

Sliding Plug Doors

Picture: LINZ AG

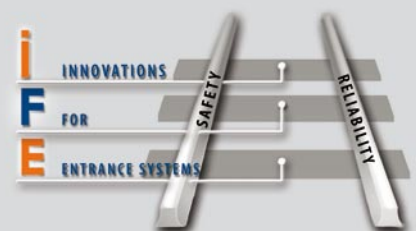


**Entrance Systems for
Rail Vehicles**

Mass Transit

In mass transit, the entry system dictates the rhythm

Passengers who are sitting in the train or are waiting on the platform do not prevent the driver from keeping his time schedule. However, delays can easily occur during boarding and deboarding. The quality of the entrance system has therefore a decisive influence on the efficiency of rail vehicles. Manufacturers and operators throughout the world know this and choose the high-quality entrance systems from IFE Automatic Door Systems.

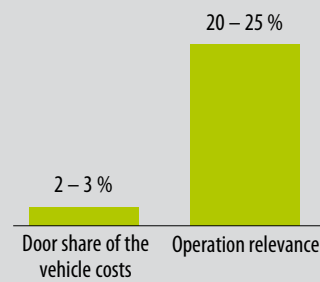




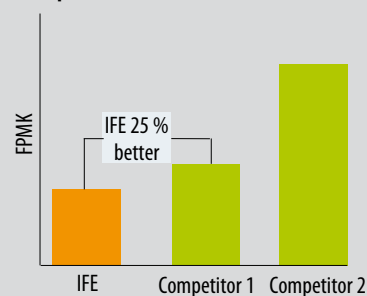
The most important factor for the availability of rail vehicles is the right entrance system. Calculations have shown that the economic benefit of a high-quality entrance system exceeds the purchasing costs by up to ten times.

From product development via manufacture to final inspection and assembly, IFE relies uncompromisingly on quality. In doing so, the company has earned an excellent reputation throughout the world: as the first address for door systems with an excellent cost/benefit ratio over the entire life cycle.

Innovations from IFE anticipate the increasing demands of the market in terms of safety, reliability, and life cycle of door systems. Currently, IFE is setting new standards with modular systems that provide for faster, more flexible and more economic implementation of solutions.



Effects of the entrance systems on operation



IFE builds the most reliable sliding plug doors

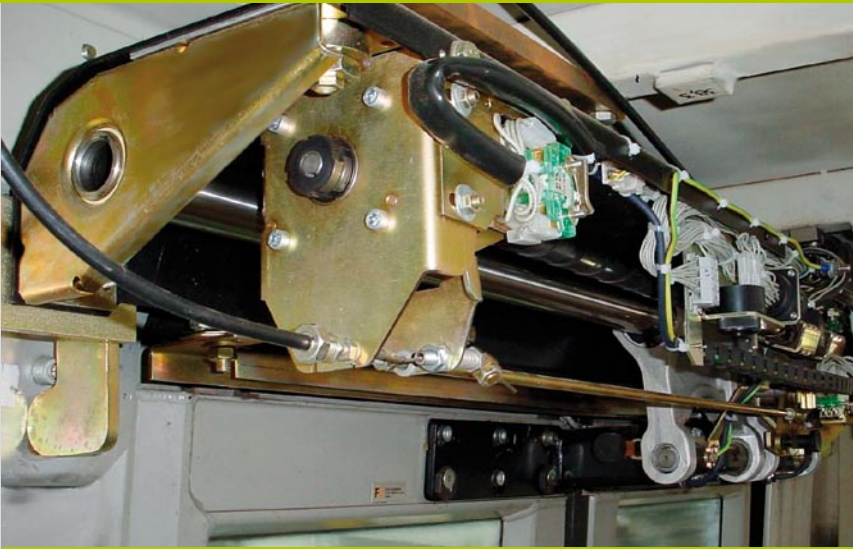
Sliding Plug Door Systems

Sliding plug door systems

IFE offers a wide variety of robust door systems that have proven successful in practical operation, and that meet all critical requirements. These systems optimally use the space available, and have excellent sound and heat insulation values.

Thanks to short opening and closing times, the IFE sliding plug doors ensure smooth operation, and therefore are preferable on routes with high passenger volume.





RLS drive



Exterior and interior view

Classic Line: the electric RLS door drive

The electric drive RLS is used most throughout the world - and for a good reason. It is perfectly suitable wherever frequent closing movements and short opening and closing times are required. RLS is thus the ideal drive for doors of streetcars, underground trains and urban railways, in different designs. With a clear and simple structure, it always comprises robust components, while being insensitive to door warping.

