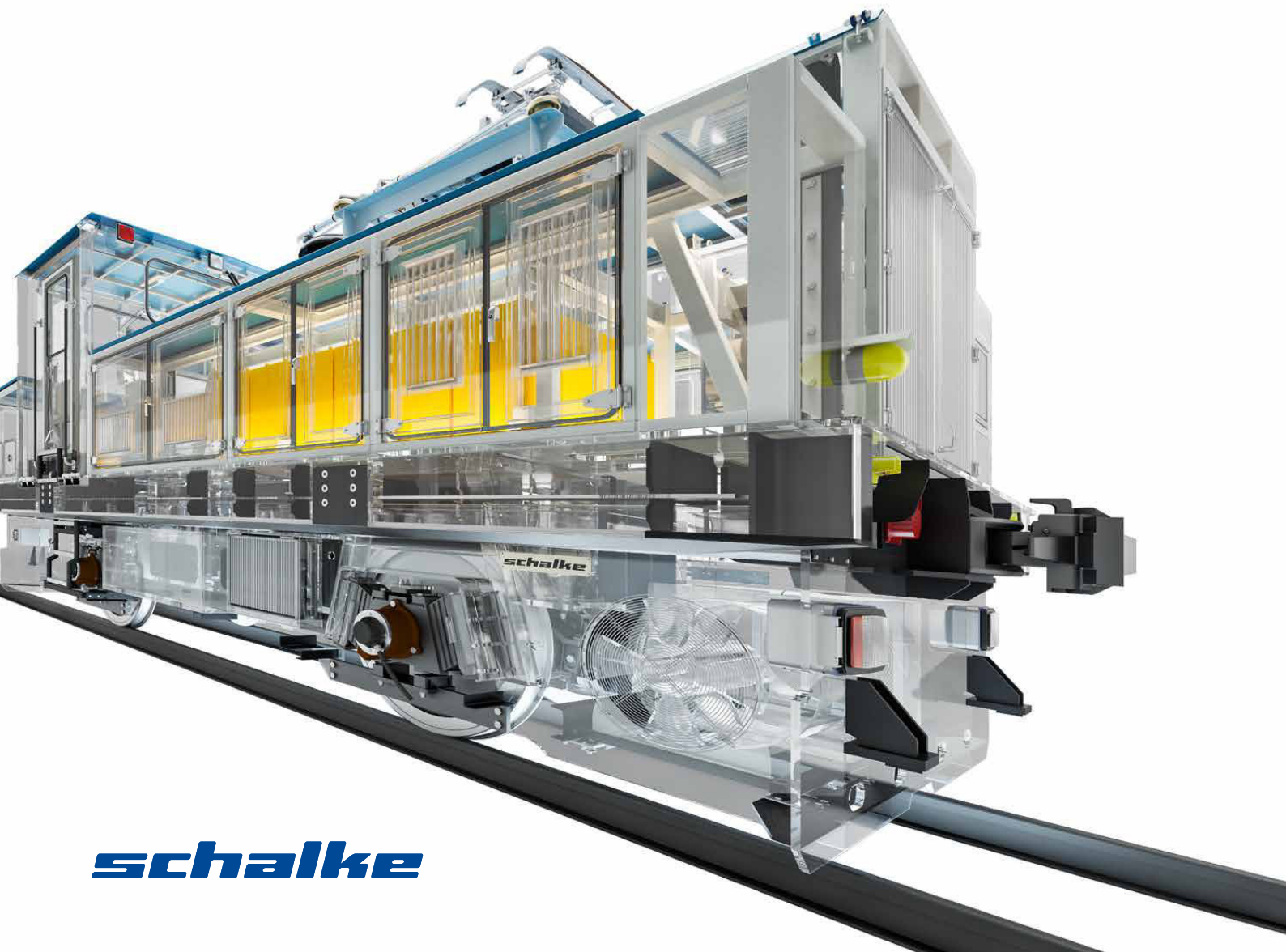


# KEEP YOUR BUSINESS ON TRACK



## SCHALKE MULTI-PURPOSE LOCOMOTIVES FOR URBAN RAIL TRANSPORT OPERATORS

Schalke locomotives provide maximum versatility and can be used to perform a variety of tasks in suburban and regional passenger rail transport systems. They are in daily use to perform service or maintenance work in the underground and tram rail networks of cities such as Vienna, Bangkok and São Paulo.



