

# Pancake DC Servo Motor - AXEM Series

## Overview

### Description

The AXEM motor, with more than 2 million units produced, is one of the most widespread servo motors in the world. With its disk rotor, composed solely of copper and insulator the Axem motor achieves high dynamics and excellent regulation of motion at low speed, as well as silent and vibration-free functioning. It is robust, efficient, and low maintenance.

### Advantages

- Very low speed modulation
- Exceptional regulation at low speed
- High dynamic characteristics  
low rotor inertia
- Silent and vibration-free functioning
- Maintenance free
- Disk rotor
- Protection: IP44  
IP20 for ventilated models
- Class F insulation

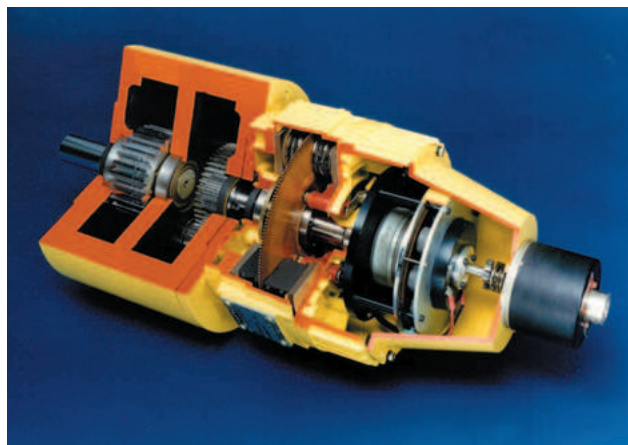
### Applications

- Factory Automation
- Life Science Diagnostic



### Technical Characteristics - Overview

<b>Nominal torque</b>	0.14...19.2 Nm
<b>Nominal current</b>	6.4...44 A
<b>Nominal voltage</b>	14...178 V
<b>Nominal speed</b>	3000, 4800 min <sup>-1</sup>
<b>Inertia</b>	29...7400 kgmm <sup>2</sup>



## Technical Data

Motor	Nominal torque [Nm]	Nominal current [A]	Nominal voltage [V]	Nominal speed [min <sup>-1</sup> ]	Inertia [kgmm <sup>2</sup> ]
F9M4R	0.14	6.4	22	4800	35
F9M2	0.282	11	14	3000	29
F9M4	0.346	6.7	26	3000	35
F9M4H	0.537	6.5	35	3000	34
F12M4R	0.42	8	37	4800	150
F12M2	0.61	11.7	24	3000	105
F12M4	0.77	7.7	43	3000	150
F12M4H	1.1	7.2	61	3000	160
MC13S	1.2	7.6	64	3000	235
MC17H	1.8	6.9	102	3000	790
MC17B	1.2	24	23.5	3200	790
MC19P	3.2	14.5	83	3000	1000
MC19P <sup>(1)</sup>	5.1	22.2	87	3000	1000
MC19S	3.2	7.3	165	3000	1000
MC19S <sup>(1)</sup>	5.1	11.1	171	3000	1000
MC19B	2.8	46	23.5	3000	1000
MC23S	6.1	13	170	3000	2300
MC23S <sup>(1)</sup>	10.5	21.8	178	3000	2300
MC24P	7.3	18.9	136	3000	3200
MC24P <sup>(1)</sup>	14.3	36	142	3000	3200
MC27P	14.3	33	152	3000	7400
MC27P <sup>(1)</sup>	19.2	44	154	3000	7400

<sup>(1)</sup> Cooling by external fan 10 l/s

Encoder					
Type	Associated motor	Pulse/rev.		Inertia [kgmm <sup>2</sup> ]	Weight [kg]
		standard	option		
C2	F	500	1000	0.1	0.035
		250			
C4	F	500	1000	2.3	0.2
			2500		
C6B	MC	500	1000	3	0.45
			2500		
			5000		

Tachy		
Type	Associated motor	EMF [V/1000 min <sup>-1</sup> ]
F9T	F9	3
FC12T	F12 / MC	6
TBN 206	F9 / F12	6
TBN 420	MC	20

