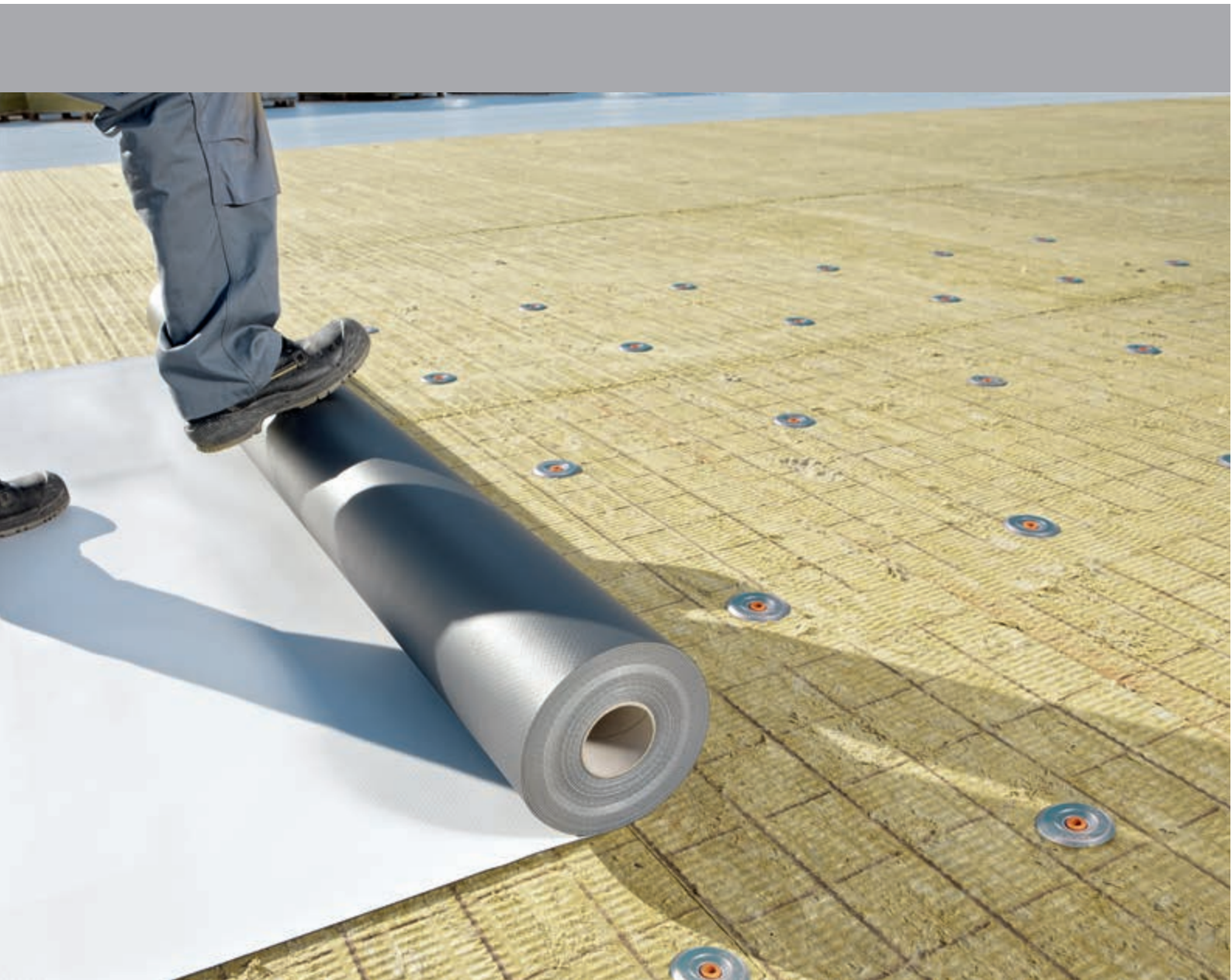


Flat Roofing

Fastening systems, tools & accessories





SFS intec Contact Details



Choose your preferred contact route



Post

SFS Group Fastening Technology
Limited
Division Construction
153 Kirkstall Road
Leeds
LS4 2AT, UK



Phone

Customer Services
+44 (0) 113 2085 500

Technical Helpline
+44 (0) 113 2085 510



Online

Web
www.sfsintec.co.uk

Email
uk.info@sfsintec.biz



SFS intec Customer Solutions

Local presence linked to an international network



SFS intec

SFS intec is the UK's leading manufacturer of fasteners for the construction industry. Fasteners have been manufactured at the UK site in Leeds for over 100 years. The production and logistics facility is unrivalled in the UK industry.

SFS intec offers engineered, application-optimised fasteners that meet the modern demands of the construction industry. Backed by the extensive resources of a successful international group, SFS intec offers architects, designers, consulting

engineers and contractors a proven commitment to product quality, innovation, sound technical solutions and efficient service. The company has in-depth knowledge gained from working on many UK and international construction projects with the world's leading architects, OEM's and contractors.

SFS intec is an active member of the following UK trade associations:



SFS intec is able to exchange know-how amongst a vast international network of industry specialists and thereby seek out bespoke, quality solutions for its customers.





Start to finish solutions Fast, simple, faultless



ePullout

Profit from an online management platform!

Pullout requests and reporting handled with an online management platform

- Smooth and transparent process
- Fast, efficient reporting - To all interested parties
- Reports include roof / wall plan and photographs

Calculation Service

Technical assistance with your quotations!

Wind load calculation and testing service

- BS EN 1991-1-4 & FM calculations undertaken
- Fastener layout and take-off service
- In house product testing
- Fully accredited wind load testing service

Technical Helpline 0113 2085 510
email: gb_technical@sfsintec.biz

Mobile Training Academy

Profit from knowledge!

Product and technical training for back-office staff

- A unique training experience at your office
- "Hands-on" tooling demonstrations
- Avoid potential site problems
- Discover easy, fast and cost effective solutions

The Tech Team

Save cost with the most effective solution!

- Specialist site application technicians
- Office based technical support
- Site toolbox training support service
- Web-based podcasts

Technical Helpline 0113 2085 510
Email: gb_technical@sfsintec.biz



The latest technology **Delivering enhanced customer service**



ePost

Receive your documents immediately!

Electronic mailing of order acknowledgment, delivery note and invoice.

- Real-time information
- Information transmitted directly to the person responsible
- Paperless filing possible



SMS Service

Delivering confidence!

SMS Notifications of deliveries to the construction site

- High degree of transparency regarding deliveries
- No more missed deliveries
- Less time-wasting, no standstills on the construction site



ePortal Track and Trace

Information at your fingertips!

Orders and all related documents are accessible at all times, including delivery status and delivery confirmation.

- Full Transparency
- Information available at any time or place
- Accessibility for all defined users



Tool Hire Service

Save costs, improve efficiency

Hire service for isoweld induction welding and TPR-L Peel rivet tooling

- Speeds up site installation
- Long and short term hire
- Site demonstration and training provision



Quality you can depend on A network of quality-certified plants



Assured quality – fast delivery

We never compromise when it comes to our application-optimised fasteners. Our trained specialists throughout the supply chain are there to ensure quality in every aspect of our products and services.

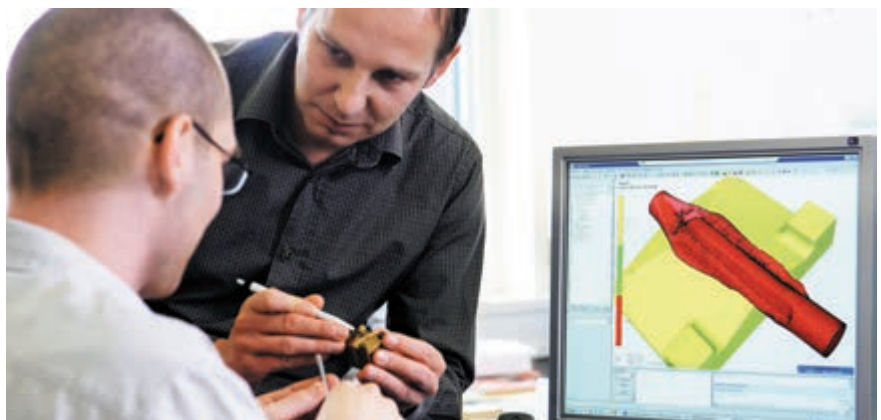
Every SFS intec site has its own accreditation to ISO 9001 quality management standard. Moreover, a complete network of manufacturing and logistics support centres means maximum product availability.

Our main manufacturing plant has gained the ISO 14001 environmental standard along with VDA No6. From production through to packaging, we do not just aim to meet quality, environmental and safety requirements - we work to exceed them.



SFS intec business partners profit from:

- Certified quality from our own production plants
- Fast, efficient product availability from an international manufacturing and logistics network
- Flexible responses to individual needs that only the original manufacturer can truly provide





Technical support to find the right fastener solution **Simple, efficient specification assistance at every stage of the project**



Specification assistance from SFS intec:

- Technical Helpline 0113 2085 510
- Technical Advisors - office or on-site
- CPD Seminars
- Prescriptive specifications (projects)
- Staff training - at your place of work or on-site



Talking to the fastening technology specialists

Whatever the phase of your project, SFS intec can offer assistance to determine the appropriate specification. Solutions will be to the individual product requirements and provide for long term security, functionality and real aesthetic appeal.

Use our expertise to ensure that important specification issues such as corrosion risk and air tightness are fully addressed. Also to make certain that your fasteners have a meaningful warranty.

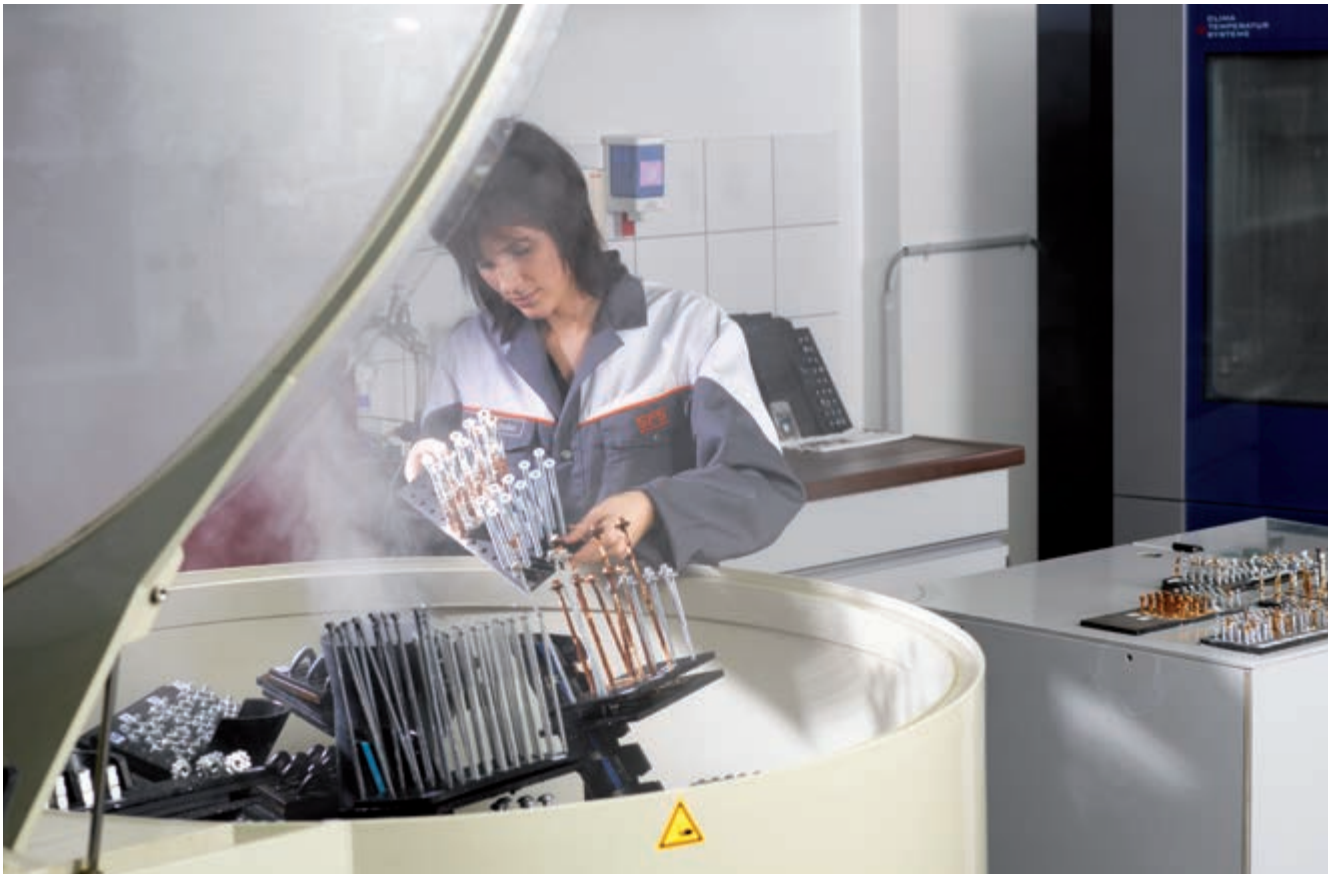
SFS intec offer RIBA accredited CPD technical seminars. Further details are available at www.sfsintec.co.uk

SFS intec austenitic stainless steel products are listed within NBS Plus.





Reliable performance:
Tested in-house, confirmed on site.



SFS intec fastening systems are checked for:

- Long-term behaviour under static and dynamic loading
- Corrosion resistance
- Ease-of-use and perfect functioning on site
- Fulfilment of approval authority requirements
- Continuous production controls



Future-focused fastening systems

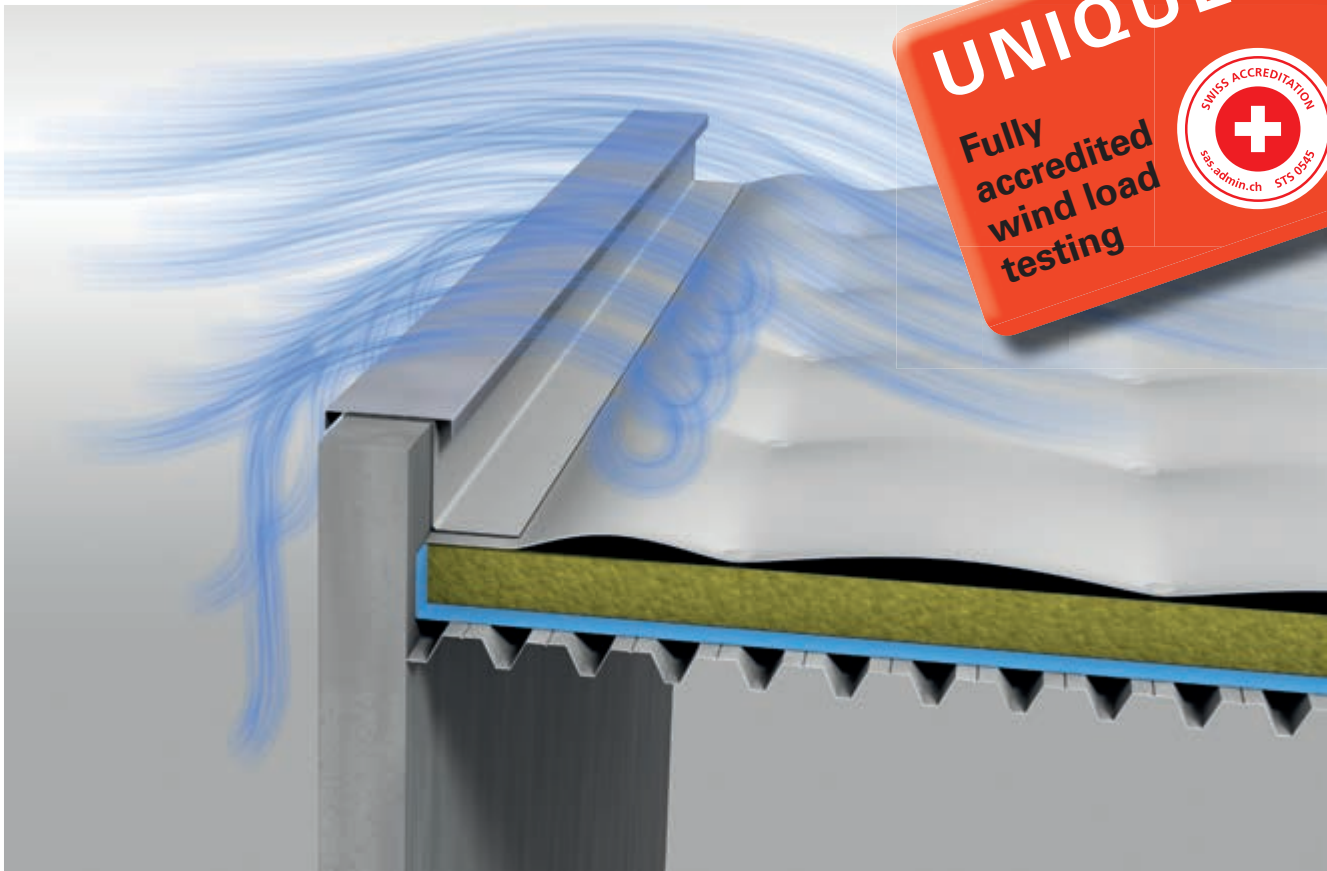
Are the fasteners up to the anticipated static and dynamic loads? Is the fastener seal secure for life? Will wind forces be safely transmitted to the sub-structure? Such questions confront SFS intec experts day by day.

New solutions are extensively tested in our own in-house laboratories to see how they will perform in practice. One key aspect lies in meeting the requirements of a diverse range of approval authorities. Working hand-in-glove with leading manufacturers of roofing systems, structural components and insulation systems, whilst carrying out our own primary research, we at SFS intec have spearheaded numerous trends in modern fastener development.





Accredited security: New wind uplift test facility



Wind uplift testing according to ETAG 006

For more than 30 years SFS intec has been undertaking research and development on flat roofing systems using its in-house wind uplift test facility. This has now been replaced by a brand new facility, which offers special features and includes the latest advanced technology.

The wind uplift test facility enables testing to be undertaken in full accordance with the requirements of European Technical Approval Guideline ETAG 006 and European Standard EN 16002. Since October 2015 test procedures have been fully accredited by the Swiss Accreditation Service SAS (STS 0545). This ensures the quality and security of each and every fastening system tested.



Key features of the new wind uplift test facility:

- Fully accredited wind load testing
- Optimised facility size
- Latest technology allows for precise, step-less, flexible control settings
- Comprehensive documentation



1

Flat roof

Application Index

2

Flat roof

Product index

3

Flat roof fastening systems
for steel deck

■ Carbon steel

isotak[®]
BS-4,8 / R45, BS-4,8 / R75
BS-4,8 / ST

isofast[®]
IR2-4,8, IR2-C-4,8
IF2-5,5, IF2-6,1

isoweld[®]
BS-6,1 / FI-P
BS,6,1 / FI-P / FI-R-20

● Stainless steel

BS-S-4,8 / R45
BS-S-4,8 / R75

IR2-S

BS-S-4,8 / FI-P
BS-S-4,8 / FI-P /
FI-R-20

4

Flat roof fastening systems
for concrete deck

■ Carbon steel

DT / R45
TI-T25 / R45 / R75 / ST
TIA / R45 / R75 / STDT
TI
IF2-6,1TI-T25 / FI-P
TI-T25 / FI-P / FI-R-20
TIA / FI-P / FI-R-20

● Stainless steel

TI-S-Z10 / R45
TI-S-Z10 / R75

5

Flat roof fastening systems
for timber deck

■ Carbon steel

TS-T25 / R45 / R75 / ST

IF2-6,1
IWFIWF / FI-P
TS-T25 / FI-P
TS-T25 / FI-P / FI-R-20

● Stainless steel

IW-S

6

Flat roof fastening systems
for critical decks

▲ Aluminium

TPR-L

TPR-L / FI-P

7

Fastening of flashings, upstands
and termination bars

■ Carbon steel

BS-4,8 / SH18/65
TI-T25 / SH18/65
TS-T25 / SH18/65IF2-6,1
IR2-C
DT
MNA

● Stainless steel

BS-S-4,8 / SH18/65
TI-S-Z10 / SH18/65MNA-S
Stainless steel
banding

8

Fastening metal deck to steel and
timber structures

■ Carbon steel

SD, SD-H15, SL2, SL2-H15, SL3-H15

● Stainless steel

SX, SXW, SL2-S

9

Tools and accessories

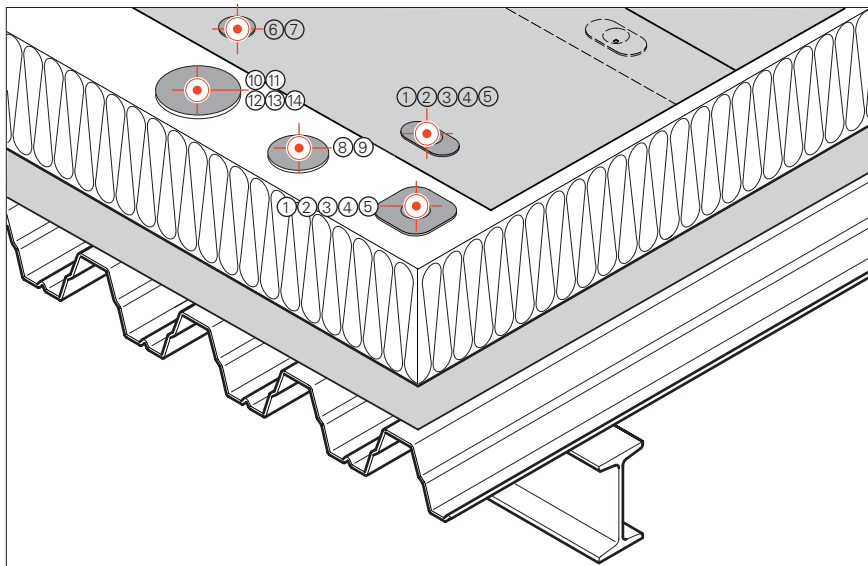
Various tools and accessories for *isotak*[®], *isofast*[®] and *isoweld*[®]
Including: *isotak*[®] 260, *isotak*[®] IT-19, IP50-B, RM-20, DI-650,
isoweld[®] 3000, *isoweld*[®] tooling, setting tools
ZVK drills, SDS drills and HSS

1 Application index

1

Flat roof fastening systems

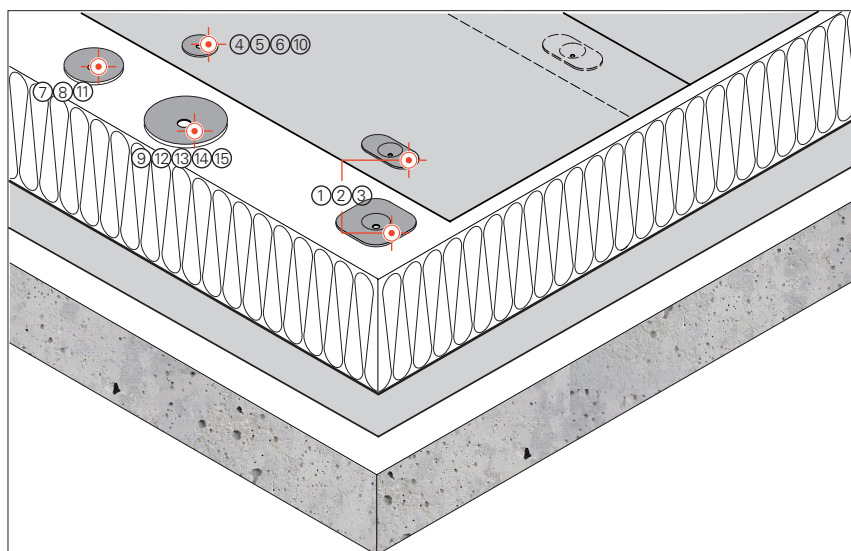
Steel deck



Pos. No.	Fastener	Plate	Sleeve	Page
isofast®				
1	IR2 ■	IF-70x70 ■ IR-82x40 ■		3.17
2	IR2-S ●	IF-70x70 ■ IR-82x40 ■		3.19
3	IR2-C ■	IRC/W-82x40 ■		3.21
4	IF2-5,5 ■	ID-70x70 ■ IRD-82x40 ■		3.23
5	IF2-6,1 ■	ID-70x70 ■ IRD-82x40 ■		3.25
isotak®				
6	BS-4,8 ■		R45 ●	3.3
7	BS-S-4,8 ●		R45 ●	3.5
8	BS-4,8 ■		R75 ●	3.8
9	BS-S-4,8 ●		R75 ●	3.10
10	BS-4,8 ■		ST ●	3.13
isoweld®				
11	BS-6,1 ■	FI-P-6,8 ■		3.28
12	BS-S-4,8 ●	FI-P-6,8 ■		3.31
13	BS-6,1 ■	FI-P-16,0 ■	FI-R-20 ●	3.34
14	BS-S-4,8 ●	FI-P-16,0 ■	FI-R-20 ●	3.37

Material: Stainless steel ● Carbon steel ■ Plastic ●

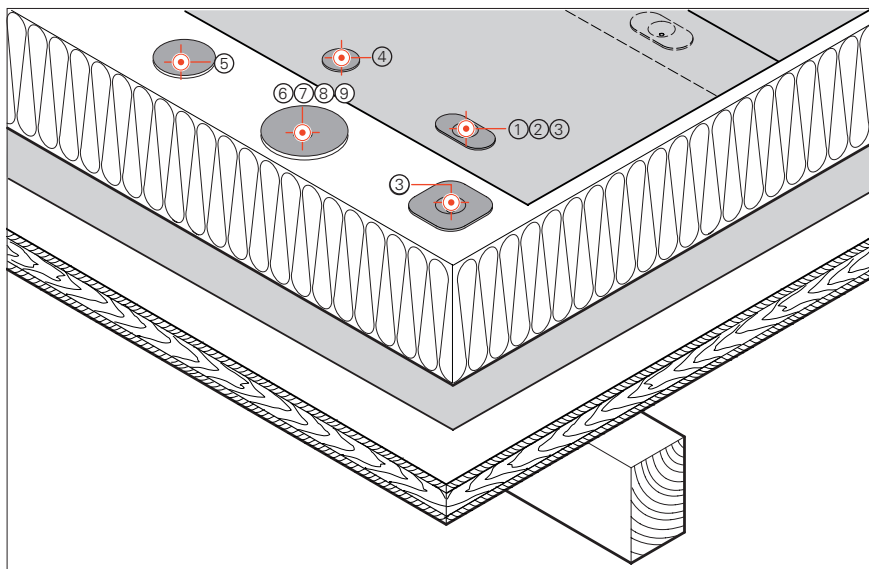
Concrete deck



Pos. No.	Fastener	Plate	Sleeve	Page
isofast®				
1	DT-4,8/6,3 ■	ID-70x70 IF/IG-C-82x40 ■ IRD-82x40		4.33
2	TI-6,3 ■	ID-70x70 IF/IG-C-82x40 ■ IRD-82x40		4.37
3	IF2-6,1 ■	ID-70x70 IF/IG-C-82x40 ■ IRD-82x40		4.39
isotak®				
4	DT-4,8 ■		R45 ●	4.3
5	TI-T25-6,3 ■		R45 ●	4.7
6	TI-S-Z10-6,3 ●		R45 ●	4.16
7	TI-T25-6,3 ■		R75 ●	4.10
8	TI-S-Z10-6,3 ●		R75 ●	4.19
9	TI-T25-6,3 ■		ST ●	4.13
10	TIA-T25-6,3 ■		R45 ●	4.23
11	TIA-T25-6,3 ■		R75 ●	4.25
12	TIA-T25-6,3 ■		ST ●	4.27
isoweld®				
13	TI-T25-6,3 ■	FI-P-6,8 ■		4.42
14	TI-T25-6,3 ■	FI-P-16,0 ■	FI-R-20 ●	4.46
15	TIA-T25-6,3 ■	FI-P-16,0 ■	FI-R-20 ●	4.50

Material: Stainless steel ● Carbon steel ■ Plastic ●

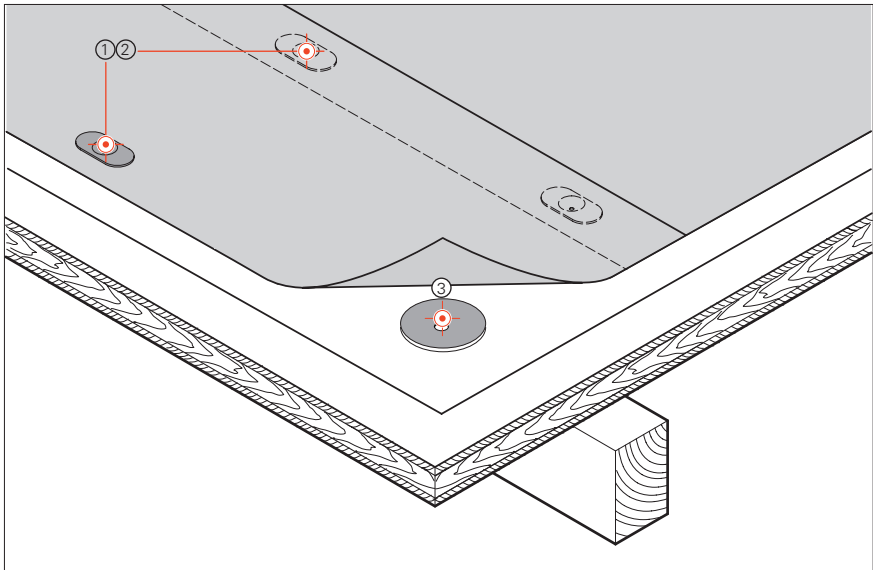
Timber deck / warm roof



Pos. No.	Fastener	Plate	Sleeve	Page
isofast®				
1	IW-S-5,0 ●	IRC/W-82X40 ■		5.14
2	IWF-5,2 ■	IRC/W-82x40 ■		5.16
3	IF2-6,1 ■	ID-70X70 IRD-82X40 ■		5.12
isotak®				
4	TS-T25-6,3 ■		R45 ●	5.3
5	TS-T25-6,3 ■		R75 ●	5.6
6	TS-T25-6,3 ■		ST ●	5.9
isoweld®				
7	IWF-5,2 ■	FI-P-6,8 ■		5.19
8	TS-T25-6,3 ■	FI-P-6,8 ■		5.23
9	TS-T25-6,3 ■	FI-P-16,0 ■	FI-R-20 ●	5.26

Material: Stainless steel ● Carbon steel ■ Plastic ●

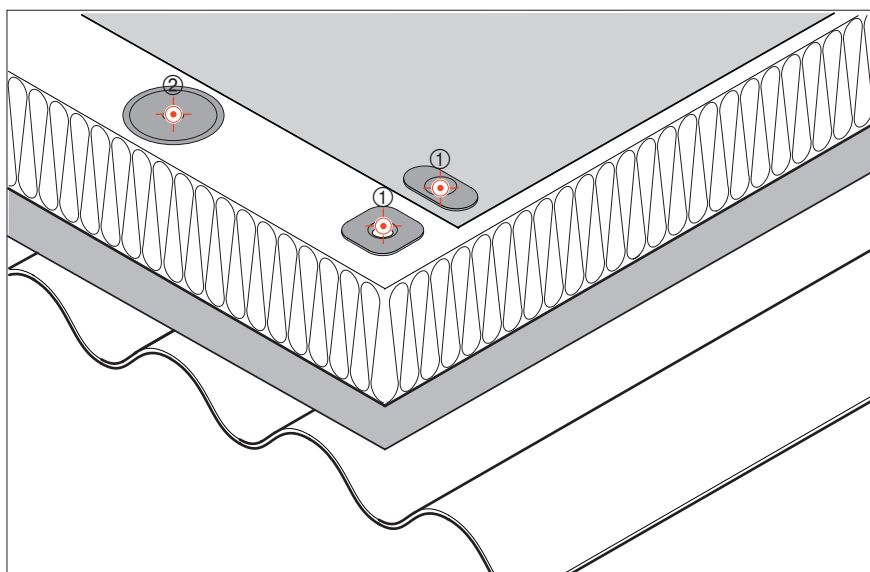
Timber deck / cold roof



Pos. No.	Fastener	Plate	Sleeve	Page
<i>isofast®</i>				
1	IW-S-5,0 ●	IRC/W-82x40 ■		5.14
2	IWF-5,2 ■	IRC/W-82x40 ■		5.16
<i>isoweld®</i>				
3	IWF-5,2 ■	FI-P-6,8 ■		5.19

Material: Stainless steel ● Carbon steel ■ Plastic ●

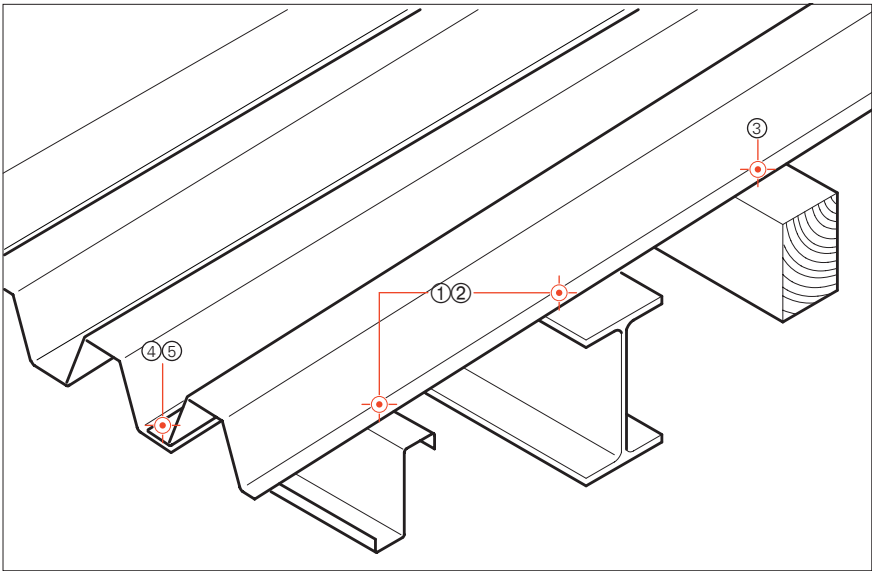
Critical deck



Pos. No.	Fastener	Plate	Sleeve	Page
isofast®				
1	TPR-L-6,3 ▲	ID-70x70 IF/IG-C-82x40 ■ IRD-82x40		7.3
isoweld®				
2	TPR-L-6,3 ▲	FI-P-6,8 ■		7.6

Material: Stainless steel ● Carbon steel ■ Plastic ● Aluminium ▲

Fastening to steel and timber structure



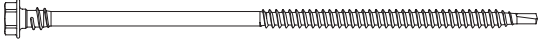
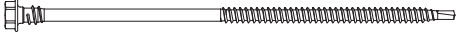
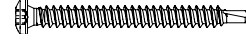
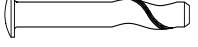
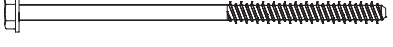
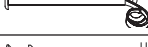
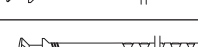
Pos. No.	Fastener			Page
isofast®				
1	SX	●		8.2
2	SD	■		8.4
3	SXW	●		8.6
4	SL	■		8.9
5	SL2-S	●		8.9

Material: Stainless steel ● Carbon steel ■ Plastic ●

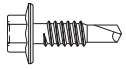
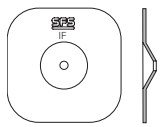
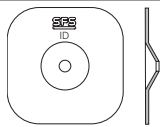
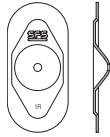
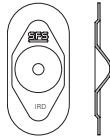
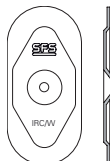
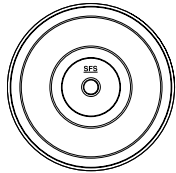
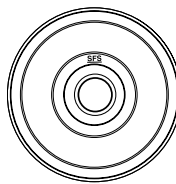
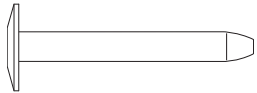
2 Product index

2

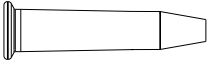
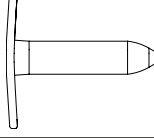
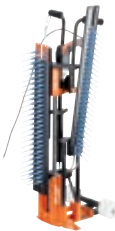
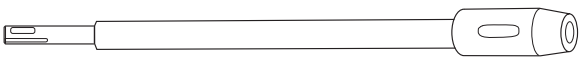
Flat roof fastening systems

Type	Description	Material			Chapter
		Stainless steel	Carbon steel	Aluminium Plastic	
IR2-4,8		-	■	-	3
IR2-C-4,8		-	■	-	3/7
IR2-S-4,8		●	-	-	3
IF2-5,5		-	■	-	3
IF2-6,1		-	■	-	3/4/5/7
BS-4,8		-	■	-	3/7
BS-S-4,8		●	-	-	3/7
BS-6,1		-	■	-	3
DT-4,8 / 6,1		-	■	-	4/7
TI-6,3		-	■	-	4
TI-T25-6,3		-	■	-	4/7
TI-S-Z10-6,3		●	-	-	4/7
TIA-T25-6,3		-	■	-	4
IW-S-5,0		●	-	-	5
IWF-5,2		-	■	-	5
TS-T25-6,0		-	■	-	5/7
TPR-L-6,3		-	-	▲	6
MNA-6,0		-	■	-	7
MNA-S-6,0		●	-	-	7
SX		●	-	-	8
SD		-	■	-	8
SD-H15		-	■	-	8
SXW		●	-	-	8
SL2		-	■	-	8
SL2-S		●	-	-	8

Flat roof fastening systems

Type	Description	Material			Chapter
		Stainless steel	Carbon steel	Aluminium Plastic	
SL2-H15 / SL3-H15		-	■	-	8
IF-70x70		-	■	-	3
ID-70X70		-	■	-	3,4,5,6
IR-82x40		-	■	-	3
IF/IG-C-82x40		-	■	-	4/5/6
IRD-82x40		-	■	-	3/4/5/6
IRC/W-82x40		-	■	-	3/5
FI-P-6,8-PVC FI-P-6,8-TPO FI-P-6,8-EPDM		-	■	-	3/4/5/6
FI-P-16,0-PVC FI-P-6,8-TPO FI-P-6,8-EPDM		-	■	-	3/4/5/6
R45		-	-	●	3/4/5
R75		-	-	●	3/4/5

Flat roof fastening systems

Type	Description	Material			Chapter
		Stainless steel	Carbon steel	Aluminium Plastic	
ST		-	-	●	3/4/5
FI-R-20		-	-	●	3/4/5
SH18/65		-	-	●	7
IP50-B		-	-	-	9
RM-20		-	-	-	9
Isotak® 260		-	-	-	9
IT-19		-	-	-	9
SDS		-	-	-	9
HSS		-	-	-	9
ZVK-STOP		-	-	-	9
ZVK		-	-	-	9
ZAK-500 ZAK-750 ZAK-1000		-	-	-	9
AJ-M6		-	-	-	9
ZA 1/4"-M6-300 ZA 1/4"-M6-750		-	-	-	9
ZA 1/4"-EXT-100		-	-	-	9

Type	Description	Material			Chapter
		Stainless steel	Carbon steel	Aluminium Plastic	
ZH-11-RING		-	-	-	9
Insert Bits		-	-	-	9
DI-650		-	-	-	9
Isoweld® 3000		-	-	-	9
FI-H		-	-	-	9
FI-Magnet Set		-	-	-	9
FI80-T19		-	-	-	9
FI-Pad		-	-	-	3/4/5/6

3

isotak® Fasteners and plastic sleeves	Product code	Page
Carbon steel	BS-4,8 / R45	► 3.3
Austenitic stainless steel	BS-S-4,8 / R45	► 3.5
Carbon steel	BS-4,8 / R75	► 3.8
Austenitic stainless steel	BS-S-4,8 / R75	► 3.10
Carbon steel	BS-4,8 / ST	► 3.13

isofast® Fasteners and stress plates	Product code	Page
Carbon steel	IR2-4,8	► 3.17
Austenitic stainless steel	IR2-S-4,8	► 3.19
Carbon steel Sleeve System	IR2-C-4,8	► 3.21
Carbon steel Sleeve System	IF2-5,5 IF2-6,1	► 3.23 ► 3.25

isoweld® Fasteners, stress plates and plastic sleeves	Product code	Page
Carbon steel	BS-S-6,1 FI-P	► 3.28
Austenitic stainless steel	BS-S-4,8 FI-P	► 3.31
Carbon steel	BS-6,1 / FI-P FI-R	► 3.34
Carbon steel	BS-S-4,8 / FI-P FI-R	► 3.37

isotak® fastening systems: Cost effective solutions for increased insulation requirements

Energy saving directives have resulted in a growing trend for increased insulation thickness requirements for flat roofing. Conventional fasteners were not designed for these increased insulation requirements, where longer

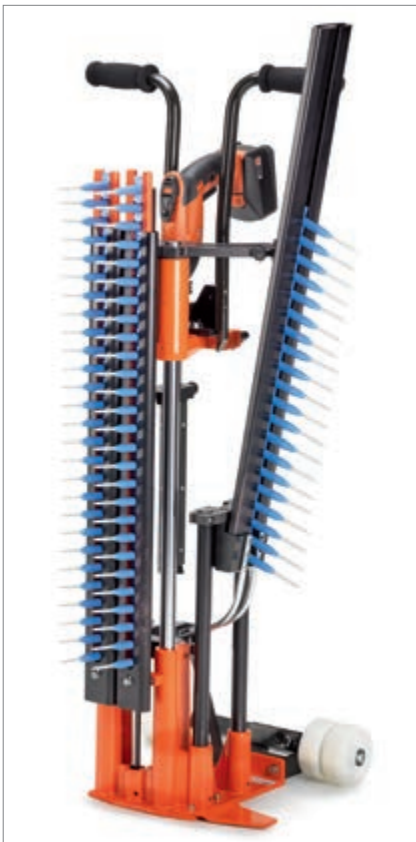
fasteners imply additional heat loss through cold bridging of the insulation layer and thereby increased system costs. SFS intec offers an optimum solution for these demanding applications: a combination of a specially

designed fastener and a plastic sleeve. This provides resistance to heat flow through the fastener together with a secure and cost effective application.

