

TOURNEX

OPERATING MANUAL



## Contents

<b>PREFACE</b> .....	<b>2</b>
Copyright .....	2
Symbols .....	2
<b>1 INTRODUCTION</b> .....	<b>4</b>
<b>2 SAFETY</b> .....	<b>5</b>
2.1. Emergency Button Inside .....	5
2.2. Safety Rail of Bent Wall (SRB) - Active .....	6
2.3. Bottom Safety Rail of Doorwing (SRD) .....	7
2.4. Front Stile Sensor (FSS) and Top Rail Sensor (TRS) .....	8
2.5. End Buffer Sensor (EBS) .....	9
2.6. Fire Alarm .....	10
2.7. Emergency Button Outside (Option) .....	10
2.8. Night or Hotel Lock .....	10
<b>3 OPERATING CONCEPT</b> .....	<b>11</b>
3.1. Operation .....	11
3.2. Night Lock .....	11
3.3. Sliding Doors .....	11
3.4. Collapsible Doorset .....	12
3.5. Drive (Boon-O-Matic) .....	12
3.6. Turning Speed .....	12
3.7. Motion Detector .....	13
3.8. Control .....	13
3.9. Control Boxes .....	13
<b>4 OPERATION</b> .....	<b>14</b>
4.1. Operating Panel .....	14
4.2. Secondary Control Panel .....	15
4.3. Disabled Push-button (Option) .....	16
<b>5 MAINTENANCE</b> .....	<b>17</b>
5.1. Daily .....	17
5.2. Weekly .....	17
5.3. Monthly .....	17
5.4. Annual .....	17
<b>6 TROUBLESHOOTING</b> .....	<b>18</b>
6.1. Mechanical .....	18
6.2. LEDs .....	18
<b>7 EC DECLARATION - DUTCH IIA</b> .....	<b>19</b>
EC-DECLARATION OF CONFORMITY .....	19
<b>8 APPENDIX</b> .....	<b>20</b>

## Preface

### Manual

Keep this manual in the vicinity of the door.

### Read the Manual

Please read this manual carefully before using the Tournex for the first time. After reading the manual, you will understand how to operate the Tournex and how to perform minor maintenance tasks.

### Unclear Information

The manual has been written with the utmost care and attention. Nevertheless, certain parts may be unclear to you or contain errors. In that event, you can contact Boon Edam B.V. or your supplier. He will be able to tell you how to operate the Tournex.

### Users of the Manual

This manual is aimed at users of the Tournex and provides information on:

- Operation of the Tournex
- Tournex models
- Maintaining the Tournex

## Copyright

This manual is written and published by Boon Edam B.V.

It has been supplied to users of the Tournex and Boon Edam B.V. dealers. All rights are reserved. The information in this manual is the property of Boon Edam B.V. Disclosure of this information to third parties without written permission of Boon Edam B.V. is prohibited.

This manual is based on a standard Tournex and its options. Boon Edam B.V. is customer orientated and improves its products continually. For this reason, the Tournex described in this manual may be different from the Tournex installed. Tournex is a trademark of Boon Edam B.V.

## Symbols

You will encounter a few symbols in this manual. The meaning of the symbols is as follows:

	<b>WARNING!</b> Risk of personal injury or loss of life.
	<b>NOTE!</b> The material may be damaged or the operation of the door affected.

**Abbreviations Used**

- SRB Safety Rail of Bent Wall
- SRT Safety Rail of Turning Wall
- EBS End Buffer Sensor
- TRS Top Rail Sensor
- FSS Front Stile Sensor
- SRD Safety Rail of Doorwing
- PIR Passive Infrared
- LED Light Emitting Diode
- TN-SC Tournex Showcase

**General Information**

This operating manual belongs to the Tournex as installed under the project number indicated on the drawing.

Boon Edam B.V. will service the Tournex four months after it has been delivered. You can also purchase a maintenance contract from Boon Edam B.V. Under the terms of a maintenance contract, Boon Edam B.V. engineers will carry out preventive maintenance. Customers can also use the 24 hour service provided by Boon Edam B.V.

**Manufactured by:**

Boon Edam B.V.  
Ambachtstraat 4  
1135 ZG Edam, The Netherlands  
Tel. (+31) (0)299 380808  
Fax. (+31) (0)299 372859

**Dealer:**

## 1 Introduction

The standard Tournex is constructed from curved walls, a canopy and a revolving section. Depending on the Tournex installed, the door can have three or four doorwings and a revolving showcase. The showcase may be straight or bent.

The Tournex models without showcase are also available:

- Star

This Tournex model has glass doorwings mounted in a profile.

All doorwings are collapsible models which means that they can be unlocked by means of the emergency button. By pushing the doorwings, you can then fold them back against the centre column. This creates an escape route.

