



TWINTOUR
Operating Manual

Your **Entrance.** Our **Technology.**

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1 Introduction

1.1 Safety Aspects

The Twintour is designed, tested and produced in accordance with strict international regulators. Correct operation is assured when regular maintenance is undertaken, annually (subject to frequency of use). All work should be carried out by Boon Edam or approved agents. Prior to operation, the manual should have been read.

Warning:

Be aware and avoid contact with moving parts. If you have any queries regarding the manual, contact:

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1.2 Foreword

This manual is intended for the owner of the Twintour, and gives you information about:

- the operating of the door
- the construction of the door
- the maintenance of the door

1.3 Copyright

This manual was prepared and issued by Boon Edam B.V. of Holland. It is supplied only to the owner of the Twintour door and to approved agents of Boon Edam B.V.. All rights are reserved. The information in this manual is the property of Boon Edam B.V. Netherlands. Disclosure of this information or any part of it to third parties is not permitted, except with prior and express written permission of Boon Edam B.V. Netherlands. Boon Edam B.V. has the reserved rights to improve its products without notice. Therefore it's possible that the installed products show some differences with the description in this manual. This manual is based on the standard Twintour with its options. Boon Edam B.V. delivers customer orientated products, therefore the door showed in this manual can differ from the installed door. Twintour is a trademark of Boon Edam B.V..

1.4 General information

The operating manual is obtained when the Twintour is delivered to the customer. The purpose of this manual is to inform the customer how to use the Twintour and how to do basic maintenance.

1.5 Abbreviations

Explanations of abbreviations, which are mentioned in the operating manual:

- SRB Safety Rail Bentwall
- SRD Safety Rail Doorleaf
- PIR Passive Infra Red
- LED Light Emitting Diode
- TRS Top Rail Sensor



WARNING

In case of injury or death.



CAUTION

When material could be damaged or the function impaired.

1.6 Options

The Twintour has several options, which are mentioned in this part. These options will be defined in the operating manual. The options are marked with an asterisk (*) in the text of the operating manual.

- Tourlock 360
- Rond-O-Matic
- Handicap switch
- Emergency switch (second)
- Top Rail Sensor (TRS)
- Ceiling lighting (type: Halogen 20 Watt)
- Espagnolet (nightlocking)
- Night sliding doors (nightlocking)
- Electrical lock-unit (bi-stable) (nightlocking)
- Control panel external

The Twintour concerned is supplied with the options, which are mentioned on the drawing list of the enclosed drawing.

2 Technical description

2.1 General

The necessary power supply is: 200-240V, 50/60Hz, 0,25kW, Fuse 16AT. The Twintour exist of two drumwall sets with a corridor connection. Inside each drumwall a two-wing doorset is installed.

The complete doorset turns on the axis of the center stile. Each doorwing of the door is attached to the center stile. The door is surrounded by close-fitting curved walls. The brushes on the edge of the doorwings make a draught-free seal against the walls. The walls support an aluminum structure above the door. On this are fixed the:

- ceiling
- the drive units
- the control box
- dustcover

2.2 Nightlocking *

2.2.1 Espagnolet

The doorset can be locked by means of two espagnoletlocks. The espagnoletlocks are mounted in the endstiles of the doorwings.

The espagnoletlocks can be used by means of a crank key and a cylinder lock.

It is impossible to start the door, as long as the doorset is locked by means of the espagnoletlocks.

2.2.2 Night sliding doors

The door can be locked by means of night sliding doors. The night sliding doors are fitted with a hooklock with whole Euro-cylinder. A hookbold monitor and/or a open-close monitor are possible as an option.

2.3 Drive system (Boon-O-Matic)

2.3.1 Motor

The Boon-O-Matic is an electro-mechanical drive unit controlled via a Programmable Logical Controller (PLC) and a Frequency control unit (=inverter). Every doorset has its own Boon-O-Matic. Both drive units rotate synchronous. The Boon-O-Matic's are activated by means of passive infra-red motion detectors. The doorsets stop immediately when the emergency button or a safety device is activated.

When there is a power failure, the Twintour can be used as a manually operated door with independent manual rotating doorsets.

Specifications drive unit:

- silent operation;
- the doorset can be held stationary by hand;
- at least two adjustable speeds;
- integrated speed control;
- Variable adjustable torque;
- free movement of the doorsets during a power supply failure.

