

TEST REPORT No. 416843

Customer

IRONLEV ONE S.r.l.

Via Luigi Galvani, 6/A - 31027 SPRESIANO (TV) - Italy

Item#

**carriage for sliding doors and windows named
"Ironlev slider WD Slim - codice prodotto: WD368"**

Activity

**partial characterisation according to standard
UNI EN 13126-15:2019**

Results

H3^{##}	050	//^{###}	-	1
1st	2nd	3rd	4th	5th

(^{##}) At the customer's request, the product was subjected to 100000 cycles (80000 cycles more than the maximum H3 class required by UNI EN 13126-15:2019), at the end of which it met all the requirements of the reference standard.

(^{###}) test not performed in this test session.

([#]) according to that stated by the customer.

Bellaria-Igea Marina - Italy, 14 May 2024

Chief Executive Officer

Order:
100597

Item origin:
sampled and supplied by the customer

Identification of item received:
2024/0488 dated 16 February 2024

Activity date:
from 28 February 2024 to 3 May 2024

Activity site:
Istituto Giordano S.p.A. - Strada Erbosa Uno, 72 -
47043 Gatteo (FC) - Italy

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The results relate only to the item examined, as received, and are valid only in the conditions in which the activity was carried out.

This document is the English translation of the test report No. 416843 dated 14 May 2024 issued in Italian; in case of dispute the only valid version is the Italian one.

Date of translation: 6 June 2024.

The original of this document consists of an electronic document digitally signed pursuant to the applicable Italian Legislation.

Chief Test Technician:

Ing. Chiara Bastoni

Head of the Security and Safety Laboratory:

Dott. Andrea Bruschi

Compiler: Valentina Rocchi

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Description of the item[#]

The item under examination consists of two examples of a carriage for a magnetic levitation sliding system with a double-ribbed track. Each carriage has four rollers.

Please see annex "A" for further details.

Normative references

Standard	Title
UNI EN 13126-15:2019	Accessori per serramenti - Requisiti e metodi di prova per finestre e porte finestre - Parte 15: Carrelli e rulli per scorrevoli e aperture a libro o a fisarmonica (<i>Building hardware - Requirements and test methods for windows and balcony doors - Part 15: Carriages and rollers for sliding and folding or accordion openings</i>)

Apparatus

Description	Internal identification code
electro-pneumatic apparatus for the operating cycle, complete with PLC and cycle counter	//
10 kg and 5 kg calibrated masses	//
Borletti "CDEP15" digital calliper gauge, range 0÷150 mm and resolution 0,01 mm.	EDI066

Method

Normative reference	Activity	Description
7.3.1	durability test	Two coupled rollers were used to perform the cyclic test with greater stability. Carriages tested: No. 1 and No. 2. Before and after cycles, as defined by the standard, were measured: - the distance from the top base of the carriage to the top base of the "D" rail; - The diameter of each roller is at 3 different points (the table shows the average of the 3 measurements indicated by the symbol "ϕ" accompanied by two subscripts; the first indicates the carriage and the second the roller). For classification and requirements, reference was made to Section 5.2.2 of the standard UNI EN 13126-15:2019.
//	proof of durability beyond the requirements of the standard	At the customer's request, the product was subjected to an additional 80000 cycles compared to the 20000 required by the maximum class H3 according to the standard UNI EN 13126-15:2019.
7.5	static resistance test at room temperature	The item has already been tested according to test report no. 414993, dated 21 March 2024, issued by Istituto Giordano S.p.A., to which we refer you for the modalities, details and results. For classification and requirements, reference was made to Section 5.3 of the standard UNI EN 13126-15:2019.

(*) according to the customer's statements, Istituto Giordano declines all responsibility for the information and data provided by the customer that may influence the results.