The following options are available:

- Storm lock
- Push-button for the disabled
- Top Rail Sensor (TRS)
- Front Stile Sensor (FSS)
- End Buffer Sensor (EBS)
- Emergency button (outside)
- Ceiling lighting (light: halogen, 20 Watts)
- Espagnolet lock (night lock)
- Sliding doors (night lock)
- External operating panel

The options are described later in this manual.

**The Tournex is installed with the options as indicated on any drawing provided under the project number.**

## 2 Safety



**ALWAYS EXERCISE DUE CARE NEAR THE MOVING PARTS OF THE DOOR!**

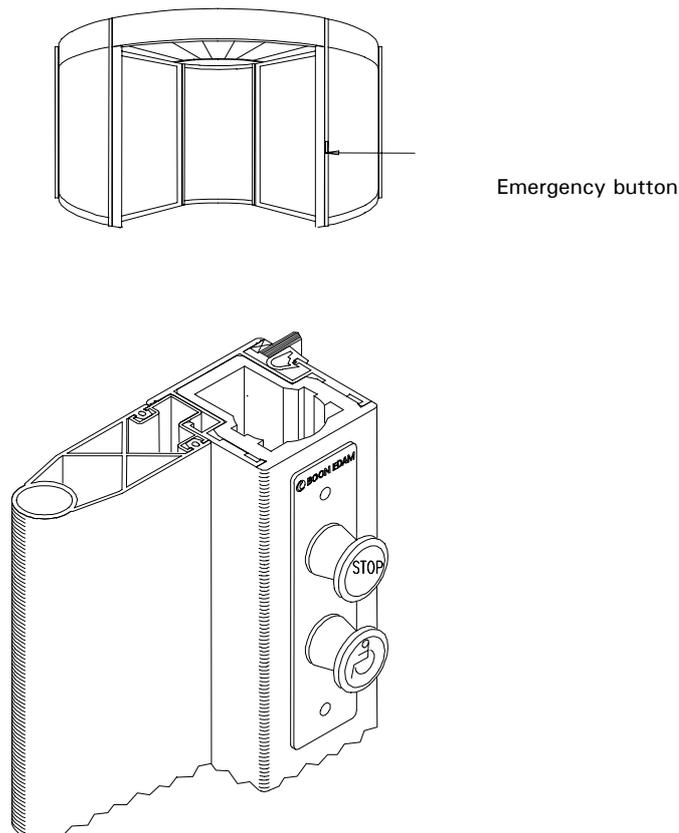
The illustrations in this chapter are of a Tournex with a curved showcase. Safety features of other models are identical unless stated otherwise.

### 2.1. Emergency Button Inside

The emergency button is located on the wall column on the entry side of the door inside the building. Activating the emergency button will:

- stop the door set immediately,
- release the locking mechanisms of the doorwing,
- enable manual operation.

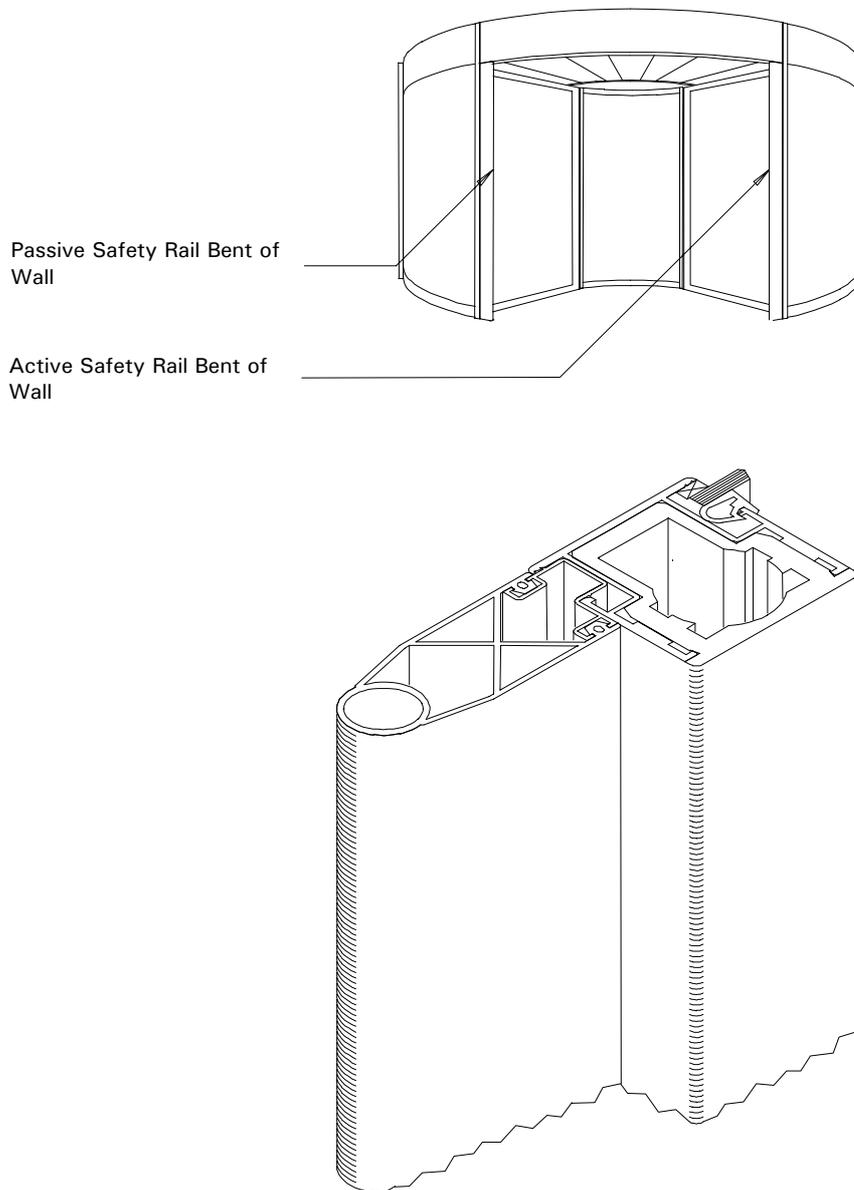
After resetting the emergency button, the door set will not start to revolve immediately. The re-start the door, you need to reposition the doorwings manually (if they have been collapsed). Then one of the motion detectors needs to be activated or the key switch turned in the off position and in the on position again. After a short delay, the locking mechanism will engage and the door set will start to revolve.