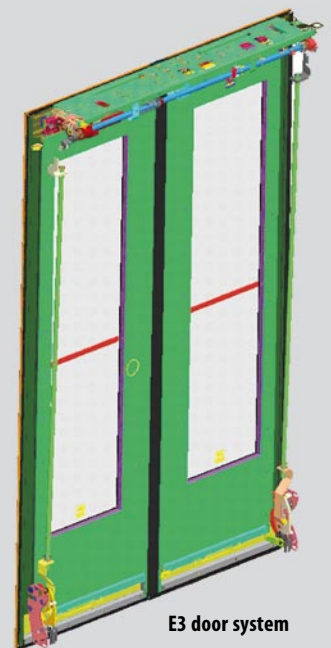
Thanks to its compact modular design, the drive can optimally be integrated into the vehicle. Because of the slim drive, rotary columns are superfluous, allowing for an optimal design of seat arrangements and lateral entrance covers. RLS can be upgraded for many different requirements. Specially developed assembly processes ensure extremely short and efficient installation times.

Advanced performance

If you have experience, you can break new ground. When developing new concepts, IFE always uses tested and well-trying components. The result are innovative door systems that operate extremely reliably, while simultaneously being more compact, more flexible, and more economic than their predecessors.

The Compact door system E3

E3 is a door system that was developed based on well-trying IFE components. This strong basis made a revolutionary overall concept possible that sets new standards with its high degree of standardisation and modularisation. E3 thus combines the strengths of ZAR with an extremely small and compact construction. Optimal dimensioning of the vehicle static and a good design of the car body shell are thus possible.



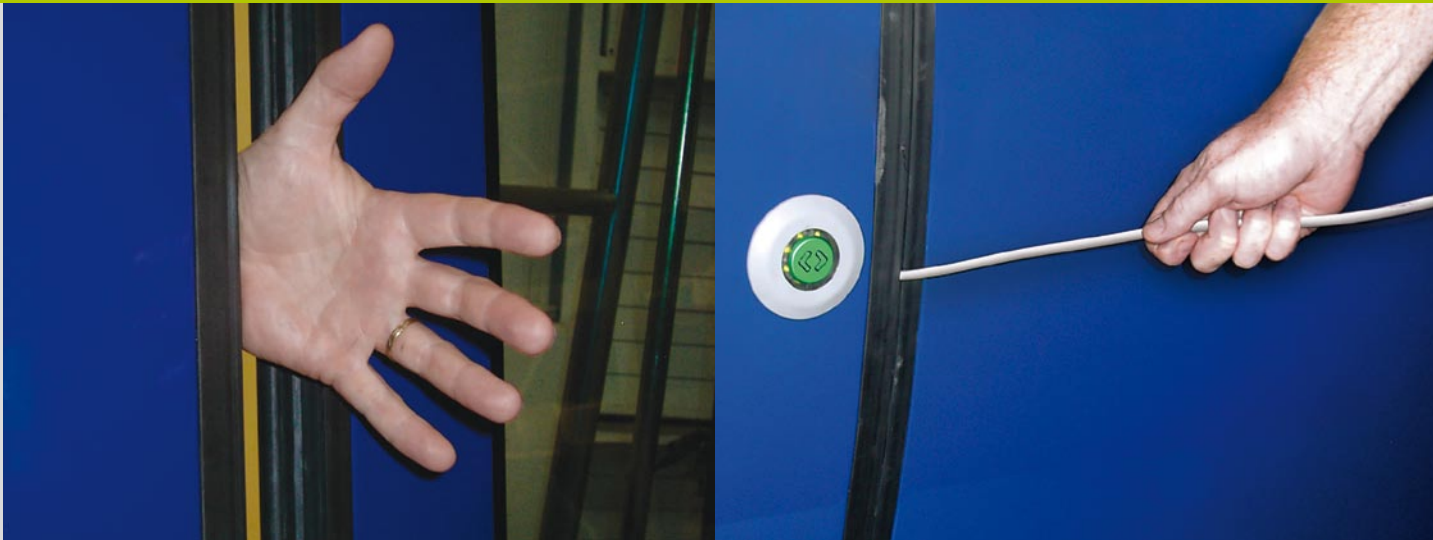
E3 door system

Everything is under control with the detection systems from IFE

During peak-hour traffic, a lot depends on the right signal being given at the right moment at the closing edge to the entrance door.

Under no circumstances may the passengers be crushed by the closing door. On the other hand, the departure of the train should also not be obstructed every time there is any contact with the door. Here and in other neuralgic points of the entrance area, innovative detection systems from IFE successfully square the circle. Their design guarantees a maximum of safety without impairing punctuality by blind alarms.





Crush protection

Crush detection

1 Monitoring and securing of the closing edge

The standard detection systems DS1 to DS4 serve for monitoring and securing the closing edge of automatic doors:

- DS1 – Current monitoring
- DS2 – Distance/time monitoring
- DS3 – Manometric switch
- DS4 – Monitoring with electric strip

The systems meet all applicable standards and requirements. They provide protection against crushing in the closing door, however, do not overreact to every jammed object in a way that the operation of the door would be disturbed by permanent reserving.

