B&R 8KSC Series Service Manual

8KSC94.ee030ff00-h

1. Description

8KSC high-torque three-phase synchronous servo motor (8KS series). Permanent-magnet synchronous motor with optimized external ventilation or liquid cooling for very high torque and power density, high efficiency and high dynamics. Ideal for the most demanding applications in general machine manufacturing, supported by a high overload capacity. Robust and compact, virtually maintenance-free. Features: nominal power up to 140 kW, air-cooled or water-cooled variants, encoders for functional safety, high dynamic torque at high speeds.

2. Technical Parameters

Parameter	Value
Nominal speed nN [rpm]	3000
Number of pole pairs	3
Nominal torque Mn [Nm]	260
Nominal power PN [W]	81681
Nominal current IN [A]	160
Stall torque M0 [Nm]	405
Stall current I0 [A]	245
Maximum torque Mmax [Nm]	875
Maximum current Imax [A]	585
Maximum speed nmax [rpm]	3600
Torque constant KT [Nm/A]	1.7
Voltage constant KE [V/1000rpm]	117
Stator resistance R2ph [Ohm]	0.022
Stator inductance L2ph [mH]	1.01
Electrical time constant tel [ms]	45.091
Thermal time constant ttherm [min]	43.9
Moment of inertia J [kg·cm2]	1800
Mass m (without brake) [kg]	255
Holding torque of brake MBr [Nm]	320
Brake mass [kg]	29
Moment of inertia of brake JBr [kg·cm2]	90
Cable cross-section [mm2]	0
Connector size/type	Terminal box

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3. Product Information

Order number: 8KSC94.ee030ff00-h

Additional information from the manufacturer's manual:

Compliance: UL/C-UR-US listed, UL file E480221 (cooling type C); standards EN 60034-1/5/6/7/11/14; environmental class 3K3/3Z12 per DIN EN 60721-3-3. Life-cycle status not stated in the manual.

Rating & cooling: EN 60034-1 S1 continuous; insulation class IEC 60085 F; cooling externally cooled with independent centrifugal fan module, IC 416 (air-flow direction B to A); thermal protection KTY84-130, max winding temp 155 degC (110/130 degC via ACOPOS with EnDat/resolver).

Mounting per EN 60034-7: horizontal IM B5 or IM B35. FF flange per IEC; shaft end per DIN 748 (center hole DIN 332 Form D); key/keyway DIN 6885-1 Form A; balancing DIN ISO 8821 half-key; runout DIN 42955 tolerance N; coating water-based RAL 9005; bearing life LH10 20,000 h (roller bearings, permanent lubrication).

Environment: class 3K3/3Z12 at 0..+40 degC (= -15..+60 degC), rel. humidity 5-85% (abs. humidity 1-25 g/m3); max. elevation 1000 m; IP54 per EN 60034-5; vibration resistance per EN 60068-2-6: radial 3 g / axial 1 g (10-55 Hz); max. flange temp: no limitation.

Shaft loads: permissible radial force per model (Fr vs average-speed diagrams); optional reinforced A-side bearing increases allowable Fr/Fa. Noise: fan module 74-78 ±3 dB(A) (400 VAC).

Feedback: resolver, EnDat 2.1 (ECN 1313 single-turn / EQN 1325 multi-turn) or EnDat 2.2; encoders for functional safety available. Power via terminal box; encoder via speedtec or ITEC circular connectors.

Safety: encoders support functional safety (safety-related position measurement); STO implemented by the connected ACOPOS servo drive (not motor-embedded in the manual).