



Porsche Arena, Stuttgart

GEZE TSA 160 NT and variants

Swing Door Drive for Automatic Doors



BEWEGUNG MIT SYSTEM

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DOOR TECHNOLOGY



GLASS SYSTEMS



AUTOMATIC DOOR SYSTEMS



RWA AND WINDOW TECHNOLOGY



SAFETY TECHNOLOGY

Reliably open and close doors

It may sound simple but this requires highly sophisticated technology.

The swing door system TSA 160 NT makes sure that everything runs smoothly, day after day from second to second.

At the same time it offers a maximum convenience and safety.

The swing door systems TSA 160 NT easily cope with the frequently tough duties of everyday functions, whilst maintaining safety.

Where it is too cumbersome to operate a door by hand, the swing door system TSA 160 NT takes over this job. This provides particular benefits in shops and department stores, hospitals and schools, in homes for the elderly or disabled, as well as in airports and railway stations.

Where doors shut quickly, safely and tight, we can of course also expect a significant contribution to energy savings. Therefore, the tried and tested TSA 160 NT system is frequently used for lobbies, entrances to workshops and cool rooms as well as for doors at the end of corridors.

Likewise, where the highest demands are placed on hygiene, the GEZE swing door actuators are frequently found.

Fields of application at a glance

Where help is needed:

- ▶ Old-peoples homes
- ▶ Homes as well as workshops for disabled people
- ▶ Hospitals, rehabilitation centres
- ▶ Public buildings, airports, stations
- ▶ Schools, kindergartens

Where energy has to be saved:

- ▶ Exterior doors, corridor end doors
- ▶ Draught-proof systems
- ▶ Workshops, ateliers, studios

Where hygiene is required:

- ▶ Hospitals, surgeries
- ▶ Social rooms, toilets
- ▶ Food manufacturing shops and pharmaceutical industry

Where comfort is the choice:

- ▶ Shops and department stores
- ▶ Schools, kindergartens and public buildings
- ▶ Airports and stations

Where safety is the first priority:

- ▶ Safety locks and access control
- ▶ Fire and smoke prevention purposes

Safety first

The TSA 160 NT actuators are the trusted solution for safety at work, access control as well as interlocks and of course this system fulfills the regulation DIN 18650.

An additional safety feature are the GEZE safety sensors, which control the opening and closing action. These sensors will stop the movement of the door in time, if people, animals or movable objects are within the swing opening range of the door.

In emergencies they can save lives: The swing door systems TSA 160 NT F and TSA 160 NT F-IS are approved for the use on smoke and fire doors.



Landesbank Baden-Württemberg, Stuttgart

For single-leaf doors

Range of application

The TSA 160 NT system is adaptable to fit your requirements.

For new construction or refurbishment, for inside or outside areas.

In addition, there are a broad range of materials to use with the TSA 160 NT; timber, steel, plastic or aluminium.

It only should be dry and the ambient temperatures should be within the usual limits (- 10 °C to + 60 °C).

The small dimensions (100x 120x690 mm) make it particularly easy for the designer and fitter. And of course, they fit well in a retrofit situation.

Nevertheless, TSA 160 NT actuators are rugged and powerful. They will open doors up to 250 kg in weight and with maximum door widths up to 1400 mm without any problem and still perfectly control the closing action. The same actuator can be used for left or right handed doors.

Functions and benefits

The electrohydraulic swing door actuators TSA 160 NT ensure total satisfaction in connection with all doors.

A hydraulic pump system controls the open state and the closing spring mechanism governs the closing process.

The door system remains optical and acoustical, whilst unobstructive.

The construction with vibration dampers ensures a low noise level.

