

PRODUCT DECLARATION BY THE CONCRETE ASSOCIATION OF FINLAND

TYPE 5B - EC 2 FASTENING ITEM

number
104

Representative of the fastening item in Finland:

Peikko Finland Oy
P.O. Box 104 (visiting address Voimakatu 3)
15101 LAHTI, Finland

Manufacturer of the fastening item:

Peikko Group Oy

Type and identification of the fastening item:

PPI and PDQ Connector Pins

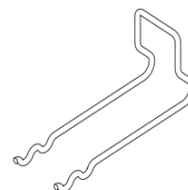
PPI 170	PPI 230	PPI 300	PPI 360	PPI 420	PDQ 170	PDQ 230	PDQ 300	PDQ 360	PDQ 420
PPI 190	PPI 250	PPI 320	PPI 380	PPI 440	PDQ 190	PDQ 250	PDQ 320	PDQ 380	PDQ 440
PPI 210	PPI 290	PPI 340	PPI 400	PPI 450	PDQ 210	PDQ 290	PDQ 340	PDQ 400	PDQ 450

Figure of the fastening item:

PPI



PDQ



Function principle of the fastening item:

Connector Pins are single connectors typically used in combination with diagonal to connect the concrete layers of sandwich walls together.

DECISION OF SUOMEN BETONIYHDISTYS R.Y. (THE CONCRETE ASSOCIATION OF FINLAND)

The Concrete Association of Finland has processed this product declaration and has approved it based on the documentation. The declaration provides sufficient explanation of the properties and matters related to the usage of the fastening item, which is intended for concrete structures, providing that planning is based on Eurocode standards and relevant national annexes.

When the fastening item is used, the product declaration should be taken into account along with the following matters:

1. A valid product declaration for the fastening item, as granted by the Concrete Association of Finland, must be available on the manufacturing site.
2. A product declaration for the fastening item, as granted by the Concrete Association of Finland, must be available on the construction site, along with the product's user manual.
3. Usage areas for the fastening item

This approval is in valid until 16.6.2025, unless before that time there is found a sound reason for revoking this decision. List of valid approvals can be seen on Internet www.betoniyhdistys.fi > Released approvals > Approvals > Approval list.

Two original copies of the approval have been made where one is stored in the Finnish Concrete Association office.

Helsinki June 29th, 2020

SUOMEN BETONIYHDISTYS R.Y. (THE CONCRETE ASSOCIATION OF FINLAND)

Matti Pentti
Chairman

Tarja Merikallio
Managing Director

The Concrete Association of Finland (BY) is an independent techno-scientific association that promotes the correct use of concrete. The Association members are active in an extensive range of concrete construction areas. The Association publishes technical instructions, maintains certification systems for people working in the field of concrete, organizes training and events for members, initiates and steers development projects and provides consultancy for bodies such as the Ministry of the Environment.

The applications for Approvals by Concrete Association of Finland (BY) are handled by the divisions of the Association where independent experts are nominated by the board of the Association. This product declaration is intended for responsible professionals in the construction sector who are able to appropriately apply the guidance provided in the product declaration on construction sites and who can understand the restrictions related to product usage while taking responsibility for applying them to their own work.

INFORMATION GIVEN BY THE PART PRODUCER OR REPRESENTATIVE:

1. Operation of the fastening item

The Connector Pins are designed to connect the inner and outer panels of sandwich wall elements during de-molding, transportation, and assembly on site. The pins connect efficiently the outer and inner panels together while being flexible for difference in panel movements caused by restraint forces. The panels are connected using pins together with diagonal ties or pins.

2. Manufacturing of the fastening item

21 Components: Bent rebar

22 Manufacturing method

Ties are produced from stainless steel rebar by bending and are mechanically cut to length.

23 Welding

No welding.

3. Metal part dimensions, tolerances, and surface treatment

31 Dimensions [mm] and weights [kg]

PDQ and PPI Connector Pin dimensions are presented in Section 1.3. in the Technical Manual. The diameter of the stainless-steel rebar used in pins is 4 mm.

32 Tolerances

Connector Pin length $\pm 5\text{mm}$

33 Surface treatment

No surface treatment.

4. Metal part material characteristics (standards, strength, composition, weldability)

Material	Standard	Strength
B600XA – 1.4301	SFS 1259	$\sigma_{0.2} \geq 600\text{N/mm}^2$

5. Metal part markings, packaging and storage

Markings: Each pile of ties is marked with the type of the product, manufacturer ID, manufacturing time and Inspecta Certification mark.

