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Authorised and notified according to Article 10 of the Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products

MEMBER OF EOTA

European Technical Approval No. ETA-06/0170

(Replaces the version valid from 01.03.2007)

Trade name:	ISO-TAK Fasteners
Holder of approval:	SFS Intec AB Olivehällsvägen 10 SE – 645 42 Strängnäs Sweden
Generic type and use of construction product:	Fasteners for mechanically fastened flexible roof waterproofing systems
Valid from: to:	24.02.2012 24.02.2017
Manufacturing plant:	SFS Intec AB Olivehällsvägen 10 SE – 645 42 Strängnäs Sweden
This European Technical Approval contains:	13 pages including 2 Annexes which form an integral part of the document

I LEGAL BASIS AND GENERAL CONDITIONS

1 This European Technical Approval is issued by SINTEF Building and Infrastructure in the following called SINTEF, in accordance with:

- Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products[1], modified by the Council Directive 93/68/EEC[2] and Regulation (EC) Nº 1882/2003 of the European Parliament and of the Council[3]
- Common Procedural Rules for Requesting, Preparing and the Granting of European technical approvals set out in the Annex of Commision Decision 94/23/EC[4].
- ETA Guideline No. 006 edition 2000 for Systems of mechanically fastened flexible roof waterproofing membranes, paragraph 2.2 iii.

2 SINTEF is authorised to check whether the provisions of this European Technical Approval are met. Checking may take place in the manufacturing plant. Nevertheless, the responsibility for the conformity of the products to the European Technical Approval and for their fitness for the intended use remains with the holder of the European Technical Approval.

3 This European Technical Approval is not to be transferred to manufacturers or agents of manufacturers other than those indicated on page 1 of this European Technical Approval.

4 This European Technical Approval may be withdrawn by SINTEF in particular pursuant to information by the Commission according to Article 5(1) of Council Directive 89/106/EEC.

5 Reproduction of this European Technical Approval including transmission by electronic means shall be in full. However, partial reproduction can be made with the written consent of SINTEF. In this case partial reproduction has to be designated as such. Texts and drawings of advertising brochures shall not contradict or misuse the European Technical Approval.

6 The European Technical Approval is issued by the approval body in its official language. This version corresponds fully to the version circulated in EOTA. Translations into other languages have to be designated as such.

[1] Official Journal of the European Communities N° L40, 11.2.1989, p. 12
[2] Official Journal of the European Communities N° L 220, 30.08.1993, p. 1
[3] Official Journal of the European Union N° L 284, 31.10.2003, p. 1
[4] Official Journal of the European Communities N° L17, 20.1.1994, p. 34

II SPECIFIC CONDITIONS OF THE EUROPEAN TECHNICAL APPROVAL

1 Definition of the fasteners and intended use

1.1 Definition of the product

ISO-TAK Fasteners are mechanically fasteners for use in flexible roof waterproofing membrane systems as defined in ETA Guideline 006. The range of fasteners consists of washers, washers with integrated sleeve, screws and plugs as illustrated in Annex 1.

The fasteners are put on the market separately from the other components of roof waterproofing membrane kits. This ETA covers only the performance characteristics of the ISO-TAK Fasteners. A separate ETA according to ETAG 006 is necessary in order to cover an entire kit for mechanically fastened roof waterproofing membranes.

1.2 Intended use

1.2.1 General

The fasteners may be used on all types of flexible membranes. The supporting roof structure may be of profiled steel decks, concrete, light weight concrete, or a wood based construction, and ISO-TAK Fasteners may be used with membranes installed directly on insulation materials as underlay.

1.2.2 Assumed working life

The provisions made in this European Technical Approval are based on an assumed intended working life of 10 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

2 Characteristics of the product and methods of verification

2.1 Mechanical resistance and stability (ER1)

Not relevant.

2.2 Safety in case of fire (ER2)

No performance determined. The influence of the fasteners on the fire performance of roof waterproofing kits is determined by other components.

2.3 Hygiene, health and environment (ER3)

According to the manufacturer's declaration the screws and washers with a protection film contain a minor remaining quantity of chromium compounds. Otherwise the products do not contain any dangerous substances according to the EU's database[5].

[5] In addition to the specific clauses relating to dangerous substances contained in this European Technical Approval, there may be other requirements applicable to the product falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the EU Construction Products Directive, these requirements need also to be complied with, when and where they apply.

