

Motor and gearbox of the SP3701-V7368

Videos of the running motor and gearbox can be found at [this link](#).

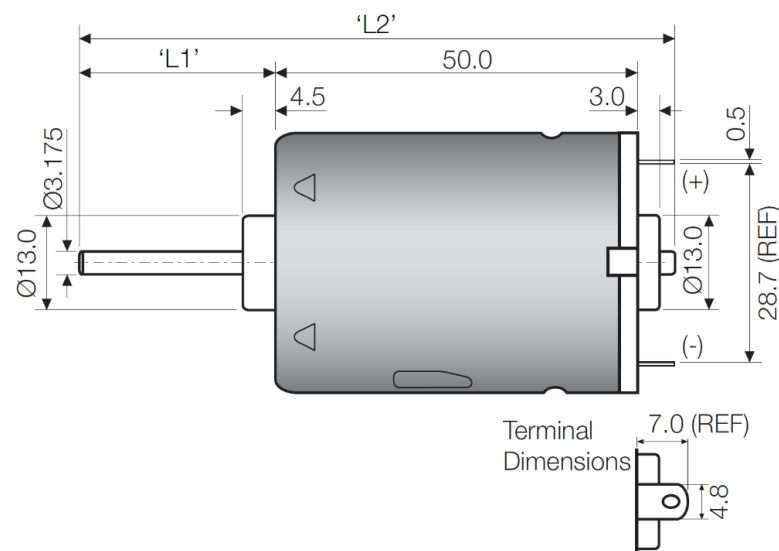
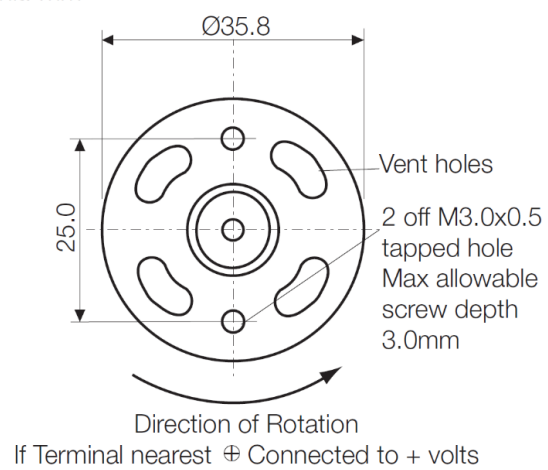
Probably this motor is used for the SP3701. Diameter of the motor is 36mm, length is 50 mm. **Max. power 31 W at 24 V. Range is 12V to 30V.**

Model	Voltage Range (V)	Nominal Voltage (V)	No Load Speed (rpm)	No Load Current (A)	Speed (rpm)	Current (A)	Torque (mNm) at current	Output (W)	Stall Torque (mNm)	Stall Current (A)	Max Power (W)	Data Sheet
D3650-22100V	9-30	24	9000	0.28	7643	1.50	19.8	15.9	131.4	8.2	31.0	Download
D3650-22100V	9-30	12	4500	0.22	3645	0.70	12.5	4.8	65.7	4.1	7.7	

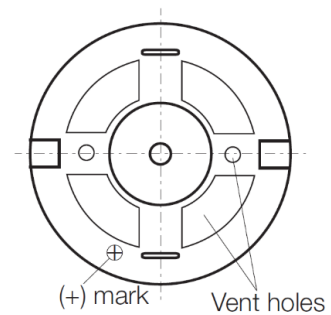
Measured values:

- Test **at 12V**: 10 revolutions in 28.89 seconds is **22,77 rpm**. This times 205 ratio gives a motor speed of 4258 rpm. As a gearbox gives friction, this seems to be correct.
- Test **at 24V**: 10 revolutions in 14.59 seconds is **41,12 rpm**. This times 205 ratio gives a motor speed of 8430 rpm. Also correct.
- With manually blocked axis current consumption at 1,27 is 250mA, measured on the uncalibrated low precision power supply. This gives at 12V 2,36 A, and at 24V 4,7A. As this includes the wiring to the power supply, this is probably correct. But it is also possible the resistance of the motor is higher than in the table above, so the maximal torque might also be lower in that case.
 - Meaning the stall torque might be at 12V 57,69 mNm. Near enough to be correct.
 - And at 24V 115 mNm.

