVA] (Note 1)  | 1.0                                    | 1.7                | 2.5  | 3.8  | 6.0                 | 9.0  | 12   | 16   | 21   | 26   | 30   | 42   | 51   | 60  |
|                      |  | Max. continuous rated current [A] (Note 2)   | 1.5                                    | 2.5                | 3.6  | 5.5  | 8.6                 | 13   | 17   | 23   | 31   | 37   | 44   | 60   | 73   | 87  |
|                      |  | Max. applicable motor [kW] (Note 3)  | 0.4                                    | 0.75               | 1.5  | 2.2  | 3.7                 | 5.5  | 7.5  | 11   | 15   | 18.5   | 22   | 30   | 37   | 45  |
|                      |  | Carrier frequency (Note 4)   | 1 to 15kHz (Default : Soft sound 4kHz) |                    |      |      |                     |      |      |      |      |  |      |      |      |     |
|                      |  | Overload current rating  | 150% for 1 min., 175% for 2.5 seconds  |                    |      |      |                     |      |      |      |      |  |      |      |      |     |
| Power supply         | Rated input voltage: rated input frequency | 380 to 480V ±10%<br>50 or 60Hz ±5%   |  |                    |      |      |                     |      |      |      |      |  |      |      |      |     |
| Output               | Rated output voltage (Note 5) (Note 6)     | 380 to 480V (Max.)   |  |                    |      |      |                     |      |      |      |      |  |      |      |      |     |
|                      | Output frequency                           | 0.1 to 440Hz   |  |                    |      |      |                     |      |      |      |      |  |      |      |      |     |
| Main circuit devices | EMI filter                                 | Built-in (option)  |  |                    |      |      |                     |      |      |      |      | Standalone (option)                                    |      |      |      |     |
|                      | DC reactor                                 | Standalone (option)  |  |                    |      |      |                     |      |      |      |      | Built-in (option)                                      |      |      |      |     |
|                      | Dynamic braking circuit                    | Built-in (standard)  |  |                    |      |      |                     |      |      |      |      | Standalone (option)                                    |      |      |      |     |
|                      | Dynamic braking resistor                   | Built-in (option)  |  |                    |      |      | Standalone (option) |      |      |      |      |  |      |      |      |     |
| Construction         | Structure                                  | Wall-mounted   |  |                    |      |      |                     |      |      |      |      | Wall-mounted (standard)<br>Free-standing type (option) |      |      |      |     |
|                      | Enclosure                                  | IP20   |  |                    |      |      |                     |      |      |      |      | IP00 (standard)<br>IP20 (option)                       |      |      |      |     |
|                      | Cooling method                             | Self-cooling   |  | Forced air cooling |      |      |                     |      |      |      |      |  |      |      |      |     |
|                      | Approx. weight (kg)                        | 3  |  |                    |      |      | 5                   |      |      | 12   |      |  | 23   |      | 27   |     |
|                      | Paint color                                | Munsell N4.0   |  |                    |      |      |                     |      |      |      |      |  |      |      |      |     |
| Working environment  |  | Indoors, Working ambient temperature : -10 to 50°C (Note 7)<br>Relative humidity: 95%RH or below (no dew condensation),<br>Altitude: 1000m or less, Vibration: 4.9m/s <sup>2</sup> or less<br>Freedom from corrosive or explosive gases, steam, dust, oil mist or cotton lint. |  |                    |      |      |                     |      |      |      |      |  |      |      |      |     |