3

The convincing advantages of the isotak® systems

- Simple, economic solution for increased insulation thicknesses
- Reduced energy loss due to the insulating sleeve
- Secure fixing
- Ergonomic installation with the automated setting tool IT260
- Increased productivity due to pre-assembled and magazine loaded fasteners

**The isotak® system:
Fast, ergonomic and secure**

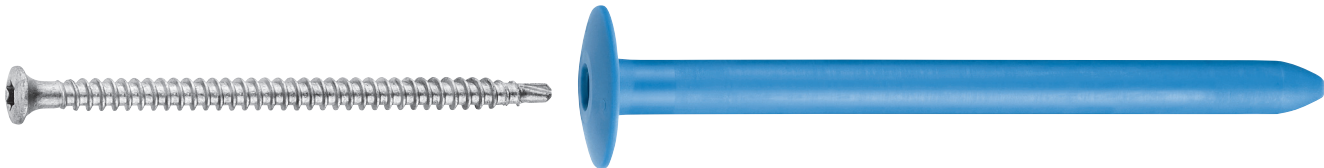
The advantages of this highly reliable fixing method become most apparent with increased insulation thickness. The IT260 setting tool is particularly effective when used on profiled metal decking. The magazine loaded fasteners are fed automatically and thereby provide a controlled installation process resulting in fast quality installation with complete repeatability.

A complete range

Efficient installation demands correct and effective tooling. SFS intec therefore offers a complete range of installation tools. This includes stand-up setting tools for fitting single pre-assembled fastener and sleeve combinations, as well as drills, drives and bits for each application.



isotak® BS / R45



Technical information

Application

For the fastening of waterproof membrane to steel deck. For steel deck thicknesses of between min. 0,63 mm and max. 2 x 1,25 mm.

Material

Fastener

- BS
Case hardened carbon steel

Sleeve

- R45
High quality polypropylene, PP

Durocoat® corrosion protection:
Resistant to 15 cycles of the
Kesternich test in accordance with
ETAG 006 - D31 and FM Approval
Standard 4470 requirements.

Environment friendly, free of
chromium VI

Tools and accessories

DI 650



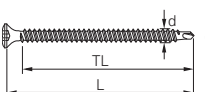
- Power screwdriver
- 1000 - 3000 rpm
- Min 500W
- Battery tool
- 1000 - 3000 rpm
- Min 18V
- Battery with min 2.5 Ah

IT 19

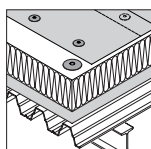
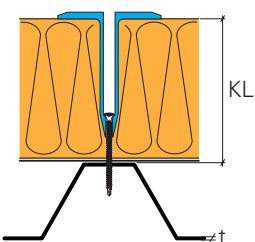
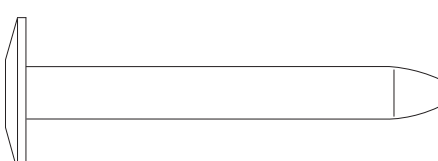


- Stand-up setting tool for the
installation of isotak® fasteners and
sleeves.

Order information

		T25 recess Ø 8,9 mm 	
KL clamping length M magazine loaded d thread diameter L Length TL thread length t thickness of structure All measurements in mm			

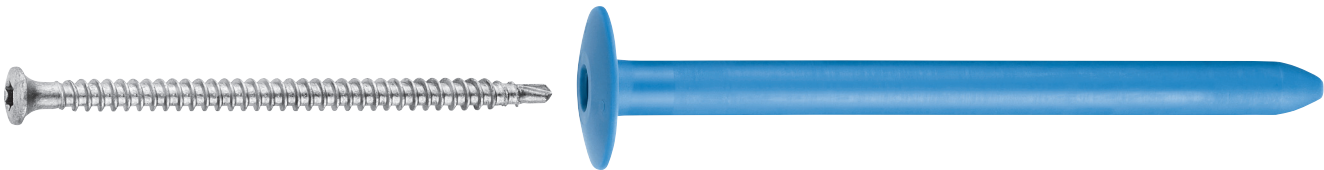
3

		Order code			Application range
Product / Application	Approval	Type	d	L	
■ Carbon steel    ETA-08/0262  APPROVED  TO 2137		BS-	4,8x	50	 t min. steel: 0,63 mm t max. steel: 2 x 1,25 mm Thread length TL: Fastener length 50 - 80 mm: TL = L - 5 mm Fastener length 90 - 300 mm: TL = 75 mm
		BS-	4,8x	60	
		BS-	4,8x	70	
		BS-	4,8x	80	
		BS-	4,8x	90	
		BS-	4,8x	100	
		BS-	4,8x	110	
		BS-	4,8x	120	
		BS-	4,8x	130	
		BS-	4,8x	140	
		BS-	4,8x	150	
		BS-	4,8x	170	
		BS-	4,8x	190	
		BS-	4,8x	200	
		BS-	4,8x	220	
		BS-	4,8x	240	
		BS-	4,8x	260	
		BS-	4,8x	300	
● Plastic   ETA-08/0262  TO 2137		R	45x	15	K see combination table
		R	45x	35	
		R	45x	65	
		R	45x	85	
		R	45x	105	
		R	45x	135	
		R	45x	165	
		R	45x	185	
		R	45x	225	
		R	45x	255	
		R	45x	285	
		R	45x	325	
		R	45x	365	
		R	45x	405	

Pre-assembly option

The R45 and BS-4,8mm products can be supplied pre-assembled for use with the IT-19 stand up setting tool. Further details are available on request.

isotak® BS-S / R45



Technical information

Application

For the fastening of waterproof membrane to steel deck. For steel deck thicknesses of between min. 0,63 mm and max. 2 x 1,0 mm.

Where the internal relative humidity is in excess of 65%. In chemically aggressive atmospheres or conditions.

For refurbishment applications where the detailed condition of the existing build up is not known or when the build up contains abrasive layers that may damage the corrosion protection and make it ineffective. Where an extended design life / warranty is required by the client. For locations with aggressive local conditions (e.g. coastal environments).

Material

Fastener

- BS-S
Austenitic stainless steel, grade
AISI 316, European Standard
1.4401, grade A4

Drill point and lead thread section

- Fused and hardened carbon steel,
length 13 mm, corrosion protected

Sleeve

- R45
High quality polypropylene, PP

Tools and accessories

DI 650



ZA ¼"-M6-300/750

T25-32-M6



- Power screwdriver
- 1000 - 3000 rpm
- Min 500W
- Battery tool
- 1000 - 3000 rpm
- Min 18V
- Battery with min 2.5 Ah

IT 19



- Stand-up setting tool for the
installation of isotak® fasteners and
sleeves.

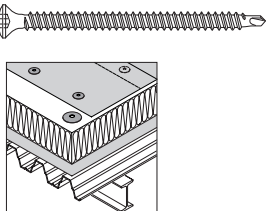
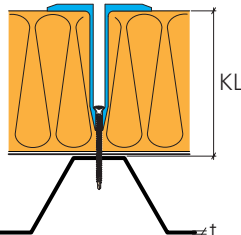
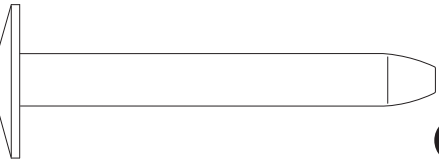
isotak® BS-S / R45

Order information

T25 recess Ø 8,9 mm

KL clamping length | M magazine loaded | d thread diameter | L Length | TL thread length | t thickness of structure | All measurements in mm

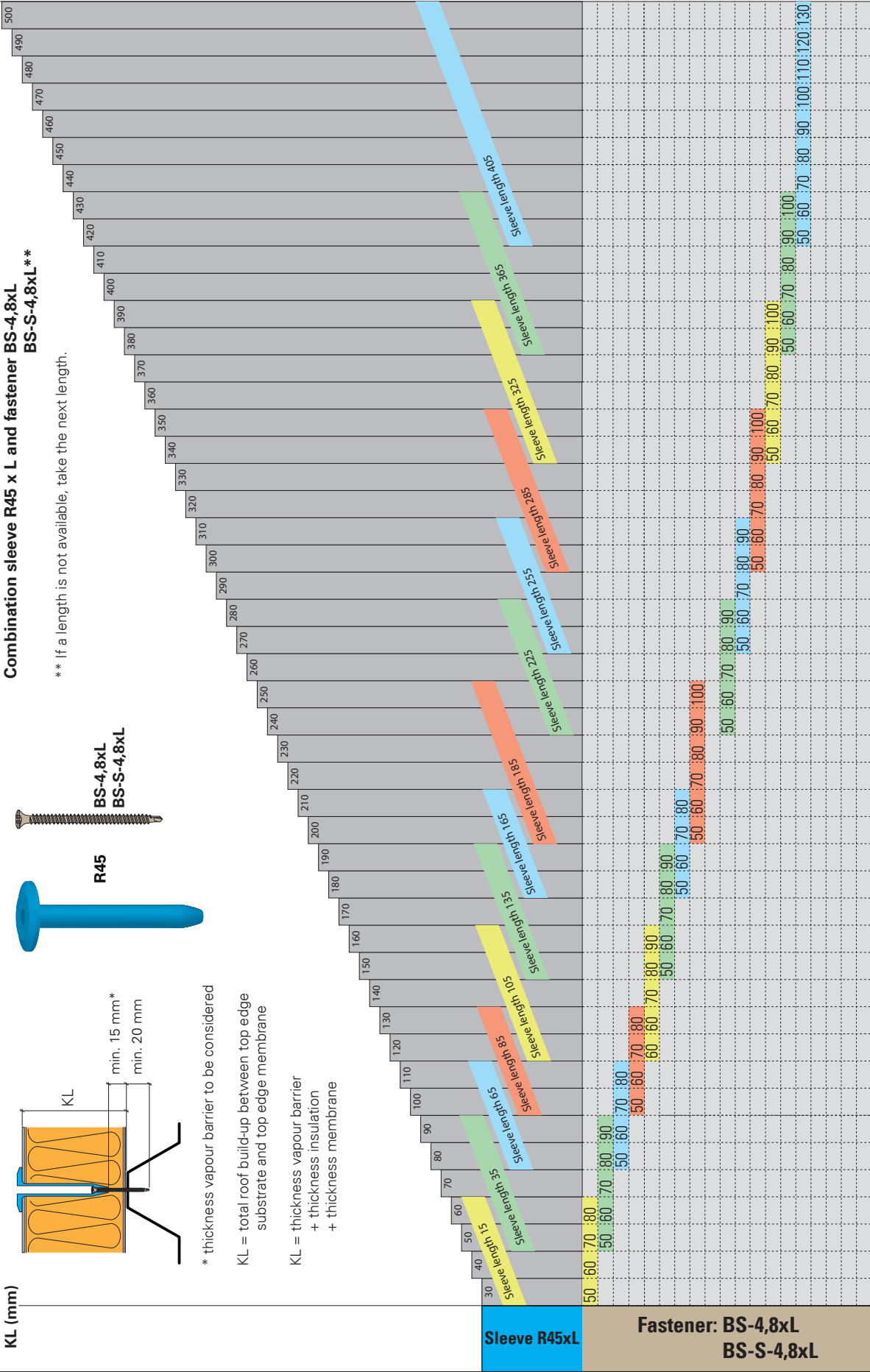
3

		Order code			Application range
		BS-S- 4,8x 60			
Product / Application	Approval	Type	d	L	
● Stainless steel 	CE ETA-08/0262	BS-S-	4,8x	60	 <u>t min. steel:</u> 0,63 mm <u>t max. steel:</u> 2 x 1,0 mm
		BS-S-	4,8x	80	
		BS-S-	4,8x	100	
		BS-S-	4,8x	120	
		BS-S-	4,8x	140	
		BS-S-	4,8x	160	
		BS-S-	4,8x	180	
		BS-S-	4,8x	200	
					Thread length TL: Fastener length 60 - 80 mm: TL = L - 5 mm Fastener length 100 - 200 mm: TL = 75 mm
● Plastic 	CE ETA-08/0262 	R	45x	15	K see combination table
	R	45x	35		
	R	45x	65		
	R	45x	85		
	R	45x	105		
	R	45x	135		
	R	45x	165		
	R	45x	185		
	R	45x	225		
	R	45x	255		
	R	45x	285		
	R	45x	325		
	R	45x	365		
	R	45x	405		

Pre-assembly option

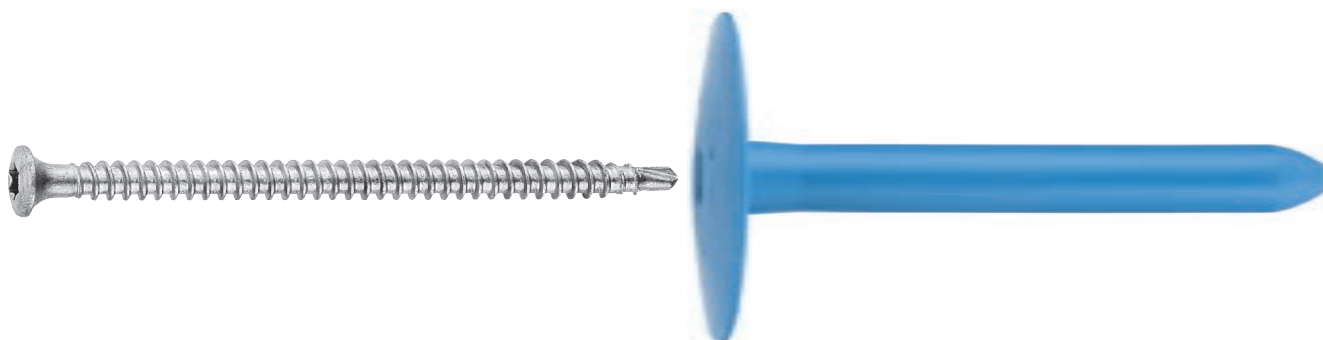
The R45 and BS-S-4,8mm products can be supplied pre-assembled for use with the IT-19 stand up setting tool. Further details are available on request.

Selection of the correct fastener and sleeve combination



isotak® BS / R75

3



Technical information

Application

For the fastening of insulation to steel deck. For steel deck thicknesses of between min. 0,63 mm and max. 2 x 1,25 mm.

Material

Fastener

- BS
- Case hardened carbon steel
- Durocoat® corrosion protection:
- Resistant to 15 cycles of the
- Kesternich test in accordance with
- ETAG 006 - D3.1 and FM Approval
- Standard 4470 requirements
- Environment friendly, free of
- chromium VI

Sleeve

- R75
- High quality polypropylene, PP

Tools and accessories

DI 650



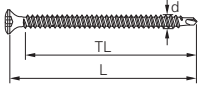
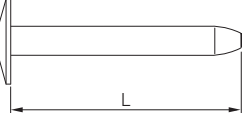
- Power screwdriver
 - 1000 - 3000 rpm
 - Min 500W
- Battery tool
 - 1000 - 3000 rpm
 - Min 18V
 - Battery with min 2.5 Ah

IT 19

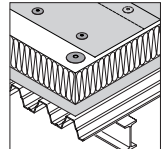
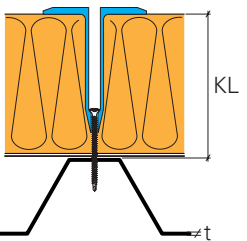
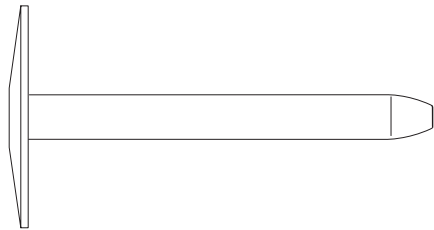


- Stand-up setting tool for the installation of isotak® fasteners and sleeves.

Order information

 	T25 recess Ø 8,9 mm 	
KL clamping length M magazine loaded d thread diameter L Length TL thread length t thickness of structure All measurments in mm		

3

Product / Application	Approval	Order code			Application range
		Type	d	L	
■ Carbon steel  	  	BS-	4,8x	50 60 70 80 90 100 110 120 130 140 150 170 190 200 220 240 260 300	 Thread length TL: Fastener length 50 - 80 mm: TL = L - 5 mm Fastener length 90 - 300 mm: TL = 75 mm Pre-assembled fastening elements on request t min. steel: 0,63 mm t max. steel: 2 x 1,25 mm
● Plastic 	  	R	75x	35 65 85 105 135 165 185 225 255 285	see combination table

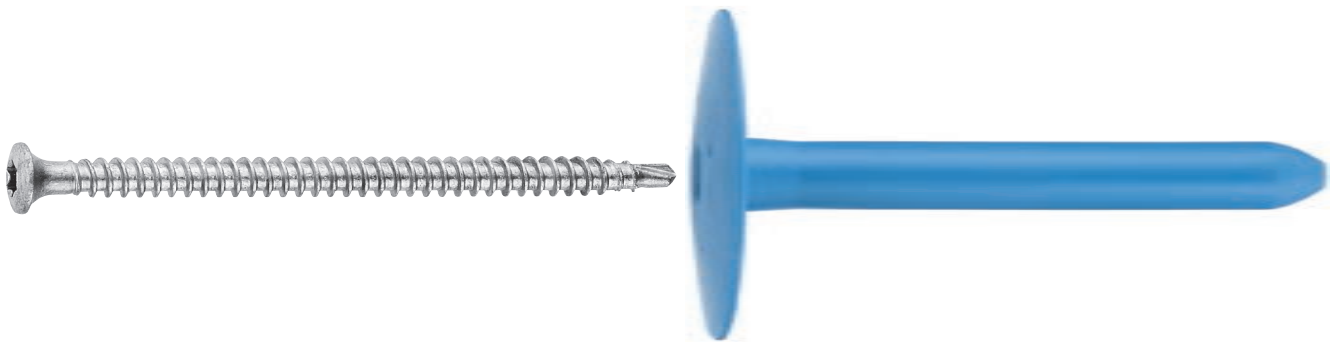
Pre-assembly option

The R75 and BS-4,8mm products can be supplied pre-assembled for use with the IT-19 stand up setting tool. Further details are available on request.

isotak® BS-S / R75

isotak® BS-S / R75

3



Technical information

Application

For the fastening of insulation to steel deck. For steel deck thicknesses of between min. 0,63 mm and max. 2 x 1,0 mm.

Where the internal relative humidity is in excess of 65%. In chemically aggressive atmospheres or conditions.

For refurbishment applications where the detailed condition of the existing build up is not known or when the build up contains abrasive layers that may damage the corrosion protection and make it ineffective. Where an extended design life / warranty is required by the client. For locations with aggressive local conditions (e.g. coastal environments).

Material

Fastener

- BS-S
Austenitic stainless steel, grade
AISI 316, European Standard
1.4401, grade A4

Drill point and lead thread section

- Fused and hardened carbon steel,
length 13 mm, corrosion protected

Sleeve

- R75
High quality polypropylene, PP

Tools and accessories

DI 650



ZA 1/4" - M6-300/750

T25-32-M6

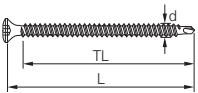
- Power screwdriver
- 1000 - 3000 rpm
- min 500W
- Battery tool
- 1000 - 3000 rpm
- Min 18V
- Battery with min 2.5 Ah

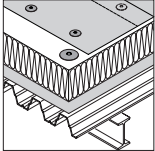
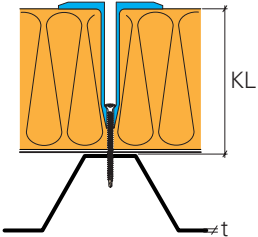
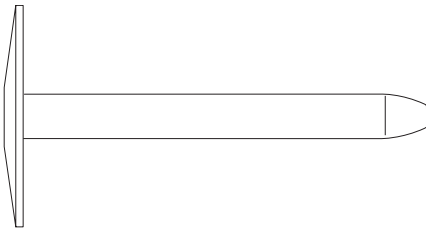
IT 19



- Stand-up setting tool for the
installation of isotak® fasteners and
sleeves.

Order information

		T25 recess Ø 8,9 mm 	
KL clamping length M magazine loaded d thread diameter L Length TL thread length t thickness of structure All measurements in mm			

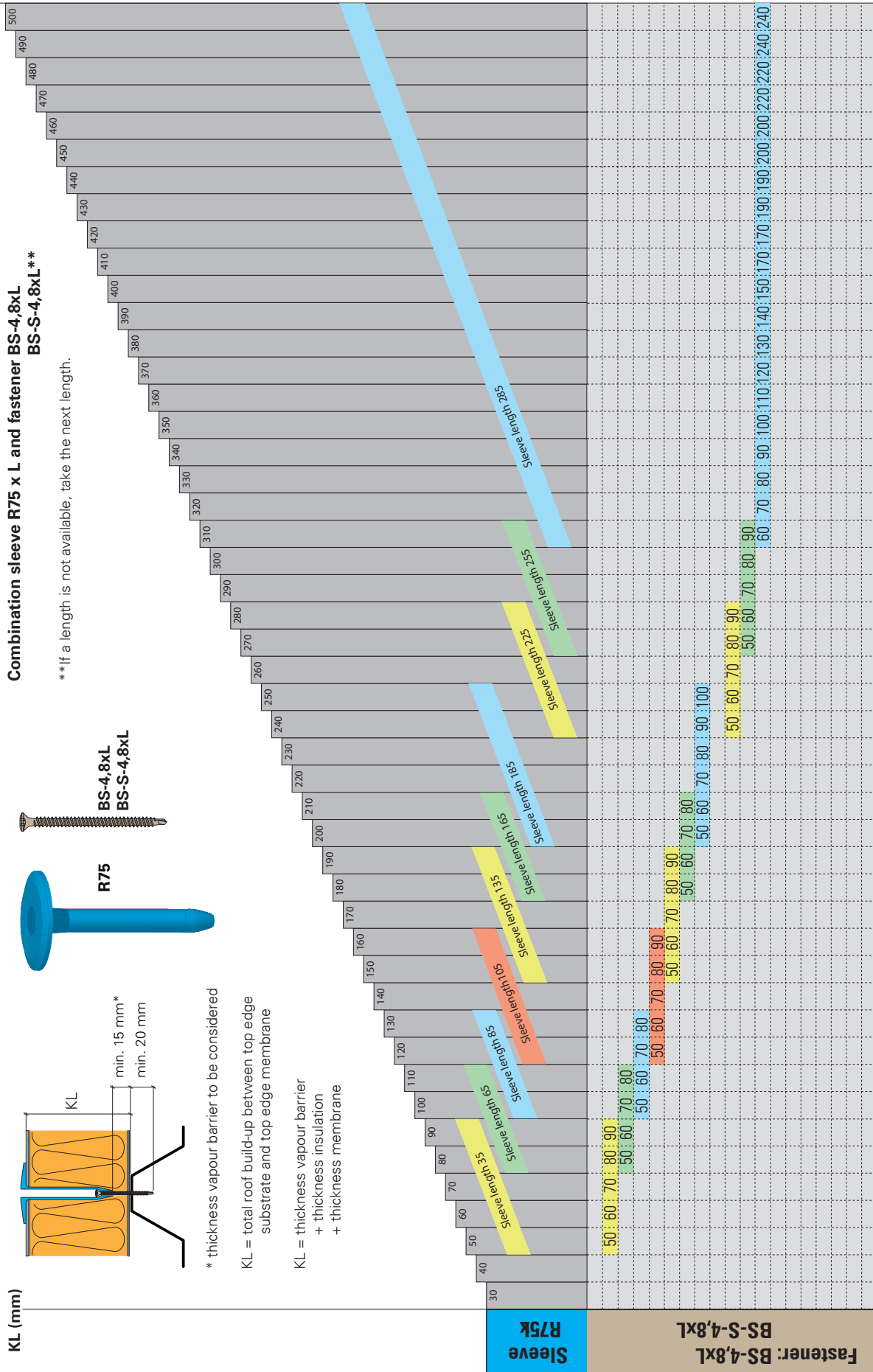
		Order code			Application range
Product / Application	Approval	Type	d	L	
● Stainless steel  		BS-S-	4,8x	60	 t min. steel: 0,63 mm t max. steel: 2 x 1,0 mm Thread length TL: Fastener length 60 - 80 mm: TL = L - 5 mm Fastener length 100 - 200 mm: TL = 75 mm Pre-assembled fastening elements on request
		BS-S-	4,8x	80	
		BS-S-	4,8x	100	
		BS-S-	4,8x	120	
		BS-S-	4,8x	140	
		BS-S-	4,8x	160	
		BS-S-	4,8x	180	
		BS-S-	4,8x	180	
		BS-S-	4,8x	200	
		BS-S-	4,8x	200	
● Plastic 	  	R	75x	35	K see combination table
		R	75x	65	
		R	75x	85	
		R	75x	105	
		R	75x	135	
		R	75x	165	
		R	75x	185	
		R	75x	225	
		R	75x	255	
		R	75x	285	

Pre-assembly option

The R75 and BS-S-4,8mm products can be supplied pre-assembled for use with the IT-19 stand up setting tool. Further details are available on request.

**Combination sleeve R75 x L and fastener BS-4,8xL
BS-S-4,8xL****

******If a length is not available, take the next length.



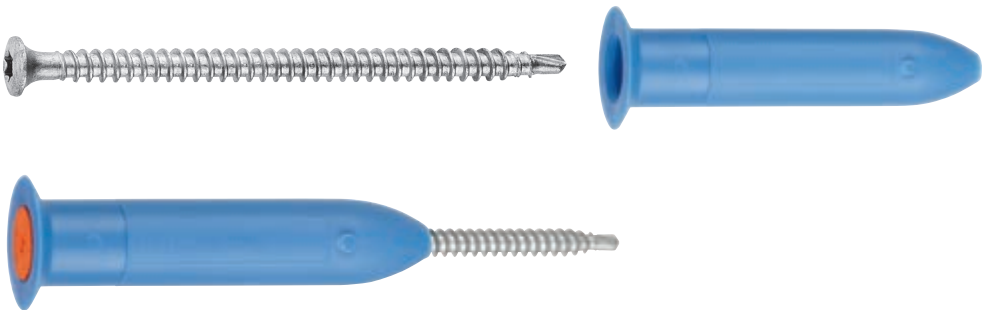
* thickness vapour barrier to be considered

KL = total roof build-up between top edge substrate and top edge membrane

KL = thickness vapour barrier
+ thickness insulation
+ thickness membrane

Roof buildup (KL)	-	Sleeve length (L)	+ 35 mm = min. length	Type of fastener
Example:	120 mm	-	+ 35 mm = 50 mm -> 105 mm	BS-4,8x50 / BS-S-4,8x60

isotak® BS / ST



3

Technical information

Application

For the fastening of insulation to steel deck. For steel deck thicknesses of between min. 0,63 mm and max. 2 x 1,25 mm. ST sleeves are designed for use with Sika-Trocal® membranes, in conjunction with the appropriate Sika-Trocal® metal disc.

Alternatively the ST sleeve can be used to install compatible steel termination bar systems.

When used with the Sika-Trocal® metal disc, the R-CAP-11 plug should be inserted into the sleeve following installation.

Material

Fastener

- BS
Case hardened carbon steel

Durocoat® corrosion protection:
Resistant to 15 cycles of the Kesternich test in accordance with ETAG 006 - D3.1 and FM approval standard 4470 requirements

Environment friendly, free of chromium VI

Sleeve

- ST
High quality polypropylene, PP

Cap

- R-Cap-11
High quality polypropylene, PP



Tools and accessories

DI 650



Recommendation for insatallation

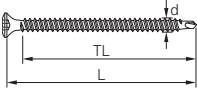
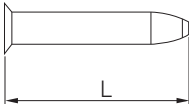
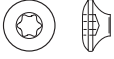
- Power screwdriver
 - 1000 - 3000 rpm
 - Min 500W
- Battery tool
 - 1000 - 3000 rpm
 - Min 18V
 - Battery with min 2.5 Ah

IT 19

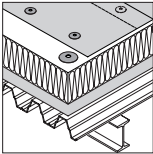
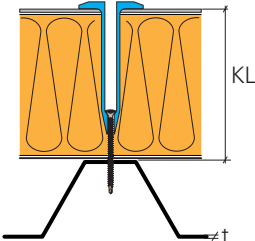


- Stand-up setting tool for the installation of isotak® fasteners and sleeves.

Order information

		T25 recess Ø 8,9 mm 	
KL clamping length M magazine loaded d thread diameter L Length TL thread length t thickness of structure All measurements in mm			

3

		Order code			Application range
Product / Application	Approval	Type	d	L	
■ Carbon steel  	  	BS-	4,8x	50	 t min. steel: 0,63 mm t max. steel: 2 x 1,25 mm Pre-assembled fastening elements on request
		BS-	4,8x	60	
		BS-	4,8x	70	
		BS-	4,8x	80	
		BS-	4,8x	90	
		BS-	4,8x	100	
		BS-	4,8x	110	
		BS-	4,8x	120	
		BS-	4,8x	130	
		BS-	4,8x	140	
		BS-	4,8x	150	
		BS-	4,8x	170	
		BS-	4,8x	190	
		BS-	4,8x	200	
		BS-	4,8x	220	
		BS-	4,8x	240	
		BS-	4,8x	260	
		BS-	4,8x	300	
● Plastic 		ST	25x	70	
		ST	25x	90	
		ST	25x	110	
		ST	25x	140	
		ST	25x	170	
		ST	25x	190	

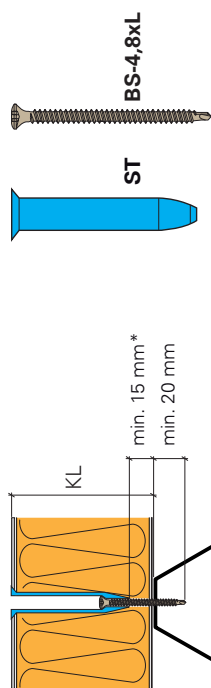
Pre-assembly option

The ST and BS-4,8mm products can be supplied pre-assembled. Details are available on request.

KL (mm)

Combination sleeve ST and fastener BS-4,8xL

** If a length is not available, take the next length



* thickness vapour barrier to be considered

$\langle L =$ total roof build-up between top edge substrate and top edge membrane

$$K_L = \text{thickness vapour barrier} + \text{thickness insulation} + \text{thickness membrane}$$
[illegible]

Calculation:
Example:

Roof build-up (KL)
120 mm

+ 35 mm = min. length
+ 35 mm = 65 mm ->

Type of fastener
3S-4,8x70

isofast® fastening systems: High-quality, reliability, durability, ergonomics

Today, more than ever, it is essential that the mechanical fastening of insulation and membrane on flat roofs is both fast and efficient. It is equally imperative that these fasteners are installed correctly and thereby function properly throughout the expected life of the roof construction.

Flat roof fastening systems are subjected to a wide range of thermal, static and dynamic stresses. Correct design is therefore essential to ensure that required performance criterion is achieved. Excellent corrosion resistance is also critical, with environment-friendly

coatings of increasing importance. SFS intec have been setting the standards for fastener performance in flat roof applications for many years. The complete fastening systems offer quality, cost effective and innovative fastening solutions.

The convincing advantages of the isofast® fastening systems

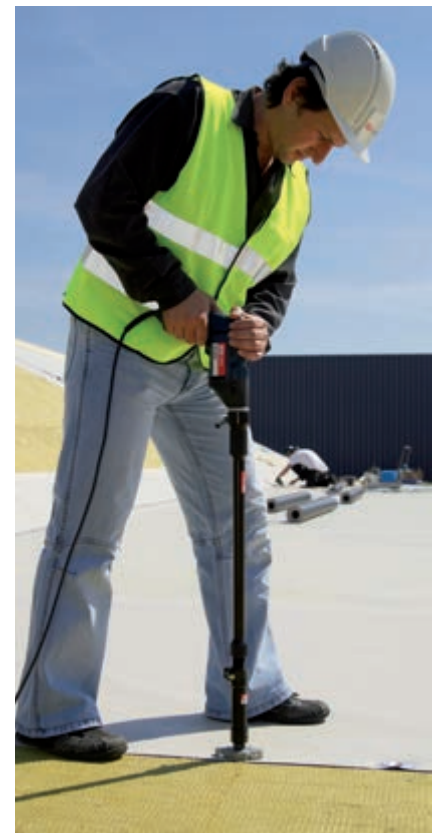
- A 'treadfast' fastener and stress plate combination ensures that the system is safe to walk on
- A complete system featuring the IF240 setting tool for rapid fixing of magazine loaded fasteners
- Maximum corrosion resistance with safe, chromium VI-free Durocoat® coatings

**High speed installation due to belted fasteners**

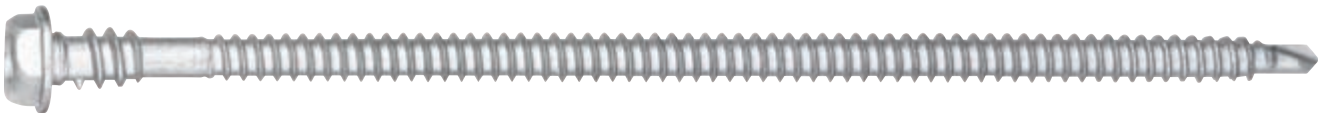
A significant part of the installation cost lies in the manual handling of the fasteners. The IF240 setting tool features automatic feeding of the fasteners and stress plates. This provides a completely automated and controlled installation process from beginning to end. The result is that the subsequent installation speed is many times faster than traditional means and the process offers substantial ergonomic benefits to the installer.

No chance for corrosion

Should fastener applications be required in a corrosive atmosphere (for example within environments of high relative humidity, in acid or waste treatment plants, chloride or marine environments), austenitic stainless steel fasteners are recommended. For other applications, the Durocoat® chromium VI-free surface coating offers excellent protection, whilst meeting exacting current environmental standards.



isofast® IR2



Technical information

Application

For the fastening of waterproof membrane and insulation to steel deck. For steel deck thicknesses of between min. 0,63 mm and max. 2 x 1,25 mm.

Material

Fastener

- IR2
Case hardened carbon steel

Durocoat® corrosion protection:
Resistant to 15 cycles of the
Kesternich test in accordance with
ETAG 006 - D3.1 and FM Approval
Standard 4470 requirements

Environment friendly, free of
chromium VI

Stress plates

- IF-70x70 / IR-82x40
Steel 1,0 mm, zinc plated

Resistant to 15 cycles of the
Kesternich test in accordance
with ETAG 006 - D3.1 and FM Ap-
proval Standard 4470 requirements

Tools and accessories

DI 650



Recommendation for insatallation

- Power screwdriver
- 1000 - 3000 rpm
- Min 500W
- Battery tool
- 1000 - 3000 rpm
- Min 18V
- Battery with min 2.5 Ah

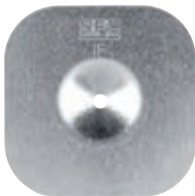
IF 240



- Automated setting tool for the
installation of magazine loaded
isofast® fasteners and stress plates.

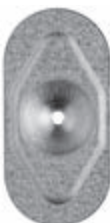
Stress plates

IF-70x70



- Stress plate for insulation, hole
diameter 5,1mm

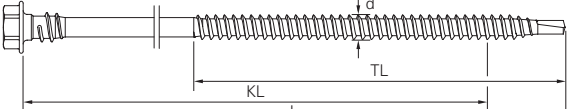
IR-82x40



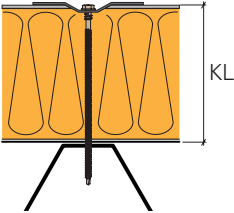
- Stress plate for membrane, hole
diameter 5,1mm

isofast® IR2

Order information

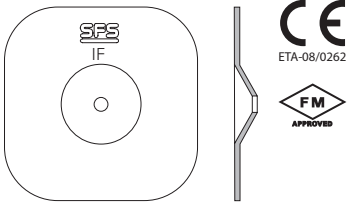
	Hexagon 8 mm A/F 	
KL clamping length M magazine loaded d thread diameter L Length TL thread length t thickness of structure All measurements in mm		

3

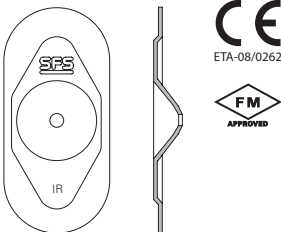
		Order code					
		IR2- 4,8x 60					
Product / Application	Approval	Type	d	L	K	Application range	
■ Carbon steel		IR2- 4,8x 60			40	 Clamping length KL: K = total roof build-up between top edge substrate and top edge membrane K = thickness vapour barrier + thickness insulation + thickness membrane Screw length L: L min. = K + 20 mm Thread length TL: Fastener length 60 - 80 mm: TL = L - 13,5 mm Fastener length 90 - 300 mm: TL = 75 mm	
		IR2- 4,8x 70			50		
		IR2- 4,8x 80			60		
		IR2- 4,8x 90			70		
		IR2- 4,8x 100			80		
		IR2- 4,8x 120			100		
		IR2- 4,8x 140			120		
	CE ETA-08/0262	IR2- 4,8x 160			140		
		IR2- 4,8x 180			160		
		IR2- 4,8x 200			180		
	FM APPROVED	IR2- 4,8x 220			200		
		IR2- 4,8x 240			220		
		IR2- 4,8x 260			240		
		IR2- 4,8x 280			260		
	FM APPROVED TO 2137	IR2- 4,8x 300			280		

Stress plates

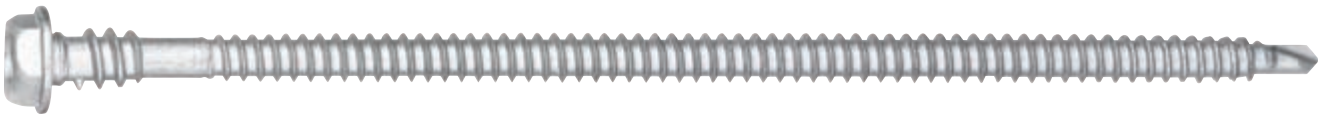
IF-70X70



IR-82X40



isofast® IR2-S



Technical information

Application

For the fastening of waterproof membrane and insulation to steel deck. For steel deck thicknesses of between min. 0,63 mm and max. 2 x 1,0 mm.

Where the internal relative humidity is in excess of 65%. In chemically aggressive atmospheres or conditions. For refurbishment applications where the detailed condition of the existing build up is not known or when the build up contains abrasive layers that may damage the corrosion protection and make it ineffective. Where an extended design life / warranty is required by the client. For locations with aggressive local conditions (e.g. coastal environments).

Material

Fastener

- IR2-S
Austenitic stainless steel, grade
AISI 316, European Standard
1.4401, grade A4

Drill point and lead thread section

- Fused and hardened carbon steel,
length 13 mm, corrosion protected

Stress plates

- IF-70x70 / IR-82x40
Steel 1,0 mm, zinc plated
Resistant to 15 cycles of the
Kesternich test in accordance
with ETAG 006 - D3.1 and FM Ap-
proval Standard 4470 requirements

Tools and accessories

DI 650



Recommendation for inatallation

- Power screwdriver
- 1000 - 3000 rpm
- Min 500W
- Battery tool
- 1000 - 3000 rpm
- Min 18V
- Battery with min 2.5 Ah

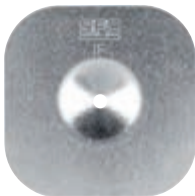
IF 240



- Automated setting tool for the
installation of magazine loaded
isofast® fasteners and stress plates.

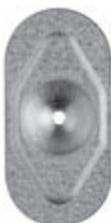
Stress plates

IF-70x70



- Stress plate for insulation, hole
diameter 5,1mm

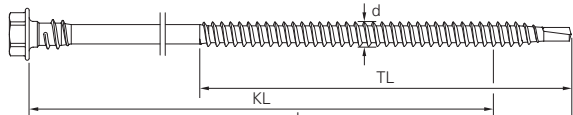
IR-82x40



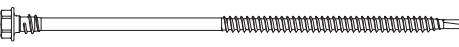
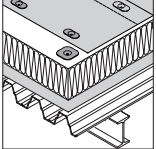
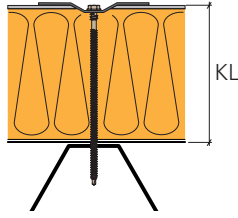
- Stress plate for membrane, hole
diameter 5,1mm

isofast® IR2-S

Order information

	Hexagon 8 mm A/F 	
KL clamping length M magazine loaded d thread diameter L Length TL thread length t thickness of structure All measurements in mm		

3

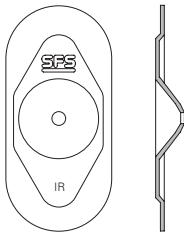
		Order code			K	Application range
Product / Application	Approval	Type	d	L		
● Stainless steel  		IR2-S- 4,8x 60			40	 t min. steel: 0,63 mm t max. steel: 2 x 1,0 mm Clamping length KL: K = total roof build-up between top edge substrate and top edge membrane K = thickness vapour barrier + thickness insulation + thickness membrane Screw length L: L min. = K + 20 mm Thread length TL: Fastener length 60 - 80 mm: TL = L - 15 mm Fastener length 100 - 300 mm: TL = 75 mm
		IR2-S- 4,8x 80			60	
		IR2-S- 4,8x 100			80	
		IR2-S- 4,8x 120			100	
		IR2-S- 4,8x 140			120	
		IR2-S- 4,8x 160			140	
		IR2-S- 4,8x 180			160	
		IR2-S- 4,8x 200			180	
		IR2-S- 4,8x 220			200	
		IR2-S- 4,8x 240			220	
		IR2-S- 4,8x 260			240	
		IR2-S- 4,8x 300			280	

Stress plates

IF-70X70



IR-82X40



isofast® IR2-C



Technical information

Application

For the fastening of membrane over hard surface to steel deck. Also for fastening polymeric membrane coated metal and Sika-Trocal® disks over insulation to steel deck. For steel deck thicknesses of between min. 0,63 and max. 2x1,25 mm

Material

Fastener

- IR2-C
Case hardened carbon steel

Durocoat® corrosion protection:
Resistant to 15 cycles of the
Kesternich test in accordance with
ETAG 006 - D3.1 and FM Approval
Standard 4470 requirements

Environment friendly, free of
chromium VI

Stress plates

- IRC/W-82x40
Steel 1,0 mm, zinc plated

Resistant to 15 cycles of the
Kesternich test in accordance
with ETAG 006 - D3.1 and FM
Approval Standard 4470
requirements

Tools and accessories

DI 650



Recommendation for installation

- Power screwdriver
 - 1000 - 3000 rpm
 - Min 500W
- Battery tool
 - 1000 - 3000 rpm
 - Min 18V
 - Battery with min 2.5 Ah

Stress plates

IRC/W-82x40



- Stress plate for membrane, hole
diameter 5,1mm

isofast® IR2-C

Order information

T25 recess Ø 8,9 mm

KL clamping length | M magazine loaded | d thread diameter | L Length | TL thread length | t thickness of structure | All measurements in mm

3

		Order code			K	Application range
Product / Application	Approval	Type	d	L		
■ Carbon steel CE ETA-08/0262		IR2-C- 4,8x 50			30	t min. steel: 0,63 mm t max. steel: 2 x 1,25 mm Clamping length KL: K = total roof build-up between top edge substrate and top edge membrane K = thickness vapour barrier + thickness insulation + thickness membrane Screw length L: L min. = K + 20 mm Thread length TL: Fastener length 60 - 80 mm: TL = L - 15 mm Fastener length 100 - 300 mm: TL = 75 mm
		IR2-C- 4,8x 60			40	
		IR2-C- 4,8x 80			60	
		IR2-C- 4,8x 90			70	
		IR2-C- 4,8x 100			80	
		IR2-C- 4,8x 120			100	
		IR2-C- 4,8x 140			120	
		IR2-C- 4,8x 160			140	
		IR2-C- 4,8x 180			160	
		IR2-C- 4,8x 200			180	

Stress plates

IRC/W-82X40

CE
ETA-08/0262

isofast® IF2-5,5



Technical information

Application

For the fastening of waterproof membrane and insulation to steel deck. For steel deck thicknesses of between min. 0,63 mm and max 2 x 1,25 mm.