Environmental conditions

Temperature	(20 ± 3) °C
Relative humidity	(52 ± 10) %

Results

Cycles performed [#]		Lubri- cation	Ad- just- ment	Distance ^{##} “D”	Average of 3 roller diameter measurements at 3 different points							
					carriage n. 1				carriage n. 2			
					roll 1	roll 2	roll 3	roll 4	roll 1	roll 2	roll 3	roll 4
					φ ₁₁ [mm]	φ ₁₂ [mm]	φ ₁₃ [mm]	φ ₁₄ [mm]	φ ₂₁ [mm]	φ ₂₂ [mm]	φ ₂₃ [mm]	φ ₂₄ [mm]
0	0	//	//	8,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0
20000	20	no	no	8,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0
100000	100	no	no	8,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0	11,0
At the end of the cycles, the carriage did not sag and continued to function correctly without any distortion. None of the rollers changed significantly in diameter.												

([#]) At the customer's request, the product was subjected to 100000 cycles (80000 more than the 20000 required for the maximum class H3 according to UNI EN 13126-15:2019); the measurements at the classification limit and the final measurements are shown.

(^{##}) from the upper base of the carriage to the upper base of the rail.



Photographs of the item during the cyclic test



Photograph at the end of the test



Close-ups

Static load at ambient temperature

For details and results, please refer to test report no. 414993, dated 21 March 2024, issued by Istituto Giordano S.p.A.

Findings

Based on the results obtained and according to test report no. 414993 dated 21 March 2024, issued by Istituto Giordano S.p.A., the item under examination can be classified according to paragraph 4 of the standard UNI EN 13126-15:2019 with the following 5-character coding system:

H3[#]	050	//^{##}	-	1
1st	2nd	3rd	4th	5th

([#]) At the customer's request, the product was subjected to 100000 cycles (80000 cycles more than the maximum H3 class required by UNI EN 13126-15:2019), at the end of which it met all the requirements of the reference standard.

(^{##}) test not performed in this test session.

The digits signify what is indicated in the table below.

Digit	Characteristic	Possible values
1st	Durability	- class H1 5000 cycles - class H2 10000 test cycles - class H3 20000 cycles
2nd	Mass	The figure indicates the maximum mass of the sash expressed in kg preceded by a 0. For N-type windows, the mass corresponds to the maximum load carried by no. 2 carriages.
3rd	Corrosion resistance	- class 0: no resistance or not determined; - class 1: 24 h; - class 2: 48 h; - class 3: 96 h; - class 4: 240 h; - class 5: 480 h.
4th	Test dimensions	No test size is required for N-type windows SRW 900 mm × SRH 1900 mm for window types Q, R and S
5th	Application	- class 1: for use on sliding windows and balcony doors (type N); - class 2: for use on folding or accordion sliding windows and balcony doors with central pivot pin (type Q); - class 3: for use on folding or accordion sliding windows and balcony doors with corner pivot pin (type R and/or S).

**ANNEX “A”
TO TEST REPORT No. 416843**

Customer

IRONLEV ONE S.r.l.