Technical data drive unit motor:

- Type: 3 phase reluctance synchronous motor
- Number of pole pares: 4
- Voltage: 3 * 230 V (triangle)
- Power: 60 Watt
- Current: 0,6A
- Number of revolutions: 1500 rev/min (at 50Hz during synchronous operation)
- Gear: 1:75

2.3.2 Door speed

The turning speed of the door is adjustable by choosing the proper frequency on the frequency control.

The door has at least two adjustable speeds:

Depending on the diameter

- normal speed 0-6 rpm.
- slow speed 0-3 rpm.

Safety regulations in most countries do not permit circumferential speeds of more than 0,75 m/sec. (measured at the end of the doorwing). Further another 5 speed adjustments have to be made for achieving the synchronous operation.

2.4 Tourlock 360 *

The Tourlock 360 consists of an electro-magnetic locking unit, build up from several friction plates. The unit is fixed on the central shaft of the doorset.

Technical data:

- Power supply 300VDC, 850 W, integrated in the Boon-O-Matic.
- Force of locking 1600 Nm

2.5 Rond-O-Matic *

The night sliding doors can be operated electrically by the Rond-O-Matic. It exists of an Electro-mechanical drive unit, which operates the sliding doors via a connected tooth belt. The night sliding doors are lockable by means of an electrical hooklock with a whole Euro-cylinder (type fail secure).

Technical data:

- Power supply 200-240V, 50/60Hz, 16AT.

2.6 Motion detection

Passive infra red (PIR) sensors. A PIR sensor detects temperature changes within a time span, i.e. persons who move into the door. Detection of a person causes the door to operate at normal speed. The PIR's are installed on the fascia panel over the entrance/exits. Each PIR has a LED that is:

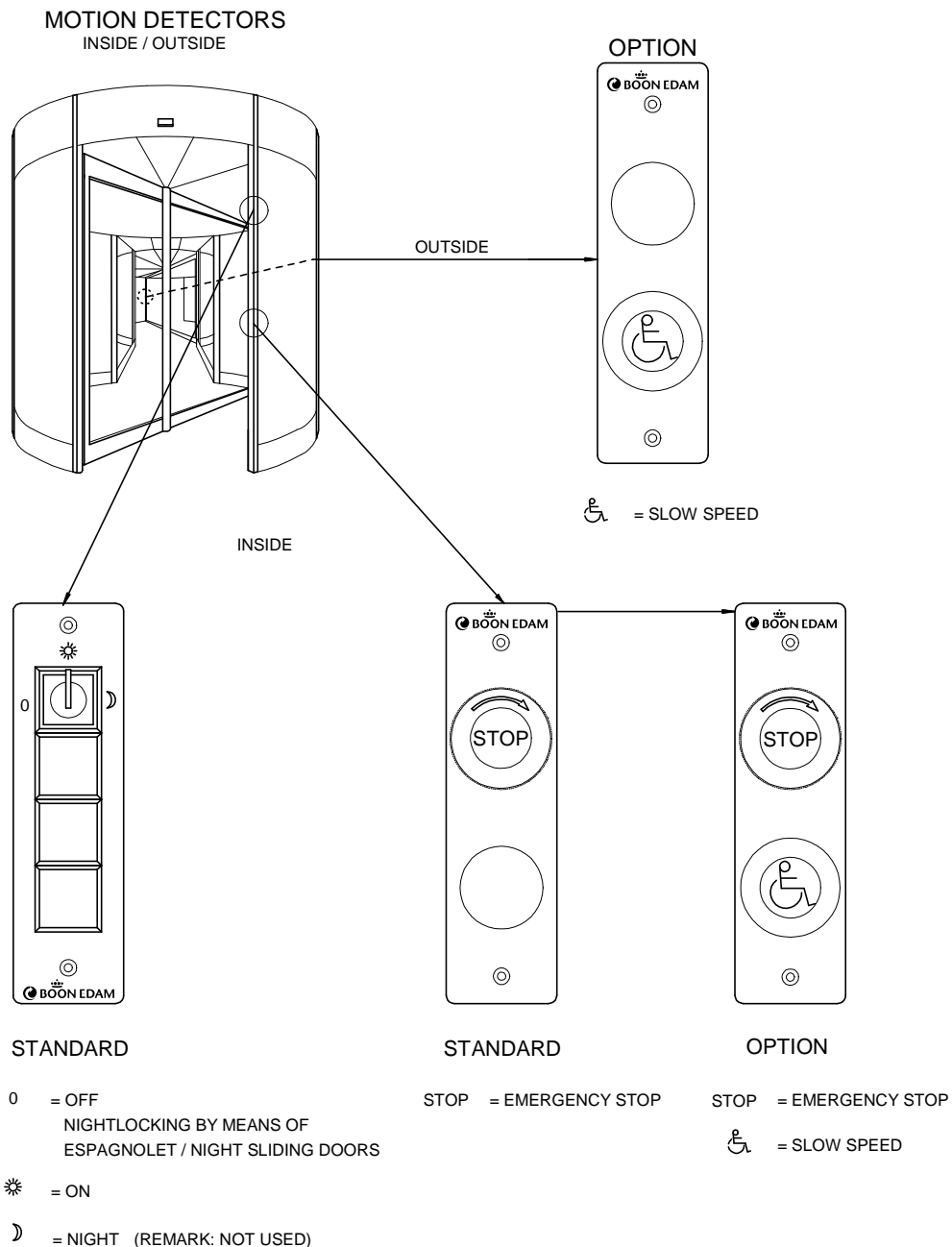
- on (green) when the PIR is ready but does not detect a person
- off (dark) when the PIR detects a person.

