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# Asynchronous Servo motors

Lenze MCA

# Servo motors - dynamic and robust

With synchronous motors and asynchronous motors, our servo motors offer the right solution, even for highly dynamic, sensitive or compact applications. They are optimally designed for operation with our servo inverters.

## Typical application fields

- Positioning
- Robotics
- Packaging technology
- Handling systems
- Environments where hygiene matters.
- And many more

## Features

- Robust drive behavior
- Safe control behavior
- Optimal smooth running characteristic
- One Cable Technology (OCT)
- Easy mounting
- Low moments of inertia

## The benefits for you

- Optimized for Lenze servo inverters
- Easy mounting
- Highly dynamic, sensitive or compact application areas
- Precise and robust requirements
- High operational reliability
- Solutions for heavy motor loads

## Features at a glance

### Robust behavior



High degree of protection and/or smooth surfaces enable operation in harsh environments.

Drives with a protection class of up to IP65 can be used there.

### Safely controlled



The servo motors are perfectly matched to the i750 cabinet and i950 cabinet servo inverters.

With these servo inverters, the servo motor is safely controlled in every operating state. Both components can be easily adapted to the application using the inverter's auto-tuning function.

### Optimal concentricity



Very smooth running characteristics of the servo motors lead to optimal work results.

For example, a film can be processed safely and continuously.

## One Cable Technology (OCT)



The MCS and m850 servo synchronous motors are equipped with a digital absolute value encoder (HIPERFACE-DSL®) as standard.

This makes wiring easier and reduces the costs.

## Easy to mount



The servo motors are equipped with commercially available connectors as standard.

The bayonet lock enables quick and secure installation. This also enables very short machine down-times when servicing is required.

## Low mass inertia





The internal design of the rotors serves the dynamic and precise requirements of the machine.

The materials used ensure precise operation with a low mass moment of inertia.

# Servo motors

Is your application dynamic and demanding With synchronous motors and asynchronous motors, our servo motors offer the right solution, even for highly dynamic, sensitive or compact applications. They are optimally designed for operation with our servo inverters.

You can easily call up a lot of information online when selecting a product:

- Use the EASY Product Finder to configure your required version of the product in next to no time (simply click on the  icon).
- For further technical details such as data sheets, CAD data or EPLAN data, please contact our support team simply click on the  icon).



## Product overview

|                             | <b>MCS synchronous servo motor</b>  | <b>m850 synchronous servo motor</b>   | <b>SDSGA asynchronous servo motor</b>  | <b>MCA asynchronous servo motor</b>   | <b>MQA asynchronous servo motor</b>   |
|-----------------------------|---|---|--|---|---|
|                             |  |  |  |  |  |
| <b>Degree of protection</b> | IP5, IP65   | IP54, IP65  | IP54   | IP23s, IP54, IP65   | IP23s   |

### Power range

|                          | <b>MCS</b>          | <b>m850</b>         | <b>SDSGA</b>        | <b>MCA</b>         | <b>MQA</b>         |
|--------------------------|---------------------|---------------------|---------------------|--------------------|--------------------|
| <b>Standstill torque</b> | 0.8 ... 86 Nm       | 0.18 ... 67 Nm      | 0.3 ... 2.2 Nm      | 2.3 ... 290 Nm     | 76 ... 325 Nm      |
| <b>Rated torque</b>      | 0.5 ... 72 Nm       | 0.12 ... 35 Nm      | 0.27 ... 1.9 Nm     | 2.0 ... 280 Nm     | 66.2 ... 296 Nm    |
| <b>Rated speed</b>       | 1050 ... 6000 1/min | 2520 ... 9000 1/min | 2700 ... 2825 1/min | 550 ... 4160 1/min | 550 ... 2935 1/min |
| <b>Max. torque</b>       | 2.4 ... 190 Nm      | 0.7 ... 200 Nm      | 1.0 ... 8.0 Nm      | 10 ... 1100 Nm     | 250 ... 1100 Nm    |
| <b>Power range</b>       | 0.31 ... 15.8 kW    | 0.11 ... 9.2 kW     | 0,075 ... 0.6 kW    | 0.8 ... 53.8 kW    | 10.6 ... 60.2 kW   |