Unit: mm



General



Specification

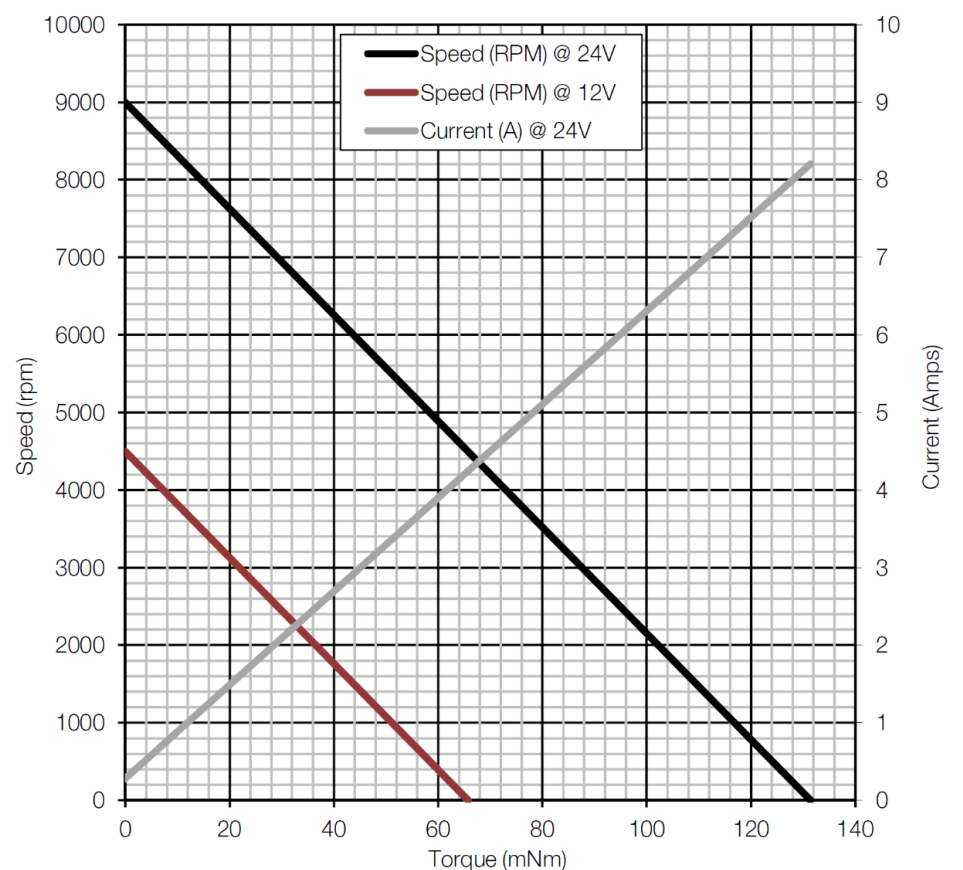
Bearings:	Sintered
Brushes:	Carbon
Rotation:	Bi-directional
Number of poles:	5
Operating voltage:	9 V to 30 V (12V shown)
Nominal resistance:	4.4 Ω
Nominal inductance:	3 mH
Typical detent torque:	6 mNm
Suppression:	Internal ring varistor
Weight (D3650-22100V):	150 g (motor only)
Shaft length options:	'L1'; 'L2'
D3650-22100V:	27.0mm, 82.0 mm
D3650-22100VS:	13.3mm, 67.0 mm

Partnmver V7368 could indicated the number of windings, but this is not sure.

Plus sign with "+" text also indicates this motor, see the catalogue.



