

# GS10 Series Optional Accessories – EMC Filter & Zero Phase Reactor

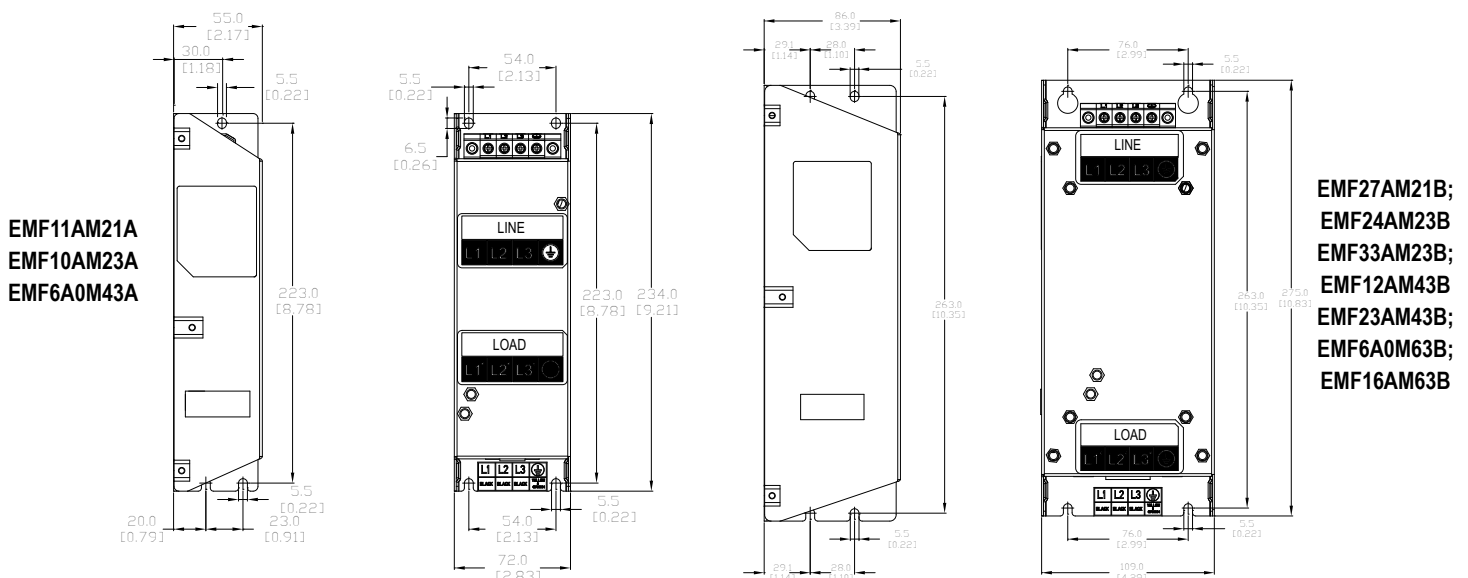
## GS10 Standard Footprint EMC Filter and Zero Phase Reactor

If electromagnetic noise is harmful to your manufacturing environment, we recommend that you select an EMC filter as shown below. For some motor drive models, you need to work with zero phase reactors to be compliant with EMC regulations. Refer to the table and figure below for the recommended model, setting method, and maximum motor cable length of the EMC filter and zero phase reactor. The footprint filter allows mounting of the drive on top of the recommended filter, saving panel space and wiring. For more information and installation instructions, please see your GS10 series User Manual.