Two-system locomotive in use on lines in Vienna.

# MMT-S-800-BDE

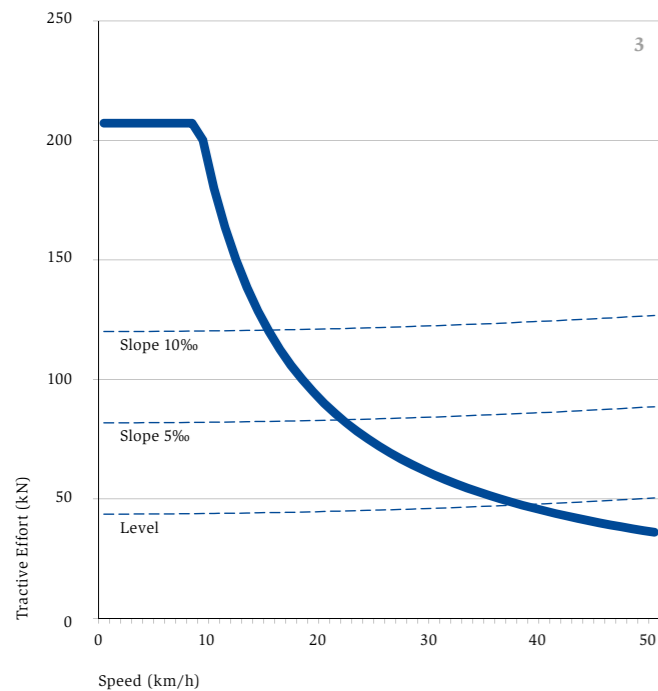
## MODULAR MULTI SYSTEM SERVICE AND SHUNTING LOCOMOTIVE

This four-axle locomotive with reduced loading gauge has an unladen weight of between 48 and 64 tonnes and is an extremely versatile, reliable working vehicle. Developed for the operators and service companies of underground and urban rail services, this traction vehicle is very useful for duties such as constructing or maintaining infrastructure.

Due to its modular design, its traction technology and modules can be combined in a variety of ways to suit the requirements of the customer. The locomotive can be supplied with the required power via a number of different modules: a Diesel-Powerpack, Battery-Powerpack, a pantograph for catenary operation or a third rail are all available and can be either combined with one another or simply used alternately. Thus the locomotive can be easily optimised to suit the intended purpose, for example by switching to environmentally friendly battery operation when working in or near residential areas. The ModuTrac design makes Schalke locomotives particularly economical and well equipped for the future, since any new power-source technologies that emerge can also be simply integrated as new modules

in the existing set-up. Other features also make this ModuTrac Locomotive highly versatile: such as the specially developed bogies, which can cover all known track gauges from 1,000 to 1,676 mm. The extremely narrow loading gauge and the low axle load between 12 and 16 tonnes makes the vehicle suitable for use in practically all tram and underground subway networks throughout the world. This narrow-gauge locomotive reaches a maximum speed of 60 km/h and is a highly efficient workhorse that is suitable for a wide range of service tasks.

- Locomotive with narrow loading gauge, reduced axle loads and various track gauges
- Modular platform concept with regard to power supply and modular locomotive lay-outs
- AC traction technology for use with a wide variety of power supply modules (electricity, battery and diesel traction)



1 Versatile and modularly designed for narrow structure gauges: this service locomotive is suitable for use in underground, city and narrow-gauge networks.

2 For different purposes: examples with different configurations.

3 Tractive Effort Diagram and  
 - - - - Resistance Curve for  
 Hauling capacity: 700 t  
 Curve radius: 150 m  
 Example:  
 64 t Locomotive with  
 e-traction

### Technical data



**Power Modules**  
 Diesel-Powerpack, Battery-Powerpack  
 Pantograph (Third Rail or Overhead)



**Length over coupler**  
 15,840 mm



**Power Transmission**  
 AC



**Width**  
 2,540 mm–2,758 mm



**Weight**  
 48–64 t



**Height**  
 3,550 mm



**Axle Arrangement**  
 Bo'Bo'



**Maximum Speed**  
 60 km/h



**Track Gauge**  
 1,000 mm–1,676 mm



**Tractive Effort**  
 up to 210 kN (at  $\mu = 0.33$ )



**Power**  
 800 kW (e-traction)



# MT-S-600-BE

## MULTI SYSTEM SERVICE LOCOMOTIVE

Optimised for use in underground and urban rail networks, the 36-tonne locomotive has been designed as a lightweight that achieves an axle load of only 9 tonnes. At the same time it has a high power density and can be operated throughout an entire shift without catenary input, thanks to its battery capacity of 540 Ah.