Material

Fastener

- IF2-5,5
Case hardened carbon steel

Durocoat® corrosion protection:
Resistant to 15 cycles of the
Kesternich test in accordance with
ETAG 006 - D3.1 and FM Approval
Standard 4470 requirements

Environment friendly, free of
chromium VI

Stress plates

- ID-70x70 / IRD-82x40
Steel 1,0 mm, zinc plated

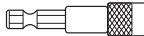
Resistant to 15 cycles of the
Kesternich test in accordance
with ETAG 006 - D3.1 and FM
Approval Standard 4470
requirements

Tools and accessories

DI 650



ZA 1/4" Universal bit holder



PH3-HEX bit



Recommendation for installation

- Power screwdriver
- 1000 - 3000 rpm
- Min 500W
- Battery tool
- 1000 - 3000 rpm
- Min 18V
- Battery with min 2.5 Ah

Stress plates

ID-70x70



- Stress plate for insulation, hole
diameter 7,5mm

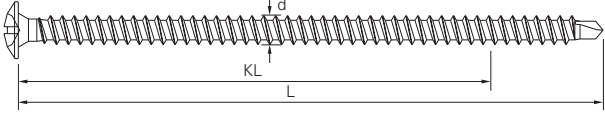
IRD-82x40



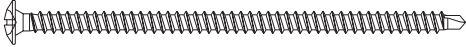
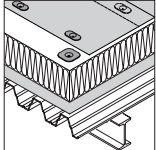
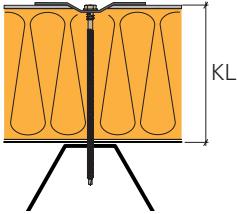
- Stress plate for membrane, hole
diameter 7,5mm

isofast® IF2-5,5

Order information

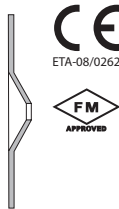
	Pan - Phillips head PH 3 	
KL clamping length M magazine loaded d thread diameter L Length TL thread length t thickness of structure All measurements in mm		

3

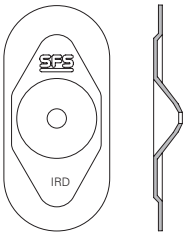
		Order code			K	Application range
Product / Application	Approval	Type	d	L		
■ Carbon steel   		IF2- 5,5x 41			21	 t min. steel: 0,63 mm t max. steel: 2 x 1,25 mm Screw length L: K + 20 mm For use with rigid insulation only. If mineral wool or compressive insulation is incorporated use IR system which has treadfast facility. Thread Length TL Fastener length 41 -95mm: TL = L - 5mm Fastener length 114 - 178mm: TL = 100mm
		IF2- 5,5x 57			37	
		IF2- 5,5x 73			53	
		IF2- 5,5x 83			63	
		IF2- 5,5x 114			94	
		IF2- 5,5x 127			107	
		IF2- 5,5x 152			132	
		IF2- 5,5x 178			158	

Stress plates

ID-70X70



IR-82X40



isofast® IF2-6,1



Technical information

Application

For the fastening of waterproof membrane and insulation to steel deck. For steel deck thicknesses of between min. 0,63 mm and max. 2 x 1,25 mm.

Material

Fastener

- IF2-6,1
Case hardened carbon steel

Durocoat® corrosion protection:
Resistant to 15 cycles of the
Kesternich test in accordance with
ETAG 006 - D3.1 and FM Approval
Standard 4470 requirements

Environment friendly, free of
chromium VI

Stress plates

- ID-70x70 / IRD-82x40
Steel 1,0 mm, zinc plated

Resistant to 15 cycles of the
Kesternich test in accordance
with ETAG 006 - D3.1 and FM Ap-
proval Standard 4470 requirements

Tools and accessories

DI 650



Recommendation for installation

- Power screwdriver
- 1000 - 3000 rpm
- Min 500W
- Battery tool
- 1000 - 3000 rpm
- Min 18V
- Battery with min 2.5 Ah

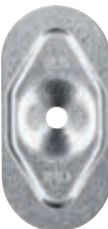
Stress plates

ID-70x70



- Stress plate for insulation, hole
diameter 7,5mm

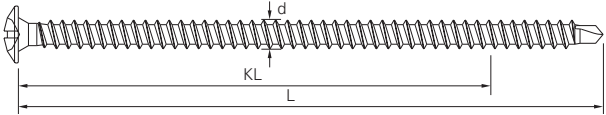
IRD-82x40



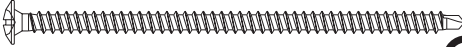
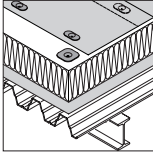
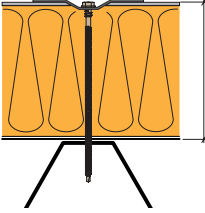
- Stress plate for membrane, hole
diameter 7,5mm

isofast® IF2-6,1

Order information

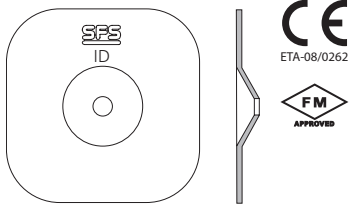
	Pan - Phillips head PH 3 	
KL clamping length M magazine loaded d thread diameter L Length t thickness of structure All measurements in mm		

3

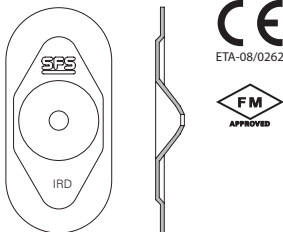
		Order code			K	Application range
Product / Application	Approval	Type	d	L		
■ Carbon steel    ETA-08/0262 		IF2-	6,1x	32	12	 t min. steel: 0,63 mm t max. steel: 2 x 1,25 mm Screw length L: K + 20 mm For use with rigid insulation only. If mineral wool or compressive insulation is incorporated use IR system which has treadfast facility. Thread Length TL Fastener length 32 -102mm: TL = L - 5mm Fastener length 127 - 305mm: TL = 100mm
		IF2-	6,1x	52	32	
		IF2-	6,1x	76	56	
		IF2-	6,1x	102	82	
		IF2-	6,1x	127	107	
		IF2-	6,1x	152	132	
		IF2-	6,1x	178	158	
		IF2-	6,1x	203	183	
		IF2-	6,1x	254	234	
		IF2-	6,1x	305	285	

Stress plates

ID-70X70



IR-82X40



***isoweld*®: The revolutionary field fastening system from SFS intec**

The new SFS intec *isoweld*® system is a revolutionary, non-penetrating field fastening system for flat roofs. *isoweld*® follows on from the tried-and-trusted *isofast*® and *isotak*® systems in offering another economical, secure and permanent method of fixing insulation material and membranes on flat roofs.

The system, developed entirely by SFS intec, is ideal for PVC, TPO and EPDM membranes. The stress plates used to secure the insulation to the roof are welded to it by inductive heating, creating a non-penetrating connection. The weld is achieved using the *isoweld*®3000 induction tool, developed in-house, which is equipped

with an array of safety functions. These include a search-and-control function, automatic temperature variation control and mains current fluctuation compensation.

3



Here's why a field fastening system makes so much sense:

- Fixing is independent of the membrane joints
- Only one membrane width is needed
- No additional insulation fixing
- No membrane penetration
- Reduced membrane overlaps
- Coverage independent of fixing progress – so much quicker
- Fewer fixing points

The convincing advantages of the *isoweld*® system:

- Ergonomic, upright installation with height adjustable handle
- Simple, user-friendly display with integrated counter
- Temperature compensation function automatically adapts to variations in temperature
- Automatic adjustment to power fluctuations
- Search-and-control function allows only perfect welds
- Acoustic and visual indicators at the start and finish of each weld
- Additional hand inductor for tight spaces and vertical welds



isoweld® BS-6,1 / FI-P

isoweld® BS-6,1 / FI-P



Technical information

Application

For the fastening of waterproof membrane and insulation to steel deck. For steel deck thicknesses of between min. 0,63 mm and max. 2 x 1,25 mm.

Material

Fastener

- BS-6,1
Case hardened carbon steel
Durocoat® corrosion protection:
Resistance at 15 cycles Kesternich
test according to ETAG 006 - D.3.1.
and FM Approval Standard 4470
requirements
Environment-friendly, free of
chromium VI

Stress plate

- FI-P-6,8-PVC / FI-P-6,8-TPO / FI-P-6,8-EPDM
Steel 0,8 mm
Resistance at 15 cycles Kesternich
test according to ETAG 006 - D.3.1.
and FM Approval Standard 4470
requirements

Stress plates

FI-P-6,8-PVC



- Stress plate for PVC membranes and insulation, plate diameter 80 mm, hole diameter 6,8 mm

FI-P-6,8-TPO



- Stress plate for TPO membranes and insulation, plate diameter 80 mm, hole diameter 6,8 mm

FI-P-6,8-EPDM

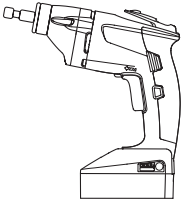


- Stress plate for EPDM membranes and insulation, plate diameter 80 mm, hole diameter 6,8 mm

Technical information

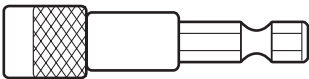
Tools and accessories

Recommendation for installation



- Power screwdriver
 - 1000 - 3000 rpm
 - Min. 500 W
- Battery tool
 - 1000 - 3000 rpm
 - Min. 18 V
 - Battery with min. 2,5 Ah

Bit holder ZA1/4"



- Accessory for the manual installation in combination with a power screwdriver or battery tool

T25-25-HEX1/4"



- Accessory for the manual installation in combination with a power screwdriver or battery tool

FI80-L



- Stand-up setting tool for the installation of *isoweld*® fasteners and stress plates

FI80-S



- Stand-up setting tool for the installation of *isoweld*® fasteners and stress plates

isoweld®3000 / FI-H / FI-Magnet Set



- Induction welding tool, hand inductor and magnets for the welding of the membrane to the *isoweld*® stress plates

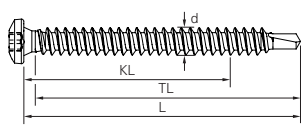
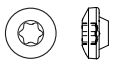
FI-Pad



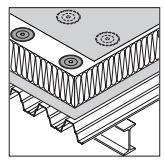
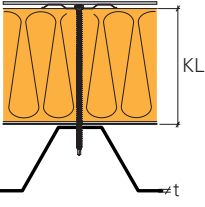
- Cardboard pad for applications on EPS/XPS insulation

isoweld® BS-6,1 / FI-P

Order information

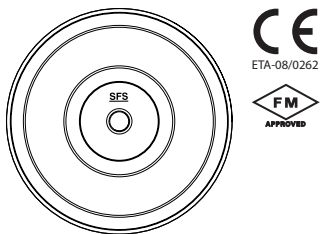
	T25 Ø 9,7 mm 	
KL clamping length M magazine loaded d thread diameter L length TL thread length t thickness of structure All measurements in mm		

3

Product / Application	Approval	Order code			K	Application information
		BS	6,1x	60		
■ Carbon steel  		BS	6,1x	60	40	 t min. steel: 0,63 mm t max. steel: 2 x 1,25 mm
		BS	6,1x	70	50	
		BS	6,1x	80	60	
		BS	6,1x	90	70	
		BS	6,1x	100	80	
		BS	6,1x	120	100	
		BS	6,1x	140	120	
		BS	6,1x	160	140	
		BS	6,1x	180	160	
		BS	6,1x	200	180	
		BS	6,1x	220	200	Build-up: Insulation compressive strength at 10% compression min. 0,1 N/m². For steel decks or steel parapet walls a minimum 40mm insulation layer must be located between the isoweld FI-P-6,8mm plate and the substrate Clamping length KL: Total roof build-up between top edge substrate and top edge insulation K = thickness vapour barrier + thickness insulation Screw length L: L min. = K + 20 mm Thread length TL: Fastener length 35 - 70 mm: TL = L - 3 mm Fastener length 80 - 300 mm: TL = 75 mm
		BS	6,1x	240	220	
		BS	6,1x	260	240	
		BS-S	6,1x	280	260	
		BS-S	6,1x	300	280	

Stress plates

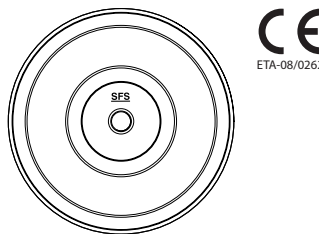
FI-P-6,8-PVC



FI-P-6,8-TPO



FI-P-6,8-EPDM



isoweld® BS-S-4,8 / FI-P



Technical information

Application

For the fastening of waterproof membrane and insulation to steel deck. For steel deck thicknesses of between min. 0,63 mm and max. 2 x 1,0 mm.
Where the internal relative humidity is in excess of 65%. In chemically aggressive atmospheres or conditions. For refurbishment applications where the detailed condition of the existing build up is not known or when the build up contains abrasive layers that may damage the corrosion protection and make it ineffective. Where an extended design life / warranty is required by the client. For locations with aggressive local conditions (eg coastal environments).

Material

Fastener

- BS-S-4,8
Austenitic stainless steel, grade
AISI 316, European Standard 1.4401,
grade A4
Drill point and lead thread section:
Fused and hardened carbon steel,
length 13 mm, corrosion protected

Stress plate

- FI-P-6,8-PVC / FI-P-6,8-TPO / FI-
P-6,8-EPDM
Steel 0,8 mm
Resistance at 15 cycles Kesternich
test according to ETAG 006 - D.3.1.
and FM Approval Standard 4470
requirements

Stress plates

FI-P-6,8-PVC



- Stress plate for PVC membranes and
insulation, plate diameter 80 mm,
hole diameter 6,8 mm

FI-P-6,8-TPO



- Stress plate for TPO membranes and
insulation, plate diameter 80 mm,
hole diameter 6,8 mm

FI-P-6,8-EPDM



- Stress plate for EPDM membra-
nes and insulation, plate diameter
80 mm, hole diameter 6,8 mm

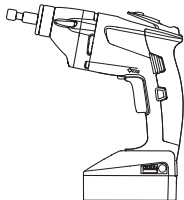
Technical information

Material

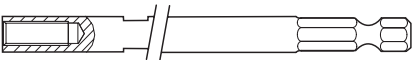
Recommendation for installation

ZA1/4"-M6-300/750

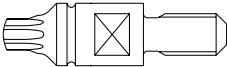
T25-32-M6



- Power screwdriver
 - 1000 - 3000 rpm
 - Min. 500 W
- Battery tool
 - 1000 - 3000 rpm
 - Min. 18 V
 - Battery with min. 2,5 Ah



- Accessory for the manual installation in combination with a power screwdriver or battery tool



- Accessory for the manual installation in combination with a power screwdriver or battery tool

FI80-L



- Stand-up setting tool for the installation of *isoweld*® fasteners and stress plates

FI80-S



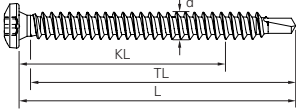
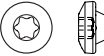
- Stand-up setting tool for the installation of *isoweld*® fasteners and stress plates

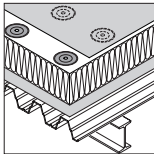
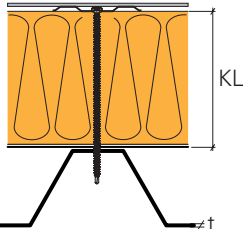
isoweld®3000 / FI-H / FI-Magnet Set



- Induction welding tool, hand inductor and magnets for the welding of the membrane to the *isoweld*® stress plates

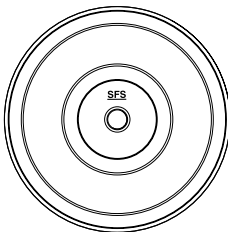
Order information

	T25 recess Ø 8,9 mm 	
KL clamping length M magazine loaded d thread diameter L length TL thread length t thickness of structure All measurements in mm		

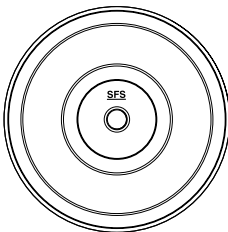
		Order code			K	Application information
Product	Approval	Type	d	L		
• Stainless steel  	CE ETA-08/0262	BS-S- 4,8x 60	4,8	60	40	 t min. steel: 0,63 mm t max. steel: 2 x 1,0 mm Build-up: Insulation compressive strength at 10% compression min. 0,1 N/m² For steel decks or steel parapet walls a minimum 40mm insulation layer must be located between the isoweld FI-P-6,8mm plate and the substrate Clamping length KL: K = total roof build-up between top edge substrate and top edge insulation K = thickness vapour control layer + thickness insulation Screw length L: L min. = K + 20 mm Thread length TL: Fastener length 60 - 80mm: TL = L-5mm Fastener length 100 - 200mm: TL = 75mm
		BS-S- 4,8x 80	4,8	80	60	
		BS-S- 4,8x 100	4,8	100	80	
		BS-S- 4,8x 120	4,8	120	100	
		BS-S- 4,8x 140	4,8	140	120	
		BS-S- 4,8x 160	4,8	160	140	
		BS-S- 4,8x 180	4,8	180	160	
		BS-S- 4,8x 200	4,8	200	180	

Stress plates

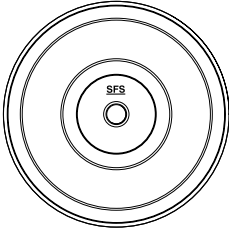
FI-P-6,8-PVC



FI-P-6,8-TPO



FI-P-6,8-EPDM



isoweld® BS-6,1 / FI-P / FI-R

isoweld® BS-6,1



Technical information

Application

For the fastening of waterproof membrane and insulation to steel deck. For steel deck thicknesses of between min. 0,63 mm and max. 2 x 1,25 mm.

Material

Fastener

- BS-6,1
Case hardened carbon steel
Durocoat® corrosion protection:
Resistance at 15 cycles of Kesternich
test according to ETAG 006 - D.3.1.
and FM Approval Standard 4470
requirements
Environment-friendly, free of chromium VI

Sleeve

- FI-R-20
High quality polyamide, PA

Stress plate

- FI-P-16,0-PVC / FI-P-16,0-TPO
FI-P-16,0-EPDM
Steel 0,8 mm
Resistance at 15 cycles of
Kesternich test according to
ETAG 006 - D.3.1. and FM
Approval Standard 4470
requirements

Stress plates

FI-P-16,0-PVC



- Stress plate for PVC membranes
and insulation, plate diameter
80 mm, hole diameter 16,0 mm

FI-P-16,0-TPO



- Stress plate for TPO membranes
and insulation, plate diameter
80 mm, hole diameter 16,0 mm

FI-P-16,0-EPDM



- Stress plate for EPDM membranes
and insulation, plate diameter
80 mm, hole diameter 16,0 mm

Sleeves

FI-R-20



- Sleeve for the isoweld® system, head diameter 20 mm

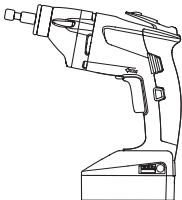
Technical information

Tools and accessories

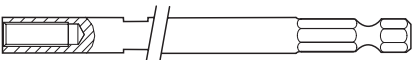
Recommendation for installation

ZA1/4"-M6-300/750

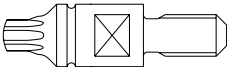
T25-32-M6



- Power screwdriver
 - 1000 - 3000 rpm
 - Min. 500 W
- Battery tool
 - 1000 - 3000 rpm
 - Min. 18 V
 - Battery with min. 2,5 Ah



- Accessory for the manual installation in combination with a power screwdriver or battery tool



- Accessory for the manual installation in combination with a power screwdriver or battery tool

FI80-T19

isoweld®3000 / FI-H / FI-Magnet Set

FI-Pad



- Stand-up setting tool for the installation of *isoweld*® fasteners, stress plates and sleeves



- Induction welding tool, hand inductor and magnets for the welding of the membrane to the *isoweld*® stress plates



- Cardboard pad for applications on EPS/XPS insulation

isoweld® BS-6,1 / FI-P / FI-R

Order information

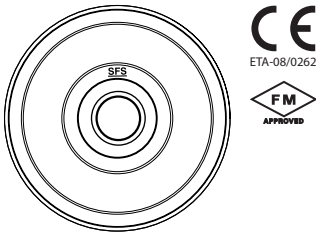
		T25 Ø 9,7 mm	
KL clamping length M magazine loaded d thread diameter L length TL thread length t thickness of structure All measurements in mm			

3

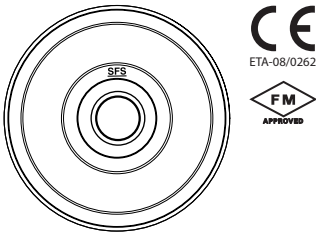
		Order code			Application information
Product / Application	Approval	Type	d	L	
■ Carbon steel 	 	BS-	6,1x	60	 t min. steel: 0,63 mm t max. steel: 2 x 1,25 mm Thread length TL: Fastener length 35 - 70 mm: TL = L - 3 mm Fastener length 80 - 300 mm: TL = 75 mm
		BS-	6,1x	70	
		BS-	6,1x	80	
		BS-	6,1x	90	
		BS-	6,1x	100	
		BS-	6,1x	120	
		BS-	6,1x	140	
		BS-	6,1x	160	
		BS-	6,1x	180	
		BS-	6,1x	200	
		BS-	6,1x	220	
		BS-	6,1x	240	
		BS-	6,1x	260	
		BS-	6,1x	280	
		BS-	6,1x	300	
		BS-	6,1x	300	
● Plastic 	 	FI-R-	20x	40	K see combination table
		FI-R-	20x	70	
		FI-R-	20x	100	
		FI-R-	20x	130	
		FI-R-	20x	160	
		FI-R-	20x	190	
		FI-R-	20x	230	
		FI-R-	20x	300	
		FI-R-	20x	300	

Stress plates

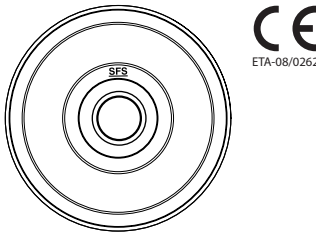
FI-P-16,0-PVC



FI-P-16,0-TPO



FI-P-16,0-EPDM



isoweld® BS-S-4,8



Technical information

Application

For the fastening of waterproof membrane and insulation to steel deck. For steel deck thicknesses of between min. 0,63 mm and max. 2 x 1,0 mm.
Where the internal relative humidity is in excess of 65%. In chemically aggressive atmospheres or conditions. For refurbishment applications where the detailed condition of the existing build up is not known or when the build up contains abrasive layers that may damage the corrosion protection and make it ineffective. Where an extended design life / warranty is required by the client. For locations with aggressive local conditions (eg coastal environments).

Material

Fastener

- BS-S-4,8
Austenitic stainless steel, grade AISI 316, European Standard 1.4401, grade A4
Drill point and lead thread section: Fused and hardened carbon steel, length 13 mm, corrosion protected

Sleeve

- FI-R-20
High quality polyamide, PA

Stress plate

- FI-P-16,0-PVC / FI-P-16,0-TPO
FI-P-16,0-EPDM
Steel 0,8 mm
Resistance at 15 cycles of Kesternich test according to ETAG 006 - D.3.1. and FM Approval Standard 4470 requirements

Stress plates

FI-P-16,0-PVC



- Stress plate for PVC membranes and insulation, plate diameter 80 mm, hole diameter 16,0 mm

FI-P-16,0-TPO



- Stress plate for TPO membranes and insulation, plate diameter 80 mm, hole diameter 16,0 mm

FI-P-16,0-EPDM



- Stress plate for EPDM membranes and insulation, plate diameter 80 mm, hole diameter 16,0 mm

Sleeves

FI-R-20



- Sleeve for the isoweld® system, head diameter 20 mm

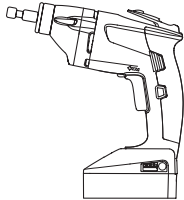
Technical information

Tools and accessories

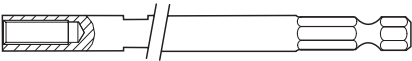
Recommendation for installation

ZA1/4"-M6-300/750

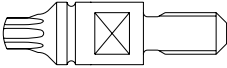
T25-32-M6



- Power screwdriver
 - 1000 - 3000 rpm
 - Min. 500 W
- Battery tool
 - 1000 - 3000 rpm
 - Min. 18 V
 - Battery with min. 2,5 Ah



- Accessory for the manual installation in combination with a power screwdriver or battery tool



- Accessory for the manual installation in combination with a power screwdriver or battery tool

FI80-T19

isoweld®3000 / FI-H / FI-Magnet Set

FI-Pad



- Stand-up setting tool for the installation of *isoweld*® fasteners, stress plates and sleeves



- Induction welding tool, hand inductor and magnets for the welding of the membrane to the *isoweld*® stress plates



- Cardboard pad for applications on EPS/XPS insulation

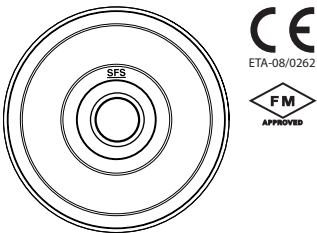
Order information

		T25 Ø 8,9 mm 	
KL clamping length M magazine loaded d thread diameter L length TL thread length t thickness of structure All measurements in mm			

		Order code			Application information
		BS-S- 4,8x	60		
Product / Application	Approval	Type	d	L	
● Stainless steel		BS-S- 4,8x	60		 Thread length TL: Fastener length 60 mm: TL = 57 mm Fastener length 80 - 160 mm: TL = 75 mm
		BS-S- 4,8x	80		
		BS-S- 4,8x	100		
		BS-S- 4,8x	120		
		BS-S- 4,8x	140		
		BS-S- 4,8x	160		
		BS-S- 4,8x	180		
		BS-S- 4,8x	200		
● Plastic		FI-R- 20x	40		K see combination table
		FI-R- 20x	70		
		FI-R- 20x	100		
		FI-R- 20x	130		
		FI-R- 20x	160		
		FI-R- 20x	190		
		FI-R- 20x	230		
		FI-R- 20x	300		

Stress plates

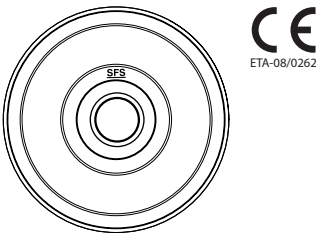
FI-P-16,0-PVC



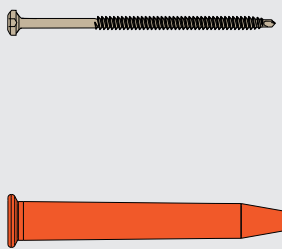
FI-P-16,0-TPO



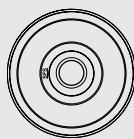
FI-P-16,0-EPDM



COMBINATION



Fastener:
BS-6,1
BS-S-4,8



FI-P-16,0-PVC, FI-P-16,0-TPO
or FI-P-16,0-EPDM

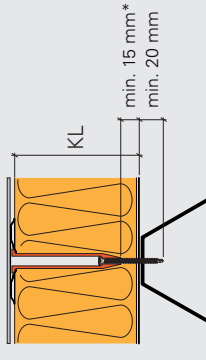
Please follow the calculation steps to find the correct fastener and sleeve combination for new roofs. Special rules apply for renovation.

Clamping length KL:
Total roof build-up between top edge
substrate and top edge insulation

$$KL = \text{Thickness vapour barrier} + \text{Thickness insulation}$$

SL_{max} = Clamping length KL
 - Thickness vapour barrier
 - 15 mm

If a length is not available, take the next shorter length. Sleeve range see chapter.



* thickness vapour barrier to be considered

$$FL_{min.} = \text{Clamping length KL} \\ - \text{Sleeve length SL} \\ + 43 \text{ mm}$$

If a length is not available, take the next longer length. Fastener range see chapter.

KL (mm)	Sleeve length SL (mm)	Fastener length FL (mm)
30		
40		
50		70 : 80 : 90 : 100 : 120
60	40	70 : 80 : 90 : 100 : 120
70		70 : 80 : 90 : 100 : 120
80		70 : 80 : 90 : 100 : 120
90	70	70 : 80 : 90 : 100 : 120
100		70 : 80 : 90 : 100 : 120
110	100	70 : 80 : 90 : 100 : 120
120		70 : 80 : 90 : 100 : 120
130		70 : 80 : 90 : 100 : 120
140		70 : 80 : 90 : 100 : 120
150	130	70 : 80 : 90 : 100 : 120
160		70 : 80 : 90 : 100 : 120
170		70 : 80 : 90 : 100 : 120
180	160	70 : 80 : 90 : 100 : 120
190		70 : 80 : 90 : 100 : 120
200		70 : 80 : 90 : 100 : 120
210	190	70 : 80 : 90 : 100 : 120
220		70 : 80 : 90 : 100 : 120
230		70 : 80 : 90 : 100 : 120
240		70 : 80 : 90 : 100 : 120
250	230	70 : 80 : 90 : 100 : 120
260		70 : 80 : 90 : 100 : 120
270		70 : 80 : 90 : 100 : 120
280		70 : 80 : 90 : 100 : 120
290		70 : 80 : 90 : 100 : 120
300		70 : 80 : 90 : 100 : 120
310		70 : 80 : 90 : 100 : 120
320		70 : 80 : 90 : 100 : 120
330		70 : 80 : 90 : 100 : 120
340		70 : 80 : 90 : 100 : 120
350		70 : 80 : 90 : 100 : 120
360		70 : 80 : 90 : 100 : 120
370		70 : 80 : 90 : 100 : 120
380		70 : 80 : 90 : 100 : 120
390		70 : 80 : 90 : 100 : 120
400		70 : 80 : 90 : 100 : 120
410		70 : 80 : 90 : 100 : 120
420		70 : 80 : 90 : 100 : 120
430		70 : 80 : 90 : 100 : 120
440		70 : 80 : 90 : 100 : 120
450		70 : 80 : 90 : 100 : 120
460		70 : 80 : 90 : 100 : 120
470		70 : 80 : 90 : 100 : 120
480		70 : 80 : 90 : 100 : 120
490		70 : 80 : 90 : 100 : 120
500		70 : 80 : 90 : 100 : 120

4

isotak® Fasteners and plastic sleeves	Product code	Page
Carbon steel	DT-4,8 / R45	► 4.3
Carbon steel	TI-T25-6,3 / R45 TI-T25-6,3 / R75	► 4.7 ► 4.10
Carbon steel	TI-T25-6,3 / ST	► 4.13
Austenitic stainless steel	TI-S-Z10 / R45 TI-S-Z10 / R75	► 4.16 ► 4.19
Carbon steel	TIA-T25 / R45 TIA-T25 / R75	► 4.23 ► 4.25
Carbon steel	TIA-T25-6,3 / ST	► 4.27
Installation process and combination tables	TIA-T25-6,3 / R45 / R75 / ST	► 4.29
Drill accessories	ZVK / ZAK	► 4.31

isofast® Fasteners and stress plates	Product code	Page
Carbon steel	DT-4,8 DT-6,3	► 4.33 ► 4.35
Carbon steel	TI-6,3	► 4.37
Carbon steel	IF2-6,1	► 4.39
Drill accessories	SDS	► 4.41

isoweld® Fastener, stress plates and plastic sleeves	Product code	Page
Carbon steel	TI-T25-6,3 / FI-P	► 4.42
Drill accessories	SDS	► 4.45
Carbon steel Sleeve system	TI-T25-6,3 / FI-P FI-R	► 4.46
Carbon steel Sleeve system	TIA-T25-6,3 / FI-P / FI-R	► 4.50
Drill accessories	ZVK / ZAK	► 4.54

4

Impact anchor DT: Faster, easier fixing into concrete

Fixing into concrete with conventional methods is at best complicated. Using plug free fasteners however considerably improves installation time. The DT system has been

developed and optimised by SFS intec over recent years and has a proven track record with respect to its fast installation, security of application and ease of use.

The impact anchor DT is part of the *isotak*®, *isofast*® and *isoweld*® system.

The convincing advantages of the DT fastening systems



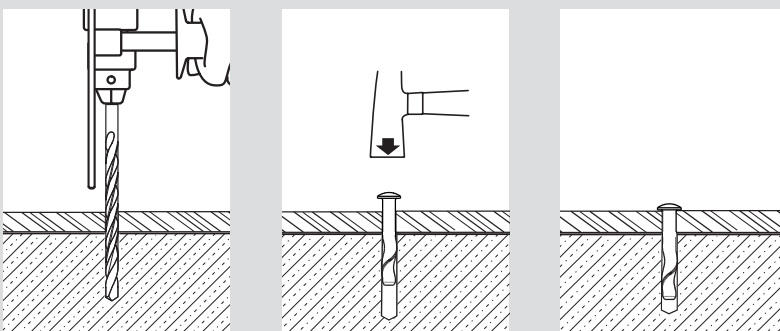
- Tough anchoring due to all round force distribution
- Simple one-piece fastener
- No need to fit and adjust plugs
- Reduced diameter pilot holes required
- Reduced drilling depth
- Maximum corrosion resistance
- Available in austenitic stainless steel
- Highly fire resistant
- Absolutely free from vibration
- Simple procedure: pre-drill and drive in, secure and stable



Plug-free fixing directly into concrete

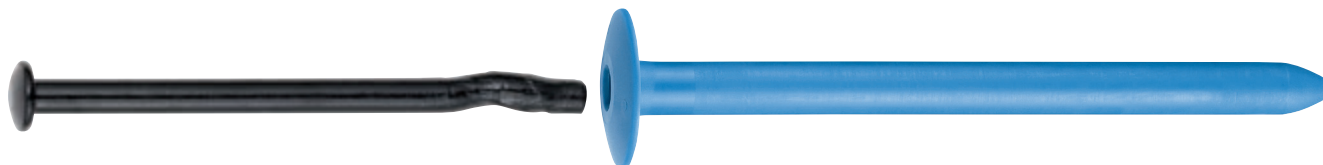
Fixing into concrete using the DT system is even more secure and efficient. The unique spiral tip of the impact anchor DT exerts all round pressure within the pilot hole. The continuous pre-tensioning due to the rotary force transmission results in a considerably improved pull-out performance.

Installation is so simple: Drill, hammer home – job done



High pull-out resistance from concrete and similar aggregate materials

The DT fastening system is vibration free, corrosion proof and offers extremely high fire resistance. The entire range is available in austenitic stainless steel, making this fastener ideal for critical applications including those with chemically aggressive atmospheric conditions or roof renovation projects.

isotak® DT-4,8 / R45**Technical information****Application**

For the fastening of waterproof membrane to solid, dense concrete of minimum grade C12/15.

Material**Fastener**

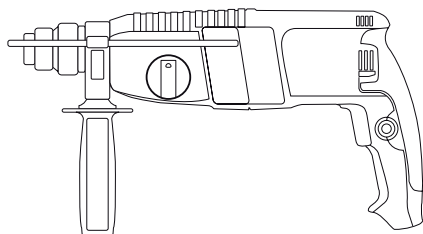
- DT-4,8 Case hardened carbon steel

Durocoat® corrosion protection:
Resistant to 15 cycles of the
Kesternich test in accordance with
ETAG 006 - D3.1 and FM Approval
Standard 4470 requirements

Environment friendly, free of
chromium VI

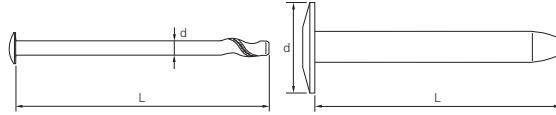
Sleeve

- R45
High quality polypropylene, PP

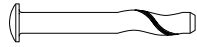
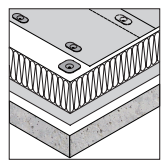
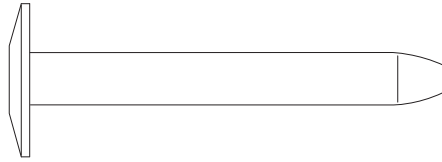
Tools and accessories**DT-M-500 / DT-M-750**

- For pre-drilling:
Use hammer drill with weight class
2 - 3 kg, impact energy $\leq 2,5$ J
- For installation:
Use hammer drill with weight
class 2 - 3 kg, impact energy
 $\leq 2,5$ J, without rotation function,
to hammer in the isotak DT
- Mechanical driving tool to hammer
in the DT fastener .

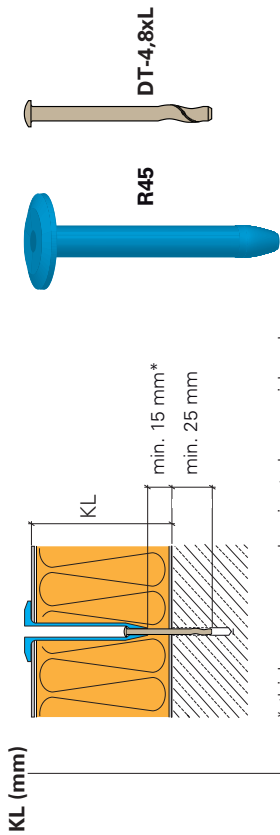
Order information

	Mushroom head Ø 9,7 mm  	
KL clamping length M magazine loaded d thread diameter L Length t thickness of structure All measurements in mm		

4

Product / Application	Approval	Order code DT- 4,8x 64			Application range
		Type	d	L	
■ Carbon steel  	 ETA-08/0262 	DT- 4,8x 64 DT- 4,8x 76 DT- 4,8x 89 DT- 4,8x 102 DT- 4,8x 115 DT- 4,8x 127 DT- 4,8x 140 DT- 4,8x 152			Build-up: Thickness concrete deck t: min. 60 mm. Edge distance: min. 60 mm Insulation compressive strength at 10% compression min. 0,1 N m². Clamping length KL: K = total roof build-up between top edge substrate and top edge membrane K = thickness vapour barrier + thickness insulation + thickness membrane Setting: Sd (Setting depth): min. 25 mm Depth of pilot hole to be min. 15 mm deeper than the setting depth of the DT fastener, depending on site conditions.
● Plastic 	 ETA-08/0262 	R	45x	15 35 65 85 105 135 165 185 225 255 285 325 365 405	K see combination table

Selection of the correct fastener and sleeve combination



Combination sleeve R45 and DT-4,8xL**

** If a length is not available, take the next length.
Fastener range see chapter.

* thickness vapour barrier to be considered

KL = total roof build-up between top edge
substrate and top edge membrane

KL = thickness vapour barrier
+ thickness insulation
+ thickness membrane

KL (mm)	Sleeve R 5k	Fastener DT-4,8k	Setting depth*** (mm)
30	Sleeve length 15	64 : 64 : 76 : 89	36 : 26 : 28 : 31
40	Sleeve length 35	64 : 64 : 76 : 89	36 : 26 : 28 : 31
50	Sleeve length 65	64 : 64 : 76 : 89	36 : 26 : 28 : 31
60	Sleeve length 85	64 : 64 : 76 : 89	36 : 26 : 28 : 31
70	Sleeve length 105	64 : 64 : 76 : 89	36 : 26 : 28 : 31
80	Sleeve length 135	64 : 64 : 76 : 89	36 : 26 : 28 : 31
90	Sleeve length 165	64 : 64 : 76 : 89	36 : 26 : 28 : 31
100	Sleeve length 195	64 : 64 : 76 : 89	36 : 26 : 28 : 31
110	Sleeve length 225	64 : 64 : 76 : 89	36 : 26 : 28 : 31
120	Sleeve length 255	64 : 64 : 76 : 89	36 : 26 : 28 : 31
130	Sleeve length 285	64 : 64 : 76 : 89	36 : 26 : 28 : 31
140	Sleeve length 315	64 : 64 : 76 : 89	36 : 26 : 28 : 31
150	Sleeve length 345	64 : 64 : 76 : 89	36 : 26 : 28 : 31
160	Sleeve length 375	64 : 64 : 76 : 89	36 : 26 : 28 : 31
170	Sleeve length 405	64 : 64 : 76 : 89	36 : 26 : 28 : 31
180	Sleeve length 435	64 : 64 : 76 : 89	36 : 26 : 28 : 31
190	Sleeve length 465	64 : 64 : 76 : 89	36 : 26 : 28 : 31
200	Sleeve length 495	64 : 64 : 76 : 89	36 : 26 : 28 : 31
210	Sleeve length 525	64 : 64 : 76 : 89	36 : 26 : 28 : 31
220	Sleeve length 555	64 : 64 : 76 : 89	36 : 26 : 28 : 31
230	Sleeve length 585	64 : 64 : 76 : 89	36 : 26 : 28 : 31
240	Sleeve length 615	64 : 64 : 76 : 89	36 : 26 : 28 : 31
250	Sleeve length 645	64 : 64 : 76 : 89	36 : 26 : 28 : 31
260	Sleeve length 675	64 : 64 : 76 : 89	36 : 26 : 28 : 31
270	Sleeve length 705	64 : 64 : 76 : 89	36 : 26 : 28 : 31
280	Sleeve length 735	64 : 64 : 76 : 89	36 : 26 : 28 : 31
290	Sleeve length 765	64 : 64 : 76 : 89	36 : 26 : 28 : 31
300	Sleeve length 795	64 : 64 : 76 : 89	36 : 26 : 28 : 31
310	Sleeve length 825	64 : 64 : 76 : 89	36 : 26 : 28 : 31
320	Sleeve length 855	64 : 64 : 76 : 89	36 : 26 : 28 : 31
330	Sleeve length 885	64 : 64 : 76 : 89	36 : 26 : 28 : 31
340	Sleeve length 915	64 : 64 : 76 : 89	36 : 26 : 28 : 31
350	Sleeve length 945	64 : 64 : 76 : 89	36 : 26 : 28 : 31
360	Sleeve length 975	64 : 64 : 76 : 89	36 : 26 : 28 : 31
370	Sleeve length 1005	64 : 64 : 76 : 89	36 : 26 : 28 : 31
380	Sleeve length 1035	64 : 64 : 76 : 89	36 : 26 : 28 : 31
390	Sleeve length 1065	64 : 64 : 76 : 89	36 : 26 : 28 : 31
400	Sleeve length 1095	64 : 64 : 76 : 89	36 : 26 : 28 : 31
410	Sleeve length 1125	64 : 64 : 76 : 89	36 : 26 : 28 : 31
420	Sleeve length 1155	64 : 64 : 76 : 89	36 : 26 : 28 : 31
430	Sleeve length 1185	64 : 64 : 76 : 89	36 : 26 : 28 : 31
440	Sleeve length 1215	64 : 64 : 76 : 89	36 : 26 : 28 : 31
450	Sleeve length 1245	64 : 64 : 76 : 89	36 : 26 : 28 : 31
460	Sleeve length 1275	64 : 64 : 76 : 89	36 : 26 : 28 : 31
470	Sleeve length 1305	64 : 64 : 76 : 89	36 : 26 : 28 : 31
480	Sleeve length 1335	64 : 64 : 76 : 89	36 : 26 : 28 : 31
490	Sleeve length 1365	64 : 64 : 76 : 89	36 : 26 : 28 : 31
500	Sleeve length 1395	64 : 64 : 76 : 89	36 : 26 : 28 : 31

***Depth of pilot hole to be 15 mm deeper than the setting depth, depending on site conditions.

Calculation:
Example:

Roof build-up (KL)
100 mm

Sleeve length (L)
85 mm

Type of fastener
DT-4,8x64

TI: Efficient self tapping fasteners into concrete without plugs

Application specific fastener solutions for use either with solid or pre-cast concrete substrates are highly sought after. Indeed, some systems still rely on plugs to hold the concrete fasteners securely in position.