Via Luigi Galvani, 6/A - 31027 SPRESIANO (TV) - Italy

Item#

**carriage for sliding doors and windows named
“Ironlev slider WD Slim - codice prodotto: WD368”**

Contents

customer-supplied item technical documentation

Order:
100597

Item origin:
sampled and supplied by the customer

Identification of item received:
2024/0488 dated 16 February 2024

Activity date:
from 28 February 2024 to 3 May 2024

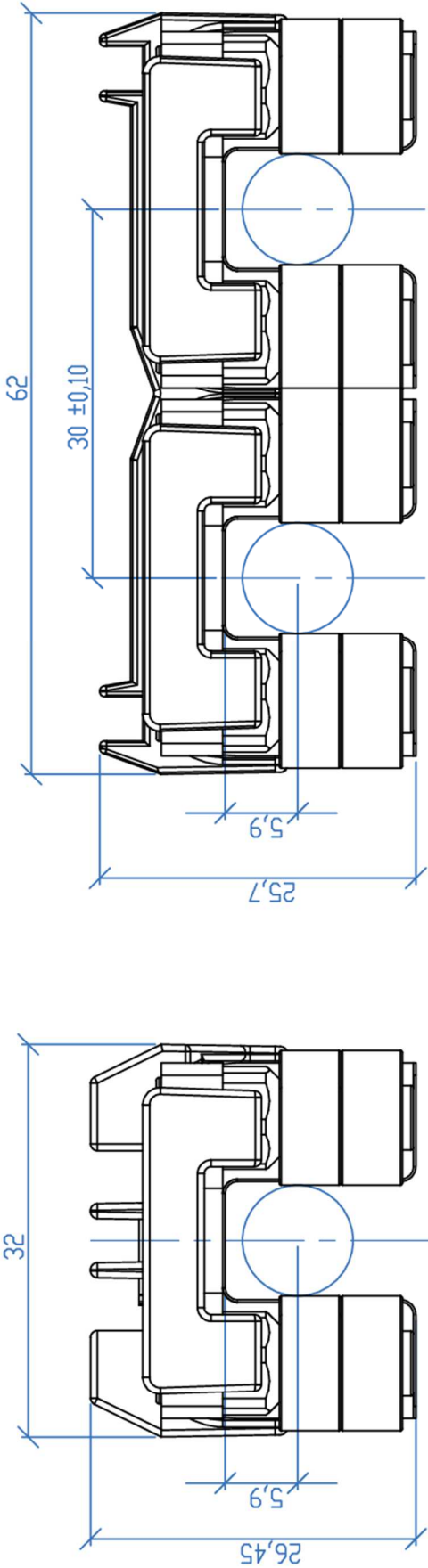
Activity site:
Istituto Giordano S.p.A. - Strada Erbosa Uno, 72 -
47043 Gatteo (FC) - Italy

(#) according to that stated by the customer.

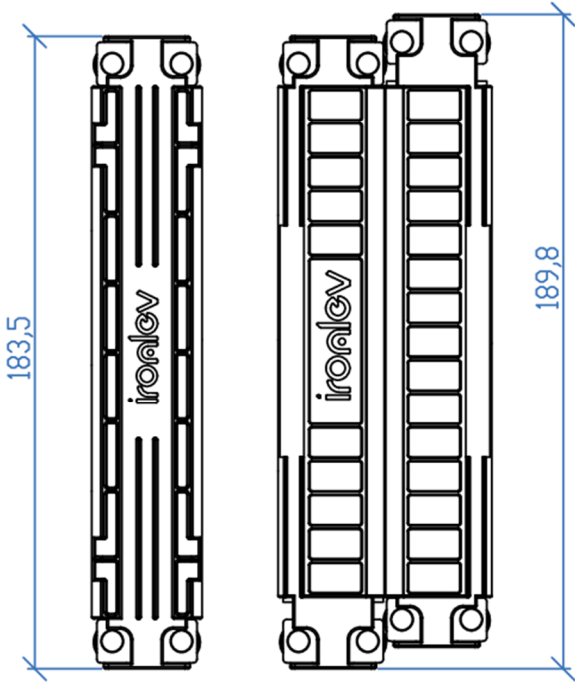
Bellaria-Igea Marina - Italy, 14 May 2024

This annex is made up of 6 pages.

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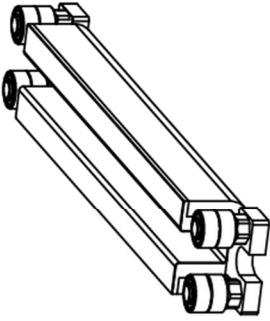
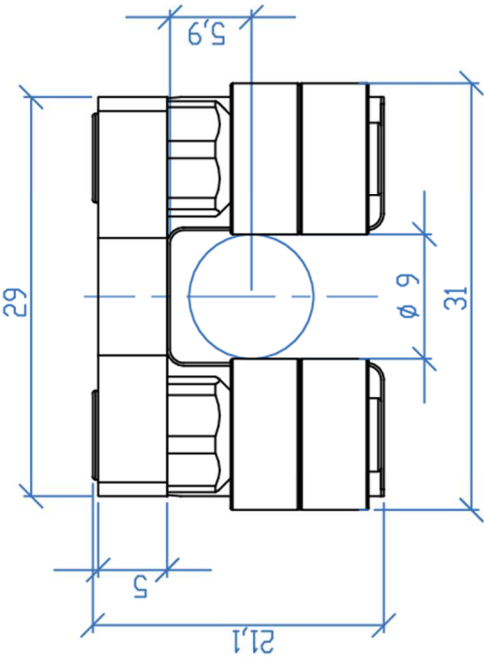


