

PRODUCT SPECIFICATION FOR DC MOTOR

MODEL: 4 Watt
TYPE: 9904 120 52401---9904 120 52711

1. Type indication

- 1.1 Spark suppression Varistor
- 1.2 Direction of rotation Reversible
- 1.3 Rotor Ironcore
- 1.4 Nominal data: See sheet 4&5

2. Electrical data of motor

- 2.1 Terminal resistance motor 9904 120 524.. 3.6 Ω ± 8%
- 2.2 Terminal resistance motor 9904 120 526.. 15.0 Ω ± 8%
- 2.3 Terminal resistance motor 9904 120 527.. 58.0 Ω ± 8%
- 2.4 EMF at 3000 rpm of motor 9904 120 524.. 4.38 V ± 10%
- 2.5 EMF at 3000 rpm of motor 9904 120 526.. 9.40 V ± 10%
- 2.6 EMF at 3000 rpm of motor 9904 120 527.. 18.79 V ± 10%

3. Thermal data

- 3.1 Temperature coefficient of:
 - 3.1.1 Motor EMF -0.2 %/K
 - 3.1.2 Resistance +0.4 %/K
- 3.2 Thermal resistances:
 - 3.2.1 From winding to housing (Rht1) 30 K/W
- 3.3 Thermal time constant of motor without heatsing 30 min

4. Electromechanical data

- 4.1 No load See sheet 4&5
- 4.2 Starting torque 1 V (max.)
- 4.3 Loaded See sheet 4&5
- 4.4 Typical curves See sheet 6 to 15
- 4.5 Insulation resistance between winding and housing according to IEC 335-1 (500 VDC) >2MΩ

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			01-01-04
			01-02-19 RvZ
			01-12-21 RvZ
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- 5. Mechanical data
 - 5.1 Dimensions See sheet 112-1
 - 5.2 Axial play 0.2 - 0.5 mm
 - 5.3 Wobble of the shaft -
 - 5.4 Weight 125 g
 - 5.5 Housing Acetal
 - 5.6 Operation position All positions permitted
 - 5.7 Brushes Carbon
 - 5.8 Bearings Slide
 - 5.9 Connections Solder tags

- 6. General specifications

Unless otherwise specified general requirements are specified in reference sheet PN40-01-98 ←

- 7. Temperatures
 - 7.1 Ambient -10 to 60 °C
 - 7.2 Storage -30 to 80 °C

- 8. Remarks

If not otherwise specified, the measurements have to be done under the following conditions

 - 8.1 Motor temperature 22 ±5 °C
 - 8.2 Atmospheric pressure 860 - 1060 HPa
 - 10.3 Relative humidity 45 - 75 %
 - 10.4 Radial force None
 - 10.5 Axial force None

A

B

C

D

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9 Limiting values

- 9.1 The following maximum values can be applied continuously, however they reduce the life of the motor considerably.
- 9.1.1 Voltage 1,2 x Vnom.
 - 9.1.2 Load 2 x Loadnom.
 - 9.1.3 Current 2 x Inom.
 - 9.1.4 Speed 1.2 x Nnom.
 - 9.1.5 Output power 3 W
 - 9.1.6 Radial force See sheet 4&5
 - 9.1.7 Axial force See sheet 4&5
- 9.2 The following maximum values should never be exceeded
- 9.2.1 Winding temperature 130 °C

10. Life

10.1 Conditions for life

- 10.1.1 Voltage Nominal
- 10.1.2 Load Nominal
- 10.1.3 Radial force None
- 10.1.4 Axial force None
- 10.1.5 Motor position Horizontal
- 10.1.6 Addition of lubricant Not permitted
- 10.1.7 Cycle Continuous

10.2 Life B10 value > 1000 h

10.3 Criteria for approval: Motor function remains intact.
If the *Warning signal* level (see below) is reached in the life test setup, the motor is regular tested for the criteria 10.3.1 to 10.3.3 that prescribe when motor life is finished.

Warning signal: The motor is build out from the life test setup if as warning signal the motor current deviates $\pm 20\%$ of the initial zero hour value or the audible noise is dramatically increased or if significant interruptions occur in the commutation wave form.

- 10.3.1 Commutation wave form No blocked interruptions;
Motor should start up in all rotor positions with motor voltage of item 4.2
- 10.3.2 No load current 2 times the max. no load current of sheets 190-4
- 10.3.3 Bearings Bearing function remains intact

and5

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