| GS10 EMC Filter and Zero Phase Reactor |                            |                            |                            |                            |                                |                                          |   |                            |      |                            |   |   |
|----------------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|--------------------------------|------------------------------------------|---|----------------------------|------|----------------------------|---|---|
| Frame                                  | Drive Model                | Input Current (A)          | Footprint Filter Model #   | Price                      | Recommended Zero Phase Reactor | Conducted Emission                       |   |                            |      | Radiated Emission          |   |   |
|                                        |                            |                            |                            |                            |                                | C1-motor cable length-30m                |   | C2-motor cable length-100m |      | C2-motor cable length-100m |   |   |
|                                        |                            |                            |                            |                            |                                | Position to Install a Zero Phase Reactor |   |                            |      |                            |   |   |
|                                        |                            |                            |                            |                            |                                | 1                                        | 2 | 3                          | n/a  | 1                          | 2 | 3 |
| A                                      | <a href="#">GS11N-10P2</a> | 6                          | <a href="#">EMF11AM21A</a> | \$58.00                    | RF008X00A                      |                                          |   |                            | N/A  |                            |   |   |
|                                        | <a href="#">GS11N-10P5</a> | 9.4                        |                            |                            |                                |                                          |   |                            | N/A  |                            |   |   |
|                                        | <a href="#">GS11N-20P2</a> | 5.1                        |                            |                            |                                |                                          | ✓ | ✓                          | N/A  |                            | ✓ | ✓ |
|                                        | <a href="#">GS11N-20P5</a> | 7.3                        |                            |                            |                                |                                          | ✓ | ✓                          | N/A  |                            | ✓ | ✓ |
|                                        | <a href="#">GS13N-20P2</a> | 1.9                        | <a href="#">EMF10AM23A</a> | \$80.00                    |                                |                                          | ✓ | ✓                          | N/A  |                            | ✓ | ✓ |
|                                        | <a href="#">GS13N-20P5</a> | 3.4                        |                            |                            |                                |                                          | ✓ | ✓                          | N/A  |                            | ✓ | ✓ |
|                                        | <a href="#">GS13N-21P0</a> | 5.8                        |                            |                            |                                |                                          | ✓ | ✓                          | N/A  |                            | ✓ | ✓ |
|                                        | <a href="#">GS13N-40P5</a> | 2.1                        |                            |                            |                                |                                          |   | ✓                          | N/A  |                            |   | ✓ |
|                                        | <a href="#">GS13N-41P0</a> | 3.7                        | <a href="#">EMF6A0M43A</a> | \$73.00                    |                                |                                          |   | ✓                          | N/A* |                            |   | ✓ |
| B                                      | <a href="#">GS11N-21P0</a> | 10.8                       | <a href="#">EMF11AM21A</a> | \$58.00                    |                                |                                          | ✓ | ✓                          | N/A  |                            | ✓ | ✓ |
|                                        | <a href="#">GS13N-22P0</a> | 9                          | <a href="#">EMF10AM23A</a> | \$80.00                    |                                |                                          | ✓ | ✓                          | N/A  |                            | ✓ | ✓ |
|                                        | <a href="#">GS13N-42P0</a> | 5.8                        | <a href="#">EMF6A0M43A</a> | \$73.00                    |                                |                                          |   | ✓                          | N/A  |                            |   | ✓ |
| C                                      | <a href="#">GS11N-11P0</a> | 18                         | <a href="#">EMF27AM21B</a> | \$102.00                   |                                |                                          |   |                            | N/A  |                            |   |   |
|                                        | <a href="#">GS11N-22P0</a> | 16.5                       |                            |                            |                                |                                          |   | ✓                          | N/A  |                            |   | ✓ |
|                                        | <a href="#">GS11N-23P0</a> | 24.2                       |                            |                            |                                |                                          |   | ✓                          | N/A  |                            |   | ✓ |
|                                        | <a href="#">GS13N-23P0</a> | 13.2                       | <a href="#">EMF24AM23B</a> | \$125.00                   |                                |                                          | ✓ | ✓                          | N/A  |                            | ✓ | ✓ |
|                                        | <a href="#">GS13N-25P0</a> | 20                         |                            |                            |                                |                                          | ✓ | ✓                          | N/A  |                            | ✓ | ✓ |
|                                        | <a href="#">GS13N-43P0</a> | 6.1                        |                            |                            |                                |                                          |   |                            | N/A  |                            |   |   |
|                                        | <a href="#">GS13N-45P0</a> | 9.9                        | <a href="#">EMF12AM43B</a> | \$128.00                   |                                |                                          | ✓ | ✓                          | N/A  |                            | ✓ | ✓ |
|                                        | D                          | <a href="#">GS13N-27P5</a> | 30                         | <a href="#">EMF33AM23B</a> |                                | \$182.00                                 | ✓ | ✓                          |      | N/A                        | ✓ | ✓ |
| <a href="#">GS13N-47P5</a>             |                            | 14.3                       | <a href="#">EMF23AM43B</a> | \$175.00                   |                                | ✓                                        | ✓ | ✓                          | N/A  | ✓                          | ✓ | ✓ |
| <a href="#">GS13N-40I0</a>             |                            | 19.3                       |                            |                            |                                | ✓                                        | ✓ | ✓                          | N/A  | ✓                          | ✓ | ✓ |