2.4 Safety in use (ER4)

The fasteners have been subjected to wind uplift tests according to ETA Guideline 006, edition March 2000. Axial pull out performance from substrates and resistance to unwinding are shown in Annex 2. The wind uplift performance of roof waterproofing kits is mainly determined by the roofing membranes. Totally 43 tests have been executed with different combination of membranes, washers, washers with integrated sleeve and screws. Test results of specific kits may be obtained from the ETA holder.

2.5 Aspects of durability

The plastic fasteners with polypropylene and polyamide satisfy the aspects of durability according to ETAG 006 ch. 5.3.7.2, see Annex 2. The ISO-TAK washers with integrated sleeve made of polypropylene and polyamide has an acceptable resistance to brittleness according to ETAG 006 ch. 5.3.4.3.

All metallic fasteners have a protection of Enduroguard 15®, except BN-RF nails which are made of 304/A2 grade stainless steel. Enduroguard 15® is a protection method which satisfy ETAG 006 ch. 5.3.7.1. All ISO-TAK metal plates have a Sendizimir zink 275 g/m^2 protection which also satisfy ETAG 006 ch. 5.3.7.1. See Annex 2.

2.6 Identification

The characteristic values of detailed product dimensions and respective tolerances are stated in the manufacturer's technical dossier and form a part of the control plan for the factory production control.

3 Evaluation of Conformity and CE marking

3.1 Attestation of Conformity System

According to Decision 98/143/EC by the European Commission the system 2+ of attestation of conformity applies. This system of attestation of conformity is defined as follows:

(a) Tasks of the manufacturer:
- Factory production control;
- Initial type testing of the product;
- testing of samples taken at the factory in accordance with a prescribed test plan

(b) Tasks of the notified body: certification of factory production control on the basis of:
- Initial inspection of the factory and factory production control (FPC);
- Continuous surveillance, assessment and approval of factory production control.

3.2 Responsibilities

3.2.1 Tasks of the manufacturers

Factory production control

The manufacturer shall exercise permanent internal control of the production. All the elements, requirements and provisions adopted by the manufacturers shall be documented in a systematic manner in the form of written policies , procedures and a control plan, including records of results performed. This production control system shall ensure that the products are in conformity with this European technical approval. The factory production control includes checking of incoming materials and process controls.

The manufacturer shall use raw materials or components that comply with the specifications in the control plan. The results of the factory production control shall be recorded and evaluated. The records shall include at least the following information:
- Name of the product and the raw materials
- Type of inspection or control
- Date of manufacture, batch number, and date of inspection or control of the product
- Results of inspections or controls and, as far as applicable, comparison with requirements
- Signature of the person responsible for factory production control

The records shall be kept for at least five years. Further information concerning tests, their frequency and tolerances, is included in the control plan which is deposited at SINTEF.

Initial type-testing of the product
Approval tests have been conducted by SINTEF and other approved institutes in Europe in accordance with ETA Guideline N° 006 . SINTEF has assessed the results of these tests in accordance with ETAG 006 ch. 6, and the product characteristics determined by the initial test programme have been found acceptable to serve as initial type-testing.
Otherwise the necessary initial type-testing shall be carried out according to the provisions of the control plan and observance of the required property values shall be ascertained by the notified body.
After changing the production process or starting the production in another manufacturing plant the initial type-testing shall be repeated.

Other tasks of the manufacturer
The manufacturer shall, on the basis of a contract, involve a body/bodies which is/are notified for the tasks referred to in section 3.1 in the field of the product in order to undertake the actions laid down in section 3.2.2. For this purpose, the control plan referred to in section 3.2.2 shall be handed over by the manufacturer to the notified body/bodies involved.
The manufacturer shall make a declaration of conformity, stating that the product is in conformity with the provisions of this ETA.

3.2.2 Tasks of notified bodies
Initial inspection of factory and factory production control
SINTEF has performed initial factory inspection as approval body, and ascertains that the manufacturers has acceptable premises, technical equipment, qualified personnel and a factory production control system with a control plan in accordance with the provisions in ETA Guideline 006 and in this ETA. This inspection may serve as initial factory inspection.