Using SFS's specially developed, application specific thread-form fastener greatly simplifies the installation of flat roof insulation boards and membranes on concrete deck.

The TI is part of the *isotak*®, *isofast*® and *isoweld*® system.

The convincing advantages of the TI thread-forming fastener



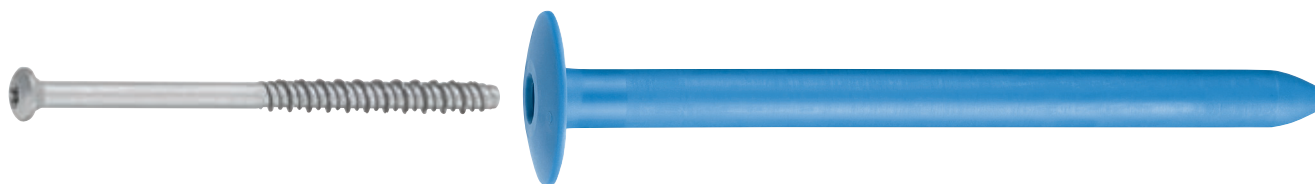
- Easy to install
- No requirement for plugs
- Low insertion torque
- High pull-out resistance
- Can be easily removed
- Maximum corrosion resistance
- Reduced drilling due to low embedment requirement
- Simply drill the pilot hole, apply with an appropriate screwdriver



The optimum solution for many applications

The TI thread forming fastener represents the ideal solution for many applications where secure fastening is required into concrete substrates. These include the installation of waterproof membrane and insulation materials onto solid or precast concrete decks using the appropriate SFS intec sleeves or stress plates. Other applications include fixing timber beams and weatherboarding into concrete / masonry walling or decking.



isotak® TI-T25-6,3 / R45

4

Technical information**Application**

For the fastening of waterproof membrane to solid, dense concrete of minimum grade C12/15.

Material**Fastener**

■ TI-T25-6,3

Case hardened carbon steel

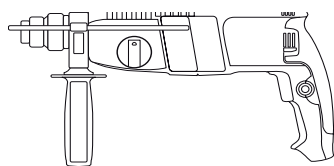
Durocoat® corrosion protection:
Resistant to 15 cycles of the
Kesternich test in accordance with
ETAG 006 - D3.1 and FM Approval
Standard 4470 requirements

Environment friendly, free of
chromium VI

Sleeve

■ R45

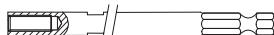
High quality polypropylene, PP

Tools and accessories

- Use hammer drill with weight class 2 - 3 kg, impact energy ≤ 2,5J

Accessories

ZA ¼" -M6-300/750



T25-32-M6



ZH-11-RING



- For the manual installation of isotak® fasteners and sleeves

DI-650

- Power screwdriver
 - 300 - 700 rpm
 - Min. 500 W
- Battery tool
 - 300 - 700 rpm
 - Approx. 18 V
 - Battery with approx. 2,5 Ah
- Do not use a percussion tool.

isotak® TI-T25-6,3 / R45

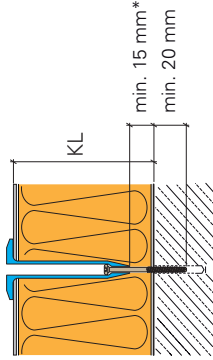
Order information

		T25 Ø 9.7 mm
KL clamping length M magazine loaded d thread diameter L Length TL thread length t thickness of structure All measures in mm		

		Order code			Application range
Product / Application	Approval	Type	d	L	
■ Carbon steel	 	TI-T25	6,3x	30	 Build-up: Thickness concrete deck t: min. 40 mm. Edge distance: min. 50 mm Thread length TL: Fastener length 50 mm: TL = 47 mm Fastener length 60 - 160 mm: TL = 50 mm Setting: Sd (Setting depth): min. 20 mm Depth of pilot hole to be min. 15 mm deeper than the setting depth of the fastener, depending on site conditions. Optimum performance can be determined by SFS intec. Limited undertaking site pull out testing using different drill diameters. Consult your SFS representative for further information.
		TI-T25	6,3x	50	
		TI-T25	6,3x	60	
		TI-T25	6,3x	70	
		TI-T25	6,3x	80	
		TI-T25	6,3x	90	
		TI-T25	6,3x	100	
		TI-T25	6,3x	120	
		TI-T25	6,3x	140	
		TI-T25	6,3x	160	
● Plastic	 	R	45x	15	K see combination table
		R	45x	35	
		R	45x	65	
		R	45x	85	
		R	45x	105	
		R	45x	135	
		R	45x	165	
		R	45x	185	
		R	45x	225	
		R	45x	255	
		R	45x	285	
		R	45x	325	
		R	45x	365	
		R	45x	405	

Selection of the correct fastener and sleeve combination

KL (mm)



R45

TI-T25-6,3xL

Combination sleeve R45 and fastener TI-T25-6,3xL**

** If a length is not available, take the next length
Fastener range see chapter

* thickness vapour barrier to be considered

KL = total roof build-up between top edge
substrate and top edge membrane

KL = thickness vapour barrier
+ thickness insulation
+ thickness membrane

Sleeve 5k

Fastener 56,3k

Setting
depth**
(mm)

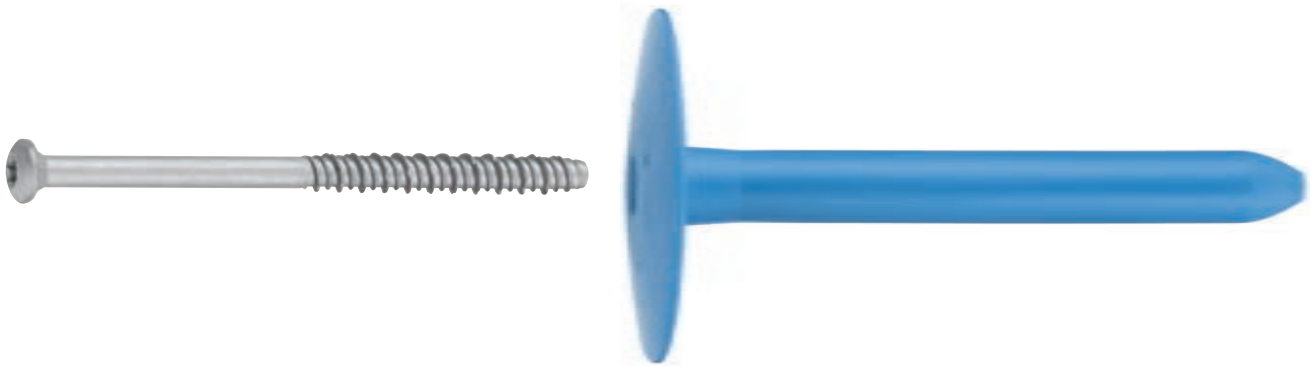
** Depth of pilot hole to be 10 - 20 mm deeper than the
setting depth, depending on site conditions.

Calculation:
Example:

Roof build-up (KL) -
160 mm

Sleeve length (L) -
135 mm

Type of fastener
TI-T25-6,3x60

ISO-TAK® TI-T25-6,3 / R75

4

Technical information**Application**

For the fastening of insulation to concrete of minimum grade C12/15

Material**Fastener**

- TI-T25-6,3

Case hardened carbon steel

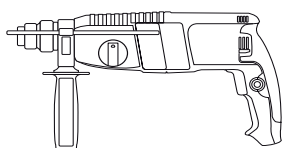
Durocoat® corrosion protection:
Resistant to 15 cycles of the
Kesternich test in accordance with
ETAG 006 - D3.1 and FM Approval
Standard 4470 requirements

Environment friendly, free of
chromium VI

Sleeve

- R75

High quality polypropylene, PP

Tools and accessories

ZVK-STOP

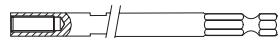


ZAK-500 / ZAK-750

- Use hammer drill with weight class
2 - 3 kg, impact energy ≤ 2,5J

Accessories

ZA 1/4"-M6-300/750



T25-32-M6



ZH-11-RING



- For the manual installation of
isotak® fasteners and sleeves

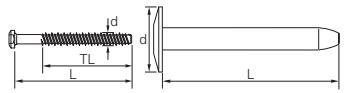
DI-660

- Power screwdriver
 - 300 - 700 rpm
 - Min. 500 W

- Battery tool
 - 300 - 700 rpm
 - Approx. 18 V
 - Battery with approx. 2,5 Ah

- Do not use a percussion tool.

Order information

	T25 Ø 9.7 mm 	
KL clamping length M magazine loaded d thread diameter L Length TL thread length t thickness of structure All measurements in mm		

Product / Application		Approval	Order code TI-T25 6,3x 30			Application range
■ Carbon steel		 	Type	d	L	 Build-up: Thickness concrete deck t: min. 40 mm. Edge distance: min. 50 mm Thread length TL: Fastener length 50 mm: TL = 47 mm Fastener length 60 - 160 mm: TL = 50 mm Setting: Sd (Setting depth): min. 20 mm Depth of pilot hole to be min. 15 mm deeper than the setting depth of the fastener, depending on site conditions. Optimum performance can be determined by SFS intec. Limited undertaking site pull out testing using different drill diameters. Consult your SFS representative for further information.
			TI-T25	6,3x	30	
			TI-T25	6,3x	50	
			TI-T25	6,3x	60	
			TI-T25	6,3x	70	
			TI-T25	6,3x	80	
			TI-T25	6,3x	90	
			TI-T25	6,3x	100	
			TI-T25	6,3x	120	
			TI-T25	6,3x	140	
TI-T25	6,3x	160				
● Plastic		 	R	75x	35	K see combination table
			R	75x	65	
			R	75x	85	
			R	75x	105	
			R	75x	135	
			R	75x	165	
			R	75x	185	
			R	75x	225	
			R	75x	255	
			R	75x	285	

Combination sleeve R75 and TI-T25-6,3xL**

** If a length is not available , take the next length.
Fastener range see chapter



* thickness vapour barrier to be considered

KL = total roof build-up between top edge substrate and top edge membrane

KL = thickness vapour barrier
+ thickness insulation
+ thickness membrane

KL (mm)

Combination sleeve R75 and TI-T25-6,3xL **

** If a length is not available , take the next length.
Fastener range see chapter

* thickness vapour barrier to be considered

KL = total roof build-up between top edge substrate and top edge membrane

KL = thickness vapour barrier
+ thickness insulation
+ thickness membrane

Sleeve R 5k

Fastener I 56,3k

Setting depth** (mm)

30	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	Sleeve length 35	Sleeve length 65	Sleeve length 95	Sleeve length 105	Sleeve length 135	Sleeve length 165	Sleeve length 185	Sleeve length 225	Sleeve length 255	Sleeve length 285
40	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
50	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
60	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
70	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
80	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
90	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
100	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
110	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
120	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
130	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
140	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
150	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
160	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
170	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
180	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
190	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
200	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
210	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
220	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
230	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
240	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
250	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
260	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
270	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
280	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
290	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
300	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
310	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
320	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
330	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
340	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
350	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
360	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
370	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
380	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
390	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
400	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
410	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
420	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
430	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
440	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
450	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
460	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
470	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
480	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
490	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										
500	50 : 60 : 70 : 80 : 90	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20	20 : 20 : 20 : 20 : 20										

**Depth of pilot hole to be 10 - 20 mm deeper than the setting depth, depending on site conditions.

Calculation:
Example:

Roof buildup (KL)
- 120 mm

Sleeve length (L)
- 105 mm

+ 35 mm = min. length
+ 35 mm = 50 mm ->

Type of fastener
TI-T25-6,3x50

**Depth of pilot hole to be 10 - 20 mm deeper than the setting depth, depending on site conditions.

Calculation:
Example:

Roof buildup (KL)
120 mm

Sleeve length (L)
105 mm
+ 35 mm = min. length
+ 35 mm = 50 mm ->

Type of fastener
T1-T25-6, 3x50

isotak® TI-T25-6,3 / ST



Technical information

Application

For the fastening of waterproof membrane and insulation to solid, dense concrete of minimum grade C12/15

ST Sleeves are designed for use with Sika Trocal® membranes in conjunction with the appropriate metal disc.

Alternatively the ST sleeve can be used to install compatible steel termination bar systems.

When used with the Sika-Trocal® metal disc, the R-CAP-11 plug should be inserted into the sleeve following installation.

Material

Fastener

- TI-T25-6,3

Case hardened carbon steel

Durocoat® corrosion protection:
Resistant to 15 cycles of the
Kesternich test in accordance with
ETAG 006 - D3.1 and FM Approval
standard 4470 requirements

Environment friendly, free of
chromium VI

Sleeve

- ST

High quality polypropylene, PP

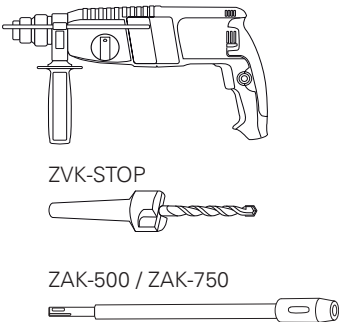
Cap

- R-Cap-11

High quality polypropylene, PP

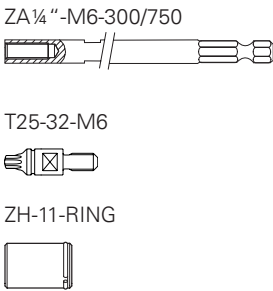


Tools and accessories



- Use hammer drill with weight class
2 - 3 kg, impact energy ≤ 2,5J

Accessories



- For the manual installation of
isotak® fasteners and sleeves

DI-650

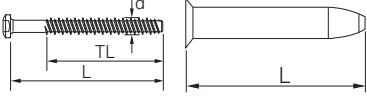
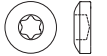


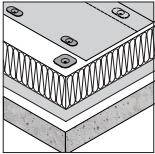
- Power screwdriver
- 300 - 700 rpm
- Min. 500 W
- Battery tool
- 300 - 700 rpm
- Approx. 18 V
- Battery with approx. 2,5 Ah

- Do not use a percussion tool.

isotak® TI-T25-6,3 / ST

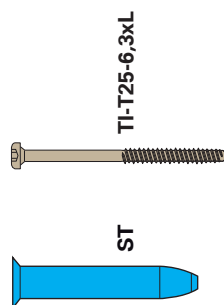
Order information

		
KL clamping length M magazine loaded d thread diameter L Length TL thread length t thickness of structure All measurements in mm		

		Order code			Application range
Product / Application	Approval	Type	d	L	
■ Carbon steel  	  	TI-T25	6,3x	30	Build-up: Thickness concrete deck t: min. 40 mm. Edge distance: min. 50 mm Thread length TL: Fastener length 50 mm: TL = 47 mm Fastener length 60 - 160 mm: TL = 50 mm Setting: Sd (Setting depth): min. 20 mm Depth of pilot hole to be min. 15 mm deeper than the setting depth of the fastener, depending on site conditions. Optimum performance can be determined by SFS intec. Limited undertaking site pull out testing using different drill diameters. Consult your SFS representative for further information.
		TI-T25	6,3x	50	
		TI-T25	6,3x	60	
		TI-T25	6,3x	70	
		TI-T25	6,3x	80	
		TI-T25	6,3x	90	
		TI-T25	6,3x	100	
		TI-T25	6,3x	120	
		TI-T25	6,3x	140	
		TI-T25	6,3x	160	
● Plastic 		ST	25x	70	K see combination table
		ST	25x	90	
		ST	25x	110	
		ST	25x	140	
		ST	25x	170	
		ST	25x	190	
		ST	25x	190	

Combination sleeve ST and TI-T25-6,3xL**

****** If a length is not available, take the next length
Fastener range see chapter



KL (mm)

min. 15 mm*

min. 20 mm

* thickness vapour barrier to be considered

KL = total roof build-up between top edge substrate and top edge membrane

KL = thickness vapour barrier
+ thickness insulation
+ thickness membrane

KL (mm)

KL

min. 15 mm*

min. 20 mm

ST

TI-T25-6,3xL

Combination sleeve ST and TI-T25-6,3xL**

** If a length is not available, take the next length
Fastener range see chapter

* thickness vapour barrier to be considered

KL = total roof build-up between top edge substrate and top edge membrane

KL = thickness vapour barrier + thickness insulation + thickness membrane

Sleeve ST

Fastener 1 56,3k

Setting depth (mm)**

Roof buildup (KL)

Sleeve length (L)

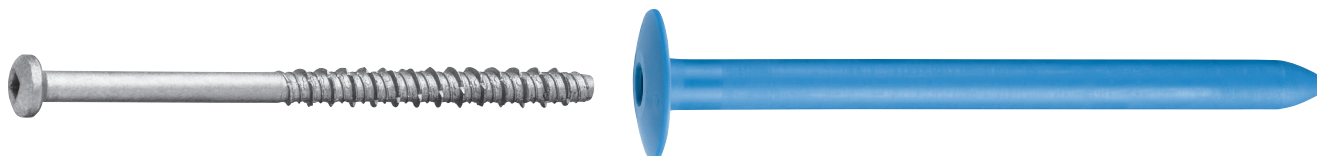
Type of fastener

TI-T25-6,3x70

+ 35 mm = min. length
+ 35 mm = 65 mm ->

** Depth of pilot hole to be 10 - 20 mm deeper than the setting depth, depending on site conditions.

Roof buildup (KL)	Sleeve length (L)	Type of fastener
30	70	TI-T25-6,3x70
40	80	TI-T25-6,3x70
50	90	TI-T25-6,3x70
60	100	TI-T25-6,3x70
70	110	TI-T25-6,3x70
80	120	TI-T25-6,3x70
90	130	TI-T25-6,3x70
100	140	TI-T25-6,3x70
110	150	TI-T25-6,3x70
120	160	TI-T25-6,3x70
130	170	TI-T25-6,3x70
140	180	TI-T25-6,3x70
150	190	TI-T25-6,3x70
160	200	TI-T25-6,3x70
170	210	TI-T25-6,3x70
180	220	TI-T25-6,3x70
190	230	TI-T25-6,3x70
200	240	TI-T25-6,3x70
210	250	TI-T25-6,3x70
220	260	TI-T25-6,3x70
230	270	TI-T25-6,3x70
240	280	TI-T25-6,3x70
250	290	TI-T25-6,3x70
260	300	TI-T25-6,3x70
270	310	TI-T25-6,3x70
280	320	TI-T25-6,3x70
290	330	TI-T25-6,3x70
300	340	TI-T25-6,3x70
310	350	TI-T25-6,3x70
320	360	TI-T25-6,3x70
330	370	TI-T25-6,3x70
340	380	TI-T25-6,3x70
350	390	TI-T25-6,3x70
360	400	TI-T25-6,3x70
370	410	TI-T25-6,3x70
380	420	TI-T25-6,3x70
390	430	TI-T25-6,3x70
400	440	TI-T25-6,3x70
410	450	TI-T25-6,3x70
420	460	TI-T25-6,3x70
430	470	TI-T25-6,3x70
440	480	TI-T25-6,3x70
450	490	TI-T25-6,3x70
460	500	TI-T25-6,3x70

isotak® TI-S-Z10-6,3 / R45**isotak® TI-S-Z10-6,3 / R45**

Technical information

Application

For the fastening of waterproof membrane to concrete decks.

Where the internal relative humidity is in excess of 65%. In chemically aggressive atmospheres or conditions.

For refurbishment applications where the detailed condition of the existing roof is not known or when the build up contains abrasive layers that may damage the corrosion protection and make it ineffective.

Where an extended design life / warranty is required by the client. For locations with aggressive local conditions (eg coastal environments).

Material

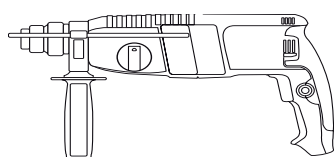
Fastener

- TI-S-Z10-6,3
Austenitic stainless steel, grade
AISI 304, European Standard 1.4301,
grade A2

Sleeve

- R45
High quality polypropylene, PP

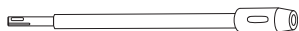
Tools and accessories



ZVK-STOP



ZAK-500 / ZAK-750



- Use hammer drill with weight class
2 - 3 kg, impact energy ≤ 2,5J

Accessories

ZA 1/4" - M6-300/750



T25-32-M6



ZH-11-RING



- For the manual installation of
isotak® fasteners and sleeves

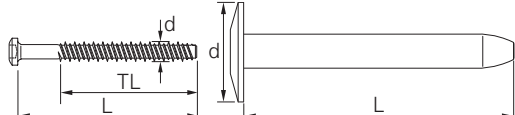
DI-650

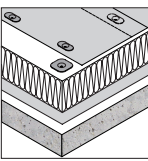
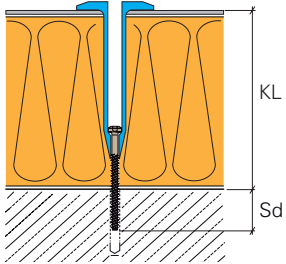
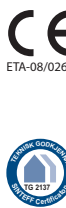


- Power screwdriver
 - 300 - 700 rpm
 - Min. 500 W
- Battery tool
 - 300 - 700 rpm
 - Approx. 18 V
 - Battery with approx. 2,5 Ah

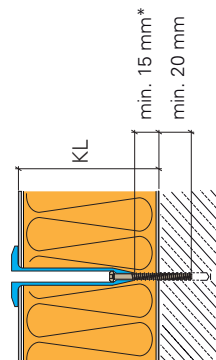
- Do not use a percussion tool.

Order information

	SQ3 recess Ø 7,9 mm 	
KL clamping length M magazine loaded d thread diameter L Length TL thread length t thickness of structure All measurements in mm		

Product / Application	Approval	Order code			Application range
		Type	d	L	
● Stainless steel  		TI-S-Z10- 6,3x 45 TI-S-Z10- 6,3x 75 TI-S-Z10- 6,3x 115			 Build-up: Thickness concrete deck t: min. 40 mm. Edge distance: min. 50 mm Thread length TL: Fastener length 45 mm: TL = 42 mm Fastener length 75 - 115 mm: TL = 50 mm Setting: Sd (Setting depth): min. 20 mm Depth of pilot hole to be min. 15 mm deeper than the setting depth of the fastener, depending on site conditions. Optimum performance can be determined by SFS intec. Limited undertaking site pull out testing using different drill diameters. Consult your SFS representative for further information.
● Plastic 		R 45x 15 R 45x 35 R 45x 65 R 45x 85 R 45x 105 R 45x 135 R 45x 165 R 45x 185 R 45x 225 R 45x 255 R 45x 285 R 45x 325 R 45x 365 R 45x 405			K see combination table

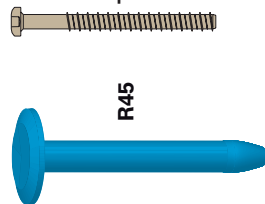
KL (mm)



* thickness vapour barrier to be considered

KL = total roof build-up between top edge substrate and top edge membrane

KL = thickness vapour barrier
+ thickness insulation
+ thickness membrane



TI-S-Z10-6,3xL

Combination sleeve R45 and TI-S-Z10-6,3xL**

** If a length is not available, take the next length.
Fastener range see chapter.

KL (mm)

KL

R45

TI-S-Z10-6,3xL

Combination sleeve R45 and TI-S-Z10-6,3xL **

** If a length is not available, take the next length.
Fastener range see chapter.

* thickness vapour barrier to be considered

KL = total roof build-up between top edge substrate and top edge membrane

KL = thickness vapour barrier
+ thickness insulation
+ thickness membrane

Sleeve
R 5K

Fastener TI-S-Z 0-6,3K

Setting depth (mm)**

Roof buildup (KL)
120 mm

Sleeve length (L)
105 mm

Type of fastener
TI-S-Z10-6,3x75

Calculation:
Example:

**Depth of pilot hole to be 10 - 20 mm deeper than the setting depth, depending on site conditions.

Setting depth** (mm)	Roof buildup (KL)	Sleeve length (L)	Type of fastener
15	30	75	TI-S-Z10-6,3x75
30	40	75	TI-S-Z10-6,3x75
45	50	75	TI-S-Z10-6,3x75
60	60	75	TI-S-Z10-6,3x75
75	70	75	TI-S-Z10-6,3x75
90	80	75	TI-S-Z10-6,3x75
105	90	75	TI-S-Z10-6,3x75
120	100	75	TI-S-Z10-6,3x75
135	110	75	TI-S-Z10-6,3x75
150	120	75	TI-S-Z10-6,3x75
165	130	75	TI-S-Z10-6,3x75
180	140	75	TI-S-Z10-6,3x75
195	150	75	TI-S-Z10-6,3x75
210	160	75	TI-S-Z10-6,3x75
225	170	75	TI-S-Z10-6,3x75
240	180	75	TI-S-Z10-6,3x75
255	190	75	TI-S-Z10-6,3x75
270	200	75	TI-S-Z10-6,3x75
285	210	75	TI-S-Z10-6,3x75
300	220	75	TI-S-Z10-6,3x75
315	230	75	TI-S-Z10-6,3x75
330	240	75	TI-S-Z10-6,3x75
345	250	75	TI-S-Z10-6,3x75
360	260	75	TI-S-Z10-6,3x75
375	270	75	TI-S-Z10-6,3x75
390	280	75	TI-S-Z10-6,3x75
405	290	75	TI-S-Z10-6,3x75
420	300	75	TI-S-Z10-6,3x75
435	310	75	TI-S-Z10-6,3x75
450	320	75	TI-S-Z10-6,3x75
465	330	75	TI-S-Z10-6,3x75
480	340	75	TI-S-Z10-6,3x75
495	350	75	TI-S-Z10-6,3x75
510	360	75	TI-S-Z10-6,3x75
525	370	75	TI-S-Z10-6,3x75
540	380	75	TI-S-Z10-6,3x75
555	390	75	TI-S-Z10-6,3x75
570	400	75	TI-S-Z10-6,3x75
585	410	75	TI-S-Z10-6,3x75
600	420	75	TI-S-Z10-6,3x75
615	430	75	TI-S-Z10-6,3x75
630	440	75	TI-S-Z10-6,3x75
645	450	75	TI-S-Z10-6,3x75
660	460	75	TI-S-Z10-6,3x75
675	470	75	TI-S-Z10-6,3x75
690	480	75	TI-S-Z10-6,3x75
705	490	75	TI-S-Z10-6,3x75
720	500	75	TI-S-Z10-6,3x75

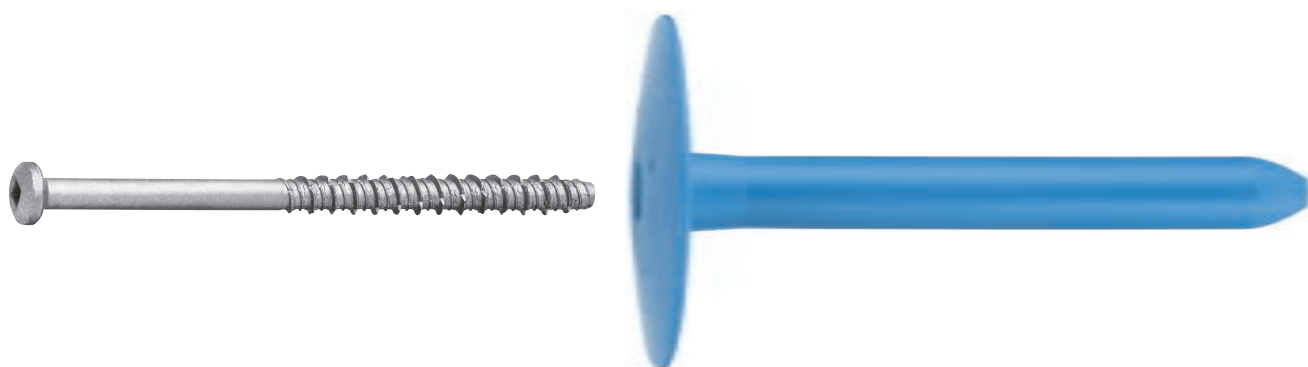
*Depth of pilot hole to be 10 - 20 mm deeper than the setting depth, depending on site conditions.

Calculation:
Example:

Roof buildup (KL)
120 mm

Sleeve length (L)
105 mm
+ 35 mm = min. length
+ 35 mm = 50 mm ->

Type of fastener
Tl-S-Z10-6,3x75

isotak® TI-S-Z10-6,3 / R75**Technical information****Application**

For the fastening of insulation to concrete decks.

Where the internal relative humidity is in excess of 65%. In chemically aggressive atmospheres or conditions.

For refurbishment applications where the detailed condition of the existing roof is not known or when the build up contains abrasive layers that may damage the corrosion protection and make it ineffective.

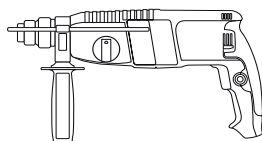
Where an extended design life / warranty is required by the client. For locations with aggressive local conditions (eg coastal environments).

Material**Fastener**

- TI-S-Z10-6,3
Austenitic stainless steel, grade
AISI 304, European Standard 1.4301,
grade A2

Sleeve

- R75
High quality polypropylene, PP

Tools and accessories

ZVK-STOP



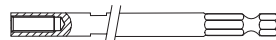
ZAK-500 / ZAK-750



- Use hammer drill with weight class
2 - 3 kg, impact energy ≤ 2,5J

Accessories

ZA 1/4" - M6-300/750



T25-32-M6



ZH-11-RING



- For the manual installation of
isotak® fasteners and sleeves

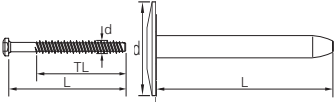
DI-650

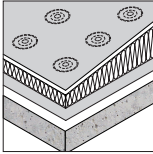
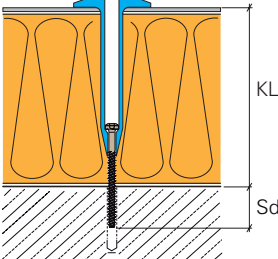
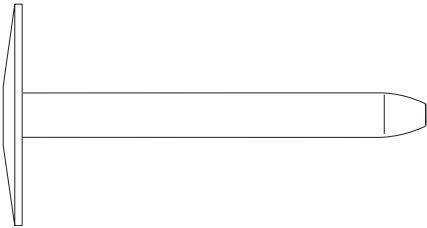
- Power screwdriver
 - 300 - 700 rpm
 - Min. 500 W
- Battery tool
 - 300 - 700 rpm
 - Approx. 18 V
 - Battery with approx. 2,5 Ah

- Do not use a percussion tool.

isotak® TI-S-Z10 / R75

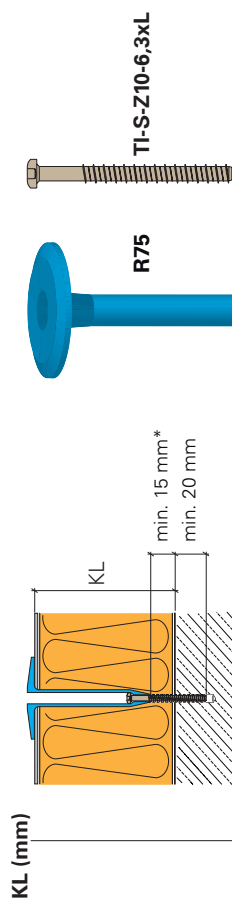
Order information

	SQ3 recess Ø 7,9 mm 	
KL clamping length M magazine loaded d thread diameter L Length TL thread length t thickness of structure All measurements in mm		

		Order code			Application range
Product / Application	Approval	Type	d	L	
● Stainless steel  		TI-S-Z10-	6,3x	45	 Build-up: Thickness concrete deck t: min. 40 mm. Edge distance: min. 50 mm Thread length TL: Fastener length 45 mm: TL = 42 mm Fastener length 75 - 115 mm: TL = 50 mm Setting: Sd (Setting depth): min. 20 mm Depth of pilot hole to be min. 15 mm deeper than the setting depth of the fastener, depending on site conditions. Optimum performance can be determined by SFS intec. Limited undertaking site pull out testing using different drill diameters. Consult your SFS representative for further information.
		TI-S-Z10-	6,3x	75	
		TI-S-Z10-	6,3x	115	
● Plastic 	  	R	75x	35	K see combination table
		R	75x	65	
		R	75x	85	
		R	75x	105	
		R	75x	135	
		R	75x	165	
		R	75x	185	
		R	75x	225	
		R	75x	255	
		R	75x	285	

Combination sleeve R75 and TI-S-Z10-6,3xL

** If a length is not available, take the next length.
Fastener range see chapter.



* thickness vapour barrier to be considered

K_L = total roof build-up between top edge substrate and top edge membrane

ΣL = thickness vapour barrier
+ thickness insulation
+ thickness membrane

[illegible]

TIA-T25: The adjustable fixing system for tapered insulation

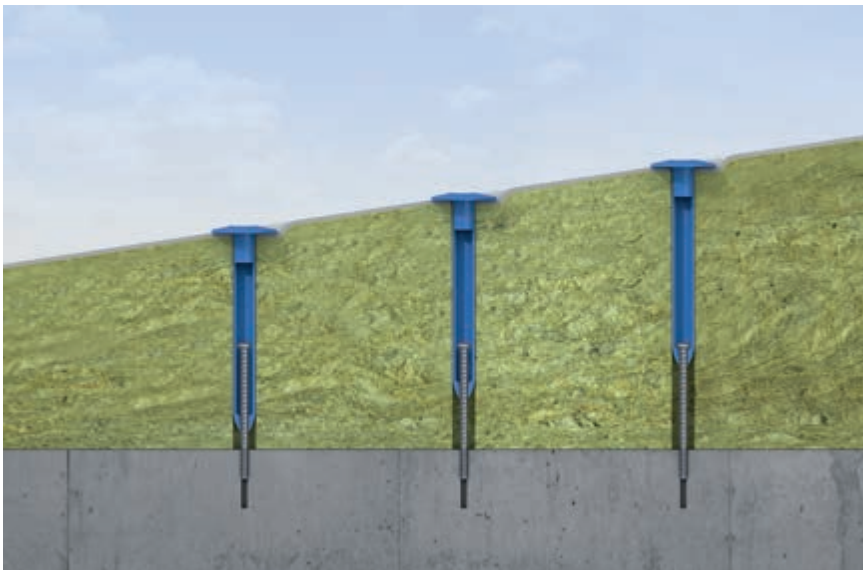
Flat roofs, in conjunction with existing building codes, should have a design fall to meet drainage requirements. Where the substructure is horizontal, a tapered insulation system is required. Mechanical fastening systems

required to install membrane and insulation over tapered insulation schemes can be particularly challenging in the case of concrete deck applications. Rationalised systems that allow the same fastener / sleeve combination to

be used throughout are particularly efficient and result in high levels of site productivity.

The TIA-T25 is part of the *isotak*® and *isoweld*® system.

The convincing advantages of the TIA-T25 fastening systems



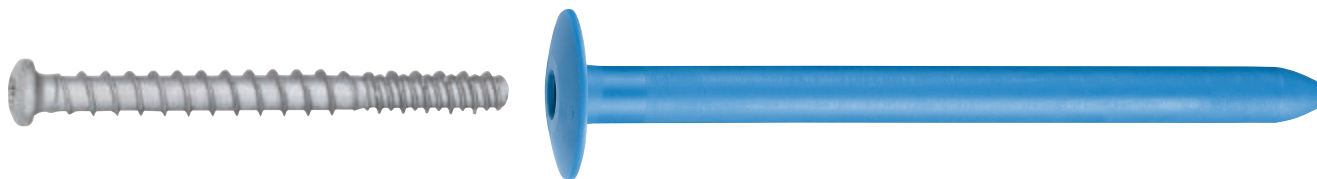
- A 'treadfast' fastener and sleeve combination ensures that the system is safe to walk on
- No plugs are required for fixing into concrete
- Optimum installation system for tapered insulation schemes
- High pull-out resistance
- Reduced drilling requirement due to low insertion depth
- Equally suitable for new buildings and renovation work
- Adjustable, removable fastener solution
- Ideal for thin concrete sections
- Fewer combinations of fasteners are required

The ideal fastening solution for tapered insulation schemes on concrete decks

The TIA fasteners in combination with the sleeves R45, R75, ST or FI-R can be used for insulation and membrane installation for roof build-ups of between 75 mm and 815 mm. The same fastener and sleeve combination can typically be used for insulation boards differing by up to 100 mm in thickness. This offers optimum material usage and eliminates the possibility of insufficient fastener length.

After the fastener is installed, the sleeve height can be finally adjusted if required to match the insulation height using a special tool. The fasteners can be quickly and easily removed, should this be necessary.

Due to the low insertion depth requirement, the TIA fasteners require less drilling than conventional concrete fasteners, reducing installation time for the contractor. The low insertion depth additionally makes the TIA fasteners particularly suited for the use on thin walled concrete sections.

isotak® TIA-T25-6,3 / R45**Technical information****Application**

For the fastening of waterproof membrane through tapered insulation to concrete and to thin sections of hollow core pre-cast concrete roof decks.

Material**Fastener**

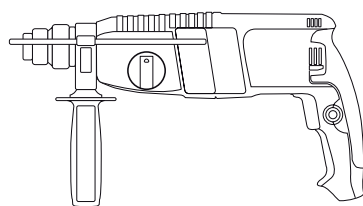
- TIA-T25-6,3
Case hardened carbon steel

Durocoat® corrosion protection:
Resistant to 15 cycles of the
Kesternich test in accordance with
ETAG 006 - D3.1 and FM Approval
Standard 4470 requirements

Environment friendly, free of
chromium VI

Sleeve

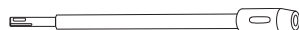
- R45
High quality polypropylene, PP

Tools and accessories**Accessories**

ZVK-STOP

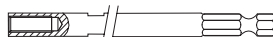


ZAK-500 / ZAK-750



- Use hammer drill with weight class
2 - 3 kg, impact energy ≤ 2,5 J

ZA ¼"-M6-300/750



T25-32-M6



ZH-11-RING



- For the manual installation of
isotak® fasteners and sleeves

DI-650

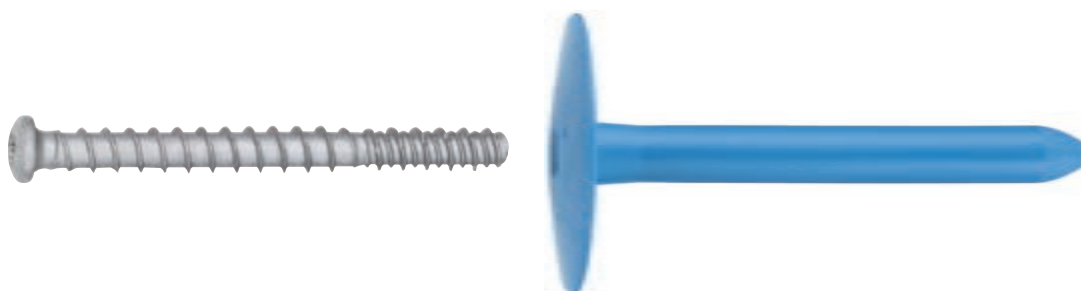
- Power screwdriver
 - 300 - 700 rpm
 - Min. 500 W
- Battery tool
 - 300 - 700 rpm
 - Approx. 18 V
 - Battery with approx. 2,5 Ah
- Do not use a percussion tool.

isotak® TIA-T25-6,3 / R45

Order information

	T25 Ø 9,7 mm 	
KL clamping length M magazine loaded d thread diameter L Length TL thread length t thickness of structure All measurements in mm		

		Order code			Application range
Product / Application	Approval	Type	d	L	
4 ■ Carbon steel		TIA-T25-	6,3x	70	Build-up: Thickness concrete deck t: min. 40 mm. Edge distance: min. 50 mm Setting: Sd (Setting depth): min. 20 mm Depth of pilot hole to be min. 15 mm deeper than the setting depth of the fastener, depending on site conditions. Optimum performance can be determined by SFS intec. Limited undertaking site pull out testing using different drill diameters. Consult your SFS representative for further information.
		TIA-T25-	6,3x	90	
		TIA-T25-	6,3x	120	
		TIA-T25-	6,3x	150	
● Plastic		R	45x	65	
		R	45x	85	
		R	45x	105	
		R	45x	135	
		R	45x	165	
		R	45x	185	
		R	45x	225	
		R	45x	255	
		R	45x	285	
		R	45x	325	
		R	45x	365	
		R	45x	405	

isotak® TIA-T25-6,3 / R75**Technical information****Application**

For the fastening of tapered insulation to concrete and to thin sections of hollow core pre-cast concrete roof decks.