**Figure 1 : Emergency Button**

## 2.2. Safety Rail of Bent Wall (SRB) - Active

Each wall column has been provided with a rubber safety rail. Two are passive and two, on the entry side, are active. When the rubber profile is pressed, thus activating the active wall column, the door set will stop revolving immediately.



**Figure 2 : Safety Rail of Bent Wall (SRB)**

### 2.3. Bottom Safety Rail of Doorwing (SRD)

The bottom rails of each doorwing have been provided with a rubber safety rail. When the rubber rail is pressed, thus activating the safety rail, the door set will stop revolving immediately.

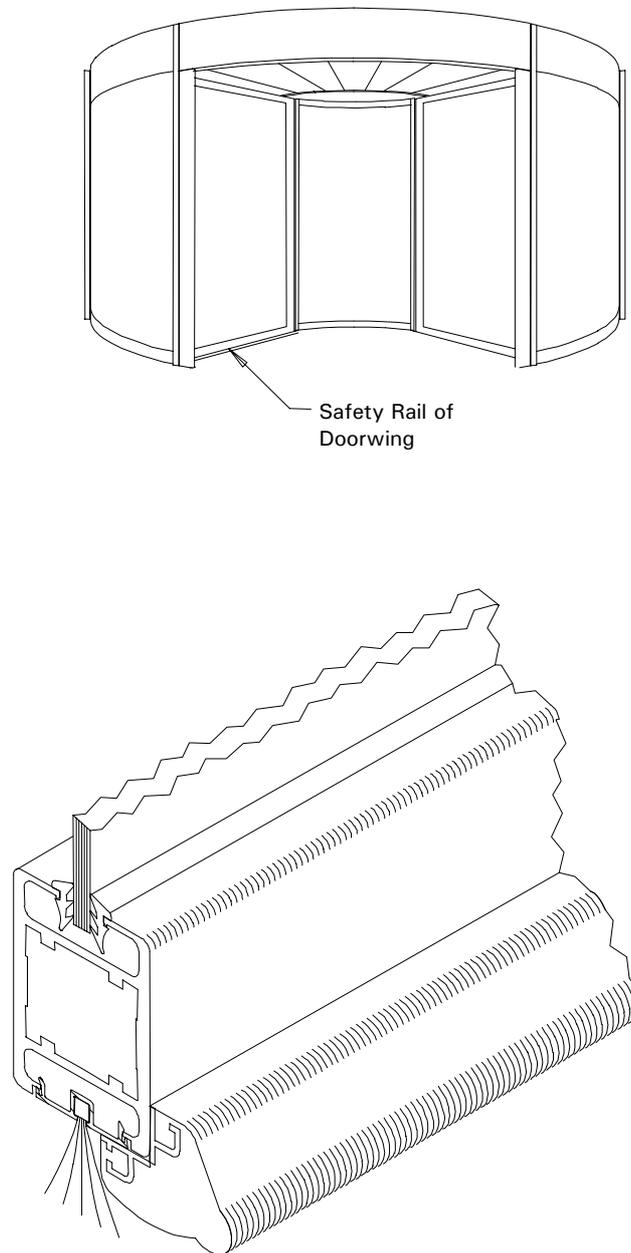


Figure 3 : Bottom Safety Rail (SRD) of Doorwing

## 2.4. Front Stile Sensor (FSS) and Top Rail Sensor (TRS)

The FSS and TRS are located on the front of each doorwing. Upon activation, the door set will initially stop ( $\pm 1.2$  sec.). Then the door will start to revolve at a slow speed. The FSS LED of the secondary operating panel is on when the FSS is activated. The TRS LED of the secondary operating panel is on when the TRS is activated.

