

# TECHNICAL INFORMATION

## RAW MATERIAL

### ROLLING SHUTTER (Insulated Aluminium)

#### *PRESENTATION*

The R&D DOORS Roll-up door/Rolling door manufactured from the combination of double aluminium slats with polystyrene insulation r20 meets all requirements regarding technology, design and quality (EC Declaration of Conformity for Industrial Door EN 13241-1:2003) the principal characteristics being - secure handling, reliable action of opening and closing and a long life with minimal maintenance. Thanks to the rolling door technology which caters to space constraints, extremely easy for installation, resistant to continuous use, R&D DOORS doors are able to adapt to most types of architecture, especially long-span openings.

The guides have a thickness of 80mm and the slats enter at 70 mm on each side. The Paint is ZINC chromo Primer. Our rolling doors do not have a spring compensation like other rolling doors. This is uniquely lifted by the motor and is more long lasting. The springs have a tendency of breaking. In case of the failure of electricity there is a chain hoist which can lift the door ,so no need of handle. The bottom slat is **EXTRUDED in Aluminium** and inside this profile is a SHAFT of steel 8cm height 7mm thickness which gives the strength to the bottom profile and which carries an EPDM Rubber seal of 3mm which acts as a pressure on the floor and so is well balanced. The Motor is fixed above and the control box is below and so can be easily timed. The motor has a Double end of track in the open and close functions. It has two microchips which stops the door so it doesn't need the height stop as given in the drawing. It doesn't need a lock because the door is locked by the motor. The motor has a system of ANTI- FALLING incorporated which means that the door never falls on its own.

All in All our rolling door is the modern version with the latest TECHNOLOGY Silent operation reduced maintenance smooth operation.



## 2.- STRUCTURAL CHARACTERISTICS – ( RAW MATERIALS

R&D DOORS, S.L. supplies its roll-up door with all the components necessary for a safe and easy installation on site.

ALUMINUM SLATS A1.-profiles of 0.95mm thick aluminum shaped from a strip of aluminum alloy 3003 (soft alloy aluminum and manganese loaded with some elements of addition and not heat treatable) in a state of acrimony (hardening obtained by cold plastic deformation that results in increased mechanical properties and hardness of the material) H46, 172mm wide and linked together (face exterior / interior face) as a continuous hinge with plastic side lock made in wear-resistant materials for friction whose mission is solely to ensure the fewest possible moves from the end of the slats within the sliding guide, giving greater strength to the leaf roll.



Windscreen HOOKS: These are installed on the sides of the slats when it is certain that the doors will be subject to high loads of force by the action of strong winds or surface is more than 20m<sup>2</sup>. In conjunction with these hooks, it is necessary to be fitted with a special side guide that allows smooth and free movement.



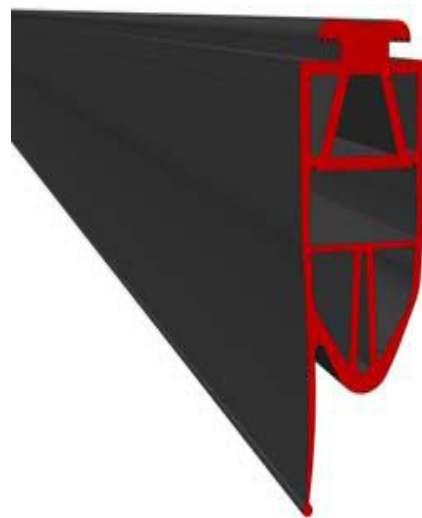
### 1.1 Wind Load

Door panel type 4000 x 3500 mm	Wind load class	Maximum pressure [Pa]
Enrollable Aluminium Mod 100 / A	3	-

This article of security made from PVC meets the quality requirements of DIN ISO 9001 and those required by EN 13241-1 regarding aspects mechanical and wind loads.



**B – BOTTOM SLAT PROFILE.** The roller shutter starts from a lower slat of aluminum (11,171 matrix alloy EN AW-6063 [Al Mg0, 7 Si], resistant to bending, which has attached in its lower part a 60° EPDM seal SH.A sealing system and houses security photo-sensor system for (sensitivity conductive band) Chemical analysis of bottom seal profiles below



Bottom seal R&D DOORS EPDM 60° Sh.A:

C. – Guide systems. It is composed of galvanized steel profiles DX51D Z-275 MAC 2 and 2.5mm thick fabricated according to UNE-36595 and developed exclusively by R&D DOORS, S.L. that's attached on a board sliding abrasion resistant rubber, the profiles are machined to allow its perfect seam walls of both concrete and masonry, iron or wood.

