

Our references include:

France: SYTRAL (T3 Tramway and Rhône Express - Lyon), Bordeaux Métropole (Tram-Train of Médoc)

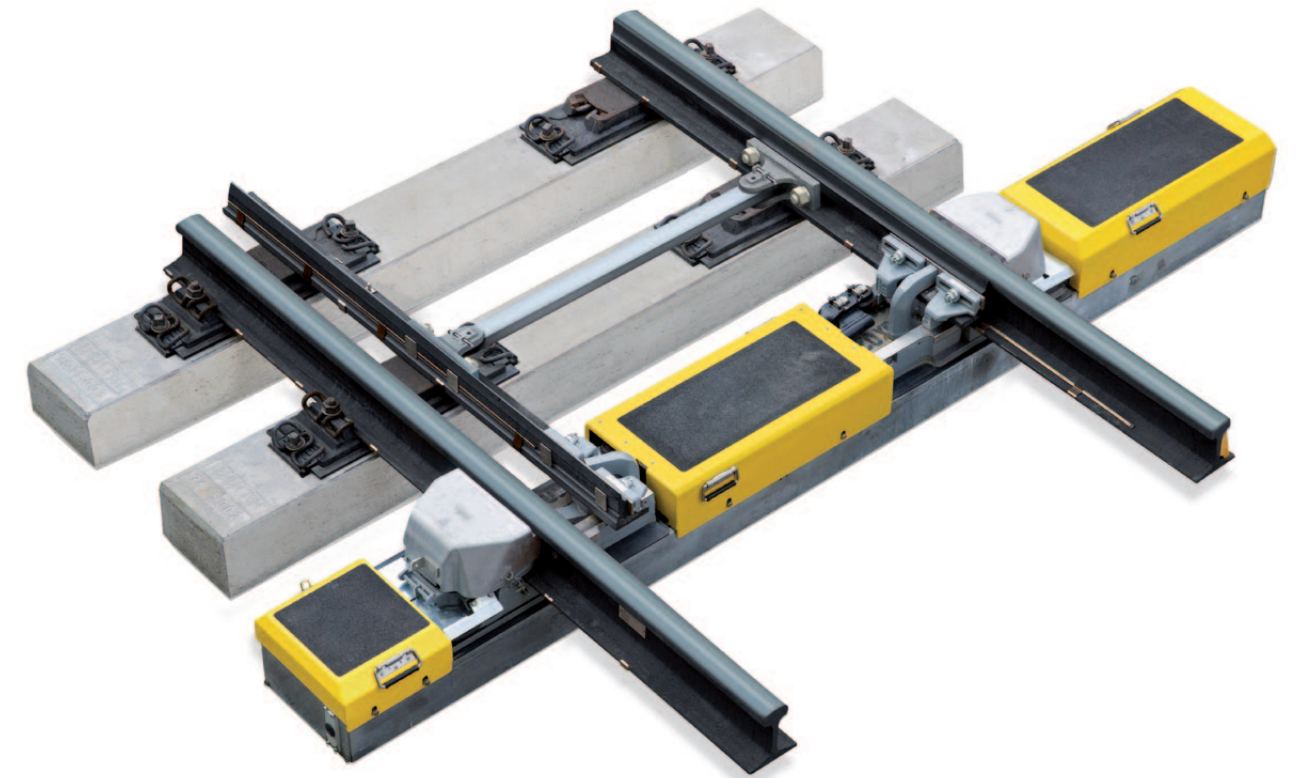
Belgium: STIB (Brussels Metro)

Germany: INNOTRACK (European Project - Berlin)

Sweden: TRAFIKVERKET (high-speed and heavy haul lines)



