

Operation and Maintenance manual



Type of shutter:

Front Vision Sequential PBB Shutter

U.K. and Ireland

De Leeuw Ltd

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Warnings

BEFORE USAGE OF THE SHUTTER, READ THIS MANUAL COMPLETELY AND MAKE SURE TO UNDERSTAND THE CONTENT ENTIRELY!

Never use the shutter when a person or object is located under the shutter.

Never place objects under the shutter.

Shutter may only be used by qualified personnel, after reading the operating manual.

Front Security B.V. is not responsible for damage and/or injuries caused by insufficient maintenance, not following the instructions of this manual and modifications/repairs of the shutter executed by thirds.

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General Description

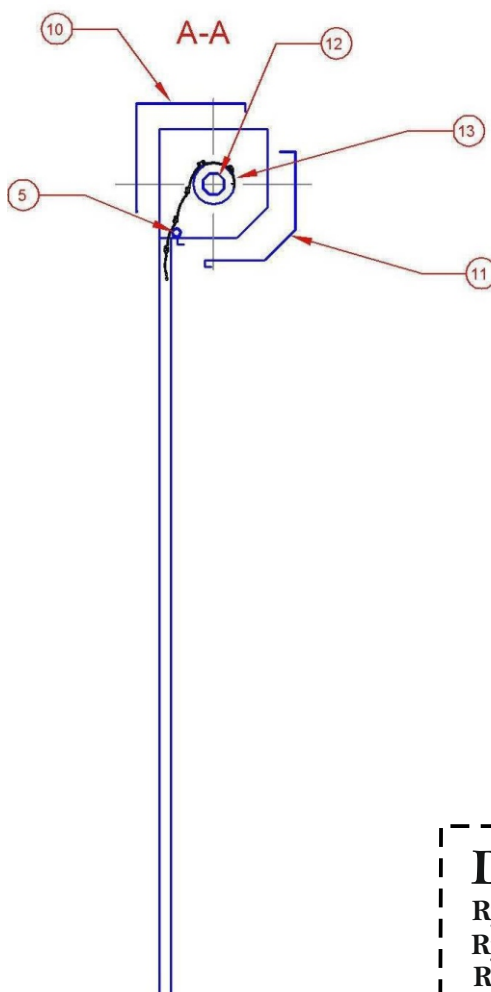
The Front Sequential Opening Shutter consists of two parts connected with firm straps, and opens in two stages. At first, when the operator opens the upper part of the curtain, the lower part remains on its place. During the movement of the bridge towards the plane, the lower part of the curtain functions as a safety barrier.

When the bridge is close enough to the plane, the lower part can easily be opened and the passengers can come trough.

The shutter is equipped with safety devices that prevent any pinching of feet, hands and fingers when the shutter is opened and closed.

Cross-section Shutter:

For description matching nr: See page 6



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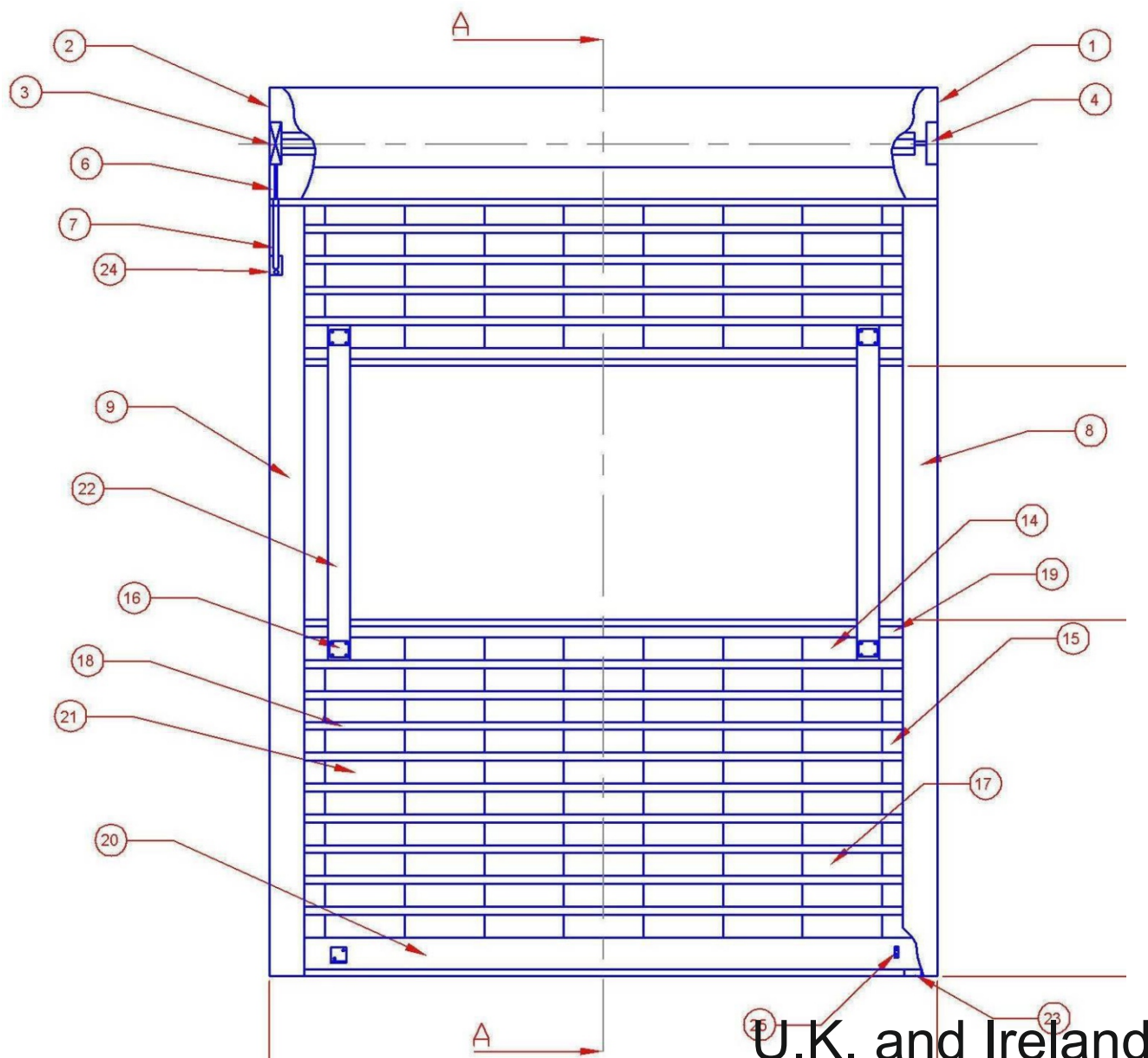
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View shutter:

For description matching nr: See page 6



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Description numbers Sequential shutter:

1. Console right (side plate)
2. Console left (side plate)
3. Tubular engine
4. Anti-fall bearing
5. nylon bearings for guiding curtain into sideguides
6. Knee-joint 90 degrees manual operation
7. Eye manual operation
8. Guide right with nylon inserts
9. Guide left with nylon inserts and manual operation hole
10. Enclosure rear 350 mm
11. Enclosure front 350 mm
12. Axle 8k70 with adaptor 130 and bolt 18 x 8
13. Connection part
14. Aluminium slat
15. Aluminium slat
16. Connection part steel strap
17. Transparent slat
18. Aluminium hinge
19. End-hinge with rubber
20. Bottomslat with rubber
21. Transparent slat
22. Steel strap with nylon cover
23. End blocks 20 x 12
24. Coverplate manual eye 60 x 40
25. Guideblock bottomslat 14 x 12

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Control

Control of the shutter may only be executed by authorised personnel.

Before usage of the shutter, make sure the situation is safe and no objects or persons are located under the shutter.

Always keep visual contact with the shutter when operating the shutter.

Do not use the shutter unnecessary.

Passage may only take place when the shutter is completely opened.

The electrical control is not provided by Front Security B.V.. For specifications and operation manual, contact the supplier of the electric control.

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Description manual control

In case of a power failure or malfunction of the engine, it is possible to control the shutter by manual control. The following steps should be followed when using the manual control:

1. Take the supplied crank and place the end of the crank through the “eye” which is attached to the engine.
2. Turn the crank into the desired direction.

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Description anti-fall bearing

The installed anti-fall bearing prevents the curtain to roll down uncontrolled. Normally, this situation does not occur but when e.g. an engine component fails (for whatever reason) the anti-fall bearing will come into operation.

The anti-fall bearing is equipped with a micro switch which can be connected to the electric control. The micro switch gives a signal to the electric control when the anti fall bearing is engaged. Now, the shutter cannot be controlled anymore to avoid damage and injuries.

When the anti-fall bearing has been operated, the shutter cannot be used anymore. Front Security B.V. needs to be contacted.

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Maintenance

Maintenance may only be executed by an authorized person. We strongly recommend to execute maintenance **2 times a year**.

