PNEUMATIC STEPPING MOTOR BPS

Operating instructions

Introduction

The purpose of these operating instructions is to familiarise you with the pneumatic stepping motor BPS and its functions. These instructions contain safety information and notes about assembly, programming, operation and maintenance.

Machine safety

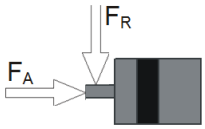
The BPS was classified as an incomplete machine according to Directive 2006/42/EC. The following risk factors must be taken into account when installing in a machine:

- Noise and vibration.
- Hot surfaces (depending on the installation, the surface may become> 70 ° C hot).
- Contact to rotating shaft end.

The entire machine may only be put into operation if a conformity assessment.

Technical data

Size	1620	2532
Hollow shaft possible	yes	yes
Protection class	55	55
Step angle (°)	3	3
Repeat accuracy	±9'	±9'
Max. moment of mass inertia$_1$ (kgm^2)	0,0042	0.01
Max. torque $_1$ (Nm) ±10%	3,3	10
Max. speed $_2$ (1/min)	24	20
Max. holding torque pressure less (Nm)	7	7
Max. holding torque 6bar (Nm)	20	60
Plug rotation control	M12, 5-pin	M12, 5-pin
Max. FR under radial load only (kN)	1,24	1,75
Max. FA under axial load only (kN)	1,75	2,45
Air consumption (litre/turn)	0,75	3,31



1 Test conditions: 6 bars, hose length 1 m, valve retardation 40 ms

2 Test conditions: 6 bars, matrix direct, valve retardation10 ms, without load

Installation dimension

The installation and connection dimensions can be found in the respective type drawing.

Function

The BPS enables precise rotational movements to be performed in steps of 3°. The BPS with hollow shaft and spindle generates a linear movement.

The stepping movement is achieved by pneumatic actuation of 3 pistons. Because of the self-locking function, the BPS maintains its position in the event of a power failure and no step loss occurs (considering the holding torque).

For operation without a sensor unit, the BPS continues to rotate internally if the spindle is mechanically locked.

Operating conditions

- Dried and filtered compressed air (5 µm) at max. 6 bars (indicated by valve manufacturer).
- Ambient temperature:
  stepping motor:-25°C to +70°C.
  Matrix valve: -10°C to +50°C.
- Acids and alkaline substances may damage the motor.

For special operating conditions (temperature, contact with fluids etc), please contact your service partner to enable your particular application to be studied.

Repeat accuracy ±9' absolute with uniform load direction.

When changing the load direction, a load alternation of 50' must be respected under maximum load.

When mounted on sheet metal structures, motor vibrations may cause noise to occur.

Assembly

The motor can either be fitted from the front by means of the 3 threads or else using the 3 continuous bores. With flanged matrix valve: The three through holes can only be used with size BPS-2532

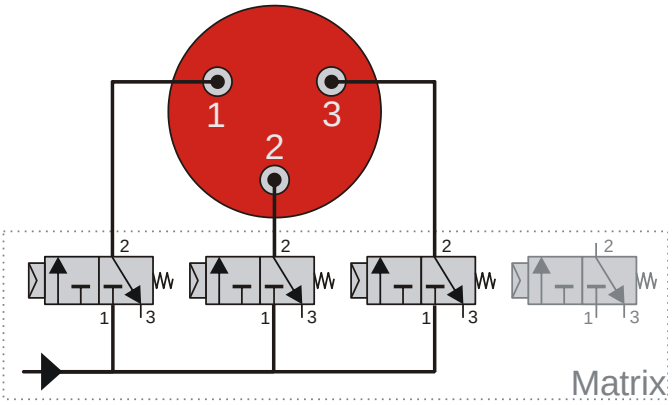
Before fitting, we advise placing the BPS under pneumatic pressure. This protects the transmission components when the motor shaft or the spindle is tightened.

When assembling the transmission components (plate, wheels etc.), please make sure that the torque applied to the drive shaft does not exceed the indicated maximum.

After installation, check the connection of the motor and valves for absence of leakage.

Actuation

3 valves (3/2 way) ore a matrix valve are required for actuation.



Programming

The BPS is generally incorporated into a PLC (Programmable Logic Controller).

In the event of operation with sensors, the latter report the current position of the 3 pistons to the control with a 24 VDC signal PNP.

Program modules for the Siemens PLC are available free of charge at www.baumitech.ch.

Choose the direction of rotation

The direction of rotation of the stepper motor is determined by the command sequence of the pneumatic control.

1-2-3 = Direction of rotation forward

3-2-1 = Direction of rotation backwards

Signal logic

Valve 1 on – Sensor 1 on - Valve 1off
= Step from 3°

Valve 2 on - Sensor 2 on - Valve 2off
= Step from 3°

Valve 3 on - Sensor 3 on - Valve 3off
= Step from 3°

If all valves have switched once, this results in an angle change of 9°.

Connection for rotation control

1 brown	+24 V
2 white	S3
3 blue	Ground
4 black	S1
5 grey	S2

Sensor plug on motor side M12, 5-pin A-coded

The wiring is present in the wiring diagram.

Operation

The indicated conditions and maximum torque and the maximum moment of mass inertia must not be exceeded.

Maintenance

Repairs may be performed only by authorised qualified personnel. Otherwise, the warranty claim will lapse.

To exchange wear parts, please contact your service partner.

Disposal

The BPS complies with the RoHS guideline. Materials which are no longer in service should be taken for recycling. Disposal of the BPS must comply with local specifications.

Accessories and special versions

Please contact us for special applications. We will be happy to work with you to design a solution.

Further information about our pneumatic stepping motors is available on the Internet:

www.baumitech.ch

Your service partner

Manufacturer

Baumgartner Maschinenbau AG
Gewerbestrasse 11, Lätti
CH-3053 Münchenbuchsee

Tel +41 (0)31 868 44 45
Fax +41 (0)31 868 44 40
Mail info@baumitech.ch

http:// www.baumitech.ch