

# 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  $\Omega \pm 8\%$
- 2.2 Terminal resistance motor 9904 120 526.. 15.0  $\Omega \pm 8\%$
- 2.3 Terminal resistance motor 9904 120 527.. 58.0  $\Omega \pm 8\%$
- 2.4 EMF at 3000 rpm of motor 9904 120 524.. 4.38 V  $\pm 10\%$
- 2.5 EMF at 3000 rpm of motor 9904 120 526.. 9.40 V  $\pm 10\%$
- 2.6 EMF at 3000 rpm of motor 9904 120 527.. 18.79 V  $\pm 10\%$

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 heating 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)  $>2M\Omega$

75-05-23	<b>Motor assy</b>	<b>9904 120 52401</b>	94-09-28
			01-01-04
			01-02-19 RvZ
			01-12-21 RvZ
Supers.	Sheet. 190-1 15	PROPERTY OF <b>PRECISION MOTOR TECHNOLOGY BV</b> DORDRECHT - THE NETHERLANDS	
Name. R.v. Zeelst	Date. 98-06-02		

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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	

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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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