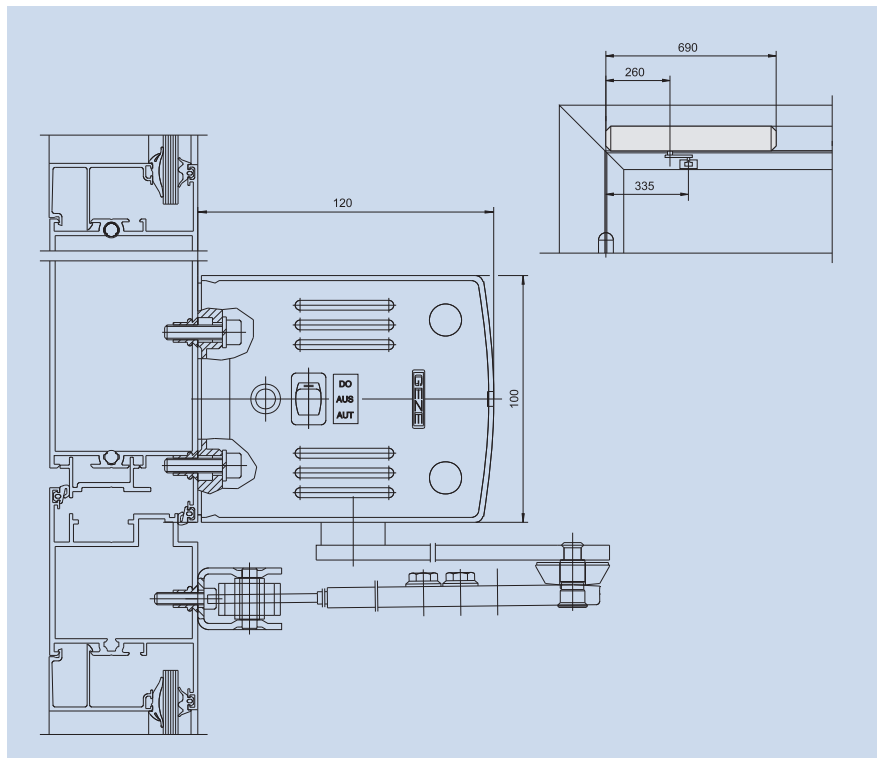
All TSA 160 NT systems are extremely cost-effective. They require very little energy and service. As far as comfort is concerned, the TSA 160 NT is not at all modest. The drive can be combined with all known control options and offers a system ready to be fitted – if required with remote control.

Even power cuts are no problem for the TSA 160 NT. In this case the door can be opened manually just as any normal door.

Manual opening is also possible at any time while the actuators are switched on.



Roosendaal, Nederland



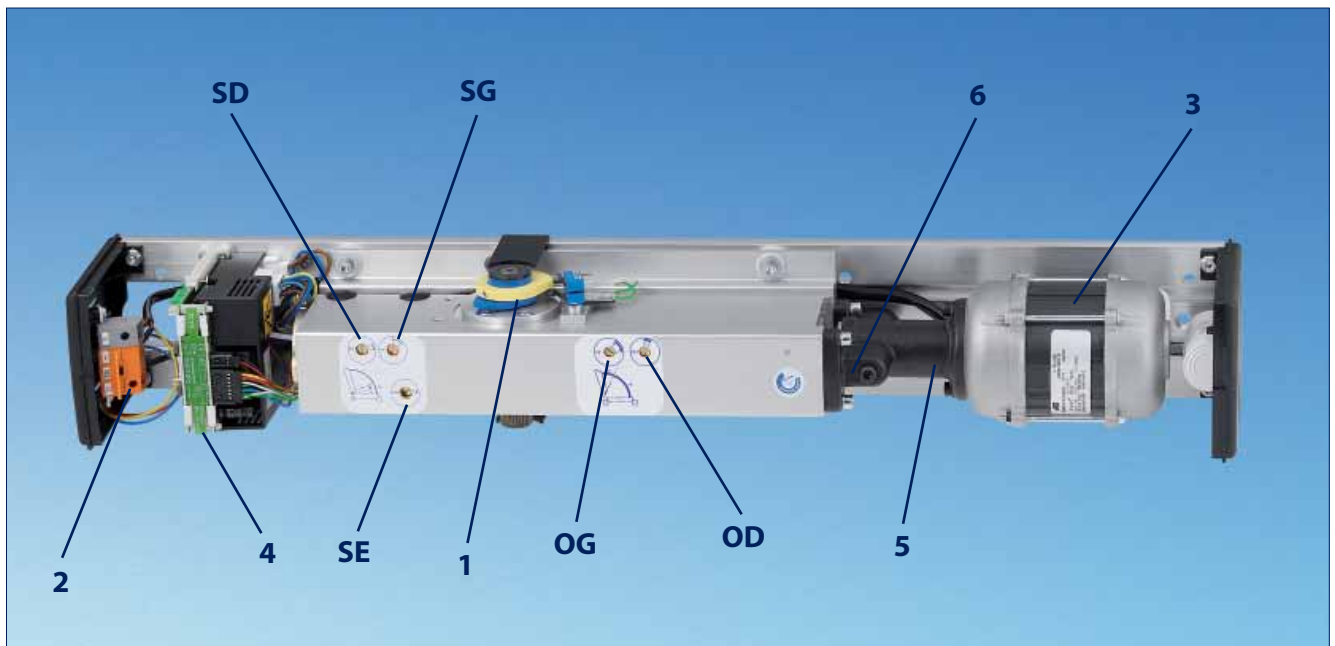
The TSA 160 NT is a swing door actuator with electronic control and integrated programme switch with the positions "off", "automatic" and "hold open".