## EMF Series Filter Dimensions

( Units = mm [in] )



# GS20(X) Optional Accessories – EMC Filter & Zero Phase Reactor

## GS20(X) Standard Footprint EMC Filter and Zero Phase Reactor

If electromagnetic noise is harmful to your manufacturing environment, we recommend that you select an EMC filter as shown below. For some motor drive models, you need to work with zero phase reactors to be compliant with EMC regulations. Refer to the table and figure below for the recommended model, setting method, and maximum motor cable length of the EMC filter and zero phase reactor. The footprint filter allows mounting of the drive on top of the recommended filter, saving panel space and wiring. For more information and installation instructions, please see the GS20(X) User Manual.

| GS20(X) EMC Filter and Zero Phase Reactor |                            |                            |                            |                            |                                |                                          |   |                            |                             |                   |   |   |
|-------------------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|--------------------------------|------------------------------------------|---|----------------------------|-----------------------------|-------------------|---|---|
| Frame                                     | Drive Model                | Input Current (A)          | Footprint Filter Model #   | Price                      | Recommended Zero Phase Reactor | Conducted Emission                       |   |                            |                             | Radiated Emission |   |   |
|                                           |                            |                            |                            |                            |                                | C1-motor cable length-30m                |   | C2-motor cable length-100m | C2-motor cable length- 100m |                   |   |   |
|                                           |                            |                            |                            |                            |                                | Position to Install a Zero Phase Reactor |   |                            |                             |                   |   |   |
|                                           |                            |                            |                            |                            |                                | 1                                        | 2 | 3                          | n/a                         | 1                 | 2 | 3 |
| A                                         | <a href="#">GS21-10P2</a>  | 6.8                        | <a href="#">EMF11AM21A</a> | \$58.00                    | RF008X00A                      |                                          |   |                            | N/A                         |                   |   |   |
|                                           | <a href="#">GS21-20P2</a>  | 3.8                        | <a href="#">EMF11AM21A</a> | \$58.00                    |                                |                                          | ✓ | ✓                          | N/A                         |                   | ✓ | ✓ |
|                                           | <a href="#">GS21-20P5</a>  | 6.7                        | <a href="#">EMF11AM21A</a> | \$58.00                    |                                |                                          | ✓ | ✓                          | N/A                         |                   | ✓ | ✓ |
|                                           | <a href="#">GS23-20P2</a>  | 2.2                        | <a href="#">EMF10AM23A</a> | \$80.00                    |                                |                                          | ✓ | ✓                          | N/A                         |                   | ✓ | ✓ |
|                                           | <a href="#">GS23-20P5</a>  | 3.8                        | <a href="#">EMF10AM23A</a> | \$80.00                    |                                |                                          | ✓ | ✓                          | N/A                         |                   | ✓ | ✓ |
|                                           | <a href="#">GS23-21P0</a>  | 6                          | <a href="#">EMF10AM23A</a> | \$80.00                    |                                |                                          | ✓ | ✓                          | N/A                         |                   | ✓ | ✓ |
|                                           | <a href="#">GS23-40P5</a>  | 2.5                        | <a href="#">EMF6A0M43A</a> | \$73.00                    |                                |                                          |   | ✓                          | N/A                         |                   |   | ✓ |
|                                           | <a href="#">GS23-41P0</a>  | 4.2                        | <a href="#">EMF6A0M43A</a> | \$73.00                    |                                |                                          |   | ✓                          | N/A                         |                   |   | ✓ |
|                                           | <a href="#">GS23-51P0</a>  | 2.4                        | <a href="#">EMF6A0M63B</a> | \$167.00                   |                                |                                          |   |                            | N/A*                        |                   |   |   |
|                                           | <a href="#">GS21-10P5</a>  | 10.1                       | <a href="#">EMF11AM21A</a> | \$58.00                    |                                |                                          |   |                            | N/A                         |                   |   |   |
|                                           | GS20X A                    | <a href="#">GS21X-20P5</a> | 8.3                        | <a href="#">EMF11AM21A</a> |                                | \$58.00                                  |   | ✓                          | ✓                           | N/A               |   | ✓ |
| <a href="#">GS21X-21P0</a>                |                            | 11.3                       | <a href="#">EMF11AM21A</a> | \$58.00                    |                                |                                          | ✓ | ✓                          | N/A                         |                   | ✓ | ✓ |
| <a href="#">GS21X-22P0</a>                |                            | 18.5                       | <a href="#">EMF27AM21B</a> | \$102.00                   |                                |                                          |   | ✓                          | N/A                         |                   |   | ✓ |
| <a href="#">GS23X-20P5</a>                |                            | 3.8                        | <a href="#">EMF10AM23A</a> | \$80.00                    |                                |                                          | ✓ | ✓                          | N/A                         |                   | ✓ | ✓ |
| <a href="#">GS23X-21P0</a>                |                            | 6                          | <a href="#">EMF10AM23A</a> | \$80.00                    |                                |                                          | ✓ | ✓                          | N/A                         |                   | ✓ | ✓ |
| <a href="#">GS23X-22P0</a>                |                            | 9.6                        | <a href="#">EMF10AM23A</a> | \$80.00                    |                                |                                          | ✓ | ✓                          | N/A                         |                   | ✓ | ✓ |