## Appendix

### ■ 200V/400V Series VT240S-055L to 090L, -75H to 475H

| Item                 |  | Specifications   |                                       |                   |                                   |      |      |      |                     |      |      |      |      |      |     |
|----------------------|--|--|---------------------------------------|-------------------|-----------------------------------|------|------|------|---------------------|------|------|------|------|------|-----|
| System               |  | 200V Series  |                                       |                   | 400V Series                       |      |      |      |                     |      |      |      |      |      |     |
| Type (VT240S-□□□□)   |  | 055L   | 075L                                  | 090L              | 075H                              | 090H | 110H | 132H | 160H                | 200H | 250H | 315H | 400H | 475H |     |
| Inverter rating      | Normal-duty                                | Rated capacity [kVA] (Note 1)  | 73                                    | 99                | 114                               | 102  | 124  | 148  | 173                 | 222  | 297  | 360  | 409  | 513  | 603 |
|                      |  | Max. continuous rated current [A] (Note 2)   | 211                                   | 286               | 328                               | 147  | 179  | 214  | 249                 | 321  | 428  | 519  | 590  | 740  | 870 |
|                      |  | Max. applicable motor [kW] (Note 3)  | 55                                    | 75                | 90                                | 75   | 90   | 110  | 132                 | 160  | 200  | 250  | 315  | 400  | 475 |
|                      |  | Carrier frequency (Note 4)   | 1 to 8kHz (Default : Soft sound 4kHz) |                   |                                   |      |      |      |                     |      |      |      |      |      |     |
|                      |  | Overload current rating  | 120% for 1 min., 140% for 2.5 seconds |                   |                                   |      |      |      |                     |      |      |      |      |      |     |
|                      | Heavy-duty                                 | Rated capacity [kVA] (Note 1)  | 60                                    | 73                | 99                                | 75   | 102  | 124  | 148                 | 173  | 222  | 297  | 360  | 409  | 513 |
|                      |  | Max. continuous rated current [A] (Note 2)   | 174                                   | 211               | 286                               | 108  | 147  | 179  | 214                 | 249  | 321  | 428  | 519  | 590  | 740 |
|                      |  | Max. applicable motor [kW] (Note 3)  | 45                                    | 55                | 75                                | 55   | 75   | 90   | 110                 | 132  | 160  | 200  | 250  | 315  | 400 |
|                      |  | Carrier frequency (Note 4)   | 1 to 8kHz (Default : Soft sound 4kHz) |                   |                                   |      |      |      |                     |      |      |      |      |      |     |
|                      |  | Overload current rating  | 150% for 1 min., 175% for 2.5 seconds |                   |                                   |      |      |      |                     |      |      |      |      |      |     |
| Power supply         | Rated input voltage: rated input frequency | 200 to 230V ±10%<br>50 or 60Hz ±5%   |                                       |                   | 380 to 480V ±5%<br>50 or 60Hz ±5% |      |      |      |                     |      |      |      |      |      |     |
| Output               | Rated output voltage (Note 5) (Note 6)     | 200 to 230V (Max.)   |                                       |                   | 380 to 480V (Max.)                |      |      |      |                     |      |      |      |      |      |     |
|                      | Output frequency                           | 0.1 to 440Hz   |                                       |                   |                                   |      |      |      |                     |      |      |      |      |      |     |
| Main circuit devices | EMI filter                                 | Standalone (option)  |                                       |                   |                                   |      |      |      |                     |      |      |      |      |      |     |
|                      | DC reactor                                 | Built-in (option)  | Stand-alone (option)                  | Built-in (option) |                                   |      |      |      | Standalone (option) |      |      |      |      |      |     |
|                      | Dynamic braking circuit                    | Standalone (option)  |                                       |                   |                                   |      |      |      |                     |      |      |      |      |      |     |
|                      | Dynamic braking resistor                   | Standalone (option)  |                                       |                   |                                   |      |      |      |                     |      |      |      |      |      |     |
| Construction         | Structure                                  | Wall-mounted (standard), Free-standing type (option)   |                                       |                   |                                   |      |      |      |                     |      |      |      |      |      |     |
|                      | Enclosure                                  | IP00 (standard), IP20 (option)   |                                       |                   |                                   |      |      |      |                     |      |      |      |      |      |     |
|                      | Cooling method                             | Forced air cooling   |                                       |                   |                                   |      |      |      |                     |      |      |      |      |      |     |
|                      | Approx. weight (kg)                        | 45   | 65                                    | 100               | 42                                | 45   | 60   | 65   | 90                  | 100  | 200  | 285  | 290  | 295  |     |
|                      | Paint color                                | Munsell N4.0   |                                       |                   |                                   |      |      |      |                     |      |      |      |      |      |     |
| Working environment  |  | Indoors, Working ambient temperature : -10 to 50°C (Note 7)<br>Relative humidity: 95%RH or below (no dew condensation),<br>Altitude: 1000m or less, Vibration: 4.9m/s <sup>2</sup> or less<br>Freedom from corrosive or explosive gases, steam, dust, oil mist or cotton lint. |                                       |                   |                                   |      |      |      |                     |      |      |      |      |      |     |

