



High-Speed Spiral Doors

The new SST Generation

*environmentally aware,
fast and energy-saving*





THE NEW GENERATION: HIGH-SPEED SPIRAL DOOR SST

EFAFLEX has completely redefined the approved concept with its new high-speed spiral doors series SST. The three designs PREMIUM, ECO and BASIC provide three user-friendly types according to service requirements. The innovation: The new SST is the first high-speed industrial door in the world with an insulated door panel and laths up to a size of 100 mm. Thus, the SST is a purpose-made, quick, safe, and heat-insulating hall door.

The SST can also be used for the application of logistic systems with the highest demands, for example, in production companies, parking garages, underground car parks, car washing plants, shopping centres, etc.

The new technical concept displays an improvement in the physical characteristics of the door leaves as well as an optimisation of functionality. Thus, the new SST features the following special characteristics:

- **Standard equipped with the new EFA-THERM laths: The door leaf consists of thermally separated and insulated door laths, uniform panel separation 225 mm and with variable panel thickness of 40, 60, 80, or 100 mm (according to door size).**
- **Maximum door leaf speed up to 2.5 m/s**
- **Unrivalled heat/sound insulation**
- **For the highest demands**
- **Almost maintenance-free technology**
- **Highest running capacity of door and leaf**
- **New, network-compatible door control EFA-CON**
- **TLG (door light-line grid) as unique safety element directly in the door closing line**
- **Option: Active Crash System ACS – The unique, active crash protection for high-speed doors with solid door leaves, always in connection with direct synchronous drive DS**
- **All performance characteristics tested according to EN 13241-1**

SST – THE BASIC PRINCIPLE: PATENTED, UNIQUE AND STILL UNRIVALED

Practical innovations like, for example, the new EFA-THERM laths and especially their connection with the Active Crash System ACS and the Direct Synchronous Drive DS are highlights which set a benchmark in the industry of high-speed door construction. The approved SST basic concept, however, will remain. The perfect door leaf guidance in the patented EFAFLEX spiral is still unrivalled and is considered as the ultimate in the construction of high-speed doors. The door laths will not be rolled upon each other but kept in a certain and space-saving distance from each other by the central component: The spiral. No other door leaf system comes close to combining opening speed, long service life, reliability, and effectiveness as well as our system does. Spiral doors made by EFAFLEX combine two door applications in a single construction unit: The SST presents a burglar-proof and weather-proof external door as well as a high-duty high-speed door.

The solid door leaf is almost free from wear; even after many years frequent door use will not be visible. If required, single laths can be easily and quickly exchanged. The new SST generation by EFAFLEX only uses self-produced EFA-THERM door laths. A unique production process warrants the best stability and the highest heat insulation and sound absorption on the one hand, and on the other hand it ensures a considerable reduction of the moved masses. The results are lower maintenance expenses and larger inspection intervals. The new spiral doors complete up to 250,000 movements per year, but nevertheless remain almost "indestructible".

The basic concept remains as unbeatable as ever.



REVOLUTIONARY: THE NEW EFA-THERM LATHS.

The newly developed, trendsetting lath production process by EFAFLEX guarantees the highest quality. Robust, more durable, closer, more sound-absorbing, better insulated – all this will be ensured by the innovative construction of the door leaf. The EFA-THERM door leaf for high-speed spiral doors SST consists of thermally separated and heat-insulated laths. Furthermore, several new technical solutions have been implemented which benefit the qualitative improvement as well as the functional improvement of the door. In addition to the EFA-THERM laths made of double-wall aluminium, double-wall, insulated

transparent EFA-CLEAR laths are used which display extraordinary damping characteristics and remain transparent for a long time.

The lath thickness is 40, 60, 80, or 100 mm according to the size of the door or customer request. The choice of colour is completely up to you: In addition to top-quality aluminium EFAFLEX standard coating (similar to RAL 9006), we can also deliver your personal and individual "house colour".