The system can be fitted to left and right handed doors with a pulling or pushing function - for pushing function with linkage and for pulling function with guide rail.

Depending on the design and arrangement it is possible to achieve opening angles of up to 115°.

Apart from the opening speed, the closing force and closing speed can be fully adjusted. The latching action can be adjusted as well through a valve. The TSA 160 NT is mounted at the head of the door on the hinge side or the opposite hinge side.

The TSA 160 NT is designed for door widths up to 1400 mm. In the pulling version the minimum door width is dependent on the mounting of the actuator (actuator offset) and the required opening angle of the door.



Swing door actuator TSA 160 NT in detail:

- 1 Motor shaft
- 2 Line fuse
- 3 Electric motor
- 4 Control
- 5 Hydraulic pump
- 6 Closing force adjustment
- SG Closing speed
- SD Closing damping
- SE Latching adjustment
- OG Opening speed
- OD Back check

WC-compartments for disabled people

Functional description

- ▶ After the pad switch (2) has been operated, the toilet door opens and closes automatically upon lapse of a presettable hold-open time.
- ▶ By operating the changeover switch (6) inside the toilet cabin, the user activates the illuminated sign "OCCUPIED" (3) outside the compartment as well as the control lamp (7) at the changeover switch. Simultaneously the interior and exterior pad switch (5) is switched off, thus the door can neither be opened by a third person nor by the user by accident.

The active door opener prevents that the door can be opened manually.

- ▶ To leave the toilet, the user again operates the changeover switch (6), the sign "OCCUPIED" outside the compartment as well as the control lamp goes out.

By operating the interior pad switch "DOOR OPEN" (8) the door will immediately open.

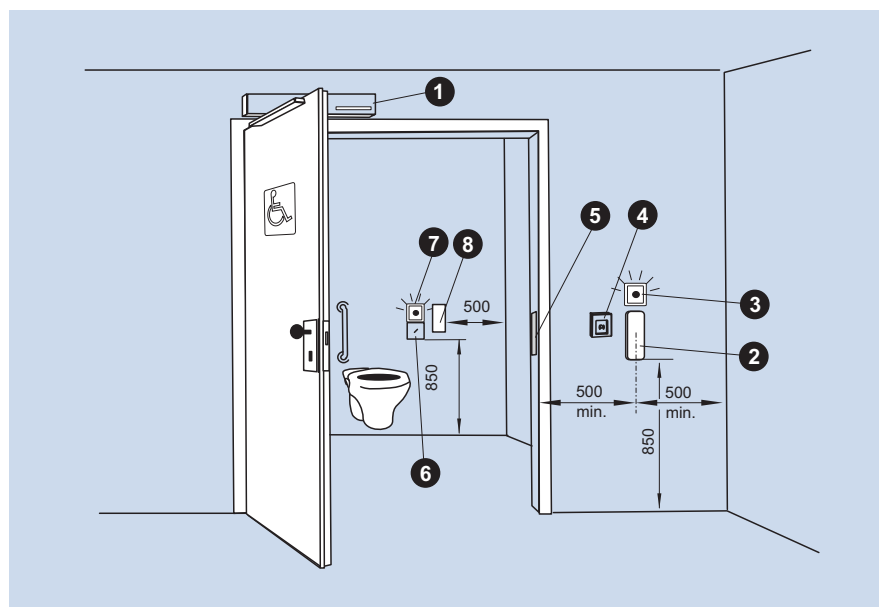
- ▶ In the case of power failure the user has the possibility to open the door manually by pushing or pulling it open, the closed-circuit opener is unlocked.
- ▶ The door can also be opened from inside by operating the door handle, even if the system is live.
- ▶ In an emergency the door can also be manually opened from outside using a key or by operating the emergency cutout (4).