| <a href="#">GS23X-40P5</a>                |                            | 2.5                        | <a href="#">EMF6A0M43A</a> | \$73.00                    |                                |                                          |   | ✓                          | N/A                         |                   |   | ✓ |
| <a href="#">GS23X-41P0</a>                |                            | 4.2                        | <a href="#">EMF6A0M43A</a> | \$73.00                    |                                |                                          |   | ✓                          | N/A                         |                   |   | ✓ |
| <a href="#">GS23X-42P0</a>                |                            | 6.4                        | <a href="#">EMF6A0M43A</a> | \$73.00                    |                                |                                          |   | ✓                          | N/A                         |                   |   | ✓ |
| <a href="#">GS23X-43P0</a>                |                            | 7.2                        | <a href="#">EMF12AM43B</a> | \$128.00                   |                                |                                          |   |                            | N/A                         |                   |   |   |
| B                                         |                            | <a href="#">GS21-21P0</a>  | 10.5                       | <a href="#">EMF11AM21A</a> |                                | \$58.00                                  |   | ✓                          | ✓                           | N/A               |   | ✓ |
|                                           | <a href="#">GS23-22P0</a>  | 9.6                        | <a href="#">EMF10AM23A</a> | \$80.00                    |                                |                                          | ✓ | ✓                          | N/A                         |                   | ✓ | ✓ |
|                                           | <a href="#">GS23-52P0</a>  | 4.2                        | <a href="#">EMF6A0M63B</a> | \$167.00                   |                                |                                          |   |                            | N/A*                        |                   |   |   |
|                                           | <a href="#">GS23-42P0</a>  | 6.4                        | <a href="#">EMF6A0M43A</a> | \$73.00                    |                                |                                          |   | ✓                          | N/A                         |                   |   | ✓ |
| GS20X B                                   | <a href="#">GS21X-23P0</a> | 27.5                       | <a href="#">EMF27AM21B</a> | \$102.00                   |                                |                                          |   | ✓                          | N/A                         |                   |   | ✓ |
|                                           | <a href="#">GS23X-23P0</a> | 15                         | <a href="#">EMF24AM23B</a> | \$125.00                   |                                |                                          | ✓ | ✓                          | N/A                         |                   | ✓ | ✓ |
|                                           | <a href="#">GS23X-25P0</a> | 23.4                       | <a href="#">EMF24AM23B</a> | \$125.00                   |                                |                                          | ✓ | ✓                          | N/A                         |                   | ✓ | ✓ |
|                                           | <a href="#">GS23X-45P0</a> | 11.6                       | <a href="#">EMF12AM43B</a> | \$128.00                   |                                |                                          | ✓ | ✓                          | N/A                         |                   | ✓ | ✓ |
| C                                         | <a href="#">GS21-11P0</a>  | 20.6                       | <a href="#">EMF27AM21B</a> | \$102.00                   |                                |                                          |   |                            | N/A                         |                   |   |   |
|                                           | <a href="#">GS21-22P0</a>  | 17.9                       | <a href="#">EMF27AM21B</a> | \$102.00                   |                                |                                          |   | ✓                          | N/A                         |                   |   | ✓ |
|                                           | <a href="#">GS21-23P0</a>  | 26.3                       | <a href="#">EMF27AM21B</a> | \$102.00                   |                                |                                          |   | ✓                          | N/A                         |                   |   | ✓ |
|                                           | <a href="#">GS23-23P0</a>  | 15                         | <a href="#">EMF24AM23B</a> | \$125.00                   |                                |                                          | ✓ | ✓                          | N/A                         |                   | ✓ | ✓ |
|                                           | <a href="#">GS23-25P0</a>  | 23.4                       | <a href="#">EMF24AM23B</a> | \$125.00                   |                                |                                          | ✓ | ✓                          | N/A                         |                   | ✓ | ✓ |
|                                           | <a href="#">GS23-43P0</a>  | 7.2                        | <a href="#">EMF12AM43B</a> | \$128.00                   |                                |                                          |   |                            | N/A                         |                   |   |   |
|                                           | <a href="#">GS23-53P0</a>  | 5.8                        | <a href="#">EMF16AM63B</a> | \$171.00                   |                                |                                          |   |                            | N/A*                        |                   |   |   |
|                                           | <a href="#">GS23-55P0</a>  | 9.3                        | <a href="#">EMF16AM63B</a> | \$171.00                   |                                |                                          |   |                            | N/A                         |                   |   |   |
|                                           | <a href="#">GS23-45P0</a>  | 11.6                       | <a href="#">EMF12AM43B</a> | \$128.00                   |                                |                                          |   | ✓                          | N/A                         |                   | ✓ | ✓ |
|                                           | <a href="#">GS23X-27P5</a> | 32.4                       | <a href="#">EMF33AM23B</a> | \$182.00                   |                                | ✓                                        | ✓ |                            | N/A                         | ✓                 | ✓ |   |
|                                           | GS20X C                    | <a href="#">GS23X-47P5</a> | 17.3                       | <a href="#">EMF23AM43B</a> |                                | \$175.00                                 | ✓ | ✓                          | ✓                           | N/A               | ✓ | ✓ |
| <a href="#">GS23X-4010</a>                |                            | 22.6                       | <a href="#">EMF23AM43B</a> | \$175.00                   |                                | ✓                                        | ✓ | ✓                          | N/A                         | ✓                 | ✓ | ✓ |
| Continued on next page                    |                            |                            |                            |                            |                                |                                          |   |                            |                             |                   |   |   |