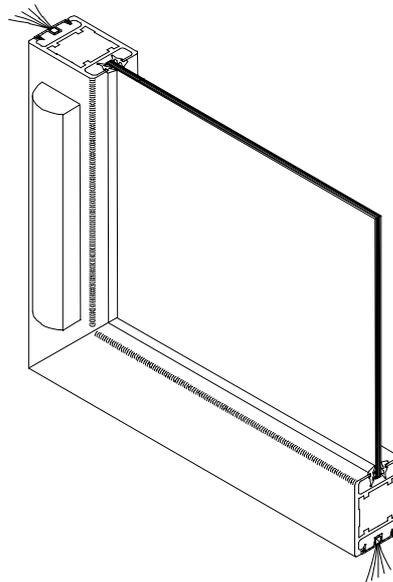
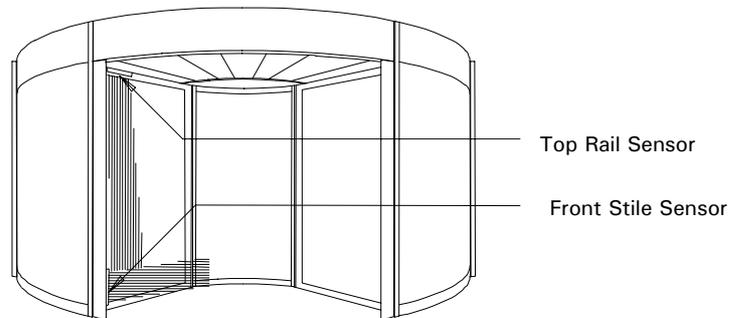


Figure 4: Front Stile Sensor (FSS) and Top Rail Sensor (TRS)

## 2.5. End Buffer Sensor (EBS)

The door set can be provided with an end buffer sensor (EBS). The door set will stop immediately when the EBS is activated by an object or a person and when the distance between the doorwing and the wall is less than 800 mm.

The active range of the EBS extends to a distance of 250 mm above the floor.

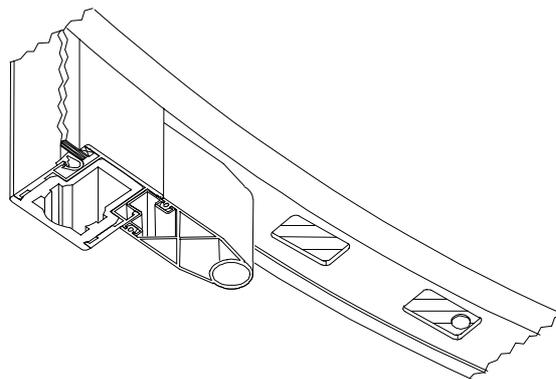
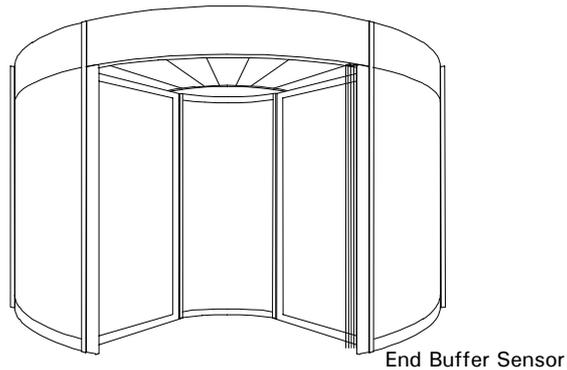


Figure 5: End Buffer Sensor (detail view from inside)

**2.6. Fire Alarm**

The Tournex can be connected to a fire alarm system. In the event of an alarm, the Tournex will stop revolving. The door can then be revolved by hand. The doorwings can also be collapsed in the escape route direction.

**2.7. Emergency Button Outside (Option)**

The optional emergency button on the outside is identical to the emergency button on the inside of the building, except in night mode. During nights, the button is deactivated to deny access to unwelcome visitors.

**2.8. Night or Hotel Lock**

A night or hotel lock will activate the fail-safe brake of the motor, thus locking the door set.

