



Rehabilitation of horizontal structures.

IS IT:

Product

Technology

Equipment

APPLICABLE FOR:

Restoration

Rehabilitation

New Construction

APPLICABLE ON:

1. Foundations and underground structures

2. Vertical structures

3. Horizontal structures and vertical connections

4. Roof and terraces

5. Façade and building envelope

6. Finishes and completion elements

7. Integrated services

8. General strategies for building recovery

Related companies: EXTEND SYSTEM

DESCRIPTION

Reinforcement of horizontal structures.

WHY TO USE

Is the system of using aluminum telescopic beams to reinforce concrete structures, steel, and wooden beams and to expand living spaces.

It is a patented system that provides the simplest, safest, and cheapest solution to reinforce ceilings, floor slabs and beams in homes and places with difficult access.

- Special extruded aluminum alloy.
- Easy to transport and handle: A system consisting of two or three light weight pieces. Makes for easy transportation and handling.
- Simple and quick to assemble: The system has a very simple assembly with an average of 10 beams / day with two assemblers.
- Strong and Reliable: performs a functional or physical replacement of the affected beams.
- Telescopic system for a perfect fit: The system consists of two or three pieces that are adjusted exactly to the desired length.
- No welds or screws: The system requires no welds or screws, reducing the risks of fire and mismatch.
- Economic: is competitively priced and affordable.
- No maintenance: uses an aluminum alloy making it light in weight and resistant to corrosion.
- Self-Assembly: The industrialist does not need the intervention of other experts for the placement of the [EXTEND SYSTEM] beams. The availability of the beams in stock allows the delivery of [EXTEND SYSTEM] beams within 24/48 hours.

HOW TO USE AND APPLY

Beam under beams:

1. If necessary, propping up the slab under reinforcement for safety conditions. Location and

discovery of the deteriorated floor slabs throughout its length. Chipping of coatings in the area where the supports are located.

2. Rethinking and placement of brackets. Re-positioning and placement of the supports. The supports must be placed at least 3 cm from the lowest point of the damaged beam to have space to be able to touch up the entire beam with the controlled retraction mortar.
3. Assembling the [EXTEND SYSTEM] beam. Checking the embedment lengths of the profiles, which are at least three times the edge of the largest. Checking the correct delivery of the beam in the supports.
4. Retouching the space between the [XTEND SYSTEM] beam and the reinforced beam with controlled retraction mortar, checking that it completely fills the space between the two.

Beam between beams:

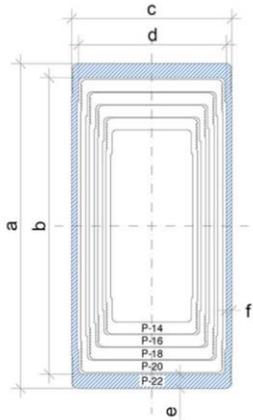
1. If necessary, propping up the slab under reinforcement for safety conditions. Location and discovery of the deteriorated ribs of the floor throughout its length. Chipping of coatings in the area where the supports are located.
2. Rethinking and placement of the supports.
3. Assembling the [EXTEND SYSTEM] beam. Checking the embedment lengths of the profiles, which are at least three times the edge of the largest. Checking the correct delivery of the beam in the supports. Omega placement on [EXTEND SYSTEM] beams.
4. Cleaning and fixing the damaged parts of the joists being worked on, eliminating the degraded areas. Placing trays under the affected beam, retouching with controlled shrinkage mortar. Positioning and levelling of the bars attached to the omegas of the [EXTEND SYSTEM] beams..

TECHNICAL CHARACTERISTICS

Extend beam

It is an extendable aluminum beam formed by tubular profiles with sides of variable thickness. It consists of two or three sections, with the largest section in the center and the other two at the ends. The connection between the

different sections is made by simply connecting the pieces together, it does not use welds or screws.



VIGA TIPO	PERFILES	
V-16	P-14	P-16
V-18	P-16	P-18
V-20	P-18	P-20
V-22	P-20	P-22

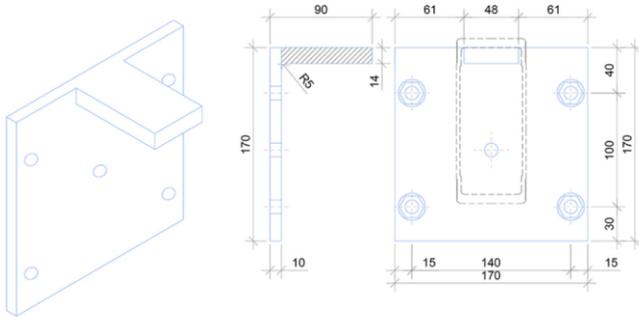
PERFILES P-14, P-16, P-18, P-20, P-22

mm.	a	b	c	d	e	f
P-14	145	129	62	53,2	8,0	3,1
P-16	162	146	73	64,2	8,0	3,2
P-18	179	163	84	75,2	8,0	3,3
P-20	197	180	95	86,5	8,5	3,5
P-22	218	199	107	98,3	9,5	3,6

TOLERANCIAS SEGUN NORMA DIN-7615

Supports

They are the aluminum pieces that are responsible for transmitting the loads from the [EXTEND] reinforcing beam to the resistant element: wall, girder, or pillar. This element is designed to transmit the minimum possible movement, since the support can be considered as a simple joint.

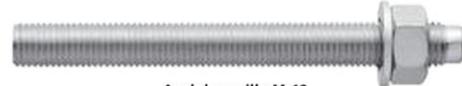


Anchors

They are fundamental pieces for the behaviour of the reinforcement since they are in charge of transmitting the loads of the beams to the walls or resistant element. They are normally made up of threaded rods and resins, or of mechanical fasteners.