Material**Fastener**

- TIA-T25-6,3
Case hardened carbon steel

Durocoat® corrosion protection:
Resistant to 15 cycles of the
Kesternich test in accordance with
ETAG 006 - D3.1 and FM Approval
Standard 4470 requirements

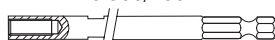
Environment friendly, free of
chromium VI

Sleeve

- R75
High quality polypropylene, PP

Tools and accessories**Accessories**

ZA ¼"-M6-300/750



T25-32-M6



ZH-11-RING



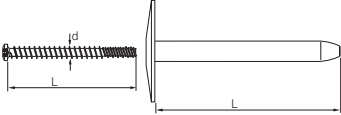
- For the manual installation of
isotak® fasteners and sleeves

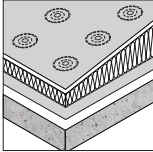
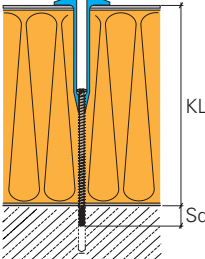
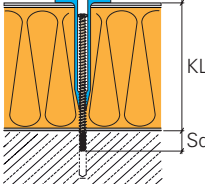
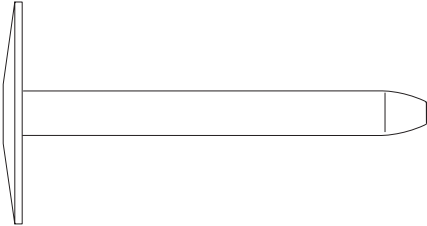
DI-650

- Power screwdriver
- 300 - 700 rpm
- Min. 500 W
- Battery tool
- 300 - 700 rpm
- Approx. 18 V
- Battery with approx. 2,5 Ah

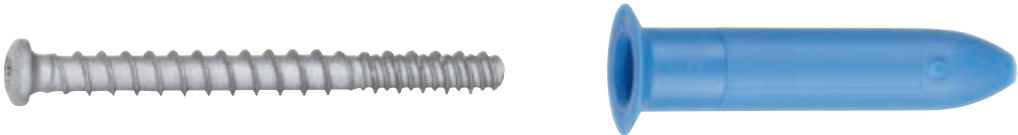
- Do not use a percussion tool.

Order information

	T25 Ø 9,7 mm 	
KL clamping length M magazine loaded d thread diameter L Length t thickness of structure All measurements in mm		

		Order code			Application range
Product / Application	Approval	Type	d	L	
4 ■ Carbon steel    		TIA-T25-	6,3x	70	 Build-up: Thickness concrete deck t: min. 40 mm. Edge distance: min. 50 mm Setting: Sd (Setting depth): min. 20 mm Depth of pilot hole to be min. 15 mm deeper than the setting depth of the fastener, depending on site conditions. Optimum performance can be determined by SFS intec. Limited undertaking site pull out testing using different drill diameters. Consult your SFS representative for further information.
		TIA-T25-	6,3x	90	
		TIA-T25-	6,3x	120	
		TIA-T25-	6,3x	150	
● Plastic   		R	75x	65	
		R	75x	85	
		R	75x	105	
		R	75x	135	
		R	75x	165	
		R	75x	185	
		R	75x	225	
		R	75x	255	
		R	75x	285	

isotak® TIA-T25-6,3 / ST



Technical information

Application

For the fastening of waterproof membrane through tapered insulation to concrete and to thin sections of hollow core pre-cast concrete roof decks.

ST Sleeves are designed for use with Sika Trocal® membranes in conjunction with the appropriate metal disc.

Alternatively the ST Sleeves can be used to install compatible steel termination bar systems.

When used with the Sika-Trocal® metal disc, the R-CAP-11 plug should be inserted into the sleeve following installation.

Material

Fastener

- TIA-T25-6,3
Case hardened carbon steel

Durocoat® corrosion protection:
Resistant to 15 cycles of the
Kesternich test in accordance with
ETAG 006 - D3.1 and FM Approval
Standard 4470 requirements

Environment friendly, free of
chromium VI

Sleeve

- ST
High quality polypropylene, PP

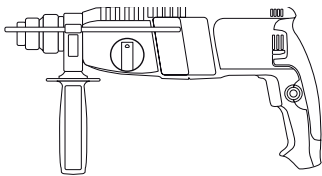
Cap

- R-Cap-11
High quality polypropylene, PP



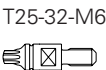
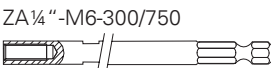
Tools and accessories

DB 620



- Use hammer drill with weight class
2 - 3 kg, impact energy ≤ 2,5 J

Accessories



ZH-11-RING



- For the manual installation of
isotak® fasteners and sleeves

DI-650

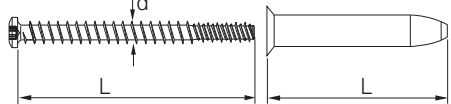


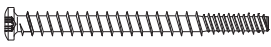
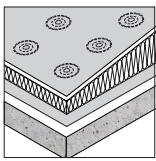
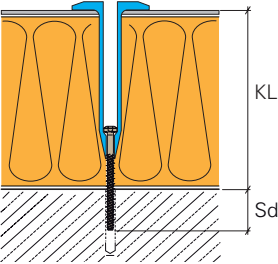
- Power screwdriver
- 300 - 700 rpm
- Min. 500 W
- Battery tool
- 300 - 700 rpm
- Approx. 18 V
- Battery with approx. 2,5 Ah

- Do not use a percussion tool.

isotak® TIA-T25-6,3 / ST

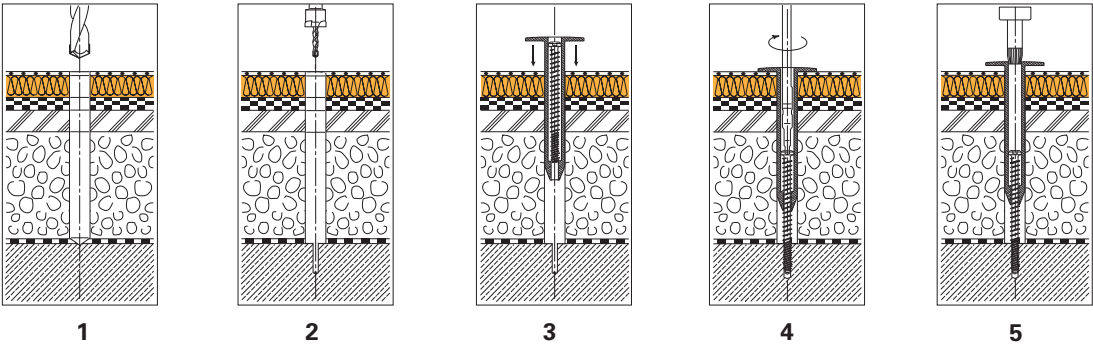
Order information

	T25 Ø 9,7 mm 	
KL clamping length M magazine loaded d thread diameter L Length t thickness of structure All measurements in mm		

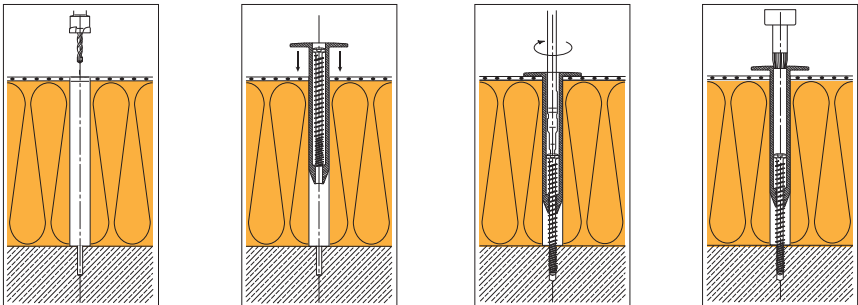
		Order code			Application range
Product / Application	Approval	Type	d	L	
■ Carbon steel    ETA-08/0262 	 ETA-08/0262	TIA-T25-	6,3x	70	 Build-up: Thickness concrete deck t: min. 40 mm. Edge distance: min. 50 mm Setting: Sd (Setting depth): min. 20 mm Depth of pilot hole to be min. 15 mm deeper than the setting depth of the fastener, depending on site conditions. Optimum performance can be determined by SFS intec. Limited undertaking site pull out testing using different drill diameters. Consult your SFS representative for further information.
		TIA-T25-	6,3x	90	
		TIA-T25-	6,3x	120	
		TIA-T25-	6,3x	150	
● Plastic   ETA-08/0262	 ETA-08/0262	ST	25x	70	
		ST	25x	90	
		ST	25x	110	
		ST	25x	140	
		ST	25x	170	
		ST	25x	190	

Installation process

Refurbishment



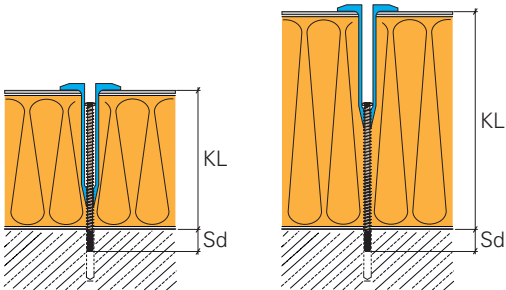
New construction



4

- 1 Pilot drill a 20 mm diameter hole through the existing roof build-up using a carbide drill bit.
- 2 Drill a hole in the concrete structure.
- 3 Insert sleeve in the pre-drilled hole and insert fastener in sleeve.
- 4 Screw fastener through sleeve into concrete with applied pressure.
- 5 Tighten sleeve if necessary (clockwise if the sleeve head is not completely flush).

Combination table TIA-T25 / R45

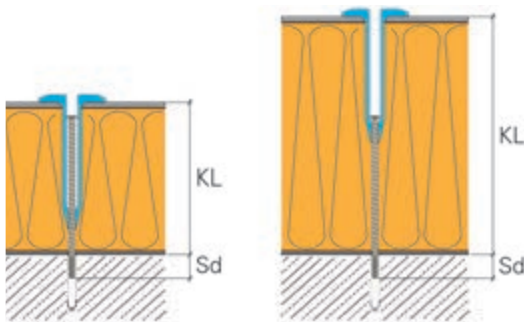


Drilling depth: min. 25mm
Setting depth: min. 18mm

		A		B		C		D	
No	Sleeve L	TIA-T25-6,3 x 70 KL min KL max		TIA-T25-6,3 x 90 KL min KL max		TIA-T25-6,3 x 120 KL min KL max		TIA-T25-6,3 x 150 KL min KL max	
1	65	75	95	85	115	115	145	145	175
2	85	95	115	95	135	115	165	145	195
3	105	115	135	115	155	115	185	145	215
4	135	145	165	145	185	145	215	145	245
5	165	175	195	175	215	175	245	175	275
6	185	195	215	195	235	195	265	195	295
7	225	235	255	235	275	235	305	235	335
8	255	265	285	265	305	265	335	265	365
9	285	295	315	295	335	295	365	295	395
10	325	335	355	335	375	335	405	335	435
11	365	375	395	375	415	375	445	375	475
12	405	415	435	415	455	415	485	415	515

Example
Demand KL: 120 - 240 mm
Combination
3B = sleeve 105 + screw 90, KL covering 115 - 155 mm
4D = sleeve 135 + screw 150, KL covering 145 - 245 mm

Combination table TIA-T25 / R75



Drilling depth: min. 25 mm
Setting depth: min. 18 mm

No	Sleeve L	A		B		C		D	
		TIA-T25-6,3 x 70 KL min	KL max	TIA-T25-6,3 x 90 KL min	KL max	TIA-T25-6,3 x 120 KL min	KL max	TIA-T25-6,3 x 150 KL min	KL max
1	65	75	95	85	115	115	145	145	175
2	85	95	115	95	135	115	165	145	195
3	105	115	135	115	155	115	185	145	215
4	135	145	165	145	185	145	215	145	245
5	165	175	195	175	215	175	245	175	275
6	185	195	215	195	235	195	265	195	295
7	195	205	225	205	245	205	275	205	305
8	225	235	255	235	275	235	305	235	335
9	255	265	285	265	305	265	335	265	365
10	285	295	315	295	335	295	365	295	395

Example

Demand KL:

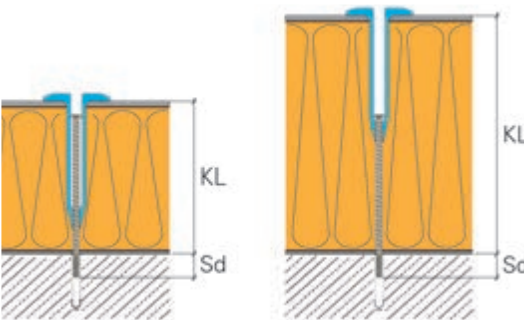
120 - 240 mm

Combination

3B = sleeve 105 + screw 90 KL covering 115 - 155 mm

4D = sleeve 135 + screw 150 KL covering 145 - 245 mm

Combination table TIA-T25 / ST



Drilling depth: min. 25 mm
Setting depth: min. 18 mm

No	Sleeve L	A		B		C		D	
		TIA-T25-6,3 x 70 KL min	KL max	TIA-T25-6,3 x 90 KL min	KL max	TIA-T25-6,3 x 120 KL min	KL max	TIA-T25-6,3 x 150 KL min	KL max
1	70	75	95	85	115	115	145	145	175
2	90	95	115	95	135	115	165	145	195
3	110	115	135	115	155	115	185	145	215
4	140	145	165	145	185	145	215	145	245
5	170	175	195	175	215	175	245	175	275
6	190	175	215	195	235	195	265	195	295

Example

Demand KL:

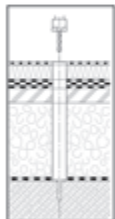
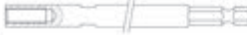
125 - 245 mm

Combination

3C = sleeve 110 + screw 120 KL covering 115 - 185 mm

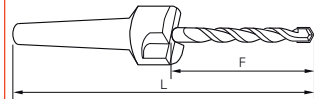
4D = sleeve 140 + screw 150 KL covering 145 - 245 mm

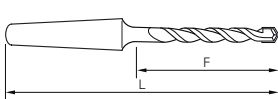
Tools and accessories

Product	Order code	Application (see installation process)
Drill extension (500 mm, 750 mm and 1000 mm) 	ZAK-500 ZAK-750 ZAK-1000	
Drill bit with stopper 	ZVK-5,0x25x90STOP ZVK-5,0x35x100STOP ZVK-5,0x45x110STOP ZVK-5,0x55x120STOP	
Drive bar (300 mm and 750 mm) 	ZA¼"-M6-300 ZA¼"-M6-750	
Drive bar extension (100 mm) 	ZA¼"-M6-EXT100	
Insert bit 	T25-32-M6 T25-32-M6-RING	
ZH-11-RING 	T25-32-M6 T25-32-M6-RING	
Adjusting bit 	AJ-M6	

ZVK / ZAK

Order information

ZVK-STOP


ZVK


d diameter | L Length | F working length | All measurements in mm

Order code					Application information
Type	d	F	L	Code	
ZVK- 4,8x 100x 160					DT-4,8xL* DT-S-4,8xL* TI-T25-6,3xL* TIA-T25-6,3xL*
ZVK- 4,8x 100x 165 STOP					
ZVK- 5,0x 55x 115					
ZVK- 5,0x 100x 160					
ZVK- 5,0x 25x 90 STOP					TI-T25-6,3xL* TIA-T25-6,3xL*
ZVK- 5,0x 35x 100 STOP					
ZVK- 5,0x 45x 110 STOP					
ZVK- 5,0x 55x 120 STOP					
ZVK- 5,2x 25x 90 STOP					TI-T25-6,3xL* TIA-T25-6,3xL*
ZVK- 5,2x 35x 100 STOP					
ZVK- 5,2x 45x 110 STOP					
ZVK- 5,2x 100x 165 STOP					

ZVK-STOP: The special STOP drills additionally core out the insulation providing for easy sleeve insertion and accurate fastener alignment with the pilot hole.

ZVK: Conus drills for different use, mostly to replace very long SDS drills

ZAK-500 / ZAK-750 / ZAK-1000 - Drill extension for the ZVK conus drills



All approvals and recommended design values are based upon close tolerance pilot holes that are drilled with ZVK carbide drill bits.

*Technical performance values of the TI fasteners may differ due to variation in the hardness of locally sourced concrete aggregates. Optimum performance can be determined by site testing using different drill diameters, for example between ZVK-4,8 and ZVK-5,2. Consult your SFS Representative for further information.

isofast® DT-4,8**Technical information****Application**

For the fastening of waterproof membrane and insulation to solid, dense concrete of minimum grade C12/15.

Material**Fastener**

- DT-4,8 / DT-6,3
Case hardened carbon steel

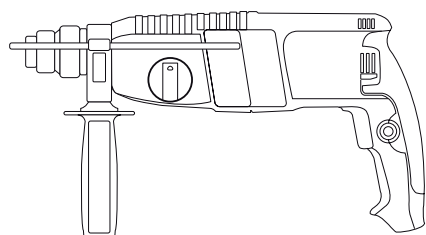
Durocoat® corrosion protection:
Resistant to 15 cycles of the
Kesternich test in accordance with
ETAG 006 - D3.1 and FM Approval
Standard 4470 requirements

Environment friendly, free of
chromium VI

Stress plates

- ID-70x70 / IF/IG-C-82x40
IRD-82x40
Steel 1,0 mm, zinc plated

Resistant to 15 cycles of the
Kesternich test in accordance
with ETAG 006 - D3.1 and FM Ap-
proval Standard 4470 requirements

Tools and accessories

- Use hammer drill with weight class
2 - 3 kg, impact energy ≤ 2,5 J

ZD 15

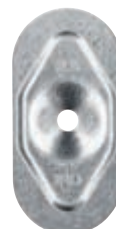
- Setting tool for the installation of
SPIKE® twister fasteners.

Stress plates**ID-70x70**

- Stress plate for insulation, hole
diameter 7,5mm

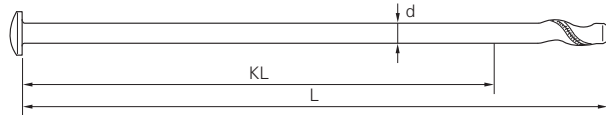
IF/IG-C-82x40

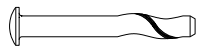
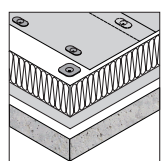
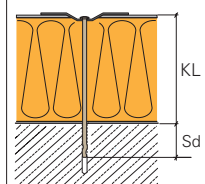
- Stress plate for membrane
on hard substrates, hole diameter
7,5mm

IRD-82x40

- Stress plate for membrane, hole
diameter 7,5mm

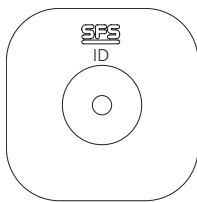
Order information

	Mushroom head, L ≤ 51 mm Ø 11,0 mm L ≥ 64 mm Ø 9,7 mm	
KL clamping length M magazine loaded d thread diameter L Length t thickness of structure All measurements in mm		

		Order code			K	Drill bits	Application information
Product / Application	Approval	Type	d	L			
4 ■ Carbon steel  	 ETA-08/0262 	DT- 4,8x 28		28	3	4,8x160	 Build-up: Thickness concrete deck t: min. 60 mm. Edge distance: min. 60 mm Insulation compressive strength at 10% compression min. 0,1 N m². Clamping length KL: K = total roof build-up between top edge substrate and top edge membrane K = thickness vapour barrier + thickness insulation + thickness membrane Setting: Sd (Setting depth): min. 25 mm Depth of pilot hole to be min.15 mm deeper than the setting depth of the DT fastener, depending on site conditions.
		DT- 4,8x 32		32	7	160	
		DT- 4,8x 38		38	13	160	
		DT- 4,8x 51		51	26	160	
		DT- 4,8x 64		64	39	160	
		DT- 4,8x 76		76	51	160	
		DT- 4,8x 89		89	64	210	
		DT- 4,8x 102		102	77	210	
		DT- 4,8x 115		115	90	210	
		DT- 4,8x 127		127	102	210	
		DT- 4,8x 140		140	115	260	
		DT- 4,8x 152		152	127	260	

Stress plates

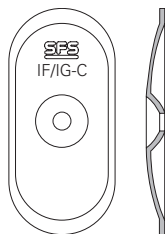
ID-70X70



ETA-08/0262



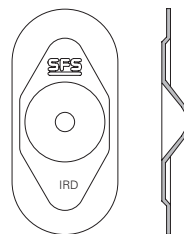
IF/IG-C-82X40



ETA-08/0262



IRD-82X40



ETA-08/0262



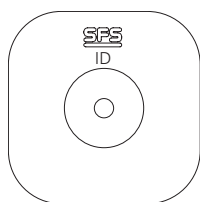
Order information

	Mushroom head Ø 11,0 mm	
KL clamping length M magazine loaded d thread diameter L Length t thickness of structure All measurements in mm		

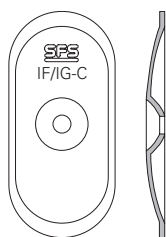
Product / Application	Approval	Order code DT- 6,3x 38			K	Drill bits	Application information
		Type	d	L			
■ Carbon steel 	 	DT- 6,3x 38	6	38	6	6,3x160	 Build-up: Thickness concrete deck t: min. 60 mm. Edge distance: min. 60 mm Insulation compressive strength at 10% compression min. 0,1 $\frac{N}{mm^2}$. Clamping length KL: K = total roof build-up between top edge substrate and top edge membrane K = thickness vapour barrier + thickness insulation + thickness membrane Setting: Sd (Setting depth): min. 32 mm Depth of pilot hole to be min. 15 mm deeper than the setting depth of the DT fastener, depending on site conditions.
		DT- 6,3x 51	19	51	19	160	
		DT- 6,3x 102	70	102	70	210	
		DT- 6,3x 127	95	127	95	210	
		DT- 6,3x 140	108	140	108	260	
		DT- 6,3x 152	120	152	120	260	
		DT- 6,3x 165	133	165	133	260	
		DT- 6,3x 178	146	178	146	260	
		DT- 6,3x 191	159	191	159	285	
		DT- 6,3x 203	171	203	171	285	
		DT- 6,3x 216	184	216	184	360	
		DT- 6,3x 229	197	229	197	360	
		DT- 6,3x 241	209	241	209	360	
		DT- 6,3x 254	222	254	222	360	
		DT- 6,3x 267	235	267	235	360	
		DT- 6,3x 279	247	279	247	410	
		DT- 6,3x 292	260	292	260	410	
		DT- 6,3x 305	273	305	273	410	
		DT- 6,3x 330	298	330	298	510	
		DT- 6,3x 356	324	356	324	510	
		DT- 6,3x 381	349	381	349	510	
		DT- 6,3x 406	374	406	374	510	
		DT- 6,3x 432	400	432	400	510	

Stress plates

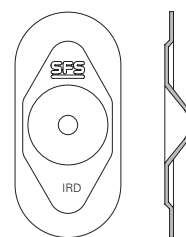
ID-70X70



IF/IG-C-82X40



IRD-82X40



TI: Efficient self tapping fasteners into concrete without plugs

Application specific fastener solutions for use either with solid or pre-cast concrete substrates are highly sought after. Indeed, some systems still rely on plugs to hold the concrete fasteners securely in position.

Using SFS's specially developed, application specific thread-form fastener greatly simplifies the installation of flat roof insulation boards and membranes on concrete deck.

The TI is part of the *isotak*®, *isofast*® and *isoweld*® system.

The convincing advantages of the TI thread-forming fastener



- Easy to install
- No requirement for plugs
- Low insertion torque
- High pull-out resistance
- Can be easily removed
- Maximum corrosion resistance
- Reduced drilling due to low embedment requirement
- Simply drill the pilot hole, apply with an appropriate screwdriver



The optimum solution for many applications

The TI thread forming fastener represents the ideal solution for many applications where secure fastening is required into concrete substrates. These include the installation of waterproof membrane and insulation materials onto solid or precast concrete decks using the appropriate SFS Intec sleeves or stress plates. Other applications include fixing timber beams and weatherboarding into concrete / masonry walling or decking.



isofast® TI-6,3**Technical information****Application**

For the fastening of waterproof membrane and insulation to solid, dense concrete of minimum grade C12/15.

Material**Fastener**

■ TI-6,3

Case hardened carbon steel

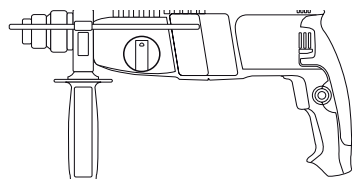
Durocoat® corrosion protection:
Resistant to 15 cycles of the
Kesternich test in accordance with
ETAG 006 - D3.1 and FM Approval
Standard 4770 requirements

Environment friendly, free of
chromium VI

Stress plates■ ID-70x70 / IF/IG-C-82x40
IRD-82x40

Steel 1,0 mm, zinc plated

Resistant to 15 cycles of the
Kesternich test in accordance
with ETAG 006 - D3.1 and FM Ap-
proval Standard 4770 requirements

Tools and accessories**DB 620**

SFS drill bits



- Use hammer drill with weight class
2 - 3 kg, impact energy ≤ 2,5 J

Recommendation for installation

- Power screwdriver
 - 300 - 700 rpm
 - Min. 500 W
- Battery tool
 - 300 - 700 rpm
 - Approx. 18 V
 - Battery with approx. 2,5 Ah

- Do not use a percussion tool.

DI 650

ZA 1/4" drive shank



E380



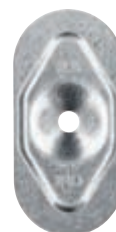
- Power screwdriver for manual
installation of fasteners.

Stress plates**ID-70x70**

- Stress plate for insulation, hole
diameter 7,5mm

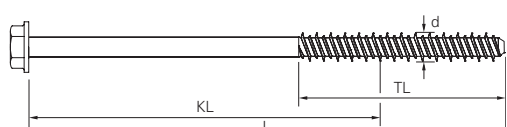
IF/IG-C-82x40

- Stress plate for membrane
on hard substrates, hole diameter
7,5mm

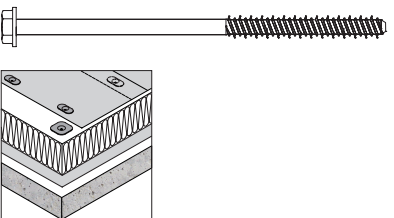
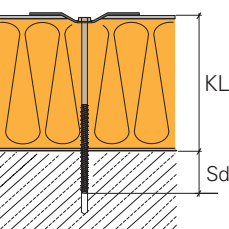
IRD-82x40

- Stress plate for membrane, hole
diameter 7,5mm

Order information

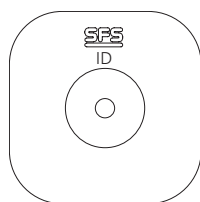
	Hexagon 8 mm A/F 	
KL clamping length M magazine loaded d thread diameter L Length TL thread length t thickness of structure All measures in mm		

4

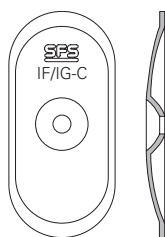
Product / Application	Approval	Order code			K	Drill bits	Application range
		Type	d	L			
Carbon steel 		TI-	6,3x	25	5	5,0x110	 Build-up: Thickness concrete deck t: min. 40 mm. Edge distance: min. 50 mm Insulation compressive strength at 10% compression min. 0,1 N/m². Clamping length KL: K = total roof build-up between top edge substrate and top edge membrane K = thickness vapour barrier + thickness insulation + thickness membrane Thread length TL: Fastener length 25 - 45 mm: TL = L - 3 mm Fastener length 55 - 275 mm: TL = 50 mm Setting: Sd (Setting depth): min. 20 mm Depth of pilot hole to be min. 15 mm deeper than the setting depth of the fastener, depending on site conditions.
		TI-	6,3x	32	12	5,0x160	
		TI-	6,3x	45	25	5,0x160	
		TI-	6,3x	55	35	5,0x160	
		TI-	6,3x	65	45	5,0x160	
		TI-	6,3x	75	55	5,0x160	
		TI-	6,3x	85	65	5,0x210	
		TI-	6,3x	95	75	5,0x210	
		TI-	6,3x	105	85	5,0x210	
		TI-	6,3x	115	95	5,0x210	
		TI-	6,3x	125	105	5,0x210	
		TI-	6,3x	135	115	5,0x210	
		TI-	6,3x	145	125	5,0x260	
		TI-	6,3x	155	135	5,0x260	
		TI-	6,3x	165	145	5,0x260	
		TI-	6,3x	175	155	5,0x260	
		TI-	6,3x	185	165	5,0x310	
		TI-	6,3x	195	175	5,0x310	
		TI-	6,3x	205	185	5,0x310	
		TI-	6,3x	215	195	5,0x310	
		TI-	6,3x	235	215	5,0x360	
		TI-	6,3x	255	235	5,0x360	
		TI-	6,3x	275	255	5,0x360	

Stress plates

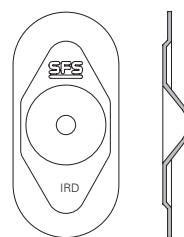
ID-70X70



IF/IG-C-82X40



IRD-82X40



isofast® IF2-6,1**Technical information****Application**

For the fastening of waterproof membrane and insulation to dense concrete of min grade C12/15.

Material**Fastener**

- IF2-6,1
Case hardened carbon steel

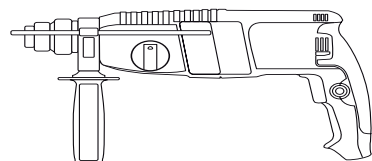
Durocoat® corrosion protection:
Resistant to 15 cycles of the
Kesternich test in accordance with
ETAG 006 - D3.1 and FM Approval
Standard 4470 requirements

Environment friendly, free of
chromium VI

Stress plates

- ID-70x70 / IRD-82x40
Steel 1,0 mm, zinc plated

Resistant to 15 cycles of the
Kesternich test in accordance
with ETAG 006 - D3.1 and FM Ap-
proval Standard 4470 requirements

Tools and accessories**DB 620**

SFS drill bits



- Use hammer drill with weight class
2 - 3 kg, impact energy ≤ 2,5 J

Recommendation for installation

- Power screwdriver
- 300 - 700 rpm
- Min. 500 W
- Battery tool
- 300 - 700 rpm
- Approx. 18 V
- Battery with approx. 2,5 Ah

- Do not use a percussion tool.

DI 650

ZA 1/4" Universal bit holder



PH3 bit



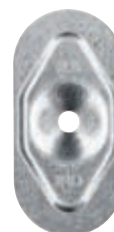
- Power screwdriver for manual
installation of fasteners.

Stress plates**ID-70x70**

- Stress plate for insulation, hole
diameter 7,5mm

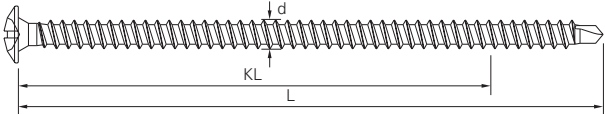
IF/IG-C-82x40

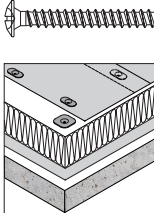
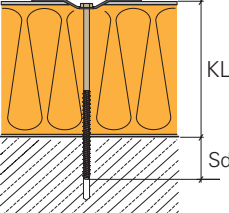
- Stress plate for membrane
on hard substrates, hole diameter
7,5mm

IRD-82x40

- Stress plate for membrane, hole
diameter 7,5mm

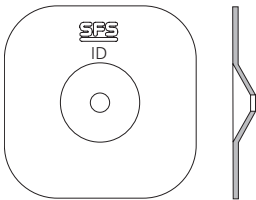
Order information

	Pan - Phillips head PH 3 	
KL clamping length M magazine loaded d thread diameter L Length TL thread length t thickness of structure All measurements in mm		

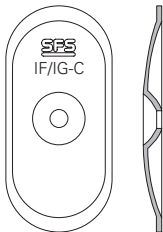
		Order code					
		IF2- 6,1x 32					
Product / Application	Approval	Type	d	L	K	Drill bits	Application range
4 ■ Carbon steel 	 ETA-08/0262 	IF2- 6,1x 32	7	32	7	5,0x110	 Build-up: Thickness concrete deck t: min. 40 mm. Edge distance: min. 50 mm Insulation compressive strength at 10% compression min. 0,1 $\frac{N}{mm^2}$ Clamping length KL: K = total roof build-up between top edge substrate and top edge membrane K = thickness vapour barrier + thickness insulation + thickness membrane Thread length TL: Fastener length 32 -102mm: TL = L - 5mm Fastener length 127 - 305mm: TL = 100mm Setting: Sd (Setting depth): min. 25 mm Depth of pilot hole to be min. 15 mm deeper than the setting depth of the fastener, depending on site conditions.
		IF2- 6,1x 52	27	52	27	160	
		IF2- 6,1x 76	51	76	51	160	
		IF2- 6,1x 102	77	102	77	210	
		IF2- 6,1x 127	102	127	102	210	
		IF2- 6,1x 152	127	152	127	260	
		IF2- 6,1x 178	153	178	153	260	
		IF2- 6,1x 203	178	203	178	310	
		IF2- 6,1x 254	229	254	229	360	
		IF2- 6,1x 305	280	305	280	360	

Stress plates

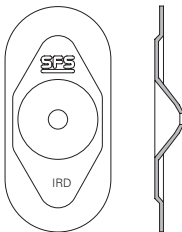
ID-70X70



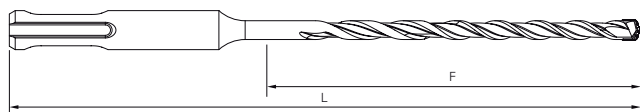
IF/IG-C-82X40



IRD-82X40



Order information



SP Carbide-geometry
Dynamic, chisel-shaped drill bit head
Multi-fluted, spacious KVS-spiral
Unique KVS-flute design

d diameter | **L** Length | **F** working length | **All measures in mm**

Order code						Application information
SDS-	d	L	F	SP	Code	
SDS-	4,8x	110/	50-	SP		DT-4,8xL
SDS-	4,8x	160/	100-	SP		DT-4,8xL
SDS-	4,8x	210/	150-	SP		TI-6,3xL *
SDS-	4,8x	260/	200-	SP		TI-T25-6,3xL *
SDS-	4,8x	310/	250-	SP		TIA-T25-6,3xL *
SDS-	4,8x	360/	300-	SP		
SDS-	5,0x	110/	50-	SP		TI-6,3xL
SDS-	5,0x	160/	100-	SP		TI-T25-6,3xL
SDS-	5,0x	210/	150-	SP		TIA-T25-6,3xL
SDS-	5,0x	260/	200-	SP		
SDS-	5,0x	310/	250-	SP		
SDS-	5,0x	360/	300-	SP		
SDS-	5,0x	400/	340-	SP		
SDS-	5,0x	450/	390-	SP		
SDS-	5,0x	500/	440-	SP		
SDS-	5,2x	160/	100-	SP		TI-6,3xL *
SDS-	5,2x	210/	150-	SP		TI-T25-6,3xL *
SDS-	5,2x	260/	200-	SP		TIA-T25-6,3xL *
SDS-	5,2x	310/	250-	SP		
SDS-	5,2x	360/	300-	SP		
SDS-	6,3x	110/	50-	SP		DT-6,3xL
SDS-	6,3x	160/	100-	SP		DT-6,3xL
SDS-	6,3x	210/	150-	SP		
SDS-	6,3x	260/	200-	SP		
SDS-	6,3x	285/	225-	SP		
SDS-	6,3x	360/	300-	SP		
SDS-	6,3x	410/	350-	SP		
SDS-	6,3x	510/	450-	SP		

All approvals and recommended design values are based upon close tolerance pilot holes that are drilled using SFS intec SP carbide drill bits.

* Technical performance values of the TI fasteners may differ due to variation in the hardness of locally sourced concrete aggregates. Optimum performance can be determined by site testing using different drill diameters, for example between SDS-4,8 and SDS-5,2. Consult your SFS Representative for further information.

isoweld® TI-T25 / FI-P

isoweld® TI-T25-6,3



Technical information

Application

For the fastening of waterproof membrane and insulation to solid, dense concrete of minimum grade C12/15.

Material

Fastener

- TI-T25-6,3
Case hardened carbon steel
Durocoat® corrosion protection:
Resistance at 15 cycles of Kesternich test according to ETAG 006 - D.3.1. and FM Approval Standard 4470 requirements
Environment-friendly, free of chromium VI

Stress plates

- FI-P-6,8-PVC / FI-P-6,8-TPO
FI-P-6,8-EPDM
Steel 0,8 mm, zinc plated
Resistance at 15 cycles of Kesternich test according to ETAG 006 - D.3.1. and FM Approval Standard 4470 requirements

Stress plates

FI-P-6,8-PVC



- Stress plate for PVC membranes and insulation, plate diameter 80 mm, hole diameter 6,8 mm

FI-P-6,8-TPO



- Stress plate for TPO membranes and insulation, plate diameter 80 mm, hole diameter 6,8 mm

FI-P-6,8-EPDM

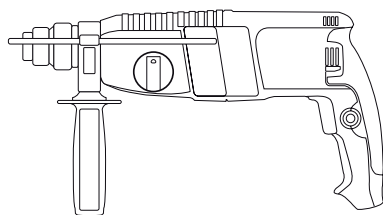


- Stress plate for EPDM membranes and insulation, plate diameter 80 mm, hole diameter 6,8 mm

Technical information

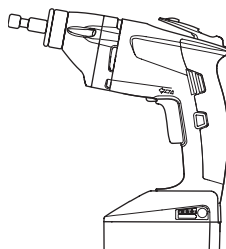
Tools and accessories

Recommendation for pre-drilling



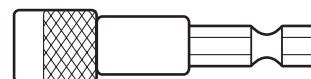
- Hammer drill with weight class 2 - 3 kg, impact energy $\leq 2,5$ J

Recommendation for installation



- Power screwdriver
 - 300 - 700 rpm
 - Min. 500 W
- Battery tool
 - 300 - 700 rpm
 - Min. 18 V
 - Battery with min. 2,5 Ah
- Do not use a percussion tool.

Bit holder ZA1/4"



- Accessory for the manual installation in combination with a power screwdriver or battery tool

T25-25-HEX1/4"



- Accessory for the manual installation in combination with a power screwdriver or battery tool

isoweld®3000 / FI-H / FI-Magnet Set



- Induction welding tool, hand inductor and magnets for the welding of the membrane to the *isoweld*® stress plates

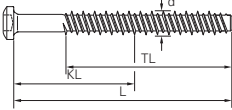
FI-Pad

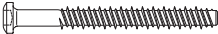
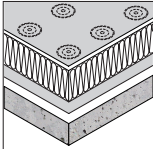
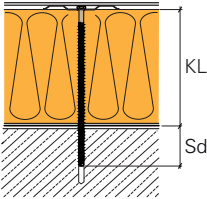


- Cardboard pad for applications on EPS/XPS insulation

isoweld® TI-T25 / FI-P

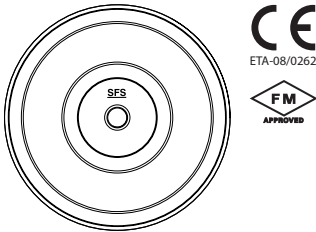
Order information

	T25 Ø 9,7 mm 	
KL clamping length M magazine loaded d thread diameter L length t thickness of structure All measurements in mm		

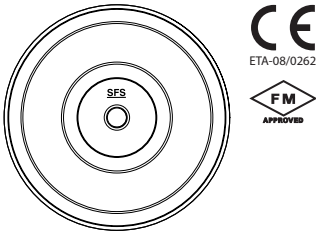
		Order code			K	Application information
Product / Application	Approval	Type	d	L		
4 ■ Carbon steel  	  	TI-T25- 6,3x	30		10	 Build-up: Thickness concrete deck t min. 40 mm. Edge distance: min. 50 mm Insulation compressive strength at 10% compression 0,1 N/m². Clamping length KL: Total roof build-up between top edge substrate and top edge insulation K = thickness vapour barrier + thickness insulation Thread length TL: Fastener length 32 - 50 mm: TL = L - 3 mm Fastener length 60 - 160 mm: TL = 50 mm Setting: Sd (Setting depth): min. 20 mm Depth of pilot hole to be min. 15 mm deeper than the setting depth of the fastener, depending on site conditions.
		TI-T25- 6,3x	50		30	
		TI-T25- 6,3x	60		40	
		TI-T25- 6,3x	70		50	
		TI-T25- 6,3x	80		60	
		TI-T25- 6,3x	90		70	
		TI-T25- 6,3x	100		80	
		TI-T25- 6,3x	120		100	
		TI-T25- 6,3x	140		120	
		TI-T25- 6,3x	160		140	

Stress plates

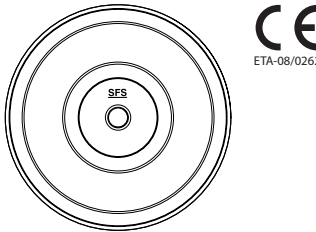
FI-P-6,8-PVC



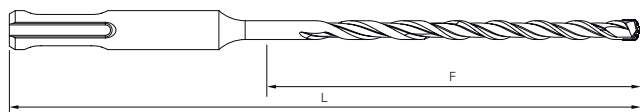
FI-P-6,8-TPO



FI-P-6,8-EPDM



Order information



SP Carbide-geometry
Dynamic, chisel-shaped drill bit head
Multi-fluted, spacious KVS-spiral
Unique KVS-flute design

d diameter | **L** Length | **F** working length | **All measurements in mm**

Order code					Application information
Type	d	L	F	Code	
SDS- 4,8x 110/ 50-	4,8	110	50	SP	DT-4,8xL* DT-4,8xL* TI-6,3xL* TI-T25-6,3xL* TIA-T25-6,3xL*
SDS- 4,8x 160/ 100-	4,8	160	100	SP	
SDS- 4,8x 210/ 150-	4,8	210	150	SP	
SDS- 4,8x 260/ 200-	4,8	260	200	SP	
SDS- 4,8x 310/ 250-	4,8	310	250	SP	
SDS- 4,8x 360/ 300-	4,8	360	300	SP	
SDS- 5,0x 110/ 50-	5,0	110	50	SP	TI-6,3xL* TI-T25-6,3xL* TIA-T25-6,3xL*
SDS- 5,0x 160/ 100-	5,0	160	100	SP	
SDS- 5,0x 210/ 150-	5,0	210	150	SP	
SDS- 5,0x 260/ 200-	5,0	260	200	SP	
SDS- 5,0x 310/ 250-	5,0	310	250	SP	
SDS- 5,0x 360/ 300-	5,0	360	300	SP	
SDS- 5,0x 400/ 340-	5,0	400	340	SP	
SDS- 5,0x 450/ 390-	5,0	450	390	SP	
SDS- 5,0x 500/ 440-	5,0	500	440	SP	
SDS- 5,2x 160/ 100-	5,2	160	100	SP	TI-6,3xL* TI-T25-6,3xL* TIA-T25-6,3xL*
SDS- 5,2x 210/ 150-	5,2	210	150	SP	
SDS- 5,2x 260/ 200-	5,2	260	200	SP	
SDS- 5,2x 310/ 250-	5,2	310	250	SP	
SDS- 5,2x 360/ 300-	5,2	360	300	SP	
SDS- 6,3x 110/ 50-	6,3	110	50	SP	DT-6,3xL* DT-6,3xL*
SDS- 6,3x 160/ 100-	6,3	160	100	SP	
SDS- 6,3x 210/ 150-	6,3	210	150	SP	
SDS- 6,3x 260/ 200-	6,3	260	200	SP	
SDS- 6,3x 285/ 225-	6,3	285	225	SP	
SDS- 6,3x 360/ 300-	6,3	360	300	SP	
SDS- 6,3x 410/ 350-	6,3	410	350	SP	
SDS- 6,3x 510/ 450-	6,3	510	450	SP	

All approvals and recommended design values are based upon close tolerance pilot holes that are drilled using SFS intec SP carbide drill bits.