## 3 Operating Concept

### 3.1. Operation

#### Daytime

When a person approaches the Tournex and comes within range of the motion detectors, the door set will start from its rest position. The four-wing door set will then turn 160° at normal speed, after which the door will switch to the slower speed. Once the door set has rotated 180°, it will stop in the rest position.

The rotation angles for a four-wing Tournex are 220° and 240°.

All safety features described in chapter 2 are enabled.

#### Off

When the key switch on the operating panel is set to the off position, the door set will assume the rest position (showcase door on inside).

None of the safety features described in chapter 2 are enabled.

The Tournex can be operated by hand and the doorwings can be collapsed, if necessary.

#### Night-time

When the key switch on the operating panel is set to the night position, the door set will assume its night position and stop turning. None of the safety features described in chapter 2 are enabled, with the exception of the emergency button.

### 3.2. Night Lock

The door set can be locked with the espagnolet locks located in the outer stiles of the doorwings.

The espagnolet locks are provided with a euro cylinder and can be locked with a special key.

**The Tournex cannot be started when it has been locked with the espagnolet lock.**

### 3.3. Sliding Doors

The Tournex can be closed with sliding doors. The sliding doors are equipped with a special hook lock with a euro cylinder.

### 3.4. Collapsible Doorset

A special construction has been used for the doorwings. Pressing the emergency button, will unlock the doorwings. By pushing the outer stiles, you can then fold the doorwings back against the centre column. The door can then be used as an emergency exit. This also allows long items to be carried through the door and makes it possible to open the doors permanently during summer months.

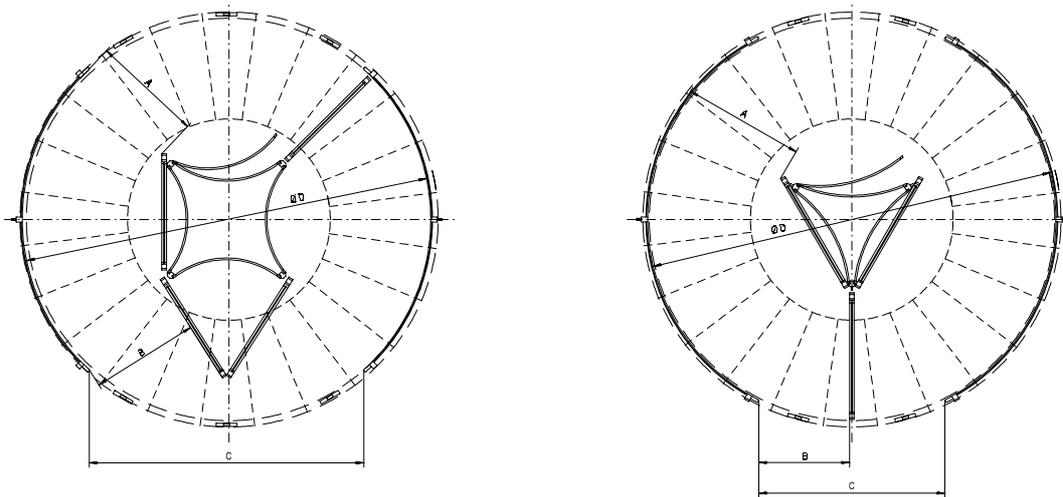


Figure 6 : Collapsed Doorwings, Four and Three-wing Models

Figure 6 shows the so-called collapsed positions of the Tournex with curved showcase. The principle and hinge points are identical for all models (TX-Star).

### 3.5. Drive (Boon-O-Matic)

The door set drive consists of an electrical motor. It has been especially designed for Boon Edam revolving doors and has the following characteristics:

- Silent operation
- The door set can be stopped by hand (when it is stopped for longer than three seconds, the motor is switched off)
- At least two adjustable controlled speeds
- Infinitely variable electric rotation limiter
- Easy to turn in the event of power failure, enabling manual operation of the Tournex

#### Technical specifications:

- Power supply: 200-240 V, 50/60 Hz, 0.50 kW 16 A (slow)
- Range at normal speed: 3 to 5 rpm
- Range at slow speed: 1 to 2 rpm
- Variable, adjustable torque

### 3.6. Turning Speed

The turning speed of the door set can be set using the frequency controller located in the control box. The door set can operate at two speeds which are set at the factory to:

- normal: 3-4 rpm (depending on diameter)
- slow: 1 rpm

Safety regulations in most countries limit the peripheral velocity of the door set to a maximum of 1.0 m/sec.

### 3.7. Motion Detector

Passive infrared (PIR) detector.

The PIR detector uses a passive infrared field to detect persons entering the Tournex. When a person is detected, the detector signals the door to start turning at normal speed. The PIR detectors are located in the canopy rim above the entry and exit (maximum is three).