### Feedback

|  | <b>MCS</b> | <b>m850</b> | <b>SDSGA</b> | <b>MCA</b> | <b>MQA</b> |
|--|------------|-------------|--------------|------------|------------|
| <b>Digital absolute value encoder One Cable Technology (OCT)</b> | ✓          | ✓           | -            | -          | -          |
| <b>Resolver</b>  | ✓          | ✓           | ✓            | ✓          | ✓          |
| <b>Resolver for functional safety</b>                            | ✓          | ✓           | -            | ✓          | ✓          |
| <b>TTL incremental encoder</b>                                   | ✓          | -           | -            | ✓          | ✓          |
| <b>SinCos absolute value encoder</b>                             | ✓          | ✓           | ✓            | ✓          | ✓          |
| <b>SinCos absolute value encoder for functional safety</b>       | ✓          | ✓           | -            | -          | -          |

### Market approvals

|             | <b>MCS</b> | <b>m850</b> | <b>SDSGA</b> | <b>MCA</b> | <b>MQA</b> |
|-------------|------------|-------------|--------------|------------|------------|
| <b>CE</b>   | ✓          | ✓           | ✓            | ✓          | ✓          |
| <b>UKCA</b> | ✓          | ✓           | ✓            | ✓          | ✓          |
| <b>UL</b>   | ✓          | ✓           | ✓            | ✓          | ✓          |
| <b>CSA</b>  | ✓          | ✓           | ✓            | ✓          | ✓          |
| <b>CCC</b>  | ✓          | ✓           | ✓            | ✓          | ✓          |
| <b>RoHs</b> | ✓          | ✓           | ✓            | ✓          | ✓          |

# MCA asynchronous servo motors

The MCA asynchronous servo motors are particularly suitable for environments that require a small installation volume and high design-related operational reliability.

|                          |                    |
|--------------------------|--------------------|
| <b>Standstill torque</b> | 2.3 ... 290 Nm     |
| <b>Rated torque</b>      | 2.0 ... 280 Nm     |
| <b>Rated speed</b>       | 550 ... 4160 1/min |
| <b>Max. torque</b>       | 10 ... 1100 Nm     |
| <b>Power range</b>       | 0.8 ... 53.8 kW    |

## Highlights

- Small volume
- Low moments of inertia and large setting ranges
- Plug connections for quick mounting and easy serviceability
- Optimized for use as geared motors with g500, g7x0, and g8x0 gearboxes
- Can be combined with the i750 cabinet and i950 cabinet servo inverters