## Appendix

**(Note 1)** The output voltage indicates the output capacity [kVA] at 200V for the 200V series, and 400V for the 400V series.

**(Note 2)** Indicates the total effective value including the higher harmonics.

**(Note 3)** Indicates the case for the MEIDENSHA standard 4-pole squirrel cage motor.

**(Note 4)** If 4kHz is exceeded when using the normal-duty setting, and if 4, 6, 8 or 10kHz is exceeded when using the heavy-duty setting, the maximum continuous rated current must be lowered.

• **For 200V series, normal-duty setting**

| Capacity | 4kH   | 6kHz  | 8kHz  | 10kHz | 12kHz | 15kHz | Derating                                      |
|----------|-------|-------|-------|-------|-------|-------|---|
| 0P7L     | 5.0   | 4.7   | 4.4   | 4.1   | 3.9   | 3.6   | 4k to 10kHz: 3%/1kHz<br>10k to 15kHz: 2%/1kHz |
| 1P5L     | 8.0   | 7.5   | 7.0   | 6.6   | 6.2   | 5.8   |   |
| 2P2L     | 11.0  | 10.3  | 9.7   | 9.0   | 8.6   | 7.9   |   |
| 4P0L     | 16.0  | 15.0  | 14.1  | 13.1  | 12.5  | 11.5  |   |
| 5P5L     | 24.0  | 22.6  | 21.1  | 19.7  | 18.7  | 17.3  |   |
| 7P5L     | 33.0  | 31.0  | 29.0  | 27.1  | 25.7  | 23.8  |   |
| 011L     | 46.0  | 43.2  | 40.5  | 37.7  | 35.9  | 33.1  |   |
| 015L     | 61.0  | 57.3  | 53.7  | 50.0  | 47.6  | 43.9  |   |
| 018L     | 76.0  | 71.4  | 66.9  | 62.3  | 59.3  | 54.7  |   |
| 022L     | 88.0  | 82.7  | 77.4  | 72.2  | 66.9  | 59.0  |   |
| 030L     | 118.0 | 110.9 | 103.8 | 96.8  | 89.7  | 79.1  | 3%/1kHz                                       |
| 037L     | 146.0 | 137.2 | 128.5 | 119.7 | 111.0 | 97.8  |   |
| 045L     | 174.0 | 163.6 | 153.1 | 142.7 | 132.2 | 116.6 |   |
| 055L     | 211.0 | 198.3 | 185.7 | \     | \     | \     | 3%/1kHz                                       |
| 075L     | 286.0 | 268.8 | 251.7 |       |       |       |   |
| 090L     | 328.0 | 308.0 | 288.6 |       |       |       |   |