Each PIR is provided with a LED which is:

- on (red) when the PIR detector detects a person,
- off (green) when the PIR detector is on but not activated.

The sensitivity and detection range are adjustable.

### 3.8. Control

The PLC is located in the main control box inside the canopy. It controls signals from PIR detectors and safety features and controls the door's operation. Two rows of numbered LEDs monitor the operation of the door. The PLC is provided with an EEPROM memory for storing the program in the event of a power failure.

A lithium battery is no longer necessary. An additional EEPROM is available as an option.

### 3.9. Control Boxes

#### Main control box

The main control box is located above the fixed ceiling sections inside the building.

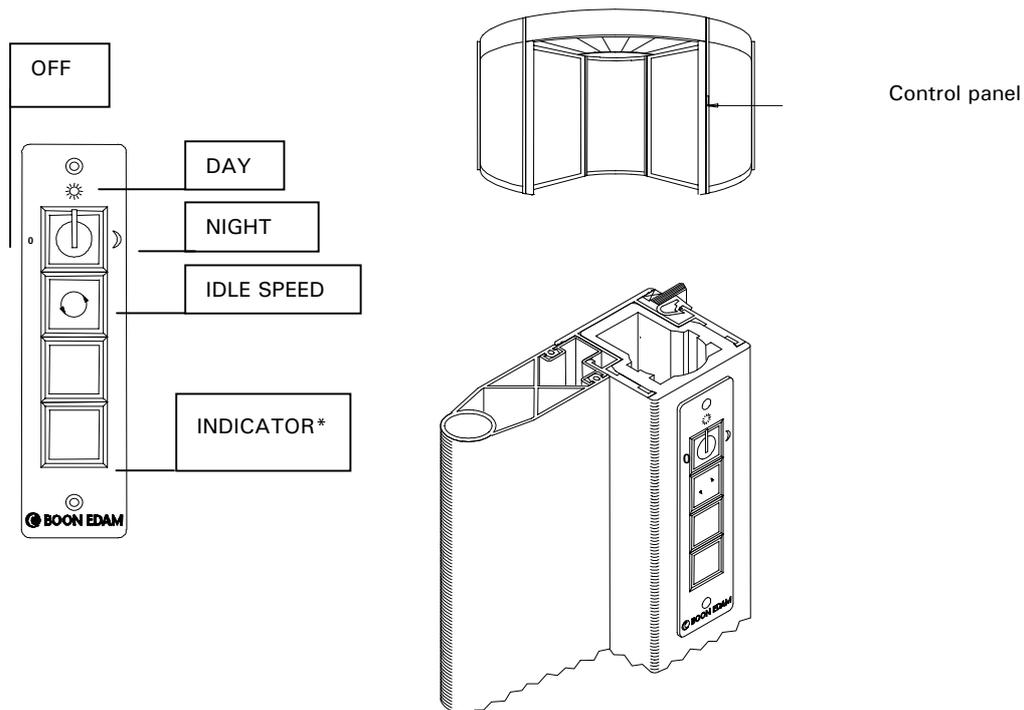
#### Secondary control box

The secondary control box is installed above the revolving ceiling sections.

## 4 Operation

### 4.1. Operating Panel

The operating panel is located on the wall column inside the Tournex.  
An external operating panel is available as an option.



**Figure 7: Operating Panel**

\* The indicator flashes when one of the safety features has been activated (see chapter 6).

## 4.2. Secondary Control Panel

The secondary control panel is located on the revolving showcase or on the revolving ceiling when no showcase is present.

When one of the LEDs is on, one of the safety features has been activated.

- LED A - Doorwing out of position
- LED B - Safety Rail of Doorwing (SRD)
- LED C - Top Rail Sensor (TRS)
- LED D - Front Stile Sensor (FSS)
- LED E - Horizontal Boon Sensor (HBS) Option
- LED F - Optional