Continuous surveillance, assessment and approval of factory production control
The notified body shall perform continuous surveillance and assessment of the manufacturer's factory production control, and confirm that the controls are made in conformity with the established control plans approved by SINTEF.
The notified body shall issue an EC certificate of conformity of the factory production control stating the conformity with the provisions of this European technical approval. In cases where the provisions of the European technical approval and its Control Plan are no longer fulfilled the certification body shall withdraw the certificate of conformity and inform SINTEF without delay.

3.3 CE marking

The CE mark shall be affixed to the components , an attached label, the packaging, or the accompanying commercial documents. The symbol “CE” shall be followed by the following additional information:

- name and address or identifying mark of the manufacturer
- last two digits of the year in which the CE marking was affixed
- number of the EC certificate for the factory production control
- number of the European Technical Approval
- ETAG 006

4 Assumptions under which the fitness of the product for the intended use was favourably assessed

4.1 Manufacturing

The European technical approval is issued for the product on the basis of agreed data/information, deposited with SINTEF, which identifies the product that has been assessed and judged. Changes to the product or production process, which could result in this deposited data/information being incorrect, should be notified to SINTEF before the changes are introduced. SINTEF will decide whether or not such changes affect the ETA and consequently the validity of the CE marking on the basis of the ETA, and if so whether further assessment or alterations to the ETA shall be necessary.

4.2 Installation and design

General

The fasteners must be installed according to the manufacturers’ instructions. It is the manufacturer’s responsibility to provide correct information about the application of the products to the users.

Fastening with steel washers may be used in longitudinal overlap joints on stiff underlays, i.e. on wood-based roof sheathing or on concrete.

Plastic fasteners with integrated sleeve are recommended on underlays of thermal insulation materials.The insulation material should have a compressive stress ≥ 60 kPa at 10% deformation according to EN 826.

If there is doubt about the suitability of the substrate, e.g. on a construction site, a pullout test on site should be performed to verify the performance of the fastener (see Annex D of ETAG 006). Furthermore, care should be taken during design to ensure that bimetallic corrosion between metal parts, especially between substrate and screw, does not occur. Likewise, use of insulation materials containing substances which can affect the performance of the fasteners must be avoided.

Fastening in wood

Minimum thickness for timber decking is 18 mm. For timber deck applications a site pull out test is recommended.

Fastening in concrete

When fixing ISO-TAK concrete nails and screws the drill hole diameter must be 5 mm. The drill hole depth should be 30 mm, unless special precautions are taken regarding installation control and inspection. Minimum anchorage depth shall be 20 mm. Fixings in 50 mm thick concrete without penetration requires precise length/depth control.

Fastening in light weight concrete
When fixing ISO-TAK Light Weight Concrete Expansion Plug 45 and 75 in aerated concrete the drill hole diameter must be 15 mm, and the minimum depth 65 mm.

When fixing ISO-TAK Light Weight Concrete Screw LBS 8 mm the anchorage depth must be minimum 75 mm.

Fastening in metal decks
Loadbearing decks made of profiled steel sheets shall have a minimum thickness of 0.7 mm. In particularly exposed areas the recommended minimum thickness is 0.8 mm for fixing roofing membranes to the steel decks.

5 Indications to the manufacturer

5.1 Packaging, transport and storage

The fasteners shall be handled and stored with care and be protected from accidental damage.

5.2 Use, maintenance, repair

It is the responsibility of the manufacturer to ensure that proper information for the use of the ISO-TAK Fasteners is available at each delivery, including general guidance on the basis of this ETA. The assessment of the fitness for use is based on the assumption that a normal maintenance of the fasteners is performed. Further details about maintenance is stated in the manufacturer's installation guide.