The detection area and sensitivity of the PIRs are adjustable.

2.7 Control system

2.7.1 Control panel Boon-O-Matic

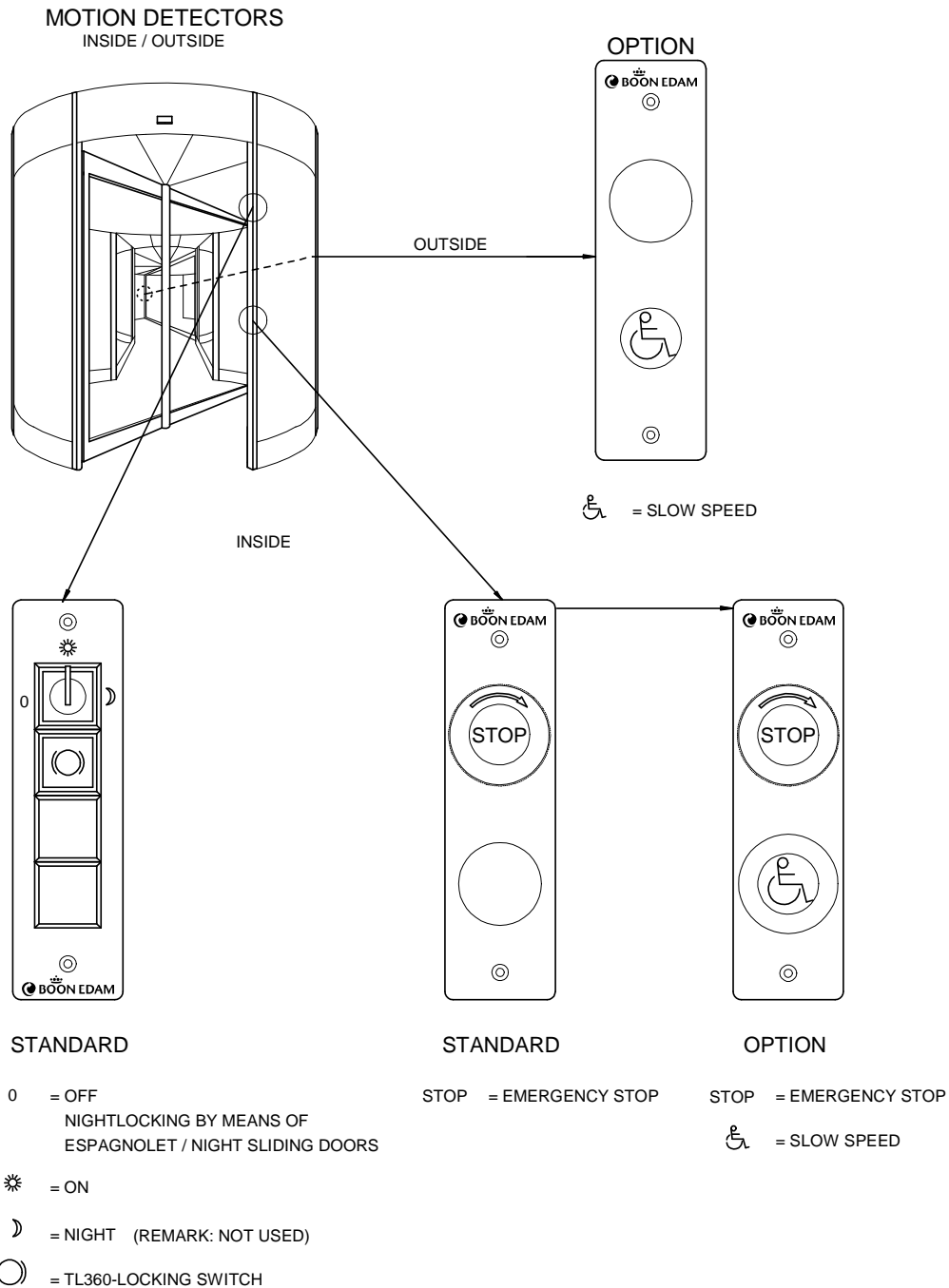
The control panel is installed on the inside post of the curved wall. To install the control panel external is possible as an option.