During maintenance, the following actions should be executed:

- Check of the attachments and construction of the side plates (consoles) and the engine
- Check of wear at the bearings and lubrication of the bearings
- Check of wear at the guide rubbers
- Check if there are any damages at the complete shutter
- Inspection of the anti-fall bearing
- Lubrication of the guides
- Adjustments of the engine stops (if necessary)
- Execution of small repairs

In case of damage or dysfunction of the shutter, contact Front Security B.V.

The only part of the shutter that is subject to wear, when total shutter is used properly and maintenance is executed as instructed, is the tubular motor.

The manufacturer of the tubular motor, Elero, guarantees us a failure-free operation for a minimum of 10.000 up- and down movements.

The number of movements per day can be used to calculate the MTTF / MTBF.

Example:

- the PBB is used for accessing 10 airplanes every day of the year.
- This means 10 up- and down movements every day.

This means the tubular motor will work failure-free for a minimum of 1000 days (2,74 years)

Delivery of the tubular motor takes ± 1 week (after purchase-order)

Replacement (by authorized personnel only) of the tubular motor takes ± 1 hour.

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DISTRUPOL®

Part of the *Univar* Network

Monday, December 02, 2013

Durolon® VR2200

Unigel Plásticos - Polycarbonate

Units

Action

[Legend \(Open\)](#)



General Information

Product Description

Injection molding polycarbonate.
Medium flow rate product with enhanced mold release performance.
For applications that requires enhanced UV resistance.

General

Material Status	• Commercial: Active
Additive	• Mold Release • UV Stabilizer
Features	• Good Mold Release • High Clarity • Good UV Resistance • Medium Viscosity
UL File Number	• E102385
Appearance	• Clear/Transparent • Colors Available
Forms	• Pellets
Processing Method	• Injection Molding

ASTM and ISO Properties¹

Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.20	g/cm³	ASTM D792
Density	1.20	g/cm³	ISO 1183
Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)	12	g/10 min	ASTM D1238
Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)	12	g/10 min	ISO 1133
Molding Shrinkage - Flow	0.50 to 0.70	%	ASTM D955
Water Absorption (23°C, 24 hr)	0.23	%	ASTM D570
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus	2300	MPa	ASTM D838
Tensile Modulus	2300	MPa	ISO 527-2
Tensile Strength (Yield)	68.0	MPa	ASTM D838
Tensile Stress (Yield)	68.0	MPa	ISO 527-2
Tensile Strength (Break)	73.0	MPa	ASTM D838
Tensile Stress (Break)	73.0	MPa	ISO 527-2
Tensile Elongation (Break)	100	%	ASTM D838
Tensile Strain (Break)	100	%	ISO 527-2
Flexural Modulus	2350	MPa	ASTM D790
Flexural Modulus	2350	MPa	ISO 178
Flexural Strength	95.0	MPa	ASTM D790
Flexural Strength	95.0	MPa	ISO 178
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact (3.20 mm)	830	J/m	ASTM D256
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness			ASTM D785
M-Scale	75		
R-Scale	120		
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load (1.8 MPa, Unannealed)	132	°C	ASTM D648
Heat Deflection Temperature (1.8 MPa, Unannealed)	132	°C	ISO 75-2/A
CLTE - Flow	0.000085	cm/cm°C	ASTM D696

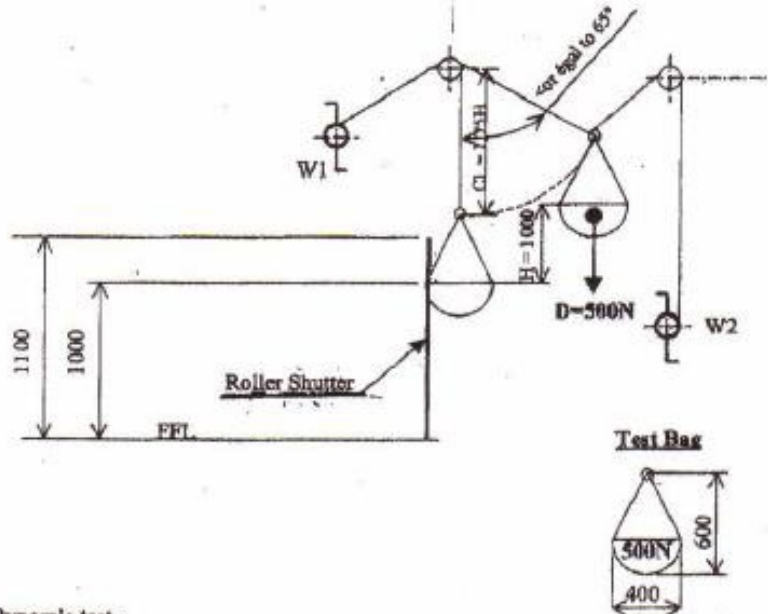
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SAFETY ROLLER SHUTTER FOR PASSENGER BOARDING BRIDGES

DYNAMIC TESTS

NF P 08-301



Dynamic test :

The choc is obtain by the pendular chute of a bag.