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# GS20(X) Optional Accessories – EMC Filter & Zero Phase Reactor

GS20(X) Standard Footprint EMC Filter and Zero Phase Reactor, continued

| GS20(X) EMC Filter and Zero Phase Reactor (continued) |             |                   |                          |          |                                |                                          |   |                            |                             |                   |   |   |  |
|-------------------------------------------------------|-------------|-------------------|--------------------------|----------|--------------------------------|------------------------------------------|---|----------------------------|-----------------------------|-------------------|---|---|--|
| Frame                                                 | Drive Model | Input Current (A) | Footprint Filter Model # | Price    | Recommended Zero Phase Reactor | Conducted Emission                       |   |                            |                             | Radiated Emission |   |   |  |
|                                                       |             |                   |                          |          |                                | C1-motor cable length-30m                |   | C2-motor cable length-100m | C2-motor cable length- 100m |                   |   |   |  |
|                                                       |             |                   |                          |          |                                | Position to Install a Zero Phase Reactor |   |                            |                             |                   |   |   |  |
| 1                                                     |             | 2                 |                          | 3        |                                | n/a                                      |   | 1                          |                             | 2                 |   | 3 |  |
| D                                                     | GS23-27P5   | 32.4              | EMF33AM23B               | \$182.00 | RF008X00A                      | ✓                                        | ✓ |                            | N/A                         | ✓                 | ✓ |   |  |
|                                                       | GS23-47P5   | 17.3              | EMF23AM43B               | \$175.00 |                                | ✓                                        | ✓ | ✓                          | N/A                         | ✓                 | ✓ | ✓ |  |
|                                                       | GS23-57P5   | 13.4              | EMF16AM63B               | \$171.00 |                                |                                          |   |                            | N/A                         |                   |   |   |  |
|                                                       | GS23-5010   | 17.5              | EMF16AM63B               | \$171.00 |                                |                                          |   |                            | N/A                         |                   |   |   |  |
|                                                       | GS23-4010   | 22.6              | EMF23AM43B               | \$175.00 |                                | ✓                                        | ✓ | ✓                          | N/A                         | ✓                 | ✓ | ✓ |  |
| E                                                     | GS23-2010   | 43.2              | n/a                      | –        |                                |                                          | ✓ | ✓                          | N/A                         |                   | ✓ | ✓ |  |
|                                                       | GS23-2015   | 61.2              | n/a                      | –        |                                |                                          | ✓ | ✓                          | N/A                         |                   | ✓ | ✓ |  |
|                                                       | GS23-4015   | 30.8              | n/a                      | –        |                                |                                          |   |                            | N/A                         |                   |   |   |  |
|                                                       | GS23-4020   | 39.6              | n/a                      | –        |                                |                                          | ✓ | ✓                          | N/A                         |                   | ✓ | ✓ |  |
|                                                       | GS23-2020   | 82.8              | n/a                      | –        |                                |                                          | ✓ | ✓                          | N/A                         |                   | ✓ | ✓ |  |
| F                                                     | GS23-4025   | 45.7              | n/a                      | –        |                                |                                          | ✓ | ✓                          | N/A                         |                   | ✓ | ✓ |  |
|                                                       | GS23-4030   | 53.9              | n/a                      | –        |                                |                                          | ✓ | ✓                          | N/A                         |                   | ✓ | ✓ |  |