QTA ' 1	TRATT. TERMICO	HRC	SUPERF. VERIFICAZIONE ALLEGARE ALTRE VERIFICAZIONI ATTACCHATE ALLE SPESSORI	N° PROGETTO
	NOTE (*) : MONITORIZZARE ERRORE DIMENSIONALE	MATERIALE		N° DIS. render2_manualistica1
RENOMINAZIONE		SAC. MOD.	/	RUBRICATA
		FORMA		SCALA 2:1 PAGINA 1 DI 7 A4
		DATA	26/09/2023	
NOTE NON INVERTEMENTE INVERTITO IN PRESSIONE. SECONDO L'UNO DEI 22/08 - F Proprietà MONIT. S.p.A. Termini - Aggregazione, distribuzione ed esecuzione. Verifica, approvazione, scrittura.				



QTA ' 1	TRATT. TECNICO	HRC	SUPERF. VERIFICAZIONE SUPERFICIE ALLEGATE ALTROVIA SPESSORE INVERTE	N° PROGETTO
	NOTE (a) : MINIMIZZARE ERRORE DIMENSIONALE	MATERIALE		N° DIS. render2_manualistica.1
DEMININAZIONE		SAC. MOD. /		RUGOSITA'
		FIBRA		SCALA 1:2
		DATA 26/09/2023		PAGINA 6 DI 7
				A4

SECTION VIEW
25 kg nominal position



PRODUCT SPECIFICATIONS

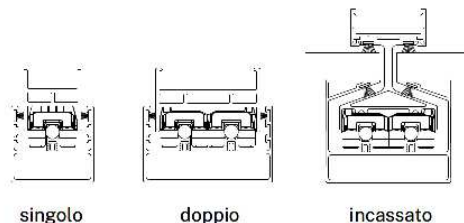
Manufacturer	Ironbox Srl
Cod.	WD36801
Trademark	Ironlev
Dimensions	
Section	31w x 21h mm
Length	180 mm
Rail diameter	9 mm
Mechanical properties	
Max net load	25 kg
Average stiffness	79 N/mm
Slider weight	0.35 kg

QTA'	TRATT. TERMICO	HRC	SUPERF. VAL. IMPAZZATA, SUPERF. IN ALLEGATO AL FIDUCIARIO PER L'ESPOSIZIONE	N° PROGETTO
NOTE ☐ : NON INIZIARE ERRORI DIMENSIONALI	MATERIALE	N° DIS.		
IRONLEV W/D Slim	SAC. MOD. /	RUGOSITÀ		
ironlev	FORMA	SCALA	1:1	A4
	DATA	14/12/2022	PAGINA	1 DI 1
NOTE AND INSTRUCTIONS INDICATED ON THE PREVIOUS DRAWING LIA. 100 20108 - F				
Proprietà Ironbox Srl. Termini - Aggruppamenti, disegni e disegni di esecuzione, diritti sono riservati.				

svariate configurazioni

La sospensione magnetica consente l'adozione di molteplici pattini allineati, tra i quali il peso si distribuisce equamente.

Il sistema è disponibile nella configurazione a rotaia singola per profili estremamente compatti, a rotaia doppia per carichi più elevati oppure può essere incassato per una soglia a filo pavimento.



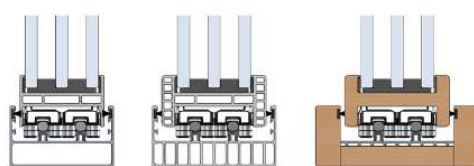
singolo

doppio

incassato

flessibilità e compatibilità

I pattini Ironlev sono compatibili con profili di differenti materiali, adattando le interfacce di collegamento per agevolare l'installazione e conservare le prestazioni di isolamento termico.

