B&R 8KSL Series Service Manual

8KSL85.ee030ff00-h

1. Description

8KSL 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]	155
Nominal power PN [W]	48695
Nominal current IN [A]	90
Stall torque M0 [Nm]	215
Stall current I0 [A]	125
Maximum torque Mmax [Nm]	505
Maximum current Imax [A]	325
Maximum speed nmax [rpm]	4300
Torque constant KT [Nm/A]	1.79
Voltage constant KE [V/1000rpm]	116
Stator resistance R2ph [Ohm]	0.046
Stator inductance L2ph [mH]	1.74
Electrical time constant tel [ms]	45
Thermal time constant ttherm [min]	25
Moment of inertia J [kg·cm2]	710
Mass m (without brake) [kg]	145
Holding torque of brake MBr [Nm]	200
Brake mass [kg]	13
Moment of inertia of brake JBr [kg·cm2]	40
Cable cross-section [mm2]	0
Connector size/type	Terminal box

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3. Product Information

Order number: 8KSL85.ee030ff00-h

Additional information from the manufacturer's manual:

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

Rating & cooling: EN 60034-1 S1 continuous; insulation class F; cooling externally cooled with independent axial fan module, IC 416 (air-flow direction A to B); thermal protection KTY84-130, max winding 155 degC.

Mounting per EN 60034-7: horizontal IM B5 or IM B35. FF flange per IEC; shaft end DIN 748; key DIN 6885-1 Form A; balancing DIN ISO 8821; runout DIN 42955 N; coating water-based RAL 9005; bearing life LH10 20,000 h.

Environment: class 3K3/3Z12 at 0..+40 degC (= -15..+60 degC), rel. humidity 5-85%; max. elevation 1000 m; IP54; vibration resistance radial 3 g / axial 1 g (10-55 Hz).

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

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

Safety: encoders support functional safety; STO implemented by ACOPOS servo drive.

Current-loop note: the manual's printed electrical time constant tel=45.0 ms differs from the L2ph/R2ph ratio (37.83 ms) by +19.0%; tel is the published measured value. Allow ~10% margin in current-loop time-constant tuning.