EFA-CLEAR:

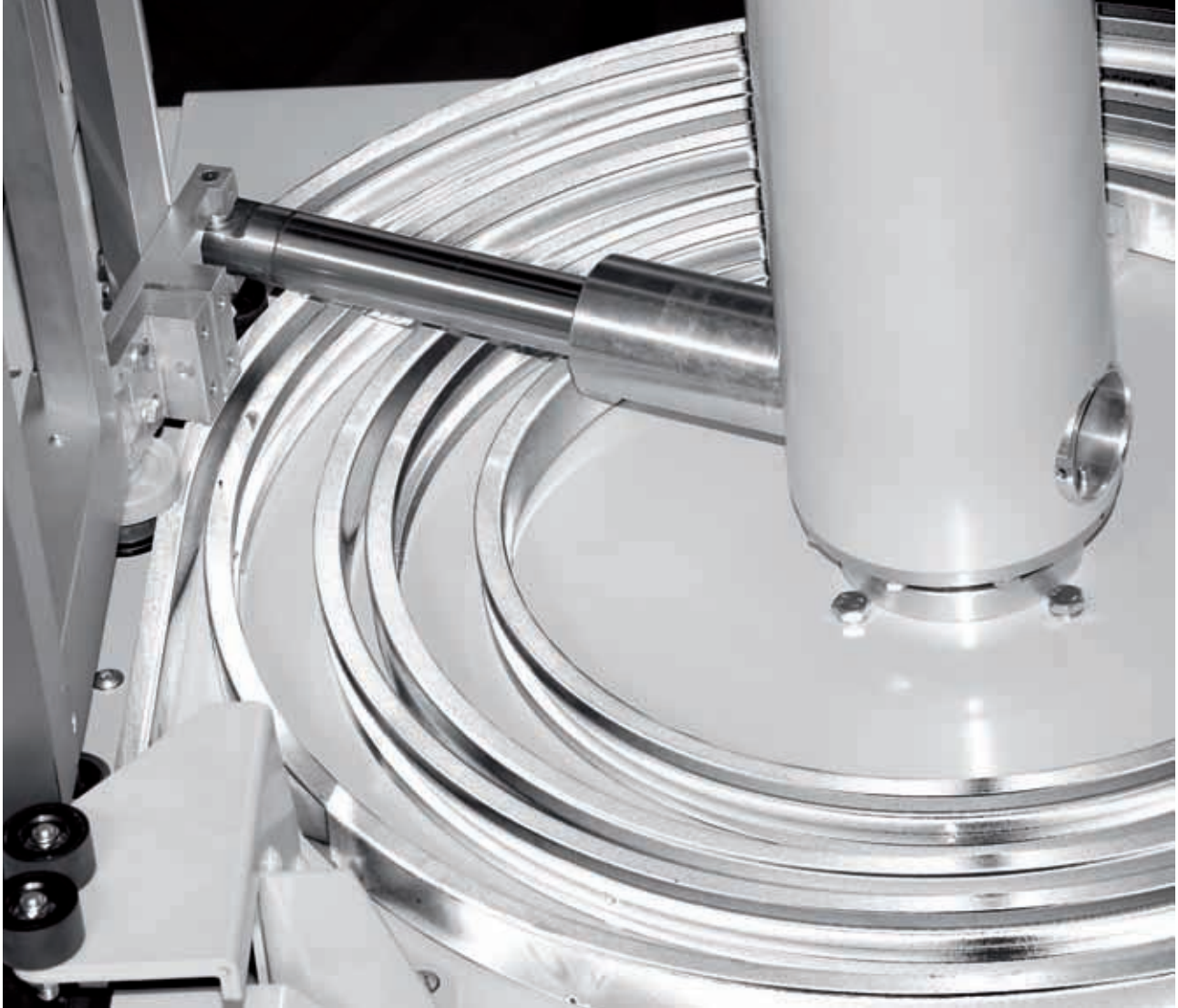
Double wall transparent laths.