* Technical performance values of the TI fasteners may differ between projects due to variation in the hardness of locally sourced concrete aggregates. Optimum performance can be determined by site testing using different drill diameters, for example between SDS-4,8 and SDS-5,2. Consult your SFS representative for further information.

isoweld® TI-T25-6,3 / FI-P / FI-R

isoweld® TI-T25-6,3



Technical information

Application

For the fastening of waterproof membrane and insulation to solid, dense concrete of minimum grade C12/15.

Material

Fastener

- TI-T25-6,3
Case hardened carbon steel
Durocoat® corrosion protection:
Resistance at 15 cycles of Kesternich
test according to ETAG 006 - D.3.1.
and FM Approval Standard 4470
requirements
Environment-friendly, free of
chromium VI

Sleeves

- FI-R-20
Polyamide PA

Stress plate

- FI-P-16,0-PVC / FI-P-16,0-TPO
FI-P-16,0-EPDM
Steel 0,8 mm
Resistance at 15 cycles of Kester-
nich test according to ETAG 006
- D.3.1. and FM Approval Standard
4470 requirements

Stress plates

FI-P-16,0-PVC



- Stress plate for PVC membranes
and insulation, plate diameter
80 mm, hole diameter 16,0 mm

FI-P-16,0-TPO



- Stress plate for TPO membranes
and insulation, plate diameter
80 mm, hole diameter 16,0 mm

FI-P-16,0-EPDM



- Stress plate for EPDM membranes
and insulation, plate diameter
80 mm, hole diameter 16,0 mm

Sleeves

FI-R-20

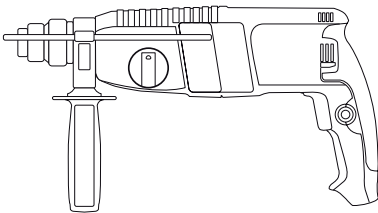


- Sleeve for the isoweld® system, head diameter 20 mm

Technical information

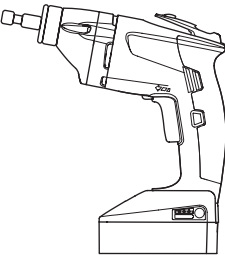
Tools and accessories

Recommendation for pre-drilling



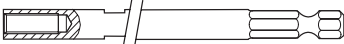
- Hammer drill with weight class 2 - 3 kg, impact energy ≤ 2,5 J

Recommendation for installation



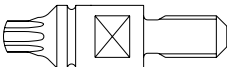
- Power screwdriver
 - 300 - 700 rpm
 - Min. 500 W
- Battery tool
 - 300 - 700 rpm
 - Min. 18 V
 - Battery with min. 2,5 Ah
- Do not use a percussion tool.

ZA1/4"-M6-300/750



- Accessory for the manual installation in combination with a power screwdriver or battery tool

T25-32-M6



- Accessory for the manual installation in combination with a power screwdriver or battery tool

isoweld®3000 / FI-H / FI-Magnet Set



- Induction welding tool, hand inductor and magnets for the welding of the membrane to the isoweld® stress plates

FI-Pad



- Cardboard pad for applications on EPS/XPS insulation

isoweld® TI-T25-6,3 / FI-R / FI-P

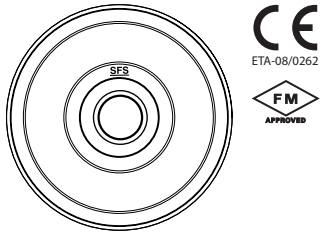
Order information

	T25 Ø 9,7 mm 	
KL clamping length M magazine loaded d thread diameter L length t thickness of structure All measurements in mm		

		Order code			Application information
		TI-T25- 6,3x	60		
Product / Application	Approval	Type	d	L	
Carbon steel	 	TI-T25- 6,3x	60	60	 Build-up: Thickness concrete deck t min. 40 mm. Edge distance: min. 50 mm Thread length TL: Fastener length 60 - 160 mm: TL = 50 mm Setting: Sd (Setting depth): min. 20 mm Depth of pilot hole to be min. 15 mm deeper than the setting depth of the fastener, depending on site conditions.
		TI-T25- 6,3x	70	70	
		TI-T25- 6,3x	80	80	
		TI-T25- 6,3x	90	90	
		TI-T25- 6,3x	100	100	
		TI-T25- 6,3x	120	120	
		TI-T25- 6,3x	140	140	
		TI-T25- 6,3x	160	160	
● Plastic	 	FI-R-	20x	40	k see combination table
		FI-R-	20x	70	
		FI-R-	20x	100	
		FI-R-	20x	130	
		FI-R-	20x	160	
		FI-R-	20x	190	
		FI-R-	20x	230	
		FI-R-	20x	300	

Stress plates

FI-P-16,0-PVC



FI-P-16,0-TPO

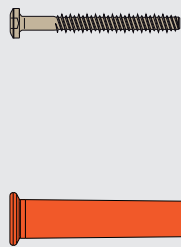


FI-P-16,0-EPDM



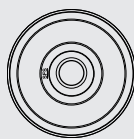
Combination table – selection of the correct fastener and sleeve combination

COMBINATION



Sleeve:
FI-R-20

Fastener:
Tl-T25-6,3



Stress plate:

FI-P-16,0-PVC, FI-P-16,0-TPO
or FI-P-16,0-EPDM

CALCULATION

Please follow the calculation steps to find the correct fastener and sleeve combination for new roofs. Special rules apply for renovation

Step 1: Calculation of clamping length KL

Clamping length KL:
Total roof build-up between top edge
substrate and top edge insulation

$$K_L = \text{Thickness vapour barrier} + \text{Thickness insulation}$$

Step 3: Calculation of fastener length FL

$$FL_{min.} = \text{Clamping length KL} \\ - \text{Sleeve length SL} \\ + 38 \text{ mm}$$

If a length is not available, take the next longer length. Fastener range see chapter.

Step 2: Calculation of sleeve length SL

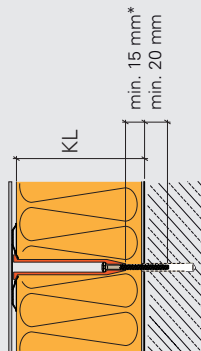
SL_{max} = Clamping length KL
 - Thickness vapour barrier
 - 15 mm

If a length is not available, take the next shorter length. Sleeve range see chapter.

Step 4: Calculation of setting depth S_d

Sd = Sleeve length
+ Fastener length
- 18 mm
- Clamping length KL

Depth of pilot hole to be 15 mm deeper than the setting depth, depending on site conditions.



* thickness vapour barrier to be considered

KL (mm)	Sleeve length SL (mm)	Fastener length FL (mm)	Setting depth Sd (mm)
30			
40			
50			
60	40	60	22
70		70	22
80		80	22
90		90	22
100	70	100	22
110		60	22
120	100	70	22
130		80	22
140		90	22
150	130	60	22
160		70	22
170		80	22
180		90	22
190		100	22
200	160	60	22
210		70	22
220		80	22
230	190	90	22
240		100	32
250		60	22
260		70	22
270	230	80	22
280		90	22
290		100	22
300		120	32
310		60	22
320		70	22
330		80	22
340		90	22
350		100	22
360	300	120	32
370		60	22
380		70	22
390		80	22
400		90	22
410		100	22
420		120	32
430		60	22
440		70	22
450		80	22
460		90	22
470		100	22
480		120	32
490		60	22
500		70	22

isoweld® TIA-T25 -6,3 / FI-P / FI-R

isoweld® TIA-T25-6,3



Technical information

Application

For the fastening of waterproof membrane and tapered insulation to concrete and to thin concrete roof liner trays.

Material

Fastener

- TIA-T25-6,3
Case hardened carbon steel
Durocoat® corrosion protection:
Resistance at 15 cycles of Kesternich
test according to ETAG 006 - D.3.1.
and FM Approval Standard 4470
requirements
Environment-friendly, free of
chromium VI

Sleeves

- FI-R-20
Polyamide PA

Stress plate

- FI-P-16,0-PVC / FI-P-16,0-TPO
FI-P-16,0-EPDM
Steel 0,8 mm
Resistance at 15 cycles of Kester-
nich test according to ETAG 006
- D.3.1. and FM Approval Standard
4470 requirements

Stress plates

FI-P-16,0-PVC



- Stress plate for PVC membranes
and insulation, plate diameter
80 mm, hole diameter 16,0 mm

FI-P-16,0-TPO



- Stress plate for TPO membranes
and insulation, plate diameter
80 mm, hole diameter 16,0 mm

FI-P-16,0-EPDM



- Stress plate for EPDM membranes
and insulation, plate diameter
80 mm, hole diameter 16,0 mm

Sleeves

FI-R-20

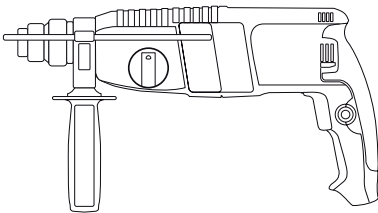


- Sleeve for the isoweld® system, head diameter 20 mm

Technical information

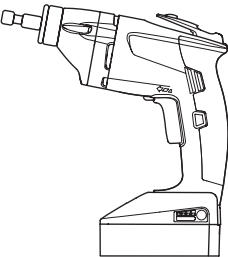
Tools and accessories

Recommendation for pre-drilling



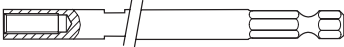
- Hammer drill with weight class 2 - 3 kg, impact energy ≤ 2,5 J

Recommendation for installation



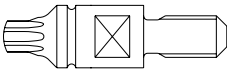
- Power screwdriver
 - 300 - 700 rpm
 - Min. 500 W
- Battery tool
 - 300 - 700 rpm
 - Min. 18 V
 - Battery with min. 2,5 Ah
- Do not use a percussion tool.

ZA1/4"-M6-300/750



- Accessory for the manual installation in combination with a power screwdriver or battery tool

T25-32-M6



- Accessory for the manual installation in combination with a power screwdriver or battery tool

isoweld®3000 / FI-H / FI-Magnet Set



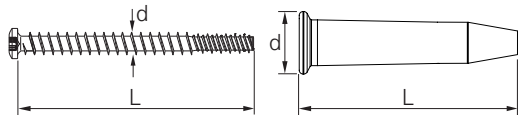
- Induction welding tool, hand inductor and magnets for the welding of the membrane to the isoweld® stress plates

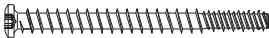
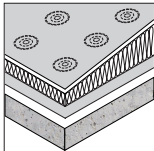
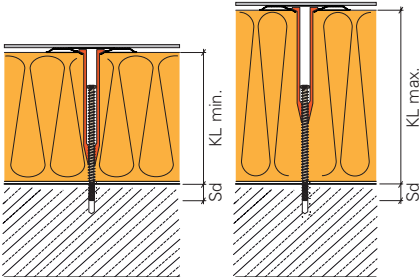
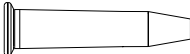
FI-Pad



- Cardboard pad for applications on EPS/XPS insulation

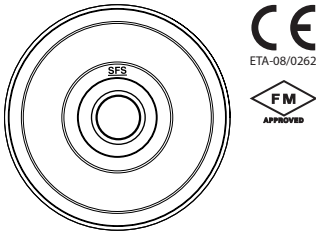
Order information

	T25 Ø 9,7 mm 	
KL clamping length M magazine loaded d thread diameter L length t thickness of structure All measurements in mm		

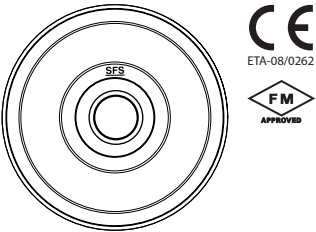
		Order code				
Product / Application		Approval	Type	d	L	Application information
■ Carbon steel    ETA-08/0262 			TIA-T25-	6,3x	70	 Build-up: Thickness concrete deck t min. 40 mm. Edge distance: min. 50 mm Setting: Sd (Setting depth): min. 20 mm Depth of pilot hole to be min. 15 mm deeper than the setting depth of the fastener, depending on site conditions.
			TIA-T25-	6,3x	90	
			TIA-T25-	6,3x	120	
			TIA-T25-	6,3x	150	
● Plastic   ETA-08/0262 			FI-R-	20x	40	K see combination table
			FI-R-	20x	70	
			FI-R-	20x	100	
			FI-R-	20x	130	
			FI-R-	20x	160	
			FI-R-	20x	190	
			FI-R-	20x	230	
			FI-R-	20x	300	

Stress plates

FI-P-16,0-PVC



FI-P-16,0-TPO

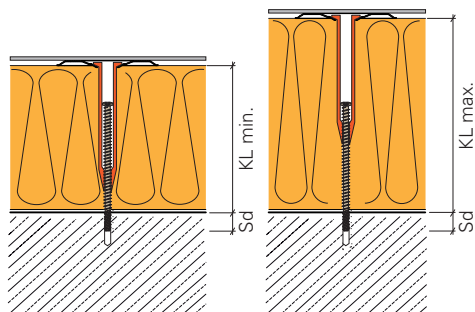


FI-P-16,0-EPDM



Combination table

for concrete deck



KL = total roof build-up between top edge
substrate and top edge membrane

KL = thickness vapour barrier
+ thickness insulation
+ thickness membrane

		A		B		C		D	
Screw		TIA-T25-6,3x70		TIA-T25-6,3x90		TIA-T25-6,3x120		TIA-T25-6,3x150	
No	Sleeve L	KL min.	KL max.	KL min.	KL max.	KL min.	KL max.	KL min.	KL max.
1	40	65	70	85	90	115	120	145	155
2	70	80	100	85	120	115	150	145	180
3	100	110	130	110	150	115	180	145	210
4	130	140	160	140	180	140	210	145	240
5	160	170	190	170	210	170	240	170	270
6	190	200	220	200	240	200	270	200	300
7	230	240	260	240	280	240	310	240	340
8	300	310	330	310	350	310	380	310	410

Example

Demand KL: 120 - 210 mm

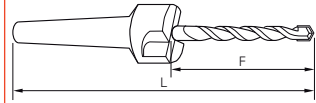
Combination

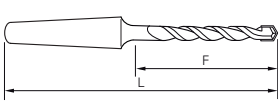
2C = sleeve 70 mm + screw 120 mm, covering KL 115 - 150 mm

4C = sleeve 130 mm + screw 120 mm, covering KL 140 - 210 mm

ZVK / ZAK

Order information

ZVK-STOP


ZVK


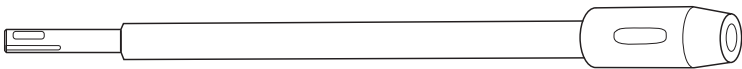
d diameter | L Length | F working length | All measures in mm

Order code					Application information
Type	d	F	L	Code	
ZVK- 4,8x 100x 160					DT-4,8xL* DT-S-4,8xL* TI-T25-6,3xL* TIA-T25-6,3xL*
ZVK- 4,8x 100x 165 STOP					
ZVK- 5,0x 55x 115					
ZVK- 5,0x 100x 160					
ZVK- 5,0x 25x 90 STOP					TI-T25-6,3xL* TIA-T25-6,3xL*
ZVK- 5,0x 35x 100 STOP					
ZVK- 5,0x 45x 110 STOP					
ZVK- 5,0x 55x 120 STOP					
ZVK- 5,2x 25x 90 STOP					TI-T25-6,3xL* TIA-T25-6,3xL*
ZVK- 5,2x 35x 100 STOP					
ZVK- 5,2x 45x 110 STOP					
ZVK- 5,2x 100x 165 STOP					

ZVK-STOP: The special STOP drills additionally core out the insulation providing for easy sleeve insertion and accurate fastener alignment with the pilot hole.

ZVK: Conus drills for different use, mostly to replace very long SDS drills

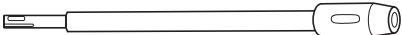
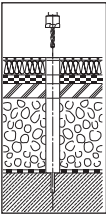
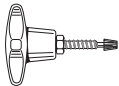
ZAK-500 / ZAK-750 / ZAK-1000 - Drill extension for the ZVK conus drills



All approvals and recommended design values are based upon close tolerance pilot holes that are drilled with ZVK carbide drill bits.

* Technical performance values of the TI fasteners may differ between countries due to variation in the hardness of locally sourced concrete aggregates. Optimum performance can be determined by site testing using different drill diameters, for example between ZVK-4,8 and ZVK-5,2. Consult your SFS representative for further information.

Tools and accessories

Product	Order code	Application (see installation process)
Drill extension (500 mm, 750 mm and 1000 mm) 	ZAK-500 ZAK-750 ZAK-1000	
Drill bit with stopper 	ZVK-5,0x25x90STOP ZVK-5,0x35x100STOP ZVK-5,0x45x110STOP ZVK-5,0x55x120STOP	
Drive bar (300 mm and 750 mm) 	ZA ^{1/4} "-M6-300 ZA ^{1/4} "-M6-750	
Drive bar extension (100 mm) 	ZA ^{1/4} "-M6-EXT100	
Insert bit 	T25-32-M6 T25-32-M6-RING	
ZH-11-RING 	T25-32-M6 T25-32-M6-RING	
Adjusting tool 	AJ60x130-T1A	
Adjusting bit 	AJ-M6	

5

isotak® Fasteners and plastic sleeves	Product code	Page
Carbon steel	TS-T25-6,0 R45	► 5.3
Carbon steel	TS-T25-6,0 R75	► 5.6
Carbon steel	TS-T25-6,0 ST	► 5.9

isofast® Fasteners and stress plates	Product code	Page
Carbon steel	IF2-6,1	► 5.12
Austenitic stainless steel	IW-S-5,0	► 5.14
Carbon steel	IWF-5,2	► 5.16

isoweld® Fasteners, stress plates and plastic sleeves	Product code	Page
Carbon steel	IWF-5,2 FI-P	► 5.19
Carbon steel	TS-T25-6,0 FI-P	► 5.23
Carbon steel Sleeve system	TS-T25-6,0/FI-P FI-R	► 5.26

Cost effective fastening of insulation and membrane to timber decks

Because conventional wood screws are inadequate for the fastening of membrane through insulation boards into timber decks, dedicated fastening systems are required for this appli-

cation. Specially designed fasteners from SFS intec can be used in combination with either plastic sleeves or stress plates.

The convincing advantages of the *isotak*® TS-T25-6,0 fastening systems



- A treadfast solution of fastener and sleeve ensures that the system is safe to walk on
- Ideal for applications with increased insulation thickness
- Cost-effective due to combination of screw with plastic sleeve
- Excellent torque transfer through the T25 drive
- Specially designed installation tool available, saving time and money
- Particularly suitable for timber decking applications including timber sub-structures, plywood, multi layer panels and similar applications

isotak® TS-T25-6,0 / R45**Technical information****Application**

For the fastening of waterproof membrane through insulation to timber deck. The recommended minimum thickness of timber boarding, for example plywood, oriented strand board (OSB) is 18 mm.

Material**Fastener**

■ TS-T25-6,0

Case hardened carbon steel

■ R45

High quality polypropylene, PP

Durocoat® corrosion protection:

Resistant to 15 cycles of the
Kesternich test in accordance with
ETAG 006 - D3.1 and FM Approval
standard 4470 requirements

Environment friendly, free of
chromium VI

Tools and accessories**IT 19****DI 650****Recommendation for installation**

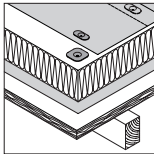
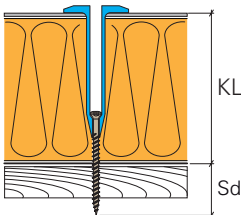
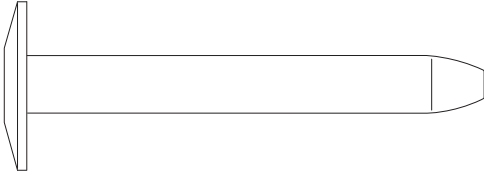
- Power screwdriver
 - 300 - 700 rpm
 - Min 500W
- Battery tool
 - Min 18V
 - 300 - 700 rpm
 - Battery with approx 2,5 Ah

- Stand-up setting tool for the
installation of isotak®
fasteners and sleeves.

isotak®TS-T25-6,0 / R45

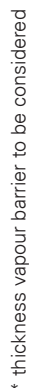
Order information

		T25 recess Ø 9,7 mm 	
KL clamping length M magazine loaded d thread diameter L Length TL thread length t thickness of structure All measurements in mm			

		Order code			Application range
Product / Application	Approval	Type	d	L	
■ Carbon steel  	 ETA-08/0262 	TS-T25-	6,0x	50	 Thread length TL: Fastener length 60 - 70 mm: TL = L - 6 mm Fastener length 80 - 240 mm: TL = 70 mm Setting: Sd (Setting depth): min. 30 mm
		TS-T25-	6,0x	60	
		TS-T25-	6,0x	70	
		TS-T25-	6,0x	80	
		TS-T25-	6,0x	90	
		TS-T25-	6,0x	100	
		TS-T25-	6,0x	110	
		TS-T25-	6,0x	120	
		TS-T25-	6,0x	130	
		TS-T25-	6,0x	140	
		TS-T25-	6,0x	160	
		TS-T25-	6,0x	180	
		TS-T25-	6,0x	200	
		TS-T25-	6,0x	220	
		TS-T25-	6,0x	240	
● Plastic 	 ETA-08/0262 	R	45x	15	K see combination table
		R	45x	35	
		R	45x	65	
		R	45x	85	
		R	45x	105	
		R	45x	135	
		R	45x	165	
		R	45x	185	
		R	45x	225	
		R	45x	255	
		R	45x	285	
		R	45x	325	
		R	45x	365	
		R	45x	405	

Combination sleeve R45 and fastener TS-T25-6,0xL**

****** If a length is not available, take the next length.
Fastener range see chapter.



KL = total roof build-up between top edge substrate and top edge membrane

$$K_L = \text{thickness vapour barrier} + \text{thickness insulation} + \text{thickness membrane}$$
[illegible]

Roof build-up (KL)	-	Sleeve length (L)	+ 45 mm = min. length	Type of fastener
Example:	100 mm		+ 45 mm = 60 mm ->	TS-T25-6,0x60

isotak® TS-T25-6,0 / R75

isotak® TS-T25-6,0 / R75



Technical information

Application

For the fastening of insulation to timber deck. The recommended minimum thickness of timber boarding, for example plywood, oriented strand board (OSB) is 18 mm.

Material

- Fastener**

 - TS-T25-6,0
 - Case hardened carbon steel
- R75

High quality polypropylene, PP

Durocoat® corrosion protection:
Resistant to 15 cycles of the
Kesternich test in accordance with
ETAG 006 - D3.1 and FM Approval
Standard 4470 requirements

Environment friendly, free of
chromium VI

Tools and accessories

IT 19



- Stand-up setting tool for the installation of isotak® fasteners and sleeves.

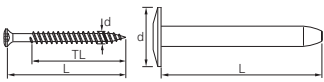
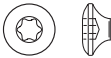
DI 650

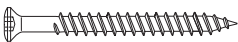
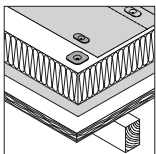
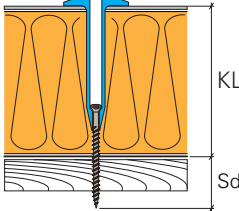
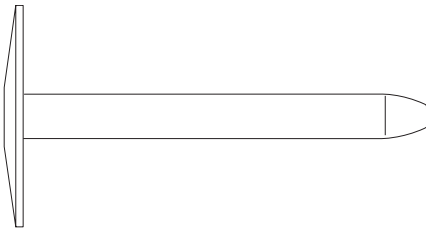


Recommendation for installation

- Power screwdriver
 - 300 - 700 rpm
 - Min 500W
- Battery tool
 - Min 18V
 - 300 - 700 rpm
 - Battery with approx 2,5 Ah

Order information

	T25 recess Ø 9,7 mm 	
KL clamping length M magazine loaded d thread diameter L Length TL thread length t thickness of structure All measurements in mm		

Product / Application	Approval	Order code			Application range
		Type	d	L	
■ Carbon steel  	CE ETA-08/0262 	TS-T25- 6,0x TS-T25- 6,0x TS-T25- 6,0x TS-T25- 6,0x TS-T25- 6,0x TS-T25- 6,0x TS-T25- 6,0x TS-T25- 6,0x TS-T25- 6,0x TS-T25- 6,0x TS-T25- 6,0x TS-T25- 6,0x TS-T25- 6,0x TS-T25- 6,0x TS-T25- 6,0x TS-T25- 6,0x	50 60 70 80 90 100 110 120 130 140 160 180 200 220 240		 Thread length TL: Fastener length 60 - 70 mm: TL = L - 6 mm Fastener length 80 - 240 mm: TL = 70 mm Setting: Sd (Setting depth): min. 30 mm
● Plastic 	CE ETA-08/0262 	R R R R R R R R R R R	75x 75x 75x 75x 75x 75x 75x 75x 75x 75x 75x	35 65 85 105 135 165 185 225 255 285	K see combination table

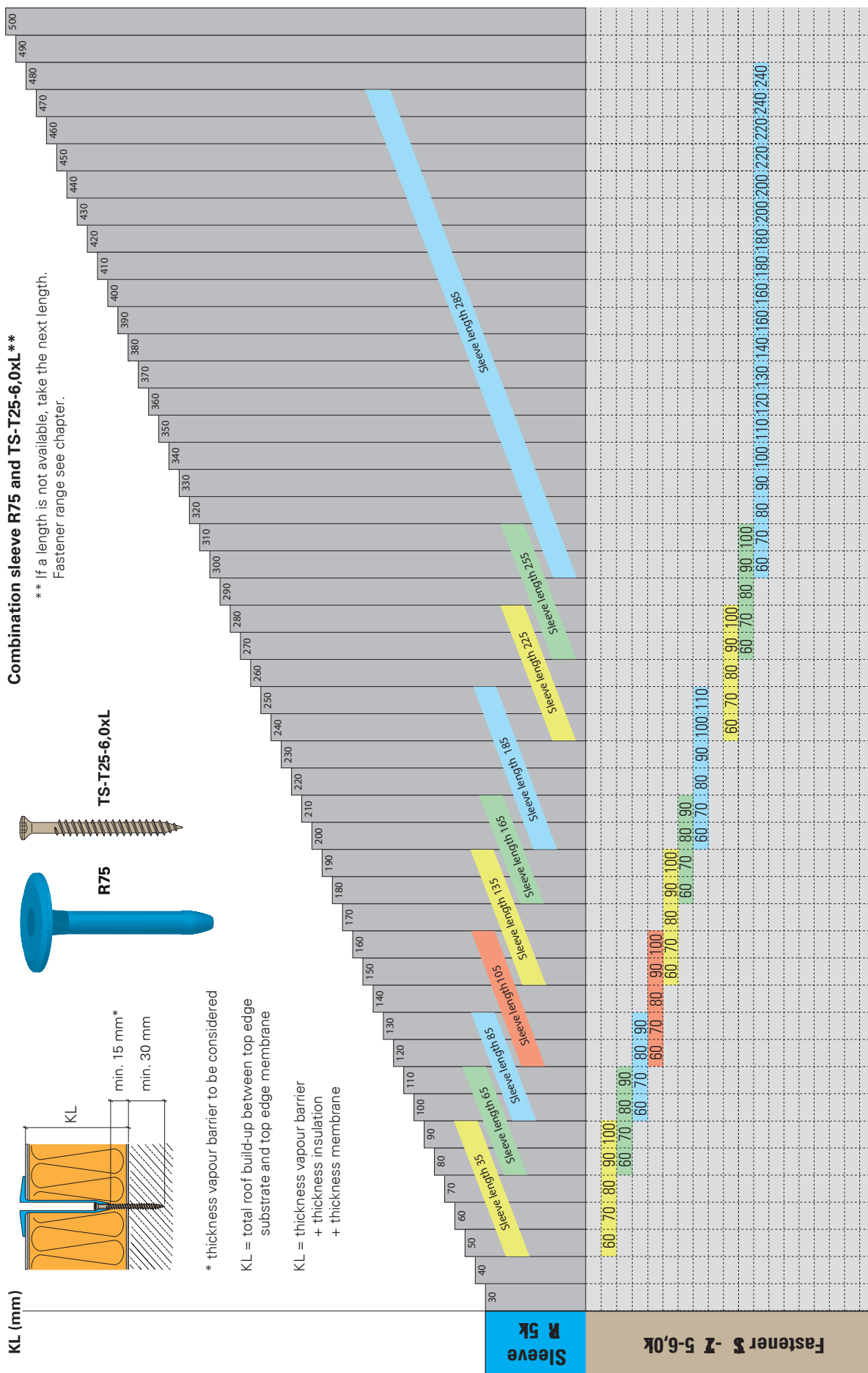
Combination sleeve R75 and TS-T25-6,0xL**

** If a length is not available, take the next length.
Fastener range see chapter.



KL = total roof build-up between top edge substrate and top edge membrane

KL = thickness vapour barrier
+ thickness insulation
+ thickness membrane



	Roof buildup (KL)	Sleeve length (L)	Type of fastener
Calculation:	-	+ 45 mm = min. length	TS-T25-6,0x60
Example:	120 mm	105 mm	+ 45 mm = 60 mm ->

isotak® TS-T25-6,0 / ST**Technical information****Application**

For the fastening of waterproof membrane through insulation to timber deck. The recommended minimum thickness of timber boarding, for example plywood, oriented strand board (OSB) is 18 mm.

ST Sleeves are designed for use with Sika Trocal® membranes in conjunction with the appropriate metal disc.

Alternatively the ST sleeve can be used to install compatible steel termination bar systems.

When used with the Sika-Trocal® metal disc, the R-CAP-11 plug should be inserted into the sleeve following installation.

Material**Fastener**

■ TS-T25-6,0

Case hardened carbon steel

Durocoat® corrosion protection:
Resistant to 15 cycles of the
Kesternich test in accordance with
ETAG 006 - D3.1 and FM Approval
Standard 4470 requirements

Environment friendly, free of
chromium VI

■ ST

High quality polypropylene, PP

Cap

■ R-Cap-11

High quality polypropylene, PP

**Tools and accessories****DI 650**

ZA ¼"-M6-300/750



T25-32-M6



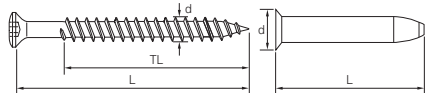
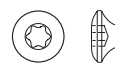
ZH-11-RING

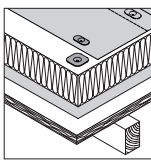
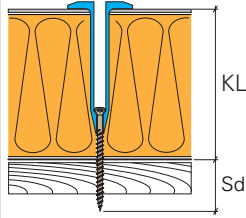
**Recommendation for installation**

- Power screwdriver
 - 300 - 700 rpm
 - Min 500W
- Battery tool
 - 300 - 700 rpm
 - Min 18V
 - Battery with min 2,5 Ah

isotak®TS-T25-6,0 / ST

Order information

	T25 recess Ø 9,7 mm 	
KL clamping length M magazine loaded d thread diameter L Length TL thread length t thickness of structure All measurements in mm		

		Order code			Application range
Product / Application	Approval	Type	d	L	
■ Carbon steel   CE ETA-08/0262 		TS-T25-	6,0x	50	 Thread length TL: Fastener length 60 - 70 mm: TL = L - 6 mm Fastener length 80 - 240 mm: TL = 70 mm Setting: Sd (Setting depth): min. 30 mm
		TS-T25-	6,0x	60	
		TS-T25-	6,0x	70	
		TS-T25-	6,0x	80	
		TS-T25-	6,0x	90	
		TS-T25-	6,0x	100	
		TS-T25-	6,0x	110	
		TS-T25-	6,0x	120	
		TS-T25-	6,0x	130	
		TS-T25-	6,0x	140	
		TS-T25-	6,0x	160	
		TS-T25-	6,0x	180	
		TS-T25-	6,0x	200	
		TS-T25-	6,0x	220	
		TS-T25-	6,0x	240	
● Plastic  CE ETA-08/0262		ST	25x	70	K see combination table
		ST	25x	90	
		ST	25x	110	
		ST	25x	140	
		ST	25x	170	
		ST	25x	190	

Combination sleeve ST and TS-T25-6,0xL**

****** If a length is not available, take the next length.
Fastener range see chapter.



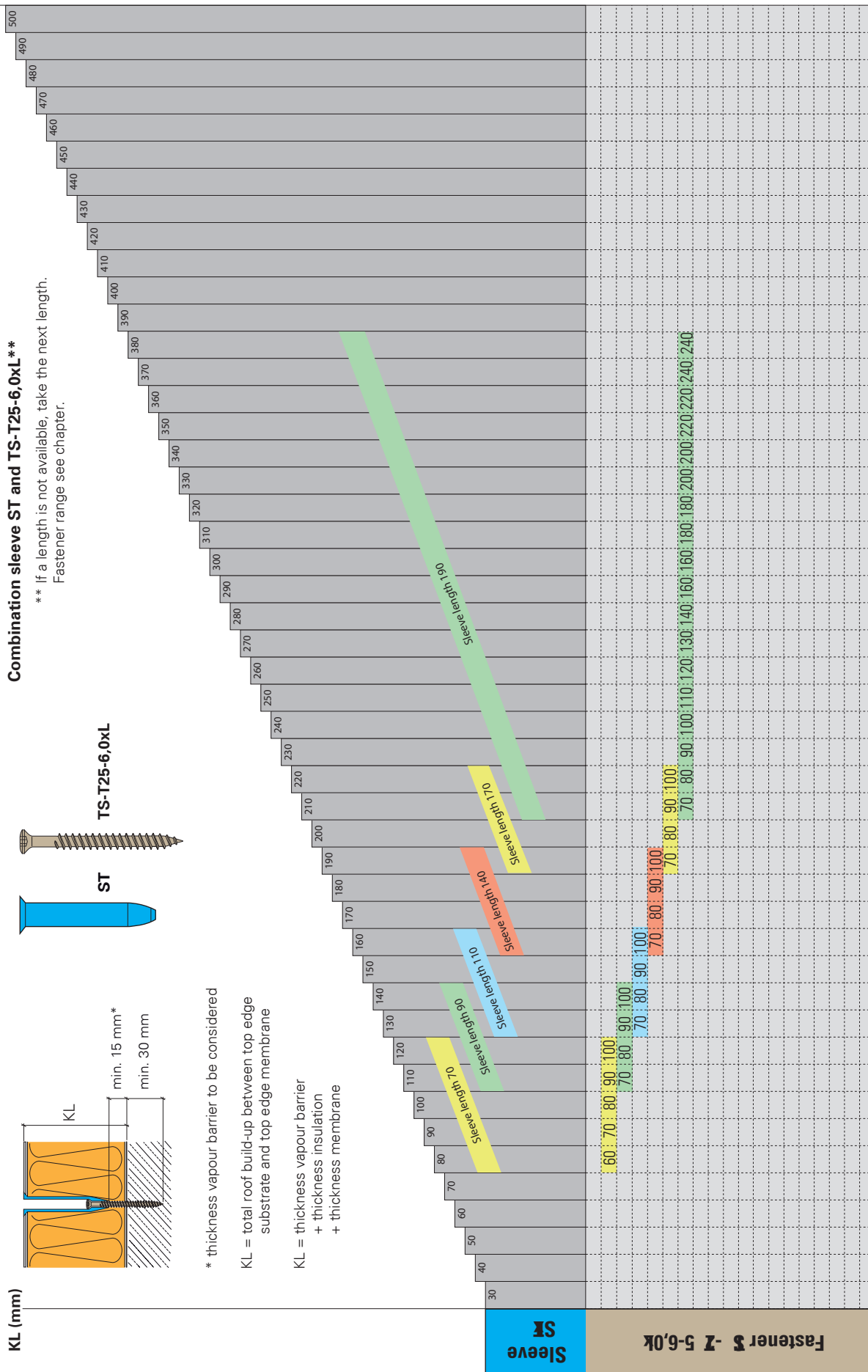
15

min. 15 mm*
min. 30 mm

* thickness vapour barrier to be considered

$\langle L =$ total roof build-up between top edge substrate and top edge membrane

ΣL = thickness vapour barrier
+ thickness insulation
+ thickness membrane



Calculation:
Example:

Roof buildup (KL)
120 mm

Sleeve length (L)
90 mm + 45 mm = min. length
+ 45 mm = 75 mm ->

Type of fastener
TS-T25-6,0x80

isofast® IF2-6,1**isofast® IF2-6,1****Technical information****Application**

For the fastening of waterproof membrane and insulation to timber deck. The recommended minimum thickness of timber boarding, for example plywood, oriented strand board (OSB) is 18 mm.

Material**Fastener**

■ IF2-6,1

Case hardened carbon steel

Durocoat® corrosion protection:
Resistant to 15 cycles of the
Kesternich test in accordance with
ETAG 006 - D3.1 and FM Approval
Standard 4470 requirements

Environment friendly, free of
chromium VI

Stress plates

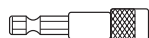
■ ID-70x70 / IRD-82x40

Steel 1,0 mm, zinc plated

Resistant to 15 cycles of the
Kesternich test in accordance
with ETAG 006 - D3.1 and
FM Approval Standard 4470 require-
ments

Tools and accessories**DI 650**

ZA 1/4" Universal bit holder



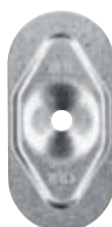
PH3 bit

**Recommendation for installation**

- Power screwdriver
 - 300 - 700 rpm
 - Min 500W
- Battery tool
 - 300 - 700 rpm
 - Min 18V
 - Battery with min 2,5 Ah

Stress plates**ID-70x70**

- Stress plate for insulation , hole diameter 7,5mm

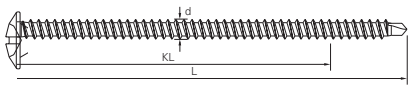
IRD-82x40

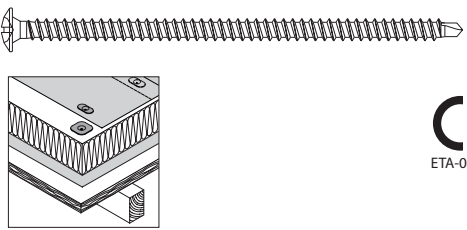
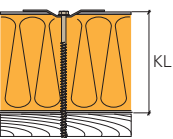
- Stress plate for membrane, hole diameter 7,5mm

IF/IG-C-82x40

- Stress plate for membrane on hard substrates, hole diameter 7,5mm

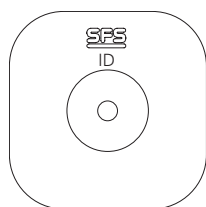
Order information

	Pan - Phillips head PH 3 	
KL clamping length M magazine loaded d thread diameter L Length TL thread length t thickness of structure All measurements in mm		

Product / Application	Approval	Order code			K	Application information
		Type	d	L		
■ Carbon steel 	 ETA-08/0262 	IF2-	6,1x	32	2	 Build-up: Insulation compressive strength at 10% compression min. 0,1 N/m². Clamping length KL: K = total roof build-up between top edge substrate and top edge membrane K = thickness vapour barrier + thickness insulation + thickness membrane Screw length L: L = K + 30 mm Thread length TL: Fastener length 32 - 102mm, TL = L-5mm Fastener length 127 - 305mm, TL = 100mm
		IF2-	6,1x	52	22	
		IF2-	6,1x	76	46	
		IF2-	6,1x	102	82	
		IF2-	6,1x	127	97	
		IF2-	6,1x	152	122	
		IF2-	6,1x	178	148	
		IF2-	6,1x	203	173	
		IF2-	6,1x	254	224	
		IF2-	6,1x	305	275	

Stress plates

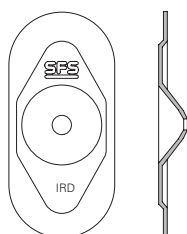
ID-70X70



ETA-08/0262



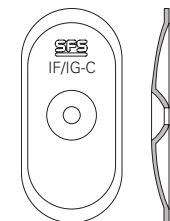
IRD-82X40



ETA-08/0262



IF/IG-C-82x40



ETA-08/0262



isofast® IW-S-5,0**isofast® IW-S-5,0****Technical information****Application**

For the fastening of waterproof membrane to timber deck. The recommended minimum thickness of timber boarding, for example plywood, oriented strand board (OSB) is 18 mm.

Where the internal relative humidity is in excess of 65%. In chemically aggressive atmospheres or conditions.

For refurbishment applications where the detailed condition of the existing build up is not known or when the build up contains abrasive layers that may damage the corrosion protection and make it ineffective. Where an extended design life / warranty is required by the client. For locations with aggressive local conditions (e.g. coastal environments).

Material**Fastener**

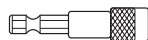
- **isofast® IW-S-5,0**
Austenitic stainless steel, grade
AISI 304, European Standard
1.4301, grade A2

Stress plates

- **IRC/W-82x40**
Steel 1,0 mm, zinc plated
- Resistant to 15 cycles of the Kesternich test in accordance with ETAG 006 - D3.1 and FM Approval Standard 4470 requirements

Tools and accessories**DI 650**

ZA 1/4" Universal bit holder



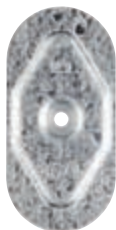
Z2-25-Hex1/4



- Power screwdriver for manual installation of fasteners.