Control Panel Boon-O-Matic
Fig. 1

2.7.2 Control panel Boon-O-Matic + TL360

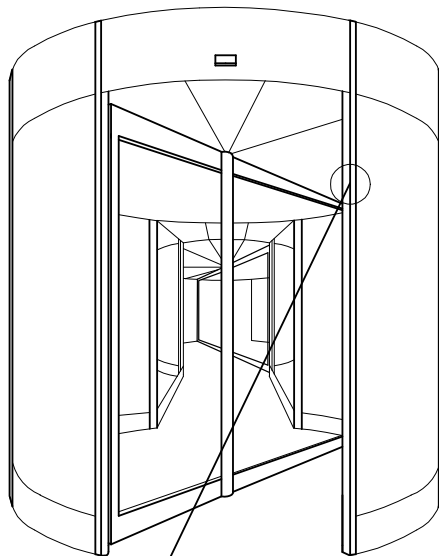
The control panel is installed on the inside post of the curved wall. To install the control panel external is possible as an option.



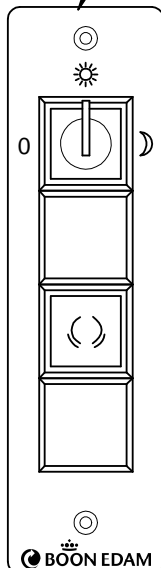
Control Panel Boon-O-Matic + TL360
Fig. 2

2.7.3 Control panel Rond-O-Matic

The control panel is installed on the inside post of the curved wall. To install the control panel external is possible as an option.



INSIDE



STANDARD

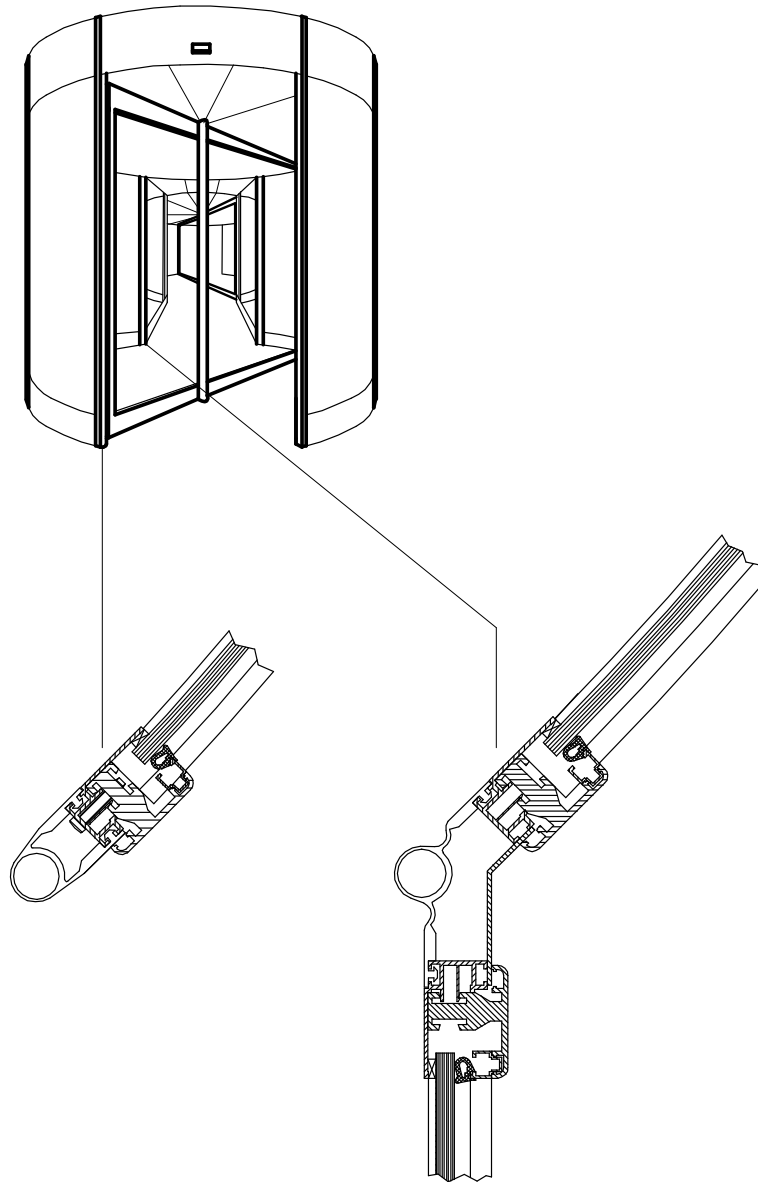
- 0 = OFF
NIGHTLOCKING BY MEANS OF
ESPAGNOLET / NIGHT SLIDING DOORS
- ☀ = ON
- ☾ = NIGHT
- ☾☾ = ROND-O-MATIC PUSHBUTTON WITH SIGNALLING
- LAMP IS ILLUMINATED, DURING OPENING / CLOSING
OF THE NIGHT SLIDING DOORS.
- LAMP GOES OFF, IF THE NIGHT SLIDING DOORS
ARE LOCKED / OPENED