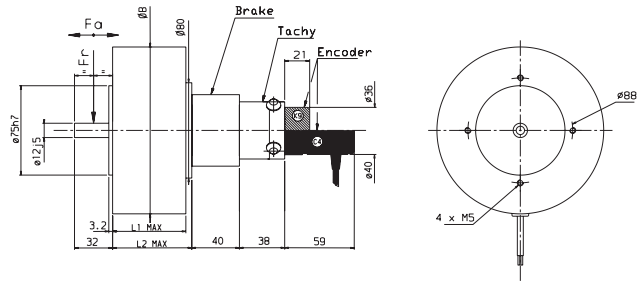
Brake (24 VDC ± 10%)				
Associated motor	Holding torque		Inertia [kgmm <sup>2</sup> ]	Weight [kg]
	Magnet brake [Nm]	Spring brake [Nm]		
F9 - F12	-	1.5	10	0.47
MC13	2	-	23	0.3
MC17 / MC19	5	-	65	0.6
MC23 / MC24	12	-	214	1.1
MC27	20	-	570	1.9
MC17	-	4	25	1.4
MC19	-	8	70	1.9
MC23 / 24 / 27	-	16	135	2.8

## Dimensions

### F9 - F12 dimensions

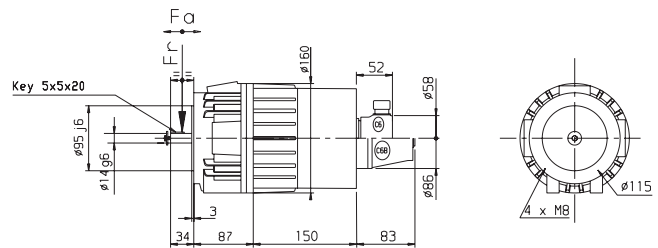
Motor	L1 [mm]	L2 [mm]	Weight [kg]	Fr <sup>(1)</sup> [daN]	Fa <sup>(1)</sup> [daN]
F9M4R	34	46.5	1.1	14	2.5
F9M2	52.5	65	2.3	14	2.5
F9M4	52.5	65	2.3	14	2.5
F9M4H	64	76.5	2.8	14	2.5
F12M4R	37.5	51	2.9	14	2.5
F12M2	61.5	71.5	3.85	14	2.5
F12M4	61.5	71.5	3.85	14	2.5
F12M4H	74	84	5	14	2.5

F9:  $\phi B = \phi 110$   
F12:  $\phi B = \phi 140$



### MC13 dimensions

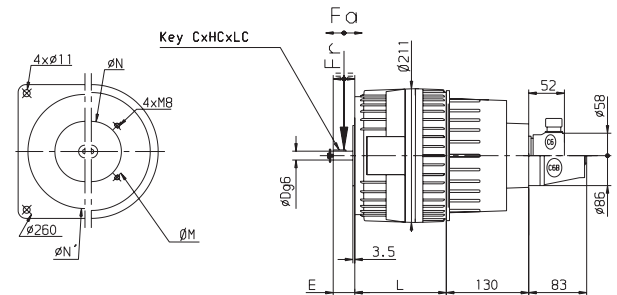
Motor	Weight [kg]	Fr <sup>(1)</sup> [daN]	Fa <sup>(1)</sup> [daN]
MC13	4	35	13



### MC17 - MC19 dimensions

Motor	M [mm]	N [mm]	N <sup>(1)</sup> [mm]	E [mm]	L [mm]	Weight [kg]	Fr <sup>(1)</sup> [daN]	Fa <sup>(1)</sup> [daN]
MC17	115	95	180	34	163	6.5	60	35
MC19	165	130	130	50	163	9.7	60	35

MC17: C x HC x LC = 5 x 5 x 20  
MC19: C x HC x LC = 8 x 7 x 32



### MC23 - MC24 - MC27 dimensions

Motor	L [mm]	B [mm]	Weight [kg]	Fr <sup>(1)</sup> [daN]	Fa <sup>(1)</sup> [daN]
MC23	173	278	17	75	40
MC24	185	278	23	80	45
MC27	198	316	35	90	50

Dimensions including brake, tachy and encoder  
(<sup>1</sup>) Fr and Fa not cumulative