• **For 400V series, normal-duty setting**

| Capacity | 4kH   | 6kHz  | 8kHz  | 10kHz | 12kHz | 15kHz | Derating                                      |
|----------|-------|-------|-------|-------|-------|-------|---|
| 0P7H     | 2.5   | 2.3   | 2.0   | 1.8   | 1.6   | 1.4   | 4k to 10kHz: 5%/1kHz<br>10k to 15kHz: 3%/1kHz |
| 1P5H     | 3.6   | 3.2   | 2.9   | 2.5   | 2.3   | 2.0   |   |
| 2P2H     | 5.5   | 5.0   | 4.4   | 3.9   | 3.5   | 3.0   |   |
| 4P0H     | 8.6   | 7.7   | 6.9   | 6.0   | 5.5   | 4.7   |   |
| 5P5H     | 13.0  | 11.7  | 10.4  | 9.1   | 8.3   | 7.2   |   |
| 7P5H     | 17.0  | 15.3  | 13.6  | 11.9  | 10.9  | 9.4   |   |
| 011H     | 23.0  | 20.7  | 18.4  | 16.1  | 14.7  | 12.7  |   |
| 015H     | 31.0  | 27.9  | 24.8  | 21.7  | 19.8  | 17.1  |   |
| 018H     | 37.0  | 33.3  | 29.6  | 25.9  | 23.7  | 20.4  |   |
| 022H     | 44.0  | 39.6  | 35.2  | 30.8  | 28.2  | 24.2  |   |
| 030H     | 60.0  | 54.0  | 48.0  | 42.0  | 36.0  | 27.0  | 5%/1kHz                                       |
| 037H     | 73.0  | 65.7  | 58.4  | 51.1  | 43.8  | 32.9  |   |
| 045H     | 87.0  | 78.3  | 69.6  | 60.9  | 52.2  | 39.2  |   |
| 055H     | 108.0 | 97.2  | 86.4  | 75.6  | 64.8  | 48.6  |   |
| 075H     | 147.0 | 132.3 | 117.6 | \     | \     | \     | 5%/1kHz                                       |
| 090H     | 179.0 | 161.1 | 143.2 |       |       |       |   |
| 110H     | 214.0 | 192.6 | 171.2 |       |       |       |   |
| 132H     | 249.0 | 224.1 | 199.2 |       |       |       |   |
| 160H     | 321.0 | 288.9 | 256.8 |       |       |       |   |
| 200H     | 428.0 | 385.2 | 342.4 |       |       |       |   |
| 250H     | 519.0 | 467.1 | 415.2 |       |       |       |   |
| 315H     | 590.0 | 531.0 | 472.0 |       |       |       |   |
| 400H     | 740.0 | 666.0 | 592.0 |       |       |       |   |
| 475H     | 870.0 | 783.0 | 696.0 |       |       |       |   |

## Appendix

### • For 200V series, heavy-duty setting

| Capacity | 4kH   | 6kHz  | 8kHz  | 10kHz | 12kHz | 15kHz | Derating                                      |
|----------|-------|-------|-------|-------|-------|-------|---|
| 0P7L     | →     | →     | →     | 3.0   | 2.8   | 2.6   | 10k to 15kHz: 2%/1kHz                         |
| 1P5L     | →     | →     | →     | 5.0   | 4.7   | 4.3   |   |
| 2P2L     | →     | →     | →     | 8.0   | 7.5   | 6.8   |   |
| 4P0L     | →     | →     | →     | 11.0  | 10.3  | 9.4   |   |
| 5P5L     | →     | →     | →     | 16.0  | 15.0  | 13.6  |   |
| 7P5L     | →     | →     | →     | 24.0  | 22.6  | 20.4  |   |
| 011L     | →     | →     | →     | 33.0  | 31.0  | 28.1  |   |
| 015L     | →     | →     | 46.0  | 43.2  | 41.4  | 38.6  | 8k to 10kHz: 3%/1kHz<br>10k to 15kHz: 2%/1kHz |
| 018L     | →     | →     | 61.0  | 57.3  | 54.9  | 51.2  | 6k to 15kHz: 3%/1kHz                          |
| 022L     | →     | 76.0  | 71.4  | 66.9  | 62.3  | 55.5  |   |
| 030L     | →     | 88.0  | 82.7  | 77.4  | 72.2  | 64.2  |   |
| 037L     | 118.0 | 110.9 | 103.8 | 96.8  | 89.7  | 79.1  | 3%/1kHz                                       |
| 045L     | 146.0 | 137.2 | 128.5 | 119.7 | 111.0 | 97.8  | 3%/1kHz                                       |
| 055L     | 174.0 | 163.6 | 153.1 | \     |       |       |   |
| 075L     | 211.0 | 198.3 | 185.7 |       |       |       |   |
| 090L     | 286.0 | 268.8 | 251.7 |       |       |       |   |