## MCA asynchronous servo motors



MCA, self-ventilated, 3 x 400V

|                   | $M_0$ | $M_{rated}$ | $M_{max}$ | $n_{rated}$ | $n_{max}$ | $P_{rated}$ | $I_{rated}$ | $m$  | H x L x T         | ID   |
|-------------------|-------|-------------|-----------|-------------|-----------|-------------|-------------|------|-------------------|--|
|                   | [Nm]  | [Nm]        | [Nm]      | [1/min]     | [1/min]   | [kW]        | [A]         | [kg] | [mm]              |  |
| <b>MCA 10I40-</b> | 2.3   | 2.0         | 10.0      | 3950        | 8000      | 0.8         | 2.4         | 6.4  | 141 x 292 x 102   | <a href="#">i</a> <a href="#">🛒</a> 16133687 |
| <b>MCA 13I41-</b> | 4.6   | 4.0         | 32.0      | 4050        | 8000      | 1.7         | 4.4         | 10.4 | 167 x 311 x 130   | <a href="#">i</a> <a href="#">🛒</a> 16125079 |
| <b>MCA 14L41-</b> | 8.0   | 5.4         | 60.0      | 4100        | 8000      | 2.3         | 7.7         | 15.1 | 180 x 352 x 142   | <a href="#">i</a> <a href="#">🛒</a> 16122881 |
| <b>MCA 14L20-</b> | 8.0   | 6.7         | 60.0      | 2000        | 8000      | 1.4         | 3.85        | 15.1 | 180 x 352 x 142   | <a href="#">i</a> <a href="#">🛒</a> 16125363 |
| <b>MCA 17N41-</b> | 12.8  | 9.5         | 100.0     | 4110        | 8000      | 4.1         | 12.0        | 22.9 | 200.5 x 390 x 165 | <a href="#">i</a> <a href="#">🛒</a> 16116487 |
| <b>MCA 17N23-</b> | 12.8  | 10.8        | 100.0     | 2300        | 8000      | 2.6         | 6.0         | 22.9 | 200.5 x 390 x 165 | <a href="#">i</a> <a href="#">🛒</a> 16144489 |
| <b>MCA 19S42-</b> | 22.5  | 12.0        | 180.0     | 4150        | 8000      | 5.2         | 14.0        | 44.7 | 247 x 461 x 192   | <a href="#">i</a> <a href="#">🛒</a> 16099106 |
| <b>MCA 19S23-</b> | 22.5  | 16.3        | 180.0     | 2340        | 8000      | 4.0         | 8.2         | 44.7 | 247 x 461 x 192   | <a href="#">i</a> <a href="#">🛒</a> 16142786 |
| <b>MCA 21X42-</b> | 39.0  | 17.0        | 300.0     | 4160        | 8000      | 7.4         | 19.8        | 60.0 | 269 x 550 x 214   | <a href="#">i</a> <a href="#">🛒</a> 16145634 |
| <b>MCA 21X25-</b> | 39.0  | 24.6        | 300.0     | 2460        | 8000      | 6.4         | 13.5        | 60.0 | 269 x 555 x 214   | <a href="#">i</a> <a href="#">🛒</a> 16125368 |

The motors listed are equipped with resolvers as feedback.