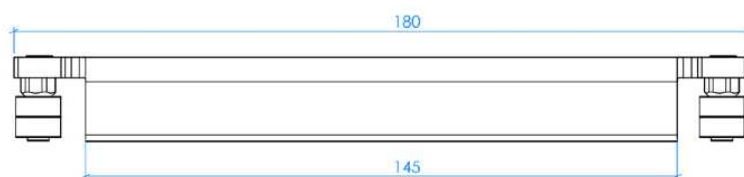
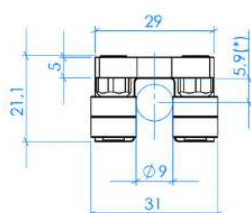


alluminio

PVC

legno

specifiche tecniche



(*) 25 kg nominal position - dimensioni in millimetri

modulo	singolo	doppio
portata	25kg	50kg
peso	0.35kg	0.70kg
passo minimo	200mm	200mm
portata lineare max	125kg/m	250kg/m

ironlev
sliding windows

Ironlev One Srl - Via Luigi Galvani 6A - 31027 Spresiano (TV)

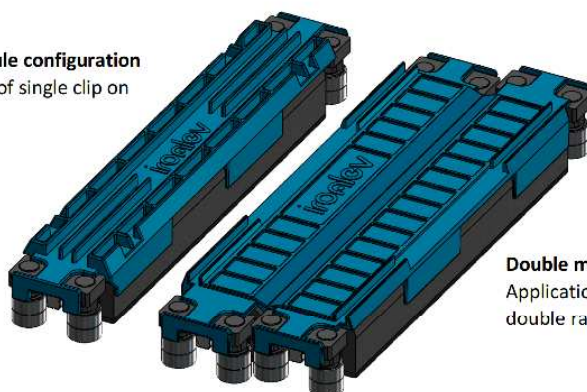
www.ironlev.com



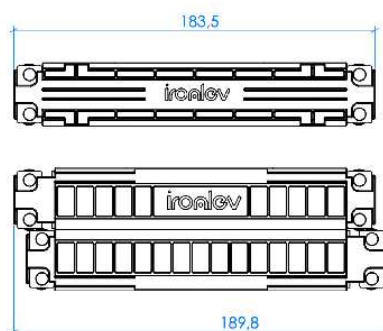
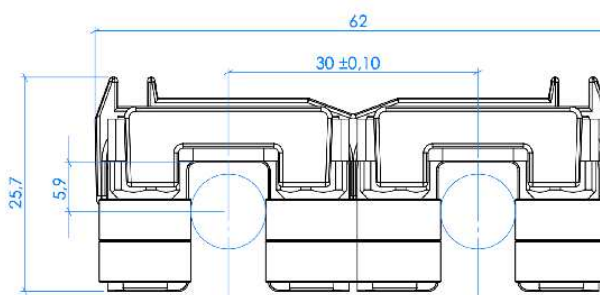
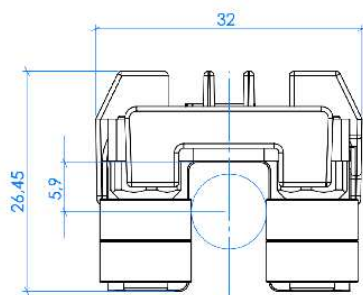
Module configuration

The system is available in single rail configurations for compact profiles and dual rail configurations for higher loads.

Single module configuration
Application of single clip on
single rail



Double module configuration
Application of double clip on
double rail



Size	Module	Weight		Rail	Load		Linear Load Capacity		Pitch Min Pitch
		Slider			Max net load		Max Linear Load		
		kg	lb	kg/m	kg	lb	kg/m	lb/ft	mm
WD Sim Windows	Single	0.35	0.77	0.5	25	55	125	84	184
WD Sim Windows	Double	0.7	1.54	1	50	110	250	168	184

The magnetic suspension allows the adoption of multiple aligned sliders on which the weight is distributed equally. To obtain the maximum linear capacity of the system, the sliders can be arranged in a row and the spacing can be reduced to the minimum value corresponding to the contact condition between the modules.