

Coupling Choice

This will partly depend on the scale in which you are modelling and then on how you intend to run your trains. You can choose between fully realistic, scale versions of the real thing, or select more obtrusive but less fiddly options. Broadly speaking it will depend on whether you intend on running fixed rakes of trains with no shunting of stock; or will you be wanting to shunt stock in goods yards, run round engines, attach/detach vehicles to trains etc.

In other words, do you need automatic couplings or not?

Non-automatic Couplings

3 Link, Screwlink & Instanter Couplings



Realistic couplings like these can be used in 7mm, 4mm and at a push 3mm (if you have the eyes of a Lynx), even in 4mm some people have a problem. Coupling can be done 'on scene' but it does require

a piece of wire on the end of a stick or a pair of tweezers and a steady full sized hand to couple and uncouple vehicles. If you are looking for most realism with limited uncoupling these are a good solution.



Hook & Bar

Fixed rakes of coaches and wagons can be connected by a suitable length of bar, which may be pivoted, with a right-angled bend at one end and a loop on the next vehicle. These are simple to fit and simple to set up on track but leave no real option for any kind of uncoupling without removing the vehicle from the track. This type of coupling is suitable in any scale.

Bar

In 2mm scale for European models a number of manufacturers offer a simple bar connector that fits into the standard socket in place of the Rapido coupling, offering a neat, close coupled effect. Some offer products with vacuum hoses that add to the visual effect.

Proprietary

Modern passenger stock, in particular, but not exclusively, looks better close coupled and rarely has to be uncoupled on most model railway layouts, as on the prototype. To achieve this manufacturers often use proprietary couplings for a particular model or range of models. These need not concern us here as you are unlikely to want or need to change these.

Magnetic

Magnetic couplers have been available in toy trains, such as BRIO, for many years but have not been able to be small and strong enough for model railways. However, there are now two UK suppliers of magnetic couplers using tiny magnets. Hunt Couplings, from West Hill Wagon Works and the Mag range from GLR Bespoke Services. Both offer couplings in 2mm, 4mm & 7mm (7mm Hunt Couplers are “coming soon”). Both originally offered single ended magnets, i.e. either North or South pole, so stock could not be turned but are now introducing dual pole magnets to eliminate this problem. Both offer a variety of anchor types for the coupling including NEM pockets, see below.

Whilst it is possible to couple and uncouple stock for shunting with 3-link and similar couplings it is fiddly and impossible between coaches with gangways and at inaccessible locations e.g. under station canopies, distant sidings etc.

That's when you need

Automatic Couplings

There are broadly two types of automatic couplings, we shall call them “remote” and “delayed”.

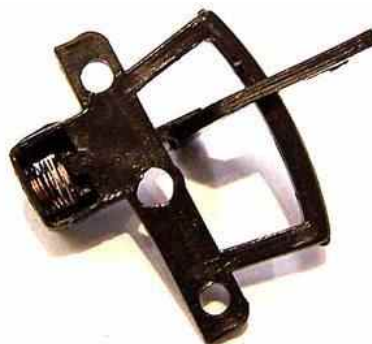
Remote couplings allow the uncoupling of vehicles with the use of, usually, ramps or magnets, but once uncoupled the locomotive can only pull away from the uncoupled portion, that portion cannot be moved unless recoupled.

Delayed couplings, work as remote couplings, although nearly always via a magnet, but additionally allow the locomotive to propel the uncoupled part of the train without recoupling. Clearly delayed couplings allow a lot more flexibility and, potentially, less uncoupling points.

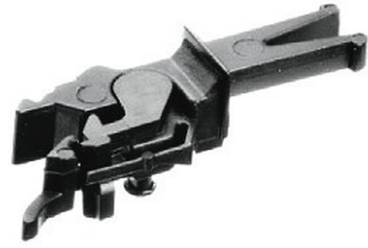
Remote Couplings



By far the most common remote coupling in the UK is the OO scale Tension Lock coupling. This was introduced originally by Tri-ang many years ago and continues to dominate the OO scale ready to run markets, albeit in a much refined form. It operates by placing the coupling over a ramp and reversing the loco very slightly to remove the tension from the coupling. If the ramp position is high enough the vehicles will be uncoupled, alternatively the ramp



may be made to rise to execute the uncoupling. Different manufacturers have refined these in a variety of ways over the years, but they remain quite visible and coupling between different makes and styles can be variable.



N scale modellers have had a very different type of tension lock coupling, the Rapido coupler. It works like the Tri-ang coupler but with a sideways hook that is pivoted. It is significantly larger, relative to the scale, than modern OO ones and despite its effectiveness is often replaced by modellers looking for more realism in their rolling stock.

In Europe, in addition to Rapido types, there are a variety of similar couplings in both 2mm and 4mm, perhaps the best known is the Fleischmann Profi Coupling but there are others, including from Fleischmann, Roco but knuckle couplers of the Kadee type have also become popular, see below.

