AUTOMATION TRADER

1FT5103-5AF91-9-Z

Industrial automation components

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Manufacturer	Siemens
Catalog number	1ft5103-5af91-9-z
Category	Industrial automation components
Product type	Industrial automation components
Status	Active product

Technical specification

Rated Speed	3000 RPM
Rated Torque	20.0 Nm
Standstill Torque (60 K)	19.0 Nm
Standstill Torque (100 K)	25.0 Nm
Moment of Inertia (without brake)	110 10^{-4} kg·m²
Moment of Inertia (with brake)	195 10^{-4} kg·m²
Maximum Speed	4200 RPM
Maximum Torque	76.0 Nm
Maximum Current	93.0 A
Limiting Torque	45.0 Nm
Torque Constant	1.10 Nm/A

Description

The Siemens 1FT5103-5AF91-9-Z is a compact AC servomotor designed for precise motion control applications. Operating at a rated speed of 3000 RPM, it delivers a rated torque of 20.0 Nm, making it suitable for tasks requiring high-speed and moderate torque performance.

The motor operates at a rated current of 20.0 A, ensuring efficient energy consumption during operation. With a standstill torque of 19.0 Nm at 60 K and 25.0 Nm at 100 K, it provides reliable performance during startup and low-speed operations.

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The motor's moment of inertia is 110 × 10^{-4} kg·m^2 without a brake and 195 × 10^{-4} kg·m^2 with a brake, indicating its responsiveness to dynamic changes. Designed for versatility, it can achieve a maximum speed of 4200 RPM and a maximum torque of 76.0 Nm, accommodating a range of demanding applications.

The motor's maximum current is 93.0 A, and it has a limiting torque of 45.0 Nm, ensuring safe operation under varying conditions. Key physical constants include a torque constant of 1.10 Nm/A and a voltage constant of 124 V/1000 RPM, contributing to its efficient performance.

The winding resistance is 0.20 Ohm, and the rotating field inductance is 3.0 mH, supporting stable operation. The motor features electrical and mechanical time constants of 17 ms and 3.8 ms, respectively, facilitating rapid response to control signals.

With a thermal time constant of 45 minutes, it effectively manages heat dissipation during extended operations. The motor weighs 22 kg without a brake and 26 kg with a brake, reflecting its robust construction.