Heavy load track, Sweden

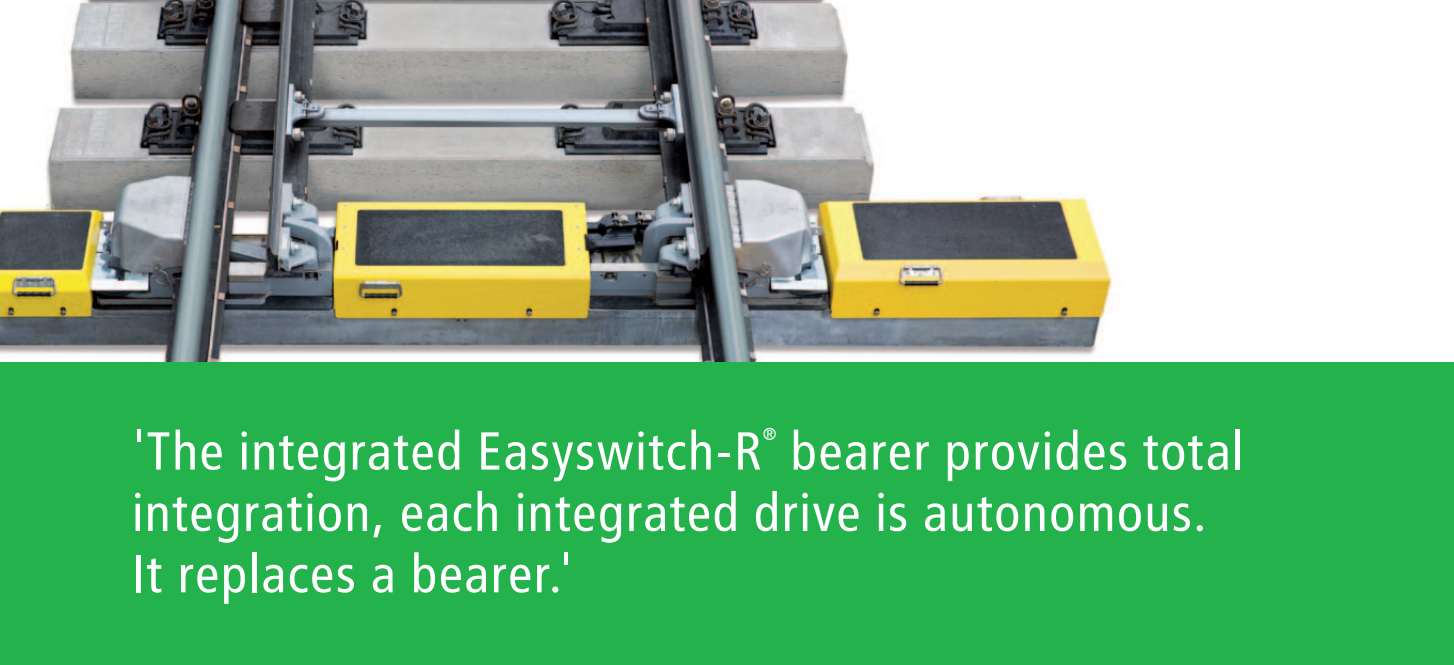


Easyswitch-R® The integrated electro-hydraulic switch drive

"The integrated electro-hydraulic solution..."

Vossloh Cogifer
23, rue François Jacob
92 500 Rueil-Malmaison - FRANCE
Tel.: +33 (0) 1 55 47 73 00
Fax: +33 (0) 1 41 29 19 18
info@vossloh.com