The following kit is required for the door locking mechanism:

- ▶ 1 door-change fittings (exterior button, interior pusher)
- ▶ 1 latch lock
- ▶ 1 profile or cylinder locking system
- ▶ 1 standby current door opener, 24 V DC



Köln-Bonn Airport



TSA 160 WC-compartment for disabled people

- (1) Swing door actuator TSA 160
- (2) Pad switch "DOOR OPEN", outside
- (3) Illuminated sign "OCCUPIED", outside
- (4) Emergency cutout
- (5) Door opener
- (6) Changeover switch locked / unlocked
- (7) Illuminated sign "OCCUPIED", inside
- (8) Pad switch "DOOR OPEN", inside

For double-leaf doors

For double-leaf doors the swing door system TSA 160 NT offers different options:

► **TSA 160 NT IS**

If you require an integrated control of the closing sequence – as required for fire doors – you are on the safe side with the TSA 160 NT-IS.

As an alternative, you can separate actuators for each half of the double-leaf door and link these through an intermediate cover. This will ensure complete synchronisation of the two TSA 160 NT systems.

► **TSA 160 NT / TSA 162**

You can also choose a lower cost alternative: one TSA 160 NT in combination with a TSA 162. The TSA 162 operates as a slave actuator and is reliably controlled by the master actuator. It can be upgraded to a TSA 160 NT at any time.

► **TSA 160 NT IS / TS**

Pulling or pushing, with integrated door closing sequence selector. The active leaf is automated; fixed leaf with door closer function and permanent hold-open.



Porsche Arena, Stuttgart

Approved for fire protection

Ideal for single-leaf and double-leaf fire-proof doors. In the case of fire it is essential that the door actuator system operates well: A clear case for the GEZE TSA 160 NT F. This system has been approved for single-leaf fire doors, mounted at the head of the door and equipped with an electric door strike (DIN 18763). The approval has been given for the “push” version of the door. This means that the actuator is mounted on the opposite side of the hinges at the head of the door. The TSA 160 NT F will move doors with a width up to 1400 mm or a maximum weight of 250 kg.

Just like the other TSA 160 NT systems, the TSA 160 NT F can be operated with all known control systems. It is possible to start the actuator through various contact devices (radar, infrared, light curtains, switches). Before start-up the catch bolt must be released. For this reason the door frame must be equipped with an electromagnetic door strike. When using the TSA 160 NT F for smoke and fire doors, certain monitoring equipment such as smoke detectors are required, which will in the case of fire deactivate all contact devices opening the door, release the door from a fixed position and disconnect the door strike from the electricity. The actuator is started up again by pressing the reset switch on the actuator. The control of the network relay (24 V/DC) is carried out by the smoke switch, whilst the energy to the actuator (230 V/AC) comes from the main supply.

The TSA 160 NT F demonstrates its flexibility also with smoke alarm systems and has been approved for all major systems. Official approvals are available on request.

In the case of fire the most important factor for double-leaf doors is, that the closing sequence must function one hundred percent. This can be guaranteed only with an integrated closer control – it may become a question of survival. In the case of danger or a power cut the TSA 160 NT F-IS will ensure the correct closing sequence of both halves of the double-leaf door. The TSA 160 NT F-IS does not require an externally fitted closer control mechanism and is, therefore, visually, a more sophisticated system. Of course, it is also approved for double-leaf smoke and fire protection doors.

The cabling and release mechanism of the TSA 160 NT F-IS are accommodated in the intermediate cover, making the installation easy. In other words: the amount of cabling required from the electrical contractor is no more than needed for single door actuators.

The technical characteristics of the GEZE TSA 160 NT F-IS are identical to the TSA 160 NT F.