NEM Pockets

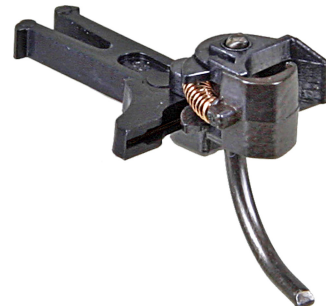
One significant advance in recent years has been the fitting of NEM¹ pockets to ready to run rolling stock, in both OO and N gauge, this allows the couplers themselves to be easily changed which can make keeping the same style of coupler across your stock much easier. That said not all manufacturers implement the standards correctly with some varying the height of the NEM pocket

The limitations of the tension lock and non-delayed couplings generally has led to a variety of attempts to provide a better coupling, one that provides for delayed action and, in some cases, looks more prototypical.

Delayed Couplings

In the UK neither 4mm nor 2mm ready to run rolling stock comes with a delayed coupler, although, all proprietary models except for those intended as semi-permanent rakes of vehicles, will come with some form of tension lock coupling. This has led to a number of third party suppliers fitting a range of alternatives, each with its own pros and cons and adherents. Before deciding it is important to see them in action, see how they are made, some are very fiddly, others are straightforward, and talk to people who use them.

In the USA Kadee type couplers are routinely fitted to most rolling stock in HO and N gauge. Although there is a third party market for couplers they are almost always a variation on the Kadee type.



Coupling	7mm	4mm	3mm	2mm	Notes
Alex Jackson	yes	yes	yes	yes	These are probably the most discreet automatic coupling and cheap to make. However, they require quite a degree of skill to make, are not particularly robust and very fussy in their set up to ensure reliable operation. When they work well, they are superb, but not for the feint hearted. Start by looking at the Manchester Model Railway Society, see references below.
DG	yes	yes	yes	yes	Sits somewhere between a DG and Sprat & Winkle coupling. Slightly fiddly to make but smaller than the S&W and larger than the Dingham. Like the Dingham the flap part, being very light, can become 'sticky' in some conditions and fail to return to normal.
Dingham	yes	yes			Probably the least obtrusive of the loop and hook style of automatic couplings. All parts of the working coupling are outside the buffer beam which makes fitting them to small locos more practical than other, similar, types. They are 'ended', i.e. once fitted all stock must face the same way.
Easi Fit by Dapol				Yes	A similar style coupling to the Kadee Type they come in 3 sizes and are straight replacement for most UK N gauge stock fitted with NEM pockets.
Kadee ² Type	yes	yes	yes	yes	These are a miniature buckeye couplers that dominate the 3.5mm HO market and the 2mm market in the USA and increasingly so in the European 2mm market. There are a vast array of sizes, options and detail differences from a whole range of manufacturers that will suit most vehicles. These are very reliable but not very realistic on British outline freight stock but good for coaches as they will couple under gangways, like the real thing.
Sprat & Winkle	yes	yes	yes	yes	A popular form of hook and loop automatic coupler. Very reliable and reasonably easy to make. They are designed to be fitted to both ends of stock but are often fitted ended, i.e. once fitted all stock must face the same way, where many find they are even more reliable and easy to maintain.

DGs, Dinghams and Sprat & Winkle couplings all come as brass frets from commercial suppliers that must be bent and/or soldered to make the couplings. See the Resources section below.

All of these types are actuated by a magnet situated in the track. This might be a permanent magnet (which can lead to unintentional uncoupling) or an electromagnet which can be switched on or off. Although the Kadee types also have the option of a specific manual uncoupler – OK if you can easily get at the required vehicles.

It is not uncommon to mix coupling types on a layout, you may run fixed rakes of coaches that suit one type of coupler but have a pick up goods train that needs shunting. Just beware the locos may not be suitable for both jobs if you take this approach.

Finally, as a look into the future, there are starting to become available DCC actuated uncouplers see <https://precimodels.com/en/8-products/1-dcc-uncouplers>

References & Sources

Alex Jackson – see <http://www.mmrs.co.uk/technical-articles/alex-jackson-coupling/>

Dingham – see <http://www.dingham.co.uk/>

DG– see <http://www.westfordmodelliers.co.uk/dgcouplings.htm> for a short article on fitting

Hunt - see <https://westhillwagonworks.co.uk>

Mag Range - see <https://www.glrailways.co.uk>

Sprat & Winkle – see <http://www.gwr.org.uk/procouplings.html> for an article on fitting.

Sprat & Winkle & DG - available from Wizard Models - <https://www.wizardmodels.ltd>

Notes

1. NEM is the Normes Européennes de Modélisme ferroviaires, known in the UK as Normal European Modelling Standards (NEM Standards)). Model railway standards issued by MOROP, the main European model railways standards body.
2. Kadee is a brand name. The coupling was covered by a patent which expired several years ago and there are now a number of manufacturers making compatible couplings. These are all, wrongly, often referred to as “Kadee” couplings.