B&R 8LSC Series Service Manual

8LSC83.ee015ffgg-3

1. Description

8LSC three-phase synchronous servo motor (externally fan-cooled). Permanent-magnet, electronically commutated synchronous motor for applications requiring excellent dynamic characteristics, positioning precision, compact size and reduced weight. Features a large overload capacity, single-cable (hybrid) solution option, encoders for functional safety and optimized torque rippling for good controllability.

2. Technical Parameters

Parameter	Value
Nominal speed nN [rpm]	1500
Number of pole pairs	3
Nominal torque Mn [Nm]	45.5
Nominal power PN [W]	7147
Nominal current IN [A]	14
Stall torque M0 [Nm]	52
Stall current I0 [A]	16
Maximum torque Mmax [Nm]	120
Maximum current Imax [A]	50
Maximum speed nmax [rpm]	3600
Torque constant KT [Nm/A]	3.26
Voltage constant KE [V/1000rpm]	196.87
Stator resistance R2ph [Ohm]	0.896
Stator inductance L2ph [mH]	16.86
Electrical time constant tel [ms]	18.8
Thermal time constant ttherm [min]	50
Moment of inertia J [kg·cm2]	65
Mass m (without brake) [kg]	47.7
Holding torque of brake MBr [Nm]	[illegible]
Brake mass [kg]	9
Moment of inertia of brake JBr [kg·cm2]	53
Cable cross-section [mm2]	4
Connector size/type	1.5
Recommended servo drive (ACOPOS)	024X

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3. Product Information

Order number: 8LSC83.ee015ffgg-3

Additional information from the manufacturer's manual:

Compliance: NOT C-UR-US listed (in this manual only the 8LSA series carries UL, file E360421); conforms to LVD 2014/35/EU, EMC 2014/30/EU and RoHS 2011/65/EU; standards EN 60034-1/7/11/14.

Life-cycle status not stated in the manual.

Rating & cooling: EN 60034-1 S1 continuous; insulation class IEC 60085 F; cooling externally fan-cooled with machine-mounted independent fan component, IC4A0A6; thermal protection KTY83-110 / AM-PTC1000, max winding temp 155 degC (110/130 degC via ACOPOS with EnDat/resolver); vibration severity A1 per EN 60034-14; bearing life per DIN ISO 281; coating water-based RAL 9005.

Mounting per EN 60034-7 (IM): IM 3001 horizontal / IM 3011 / IM 3031. Flange DIN 42948 Form A; shaft end DIN 748 Form E; key DIN 6885-1 Form A; runout DIN 42955 tolerance R.

Environment: operating -15..+40 degC (max +55 degC); derate 10%/10 K, 5%/1000 m; max. elevation 2000 m; max. flange temp 65 degC; IP64 per EN 60034-5, fan IP20 (IP65 / fan IP20 with optional oil seal DIN 3760); storage/transport -20..+60 degC, humidity max. 90% non-condensing.

Shaft loads: permissible radial/axial forces are speed-dependent (Fr/Fa diagrams per model); optional 'Reinforced A-side bearing' (sizes 4-8) increases allowable forces. Noise: only the fan module is specified - 24 VDC fan 57 dB(A) size 4 / 53 dB(A) sizes 5-6 / 52 dB(A) sizes 7-8; 230 VAC fan 37 dB(A) size 4 / 60 dB(A) sizes 5-8.

Feedback: resolver (R0/R2) or EnDat (inductive/optical, incl. safety-related variants); 32-line single-/multi-turn; built-in plug-in connectors; single-cable (hybrid) solution available.

Safety: encoders for functional safety available; STO implemented by ACOPOS servo drive (not motor-embedded in the manual).

Generation coverage note: this 8LSC83 motor is generation -3. B&R has NOT published a -4 generation document for the 8LSC83 frame; the -4 generation update covers only 8LSA23-27/34-47/53-57 and 8LSC44-47/53-57 (8LSCB3-B6). Fan noise below is the generation -3 reference value 52 dB(A).