The guide system developed by R&D DOORS, S.L. doors for this model ensures a smooth and safe sliding of the aluminum slats.

**Mechanical properties of the galvanized steel DX51D**

Designación		Símbolo para el tipo de galvanizado por inmersión en caliente	Límite elástico a 0.2% $R_{p0.2}$ N/mm <sup>2</sup>	Resistencia a la tracción $R_m$ N/mm <sup>2</sup>	Alargamiento en la rotura $A_{50}$ <sup>2)</sup> % mín.	Coeficiente de anisotropía plástica $r_{90}$ mín.	Coeficiente de acritud $r_{90}$ mín.
Tipo de acero							
Simbólica	Númerica						
DX51D	1.0226	+ Z	----	270 a 500	22	----	----
DX51D	1.0226	+ ZF					



D. - TUBULAR SHAFT. This is a welded tube, cold-rolled steel according to UNE-19-011-86, UNE-36-595-97 and UNE- EN-10219 -97 in diameter and thickness as Ø159x5mm and Ø219x6mm size door, that have been calibrated welding steel axes developed corresponding to UNE-EN-10056-2-93, UNE-36-531-95, UNE-EN-10055-95, UNE-36 - 525-72, UNE-36-541-76, UNE-36-542-76 and UNE-36-543-80 recorded by TDC: A267/99 in diameter Ø30mm, Ø40mm, Ø50 and Ø55mm with and without keyway depending on the diameter of the motor shaft that will raise the door. The shafts are welded to steel washers (prevents wear and tear of external welding-bending and complies the standard of bending- less than 500 times the distance between supports) of 8mm thick (OD Ø149mm and Ø207mm and inner Ø30, 2mm , Ø40, 2mm, Ø50, Ø55 and 2mm, 2mm) laser-cut and are fitted with caps that prevents the shaft from coming out of its support

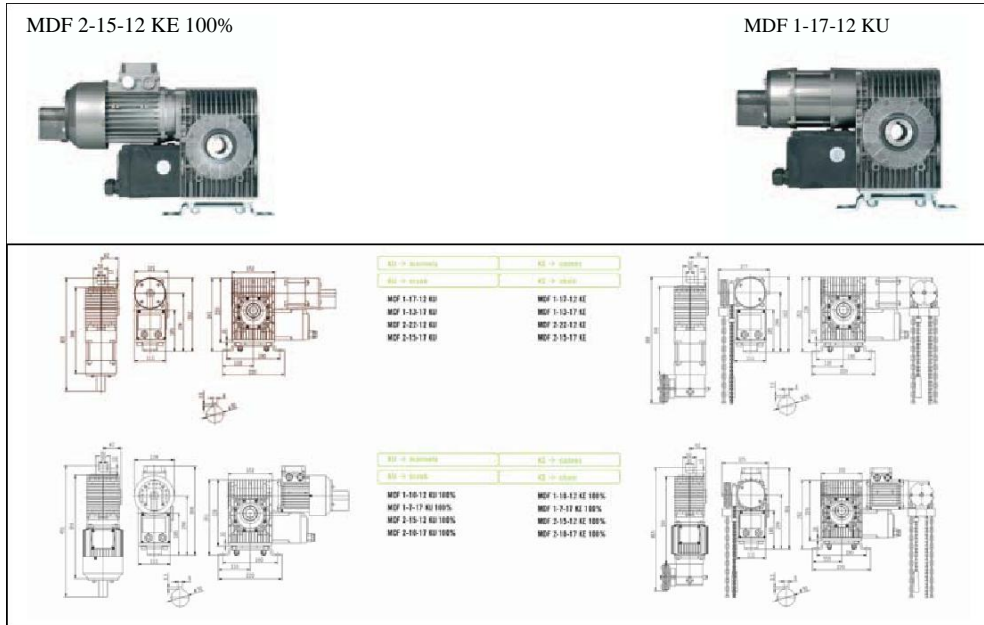


E. – SIDE SUPPORT SYSTEM - fabricated from iron sheet (reference standards: UNE-EN-10025, EN-10029, UNE 36,080, IN 10051, IN 10,131 AND 10,143 as recorded by TDC: A267/99) hot rolled 4.76 mm thick in the case of small support (which holds the small motor) and 6.35 mm when it comes to the Big support (large motor) subject to a process of laser cutting, forming, welding and coated with white zinc. The difference in two sizes is based on the study to bear the burdens resulting from the size of the roll-up doors, weight and conditions associated with each type of work, and the actual characteristics (design, size and engine weight) to be allocated to raise the shutters.



