







**TRIAL CERTIFICATE FOR STANDARD EN 13101  
DIN EN 13101 Steps for underground man entry chambers  
(Footholds for underground man entry chambers)**

Mr. Alberto Ayesa Iturralde, representing the company HIDROSTANK S.L., and as a result of the trials conducted, **certifies** that the *polypropylene foothold, Hidrostantk brand* model “P001”, consisting of a corrugated steel bar internal frame of Ø 12 mm., covered in virgin co-polymer polypropylene, and manufactured with rigorous quality control (according to the attached plan) meets the following requirements:

-  Vertical loading trial: Trials s/EN 13101 Section.4.1.7
-  Resistance to pull-out trial: Trials s/EN 13101 Section. 4.3.9
-  Resistance to impact trial: Trials s/EN 13101 Section. 4.3.10
-  Integrity of plastic encapsulation trial: Trials s/EN 13101 Section.4.1.11.

Accordingly, the corresponding certificates from the Instituto Científico y Tecnológico de Navarra, S.A. and CEIS (Centro de Ensayos, innovación y servicios, S.L.) have been attached.

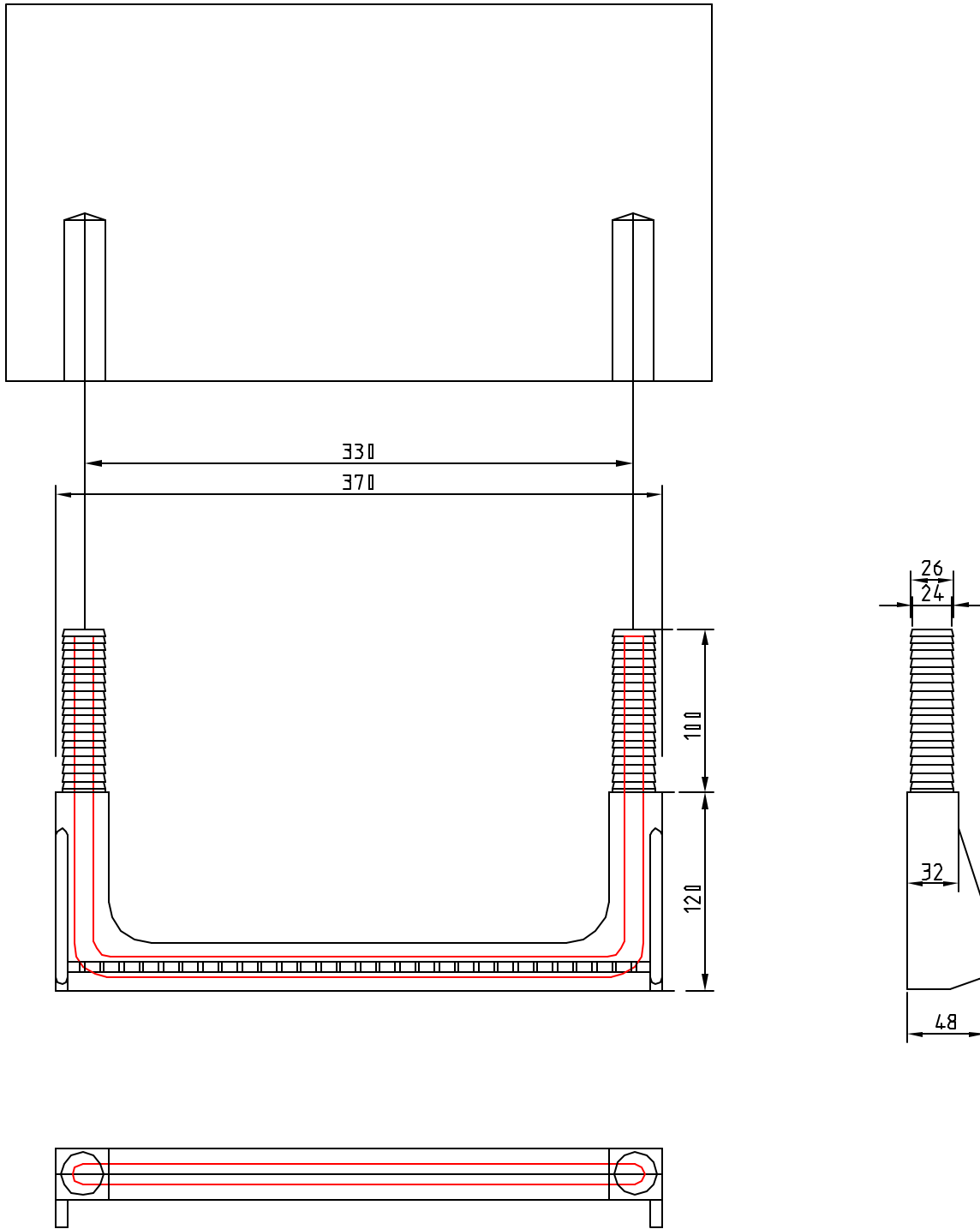
Tafalla, 17 October 2005

Mr. Alberto Ayesa Iturralde  
Manager, HIDROSTANK S.L.