On behalf of
SINTEF Building and Infrastructure
Oslo, 24.02.2012

Tore H. Erichsen
Approval Manager

Annex 1
Description of ISO-TAK Fasteners

Fastener type	Fig. no., see following pages	Function	Material
ISO-TAK 45 and 75	1	Fastening plug	Polypropylene
ISO-TAK 45 and 75 LB	2	Fastening plug	Polypropylene
ISO-TAK RP 45 Plus ISO-TAK RP 75 Plus	24	Fastening plug	Polypropylene
ISO-TAK Twin Peak	3	Fastening plug	Polypropylene
ISO-TAK Plus 48-3N	5	Fastening plug	Polypropylene
ISO-TAK Twin Peak Plus	4	Fastening plug	Polyamid
ISO-TAK PP-45 – Mast	20	Barbed plate	Polyamid
ISO-TAK 40 Metal – Stress plate	6	Washer	Steel
ISO-TAK Washer SP-A-8240 D1& D2	7	Washer	Steel
ISO-TAK Washer SP-A-8240 D4	8	Washer with studs	Steel
ISO-TAK Concrete Nail Ø 5.5mm	9	Nail	Stainless steel
ISO-TAK Concrete Nail Ø 5.0/5.7mm	10	Nail	Stainless steel
ISO-TAK Concrete Screw Plug 7.5 x 100mm	11	Screw plug	Stainless steel
ISO-TAK CS-6.1	12	Concrete screw	Stainless steel
ISO-TAK LBS-8	13	Light weight concrete screw	Steel with corrosion protection
ISO-TAK BSP 8-50	14	Fastening plug	Polyamid
ISO-TAK PS 48 – Ø 4.8mm	15	Steel deck screw	Steel with corrosion protection
ISO-TAK BS 48 – Ø 4.8mm	16	Steel deck screw	Steel with corrosion protection
ISO-TAK DS 48 – Ø 4.8mm	17	Steel deck screw	Steel with corrosion protection
ISO-TAK BS 55 – Ø 5.5mm	18	Steel deck screw	Steel with corrosion protection
ISO-TAK BS 61 – Ø 6.1mm	19	Steel deck screw	Steel with corrosion protection
ISO-TAK TS – 5.2	21	Timber deck screw	Steel with corrosion protection
ISO-TAK CP 50-8	22	Concrete plug	Polyamid
ISO-TAK LBS-6	23	Light weight concrete screw	Steel with corrosion protection
ISO – TAK HD - 6.1	25	Screw for steel, concrete and woodbased decks	Steel with corrosion protection