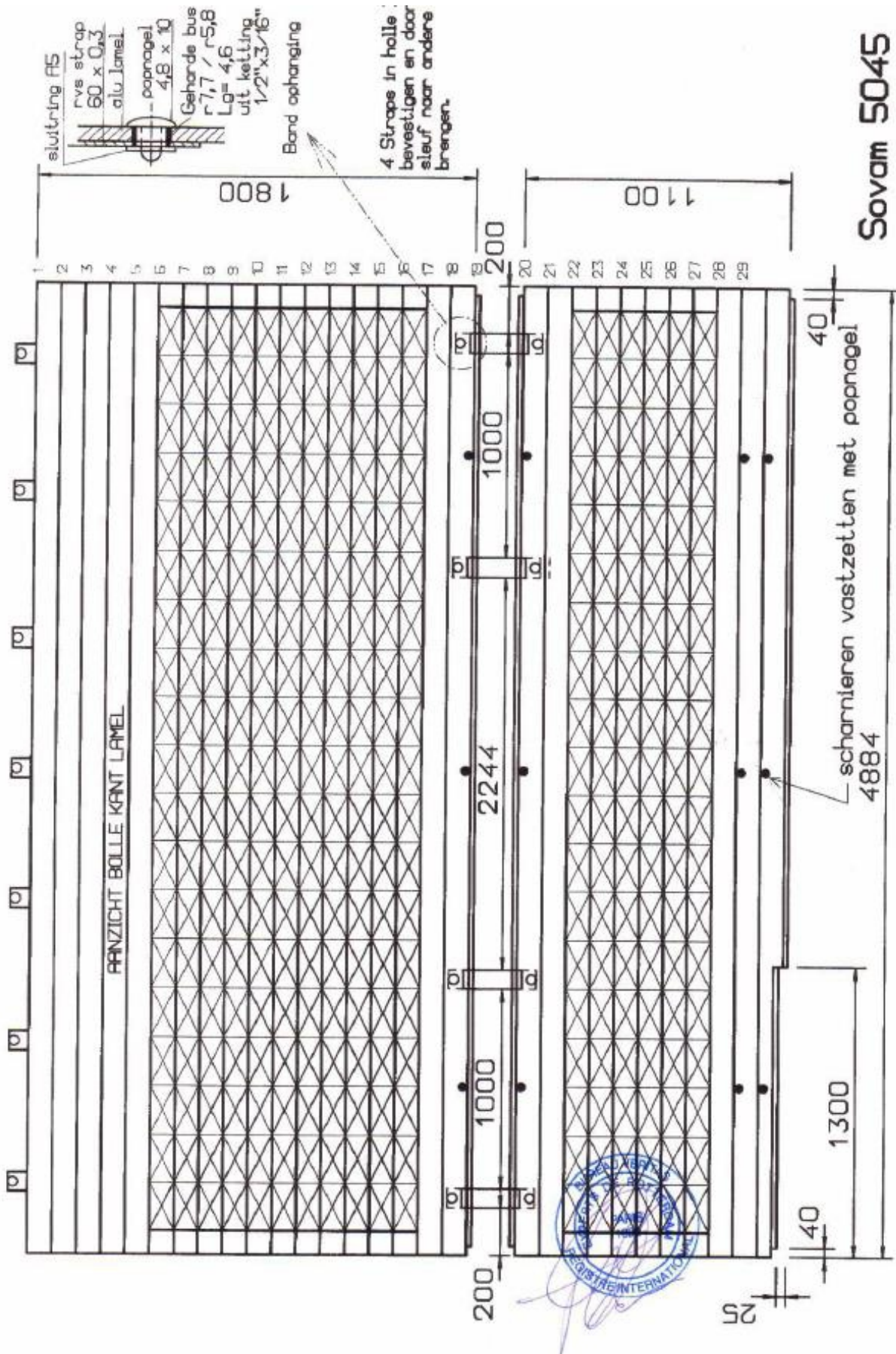
The bag shall be in a vertical position at his starting point.

In the vertical position the bag shall be tangent to the shutter.

Adjustments of the test system are made by the winches W1 and W2

As result of the test, the bag shall not pass through the shutter (damage or deformation of the shutter are not considered)





Sovam 5045