### • For 400V series, heavy-duty setting

| Capacity | 4kH   | 6kHz  | 8kHz  | 10kHz | 12kHz | 15kHz | Derating                                      |
|----------|-------|-------|-------|-------|-------|-------|---|
| 0P7H     | →     | →     | →     | 1.5   | 1.4   | 1.3   | 10k to 15kHz: 3%/1kHz                         |
| 1P5H     | →     | →     | →     | 2.5   | 2.4   | 2.1   |   |
| 2P2H     | →     | →     | →     | 3.6   | 3.4   | 3.1   |   |
| 4P0H     | →     | →     | →     | 5.5   | 5.2   | 4.7   |   |
| 5P5H     | →     | →     | →     | 8.6   | 8.1   | 7.3   |   |
| 7P5H     | →     | →     | →     | 13.0  | 12.2  | 11.1  |   |
| 011H     | →     | →     | →     | 17.0  | 16.0  | 14.5  |   |
| 015H     | →     | →     | 23.0  | 20.7  | 19.3  | 17.3  | 8k to 10kHz: 5%/1kHz<br>10k to 15kHz: 3%/1kHz |
| 018H     | →     | →     | 31.0  | 27.9  | 26.0  | 23.3  | 8k to 15kHz: 3%/1kHz                          |
| 022H     | →     | →     | 37.0  | 33.3  | 31.1  | 27.8  |   |
| 030H     | →     | →     | 44.0  | 39.6  | 35.2  | 28.6  |   |
| 037H     | →     | 60.0  | 54.0  | 48.0  | 42.0  | 33.0  | 6k to 15kHz: 5%/1kHz                          |
| 045H     | →     | 73.0  | 65.7  | 58.4  | 51.1  | 40.2  | 5%/1kHz                                       |
| 055H     | 87.0  | 78.3  | 69.6  | 60.9  | 52.2  | 39.2  |   |
| 075H     | 108.0 | 97.2  | 86.4  | \     |       |       |   |
| 090H     | 147.0 | 132.3 | 117.6 |       |       |       |   |
| 110H     | 179.0 | 161.1 | 143.2 |       |       |       |   |
| 132H     | 214.0 | 192.6 | 171.2 |       |       |       |   |
| 160H     | 249.0 | 224.1 | 199.2 |       |       |       |   |
| 200H     | 321.0 | 288.9 | 256.8 |       |       |       |   |
| 250H     | 428.0 | 385.2 | 342.4 |       |       |       |   |
| 315H     | 519.0 | 467.1 | 415.2 |       |       |       |   |
| 400H     | 590.0 | 531.0 | 472.0 |       |       |       |   |
| 475H     | 740.0 | 666.0 | 592.0 |       |       |       |   |

The carrier frequency automatic reduction function may automatically reduce the carrier frequency to 2.0kHz depending on the output current or inverter temperature. This function is valid only when C22-6 is set to 1. The reduction function is enabled as the factory setting. The setting value and actual carrier frequency may differ, so check the actual carrier frequency with D03-3. The reduction conditions for each capacity are shown below.

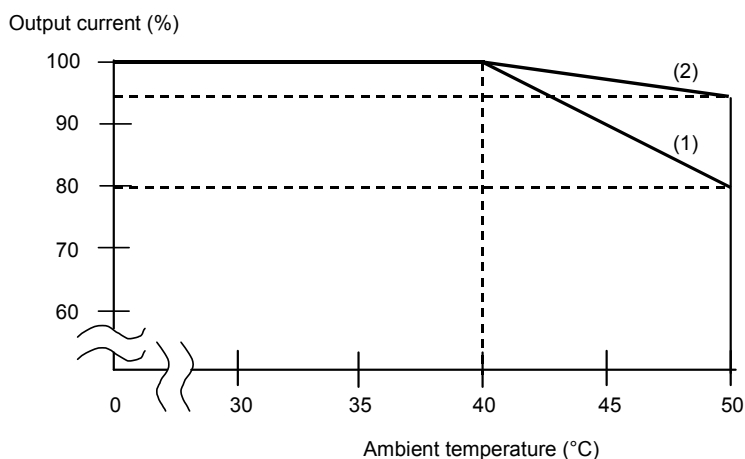
- For 0P7H to 5P5H, 0P7L to 5P5L  
If the power module temperature exceeds 110°C, the carrier frequency is automatically reduced to 2.0kHz.