F. AXIS ANTI- BUCKLING. This is a welded tube, cold-rolled steel according to UNE-19-011-86, UNE-36-595-97 and UNE-EN-10219-97 in Ø114mm diameter and 4mm in thickness welded to it calibrated steel tubes developed pertaining to UNE-EN-10056-2-93, UNE-36-531-95, UNE-EN-10055-95, UNE-36-525-72, UNE-36-541 -76, UNE-36-542-76 and UNE-36-543-80 recorded by TDC: A267/99 in diameter 25.4 mm. The shafts are welded to steel washers (prevents wear and tear of external welding- bending and complies the standard of bending- less than 500 times the distance between supports) of 8mm thick (external diameter Ø106mm and inner Ø25, 7mm) cut by laser and are fitted with caps that prevents the shaft coming out of its holds  
This tube is placed in the top of the door between the two guides, and its function is to prevent bending inside / outside (buckling) of aluminium slats that make up the parameter of the door accentuating this feature in the area input of the slats to the side rails, thereby achieving smooth and accurate glide.  
The installation of this system depends solely on the size of the door, having measures that are not required otherwise.

G. DRIVES. Depending on the size and weight of the roll-up door, R&D DOORS, S.L. has a wide variety of premium drives and motors. This invariably ensure the perfect operation and have been developed and produced individually and optimized for their application ensuring maximum energy utilization



Specifying the motors, the covers are CNC-machined cast aluminum, are maintenance-free permanently lubricated bearings, self-aligners with foot support point for a safe door, the helical wheel is made of high quality bronze with helical coils, which guarantees a long duration, and have a large force of retention and automatic braking. (the restraining device is integrated into the mechanism, protecting a breakage regardless of the position and speed)

**MOTOR CYCLES**

MEZOVITOR

Nombre del producto /MDF product name

Tamaño del mecanismo /MDF 05 size of drive

Momento torsional de salida/10 10 driving torque/10

Nº revoluciones de salida 15 output speed

Manejo manual KU manual operation

Technical drawings

MDF 3-27-12 KU 100%

Technical drawings for MDF 3-27-12 KU 100%:

KE → aluminio	KE → acero
KE → bronce	KE → titanio
MDF 3-42-12 KU	MDF 3-42-12 KE
MDF 3-28-17 KU	MDF 3-28-17 KE

Technical drawings for MDF 3-27-12 KU 100%:

KE → aluminio	KE → acero
KE → bronce	KE → titanio
MDF 3-27-12 KU 100%	

Standard on the drives are thermal protection on motor winding which ensures general protection and have both standard solutions (three phase currents at 400V and 230V) and special (230V ac).

Regarding the electrical equipment, have an electronic sensor of the closing of the door (as an alternative, there are 6 mechanical switches), the connections are plugged, which facilitates rapid assembly, can be converted to 400V 3 ~ 230V 3 ~, the remote is available with external or integrated.

For emergency situations, it has a stable emergency crank (KU models) or a chain management system- manual (KE model), with the possibility of adapting the former to the latter system.

Models:

**MDF 1-17-12 KE**  
**MDF 1-10-12 KE 100%**

**MDF 2-22-12 KE**  
**MDF 2-15-12 KE 100%**  
**MDF 3-42-12 KE**  
**MDF 3-27-12 KE 100%**

**MDF 5-75-10 KE**

**MDF 6-100-9 KE**  
**MDF 6-100-9 KE 100%**



**MDF 6-100-9 KE**



**MDF 3-42-12 KE**



**MDF 6-100-9 KU 100%**

The central remote control associated with these engines (model CS300 with IP65 protection) incorporates the best of the most modern and sophisticated available in the market, making them a list of drives to the forefront of innovation in the field of roller doors.



