

Replacements for Mashima DC Motors

By the Convention team.

Mashima DC motors have long been a staple in the model railway world for many years for kit and scratchbuilt locos. But supply problems for the manufacturer and his increasing age has caused him to cease production. Whilst there are still supplies of Mashima motors available, for example from North Yard, we will need replacements at some time. Some sources have recently come to light which offer potentially suitable choices. Some of these come with high recommendations.

Minebea DC Motors

Mick Moignard in his article on DCC sound in this year's notes describes the 15 mm square Minebea motor as having 'more torque than I've seen in motors twice the size'. They are also inexpensive. Here are the references we've found to Minebea motors:

- The Minebea catalogue at www.eminebea.com/en/product/rotary/brushmotor/dc/ lists a large number of Minebea motors, but varying widely in voltage, speed, etc. The 15 mm square motor Mick describes here is listed as SE15H. The 15 mm square motors come in a variety of lengths, running at around 6-10,000 rpm at 12 volts, with 2 mm diameter shafts. Unfortunately this motor measures around 18 mm across the diagonals so is too big for the SAR's pre-Webb locos. Flat can motors are larger at around 15-18 mm x 20-24 mm in width. The smaller motors are for lower voltages and it is unsafe to run them at 12 volts.
- UK retailer Ali Express at www.aliexpress.com/price/minebea_price.html lists a big range. One of the 15 mm square range is just \$US4.00.
- Minebeas are also advertised on eBay but at higher prices.

Tramfabriek DC Motors

This European range is specifically for small model railway and tramway models. Their website is at <https://tramfabriek.nl/motors.html>. Motors range from 10 mm dia down to 7 mm dia, in different lengths. Flywheels, gears and shaft adapters are also available. They are faster revving than Minebea; 13-22,000 rpm at 12 volts, so will require greater gearing down. They generally have 1 mm dia shafts but adapters are available for larger worm gears.

Nigel Lawton DC Motors

This another range of small motors, advertised as a bulk purchase for 009 locos, HOn3, etc locos. The website is at www.nigellawton009.com/MiniMotors.html. Their 10 x 12 mm Mini Motor is rated at 12 Volts. Speed at 12 volts is 25,000 rpm. A smaller 8 x 16 mm motor is rated at 10 volts and a resistor is suggested to run it at 12 volts. Speed at 10 volts is 16,000 rpm. They have 1 mm dia shafts but 1 mm-1.5 mm adapters available.

Faulhaber DC Motors

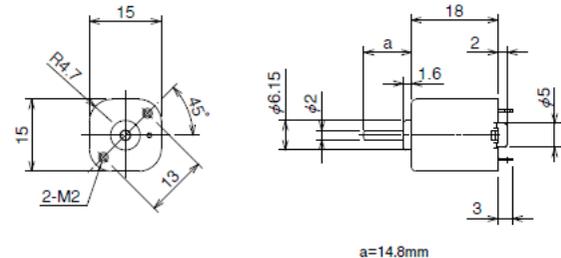
This is a range of very high quality DC motors that has been available for many years, but are more expensive. The website is at www.faulhaber.com/en/.

Some example motors:

Minebea SE15H 15 mm square DC Motor



Shaft length: 9.9 mm
 Shaft dia: 2.0 mm
 Speed at 12V: 6780 rpm
 Diagonal length: approx 18 mm



Tramfabriek 1020D Coreless Motor



Diameter: 10 mm
 Length: 20 mm
 Shaft length: 7 mm each end
 Shaft dia: 1.0 mm
 Speed at 12V: 14,000 rpm

Nigel Lawton 10 x 12 mm Mini Motor



Diameter: 10 mm
 Length: 12.9 mm
 Shaft length: 3.3 mm
 Shaft dia: 1.0 mm
 Speed at 12V: 25,000 rpm



Faulhaber 10 x 16 mm DC Micromotor



Diameter: 10 mm
 Length: 15.9 mm
 Shaft length: 4 mm
 Shaft dia: 1.0 mm
 Speed at 12V: 14,000 rpm

Taff Vale Models

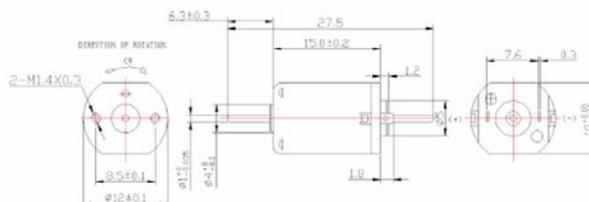
Taff Vale Models in the UK have a range of flat can motors, covering some of the Mashima sizes. They are 5-pole, skew wound armatures and designed specifically for model railways. Shaft diameters range from 1.0 mm to 2.0 mm. Their website is at www.taffvale.wales/Model-Railway-Motors.html. Useful sizes for Australian HO are:

- '1015' 12 x 10 mm AF (across flats) x 15 mm long.
- '1227' 15.5 x 12 mm AF x 27 mm long.
- '1525' 20.5 x 15.4 mm AF x 25 mm long.
- '1532' as for '1525' but 32 mm long
- plus larger motors.

Taff Vale '1015'



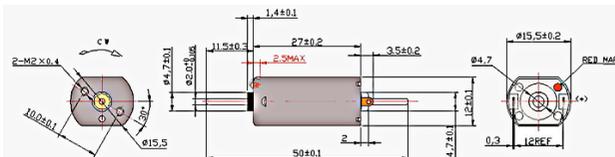
Across Flats: 12 x 10 mm
 Length: 15 mm
 Shaft length: 6 mm each end
 Shaft dia: 1.0 mm
 Speed at 12V: 21,000 rpm



Taff Vale '1227'



Across Flats: 15.5 x 12 mm
 Length: 27 mm
 Shaft length: 11 mm each end
 Shaft dia: 2.0 and 1.5 mm
 Speed at 12V: 13,500 rpm



Taff Vale '1525'



Across Flats: 20.5 x 15.4 mm
 Length: 25 mm
 Shaft length: 12 mm each end
 Shaft dia: 2.0 mm
 Speed at 12V: 10,000 rpm