Control Panel Rond-O-Matic
Fig. 3

2.8 Safety devices

2.8.1 Safety Rail Bentwall, active (SRB)

There are eight rubber safety rails on each vertical edge of the curved walls. Four on the leading edge are active safety rails. If something pushes against an active safety rail, the relative doorset stops immediately.

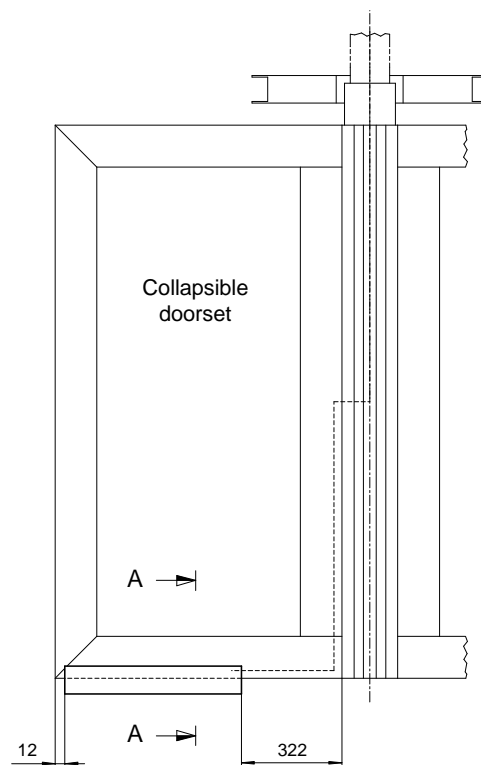
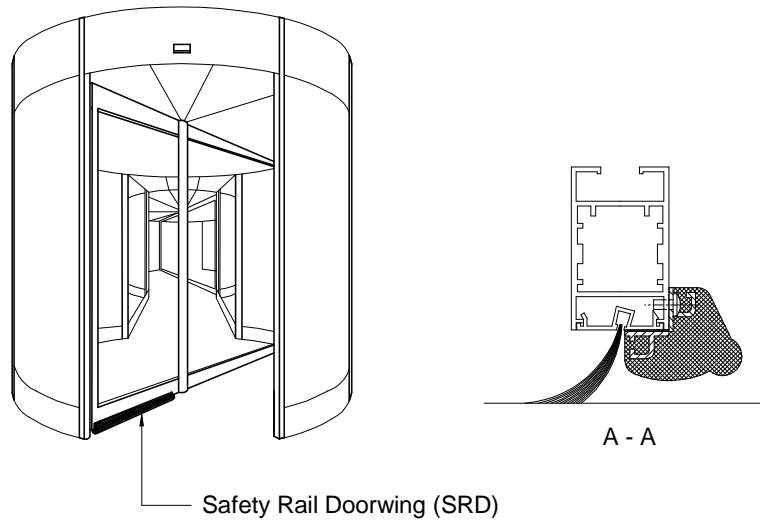


Safety Rail Bentwall (SRB)

Fig. 4

2.8.2 Safety Rail Doorleaf (SRD)

Underneath the doorwing a safety rail is fixed. The relative doorset will stop immediately when the safety rail is activated by something or somebody, and after stopping the door can be operated manually.