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PATE/STEP RECTO MODELO P001



Cotas en mm.

PLAND: PATE RECTO MODELO P001	
ESCALA:	FECHA: 17/11/2005
DIBUJADO POR: G. ARBIZU	Nº PLAND: P001
 HIDROSTANK, S.L. POL. INDUSTRIAL LA NAVA S/N 31311 TAFALLA	

Report N°: 9665.5/1  
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**APPLICANT:** HIDROSTANK, S.L. Polígono Industrial La Nava s/n 31300 TAFALLA (Navarra)  
**SAMPLES TO TEST:** 1 polypropylene foothold, type doubled step, identified as "P001".  
**TESTS REQUESTED:** Tests EN 13101 Section 4.3.7: **Vertical loading test**

**RECEIPT DATE:** 13/9/05 Samples delivered to the Laboratory by the Applicant.

### **BACKGROUND.**

For the carrying out of the tests, concrete support parts were used.  
The interior steel frame of the foothold was made of a B500S corrugated steel rod of  $\varnothing$  12.

### **VERTICAL LOAD TEST.**

A load of 2.0 kN (200 kp) was applied in the centre of the foothold, with a load application speed of 2kN/min. The deformation in the centre of the foothold was measured every 0,5 kN load interval. The 2.0 kN load was kept during 1 minute, unloaded, and the residual bend was measured.

Later a load of 4kN was applied, kept during 1 minute, and after having unloaded it, the residual bend was measured again.

The results were as follows:

<b>Foothold type</b>	<b>Initial Bend (mm)</b>	<b>Bend 0,5 kN (mm)</b>	<b>Bend 1 kN (mm)</b>	<b>Bend 1,5 kN (mm)</b>	<b>Bend 2,0 kN (mm)</b>	<b>Residual bend (mm)</b>	<b>Residual bend 4kN (mm)</b>
<b>P001</b>	0,00	1,80	3,70	5,90	<b>8,15</b>	<b>0,90</b>	<b>1,85</b>

EN 13101 Requirements (Table 1):  
Bend under 2,0 kN load (mm)  $\leq$  10,0 mm.  
Residual bend (mm)  $\leq$  2,0 mm.  
Residual bend under 4,0 kN load(mm)  $\leq$  10,0 mm.

Test conclusion date: 27.09.05

Pamplona, 29<sup>th</sup> September 2005

Approval: Javier Bada Ruisánchez  
Laboratory Director

Signed: Javier Lanás González  
Technician in charge

Note: In keeping with UNE-EN ISO/IEC 17025 Section 5.10, it is hereby stated that the results of the present report concern, uniquely and exclusively, those samples which have been tested, with partial reproduction being forbidden without written authorisation from the Edification Laboratory.



Report N°: 9665.5/8  
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**APPLICANT:** HIDROSTANK, S.L. Polígono Industrial La Nava s/n 31300 TAFALLA (Navarra)  
**SAMPLES TO TEST:** 1 polypropylene foothold, type doubled step, identified as "P001".  
**TESTS REQUESTED:** Tests EN 13101 Section 4.3.9: **Resistance to pull-out**

**RECEIPT DATE:** 07/10/05 Sample delivered to the Laboratory by the Applicant.

### **BACKGROUND.**

For the carrying out of the tests, concrete support parts were used.  
The interior steel frame of the foothold was made of a B500S corrugated steel rod of  $\varnothing$  12.

### **RESISTANCE TO PULL-OUT TEST.**

A progressive traction load (load application speed 10 kN/min) was applied in the centre of the foothold, writing down the load at which the foothold started to come loose.

The results were as follows:

<b>Foothold type</b>	<b>Maximum load (kN)</b>
P001	9,7

EN 13101 Requirements (Section 4.3.9): Pull-out load  $\geq$  5 kN

Test conclusion date: 07.10.05

Pamplona, 7<sup>th</sup> October 2005

Approval: Javier Bada Ruisánchez  
Laboratory Director

Signed: Javier Lanás González  
Technician in charge

Note: In keeping with UNE-EN ISO/IEC 17025 Section 5.10, it is hereby stated that the results of the present report concern, uniquely and exclusively, those samples which have been tested, with partial reproduction being forbidden without written authorisation from the Edification Laboratory.