## MCA asynchronous servo motors




MCA, externally cooled, 3 x 400V

|            | $M_0$ | $M_{rated}$ | $M_{max}$ | $n_{rated}$ | $n_{max}$ | $P_{rated}$ | $I_{rated}$ | $m$   | H x L x T         | ID   |
|------------|-------|-------------|-----------|-------------|-----------|-------------|-------------|-------|-------------------|--|
|            | [Nm]  | [Nm]        | [Nm]      | [1/min]     | [1/min]   | [kW]        | [A]         | [kg]  | [mm]              |  |
| MCA 13I34- | 7.0   | 6.3         | 23.0      | 3410        | 8000      | 2.2         | 6.0         | 12.0  | 167 x 379 x 130   | <a href="#">i</a> <a href="#">🛒</a> 16148685 |
| MCA 14L35- | 13.5  | 10.8        | 60.0      | 3455        | 8000      | 3.9         | 9.1         | 16.9  | 180 x 414 x 142   | <a href="#">i</a> <a href="#">🛒</a> 16128996 |
| MCA 14L16- | 13.5  | 12.0        | 60.0      | 1635        | 8000      | 2.1         | 4.8         | 16.9  | 180 x 414 x 142   | <a href="#">i</a> <a href="#">🛒</a> 16189981 |
| MCA 17N35- | 23.9  | 19.0        | 100.0     | 3480        | 8000      | 6.9         | 15.8        | 25.5  | 200.5 x 476 x 165 | <a href="#">i</a> <a href="#">🛒</a> 16110201 |
| MCA 17N17- | 23.9  | 21.5        | 100.0     | 1680        | 8000      | 3.8         | 8.5         | 25.5  | 200.5 x 476 x 165 | <a href="#">i</a> <a href="#">🛒</a> 16142785 |
| MCA 19S35- | 40.0  | 36.0        | 180.0     | 3510        | 8000      | 13.2        | 28.7        | 48.2  | 247 x 558 x 192   | <a href="#">i</a> <a href="#">🛒</a> 16114953 |
| MCA 19S17- | 40.0  | 36.3        | 180.0     | 1700        | 8000      | 6.4         | 13.9        | 48.2  | 247 x 558 x 192   | <a href="#">i</a> <a href="#">🛒</a> 16078398 |
| MCA 20X29H | 68.0  | 53.5        | 250.0     | 2930        | 6500      | 16.4        | 42.4        | 64.0  | 269 x 666 x 196   | <a href="#">i</a> <a href="#">🛒</a> 16216494 |
| MCA 20X14H | 68.0  | 61.0        | 250.0     | 1420        | 6500      | 9.1         | 23.0        | 64.0  | 269 x 666 x 196   | <a href="#">i</a> <a href="#">🛒</a> 16173021 |
| MCA 21X35- | 75.0  | 55.0        | 300.0     | 3520        | 8000      | 20.3        | 42.5        | 63.5  | 269 x 646 x 214   | <a href="#">i</a> <a href="#">🛒</a> 16167420 |
| MCA 21X17- | 75.0  | 61.4        | 300.0     | 1710        | 8000      | 11.0        | 22.5        | 63.5  | 269 x 646 x 214   | <a href="#">i</a> <a href="#">🛒</a> 16136438 |
| MCA 22P29- | 120.0 | 100.0       | 500.0     | 2935        | 6500      | 30.7        | 72.1        | 105.0 | 313 x 783 x 220   | <a href="#">i</a> <a href="#">🛒</a> 16079377 |
| MCA 22P17- | 120.0 | 106.0       | 500.0     | 1670        | 6500      | 18.5        | 42.7        | 105.0 | 313 x 783 x 220   | <a href="#">i</a> <a href="#">🛒</a> 16116469 |
| MCA 22P14- | 120.0 | 107.0       | 500.0     | 1425        | 6500      | 16.0        | 37.7        | 105.0 | 313 x 783 x 220   | <a href="#">i</a> <a href="#">🛒</a> 16111070 |
| MCA 22P08- | 120.0 | 110.0       | 500.0     | 760         | 6500      | 8.8         | 22.1        | 105.0 | 313 x 783 x 220   | <a href="#">i</a> <a href="#">🛒</a> 16135280 |
| MCA 22P29H | 135.0 | 110.0       | 500.0     | 2935        | 6500      | 33.8        | 77.8        | 105.0 | 313 x 783 x 220   | <a href="#">i</a> <a href="#">🛒</a> 16192448 |
| MCA 22P17H | 135.0 | 112.0       | 500.0     | 1670        | 6500      | 19.6        | 44.5        | 105.0 | 313 x 783 x 220   | <a href="#">i</a> <a href="#">🛒</a> 16159611 |
| MCA 22P14H | 135.0 | 115.0       | 500.0     | 1425        | 6500      | 17.2        | 40.0        | 105.0 | 313 x 783 x 220   | <a href="#">i</a> <a href="#">🛒</a> 16174241 |
| MCA 22P08H | 135.0 | 120.0       | 500.0     | 760         | 6500      | 9.6         | 23.5        | 105.0 | 313 x 783 x 220   | <a href="#">i</a> <a href="#">🛒</a> 16316103 |
| MCA 26T22- | 220.0 | 195.0       | 1100.0    | 2235        | 5500      | 45.6        | 113.0       | 194.0 | 386 x 970 x 260   | <a href="#">i</a> <a href="#">🛒</a> 16259154 |
| MCA 26T12- | 220.0 | 207.0       | 1100.0    | 1200        | 5500      | 26.0        | 75.1        | 194.0 | 386 x 970 x 260   | <a href="#">i</a> <a href="#">🛒</a> 16137185 |
| MCA 26T10- | 220.0 | 210.0       | 1100.0    | 1030        | 5500      | 22.7        | 61.5        | 194.0 | 386 x 970 x 260   | <a href="#">i</a> <a href="#">🛒</a> 16136154 |
| MCA 26T05- | 220.0 | 216.0       | 1100.0    | 550         | 5500      | 12.4        | 34.9        | 194.0 | 386 x 970 x 260   | <a href="#">i</a> <a href="#">🛒</a> 16137322 |
| MCA 26T22H | 290.0 | 230.0       | 1100.0    | 2235        | 5500      | 53.8        | 127.0       | 194.0 | 386 x 970 x 260   | <a href="#">i</a> <a href="#">🛒</a> 16129483 |
| MCA 26T12H | 290.0 | 255.0       | 1100.0    | 1200        | 5500      | 32.0        | 83.3        | 194.0 | 386 x 970 x 260   | <a href="#">i</a> <a href="#">🛒</a> 16479836 |
| MCA 26T10H | 290.0 | 260.0       | 1100.0    | 1030        | 5500      | 28.0        | 69.6        | 194.0 | 386 x 970 x 260   | <a href="#">i</a> <a href="#">🛒</a> 16262542 |
| MCA 26T05H | 290.0 | 280.0       | 1100.0    | 550         | 5500      | 16.1        | 42.4        | 194.0 | 386 x 970 x 260   | <a href="#">i</a> <a href="#">🛒</a> 16479835 |