Safety Rail Doorleaf (SRD)

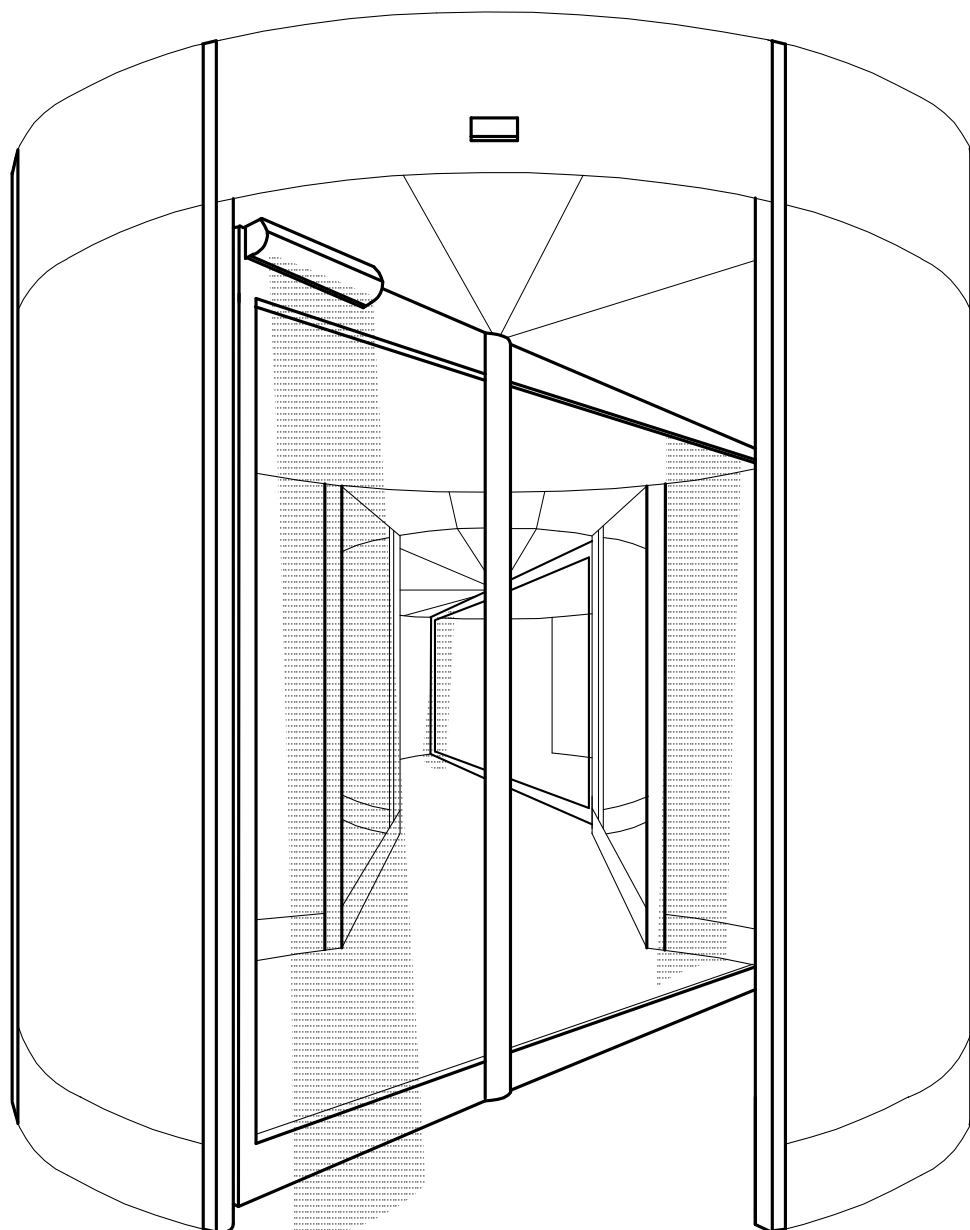
Fig. 5

2.8.3 Top rail sensor (TRS)

Each doorwing can be supplied with a top rail sensor.

This sensor is fixed on the top rail of the doorwing.

When one of the top rail sensors is activated, the relative doorset stops immediately.



Top Rail Sensor (TRS)
Fig. 6

2.8.4 Emergency switch (see Fig.1)

An emergency switch is installed on the inside post of the curved wall. When a person activates the emergency switch:

- the door stops immediately;
- the door is free to turn by hand.