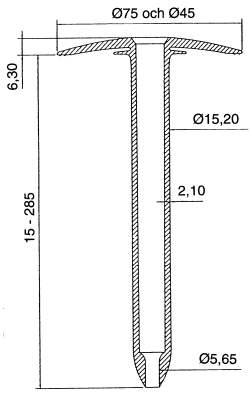

Fig.1
ISO-TAK 45 and 75
Fastening Plug

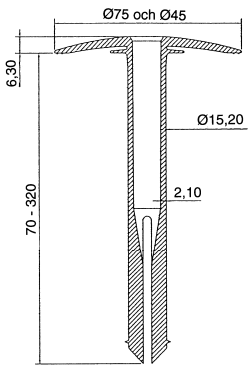

Fig. 2
ISO-TAK LB 45 and 75
Light Weight Concrete
Expansion Plug

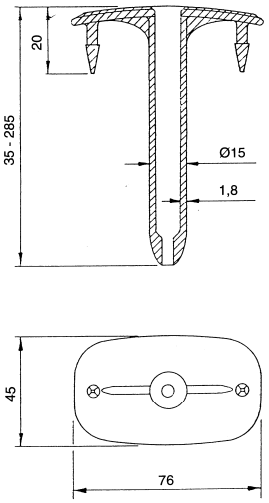

Fig. 3
ISO-TAK Twin Peak
Fastening Plug

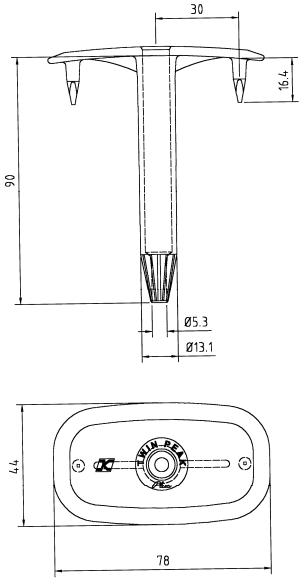

Fig. 4
ISO-TAK Twin Peak Plus
Fastening Plug

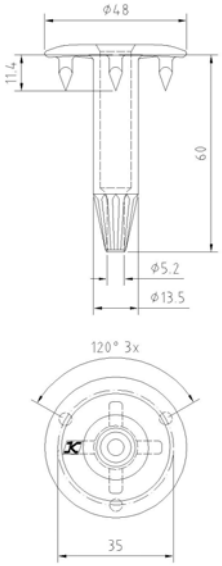

Fig 5
ISO-TAK Plus 48-3N
Fastening Plug with
three studs

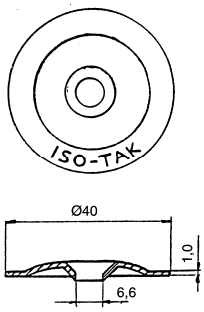

Fig. 6
ISO-TAK 40
Metal –Stress
Plate

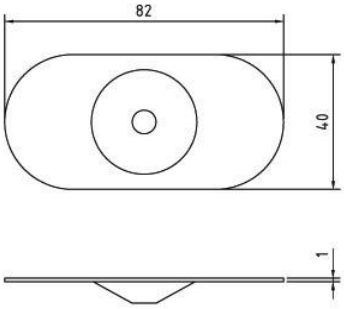

Fig. 7
ISO-TAK Washer 82 x 40 mm
SP-A-8240 D1 & D2

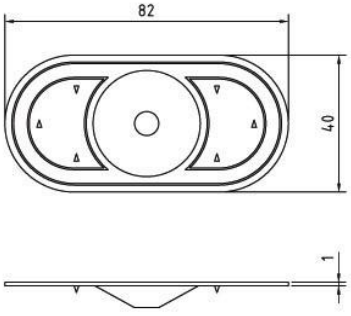

Fig. 8
ISO-TAK Washer 82x40 mm
SPB-8240 D4, with studs

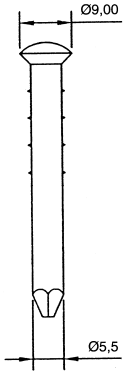

Fig. 9
ISO-TAK Concrete
Nail Ø 5,5 mm

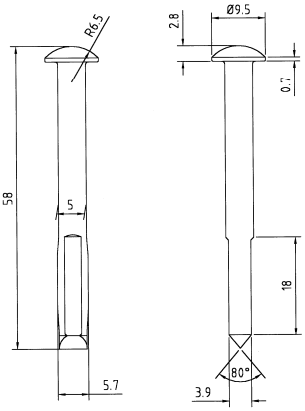

Fig. 10
ISO-TAK Concrete Nail
Ø 5,0 / 5,7 mm

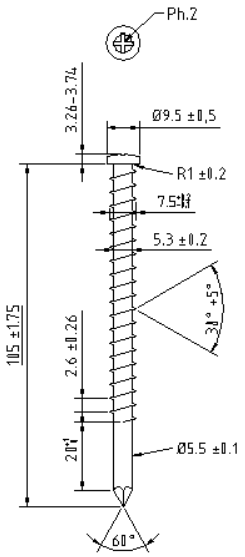

Fig. 11
I ISO-TAK Concrete Nail-Screw
Screw Plug 7,5 x 105 mm adjustable fastener

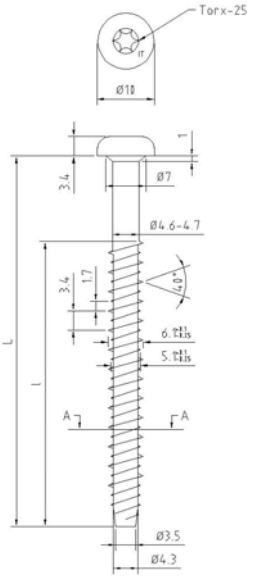

Fig. 12
ISO-TAK Concrete Screw CS-6.1

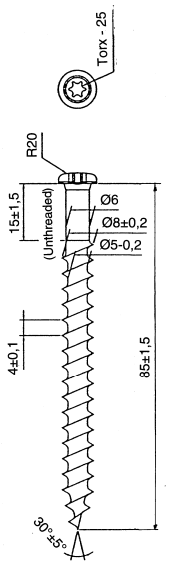

Fig. 13
ISO-TAK Light Weight Concrete Screw LBS-8, steel SAE 1018, with Endurogard 15® corrosion protection

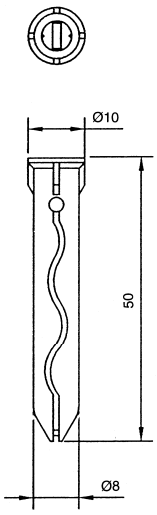

Fig. 14
ISO-TAK BSP 8-50, Polyamid

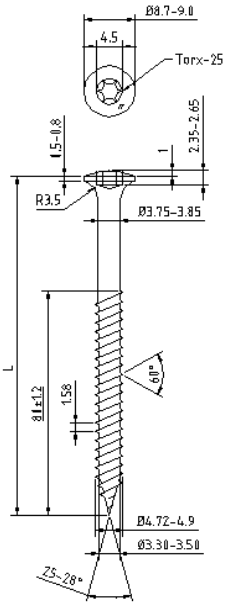

Fig.15
ISO-TAK Steel Deck Screw PS 48 - Ø 4,8 mm, tempered steel SHE 1018, normal point, trumpet head, and Torx-25 countersunk hexagon head