Experience has shown that oversensitive detection systems frequently provoke a minority of passers-by intentionally to delay the departure of the train. This is not the case with the detection systems from IFE.

2 Checking of the closed door

The extended detection systems DS5 and DS6 check an already closed door:

- DS5 – Crush detection, static
- DS6 – Crush detection, static and dynamic

DS5 checks an already closed door for any jammed objects. The system detects and reports even the smallest deformations in the rubber profile of the closing edge. DS6 additionally detects dynamic forces at the departing train, which might be caused by even the smallest jammed objects, and is capable of initiating the respective response.

Safe and convenient entrance for everybody

The space between the vehicle and the platform can easily become an obstacle for handicapped and frail people, and for people travelling with small children – in particular when the distance or the difference in level is large. In order to facilitate safe and convenient entrance for all passengers, IFE offers various access devices.





1 Gap bridges

The IFE gap bridge reduces the gap between vehicle and platform to a distance that makes boarding possible even for wheelchair users. It is characterised by a plain design and simple construction, and is very reliable in practical use.

2 Ramps

IFE ramps make secure access to the vehicle possible for wheelchair users, even if there is a considerable difference between the vehicle and the platform level. Every ramp is supplied as a narrow fully mounted cassette, only requiring a flat installation space of low height.

3 Sliding steps

Sliding steps make entrance easier for physically handicapped people and parents with baby carriages, when there is a large gap between the vehicle and the platform. The IFE sliding step is delivered as a narrow fully mounted cassette that requires only a small installation space, and that is easy and quick to assemble. The extension width can be adapted to the requirements.

Adapted access systems for driver and passenger

IFE also offers suitable door systems for the driver, and for the connection between the carriages. Room-saving, tight and convenient doors for the driver's cab contribute to a pleasant workplace, thus making it easier for the driver to concentrate on his actual task.

To make sure that the passenger and the driver's cab doors match perfectly also optically, while fully satisfying the design specifications of the customer, IFE manufactures door leaves in a large variety of shapes and surfaces, from level surfaces to three-dimensional designs.





Cab door



Slam door



Connecting door

Cab doors

IFE offers a large variety of door systems to ensure that the driver can access his workplace conveniently and safely.

Slam doors

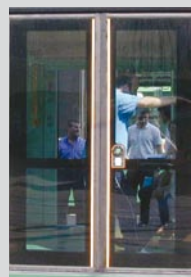
For the driver's cab, IFE manufactures light door leaves made of different sandwich structures that fulfil different physical requirements in terms of strength, heat and temperature insulation. The design varies from a level aluminium sandwich structure to a three-dimensional design in fibreglass technology. Many different matching window types, satisfying all needs, are available.

Connecting doors

Many different IFE systems have proven successful in daily use as connecting doors between the driver's cab and the passenger area. The product range varies from simple manual slam doors to fully auto-matic sliding doors.

Door leaves

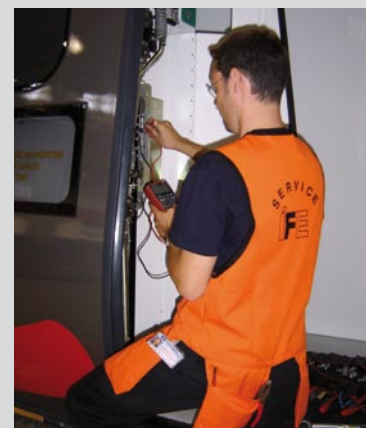
IFE supplies a wide range of the latest sandwich and full-glass doors as door leaves. They comply with the project-specific fire protection requirements as well as the applicable sound insulation and heat transition thresholds. The sandwich door leaf consists of an aluminium frame with aluminium cover plates and different filling, depending on the physical requirements. IFE also produces high-grade steel door leaves for special requirements. The windowpane either is glued in, or is mounted into the door leaf by a mounting rubber.



Design variants

Services for demanding customers

After the purchase is before the purchase: IFE is the partner for rail vehicle manufacturers and operators that they can rely on in tough practical operation. Offering a variety of after sales services, IFE ensures that every IFE door system lives up to its name.





Assembly

- Standard service: Initial installation and commissioning
- Extended service: Supervision of the installation during the assembly phase
- Complete service: Complete installation including logistics and putting into operation

Maintenance

- Spare part monitoring
- Repair at fixed cost and delivery time
- Concepts for general overhaul (material, logistics, service)
- Repair and maintenance in the depot

Customer training

- Assembly and initial operation
- Operation and handling of the diagnostic equipment
- Repair and maintenance

Upgrades

- Adaption of the control and diagnostic concept
- Modernising/extension of the crush detection or crush monitoring system
- Modernising/replacement of components

The market chooses IFE

The best proof of the high quality of the entrance systems from IFE is the high approval that these find on the international rail vehicle markets. Here is a list of customers that have successfully used IFE sliding doors in mass transit for many years.