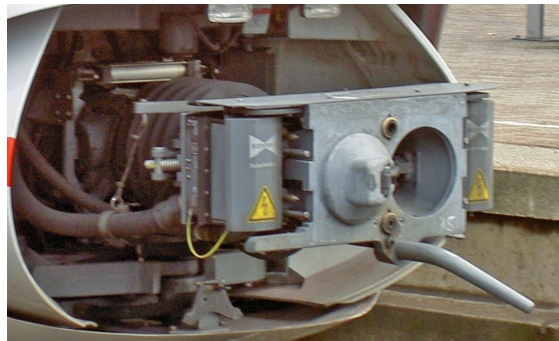


# TOMIX SCHARFENBERG COUPLERS

## A First Look

by  
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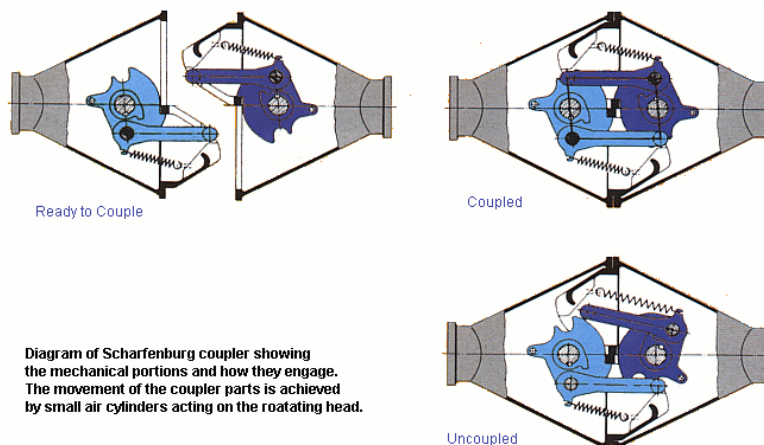
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### THE PROTOTYPE

The Scharfenberg coupler is Europe's most common type of fully automatic coupler. Designed in 1903 by Karl Scharfenberg, its use has gradually spread from urban and interurban transit systems to regular passenger service trains. It has also found widespread acceptance on North American commuter rail systems.

Three characteristics of the modern Scharfenberg coupler place it head and shoulders above the competition. First, the coupling faces of two joined couplers are held tightly against one another. This eliminates the need for buffers used in traditional European systems, greatly reduces the slack action associated with both buffer and knuckle coupler systems, and prevents the sort of accidental uncoupling that can occur when one knuckle coupler rides up and over its mate. Second, it allows for automatic making and breaking of pneumatic and electrical connections between rail vehicles (though no single standard exists for placement of these connections around the coupler's face). Finally, the Scharfenberg will couple reliably at very low speed (~2 MPH), allowing cars to be added to a train without jostling the passengers already on board.



The primary disadvantage of the prototype Scharfenberg coupler is its low maximum tonnage, which makes it generally unsuitable for freight operations.

Scharfenberg couplers are found on most modern high-speed trains including the German ICEs, the French TGVs, and the Italian ETRs. Historically, they were also installed on many of Germany's Electric and Diesel

Multiple Unit trains including the VT 08 and VT 11.5 as well as on the Swiss-Dutch RAm TEE I and the Swiss RAe TEE II.

**THE MODEL**

Tomix Scharfenberg couplers come in two general styles. First is a simple ‘exchange’ coupler designed to replace the ubiquitous Rapido coupler that is typically mounted in a standard ‘T’ shaped coupler box. The second style has the coupler mounted to a close-coupling mechanism. For those who may not be familiar with this concept, a close-coupling mechanism is a device that allows the coupler itself to swing side to side in a gull-wing arc. This feature allows passenger coaches to be drawn tightly together on the straightaway while providing the clearance needed to negotiate the tight curves of the typical model railway.

When the coupler is centered in the mechanism, the coupler face is retracted towards the middle of the vehicle, thus bringing the adjacent vehicle into close proximity, and reducing the visible, unrealistic gap. As the coupler swings to the left or right, the mechanism pushes the coupler face away from the end of the vehicle, providing the clearance needed (on tight model railway curves and crossovers) between vehicles to negotiate the curve.

Unless your layout has truly prototypical curves, the ‘exchange’ coupler can only be used on passenger cars with truck-mounted coupler boxes; it should also work on most types of very short wheelbase freight stock having body mounted coupler pockets. The close-coupling style is for body mounting only; it can be installed wherever there is room, as long as the vehicle does not have an extremely long overhang or the layout does not employ minimum radius curves. Unfortunately, there is no Scharfenberg designed for the NEM snap-in coupler boxes found on virtually all recent European N scale rolling stock.