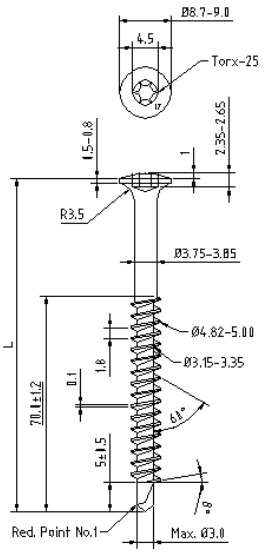

Fig. 16
ISO-TAK Steel Deck Screw BS 48 - Ø 4,8 mm, tempered steel SHE 1022, drill point, trumpet head, and Torx-25 countersunk hexagon head

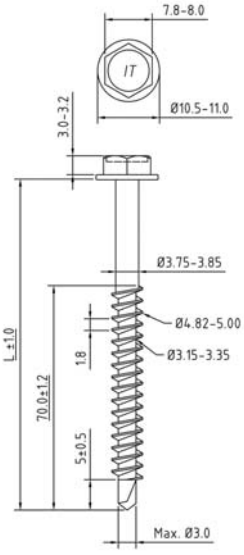

Fig. 17
ISO-TAK Steel Deck Screw DB 48 - Ø 4,8 mm, tempered steel SHE 1022, drill point, hexagon head

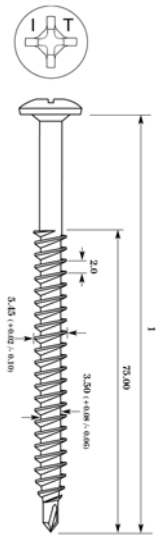

Fig. 18
ISO-TAK Steel Deck Screw BS 55 – Ø 5,5 mm, tempered steel SHE 1022, drill point, trumpet head, Ph 3 cross-head

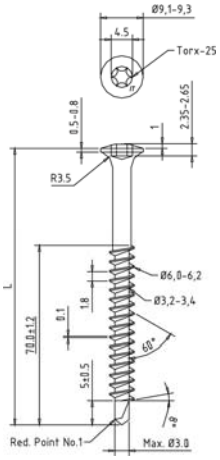

Fig. 19
ISO-TAK screw BS61 – Ø 6,1 mm, tempered steel SHE 1022 with drill point and trumpet head

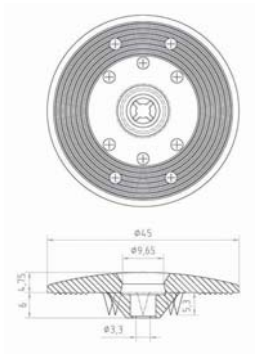

Fig. 20
ISO-TAK PP-45 – Mast 45 mm barbed plate made of polyamid

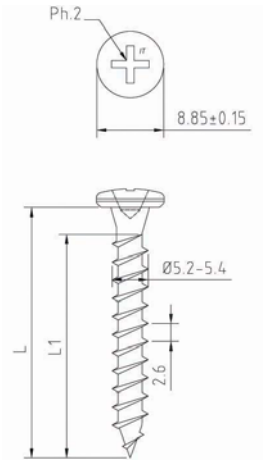

Fig. 21
ISO-TAK TS – 5.2 fasteners for fastening to timber decking

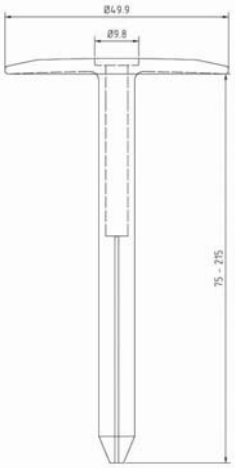

Fig. 22
ISO-TAK Concrete Fastener CP 50-8

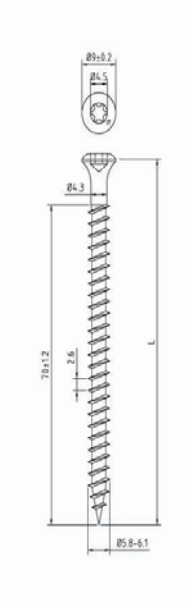

Fig. 23
ISO-TAK Light-weigth concrete screw LBS-6 steel SAE 1018, with Endurogard 15® corrosion protection