Anclaje hormigón



Anclaje varilla M-12

Retouched Mortar

It is the filling element that is responsible for transmitting the loads from the floor slab to the reinforcing beams. The space between the new beam and the damaged beam is filled with mortar with hydraulic binders that do not shrink. Special mortar compatible with aluminous cement is used in the finishing of beams with aluminosis.

Mechanical and physical values of the aluminum used in the manufacture of the profiles:

- a) Specific weight: 2.700kg/m³
- b) Modulus of elasticity: 69.000 Mpa
- c) Sliding module G: 27.000 N/mm³
- d) Rm breaking load: 215 MPa
- e) Elastic limit Rp 0.2: 190 Mpa
- f) Brinell hardness (HB): 67
- g) Poisson coefficient: 0,3
- h) Coef. incr. temperature: $2,3 \times 10^{-5} \text{ mm}/(\text{mmK})$

*Alloy in AW-6063 - DIN:AlMgSi 0,5 F22

RECOMMENDATIONS AND OTHER INFORMATION

N/A

EXAMPLES

<https://www.extend-system.com/en/works/>



REFERENCES / SOURCES AND LITERATURE

<https://www.extend-system.com/en/approvals/>

<https://www.extend-system.com/en/assembly/>

<https://www.extend-system.com/wp-content/uploads/2019/12/MANUAL-DE-MONTAJE-KIT-VIGA-EXTEND-SENETON.pdf>

<https://www.youtube.com/watch?v=8Cm5lwIBB50&t=115s>

<https://www.extend-system.com/en/downloads/>

WEBSITE OF THE COMPANY

<https://www.extend-system.com/en/>



IMAGES AND CAPTIONS



Fig.1: Installer placing an Extend System's beam. ©EXTEND

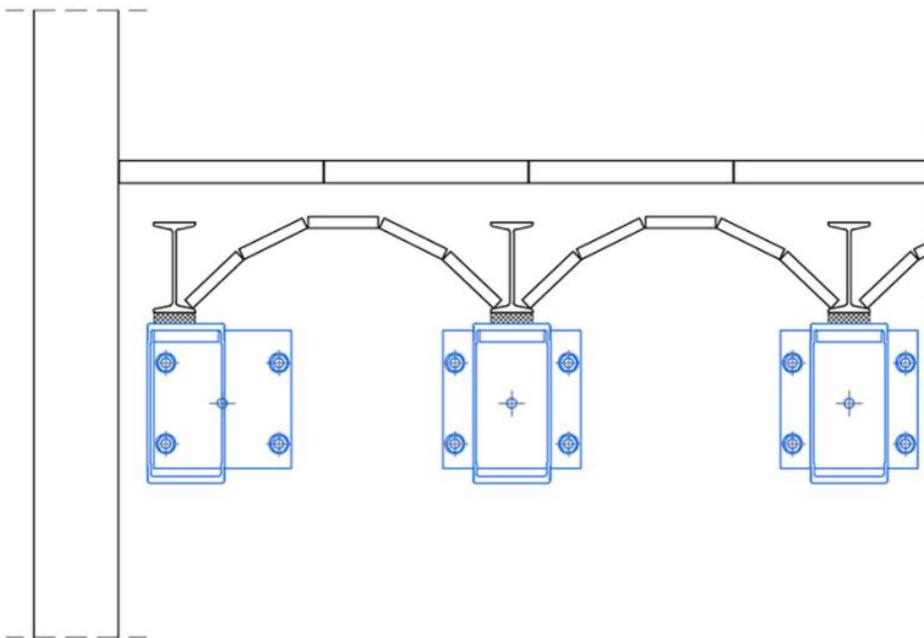


Fig.2: Detail of *beam under beams* installation. ©EXTEND

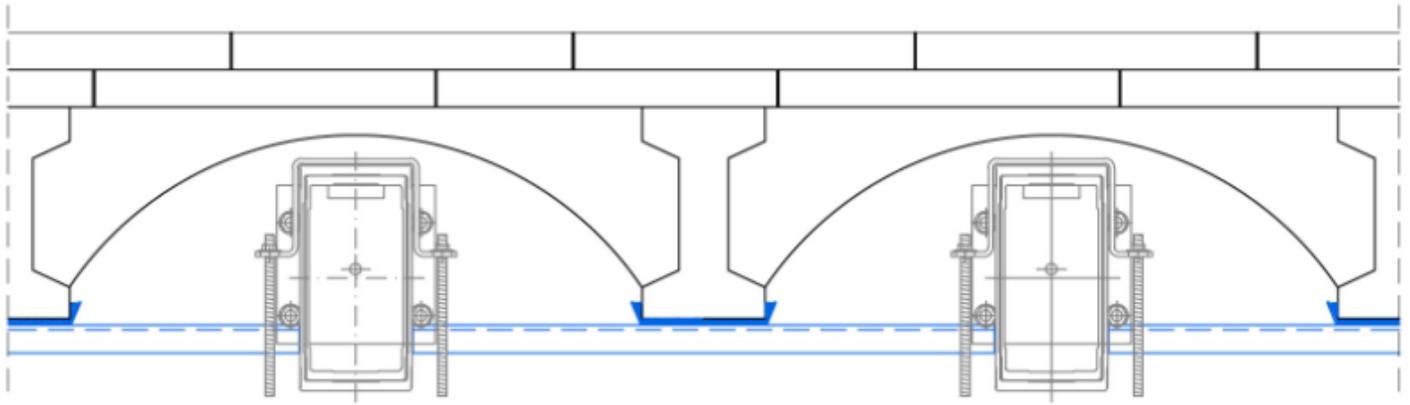


Fig.3: Detail of *beam between beams* installation. ©EXTEND

Fig.4-8: Example of an intervention in floor-slab in Granollers. ©EXTEND