2.8.5 Handicap switch (see Fig.1)

A handicap switch can be installed both inside and/or outside the curved wall of the Twintour. By activating this switch one can let the door turn at slow speed for ± 30 seconds.

3 Operating Features

3.1 Basic Operation

3.1.1 Boon-O-Matic

Every doorset is supplied with a synchro drive unit.

The drive units operate the two doorsets that operate synchronously.

The door always stops in its rest position.

When one of the sensors on the canopy detects a person, both doorsets go to normal speed (0-10 rpm, depending on the diameter) for approximately 10 seconds. The 10-second period starts again every time the sensors detect a person. If the sensors do not detect another person then, after the 10 seconds, the door speed changes to slow speed 45° before reposition and turns until it finds the rest position. It stops at the rest position.

If one doorset is blocked the other doorset rotates until the open position and stops (default synchro function).

3.1.2 Boon-O-Matic + Tourlock 360*

The working is as described above (§ 3.1.1). However, the doorsets can be blocked in any position by means of an electro-magnetic locking unit. In case of a power failure the Tourlock will automatically unlock (fail safe).

3.2 Emergency/Safety operation

The door will stop immediately when:

- something pushes against the active safety cushion on the side-wall (SRB) *
- something activates the safety rail doorleaf (SRD)
- something activates the top rail safety (TRS)
- a person pushes the emergency button

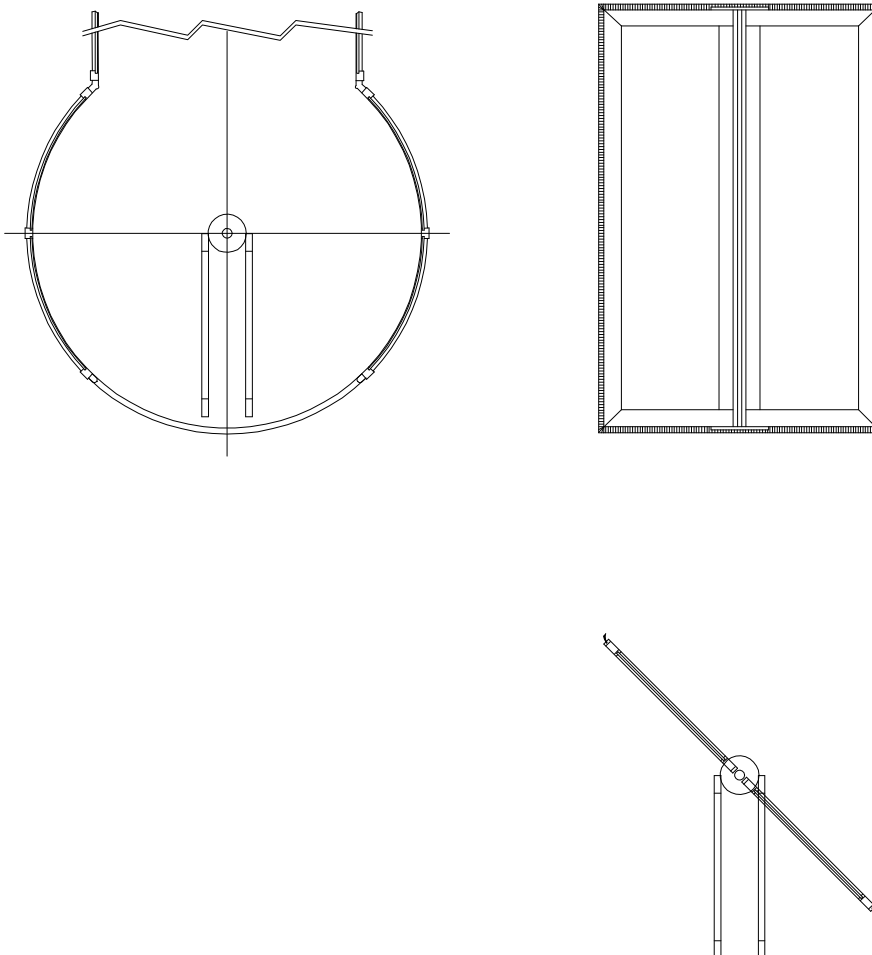
3.3 Collapsible doorset (see fig.7)

The doorset is supplied with a special hinge-construction with a lockable collapsible mechanism.

The locking mechanism unlocks automatically in case of power failure (failsafe), fire-alarm or emergency stop. By using a push the doorwings can be folded together to create a free and unhindered passage way.