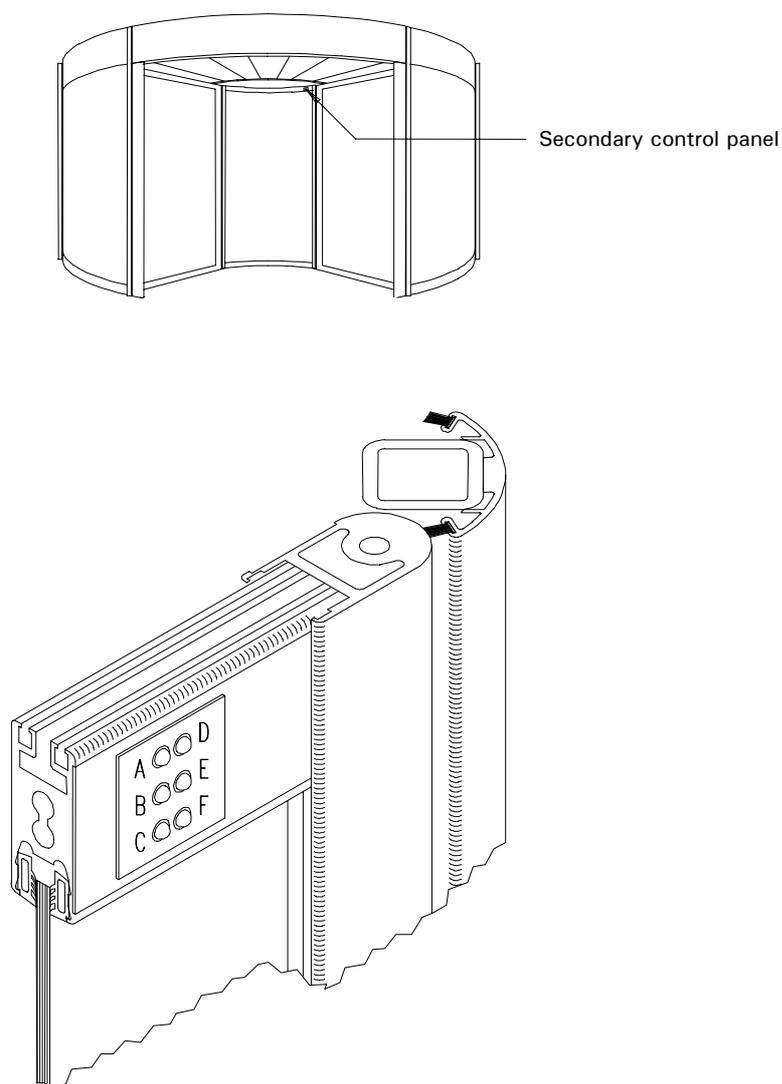
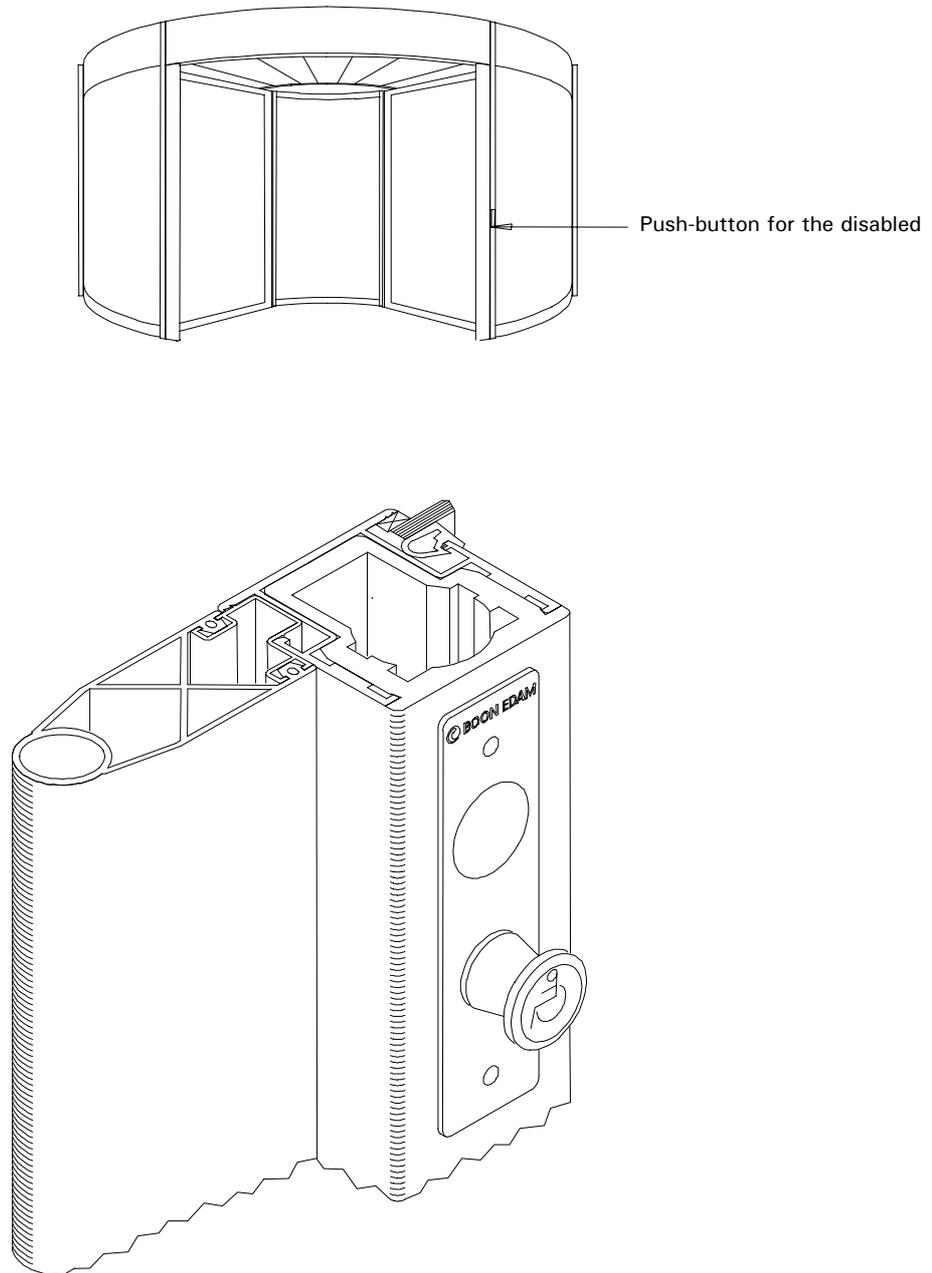