EFA-THERM:

Highly insulated laths from 40 to 100 mm.





Direct Synchronous Drive (DS)
with telescopic extension arms

THE WORLD PREMIERE: **DIRECT SYNCHRONOUS DRIVE (DS)** **AND ACTIVE CRASH SYSTEM (ACS)**

A real stroke of genius: Being the first and only high-speed door with solid door leaf in the world, the new SST Premium series can be equipped with an active Crash System ACS, if requested by the customer. This well thought-out mechanical and electronic facility can protect the door from damage and failure and thus from being repaired. The core is the new direct synchronous drive "DS". In this drive, the force transmission is accomplished "from above" by a driveshaft and synchronous and telescopic extension arms

directly on the upper door leaf lath. Thus, the installation of wearing force transmission elements such as motor toothed belt, clutches, door leaf belt, deflection pulleys, etc. is no longer necessary. The result: Compact, low-maintenance construction, a longer service life, quiet and precise run, and a safe release of the ACS at concurrent strong wind load.

Collision without serious consequences

A crash can happen to anyone – even the best forklift driver. With ACS by EFAFLEX you can mostly eliminate serious consequences! In the lower part of the door leaf the laths are fixed on two-part, detachably connected strap hinges. They will not be damaged and pressed out of the guiding during a collision. Inductive sensor technology

registers the crash, reduces the “door open” movement to repair speed and automatically assembles the separated parts. Unprofitable inactive periods and repair costs can thus be substantially reduced. A milestone for profitability and safety.



THE NEW SST: ARCHETYPE FOR MODERN, ENERGY-SAVING DOOR TECHNOLOGY

NEW: Three model types PREMIUM, ECO and BASIC

SST-PREMIUM

Designed for heavy-load permanent industrial use, the Premium series is designed for users whose doors open and close up to 250,000 times a year. The opening speed is up to 2.0 m/sec. In compliance with standards the delivery includes amongst other things a burglar-proof locking device with an easy to handle unlocking mechanism (e.g. in case of power failure) through manual levers as well as the TÜV tested safety system "TLG" (door light-line grid).

SST-ECO

The Eco series distinguishes itself by robust quality and the familiar EFAFLEX reliability, combined with moderate opening speeds up to approx. 1.0 m/sec. The door can be moved up to approx. 200,000 times a year and can thus be called above-average.

SST-BASIC

Here, the focus does not lie on speed but on high quality and extraordinary load with up to 100,000 movements per year. During automatic operation, BASIC doors have a speed of approx. 0.5 m/sec; the standard speed is approx. 0.3 m/sec without automatic stop. This corresponds to all contemporary requirements of a value-for-money modern industrial door.

Complies with standards for all model types:

EFA-THERM laths with the highest heat and sound insulation

In compliance with standards, the EFA-THERM laths of the spiral door SST are thermally separated and insulated. Thus, excellent heat insulation between 0.8 and 1.2 W/m²K is achieved for the door surface (!) depending on the size of the door.

The highly insulated EFA-THERM door leaf can be provided in thicknesses of 40, 60, 80, and 100 mm. According to the required incidence of light, any number of transparent EFA-CLEAR laths made of plexiglass (SAN) can be installed. Optional double-wall and thermally separated transparent laths are also available. The advantages: Heat insulation, absolute wind stability, burglar-proof, weight reduction and sound absorption.

Network-compatible control EFA-CON with remote diagnosis

The completely newly developed microprocessor control EFA-CON will be individually adapted to the operational requirements and the equipment of the door: Along with a frequency converter, a main switch, control keys and a plain text display, it contains an RS 485 interface and is network-compatible up to the point of a remote diagnosis. The control is located in a compact and operation-friendly plastic control cabinet on the door frame, which is a very space-saving solution. Tested for type examination with TÜV certificate!