Report N°: 9665.5/5  
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**APPLICANT:** HIDROSTANK, S.L. Polígono Industrial La Nava s/n 31300 TAFALLA (Navarra)  
**SAMPLES TO TEST:** 1 polypropylene foothold, type doubled step, identified as "P001".  
**TESTS REQUESTED:** Tests EN 13101 Section 4.3.10: **Resistance to impact**

**RECEIPT DATE:** 13/09/05 Sample delivered to the Laboratory by the Applicant.

### **BACKGROUND.**

For the carrying out of the tests, concrete support parts were used.  
The interior steel frame of the foothold was made of a B500S corrugated steel rod of  $\varnothing$  12.

### **RESISTANCE TO IMPACT TEST.**

The test was carried out according to the norm EN 13101 (Section 4.3.10 and Annex E), dropping a 20 kg. mass from a height of 1 m. on the center of the foothold. After the test, a visual observation of the sample was carried out.

The results were as follows:

**A light deformation of the foothold is produced.  
No fissure is observed in the zone of impact.**

Test conclusion date: 27.09.05

Pamplona, 29<sup>th</sup> September 2005

Approval: Javier Bada Ruisánchez  
Laboratory Director

Signed: Javier Lanás González  
Technician in charge

Note: In keeping with UNE-EN ISO/IEC 17025 Section 5.10, it is hereby stated that the results of the present report concern, uniquely and exclusively, those samples which have been tested, with partial reproduction being forbidden without written authorisation from the Edification Laboratory.



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**APPLICANT:** HIDROSTANK, S.L. Polígono Industrial La Nava s/n 31300 TAFALLA (Navarra)  
**SAMPLES TO TEST:** 1 polypropylene foothold, type doubled step, identified as "P001".  
**TESTS REQUESTED:** Tests EN 13101 Section 4.3.11: **Integrity of plastics encapsulation**

A report elaborated by CEIS (Centro de Ensayos, Innovación y Servicios, S.L.\*), dated in 19/09/05, and consisting of 3 pages, is attached.

\* Center of Tests, Innovation and Services, S.L

Pamplona, 29<sup>th</sup> September 2005

Approval: Javier Bada Ruisánchez  
Laboratory Director

Signed: Javier Lanás González  
Technician in charge

Note: In keeping with UNE-EN ISO/IEC 17025 Section 5.10, it is hereby stated that the results of the present report concern, uniquely and exclusively, those samples which have been tested, with partial reproduction being forbidden without written authorisation from the Edification Laboratory.

RESULTS OBTAINED DURING THE TRIAL:

*PLASTIC COVERING INTEGRITY*

**TRIAL STANDARD: EN 13101**

**SAMPLE: FOOHOLDS FOR BURIED MANHOLES**

**REFERENCE: P001**

**MODEL: BARCELONA**

**REQUESTED BY: HIDROSTANK, S.L.**

**Report No. L-ELC-CBL.09/2315/05**

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Report on the trials carried out at the CEIS, S.L. Cable Laboratory, at the request of **HIDROSTANK, S.L.** - Pol. Ind. La Nava s/n - 31300 TAFALLA (Navarre).

The trials whose results are the subjects of this report are partial trials, as a result, only those trials requested by the petitioner have been carried out.

The trial results refer only to the tested sample and not to the product in general.

The sample was selected and sent to the Laboratory by the petitioner.

The sample was received in the Laboratory on: 13 September 2005

The results included in the report were obtained during the trials carried out on: 16 September 2005-10-12

Any partial reproduction of this report without prior written authorization from the CEIS, S.L. Cable Laboratory is prohibited.

Móstoles, 19 September 2005

Digitally signed by:  
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Head of Trials  
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Mariano Pardo  
Chief of the Cable Laboratory

**IDENTIFICATION OF THE TRIAL SAMPLE**

SAMPLE TYPE	: FOOHOLD FOR A FLAT WALL
MANUFACTURED BY	: HIDROSTANK, S.L.
LOT	: No. 24
MATERIALS	: Corrugated steel and copolymer polypropylene
SAMPLE DIMENSIONS	: Distance wall-fooehold = 120 mm Length of the Crossbar = 330 mm
REFERENCE	: P001
COLOR	: Orange
MODEL	: Barcelona
FACTORY BRAND	: H

**Standard Applied**

The trial was carried out according to the specifications in **Standard EN 13101: 2002**

**TRIAL RESULTS**

Trial method as specified in Appendix F of **Standard EN 13101: 2002**

Ambient temperature	25±2°C
Minimum immersion time	30 minutes
Trial tension	500 V c.c.

Measured resistance (Two measurements, one taken on each section of the foothold):

Measurement No. 1: 4X10<sup>6</sup> MΩ

Measurement No. 2: 5X10<sup>6</sup> MΩ

Minimum acceptable resistance: 1 MΩ

**RESULTS: PASSES**