ModelTorque

Automatic Torque-control Couplings *
for railroad models
of diesel- or gasoline-engined prototypes.

A transmission element that enables
truly prototypical operation of models

The concept of a torque converter in a model railroad locomotive

All electric-motor driven model railroad locomotives are fitted with “direct connected” drive systems, which means that the electric driving motor is permanently connected through some form of fixed-ratio reduction gear set to the model’s driving wheels. A simplified form of this type of drive is illustrated in Figure 1.

The resultant combination of motor power, model speed and tractive effort is a compromise design that always provides a preset and fixed set of operating conditions.

As modellers’ operating requirements have become more sophisticated, motor design has become the focus for providing more powerful and smoother low-speed operation of models. However, totally realistic operation of electric-motor powered model railroad stock over the range of speeds, loads and grades required on many layouts remains elusive. This, to a major extent, is due to the existing direct-connected drive systems.

The ModelTorque Automatic Torque-control Coupling (ATC) is offered as an alternative to direct-connected drive systems and is designed to fit between a model’s drive motor and the driving wheels, as depicted in Figure 2.

The ATC provides models with a number of unique operational characteristics which are detailed below.

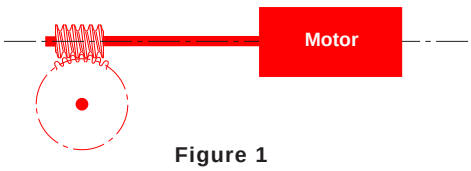

Figure 1
Direct-connected,
fixed ratio drive

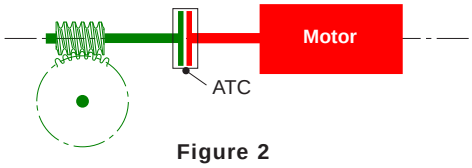

Figure 2
No mechanical coupling,
variable drive ratio & torque, through ATC

ATC Features ...

- Continuously variable [motor speed] to [driving wheel speed] ratio, proportional to required tractive effort,
- Variable torque for different train loads, speeds and grades,
- Automatic load sharing between multiple units,
- A range of sizes to suit different scales,
- A range of torque transfer functions within each ATC size enables each different model to replicate its prototype’s performance,
- The “Throttle” control becomes a Throttle control ... not a speed setting knob!
- Driving motor always starts with no load,
- No starting-current motor overload,
- Motor stall is not possible,
- Motor overload or burn-out on stall is eliminated,
- Maximum torque available at zero model speed with no motor overload.

* Patent Applied For.

email to : sales@modeltorque.com.au