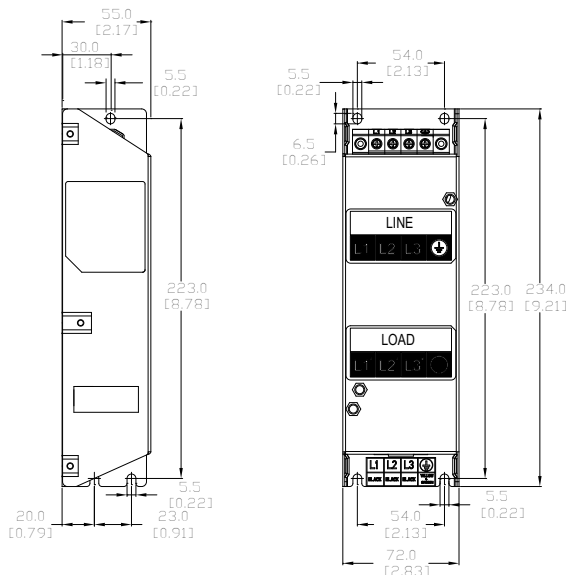
Note: It is not necessary to add a zero phase reactor for passing the C2 conducted emission test.

\* The maximum motor cable length of the conducted emission C2 class for GS23-51P0, GS23-52P0, and GS23-53P0 is 75 meters. All others are 100 meters.

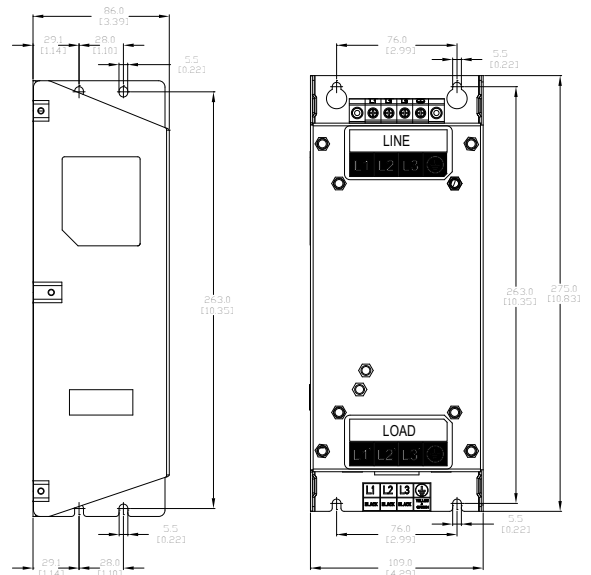
\*\* See diagram below for installation positions.

## EMF Series Filter Dimensions

( Units = mm [in] )



EMF11AM21A  
EMF10AM23A  
EMF6A0M43A



EMF27AM21B; EMF24AM23B  
EMF33AM23B; EMF12AM43B  
EMF23AM43B; EMF6A0M63B;  
EMF16AM63B