Recommendation for installation

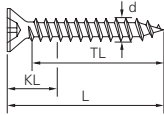
- Power screwdriver
 - 300 - 700 rpm
 - Min 500W
- Battery tool
 - 300 - 700 rpm
 - Min 18V
 - Battery with min 2,5 Ah

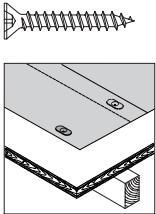
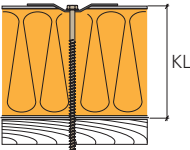
Stress plates**IRC/W-82x40**

- Stress plate for membrane , hole diameter 5,1mm

Tools and accessories can be found in chapter 9

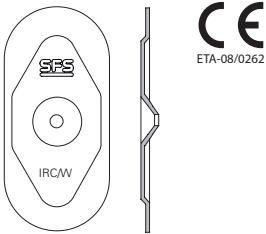
Order information

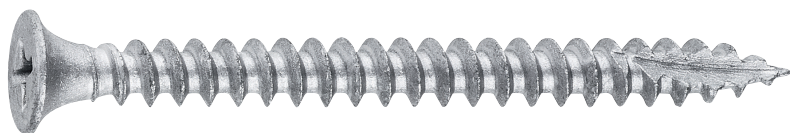
	PZ2 Ø 10,0 mm 	
KL clamping length M magazine loaded d thread diameter L Length t thickness of structure All measurements in mm		

		Order code			K	Application range
Product / Application	Approval	Type	d	L		
• Stainless steel 		IW-S-	5,0x	45	15	 Build-up: Insulation compressive strength at 10% compression min. 0,1 N m². Clamping length KL: K = total roof build-up between top edge substrate and top edge membrane K = thickness vapour barrier + thickness insulation + thickness membrane Screw length L: L = K + 30 mm Thread length TL: TL = 40 mm

Stress plates

IRC/W-82X40



isofast® IWF-5,2**isofast® IWF-5,2****Technical information****Application**

For the fastening of waterproof membrane to timber deck. The recommended minimum thickness of timber boarding, for example plywood, oriented strand board (OSB) is 18 mm.

Material**Fastener**

■ IWF-5,2

Case hardened carbon steel

Durocoat® corrosion protection:
Resistant to 15 cycles of the Kesternich test in accordance with ETAG 006 - D3.1 and FM standard 4470 requirements

Environment friendly, free of chromium VI

Stress plates

■ IRC/W-82x40

Steel 1,0 mm, zinc plated

Resistant to 15 cycles of the Kesternich test in accordance with ETAG 006 - D3.1 and FM standard 4470 requirements

5

Tools and accessories**DI 650**

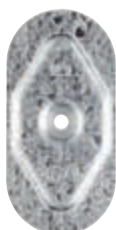
1/4" Universal bit holder

H2-25-HEX1/4

Recommendation for installation

- Power screwdriver
 - 300 - 700 rpm
 - Min 500W
- Battery tool
 - 300 - 700 rpm
 - Min 18V
 - Battery with min 2,5 Ah

- Power screwdriver for manual installation of fasteners.

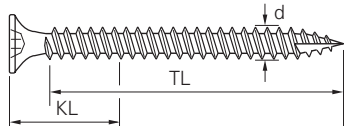
Stress plates**IRC/W-82x40**

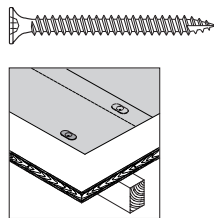
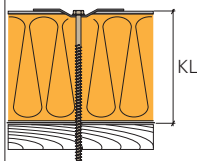
CE
ETA-08/0262

- Stress plate for membrane, hole diameter 5,1mm

Tools and accessories can be found in chapter 9

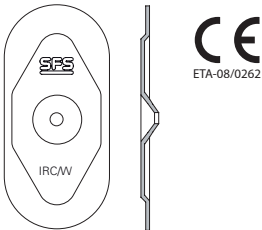
Order information

	PH2 9,4 mm A/F 	
KL clamping length M magazine loaded d thread diameter L Length t thickness of structure All measurements in mm		

		Order code				
		IWF- 5,2x 25				
Product / Application	Approval	Type	d	L	K	Application range
■ Carbon steel 		IWF-	5,2x	25	*	 Build-up: Insulation compressive strength at 10% compression min. 0,1 N m². Clamping length KL: K = total roof build-up between top edge substrate and top edge membrane K = thickness vapour barrier + thickness insulation + thickness membrane * For special applications, please consult your SFS representative. Screw length L: L = K + 30 mm Thread length TL: TL = L - 3 mm
		IWF-	5,2x	35	5	
		IWF-	5,2x	45	15	
		IWF-	5,2x	55	25	

Stress plates

IRC/W-82X40



***isoweld*®: The revolutionary field fastening system from SFS intec**

The new SFS intec *isoweld*® system is a revolutionary, non-penetrating field fastening system for flat roofs. *isoweld*® follows on from the tried-and-trusted *isofast*® and *isotak*® systems in offering another economical, secure and permanent method of fixing insulation material and membranes on flat roofs.

The system, developed entirely by SFS intec, is ideal for PVC, TPO and EPDM membranes. The stress plates used to secure the insulation to the roof are welded to it by inductive heating, creating a non-penetrating connection. The weld is achieved using the *isoweld*®3000 induction tool, developed in-house, which is equipped

with an array of safety functions. These include a search-and-control function, automatic temperature variation control and mains current fluctuation compensation.

**Here's why a field fastening system makes so much sense:**

- Fixing is independent of the membrane joints
- Only one membrane width is needed
- No additional insulation fixing
- No membrane penetration
- Reduced membrane overlaps
- Coverage independent of fixing progress – so much quicker
- Fewer fixing points

The convincing advantages of the *isoweld*® system:

- Ergonomic, upright installation with height adjustable handle
- Simple, user-friendly display with integrated counter
- Temperature compensation function automatically adapts to variations in temperature
- Automatic adjustment to power fluctuations
- Search-and-control function allows only perfect welds
- Acoustic and visual indicators at the start and finish of each weld
- Additional hand inductor for tight spaces and vertical welds



isoweld® IWF-5,2



Technical information

Application

For the fastening of waterproof membrane and insulation to timber decks, like timber formwork, plywood or oriented strand board (OSB). The recommended minimum thickness of the deck is 18 mm.

Material

Fastener

- IWF-5,2
- Case hardened carbon steel
- Durocoat® corrosion protection:
- Resistance at 15 cycles of Kesternich test according to ETAG 006 - D.3.1. and FM Approval Standard 4470 requirements
- Environment-friendly, free of chromium VI

Stress plates

- FI-P-6,8-PVC / FI-P-6,8-TPO
- FI-P-6,8-EPDM
- Steel 0,8 mm, zinc plated
- Resistance at 15 cycles of Kesternich test according to ETAG 006 - D.3.1. and FM Approval Standard 4470 requirements

Stress plates

FI-P-6,8-PVC



- Stress plate for PVC membranes and insulation, plate diameter 80 mm, hole diameter 6,8 mm

FI-P-6,8-TPO



- Stress plate for TPO membranes and insulation, plate diameter 80 mm, hole diameter 6,8 mm

FI-P-6,8-EPDM

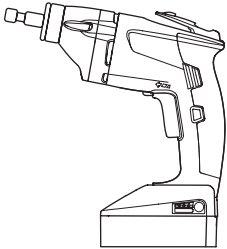


- Stress plate for EPDM membranes and insulation, plate diameter 80 mm, hole diameter 6,8 mm

Technical information

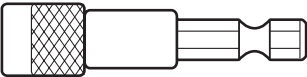
Tools and accessories

Recommendation for installation



- Power screwdriver
 - 300 - 700 rpm
 - Min. 500 W
- Battery tool
 - 300 - 700 rpm
 - Min. 18 V
 - Battery with min. 2,5 Ah

Bit holder ZA1/4"



- Accessory for the manual installation in combination with a power screwdriver or battery tool

H2-25-HEX1/4"



- Accessory for the manual installation in combination with a power screwdriver or battery tool

Technical information**Tools and accessories****FI80-L**

- Stand-up setting tool for the installation of *isoweld*® fasteners and stress plates

FI80-S

- Stand-up setting tool for the installation of *isoweld*® fasteners and stress plates

***isoweld*®3000 / FI-H / FI-Magnet Set**

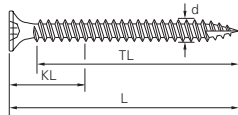
- Induction welding tool, hand inductor and magnets for the welding of the membrane to the *isoweld*® stress plates

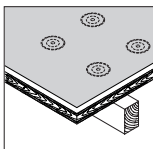
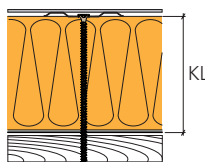
FI-Pad

- Cardboard pad for applications on EPS/XPS insulation

isoweld® IWF-5,2 / FI-P

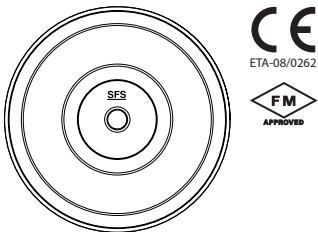
Order information

	PH2, Ø 9,4 mm 	
KL clamping length M magazine loaded d thread diameter L length t thickness of structure All measurements in mm		

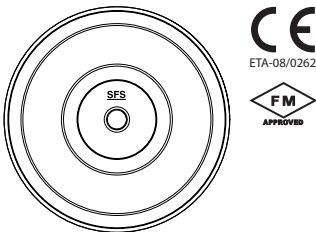
		Order code			K	Application information
Product / Application	Approval	Type	d	L		
■ Carbon steel  	 ETA-08/0262 	IWF-	5,2x	25	* 5 15 25  Build-up: Insulation compressive strength at 10% compression min. 0,1 kl m². Clamping length KL: Total roof build-up between top edge substrate and top edge insulation K = thickness vapour barrier + thickness insulation * For special applications, please consult your SFS representative. Screw length L: L = K + 30 mm Thread length TL: TL = L - 3 mm	
		IWF-	5,2x	35		
		IWF-	5,2x	45		
		IWF-	5,2x	55		

Stress plates

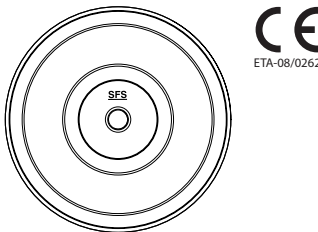
FI-P-6,8-PVC



FI-P-6,8-TPO



FI-P-6,8-EPDM



isoweld® TS-T25-6,0



Technical information

Application

For the fastening of waterproof membrane and insulation to timber decks, like timber formwork, plywood or oriented strand board (OSB). The recommended minimum thickness of the deck is 18 mm.

Material

Fastener

- TS-T25-6,0
- Case hardened carbon steel
- Durocoat® corrosion protection:
- Resistance at 15 cycles of Kesternich test according to ETAG 006 - D.3.1. and FM Approval Standard 4470 requirements
- Environment-friendly, free of chromium VI

Stress plates

- FI-P-6,8-PVC / FI-P-6,8-TPO
- FI-P-6,8-EPDM
- Steel 0,8 mm, zinc plated
- Resistance at 15 cycles of Kesternich test according to ETAG 006 - D.3.1. and FM Approval Standard 4470 requirements

Stress plates

FI-P-6,8-PVC



- Stress plate for PVC membranes and insulation, plate diameter 80 mm, hole diameter 6,8 mm

FI-P-6,8-TPO



- Stress plate for TPO membranes and insulation, plate diameter 80 mm, hole diameter 6,8 mm

FI-P-6,8-EPDM

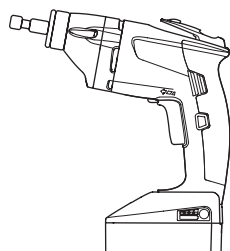


- Stress plate for EPDM membranes and insulation, plate diameter 80 mm, hole diameter 6,8 mm

Technical information

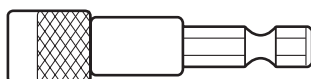
Tools and accessories

Recommendation for installation



- Power screwdriver
 - 300 - 700 rpm
 - Min. 500 W
- Battery tool
 - 300 - 700 rpm
 - Min. 18 V
 - Battery with min. 2,5 Ah

Bit holder ZA1/4"



- Accessory for the manual installation in combination with a power screwdriver or battery tool

T25-25-HEX1/4"



- Accessory for the manual installation in combination with a power screwdriver or battery tool

5

FI80-L



- Stand-up setting tool for the installation of *isoweld*® fasteners and stress plates

FI80-S



- Stand-up setting tool for the installation of *isoweld*® fasteners and stress plates

isoweld®3000 / FI-H / FI-Magnet Set



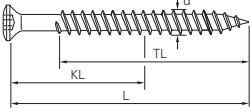
- Induction welding tool, hand inductor and magnets for the welding of the membrane to the *isoweld*® stress plates

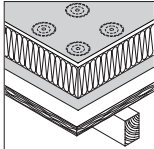
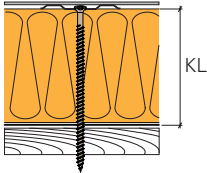
FI-Pad



- Cardboard pad for applications on EPS/XPS insulation

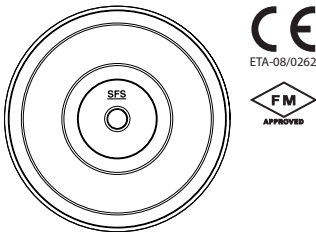
Order information

	T25 recess Ø 9,7 mm 	
KL clamping length M magazine loaded d thread diameter L length t thickness of structure All measurements in mm		

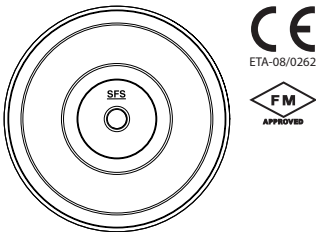
		Order code			K	Application information
Product / Application	Approval	Type	d	L		
■ Carbon steel  	 ETA-08/0262 	TS-T25-	6,0x	50	20	 Build-up: Insulation compressive strength at 10% compression min. 0,1 $\frac{kN}{m^2}$. Clamping length KL: Total roof build-up between top edge substrate and top edge insulation Screw length L: $L = K + 30 \text{ mm}$ Thread length TL: Fastener length 60 - 70 mm: TL = - 6 mm Fastener length 80 - 240 mm: TL = 70 mm
		TS-T25-	6,0x	60	30	
		TS-T25-	6,0x	70	40	
		TS-T25-	6,0x	80	50	
		TS-T25-	6,0x	90	60	
		TS-T25-	6,0x	100	70	
		TS-T25-	6,0x	110	80	
		TS-T25-	6,0x	120	90	
		TS-T25-	6,0x	130	100	
		TS-T25-	6,0x	140	110	
		TS-T25-	6,0x	160	130	
		TS-T25-	6,0x	180	150	
		TS-T25-	6,0x	200	170	
		TS-T25-	6,0x	220	190	
		TS-T25-	6,0x	240	210	

Stress plates

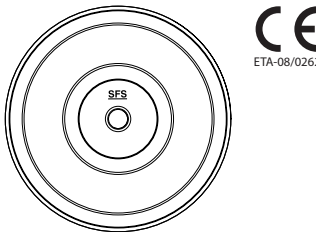
FI-P-6,8-PVC



FI-P-6,8-TPO



FI-P-6,8-EPDM



isoweld® TS-T25 -6,0 / FI-P / FI-R

isoweld® TS-T25-6,0



Technical information

Application

For the fastening of waterproof membrane and insulation to timber decks, like timber formwork, plywood or oriented strand board (OSB). The recommended minimum thickness of the deck is 18 mm.

Material

Fastener

- TS-T25-6,0
Case hardened carbon steel
Durocoat® corrosion protection:
Resistance at 15 cycles of Kesternich
test according to ETAG 006 - D.3.1.
and FM Approval Standard 4470
requirements
Environment-friendly, free of
chromium VI

Sleeve

- FI-R-20
High quality polyamide, PA

Stress plate

- FI-P-16,0-PVC / FI-P-16,0-TPO
FI-P-16,0-EPDM
Steel 0,8 mm
Resistance at 15 cycles of Kesternich
test according to ETAG 006 - D.3.1.
and FM Approval Standard 4470
requirements

tress plates

FI-P-16,0-PVC



- Stress plate for PVC membranes
and insulation, plate diameter
80 mm, hole diameter 16,0 mm

FI-P-16,0-TPO



- Stress plate for TPO membranes
and insulation, plate diameter
80 mm, hole diameter 16,0 mm

FI-P-16,0-EPDM



- Stress plate for EPDM membranes
and insulation, plate diameter
80 mm, hole diameter 16,0 mm

Sleeves

FI-R-20



- Sleeve for the isoweld® system, head diameter 20 mm

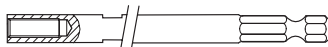
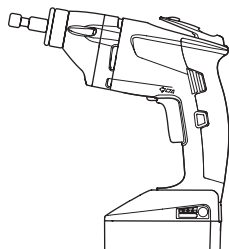
Technical information

Tools and accessories

Recommendation for installation

ZA1/4"-M6-300/750

T25-32-M6



- Power screwdriver
 - 300 - 700 rpm
 - Min. 500 W
- Battery tool
 - 300 - 700 rpm
 - Min. 18 V
 - Battery with min. 2,5 Ah

- Accessory for the manual installation in combination with a power screwdriver or battery tool

- Accessory for the manual installation in combination with a power screwdriver or battery tool

FI80-T19

isoweld®3000 / FI-H / FI-Magnet Set

FI-Pad



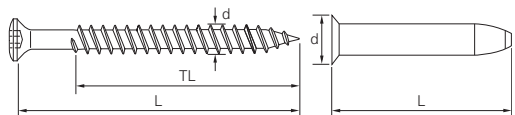
- Stand-up setting tool for the installation of *isoweld*® fasteners, stress plates and sleeves

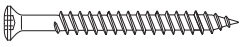
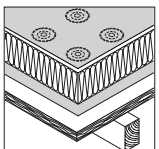
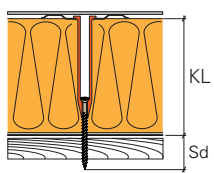
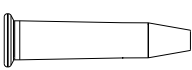
- Induction welding tool, hand inductor and magnets for the welding of the membrane to the *isoweld*® stress plates

- Cardboard pad for applications on EPS/XPS insulation

isoweld® TS-T25-6,0 / FI-P / FI-R

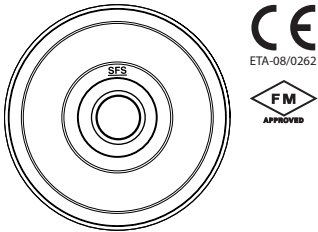
Order information

	T25 recess Ø 9,7 mm	
KL clamping length M magazine loaded d thread diameter L length t thickness of structure All measurements in mm		

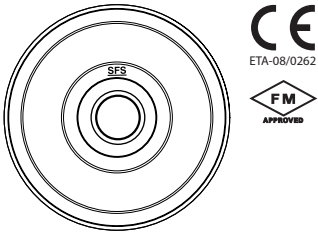
		Order code			Application information
		TS-T25- 6,0x	70		
Product / Application	Approval	Type	d	L	
■ Carbon steel  	 ETA-08/0262 	TS-T25-	6,0x	70	 Screw length L: L = K + 30 mm Thread length TL: Fastener length 60 - 70 mm: TL = - 6 mm Fastener length 80 - 240 mm: TL = 70 mm Setting: Sd (Setting depth): min. 30 mm
		TS-T25-	6,0x	80	
		TS-T25-	6,0x	90	
		TS-T25-	6,0x	100	
		TS-T25-	6,0x	110	
		TS-T25-	6,0x	120	
		TS-T25-	6,0x	130	
		TS-T25-	6,0x	140	
		TS-T25-	6,0x	160	
		TS-T25-	6,0x	180	
		TS-T25-	6,0x	200	
		TS-T25-	6,0x	220	
		TS-T25-	6,0x	240	
● Plastic 	 ETA-08/0262 	FI-R-	20x	40	K see combination table
		FI-R-	20x	70	
		FI-R-	20x	100	
		FI-R-	20x	130	
		FI-R-	20x	160	
		FI-R-	20x	190	
		FI-R-	20x	230	
		FI-R-	20x	300	

Stress plates

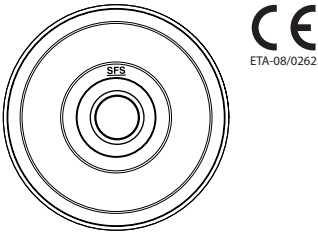
FI-P-16,0-PVC



FI-P-16,0-TPO



FI-P-16,0-EPDM



Combination table – selection of the correct fastener and sleeve combination

COMBINATION

Sleeve:
FI-R-20

Fastener:
TS-T25-6,0

Stress plate:
FI-P-16,0-PVC, FI-P-16,0-TP0
or FI-P-16,0-EPDM

CALCULATION

Please follow the calculation steps to find the correct fastener and sleeve combination for new roofs. Special rules apply for renovation.

* thickness vapour barrier to be considered

Step 1: Calculation of clamping length KL

Clamping length KL:
Total roof build-up between top edge substrate and top edge insulation

KL = Thickness vapour barrier
+ Thickness insulation

Step 2: Calculation of sleeve length SL

SL_{max} = Clamping length KL
- Thickness vapour barrier
- 15 mm

If a length is not available, take the next shorter length. Sleeve range see chapter.

Step 3: Calculation of fastener length FL

FL_{min} = Clamping length KL
- Sleeve length SL
+ 48 mm

If a length is not available, take the next longer length. Fastener range see chapter.

KL (mm)	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360	370	380	390	400	410	420	430	440	450	460	470	480	490	500		
Sleeve length SL (mm)																																																		
Fastener length FL (mm)																																																		

6

<i>isofast</i> [®]	Product code	Page
Aluminium	TPR-L-6,3 ID-70x70 / IF/IG-C-82x40 / IRD-82x40	► 6.3
Drill accessories	HSS	► 6.6

<i>isoweld</i> [®]	Product code	Page
Aluminium,	TPR-L-6,3 FI-P-6,8-PVC / FI-P-6,8-TPO / FI-P-6,8-EPDM	► 6.7
Drill accessories	HSS	► 6.10



6

Peel Rivet fastening system: Safe fixing whatever the sub-frame

Safe fixing to aluminium sheet, thin concrete, timber and cement boards is challenging when installing flat roof insulation. Conventional screws do not offer adequate performance or require to be reinforced with additional

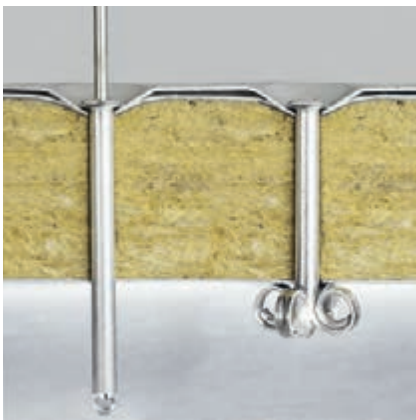
security features. The TPR-L riveting system will remove the additional time and cost otherwise involved. The Peel Rivet is part of the *isofast*® and *isoweld*® system.

The convincing advantages of the Peel Rivet fastening systems



- High corrosion resistance (rivet sleeve manufactured from aluminium / magnesium alloy, centre pin from zinc coated carbon steel)
- Consistently high pullout values due to dedicated system design
- Center pin remains in the rivet sleeve
- Ergonomic installation using the IP50-B Peel Rivet setting tool
- Dynamic wind loads present no problem
- Can be combined with standard stress plates
- Also suitable for thin steel decks

6



Critical substrates: The Peel Rivet fastening system is the ideal solution

After pre-drilling the substrate, the peel rivets can be rapidly fitted using the IP50-B setting tool. As the centre pin is withdrawn, the rivet is deformed, creating four arms which produce a contact surface equivalent to five times the shaft diameter. In combination with recommended stress plates the rivets provide for a consistently high pullout requirement.



isofast® TPR-L-6,3**Technical information****Application**

For the fastening of waterproof membrane and insulation to aluminium, thin concrete, wood-wool and problem decks, where conventional threaded fasteners may not achieve sufficient performance.

	TPR-L
Minimum thickness for steel:	$t \geq 0,50 \text{ mm}$
Minimum thickness for aluminium:	$t \geq 0,60 \text{ mm}$
Minimum clamping length:	$KL \geq 10,0 \text{ mm}$

Material**Fastener**

- TPR-L-6,3

Body: Aluminium/magnesium alloy

Mandrel: Zinc plated steel

Stress plates

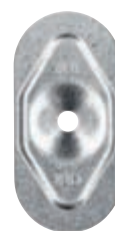
- ID-70x70 / IF/IG-C-82x40 / IRD-82x40
Steel 1,0 mm, zinc plated
Resistance at 15 cycles Kesternich test according to ETAG 006 - D.3.1. and FM Approval Standard 4470 requirements

Stress plates**ID-70x70**

- Stress plate for insulation, hole diameter 7,5 mm

IF/IG-C-82x40

- Stress plate for membrane and insulation on hard substrates, hole diameter 7,5 mm

IRD-82x40

- Stress plate for membrane and insulation, hole diameter 7,5 mm

Technical information

Tools and accessories

IP50-B

RM-20

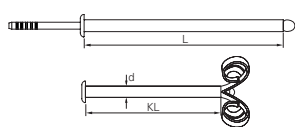
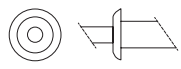


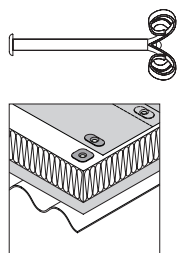
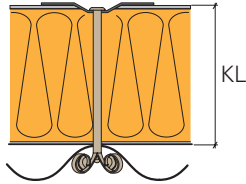
- Battery setting tool for the installation of TPR-L Peel Rivets



- Hand tool for the installation of TPR-L Peel Rivets

Order information

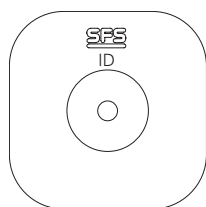
	Head Ø 12,5 mm 	
KL clamping length M magazine loaded d thread diameter L length t thickness of structure All measurements in mm		

Product / Application	Approval	Order code			KL		Application information
		TPR-L-	6,3x	38		IB- 82x40	
▲ Aluminium 		Type	d	L	IF/IG-C-82x40	ID-70x70	
		TPR-L-	6,3x	38	10* - 15	15* - 20	 t min. steel: 0,5 mm t min. alu: 0,6 mm Build-up: Insulation compressive strength at 10% compression min. 0,1 N/m². Weight density of EPS insulation min. 20 kg/m³. Clamping length KL: K = total roof build-up between bottom edge substrate and top edge membrane K = thickness substrate + thickness vapour barrier + thickness insulation + thickness membrane *Minimum K due to the mandrel which stays inside the body of the Peel Rivet. Smaller K than minimum K are not allowed. Setting: To be installed via a pilot hole. Pull-out and application tests recommended.
		TPR-L-	6,3x	51	10* - 26	15* - 26	
		TPR-L-	6,3x	64	20* - 39	25* - 39	
		TPR-L-	6,3x	76	20* - 51	25* - 51	
		TPR-L-	6,3x	88	28 - 63		
		TPR-L-	6,3x	102	42 - 77		
		TPR-L-	6,3x	127	67 - 102		
		TPR-L-	6,3x	152	92 - 127		
		TPR-L-	6,3x	178	118 - 153		
		TPR-L-	6,3x	203	143 - 178		
		TPR-L-	6,3x	229	169 - 204		
		TPR-L-	6,3x	254	194 - 229		

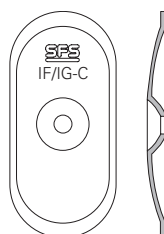


Stress plates

ID-70X70



IF/IG-C-82X40

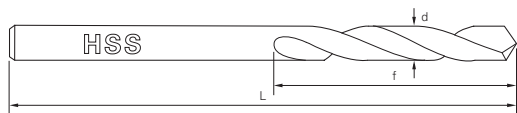


IRD-82X40



HSS

Order information



d diameter | L Length | f flute length | All measures in mm

Order code				
HSS- 7,0x 109/ 69				
Type	d	L	f	Application information
HSS- 7,0x 109/ 69				For steel or aluminium decks.
HSS- 7,0x 156/ 102				
HSS- 7,0x 225/ 155				
HSS- 7,0x 290/ 200				
HSS- 7,0x 370/ 250				

isoweld® TPR-L-6,3



Technical information

Application

For the fastening of waterproof membrane and insulation to aluminium, thin concrete, wood-wool and problem decks, where conventional threaded fasteners may not achieve sufficient performance.

	TPR-L
Minimum thickness for steel:	$t \geq 0,50 \text{ mm}$
Minimum thickness for aluminium:	$t \geq 0,60 \text{ mm}$
Minimum clamping length:	$KL \geq 10,0 \text{ mm}$

Material

Fastener

- TPR-L-6,3
- Body:** Aluminium/magnesium alloy
- Mandrel:** Zinc plated steel

Stress plates

- FI-P-6,8-PVC / FI-P-6,8-TPO
- FI-P-6,8-EPDM
- Steel 0,8 mm,
- Resistance at 15 cycles Kesternich test according to ETAG 006 - D.3.1. and FM Approval Standard 4470 requirements

Stress plates

FI-P-6,8-PVC



- Stress plate for PVC membranes and insulation, plate diameter 80 mm, hole diameter 6,8 mm

FI-P-6,8-TPO



- Stress plate for TPO membranes and insulation, plate diameter 80 mm, hole diameter 6,8 mm

FI-P-6,8-EPDM



- Stress plate for EPDM membranes and insulation, plate diameter 80 mm, hole diameter 6,8 mm

Technical information

Tools and accessories

IP50-B



- Battery setting tool for the installation of TPR-L Peel Rivets

RM-20



- Hand tool for the installation of TPR-L Peel Rivets

isoweld®3000 / FI-H / FI-Magnet Set



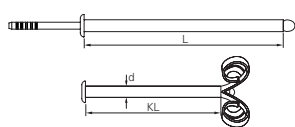
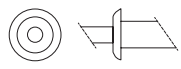
- Induction welding tool, hand inductor and magnets for the welding of the membrane to the *isoweld*® stress plates

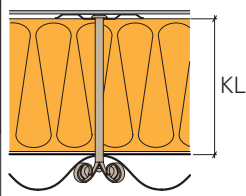
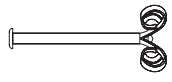
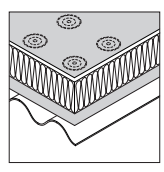
FI-Pad



- Cardboard pad for applications on EPS/XPS insulation

Order information

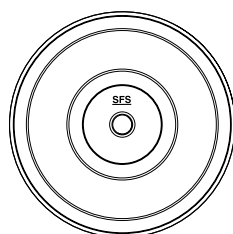
	Head Ø 12,5 mm 	
KL clamping length M magazine loaded d thread diameter L length t thickness of structure All measurements in mm		

		Order code			K	Application information
Product	Approval	TPR-L-	6,3x	38		
▲ Aluminium		TPR-L-	6,3x	38	10* - 15	 t min. steel: _____ 0,5 mm t min. alu: _____ 0,6 mm Build-up: Insulation compressive strength at 10% compression min. 0,1 N/m². Weight density of EPS insulation min. 20 kg/m³. Clamping length KL: K = total roof build-up between bottom edge substrate and top edge insulation K = thickness substrate + thickness vapour barrier + thickness insulation *Minimum K due to the mandrel which stays inside the body of the Peel R vet. Smaller K than minimum K are not allowed. Setting: To be installed via a pilot hole. Pull-out and application tests recommended.
		TPR-L-	6,3x	51	10* - 26	
		TPR-L-	6,3x	64	20* - 39	
		TPR-L-	6,3x	76	20* - 51	
		TPR-L-	6,3x	88	28 - 63	
		TPR-L-	6,3x	102	42 - 77	
		TPR-L-	6,3x	127	67 - 102	
		TPR-L-	6,3x	152	92 - 127	
		TPR-L-	6,3x	178	118 - 153	
		TPR-L-	6,3x	203	143 - 178	
		TPR-L-	6,3x	229	169 - 204	
		TPR-L-	6,3x	254	194 - 229	

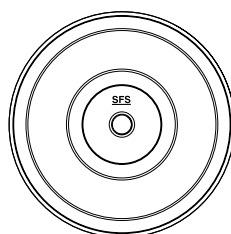


Stress plates

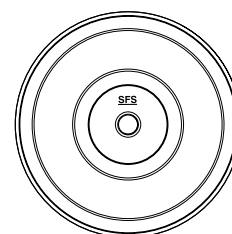
FI-P-6,8-PVC



FI-P-6,8-TPO

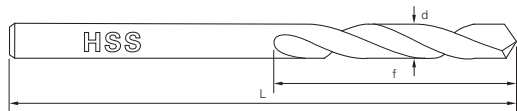


FI-P-6,8-EPDM



HSS

Order information



d diameter | L Length | f flute length | All measurements in mm

Order code				Application information
Type	d	L	f	
HSS- 7,0x 109/	69			For steel or aluminium decks.
HSS- 7,0x 156/	102			
HSS- 7,0x 225/	155			
HSS- 7,0x 290/	200			
HSS- 7,0x 370/	250			

7

<i>isotak® Steel Deck</i>	Product code	Page
Carbon Steel / Plastic sleeve	BS-4,8 / SH18/65	► 7.2
Stainless Steel / Plastic sleeve	BS-S-4,8 / SH18/65	► 7.4

<i>isotak® Concrete Deck</i>	Product code	Page
Carbon Steel / Plastic sleeve	TI-T25-6,3 / SH18/65	► 7.6
Stainless Steel / Plastic sleeve	TI-S-Z10-6,3 / SH18/65	► 7.8

<i>isotak® Timber Deck</i>	Product code	Page
Carbon Steel / Plastic sleeve	TS-T25-6,0 / SH18/65	► 7.10

<i>isofast® Steel Deck</i>	Product code	Page
Carbon Steel	IF2-6,1	► 7.13
Carbon Steel	IR2-C-4,8	► 7.15

<i>isofast® Concrete Deck</i>	Product code	Page
Carbon Steel	IF2-6,1	► 7.17
Carbon Steel	DT-4,8	► 7.19
Carbon Steel Hammer Screw	MNA-6,0	► 7.21
Stainless Steel Hammer Screw	MNA-S-6,0	► 7.23

<i>isofast® Timber Deck</i>	Product code	Page
Carbon Steel	IF2-6,1	► 7.25

<i>isofast® Membrane attachment to Roof Penetrations</i>	Product code	Page
Membrane attachment to cylindrical metal roof penetrations	Stainless steel banding	► 7.27

isotak® BS-4,8 / SH18/65



Technical information

Application

For the fastening of waterproof membrane, insulation and termination bar to steel deck. For steel deck thicknesses of between min. 0,63 mm and max. 2 x 1,25 mm.

Material

Fastener

■ BS-4,8

Case hardened carbon steel

Durocoat corrosion protection. Resistant to 15 cycles of the keesternich test in accordance with ETAG 006 - D3.1 and FM Approval standard 4470 requirements

Environment friendly, free of chromium VI

Sleeve

■ SH18/65

High quality polypropylene, PP



Tools and accessories

DI 650



ZA 1/4" - M6-300/750

T25-32-M6



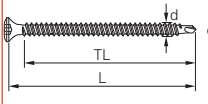
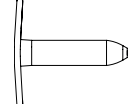
Recommendation for insatallation

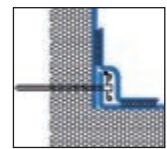
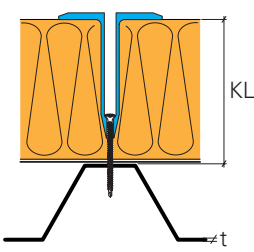
- Power screwdriver
 - 1000 - 3000 rpm
 - Min 500W
- Battery tool
 - 1000 - 3000 rpm
 - Min 18V
 - Battery with min. 2.5 Ah

Steel termination bar
Supplied by membrane manufacturer.

- Power screwdriver for manual installation of fasteners.

Order information

		T25 recess Ø 8,9 mm 	
KL clamping length M magazine loaded d thread diameter L Length TL thread length t thickness of structure All measurements in mm			

		Order code			Application range
Product / Application	Approval	Type	d	L	
■ Carbon steel  	 	BS-	4,8x	50	 t min. steel: 0,63 mm t max. steel: 2 x 1,25 mm Thread length TL: Fastener length 60 - 80 mm: TL = L - 5 mm Fastener length 90 - 300 mm: L = 75 mm KL see combination table on page 7.12
		BS-	4,8x	60	
		BS-	4,8x	70	
		BS-	4,8x	80	
		BS-	4,8x	90	
		BS-	4,8x	100	
		BS-	4,8x	110	
		BS-	4,8x	120	
		BS-	4,8x	130	
		BS-	4,8x	140	
		BS-	4,8x	150	
		BS-	4,8x	160	
		BS-	4,8x	180	
		BS-	4,8x	200	
		BS-	4,8x	220	
		BS-	4,8x	240	
		BS-	4,8x	260	
		BS-	4,8x	280	
		BS-	4,8x	300	
		SH	18/65x	35	
		SH	18/65x	65	
		SH	18/65x	85	

isotak[®] BS-S-4,8 / SH18/65



Technical information

Application

For the fastening of waterproof membrane, insulation and termination bar to steel deck. For steel deck thicknesses of between min 0.63mm and maximum 2 x 1.0mm. For applications with internal relative humidity higher than 65%, chemically aggressive atmospheres / conditions , locations with aggressive local conditions (e.g. coastal environments). For refurbishment

applications with unknown condition of the existing build-up or build-up with abrasive layers that may damage the corrosion protection. If extended design life / warranty is required.

Material

Fastener

- BS-S-4,8
Austenitic stainless steel. Grade AISI 316 EN1.4401 grade A4

Durocoat corrosion protection. Resistant to 15 cycles of the keesternich test in accordance with ETAG 006 - D3.1 and FM Approval standard 4470 requirements

Environment friendly, free of chromium VI

Sleeve

- SH18/65
High quality polypropylene, PP



Tools and accessories

DI 650



ZA 1/4"-M6-300/670

T25-32-M6

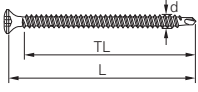
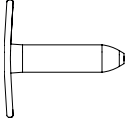
Recommendation for insatallation

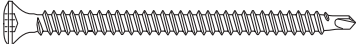
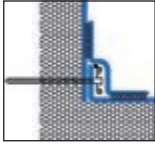
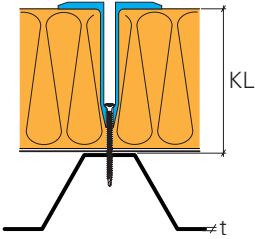
- Power screwdriver
 - 1000 - 3000 rpm
 - Min 500W
- Battery tool
 - 1000 - 3000 rpm
 - Min 18V
 - Battery with min. 2.5 Ah

Steel termination bar
Supplied by membrane manufacturer.

- Power screwdriver for manual installation of fasteners.

Order information

		T25 recess Ø 8,9 mm 	
KL clamping length M magazine loaded d thread diameter L Length TL thread length t thickness of structure All measurements in mm			

		Order code			Application range
Product / Application	Approval	BS-S-	4,8x	60	
● Stainless steel  		BS-S-	4,8x	60	 t min. steel: 0,63 mm t max. steel: 2 x 1,0 mm Thread length TL: Fastener length 60 - 80mm: TL = L - 5mm Fastener length 100 - 200mm: TL = 75mm KL see combination table on page 7.12
		BS-S-	4,8x	80	
		BS-S-	4,8x	100	
		BS-S-	4,8x	120	
		BS-S-	4,8x	140	
		BS-S-	4,8x	160	
		BS-S-	4,8x	180	
		BS-S-	4,8x	200	
		SH	18/65x	35	
		SH	18/65x	65	
		SH	18/65x	85	

isotak® TI-T25-6,3 / SH18/65



Technical information

Application

For the fastening of waterproof membrane, insulation and termination bar to solid, dense concrete of minimum grade C12/15.

Material

Fastener

- TI-T25-6,3
Case hardened carbon steel
- Durocoat® corrosion protection:
Resistant to 15 cycles of the Kesternich test in accordance with ETAG 006 - D3.1 and FM Approval Standard 4470 requirements
- Environment friendly, free of chromium VI

Sleeve

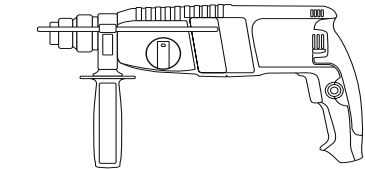
- SH18/65
High quality polypropylene, PP



Tools and accessories

Accessories

- ZA 1/4"-M6-300/750
- T25-32-M6
- ZH-11-RING



- Use hammer drill with weight class 2 - 3 kg, impact energy ≤ 2,5J

- For the manual installation of isotak® fasteners and sleeves

DI650

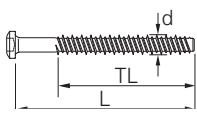
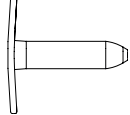


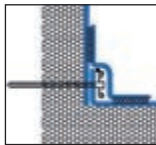
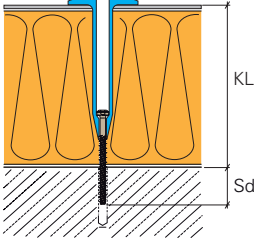
- Power screwdriver
 - 300 - 700 rpm
 - Min. 500 W
- Battery tool
 - 300 - 700 rpm
 - Approx. 18 V
 - Battery with approx. 2,5 Ah

- Do not use a percussion tool.

Steel termination bar
Supplied by membrane manufacturer.

Order information

		T25 Ø 9.7 mm 	
KL clamping length M magazine loaded d thread diameter L Length TL thread length t thickness of structure All measurements in mm			

		Order code			Application range
Product / Application	Approval	Type	d	L	
■ Carbon steel  	 	TI-T25-	6,3x	30	 Build-up: Thickness concrete deck t: min. 40 mm. Edge distance: min. 50 mm Thread length TL: Fastener length 50 mm: TL = 47 mm Fastener length 60 - 160 mm: TL = 50 mm Setting: Sd (Setting depth): min. 20 mm Depth of pilot hole to be min. 15 mm deeper than the setting depth of the fastener, depending on site conditions.
		TI-T25-	6,3x	50	
		TI-T25-	6,3x	60	
		TI-T25-	6,3x	70	
		TI-T25-	6,3x	80	
		TI-T25-	6,3x	90	
		TI-T25-	6,3x	100	
		TI-T25-	6,3x	140	
		TI-T25-	6,3x	160	
		TI-T25-	6,3x	160	
		SH	18/65x	35	See combination table on page 7.12
		SH	18/65x	65	
		SH	18/65x	85	

isotak[®] TI-S-Z10-6,3 / SH18/65



Technical information

Application

For the fastening of membrane , insulation and termination bar to bar to solid, dense concrete of minimum grade C12/15. For applications with internal relative humidity higher than 65%, chemically aggressive atmospheres / conditions , locations with aggressive local conditions (e.g. coastal environments). For refurbishment applications with unknown condition of the existing build-up or build-up with abrasive layers that may damage the corrosion protection. If extended design life / warranty is required.