www.vossloh.com



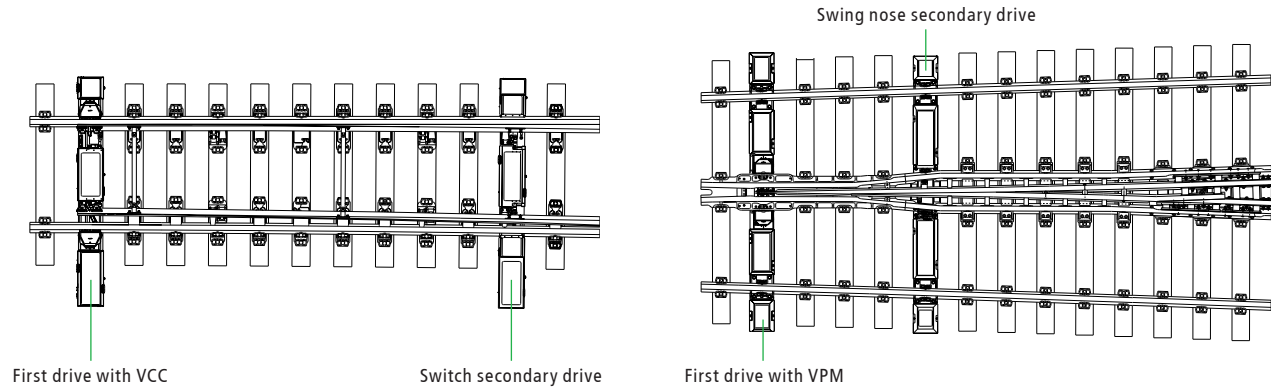
'The integrated Easyswitch-R° bearer provides total integration, each integrated drive is autonomous. It replaces a bearer.'

The Vossloh integrated electro-hydraulic bearer, Easyswitch-R°, is a product of great versatility. It is designed for railway tracks in Vignole rail: high-speed lines (over 250 km/h), conventional lines, heavy haul lines (up to 30 tonnes per axle), metro and ballasted tramway lines.

The Easyswitch-R° is a fully integrated system that offers major advantages for the drive, locking and switch detection. This device offers unequalled performance levels in terms of reliability, availability, maintainability and safety. It is also made up of "Plug and Play" modules, which can be replaced quickly. The dimensions of the Easyswitch-R° have been optimised to allow mechanised tamping of the turnout.

The main components dedicated to the safety function, such as locks (VCC for switch panel or VPM for crossing panel) with detectors, and the Paulvé detector in secondary drive are well known with a wide use in the world's largest railway networks for more than half a century.

The Easyswitch-R° is suitable to switchover the turnouts in both "Multiple drives" solutions and "Single drive" solution, without or with mechanical backdrives.