FITS EVERYWHERE: FLEXIBLE CONSTRUCTION POSSIBILITIES

Space-saving solutions

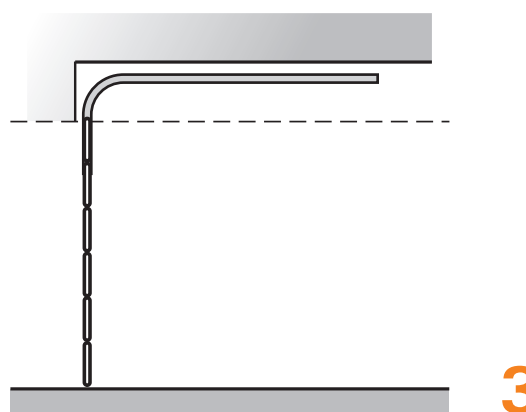
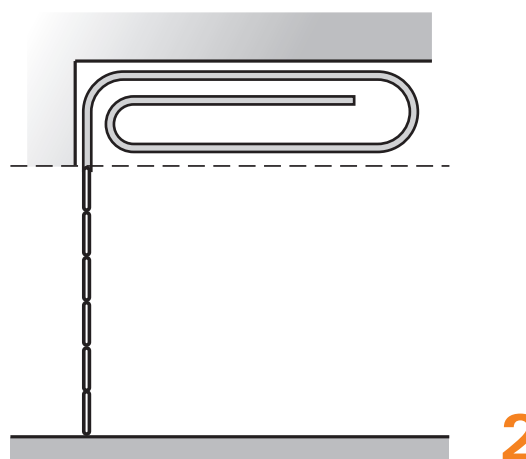
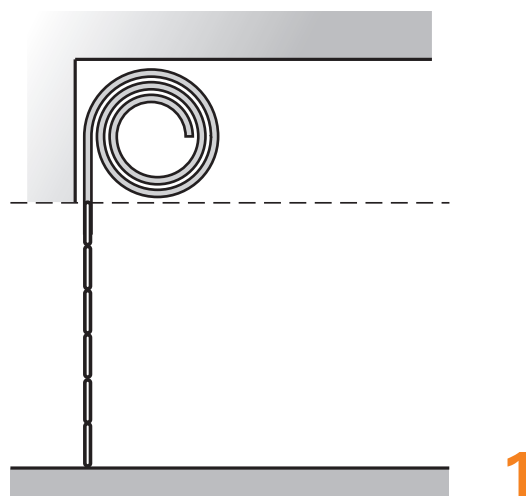
The patented spiral for the door leaf is mounted onto the vertical frames. Different types in different designs allow for easy adjustment to the construction at any time:

- 1. The circular, continuous round spiral is the standard solution, if sufficient free space for the header has been allowed for.**
- 2. Otherwise, oval designs will be used.**
- 3. For highly limited space, a low header application is available.**

Thus, high-speed spiral doors by EFAFLEX can be used in many ways.

VERSATILY APPLICABLE

High-speed spiral doors by EFAFLEX are always an intelligent solution. For example, the access and exit doors of an underground car park can be installed in low header applications due to the highly limited space. Instead of using standard double-wall EFA-THERM or transparent EFA-CLEAR laths, any ventilation laths can be installed upon request. Traffic light systems control the traffic. Similar system solutions will also be individually realised for car washing plants, airports, fire brigades, banks, insurance companies, cooling zones and many more applications in industrial and commercial construction.



SST- THE SAFEST SOLUTION WITH HIGHEST AVAILABILITY



Spiral doors by EFAFLEX correspond to the European standards in every way:

The overall construction of the SST has been designed in detail for the highest reliability, the longest service life and the lowest maintenance expenses. For example, a maintenance-free and wear-free sensor technology is directly installed at the motor which inductively captures the current door positions. All components of the drive and the power transmission have been designed for the heaviest permanent use. Additionally, the optical characteristics of the EFA-THERM door leaf have been highly impressive for many years. Also the EFA-CLEAR transparent laths will remain transparent for a long time.