Packaging: Connector Pins are packed on standard pallets

Storage: Ties are stored outside / under a roof

6. Requirements for the concrete

- 61 Strength class and special characteristics of concrete and grouting mortar:
The anchoring of Connector Pins in the concrete requires that the concrete must be at least grade C12/15 before Lifting the element from the mold. Otherwise, the requirements of Eurocodes are to be applied.

Connecting reinforcement type	Anchoring depth (c_o, c_u) [mm]	The minimum concrete grade
PPI Connector Pin	$\geq 40/50$	$\geq C25/30$
PDQ Connector Pin	$\geq 50/40$	$\geq C25/30$

- 62 Requirements for aggregates
The aggregate quality must be in accordance with the standard SFS-EN 12620 'Aggregates for concrete'.
- 63 Minimum requirements for edge and centre distances
The prevent the element edges from warping the Connector Pins distance must be 150 mm. The pins are assembled to all areas without Diagonal Ties in both directions (crosswise) in maximum 500 mm increment or in maximum 600mm lengthwise and maximum 400 mm height wise.
- 64 Nominal concrete cover
The products are assembled to meet the requirements for designed service life, self-life, and fire protection, see also section 7.

7. Capacities (table)

The nominal anchoring resistance of the Connector Pin, anchoring depth of the wavy end ≥ 50 mm:

The minimum concrete grade in terms of anchoring	C25/30	C12/15
Characteristic value of tensile capacity N_{Rk}	7,0kN	3,5kN

8. Metal part installation

The waved end of PPI Connector Pins is pushed straight through the insulation up to the bent hook. The pin is moved back and forth to make sure the concrete will compact around the pin. The hooked loop of the pin is installed so that the mesh reinforcement bar will remain inside the pin's loop. During installation the 10 mm dimensional difference in the reinforcement must be considered. Inclined Pins must always be installed with an installing jig (wooden block with 45° angle cut), see Installation instructions (Technical Manual, attachment 1).

9. Special requirements for correct connection

In precast element production the applicable standards related to specific precast element type must be followed. On construction site the assembling must follow standard SFS-EN 13670 'Execution of concrete structures', and the complementary standard SFS 5975 as well as standard SFS-EN 1992-1-1 'Eurocode 2: Design of concrete structures', and the requirements in the National Annex of Finland. Manufacturing and properties of concrete needs to follow the standard SFS-EN 206.

10. Structural static calculations (Annex number, name and date of calculation)

11. Approval tests carried out to the Metal part: (Attachment number, institute or approval body, specification number and date)

Annex 3 Aaltolangan ankkurointikokeet: VTT BET81672, 7.12.1988

Annex 4 Koukun ankkurointikokeet: VTT BET313998, 9.12.1983

12. Manufacturer's, and representative's user manual name and release date (Annex 1)

PD - Diagonal Ties, Connection parts for Sandwich elements, 09/2015

13. Quality control

The manufacturer has a valid agreement for Quality Control with an accredited Notified Body. The Notified Body delivers the Quality Control Reports to the Concrete Association of Finland.

This Product Declaration requires an initial inspection for each manufacturing unit.

14. Other information

15. Back-up material, non-public (Annex number, material name and date)

- Annex 2 Manufacturing drawings and a list of drawings, 26.06.2015
- Annex 3 Aaltolangan ankkurointikokeet: VTT BET81672, 7.12.1988 – Wavy rebar anchoring tests
- Annex 4 Koukun ankkurointikokeet: VTT BET313998, 9.12.1983 – Hook anchoring tests
- Annex 5 List of manufacturing units, 8.6.2020

16. Annexes (Number, subject and release date)

- Annex 1 PD - Diagonal Ties, Connection parts for Sandwich elements, 09/2015

We hereby declare that the information that we have provided is correct

Lahti June 8th 2020

Signature

Name (in print) Ilkka Kaipainen Peikko Finland Oy

This product declaration can be withdrawn at the discretion of the Concrete Association of Finland. Reasons for withdrawal may include:

- The information provided when the application for the product declaration was made is shown to be erroneous
- An unreasonable decrease in quality or repeated minor decreases in quality are observed in the product subject to this product declaration