TYPE:	Close Coupling	Close Coupling	'T' Shank
BLACK:	0331	0334	0381
GRAY:	0332	0335	0382

The table above shows the three styles of Tomix Scharfenberg couplers, each of which is available in gray or black engineering plastic (I used photos of the gray ones as they show detail better). There appears to be very little difference between the two types of close-coupling mechanisms; mainly in the mounting as these are made specifically to be retrofitted to Tomix and other manufacturers’ rolling stock. (I’ve omitted listing one additional close-coupling, #0333, which comes only in black and is targeted at a specific application.)

As of this writing, the price of the Close Coupler is approximately \$15.00 for a package of six (assembled); the ‘T’ Shank Coupler costs around \$6.00 for a package of 24 (unassembled).

**Appearance**

The Tomix Scharfenberg looks, in a word, phenomenal! It’s quite similar to the real thing – the protruding ‘pin’ is pyramid-shaped (some versions of the full size coupler have a cone-shaped pin and round receptacle), and it’s amazingly small for something that actually works. The coupler shaft is proportionally small and the face of the 0331/0332 coupler plate is molded with a few dimples meant to simulate the pneumatic line connections that make the Scharfenberg such a popular device in the 1:1 scale railway industry.

At its base, the pin is just over 1mm square and it snaps in a square hole of similar size in the mating face of the opposing coupler. The entire face of the coupler is perhaps 2mm high by 3mm wide (in scale: 32 x 48 cm or approximately 12 x 18 inches) which compares favorably to the real thing.

**Installation**

‘T’ Shank Coupler

The ‘T’ Shank coupler fits well in most two-piece coupler boxes (the ones with a separate metal or plastic cover). Simply open the box and replace the Rapido-style coupler with the Tomix, keeping the spring in place; then reattach the cover. The coupler is less forgiving in one piece coupler boxes, like those on most Minitrix passenger cars. Problem is that the coupler opening of this type of coupler box is larger than usual (to allow the

coupler to be snapped through the opening during assembly at the factory). Because of this *slop*, the coupler can easily move off center (because the 'T' portion of the coupler is not as wide as it needs to be). Once this happens, the coupler can be easily dislodged, especially when you're trying to separate two cars.

It should be obvious that while the 'T' Shank Coupler may fit inside the coupler box of a specific piece of rolling stock, it may not be long enough to actually couple to an adjacent car. I have no standard dimensions to share with you, but the face of the coupler should stick out a little further than any other protrusion (diaphragm or buffers) on the car end. If it doesn't, you'll have to figure out a way to move the coupler box or go with the Close Coupler.

### Close Coupler

Installing the Close Coupler is very much a custom job. It's meant to be installed on the underside of the car, and the first thing to determine is if there is enough room at the end of the car without obstructing the wheels or the swing of the truck. This shouldn't be a problem with most modern coaches having a length of around 165mm, but on shorter cars, the space may not be sufficient.

Before attempting installation, you'll probably want to remove the upturned 'ears' from the sides of the draft gear assembly. Examine the piece carefully before clipping away any other part as there are four snap-in lugs that hold the whole thing together.

### **Operation**

Unlike its full-size cousin, the Tomix Scharfenberg requires a bit of force to snap two couplers together. A similar effort is needed to break the connection. Furthermore, this is not a switching coupler like a MicroTrains *MagneMatic* or one of its clones and there is no remote uncoupling device made to actuate it; it's strictly a hands-on operation.

The strength of the connection between a pair of these couplers, at least when new, inspires great confidence. There's little doubt that trains of ten to twelve free-rolling and properly weighted cars can be pulled with little danger of an uncoupling. How the couplers will hold up to repeated making and breaking of the connection is still a mystery (to me, anyway).

The pin-and-receptacle design of the Scharfenberg (both full size and model) eliminates any chance of uncoupling due to slight differences in coupler height. While no purpose built uncoupling device exists, with a little practice it is possible to slide the blade of a standard hobby knife between the mating faces along the top edge whereupon twisting the knife slightly will usually unsnap the connection. With luck you'll rarely derail a car in the process.

### **IN CONCLUSION**

Tomix Scharfenberg Couplers are an exciting and useful addition to the variety of coupling systems available to the N Scale modeler. The visible portion of the device is good looking and is near scale in size. The items that incorporate a close coupling mechanism function smoothly and the closeness that can be obtained between coupled coaches is a great visual improvement over the two to three scale foot vaults that 1:160 passengers have to make between coaches not so well equipped.

I'm in the process of installing Close-Coupling Scharfenbergs on a set of Minitrix *Swiss Express* coaches, following a methodology that addresses the problem of too little mounting space at the car ends. Look for that *how-to* in the "My Modeling: Reworking and Kitbashing Rolling Stock" section of the SLF website.

**Post Script:** While gathering information for this review, I discovered that Kato also produces a Scharfenberg coupler (catalog #11-703 thru 11-706), though I don't know if it will mate with the Tomix version. Another web site reported that GreenMax produces a Scharfenberg, but I could find no product listing or other information to corroborate this assertion. Further information provided by a reader is welcome and will be credited in future rewrites of this article.

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