Each of its four wheelsets is driven by a 130-kW AC traction motor that is separately being controlled via IGBT converter technology. Moreover, the locomotive is equipped with a highly efficient slip-and-slide protection system that improves traction and minimises wear on both infrastructure and wheels. Designed for dual-mode operation, the locomotive is powered either by a traction battery or by a third rail current collector, which means it can be used flexibly on any route. The locomotive is also fitted with a four-quadrant controller, enabling it to brake electro-dynamically and effectively bring the entire train to a standstill as well as stop and start on ascending slopes.

Its components are easily accessible from the outside, making it particularly simple to maintain. Moreover, its central cab is ergonomically designed and provides the driver with a good all-round view as well as the ability to drive in both directions.












A built-in camera additionally facilitates coupling. With tractive effort of 115 kN (at  $\mu = 0.33$ ) and maximum speed of 50 km/h, this service locomotive is an ideal working vehicle and combines emission-free operation with outstanding reliability.

### In use at Wiener Linien and Berliner Verkehrsbetriebe

The five city routes of the “Wiener Linien” in Vienna convey well over 400 million people through the Austrian capital each year. The number of passengers is growing and the network is being continually enlarged. Together with Vossloh Kiepe, Schalke developed and supplied the public transport company with five electrically powered service locomotives for performing maintenance and repair work. The Schalke locomotives are also used by the Berlin public transport system.

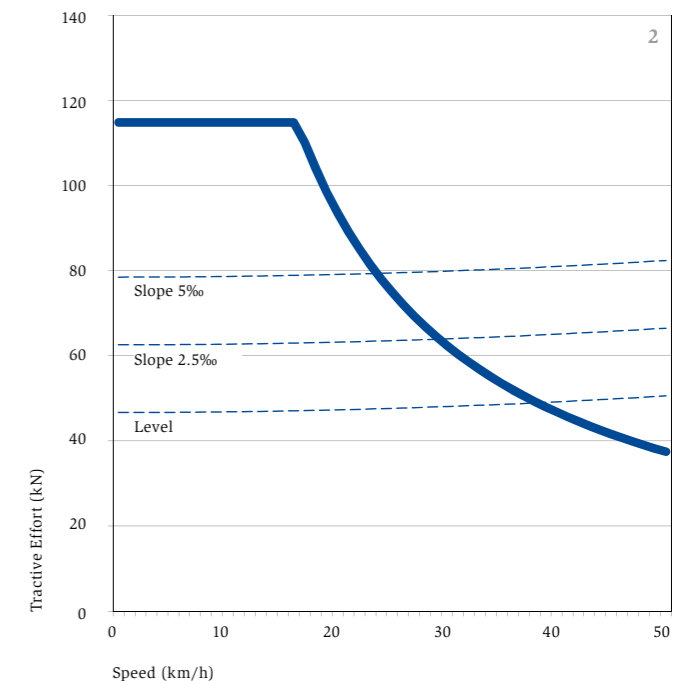
- Specially designed for tram and suburban light rail networks
- Lightweight construction
- Powered either by battery or third rail current collector
- Electro-dynamic brake for wear-free stopping and starting on ascending slopes

### Technical data

 <b>Power Modules</b> Battery-Powerpack, Pantograph (Third Rail)	 <b>Length</b> 15,120 mm
 <b>Power Transmission</b> AC	 <b>Width</b> 2,358 mm
 <b>Weight</b> 36 t	 <b>Height</b> 3,487 mm
 <b>Axle Arrangement</b> Bo'Bo'	 <b>Maximum Speed</b> 50 km/h
 <b>Track Gauge</b> 1,435 mm	 <b>Tractive Effort</b> 115 kN (at $\mu = 0.33$ )
 <b>Power</b> 520 kW	

1 Emission-free traction vehicle: this service locomotive was specially developed for use on Vienna's public transport system.

2 Tractive Effort Diagram and Resistance Curve for ---  
 Hauling capacity: 1,000 t  
 Curve radius: 100 m



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