The motors listed are equipped with resolvers as feedback.

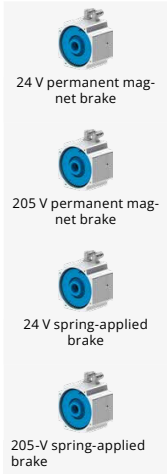
# MCA asynchronous servo motors – options

### Connections




M23 connector Resolver   M23 connector Encoder   M17 connector External cooling   Terminal box

### Brake




24 V permanent magnet brake  
205 V permanent magnet brake  
24 V spring-applied brake  
205-V spring-applied brake

### Feedback



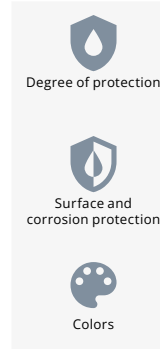
Resolver  
SinCos absolute value encoder  
Endat absolute value encoder  
Incremental encoder

### Cooling





External cooling

### Operation



Degree of protection  
Surface and corrosion protection  
Colors





Solid shaft with featherkey   Solid shaft without featherkey   Shaft seal

## Connections

|                     |   |                      |
|---------------------|---|----------------------|
| <b>Connector</b>    | 2 x M23 connector Power connection/resolver connection  | Included as standard |
|                     | M40/M23 connector: Power connection/resolver connection | Included as standard |
|                     | 2 x M23 connector Power connection/encoder connection   |                      |
|                     | M40/M23 connector: Power connection/encoder connection  |                      |
|                     | 2 x M23 connector Power connection/Endat connection     |                      |
|                     | M40/M23 connector: Power connection/Endat connection    |                      |
| <b>Terminal box</b> | M17 connector: External cooling                         |                      |
|                     | For power, feedback, and blower connection              |                      |

## Brake

|                                     |        |  |
|-------------------------------------|--------|--|
| <b>24 V permanent magnet brake</b>  | MCA 10 | P1: Braking torque 3.3 Nm                              |
|                                     | MCA 13 | P1: Braking torque 12 Nm                               |
|                                     | MCA 14 | P4: Braking torque 26 Nm                               |
|                                     | MCA 17 | P1: Braking torque 24 Nm                               |
|                                     | MCA 19 | P1: Braking torque 46 Nm                               |
|                                     | MCA 21 | P1: Braking torque 88 Nm                               |
| <b>205 V permanent magnet brake</b> | MCA 10 | P5: Braking torque 3.3 Nm                              |
|                                     | MCA 13 | P5: Braking torque 12 Nm                               |
|                                     | MCA 14 | P8: Braking torque 26 Nm                               |
|                                     | MCA 17 | P5: Braking torque 24 Nm                               |
|                                     | MCA 19 | P5: Braking torque 46 Nm                               |
|                                     | MCA 21 | P5: Braking torque 88 Nm                               |
| <b>24 V spring-applied brake</b>    | MCA 20 | F1: Braking torque 90 Nm<br>F2: Braking torque 150 Nm  |
|                                     | MCA 22 | F1: Braking torque 150 Nm<br>F2: Braking torque 300 Nm |
|                                     | MCA 26 | F1: Braking torque 300 Nm                              |
| <b>205-V spring-applied brake</b>   | MCA 20 | FG: Braking torque 90 Nm<br>FH: Braking torque 150 Nm  |
|                                     | MCA 22 | FG: Braking torque 150 Nm<br>FH: Braking torque 300 Nm |
|                                     | MCA 26 | FG: Braking torque 300 Nm                              |