One of the functions of the CS300 can be highlighted its fully developed microprocessor control, evolution of its absolute sensor to process and adjust the outer positions with comfort, automatic adaptation to the ground, the four potential free contact, adjustable integrated force limiter, the recognition of direction of rotation, the positions of half-open door and ventilation, the integrated meter indicator for the repairs and maintenance, and programmable alarm to facilitate accurate planning of this service.

As for handling, manoeuvring CS300 offers: a clear display, an LCD monitor that mounts attachable in or on the casing and can be used as a separate programming module, a navigation based on only 3 buttons, the introduction of a PIN code that protects the setting menu in an intelligible form for both technical assistance to the user, status and diagnostic messages.

Data structure and connection:

- Protection plate housing for printing.
- wires and connections to plug-in type terminals.
- Low voltage - short circuit proof.
- Transformer 230V to 400V switchable
- DW, 8K2, photo sensor electric connectable.
- Buttons water proof.
- Low housing fund and to cover integrated hinge.
- Wall mount pre-assembled and adjustable nozzle for passage connecting cables.



# 5.- TECHNICAL SPECIFICATIONS according to European standards CE EN-13241-1

**REPORT**  
REPORT issued by notified body No. 0402

0402 – CPD – 42 17 16

Issue: May 5, 2006  
Revision: 0402-CPD-421716  
Page: 1 (3)

Product to be reported:  
Sveinna Hansson  
Certification No. 01 01 11 01  
svensson.hansson@sp.se

**RD Doors**  
Puligone Industrial Aggregates  
Calle O, Nava D 38  
11100 Droyen (Svavari)  
Spain

**Initial Type-Testing Report for EC Declaration of Conformity for Industrial Door**

SP Swedish National Testing and Research Institute has as Notified Body no. 0402, performed initial type testing of the products mentioned below, and our report may be used in support for an EC Declaration of Conformity according to the requirements in the harmonized standard EN 13241-1:2003.

**Issued for Manufacturer/Factory**  
Nava, Puligone Industrial Aggregates, Calle O, Nava D 38, 11100 Droyen (Svavari), Spain

**Product name and description**  
Industrial Door Type: Erectable Aluminium Mod 100 / A  
Door-light, width and height: width 4000 mm, height 1500 mm

Type of panels: Luma Nerva  
Weight of doors: Max 180 kg  
Hardware: Nerva  
Machinery / Operator: See chapter 2 of this report  
Balancing system: 200 kg  
Safety edge: See chapter 2 of this report  
Test report: SP No. P404461 M, dated Nov 8, 2005

CE

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**REPORT**

Issue: May 5, 2006  
Revision: 0402-CPD-421716  
Page: 2 (3)

**1 Test of fully assembled Door**

**1.1 Wind Load**

Door panel type	Wind load class	Maximum pressure [Pa]
4000 x 1500 mm	3	-
Erectable Aluminium Mod 100 / A		

**1.2 Determination of air permeability**

Door panel type	Air permeability class
Erectable Aluminium Mod 100 / A	B

**1.3 Resistance to water penetration**

Door panel type	Water penetration class	Maximum pressure [Pa]
Erectable Aluminium Mod 100 / A	3	-

**1.4 Thermal resistance**

Door (panel) type	Thermal transmittance, W/(m <sup>2</sup> K) U <sub>door</sub> *
Erectable Aluminium Mod 100 / A	6,1

**1.5 Operating forces, Safe opening, Dangerous substances and Durability of water tightness, thermal resistance and air permeability**

Product name	Requirement	Result	Test Report
Industrial door	Operating forces *	Pass	
	Safe opening	Pass	
	Dangerous substances	Pass	
	Durability of water tightness, thermal resistance and air permeability	Pass	

\* See different operations, chapter 2 in this report.

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**2. Operating forces**

The operators were tested together with the test door using different control units and buttons and rubbers. The configurations are shown in the following table. The weight of the test door was 180 kg.

The operator performed in accordance with the requirements.

**2.1 Summary of test results of crushing forces on industrial doors**

Door	Machinery/ Control unit	Bottom seal / sensor	Speed
Erectable	MFZ MFZ 2 / MFZ AS 1.3	MFZ rubber P2 / MFZ optisensor	20 rpm / D <sub>door</sub> = 129 mm

**SP Swedish National Testing and Research Institute Certification**

Leifmar Miksson  
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CE