Figure 8: Secondary Control Panel

### 4.3. Disabled Push-button (Option)

A push-button for the disabled can be located inside and outside (optional) on the Tournex wall columns. The button can be used to have the door set revolve at slow speed (1 revolution for a three-wing door set and a  $\frac{3}{4}$  revolution for a four-wing door set).



**Figure 9: Disabled Push-button**

## **5 Maintenance**

This schedule may be used as a checklist for optimal maintenance of the door.

### **5.1. Daily**

Check the emergency and safety features and general operation of the Tournex.

### **5.2. Weekly**

Clean the anodised, enamelled and/or stainless steel surfaces with a damp cloth.

### **5.3. Monthly**

Clean the anodised, enamelled surfaces with a damp cloth and a mild detergent.

Cleaning stainless steel parts:

- Clean the parts with water and a sponge.
- Dry the parts using a clean cloth.
- Apply Stainless Steel Polish & Cleaner on any dry parts and polish using a dry, clean cloth.

Clean the draught brushes with a vacuum cleaner.

### **5.4. Annual**

The Tournex needs to be serviced at least once a year. It is recommended to have the Tournex serviced by Boon Edam or an authorised dealer.

## 6 Troubleshooting



**NOTE!**  
Always use original parts as replacements to ensure proper operation.

### 6.1. Mechanical

PROBLEM	POSSIBLE CAUSE	ACTION
Unusual noise	<ul style="list-style-type: none"> <li>▪ Loose mechanical parts or damaged parts</li> </ul>	<ul style="list-style-type: none"> <li>▪ Localise the source of the unusual noise.</li> <li>▪ Consult the Boon Edam service department.</li> </ul>

### 6.2. LEDs

When one of the safety features is activated, the LED on the panel flashes.

Signal	Possible Cause
One flash	Safety rail of bent wall activated (SRB)
Two flashes	Emergency button activated
Three flashes	End buffer sensor activated (EBS)
Four flashes	Espagnolet lock locked
Five flashes	Revolving safety (see secondary panel) <ul style="list-style-type: none"> <li>▪ Doorwings not in rest position</li> <li>▪ Safety rail of doorwing (SRD)</li> <li>▪ Top rail sensor (TRS)</li> <li>▪ Front stile sensor (FSS)</li> </ul>

## 7 EC Declaration - Dutch IIA

### EC-Declaration of conformity



Manufacturer: Boon Edam B.V.  
Address: Ambachtstraat 4  
Postal code / place: 1135 GG Edam  
Country: The Netherlands



Declares under his own responsibility that the product

### *Tournex*

Is in conformity with the provisions of the Machinery Directive (Directive 98/37/EEG), Is in conformity with the provisions of the Low Voltage Directive (Directive 93/68/EEG), and is in conformity with the provisions of the EMC-Directive (Directive 89/336/EEG)

**The following (parts/clauses of) harmonised standards have been applied in favour of the Machinery Directive Annex II A (98/37/EEG):**

PR-EN 12650-1-2 Building hardware. Powered pedestrian doors.

**The following (parts/clauses of) harmonised standards have been applied in favour of the Low Voltage Directive (93/68/EEG):**

NEN-EN 60204-1: Electrical equipment of machines.

**The following (parts/clauses of) harmonised standards have been applied in favour of the EMC-directive (89/336/EEG):**

NEN-EN 50081-1: Electromagnetic compatibility – Generic emission standard.

NEN-EN 50082-1: Electromagnetic compatibility - Generic immunity standard

Signed in: Edam  
Date: 30 August 2001

Sign:

Name: Boon Edam B.V, Gijs Bakker

Function: R&D co-ordinator

## **8 Appendix**

This chapter may contain information specific to the project.