- For 7P5H to 022H, 7P5L, 011L  
If the power module temperature exceeds 85°C, the carrier frequency is automatically reduced to 2.0kHz.
  - For 030H or more, 015L or more  
If the heat sink temperature 75°C is exceeded and the output current exceeds 110% or if the heat sink temperature 95°C is exceeded, the carrier frequency will automatically change to 2.0kHz.
- \* Check the power module and heat sink temperature with D02-4.

**(Note 5)** An output voltage exceeding the input voltage cannot be attained.  
(The upper limit of the output voltage effective value is the DC voltage/1.37.)

**(Note 6)** The rated output voltage for the sensor-less vector control mode, vector control with sensor mode, PM control with sensor mode and the sensor-less PM control mode is as follows.  
200V series : 160C/180V/190V respectively in respect to input voltage 200V/220V/240V  
400V series : 300V/320V/360V/380V respectively in respect to input voltage  
380V/400V/440V/480V

**(Note 7)** The following conditions apply to the upper limit of the working ambient temperature when using the normal-duty setting.



- (1) 5P5L  
If the ambient temperature exceeds 40°C, reduce the output current by 2% per 1°C.
- (2) 011L/5P5H (NF)/015H  
If the ambient temperature exceeds 40°C, reduce the output current by 0.5% per 1°C.

## Appendix

### ■ Control specifications table

|                        |  | V/f control  | Speed sensor-less vector control                                | Vector control with speed sensor (Note 1) | PM motor control with sensor (Note 2)                           | Sensor-less PM motor control (Note 4)  |
|------------------------|--|--|---|---|---|--|
| Frequency control      | Control method   | All digital control<br>Sine wave approximation PWM   |   |   |   |  |
|                        | Transfer frequency   | Mono-sound mode : 1 to 15kHz (0.1kHz increments)<br>Soft sound mode : Average frequency 2.1 to 5kHz<br>Frequency modulation method<br>(3 tone modulation, 4 tone modulation)               |   |   |   | Mono-sound mode:<br>4kHz or 6kHz   |
|                        | Output frequency resolution  | 0.01Hz   |   |   |   |  |
|                        | Frequency setting resolution   | 0.01Hz (digital)<br>0.03% (analog)<br>In respect to maximum frequency  |   |   |   |  |
|                        | Frequency accuracy   | ±0.01% (digital) at 25±10°C<br>±0.0% (analog) at 25±10°C   |   |   |   |  |
| Control specifications | Voltage/frequency characteristics  | Middle V/f point of five points randomly set between 3 and 440Hz can be set  | Randomly set between 150 and 9999min <sup>-1</sup> (max. 180Hz) |   | Randomly set between 150 and 9999min <sup>-1</sup> (max. 210Hz) | Randomly set between 150 and 9999min <sup>-1</sup> (max. 240Hz)                          |
|                        | Torque boost   | Manual/automatic selective   | -   |   |   |  |
|                        | Max. torque boost  | Max. torque for applicable motor is output when used with automatic tuning.  | -   |   |   |  |
|                        | Automatic tuning   | Automatic measurement of motor constants<br>Automatic measurement of various parameters<br>Basic method which does not rotate motor, and extended method which rotates motor are available |   |   | Encode phase adjustment<br>Magnetic pole position estimation    | Automatic measurement of motor constants (Rotates motor)                                 |
|                        | Starting frequency   | Set between 0.1 and 60.0Hz   | -   |   |   |  |
|                        | Starting torque  | 200% or more <b>(Note 3)</b><br>• Using Meidensha standard motor<br>• At 150% of rated current<br>• Attainment time approx. 3 sec.   | -   |   |   | Approx. 50%<br>• Using Meidensha sensor-less control motor<br>• At 150% of rated current |
|                        | Acceleration/ deceleration time  | 0.01 to 60000sec<br>Acceleration/deceleration time × 2, jogging dedicated × 1, program cushion × 8   |   |   |   |  |
|                        | Acceleration/ deceleration mode  | Linear/S-character selective   |   |   |   |  |
| Operation method       | 3 modes selective<br>• Forward run/reverse run<br>• Run stop/forward run reverse run<br>• Forward run pulse/reverse run pulse/stop |  |   |   |   |  |