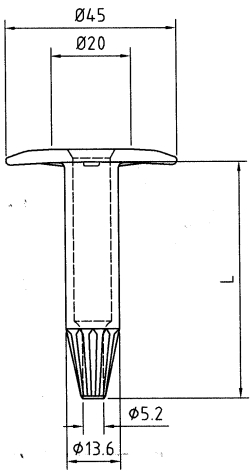

Fig.24
ISO-TAK RP 45 and 75 Plus Fastening Plug

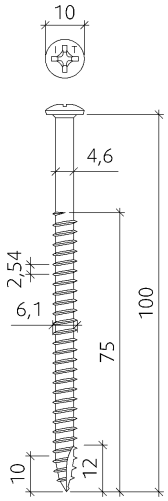

Fig. 25
ISO-TAK HD – 6.1 Screw for fastening in concrete, steel- and timber decks

Annex 2
Performance of ISO-TAK Fasteners

Fastener	Substrate	Axial pull out load ETAG 006 § 5.3.4.1	Durability ETAG 006 §§ 5.3.7.1 and 5.3.7.2
Profiled metal decking substrate [1)]			
ISO-TAK PS-4.8	Steel 0.7mm	1330 N	Pass
ISO-TAK BS-4.8	Steel 0.7mm	1200 N	
ISO-TAK DB(T)-4.8	Steel 0.8mm	1280 N	
ISO-TAK BS-5.5	Steel 0.7mm	1350 N	
ISO-TAK BS-6.1	Steel 0.7mm	1920 N	
ISO-TAK BS-6.1 [1)]	Steel 1.25mm	4140 N	
ISO-TAK HD-6.1	Steel 0.8mm	1590 N	
Concrete substrate [5)]			
ISO-TAK HD-6.1	C25 - C30	8260 N	Pass
ISO-TAK BNRF-5.0/5.7	C55 - C67	2490 N	Stainless A-2
ISO-TAK ASRF-7.5	C55 - C67	1890 N	
ISO-TAK CS-6.1	C55 - C67	2160 N	Pass
ISO-TAK CP-50/8 (polyamid)	C25 - C30	1750 N	
ISO-TAK BSP+PS-4.8 (polyamid)	C55 - C67	4930 N	
Light weight concrete substrate [5)]			
ISO-TAK LBS-6.0	Ytong ™ [2)] Density 600 kg/m^3	2360 N	Pass
ISO-TAK LBS-8.0	Scanpor ™ [2)] Density 500 kg/m^3	2100 N	
ISO-TAK BSP+PS-4.8	Leca Tag-element™ [3)]	2900 N	
ISO-TAK LB (polypropylene)	Siporex ™ [2)] Density 500 kg/m^3	1570 N	
ISO-TAK LB (polypropylene)	Siporex ™ [2)] Density 450 kg/m^3	1370 N	
Wood substrate			
ISO-TAK HD-6.1	18 mm OSB/3 [4)]	1590 N	Pass
ISO-TAK TS-5.2	18 mm OSB/3 [4)]	2000 N	

1) Steel sheets, galvanised, min S280 according to EN 10147
2) Autoclaved aerated concrete units according to EN 771-4
3) Deck elements made of light expanded clay aggregates. Density of the fastening layer is 1500 kg/m^3
4) OSB boards type 3 according to EN 300
5) See clause 4.3 regarding drill hole diameter and depth

Washers		
Product	**Mechanical resistance before and after heat ageing ETAG 006 §§5.3.4.3 and 5.3.7.2**	**Durability ETAG 006 §§ 5.3.7.1**
ISO-TAK 45 and 75 (polypropylene)	Pass/Pass	Not relevant
ISO-TAK Twin Peak plus (polyamide)		
ISO-TAK RP 45 and 75 Plus (polypropylene)		
ISO TAK PP-45 -Mast (polyamide)		
ISO TAK Twin Peak standard (polypropylene)		
ISO-TAK 40 Metal stress plate	Not relevant	Pass
ISO-TAK SP-A-8240 D1 & D2		
ISO-TAK SPB-8240 D4 with studs		