Smooth startup

Smooth acceleration – high speed – smooth braking: This sequence is essential for a long service life. The motor does not startup with full power, and the drive elements are not jerkily, but evenly and quickly loaded. The standard frequency converter changes the number of revolutions

over the frequency and supplies the motor with 3 x 230 V phase-delayed. Thus, a connection to 230 V is always possible.

Non-wearing door leaf

The force transmission is accomplished over strap hinges positioned at both sides with protected and integrated rollers. A connection shaft ensures the synchronisation. The laths are independently screwed to the strap hinge, and rubber clamping profiles in "EFA-Clip" technology connect the laths wind-proof and weather-proof. Thus, there are no transmission forces effective within the door leaf. If required, single laths can thus be quickly and easily exchanged.

Door safety sets standards

- Mobile elements are carefully covered to guarantee the best possible hand protection and the most effective anti trap control.
- In compliance with standards, all doors are equipped with a back pull mechanism for weight compensation: A tension spring mechanism is installed in the side frames which pulls the door up automatically if, for example, the unlocking lever is operated during a power failure.
- Compliance with the durability of the performance characteristics has been certified by the ift in Rosenheim (German research and testing institute).
- The safeguarding of the door locking level for ECO and BASIC model is accomplished through a strip and an optional photoelectric barrier. In compliance with standards, a TÜV tested, patented, opto-electronically working door light-line grid (TLG) is installed in PREMIUM doors and is completely protected by its installation in the side frames. It generates a unique infrared light-line grid with a maximum height of 2.5 m.

A TOP PRODUCT NEEDS A PERFECT PERIPHERY

NEW: Space-saving control cabinet with network-compatible EFA-CON control.

A compact format, new design and highest functionality.

The EFAFLEX standard control consists of the brand new "Generation EFA-CON" with immediate effect and definitely requires less space than previously. The thin casing (protection category IP 54) made of black polycarbonate is now available in the compact "frame format" (160x430x155 mm). Amongst other things a positive-locking, integrated main switch and a plastic foil keypad, for the "OPEN"- "STOP"- "CLOSE" operation are installed at the front according to standards together with a light, two-line vacuum fluorescence display (VFD) for the function display (plain text). The weight of the control cabinet has been consequently reduced to 1/4 of the weight of its precursor. At the same time, the capacity has been substantially enhanced; as only half of the previous space is now required. Normally, the control can be installed on the side of the motor at the frame. Then the cables run entirely protected in the door frame.

The heart of the new EFA-CON is a modular frequency converter electronic circuit with three adjusted stages at 0.75 kW, 1.5 kW and 2.2 kW. It consists of a Basic and Power Board with a control circuit and EPROM with CPU (power element). In compliance with the standards, all standard functions are "onboard". For very high demands, an upgrade via Extension Board is optionally available. EFA-NET therefore represents the standard integrated serial interface RS 485: This not only facilitates connections to remote controls but also supports the integration of an absolute value transmitter. After a power failure for example, the synchronisation run of applications in the process technology is prevented. Programming is accomplished through the plastic foil keypad. Of course, a sufficient number of receptacles (e.g. for electronic relays) are



available to later realise additional functions such as traffic light pre-emption and/or locking functions. Tested for type examination with TÜV certificate (German Technical Control Board). Electric connection data: 230V/16A(K).



SERVICE, ADVICE AND SUPPORT

Good service is the philosophy of EFAFLEX and includes many issues: Experienced specialists inspect the installation situation, discuss the requirement profile with you and then develop an individual door concept. Very well trained EFAFLEX technicians install the delivered doors professionally and on schedule. EFAFLEX customer service stations are always very close; they perform services, immediately deliver spare parts and also perform the required inspections for power-operated doors within recommendable maintenance agreements.

Construction & Production

Many, predominantly patented construction characteristics which are incorporated into the exemplary developments made by EFAFLEX are the result of years of innovative engineering work by the in-house development departments. The production is accomplished with the most up-to-date and precise production systems. The highest possible production quality is the permanent result. By professionals, for professionals.