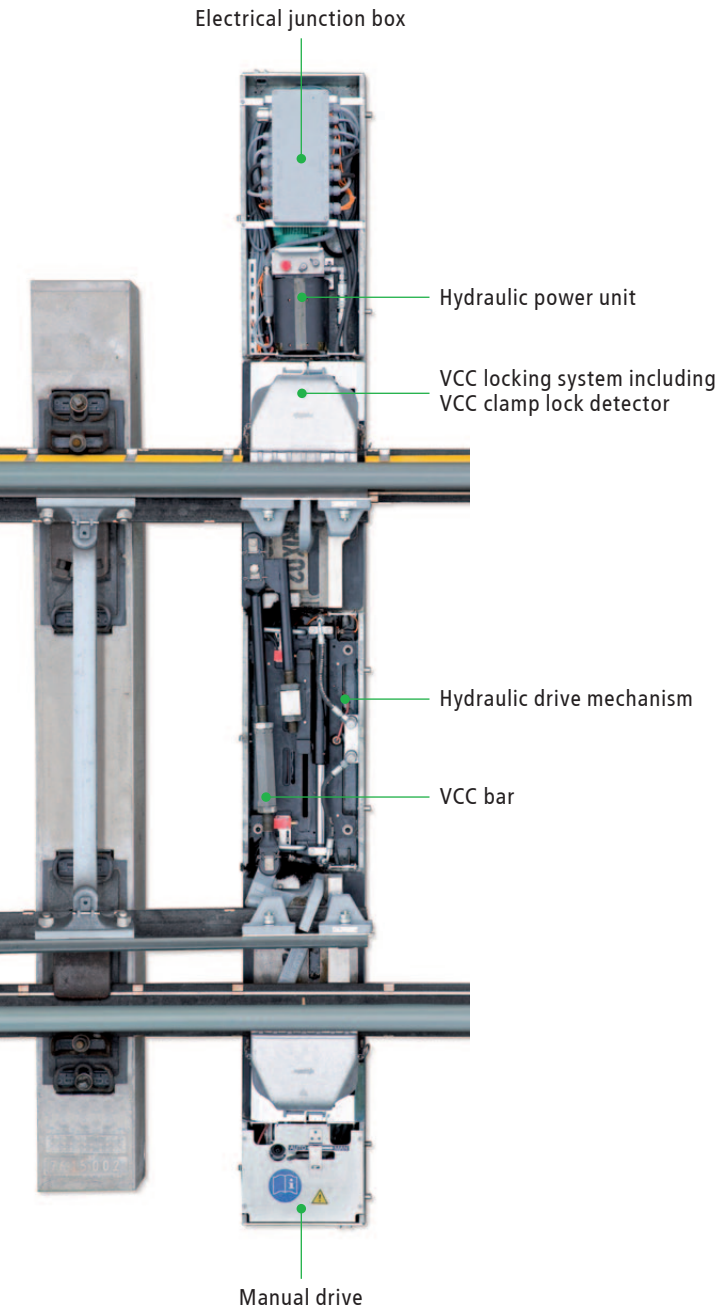


The Easyswitch-R°, using the "Multiple drive" solution **in the switch** consists in:

- The Easyswitch-R° first drive with VCC
- The Easyswitch-R° switch secondary drive

The Easyswitch-R°, using the "Multiple drive" solution **in the crossing** consists in:

- The Easyswitch-R° first drive with VPM
- The Easyswitch-R° swing nose secondary drive



Description of the Easyswitch-R° with VCC

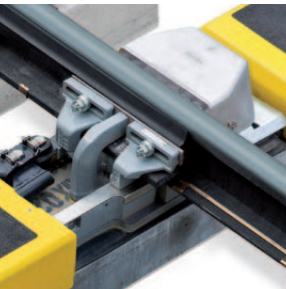
The Easyswitch-R° consists in the following modules:

- One bearer equipped with anti-vandalism covers
- One hydraulic drive mechanism
- One manual drive (hydraulic or mechanical)
- One hydraulic unit (with force limiter by hydraulic calibration)
- A pair of VCC clamp locks (first drive)
- A pair of VCC clamp lock detectors (direct detection integrated to the lock)
- One IP67 electrical junction box
- One VCC bar

Technical characteristics of the Easyswitch-R° with VCC

- Switch rail opening: 140 to 160 mm (according customer request)
- Locking force: up to 2 000 daN (according customer request)
- Throw force: up to 1 000 daN (adjustable based on hydraulic calibration)
- Switch time: 3.5 s
- Operating temperature: -55° to +70°C
- Allowed thermal expansion: +/- 55 mm
- Electrical voltage: 230/400V AC three-phase, 230V AC single-phase, 230V DC, others voltages are available on request
- Bearer mass: 700 Kg
- Compatible with biodegradable oil
- Lifespan: 20 years
- SIL4 certification – Standards EN 50126/EN50129

VCC locking system including VCC clamp lock detector



Installation and application

The Easyswitch-R° provides unprecedented adaptability:

- Designed for railway tracks in Vignole rail: high-speed lines, conventional lines, heavy haul lines, mass transit railways (metro/suburban), and tramway ballasted lines
- Available in 3-part version for installation on existing turnouts in tunnel environment
- Product equipped with anti-vandalism features
- Modular product, which modules can be replaced easily and quickly
- Integration allows mechanized tamping around the integrated bearer
- The reduced height limits the risk of tear-out by trailing objects
- Extreme weather conditions: the bearer has an electric optional heating option (resistance to extreme cold -55°C)
- Protection of the environment: use of biodegradable oil in the hydraulic circuit and biodegradable grease