Remark:

- The door is proofed against collapsing due to windforce between (height under canopy is 2200 mm):
 - ◊ 2200 - 3000 : 11 Beaufort
 - ◊ 3200 - 3800 : 10 Beaufort
- A canopy height of **300mm** is required for a door with collapsible doorset.
- Each doorwing is provided with a door out of position switch.



Collapsible doorset
Fig. 7

4 Maintenance



Switch off the power of the door during maintenance or other work.



Do not use water near the drive-unit or control boxes.



This schedule can be used as a checklist to maintain the door in its correct condition.

4.1 Daily

Check the emergency/safety devices and the general operation of the Twintour.

4.2 Weekly

Clean the anodized, powder-coating and/or stainless steel surfaces with a wet cloth.

4.3 Monthly

Clean the anodized, powder-coating and/or stainless steel surfaces with a wet cloth and with a non-aggressive soap.

Vacuum the brushes on the edge of the door-wings and the center column.

4.4 Yearly

The Twintour needs a big maintenance check up once a year. This can be done by Boon Edam B.V. or approved agents.

5 Trouble Shooting



Switch off the power of the door during maintenance or other work.



Use for replacement original parts, so that a correct operation is guaranteed.

5.1 Mechanical

MALFUNCTION	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Unusual noises.	➤ Mechanical components loose or faulty	<ul style="list-style-type: none"> ☞ Find the cause of the noise. ☞ Consult your Boon Edam service agent.

5.2 Electrical

MALFUNCTION	POSSIBLE CAUSE	CORRECTIVE ACTION
1. Door does not turn.	<ul style="list-style-type: none"> ➤ Power supply. ➤ Door isn't switched on. ➤ Safety Rail Bentwall (SRB). ➤ PIR motion sensors. ➤ Emergency switch. ➤ Motor turns. ➤ Motor too hot, clixon. ➤ Motor does not turn. 	<ul style="list-style-type: none"> ☞ Check power supply and the several fuses. ☞ Check if input 4 of the PLC is lit (indication led). Bridge pin 1 and 2 of the B-plug if desired. ☞ Check safety rails on damaging. Bridge pin 1 and 2 of the D1- or D2-plug if desired. ☞ Check power supply of motion sensors (fuse). Bridge pin 3 and 4 of the E1- or E2-plug if desired. ☞ Check the position of the switch(es). Bridge pin 1 and 3 of the B-plug or pin 3 and 4 of the G1- or G2-plug if desired. ☞ Broken chain or other mechanical defect. ☞ Check if the door moves heavily, and/or the settings of the inverter. ☞ Settings of Pr.996 and Pr.12 are normal: exchange motor.
2. Door turns slow.	<ul style="list-style-type: none"> ➤ Handicap button(s). 	<ul style="list-style-type: none"> ☞ Check if input X27 of the PLC is not lit, check if one of the buttons does not reset. Remove the connection between pin 1 and 2 of the G1- or G2-plug or the connection between pin 1 and 5 of the B-plug if desired.

MALFUNCTION	POSSIBLE CAUSE	CORRECTIVE ACTION
3. Door turns continuously at high speed	<ul style="list-style-type: none"> ➤ PIR motion sensors. ➤ Proximity switch. 	<ul style="list-style-type: none"> ☞ Check if a contact of one of the motion sensors sticks. Remove the E1- or E2-plug if desired. ☞ The proximity is out of radius, is too far away from the chain wheel, or is broken. Check if the indication led of the PLC-input 1&3 is reacting when the proximity switch is under a hole.
4. Door position is wrong.		
Openpositie	➤ Proximity switch	☞ Adjust the position of the proximity switch.
Rustpositie	➤ Adjustment on PLC.	☞ Turn the potentiometer of the PLC (see el.service manual).
5. Draairichting deur verkeert.	➤ 2 phases exchanged	☞ Check the motorconnection, and exchange 2 phases if necessary.

Item 6 and 7 are only applied to doors that are supplied with a Tourlock 360 locking unit (option).

MALFUNCTION	POSSIBLE CAUSE	CORRECTIVE ACTION
6. Door blocked.	➤ Tourlock-unit sticks.	☞ Check all the switches. Check sticking of the relay.
7.	➤ Tourlock-unit does not engage.	☞ Check all the switches. Check the voltage on the Tourlock-unit (approximately 230VDC). Check the relay and rectifier.

6 Enclosures

In this Chapter specific information regarding the Project can be added.