Delivery

The range of products includes a wide spectrum of different high-speed doors. Choose your ideal solution – EFAFLEX offers you the perfect overall configuration.

Guarantee

Trust is good – highest production quality, precise final checks and surpassing guarantee is better.

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		Premium				ECO		Basic
		L	S	ÜS	ACS-DS	L	S	L
Application	Interior door	•	•	•	•	•	•	•
	Exterior door	•	•	•	•	•	•	•
Wind load max.*	acc. to DIN EN 12424 in classes	4	2-4	2-4	2-4	4	2-4	4
Operation force / safe opening	acc. to DIN EN 13241	redeemed	redeemed	redeemed	redeemed	redeemed	redeemed	redeemed
Resistance against water	acc. to DIN EN 13241 in classes	3	3	3	0	3	3	3
Air permeability	acc. to DIN EN 13241 in classes	2	2	2	0	2	2	2
Direct sound insulation	in dB(A) acc. to DIN EN 717-1	26	28	30	24	26	28	26
U-value max (depending on type of door blade)	in W/m²K	1.2	1.0	0.8	1.8	1.2	1.0	1.2
Door sizes (in mm)	Width max	4500	6000	8000	4000	4500	6000	4500
	Height max	5000	6000	8000	5000	5000	6000	5000
Door blade speed max*	in m/sec.	2.5	1.5	1.2	2.5	1.0	0.9	0.3
Factory-provided adjustment* (Average speed max.)	Opening in m/sec.	1.5	1.2	1.0	2.0	1.0	0.9	0.3
	Closing in m/sec.	1.0	1.0	0.8	1.0	0.6	0.6	0.3
Door blade reception	Round spiral	•	•	•	•	•	•	•
	Oval spiral	•	•	–	–	–	–	–
	Low header	–	–	–	–	•	•	•
Steel construction	Galvanized sheet steel	•	•	•	•	•	•	•
	Stainless steel	o	o	–	o	o	o	–
	Powder coated acc. to RAL	o	o	o	o	o	o	o
Door blade	EFA-THERM aluminium lath Double wall insulated / varnished	•	•	•	•	•	•	•
	EFA-CLEAR Sight lath double wall Thermally separated, anodized	o	o	o	o	o	o	o
	EFA-CLEAR Sight lath single wall, anodized	o	o	–	o	o	o	o
	Venilation cross-section	o	o	–	o	o	o	o
	Varnished acc. to RAL	o	o	o	o	o	o	o
Fire classification		B2	B2	B2	B2	B2	B2	B2
Equilibration by springs		standard	standard	standard	standard	standard	standard	standard
Load change spring		250,000	250,000	250,000	250,000	200,000	200,000	100,000
Crash protection	Active Crash System ACS	–	–	–	•	–	–	–
Drive	Electric motor with frequency converter	•	•	•	•	•	•	–
Control	EFA-CON	•	•	–	•	•	•	–
	Frequency converter	•	•	•	•	•	•	–
	MCP2 with BUS technology, main switch and foil-pad	o	o	•	o	–	–	–
	Reversing contactor control / comfort	•	•	•	•	•	•	–
Supply	Current sink	230V/50Hz	230V/50Hz	230V/400V*	230/50Hz	230/50Hz	230/50Hz	3x400V
	Fuse	16A(K)	16A(K)	20A(C)	16A(K)	16A(K)	16A(K)	10A
Manual locking		•	•	•	–	–	–	o
Emergency opening	Automatic after manual release	•	•	•	•	•	•	•
Safety devices	Door light-line grid (TLG) in the door closing line	•	•	•	•	–	–	–/–
	Contact edge	–	–	–	–	•	•	–/o
	Light barrier	–	–	–	–	o	o	–/o
	Forefield surveillance (AIS)	o	o	o	o	o	o	–/–
Activators	Connection of all common activators possible	•	•	•	•	•	•	–/•

• Standard o on request – not available * dependant on door panel and door size



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