B&R 8JSB Series Service Manual

8JSB31.ee050ff00-0

1. Description

8JSB stainless steel servo motor for hygienic applications. Hygienic design enables efficient cleaning in food production and biomedical engineering; developed in strict accordance with EHEDG hygiene standards with smooth 100% stainless-steel housing (surface finish < 0.8 µm), IP69K protection, rounded corners and seamless transitions to prevent accumulation of contaminants. Highest power density in its class, with plug-in connectors, a robust single-cable (hybrid) solution, FDA-approved heat-resistant cables, laser-engraved type plate and B5/B14 mounting methods.

2. Technical Parameters

Parameter	Value
Nominal speed nN [rpm]	5000
Number of pole pairs	4
Nominal torque Mn [Nm]	0.86
Nominal power PN [W]	450
Nominal current IN [A]	1.02
Stall torque M0 [Nm]	1
Stall current I0 [A]	1.29
Maximum torque Mmax [Nm]	4.41
Maximum current Imax [A]	6.9
Maximum speed nmax [rpm]	8000
Torque constant KT [Nm/A]	0.85
Voltage constant KE [V/1000rpm]	54.5
Stator resistance R2ph [Ohm]	21.417
Stator inductance L2ph [mH]	37.5
Electrical time constant tel [ms]	1.751
Thermal time constant ttherm [min]	24
Moment of inertia J [kg·cm2]	0.33
Mass m (without brake) [kg]	4.1
Holding torque of brake MBr [Nm]	2.5
Brake mass [kg]	0.7
Moment of inertia of brake JBr [kg·cm2]	0.012
Cable cross-section [mm2]	2.5
Connector size/type	1.0
Recommended servo drive (ACOPOS)	0014

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3. Product Information

Order number: 8JSB31.ee050ff00-0

Additional information from the manufacturer's manual:

Compliance: UL/C-UR-US listed, file PRHZ2.E360421; EHEDG certificate status per manual: 'Certification in preparation'; external materials FDA-compliant; no 3-A, USDA or EC 1935/2004 listed. Life-cycle status (Active/Phase-out) is not stated in this manual.

Materials & seals (FDA 21 CFR refs per handbook): housing stainless steel 1.4404; mounting bolts 1.4404 (FDA 175.300); O-rings EPDM (FDA 177.2600); oil seal mineral-filled PTFE single-lip (FDA 175.300/177.1500); bearing grease food-grade (FDA 178.3570); key/keyway stainless 1.4404 (DIN 6885-1 Form A). Surface roughness Ra < 0.8 um (meets EHEDG spec).

Rating & cooling: EN 60034-1 S1 continuous; insulation class IEC 60085 F; cooling self-cooled, IC 400 / IC 4A0A0; thermal protection KTY83-110 (max winding temp 140 degC, 110 degC with EnDat); vibration severity A per EN 60034-14; bearing life 20,000 h per DIN ISO 281.

Mounting per DIN EN 60034-7: 8JSB = IM B5 horizontal (only); 8JSQ = IM B14 horizontal or IM V18 vertical. Flange per IEC 60072-1; shaft end cylindrical DIN 332-2 Form D; balancing DIN ISO 1940/1 severity G 6.3.

Shaft loads: permissible radial/axial forces are speed-dependent (Fr/Fa diagrams in the Technical data chapter); axial forces are not permitted on motors with holding brake or EnDat encoder. Noise: the manual does not give a motor-body sound level.

Environment: operating 0..+40 degC (derate 5% per 5 K above); max. elevation 1000 m (derate 6%@2000 m / 17%@3000 m / 30%@4000 m / 55%@5000 m); IP69K per EN 60034-5; storage -25..+55 degC (class 1K4) & transport -25..+70 degC (class 2K3), humidity 5-95% non-condensing.

Cleaning: washdown must respect the IP69K jet limits (pressure/temperature/angle/distance); cleaning only with power removed and by qualified personnel; wire brush/scraper not permitted. FDA-compliant heat-resistant cables (up to 150 degC) with automatic pressure compensation.

Feedback: inductive EnDat 2.2 encoder, single-turn or multi-turn. Motor & encoder connected via Intercontec 'htec' circular connectors (single-cable hybrid solution, size 1).

Safety: the manual gives general machine-level safety guidelines only; it does not claim an integrated motor-level STO or SIL3/PLe. For vertical axes an additional external mechanical brake is recommended.