**(Note 1)** The IM speed detection option PCB is required.

**(Note 2)** This is for the Meidensha standard PM motor. The PM speed detection option PCB is required.

**(Note 3)** Differs according to the motor capacity, rated voltage and rated frequency. If 45kW is exceeded, starting torque is approx. 150%.

**(Note 4)** Sensor-less PM motor control is under development for energy-saving operation of fan/pump, and for the Meidensha sensor-less PM control motor. Please ask Meidensha for the details.

## Appendix

### ■ Control specifications table (continued)

|                        |                  | V/f control   | Speed sensor-less vector control   | Vector control with speed sensor (Note 1)  | PM motor control with sensor (Note 2) | Sensor-less PM motor control (Note 4)                            |       |
|------------------------|------------------|---|--|--|---------------------------------------|--|-------|
| Control specifications | Stop method      | Deceleration stop in respect to run, emergency stop and inching, coast to stop selective  |  |  |                                       |  |       |
|                        | DC braking       | Braking start frequency, randomly set between 0.1 and 60.0Hz<br>Braking voltage, randomly set between 0.1 and 20.0%   | Braking start speed, randomly set between 0.00 and 50.00%<br>Braking current, randomly set between 50 and 150%.  |  |                                       |  |       |
|                        |                  | Braking time  | Randomly set between 0.0 and 20.0 seconds  |  |                                       |  |       |
|                        | Output frequency | 0 to 440Hz  | 0 to 180Hz   |  | 0 to 210Hz                            | 0 to 240Hz   |       |
|                        | Speed control    | Control range   | Simple ASR function is not specified   | 1 : 100  | 1 : 1000                              | 1 : 100  | 1 : 5 |
|                        |                  | Constant output range   | Up to 1 : 7  | Up to 1 : 2  | Up to 1 : 4                           | Up to 1 : 1.5  |       |
|                        |                  | Control accuracy (At Fmax ≥ 50Hz)   | ±0.01%   | ±0.5%  | ±0.01%                                | ±0.01%   |       |
|                        |                  | Control response  | Simple ASR function is not specified   | 5Hz  | 30Hz                                  | -  |       |
|                        | Setting          | Multi-step frequency setting  | 8 steps<br>Acceleration/deceleration time as changeable<br>5-bit non-encode mode   |  |                                       |  |       |
|                        |                  | Ratio interlock setting   | During remote setting mode<br>$y = Ax + B + C$<br>y: Operation results<br>x: Operation input<br>A: 0.000 to ±10.000<br>B: 0.00 to ±440.00Hz<br>C: Auxiliary input<br>With output upper/lower limit | During remote setting mode<br>$y = Ax + B + C$<br>y: Operation results<br>x: Operation input<br>A: 0.000 to ±10.000<br>B: 0 to ±9999min <sup>-1</sup><br>C: Auxiliary input<br>With output upper/lower limit |                                       |  |       |
| Frequency jump         |                  | Three places can be set<br>Width can be varied between 0.0 and 10Hz   | -  |  |                                       |  |       |
| Slip compensation      |                  | Operation/non selective<br>Slip compensation gain: 0.0 to 20.0  | -  |  |                                       |  |       |
| Automatic run function |                  | 10-step automatic run function<br>Synchronous/asynchronous selective  |  |  |                                       |  |       |
| Built-in PLC function  |                  | Arithmetic operations, logical operations, size comparison and LPF operations, etc., in respect to the sequence input/output and analog input/output are possible.<br>Program capacity: max. 16 commands * 20 banks, operation cycle: 1 bank in 2ms |  |  |                                       |  |       |
| Others                 |                  | PID control<br>Pick-up<br>Automatic start<br>Restart after instantaneous power failure<br>Reverse run prevention<br>Traverse pattern  | Deceleration control at power failure<br>Multi-pump<br>Spinning frame  |  |                                       | Pick-up (auto-start, re-start after momentary stop) : impossible |       |
| Control input/output   | Operation panel  | Local/remote changeover operation, forward run/reverse run direct operation, reference, change and copy of all parameters<br>Mountable outside unit (extension cable max. 3m)   |  |  |                                       |  |       |
|                        | LCD type         | Display : 16 characters * 2 lines    Status display LED: 4 points<br>Operation : Operate with knob and set key  |  |  |                                       |  |       |
|                        |                  | LED type  |  |  |                                       |  |       |
|                        | Sequence input   | Programmable : 7 points sink/source changeable, PSI7 is used as pulse train input   |  |  |                                       |  |       |