Range of sizes for appropriate door widths in accordance with European Standard DIN EN 1154

EN size 3	max. 950 mm
EN size 4	max. 1100 mm
EN size 5	max. 1250 mm
EN size 6	max. 1400 mm



Landesbank Baden-Württemberg, Stuttgart

Technical data – mechanical

	TSA 160 NT	TSA 160 NT F	TSA 160 NT IS	TSA 160 NT F-IS
Application	single-leaf	single-leaf incl. approval for fire-proof doors ^{*)}	double-leaf	double-leaf incl. approval for fire-proof doors
Function	pushing or pulling	pushing	pushing or pulling	pushing
Max. leaf width (comp. to EN 1154)	1400 mm	1400 mm	1400 mm	1400 mm
Min. hinge dimension			1470 mm	1470 mm
Max. hinge dimension			2800 mm	2800 mm
Max. leaf weight	250 kg	250 kg	250 kg	250 kg
Options	<ul style="list-style-type: none"> · Linkage for soffit depth 0-100 mm, 100-200 mm, 200-350 mm · Spindle extensions of 24 mm, 30 mm, 45 mm · Mounting plate · Intermediate cover kit for double-leaf systems 			

Technical data – electric

	TSA 160 NT TSA 160 NT F TSA 160 NT IS TSA 160 NT F-IS	TSA 162 (Secondary drive for double-leaf systems, controlled by TSA 160 NT)
Mains connection	230 V AC 50/60 Hz + 10% / - 14%	230 V AC 50/60 Hz
Power consumption approx.	300 VA	300 VA
Supply voltage	24 V DC 1200 mA	
Integrated programme switch	Permanently open – OFF – Automatic	
In the case of power failure	Door closer function	Door closer function

Function, infinitely variable

Closing force	EN size 3 ... 6	Opening speed	via hydraulic valve
Hold-open time	0 ... 60 seconds	Closing speed	via hydraulic valve
Door opening angle	up to 115°	Latching action	via hydraulic valve

GEZE GC 334 · Sensor strip

The GC 334 is an electronically adjustable active infrared sensor strip with a dipswitch for the safeguarding of automatic revolving doors and swing doors (e.g. TS 160 NT) in accordance with DIN 18650.



Sensor strip GEZE GC 334

Technology	active infrared beams
Number of IR spots	4 spots
Operating voltage	12 - 30 V DC / 12 - 24 V AC
Operating current	approx. 65 mA at 24VDC per module
Output	electric relay max. switching voltage 42 V DC max. output current 100 mA
Connection type	system plug
Dimensions : Sensor strip	1100 / 1500 (cuttable) x 47 x 46 mm (w x h x d)
Sensor module	302 x 41 x 40 mm (w x h x d)
Installation height	1,1 - 3,0 m
Connection cable	0,5 m
Reaction time	32 ms - 128 ms
Protection class	IP 53
Operating temperature	-25° to +55° C
Humidity	< 95% rel., non-condensing
Certification	type examination-tested to DIN 18650 and EN 12978

Finish

- ▶ for door widths of up to 1100 mm
incl. 2 sensor modules
- ▶ for door widths of up to 1500 mm
incl. 3 sensor modules
- ▶ EV1 or RAL colours

Accessories

- ▶ GC 334 sensor module
- ▶ GC 334 interface
- ▶ GC 334 end caps



Area of application

Safety sensor strips are used to monitor the swiveling area of automatic doors.



- ▶ The door movement stops as soon as the sensor detects a person or an obstacle. Wall recognition possible.
- ▶ The safety sensor strips actuates the drive of the closing door and opens it again.

Releasing the actuator

Actuation devices

If the door is passed by wheel chairs, stretchers or people carrying bulky objects, this will have an effect on the selection of the optimum actuation device.

Just set the actuation in such a way that the normal walking speed is sufficient to pass through the door.

Swing door systems TSA 160 NT can be electronically actuated by all known possibilities:

- ▶ Active infrared movement detectors
- ▶ Radar movement detectors
- ▶ Direction-sensing radar movement detectors
- ▶ Key-operated switches
- ▶ Pull switches
- ▶ Foot-operated contact switch
- ▶ Push pads
- ▶ Radio control
- ▶ Actuation sensors
- ▶ Code cards



Radar movement detector GEZE GC 302



GEZE Push pad



Radio control (hand-held transmitter)

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