## Feedback

|                            |  |                      |
|----------------------------|--|----------------------|
| <b>Resolver</b>            | Resolver RS0   | Included as standard |
|                            | Resolver for functional safety RV03  |                      |
| <b>Encoder</b>             | HIPERFACE® SinCos absolute value encoder AM1024-8V-H, multi-turn, 1024 pulses  |                      |
|                            | HIPERFACE® SinCos absolute value encoder AS1024-8V-H, single-turn, 1024 pulses |                      |
| <b>Endat</b>               | SinCos absolute value encoder AM32-5V-E, multi-turn, 32 pulses                 |                      |
|                            | SinCos absolute value encoder AM2048-5V-E, multi-turn, 2048 pulses             |                      |
|                            | SinCos absolute value encoder AS2048-5V-E, single-turn, 2048 pulses            |                      |
| <b>Incremental encoder</b> | SinCos incremental encoder IG1024-5V-V3 for functional safety, 1024 pulses     |                      |
|                            | SinCos incremental encoder IG2048-5V-S, 2048 pulses                            |                      |
|                            | TTL incremental encoder IG2048-5V-T, 2048 pulses                               |                      |
|                            | TTL incremental encoder IG4096-5V-T, 4096 pulses                               |                      |

## Cooling

|                         |            |  |
|-------------------------|------------|--|
| <b>External cooling</b> | For MCA 13 |  |
|                         | For MCA 14 |  |
|                         | For MCA 17 |  |
|                         | For MCA 19 |  |
|                         | For MCA 20 |  |
|                         | For MCA 21 |  |
|                         | For MCA 22 |  |
|                         | For MCA 26 |  |

## Operation

|   |   |                      |
|---|---|----------------------|
| <b>Degree of protection</b>             | IP65 for self-cooled motors                       |                      |
| <b>Surface and corrosion protection</b> | G: primed   | Included as standard |
|   | S: Indoor installation, 90% air humidity          |                      |
|   | M: Covered outdoor installation, 95% air humidity |                      |
|   | L: Outdoor installation, 95% air humidity         |                      |
| <b>Color</b>                            | primed, RAL 9005 (jet black)                      | Included as standard |
|   | RAL colors  |                      |

## Machine connections

|                   |                                |                      |
|-------------------|--------------------------------|----------------------|
| <b>Shaft</b>      | Solid shaft with featherkey    | Included as standard |
|                   | Solid shaft without featherkey |                      |
| <b>Shaft seal</b> | Simple seal                    | Included as standard |
|                   | Oil-tight seal                 |                      |

## MCA asynchronous servo motors – accessories

## Cooling

|   |            |           |
|---|------------|-----------|
|   |            | <b>ID</b> |
| <b>Dust filter for external cooling</b> | For MCA 20 |           |
|   | For MCA 22 |           |
|   | For MCA 26 |           |

## System cables

|                        |  |
|------------------------|--|
| <b>Motor cables</b>    | See brochure "Accessories for frequency and servo inverters" |
| <b>Feedback cables</b> | See brochure "Accessories for frequency and servo inverters" |
| <b>Blower cables</b>   | See brochure "Accessories for frequency and servo inverters" |

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