Characteristics

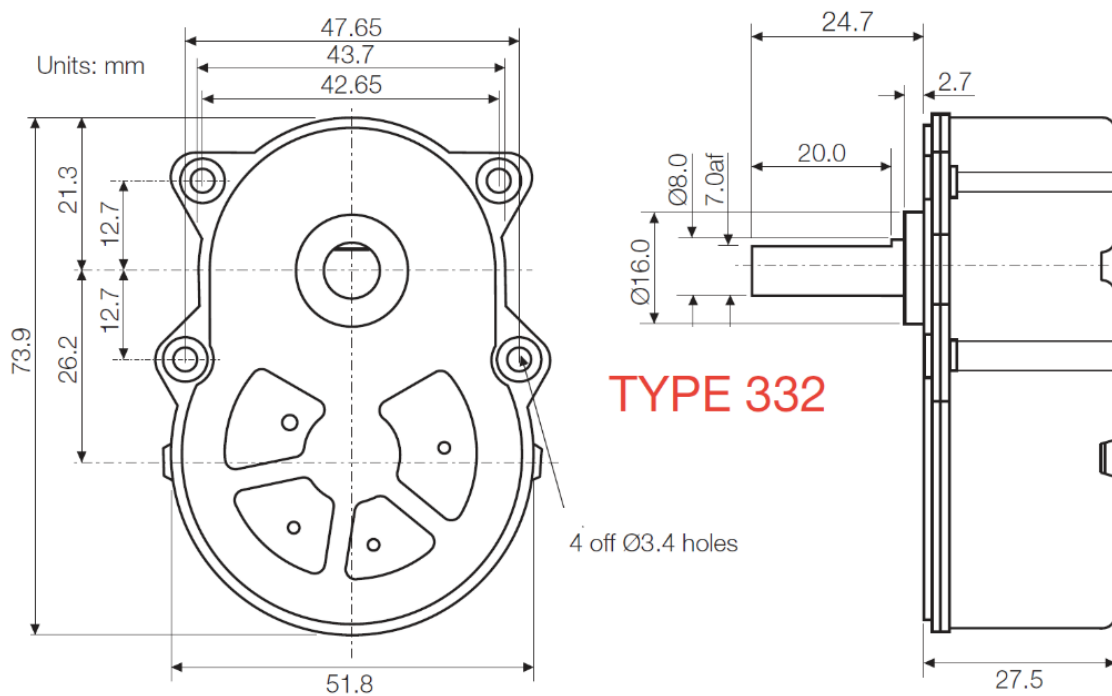


Ovoid Gearbox showing SP3701-V7368

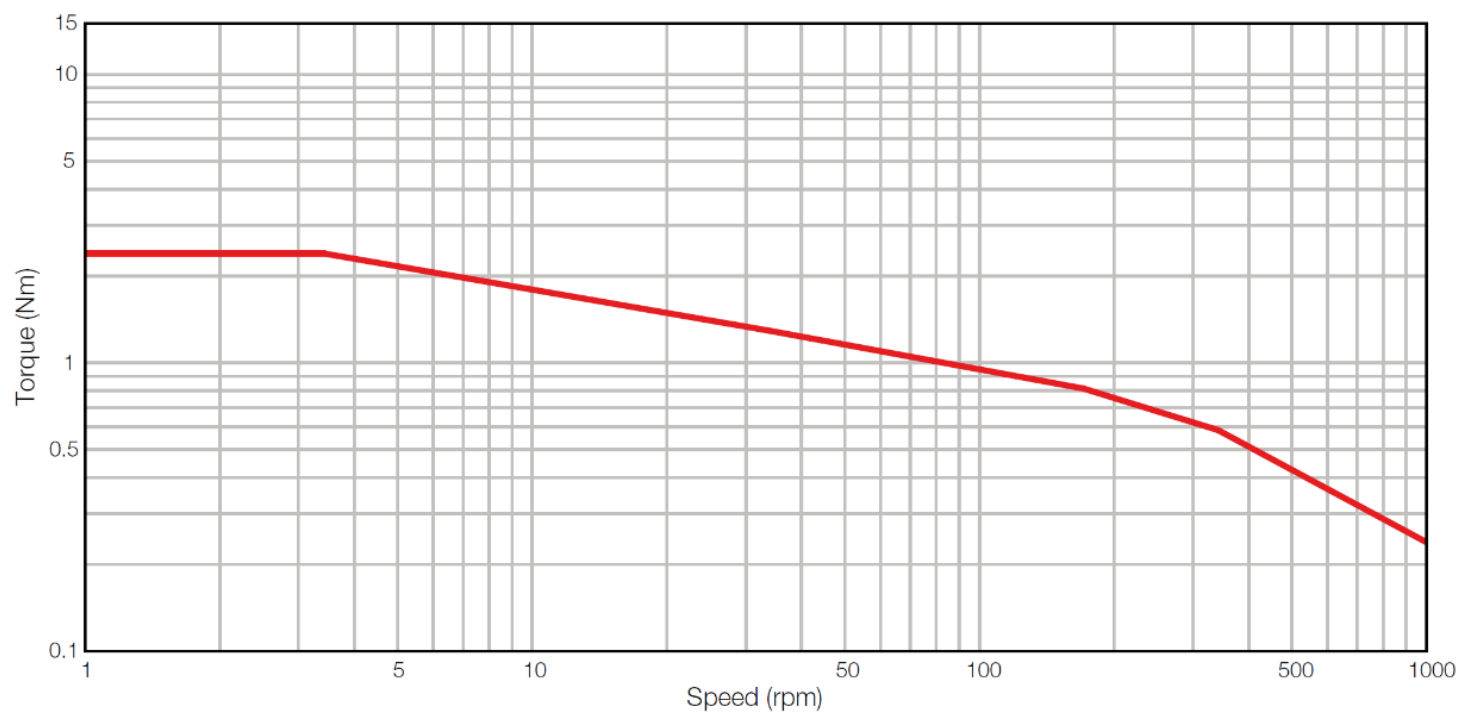
Gearbox Type	Max Torque (Nm)	Max Speed (rpm)	Ratio	Gearbox Type	Shaft Diameter (mm)	Shaft Position	Width (mm)	Height (mm)	Depth (mm)	DC Brushed	Data Sheet
332	2.4	342	205:1	Spur	8	Offset	56.3	73.9	27.5	Y	View

Measured/tested SP3701 properties shown in **blue**.

- Gearbox type 332 Ovoid
- Zinc plated pressed steel gearbox case and front cover with 4 point fixing.
- Spur gears running on fixed steel spindles.
 - Reliable, durable.
 - Efficient.
- High performance polymer gears, stainless steel shaft, **ball race front and back bearing**.
- Maximum temperature 80°C at the gearcase.



TYPE 332



Resulting specification of the motor & gearbox combination:

Operating voltage: 12 V to 30 V
 Max power at 24V: 31 W
 Speed at 12V: 22,8 rpm
 Speed at 24V: 41,1rpm
 Torque: 4,06 Nm (4059 mNm) at 24 V, at this torque load: 37.2 rpm, 1.50 A, 15.9 W (no gearbox losses included)
 Stall torque: 26,9 Nm (26900 mNm) at 24 V, at this blocking load: 0 rpm, 8.2 A (no gearbox losses included)
 Rotation: Bi-directional
 Total weight: 315 g (motor+gearbox combination)