## Appendix

### ■ Control specifications table (continued)

|                      |                          | V/f control   | Speed sensor-less vector control | Vector control with speed sensor (Note 1) | PM motor control with sensor (Note 2) | Sensor-less PM motor control (Note 4) |
|----------------------|--------------------------|---|----------------------------------|---|---------------------------------------|---------------------------------------|
| Control input/output | Sequence output          | Relay 1c contact: 1 point (programmable), relay 1a contact: 1 point (programmable), open collector: 3 points (programmable), PS03 is used as pulse train output<br>The programmable details can be changed between speed detection, pre-charging complete, reverse run, direction operation, current reached, speed reached, acceleration, deceleration and fault code  |                                  |   |                                       |                                       |
|                      | Frequency setting        | Voltage input (0 to 10V, 0 to 5V, 1 to 5V) or current input (4 to 20mA, 0 to 20mA): 2 points<br>Voltage input (0 to ±10V, 0 to ±5C, 1 to 5V): 1 point (used with sequential ratio operation or PID feedback, etc.)<br>Pulse train input (max. 10kHz): 1 point   |                                  |   |                                       |                                       |
| Control              | Meter output             | Voltage output (0 to 10V) or current output (4 to 20mA): 2 points (programmable)<br>Change between output frequency, output voltage, output current, DC voltage, etc.   |                                  |   |                                       |                                       |
| Communication        | Serial interface         | Communication protocol: Modbus-RTU or VT240S series dedicated communication (standard serial)<br>Connection method: RS485, 2-wire type, Transmission distance: total extension distance 150m or less,<br>Transmission method: Start-stop synchronization, half-duplex communication, Baud rate: select from 1200/2400/4800/9600/14400/19200/38400bps, No. of stations: max. 32 units, Error detection: Sum check, parity, framing |                                  |   |                                       |                                       |
| Protection           | Preventive               | Overcurrent limit (primary current limit level changeable in three stages), overcurrent limit, undervoltage limit, overload warning, carrier frequency automatic reduction at overload (cooling fin overheat) (selective)   |                                  |   |                                       |                                       |
|                      | Shut-off                 | Overcurrent, overvoltage, undervoltage, IGBT fault, phase failure (input/output), overload, cooling fin temperature rise, ground fault, other self-diagnosis  |                                  |   |                                       |                                       |
|                      | Fault history            | Past four faults recorded. Recorded details: primary cause, secondary cause, output frequency/current/DC voltage before shutoff, hardware latch, cumulative ON time, cumulative operation time  |                                  |   |                                       |                                       |
|                      | Overload withstand level | Normal-duty setting<br>120% for 1 minute, 140% for 2.5 seconds (reduced to 60% for 1 minute from 1Hz to 0.1Hz), inverse time characteristics<br>Heavy-duty setting<br>150% for 1 minute, 175% for 2.5 seconds (reduced to 75% for 1minute from 1Hz to 0.1Hz), inverse time characteristics  |                                  |   |                                       |                                       |
|                      | Retry                    | Randomly set between 0 and 10 times   |                                  |   |                                       |                                       |