Material

Fastener

- TI-S-Z10-6,3
Austenitic stainless steel , grade
AISI 304, European standard 1.4301,
grade A2

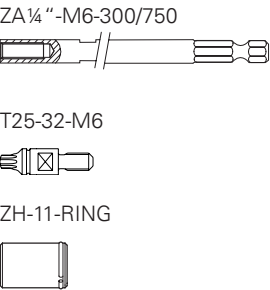
Sleeve

- SH18/65
High quality polypropylene, PP



Tools and accessories

Accessories



DI650



- Use hammer drill with weight class
2 - 3 kg, impact energy $\leq 2,5\text{J}$

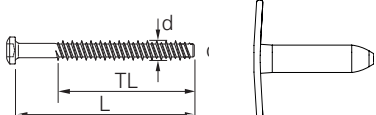
- For the manual installation of
isotak[®] fasteners and sleeves

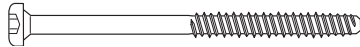
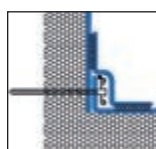
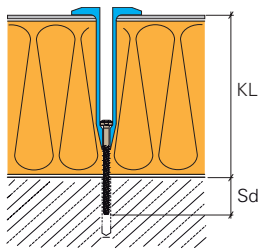
- Power screwdriver
- 300 - 700 rpm
- Min. 500 W
- Battery tool
- 300 - 700 rpm
- Approx. 18 V
- Battery with approx. 2,5 Ah

- Do not use a percussion tool.

Steel termination bar
Supplied by membrane manufacturer.

Order information

	SQ3 recess Ø 7.9 mm 	
KL clamping length M magazine loaded d thread diameter L Length TL thread length t thickness of structure All measurements in mm		

		Order code			Application range
Product / Application	Approval	Type	d	L	
● Stainless steel  		TI-S-Z10-	6,3x	45	 t min. steel: 0,63 mm
		TI-S-Z10-	6,3x	75	
		TI-S-Z10-	6,3x	115	
		SH	18/65x	35	See combination table on page 7.12
		SH	18/65x	65	
		SH	18/65x	85	

isotak® TS-T25-6,0 / SH18/65



Technical information

Application

For the fastening of membrane, insulation and termination bar to bar to timber deck. The recommended minimum thickness of timber boarding, for example Plywood and oriented strand board (OSB) is 18mm.

Material

Fastener

- TS-T25-6,0
- Case hardened carbon steel
- Durocoat® corrosion protection:
- Resistance at 15 cycles Kesternich test according to ETAG 006 - D.3.1. and FM Approval Standard 4470 requirements
- Environment-friendly, free of chromium VI

Sleeve

- SH18/65
- High quality polypropylene, PP

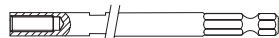


Tools and accessories

DI650



ZA 1/4" - M6-300/750



T25-32-M6



ZH-11-RING



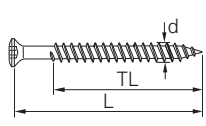
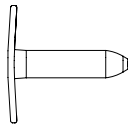
- For the manual installation of isotak® fasteners

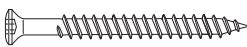
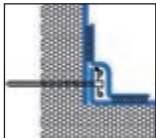
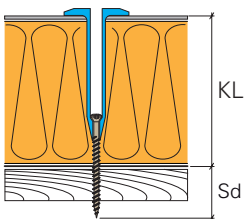
Recommendation for installation

- Power screwdriver
 - 300 - 700 rpm
 - Min. 500 W
- Battery tool
 - 300 - 700 rpm
 - Approx. 18 V
 - Battery with approx. 2,5 Ah
- Do not use a percussion tool.

Steel termination bar
Supplied by membrane manufacturer.

Order information

		T25 Ø 9.7 mm 	
KL clamping length M magazine loaded d thread diameter L Length TL thread length t thickness of structure All measurements in mm			

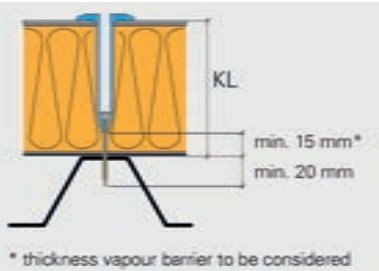
		Order code			Application range
Product / Application	Approval	TS-T25-	6,0x	50	
■ Carbon steel  		TS-T25-	6,0x	50	 Thread length TL: Fastener length 50 - 70 mm: TL = L - 6 mm Fastener length 80 - 240 mm: TL = 70 mm Setting: Sd (Setting depth): min. 30 mm
		TS-T25-	6,0x	60	
		TS-T25-	6,0x	70	
		TS-T25-	6,0x	80	
		TS-T25-	6,0x	90	
		TS-T25-	6,0x	100	
		TS-T25-	6,0x	110	
		TS-T25-	6,0x	120	
		SH	18/65x	35	See combination table on page 7.12
		SH	18/65x	65	
		SH	18/65x	85	



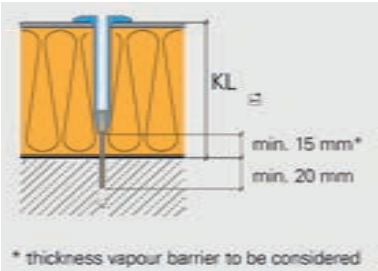
Build-up KL mm	Sleeve length (mm) SH18/65	Fastener length (mm)					
		Steel Deck			Concrete Deck		Timber Deck
		BS-4,8xL	BS-S-4,8xL	TI-T25-6,3xL	TI-S-Z10-6,3	TS-T25-6,0xL	
40	35	50	60	50	45	50	
50	35	50	60	50	75	60	
60	35	60	60	60	75	70	
70	35	70	80	70	75	80	
80	65	50	60	50	75	60	
90	65	60	60	60	75	70	
100	85	50	60	50	75	60	
110	85	60	60	60	75	70	
120	85	70	80	70	75	80	
130	85	80	80	80	115	90	
140	85	90	100	90	115	100	
150	85	100	100	100	115	110	
160	85	110	120	120	115	120	

7

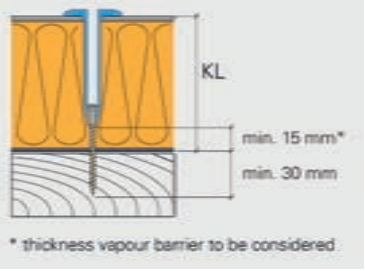
Steel Deck



Concrete Deck



Ply / OSB3 Deck



isofast® IF2-6,1



Technical information

Application

For the fastening of membrane, insulation and termination bar to bar to steel deck. For steel deck thicknesses of between min 0.63mm and maximum 2 x 1.25mm.

Material

Fastener

- IF2-6,1
 - Case hardened carbon steel
 - Durocoat® corrosion protection:
 - Resistant to 15 cycles of the Kesternich test in accordance with ETAG 006 - D3.1 and FM Approval
 - Standard 4470 requirements
 - Environment friendly, free of chromium VI

Tools and accessories

DI 650



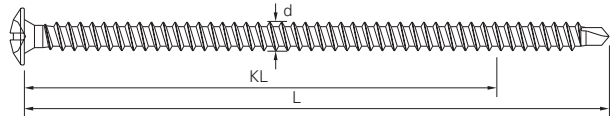
- Power Screwdriver for manual installation of fasteners.

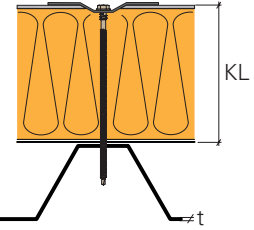
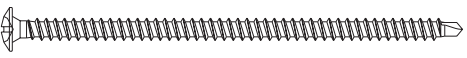
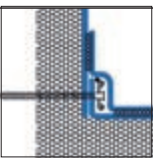
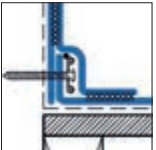
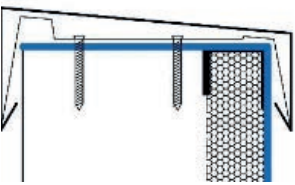
Recommendation for insatallation

- Power screwdriver
 - 1000 - 3000 rpm
 - Min 500W
- Battery tool
 - 1000 - 3000 rpm
 - Min 18V
 - Battery with min. 2.5 Ah

Steel termination bar
Supplied by membrane manufacturer.

Order information

	Pan - Phillips head PH 3 	
KL clamping length M magazine loaded d thread diameter L Length TL thread length t thickness of structure All measurements in mm		

		Order code			K	Application range
Product / Application	Approval	Type	d	L		
■ Carbon steel		IF2-	6,1x	32	12	 t min. steel: 0,63 mm t max. steel: 2 x 1,25 mm
	 	IF2-	6,1x	52	32	
		IF2-	6,1x	76	56	
		IF2-	6,1x	102	82	
		IF2-	6,1x	127	107	
		IF2-	6,1x	152	132	
		IF2-	6,1x	178	158	
		IF2-	6,1x	203	183	
		IF2-	6,1x	254	234	
		IF2-	6,1x	305	285	
						Screw length L: K + 20 mm

isofast® IR2-C-4,8



Technical information

Application

For the fastening of membrane coated metal angles and metal sheet through insulation to steel deck. For steel deck thicknesses of between min 0.63mm and maximum 2 x 1.25mm.

Material

Fastener

- IR2-C-4,8
Case hardened carbon steel

Durocoat corrosion protection. Resistant to 15 cycles of the keesternich test in accordance with ETAG 006 - D3.1 and FM Approval standard 4470 requirements.

Environment friendly, free of chromium VI

Tools and accessories

DI 650



Recommendation for insatallation

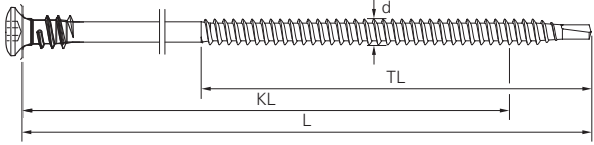
- Power screwdriver
 - 1000 - 3000 rpm
 - Min. 500 W
- Battery tool
 - 1000 - 3000 rpm
 - Min. 18 V
 - Battery with min. 2,5 Ah

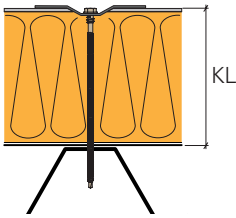
Steel termination bar
Supplied by membrane manufacturer.

- Power Screwdriver for manual installation of fasteners.

IR2-C-4,8

Order information

	T25 recess Ø 8,9 mm 	
KL clamping length M magazine loaded d thread diameter L Length TL thread length t thickness of structure All measurements in mm		

Product / Application	Approval	Order code			K	Application range
		Type	d	L		
 ■ Carbon steel		IR2-C-	4,8x	50	30	 t min. steel: _____ 0,63 mm t max. steel: _____ 2 x 1,25 mm Screw length L: K + 20 mm
		IR2-C-	4,8x	60	40	
		IR2-C-	4,8x	80	60	
		IR2-C-	4,8x	90	70	
		IR2-C-	4,8x	100	80	
		IR2-C-	4,8x	120	100	
		IR2-C-	4,8x	140	120	
		IR2-C-	4,8x	160	140	
		IR2-C-	4,8x	180	160	
		IR2-C-	4,8x	200	180	

isofast® IF2-6,1



Technical information

Application

For the fastening of membrane, insulation and termination bar to bar to solid, dense concrete of minimum grade C12/15.

Material

Fastener

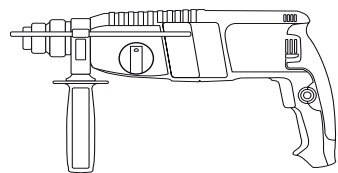
- IF2-6,1
Case hardened carbon steel

Durocoat® corrosion protection:
Resistant to 15 cycles of the
Kesternich test in accordance with
ETAG 006 - D3.1 and FM Approval
Standard 4470 requirements

Environment friendly, free of
chromium VI

Tools and accessories

Recommendation for pre-drilling



- Use hammer drill with weight class
2 - 3 kg, impact energy ≤ 2,5J

Accessories



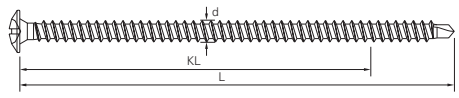
- For the manual installation of
isofast® fasteners and sleeves

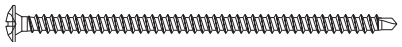
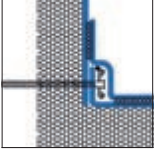
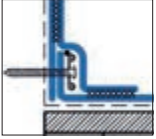
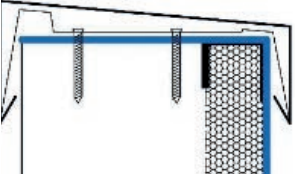
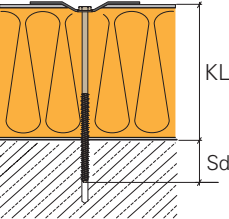
Recommendation for insatallation

- Power screwdriver
- 300 - 700 rpm
- Min. 500 W
- Battery tool
- 300 - 700 rpm
- Approx. 18 V
- Battery with approx. 2,5 Ah
- Do not use a percussion tool.

Steel termination bar
Supplied by membrane manufacturer.

Order information

	Pan - Phillips head PH 3 	
KL clamping length M magazine loaded d thread diameter L Length t thickness of structure All measures in mm		

		Order code				Application range
Product / Application	Approval	Type	d	L	K	
● Stainless steel    	 ETA 08/0321 	IF2-	6,1x	32	7	 Build-up: Thickness concrete deck t: min. 40 mm. Edge distance: min. 50 mm Insulation compressive strength at 10% compression min. 0,1 N m². Clamping length KL: K = total roof build-up between top edge substrate and top edge membrane K = thickness vapour barrier + thickness insulation + thickness membrane Setting: Sd (Setting depth): min. 25 mm Depth of pilot hole to be min. 15 mm deeper than the setting depth of the fastener, depending on site conditions.
		IF2-	6,1x	52	27	
		IF2-	6,1x	76	51	
		IF2-	6,1x	102	77	
		IF2-	6,1x	127	102	
		IF2-	6,1x	152	127	
		IF2-	6,1x	178	153	
		IF2-	6,1x	203	178	
		IF2-	6,1x	254	229	
		IF2-	6,1x	305	280	

isofast® DT-4,8



Technical information

Application

For the fastening of termination bars and metal flashing directly to concrete.

Material

Fastener

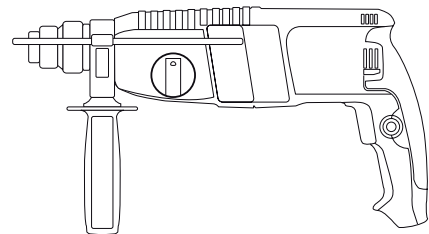
- DT-4,8
Case hardened carbon steel

Durocoat® corrosion protection:
Resistant to 15 cycles of the
Kesternich test in accordance with
ETAG 006 - D3.1 and FM Approval
Standard 4470 requirements

Environment friendly, free of
chromium VI

Tools and accessories

Recommendation for pre-drilling



Steel termination bar
Supplied by membrane manufacturer.

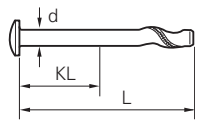
Accessories

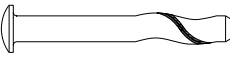
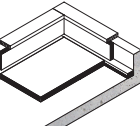
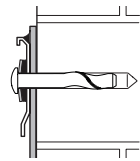
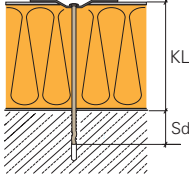
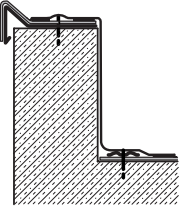


Hammer

- Use hammer drill with weight class
2 - 3 kg, impact energy ≤ 2,5 J

Order information

	Mushroom head, $L \leq 51 \text{ mm } \varnothing 11,0 \text{ mm}$ $L \geq 64 \text{ mm } \varnothing 9,7 \text{ mm}$ 	
KL clamping length M magazine loaded d thread diameter L Length t thickness of structure All measurements in mm		

		Order code						
		DT- 4,8x 32						
Product / Application	Approval	Type	d	L	K	Drill bits	Application range	
  	 ETA 08/0321 	DT-	4,8x	28	3	4,8 x 160	  Sd (Setting depth): min. 25 mm Build-up: Thickness concrete deck t: min. 60 mm. Concrete quality minimum C12/ 5 Insulation compressive strength at min. 0,1 N/mm ² . Setting: Depth of pilot hole to be min. 15 mm deeper than the setting depth of the DT-4,8 fastener, depending on site conditions.	
		DT-	4,8x	32	7	4,8 x 160		
		DT-	4,8x	38	13	4,8 x 160		
		DT-	4,8x	51	26	4,8 x 160		
		DT-	4,8x	64	39	4,8 x 160		
		DT-	4,8x	76	51	4,8 x 160		
		DT-	4,8x	89	64	4,8 x 210		
		DT-	4,8x	102	77	4,8 x 210		
		DT-	4,8x	115	90	4,8 x 210		
		DT-	4,8x	127	102	4,8 x 210		
		DT-	4,8x	140	115	4,8 x 260		
		DT-	4,8x	152	127	4,8 x 260		

The *isofast*[®] DT fasteners is specially designed for the combination with washers. For further information, availability and delivery time please consult your SFS representative. Example for the order code with washer: DT-S16-4,8x38.

Note: When used in combination with washers the maximum clamping length (KL) of the fastener will be reduced by 3mm.

MNA-6,0



Technical information

Application

For the fastening of membrane coated metal and termination bars directly to concrete, solid brick and masonry.

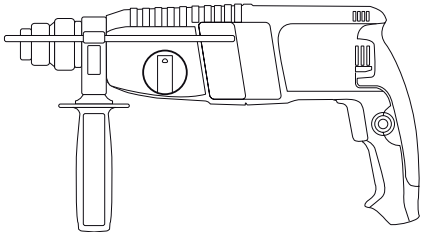
Material

Fastener

- MNA-6,0
- Anchor sleeve:**
High value polyamide
- Screw:**
Electro-galvanized
- Drive:**
PZ2

Tools and accessories

Recommendation for pre-drilling



Steel termination bar
Supplied by membrane manufacturer.

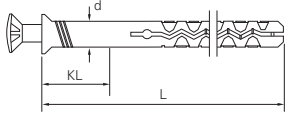
Accessories

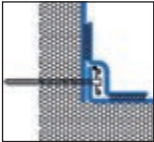
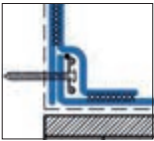
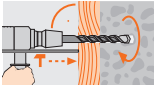
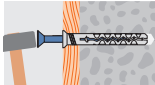


Hammer

- Use hammer drill with weight class
2 - 3 kg, impact energy ≤ 2,5 J

Order information

	Countersunk PZ2 	
KL clamping length M magazine loaded d thread diameter L Length t thickness of structure All measurements in mm		

		Order code MNA- 6,0x 35			K	Drill bits	Application range
Product / Application	Approval	Type	d	L			
■ Carbon steel   	 ETA 08/0321	MNA-	6,0x	35	5	6,0x160	Depth of pilot hole to be 5-10 mm deeper than the setting depth of the M depending on site conditions. Setting depth: min. 30 mm Area of application - Concrete - Solid B ck - M sonry  Make the drill hole  Hammer in the plug 
		MNA-	6,0x	50	20	6,0x160	
		MNA-	6,0x	60	30	6,0x160	
		MNA-	6,0x	80	50	6,0x160	

MNA-S-6,0



Technical information

Application

For the fastening of membrane coated metal and termination bars directly to concrete, solid brick and masonry.

Material

Fastener

■ MNA-S-6,0

Anchor sleeve:

High value polyamide

Screw:

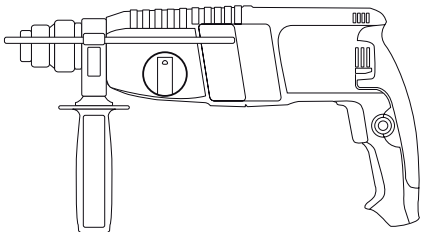
Austenitic stainless steel, grade
AISI 304, European Standard 1.4301
grade A2

Drive:

PZ2

Tools and accessories

Recommendation for pre-drilling



Steel termination bar
Supplied by membrane manufacturer.

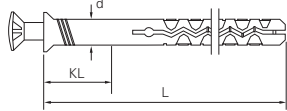
Accessories



Hammer

- Use hammer drill with weight class
2 - 3 kg, impact energy ≤ 2,5 J

Order information



Countersunk PZ2



KL clamping length | M magazine loaded | d thread diameter | L Length | t thickness of structure | All measurements in mm

		Order code			K	Drill bits	Application range
Product / Application	Approval	Type	d	L			
• Stainless steel	ETA 08/0321	MNA-S-	6,0x	35	5	6,0x160	Depth of pilot hole to be 5-10 mm deeper than the setting depth of the depending on site conditions. Setting depth: min. 30 mm Area of application - Concrete - Solid ck - sonry Make the drill hole Hammer in the plug
		MNA-S-	6,0x	50	20	6,0x160	
		MNA-S-	6,0x	60	30	6,0x160	

isofast® IF2-6,1



Technical information

Application

For the fastening of membrane, insulation and termination bar to bar to timber deck. The recommended minimum thickness of timber boarding , for example Plywood and oriented strand board (OSB) is 18mm.

Material

Fastener

- IF2-6,1
Case hardened carbon steel

Durocoat® corrosion protection:
Resistant to 15 cycles of the
Kesternich test in accordance with
ETAG 006 - D3.1 and FM Approval
Standard 4470 requirements

Environment friendly, free of
chromium VI

Tools and accessories

DI 650



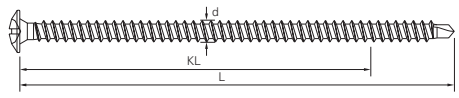
- Power Screwdriver for manual
installation of fasteners.

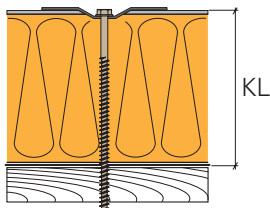
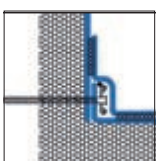
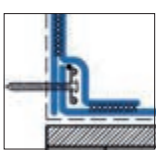
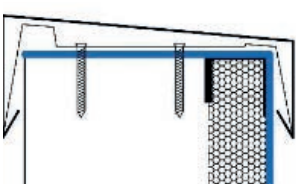
Recommendation for insatallation

- Power screwdriver
 - 300 - 700 rpm
 - Min. 500 W
- Battery tool
 - 300 - 700 rpm
 - Approx. 18 V
 - Battery with approx. 2,5 Ah
- Do not use a percussion tool.

Steel termination bar
Supplied by membrane manufacturer.

Order information

	Pan - Phillips head PH 3 	
KL clamping length M magazine loaded d thread diameter L Length t thickness of structure All measurements in mm		

		Order code				
		IF2-	6,1x	32		
Product / Application	Approval	Type	d	L	K	Application range
■ Carbon steel		IF2-	6,1x	32	2	
   	 	IF2-	6,1x	52	22	
		IF2-	6,1x	76	46	
		IF2-	6,1x	102	82	
		IF2-	6,1x	127	97	
		IF2-	6,1x	152	122	
		IF2-	6,1x	178	148	
		IF2-	6,1x	203	173	
		IF2-	6,1x	254	224	
		IF2-	6,1x	305	275	
						Build-up: Insulation compressive strength at 10% compression min. 0,1  m².
						Clamping length KL: K = total roof build-up between top edge substrate and top edge membrane K = thickness vapour barrier + thickness insulation + thickness membrane
						Screw length L: L = K + 30mm

Stainless Steel banding



Technical information

Application

For clamping of single ply membrane to cylindrical penetrations of the roof deck. For example drainage or soil and vent pipes.

Material

Fastener

- Stainless steel
- Banding and flip-lock screws manufactured from austenitic stainless steel, grade AISI 304, European Standard 1.4301 grade A2.

Product application

For clamping membrane to pipes penetrating the roof deck

1. Measure length of banding required
2. Apply the flip-lock screw
3. tighten with a screwdriver

Components

- 7mm x 25mm banding in dispenser pack
- Flip-lock screws - Box 25 pieces

Tools and accessories

- Tape measure
- Screwdriver with slotted head
- Hand tin Snips



8

Application	Product code	Page
Stainless steel for steel substructure	SX	▸ 8.2
Carbon steel for steel substructure	SD-H15 / SD	▸ 8.4
Stainless steel for timber substructure	SXW	▸ 8.6
Side lap stitching	SL2-S / SL2 SL2-H15 SL3-H15	▸ 8.9

SX

SX



Technical information

Application

Stainless steel fastening of steel or aluminium deck to steel or aluminium structure in one operation: drilling, thread forming and sealing.

Material

Fastener

- SX
Austenitic stainless steel, grade AISI 304 (European Standard 1.4301) or grade AISI 316 (European Standard 1.4401)

Washer

- S = Stainless steel, grade AISI 304 (European Standard 1.4301) with vulcanised EPDM

Drill point and lead thread section

- Case hardened, special carbon steel

HD headform / drive

- Hexagon 8 mm A/F



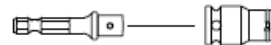
Tools and accessories

DI650



- Lightweight power screwgun for installing self drilling and self tapping fasteners.

Accessories



Drive bar

ZA 1/4"

Socket

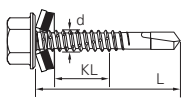
E 380

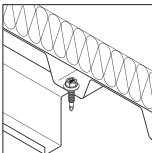
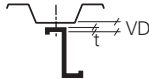
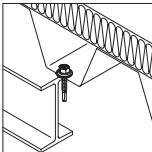
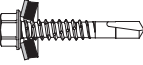
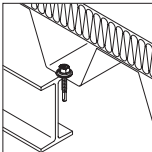
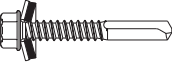
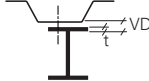


Easy fix socket

E 480 Hexagonal head

Order information

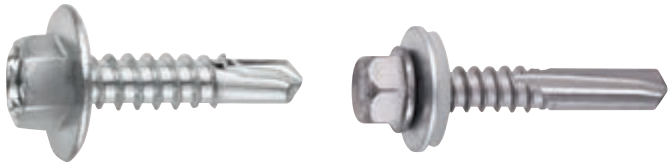
	Hexagon 8 mm A/F 		W: Washer material S Stainless Steel
VD max. drilling capacity KL effective thread length HD headform / drive W washer material and diameter d thread diameter L length t thickness of structure All measurements in mm			

		Order code										Application information	
		Approval	SX		3/ 9-		S16-6,0x 29				K		
Application	Product		Type	VD	K	HD	W*	d	L				
	● Stainless steel 	CE ₁₀ ETA-10/0198	SX	3/	9-		S16- 6,0x	29		9**	 VD t max. steel: 3,0 mm t min. steel: 0,63 mm t max. steel: 2,5 mm t min. alu: 1,0 mm		
	● Stainless steel 	CE ₁₀ ETA-10/0198	SX	5/	12-		S16- 5,5x	35		12**	 VD t max. steel: 5,0 mm t min. steel: 1,5 mm t max. steel: 4,0 mm t min. alu: 2,0 mm t max. alu: 4,0 mm		
	● Stainless steel 	CE ₁₀ ETA-10/0198	SX SX	14/	12- 27-		S16- 5,5x 40 S16- 5,5x 55*			12** 20	 VD t max. steel: 14,0 mm t min. steel: 4,0 mm t min. alu: 5,0 mm		

** AISI 316, A4 European Standard 1.4401 products available ex stock. Other lengths on demand.

* A4 only

SD-H15 / SD



Technical information

Applications

Fastening steel deck to steel structure.

Material

Fastener

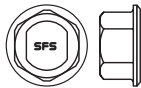
- SD-H15
Plated carbon steel, case hardened
15 mm diameter flange head
- SD
Plated carbon steel, case hardened

Washer

- T = Steel zinc plated with vulcanised EPDM
- S = Stainless steel, grade AISI 304 (European standard 1.4301)

HD headform / drive

- Hexagon 8 mm A/F



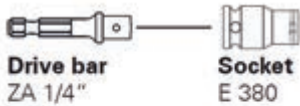
Accessories

DI 650



- Lightweight power screwgun for installing self drilling and self tapping fasteners.

Accessories

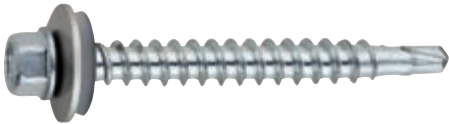


Order information

	Hexagon 8 mm A/F		
VD max. drill capacity KL effective thread length HD headform / drive W washer material and diameter d thread diameter L overall length t thickness of structure All measurements in mm			

		Order code							K	Application information
Application	Product	Approval	Type	VD	HD	W*	d	L		
	■ Carbon steel 	CE ₁₀ ETA-10/0198	SD 6- H15-				5,5x	22	10	 For steel deck only VD max. steel: 6,0 mm t min. steel: 1,5 mm
	■ Carbon steel 	CE ₁₀ ETA-10/0198	SD 14- H15-				5,5x	34	14	 For steel deck only VD max. steel: 14,0 mm t min. steel: 4,0 mm
	■ Carbon steel 	CE ₁₀ ETA-10/0198	SD 3-			T16-	5,5x	25	12	 For steel deck only VD max. steel: 3,0mm t min. steel: 1,2 mm
			SD 6-			T16-	5,5x	28	13	 For steel deck only VD max. steel: 6,0mm t min. steel: 1,2 mm
	■ Carbon steel 	CE ₁₀ ETA-10/0198	SD 14-			T16-	5,5x	32	11	 For steel deck only VD max. steel: 14,0 mm t min. steel: 4,0 mm

SXW



Technical information

Application

Stainless steel fastening of steel or aluminium deck to timber structure.

Material

Fastener

- SXW
Austenitic stainless steel, grade
AISI 304 (European Standard
1.4301)

Washer

- S = Stainless steel, grade AISI 304 /
A2 (European Standard 1.4301)

Drill point

- Case hardened, special
carbon steel

HD headform / drive

- Hexagon 8 mm A/F



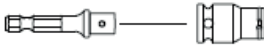
Tools and accessories

DI650



- Lightweight power screwgun for
installing self drilling and self
tapping fasteners.

Accessories



Drive bar

ZA 1/4"

Socket

E 380



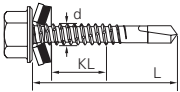
Easy fix socket

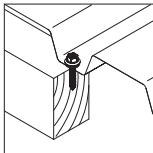
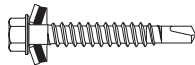
E 480 Hexagonal head



E 420 *irius*® head

Order information

	Hexagon 8 mm A/F 		
VD max. drilling capacity KL effective thread length HD headform / drive W washer material and diameter d thread diameter L length t thickness of structure All measurements in mm			

			Order code									
			SXW- S16-6,5x 52									
Application	Product	Approval	Type	HD	W*	d	L	Application range				
	● Stainless steel 		SXW-			S16- 6,5x	52					
								max. steel: 2 x1,0 mm				

The secure and speedy way to clamp sidelaps.

The SL self drilling fastener range, specially developed for clamping profile sheets together.

The unique features of this fastener ensures the pink sidelap butyl is compressed first time and every

time to ensure a weathertight and airtight building.

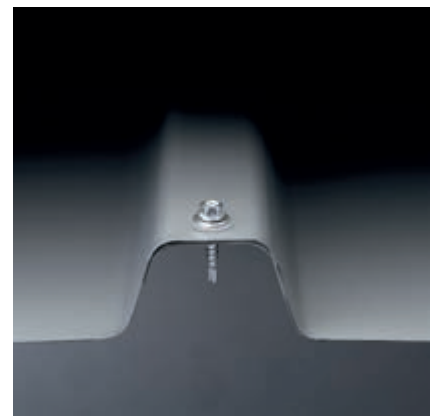
The impressive weathertight and airtight features of the SL clamping fastener



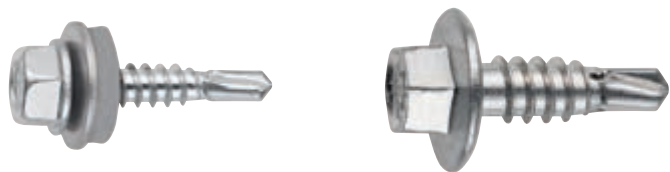
- Incorrect insertion virtually eliminated
- 100% functionality from start to finish
- 3 mm EPDM soft washers ensure effective sealing
- Powder-coated to match the colour of the profile sheet

Self drilling fasteners for fast efficient clamping

These fasteners are designed specifically for their application and offer a range of benefits. The optimum clamping strength results from careful matching of the drill point to the thread diameter. Moreover, the special under-head design prevents over-torquing as well as unwinding under dynamic loads. 3mm thick soft shore EPDM washer seals around the fastener to provide an air and watertight solution.



SL2-S / SL2 / SL2-H15 / SL3-H15



Technical information

Application

Fastening of side laps and flashings. The thread-free zone under the fastener head prevents stripping of the threads in the sheets. The sheets are pulled together tightly, clamped in the thread-free zone and sealed. The fasteners can be used without depth locator or torque control.

Material

Fastener

- SL2-S
Austenitic stainless steel, grade AISI 304 (European Standard 1.4301) or grade AISI 316 (European Standard 1.4401) on request
 - SL2
Plated carbon steel, case hardened
 - SL2-H15 / SL3-H15
Plated carbon steel, case hardened
- 15 mm diameter flange head**

Washer

- **A** = Aluminium with vulcanised EPDM
- **S** = Stainless steel, grade AISI 304 (European standard 1.4301) with vulcanised EPDM - 3 mm x soft for effective weathersealing

Drill point and lead thread section

- Case hardened, special carbon steel

HD headform / drive

- Hexagon 8 mm A/F



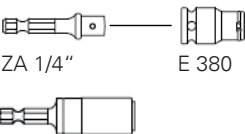
Tools and accessories

DI650



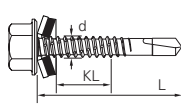
- Lightweight power screwgun to install self drilling and self tapping fasteners

Accessories

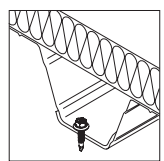
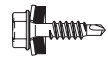
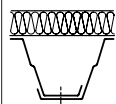
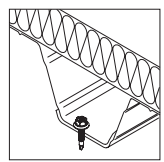
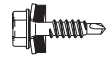
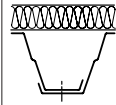
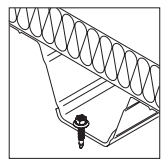
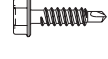
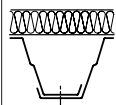
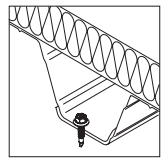
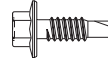
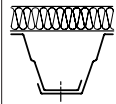
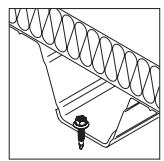
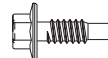
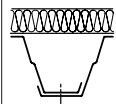


SL2-S / SL2 / SL2-H15 / SL3-H15

Order information

	Hexagon 8 mm A/F 		W: Washer material * Select Washer S Stainless steel S 14mm for side / end laps S 16mm for side / end laps and special detail.
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VD max. drilling capacity | **KL** effective thread length | **HD** headform / drive | **W** washer material and diameter | **d** thread diameter | **L** length
t thickness of structure | **All measurements in mm**

		Order code							K	Application information
Application	Product	Approval	SL2-S-	HD	W*	d	L			
	● Stainless steel 	CE₁₀ ETA-10/0198	SL2-S-		S14-	5,5x	25		**	 VD max. steel: 2,0 - 2 x 1,0 mm t min. steel: 2 x 0,7 mm VD max. alu: 2 x 1,0 mm t min. alu: 2 x 0,7 mm
	● Stainless steel 	CE₁₀ ETA-10/0198	SL2-S-		S16-	6,3x	28		**	 VD max. steel: 2 x 1,0 mm t min. steel: 2 x 0,7 mm VD max. alu: 2,0 - 2 x 1,0 mm t min. alu: 2 x 0,7 mm
	■ Carbon steel 	CE₁₀ ETA-10/0198	SL2-T		A14-	4,8x	20			 VD max. steel: 2,0 - 2 x 1,0 mm t min. steel: 2 x 0,6 mm For steel deck only
			SL2-		A14-	4,8x	20			
	■ Carbon steel 	CE₁₀ ETA-10/0198	SL2-	H15-		6,3x	20			 VD max. steel: 2,0 - 2 x 1,0 mm t min. steel: 2 x 0,6 mm For steel deck only For high shear load
	■ Carbon steel 	CE₁₀ ETA-10/0198	SL3-	H15-		6,3x	32			 VD max. steel: 3,0 - 2 x 1,5 mm t min. steel: 2 x 1,1 mm For steel deck only For high shear load

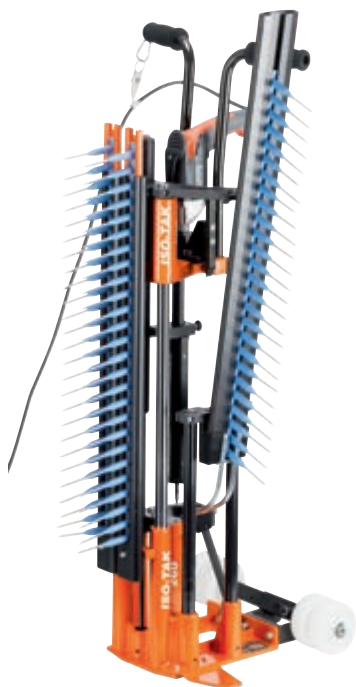
** AISI 316, A4 European Standard 1.4401 products available ex stock. Other lengths on demand.

9

isotak® / isofast®	Product code	Page
Steel and Timber deck	isotak® 260	► 9.2
	IT19	► 9.3
Concrete deck	ZVK drills	► 9.4
	ZAK drill extensions	► 9.4
	SDS drills	► 9.5
Critical decks	IP50-B	► 9.6
	RM-20	► 9.6
	HSS drills	► 9.7
Accessories	DI650	► 9.8
	isofast® tooling summary	► 9.8
	Setting tools for isotak® sleeve systems	► 9.9

isoweld®	Product code	Page
isoweld® field fastening system	isoweld®3000	► 9.10
	FI-H / FI-Magnet Set	► 9.11
	FI-I80-T19	► 9.12

isotak®260



Application

Automated setting tool for the fast, secure and economic installation of the *isotak*® fasteners and sleeves.

Technical details

Power tool:	DI650
Wattage:	650 W
Max. revs:	2000 rpm
Power supply:	110 V / 230 V
Height:	1100 mm (working length)
Width:	415 mm (across rollers)
Weight:	28 kg

IT19

**Application**

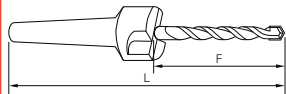
Stand-up setting tool for the installation of *isotak*® fasteners and sleeves.

Technical details

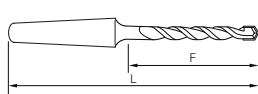
Power tool:	DI650
Wattage:	650 W
Max. revs:	2000 rpm
Power supply:	110 V / 230 V
Height:	900 mm
Weight:	2,7 kg

Order information

ZVK-STOP



ZVK



d diameter | L Length | F working length | All measurements in mm

Order code					Application information
Type	d	L	F	Code	
ZVK- 5,0x 55x 115					DT-4,8xL* DT-4,8xL* TI-T25-6,3xL* TIA-T25-6,3xL*
ZVK- 5,0x 100x 160					
ZVK- 5,0x 25x 90 STOP					
ZVK- 5,0x 35x 100 STOP					
ZVK- 5,0x 45x 110 STOP					
ZVK- 5,0x 55x 120 STOP					
ZVK- 5,2x 25x 90 STOP					TI-T25-6,3xL* TIA-T25-6,3xL*
ZVK- 5,2x 35x 100 STOP					
ZVK- 5,2x 45x 110 STOP					
ZVK- 5,2x 100x 165 STOP					

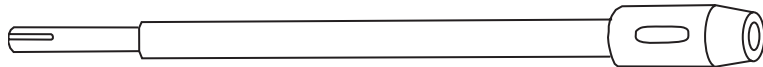
ZVK-STOP: The special STOP drills additionally core out the insulation providing for easy sleeve insertion and accurate fastener alignment with the pilot hole.

ZVK: Conus drills for different use, mostly to replace very long SDS drills

All approvals and recommended design values are based on close tolerance holes drilled with SFS intec ZVK carbide drill bits.

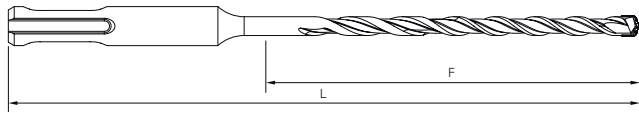
* Technical performance values of the TI fasteners may differ between project due to variation in the hardness of locally sourced concrete aggregates. Optimum performance can be determined by site testing using different drill diameters, for example between ZVK-5,0 and ZVK-5,2. Consult your SFS representative for further information.

ZAK-500 / ZAK-750 / ZAK-1000



Drill extension for the ZVK conus drills

Order information



SDS Carbide-geometry
Dynamic, chisel-shaped drill bit head
Multi-fluted, spacious KVS-spiral
Unique KVS-flute design

d diameter | **L** Length | **F** working length | **All measurements in mm**

Order code					
SDS- 4,8x 110/ 50- SP					
Type	d	L	F	Code	Application information
SDS- 4,8x 110/ 50-	4,8	110	50	SP	DT-4,8xL *
SDS- 4,8x 160/ 100-	4,8	160	100	SP	
SDS- 4,8x 210/ 150-	4,8	210	150	SP	
SDS- 4,8x 260/ 200-	4,8	260	200	SP	
SDS- 4,8x 310/ 250-	4,8	310	250	SP	
SDS- 4,8x 360/ 300-	4,8	360	300	SP	
SDS- 5,0x 110/ 50-	5,0	110	50	SP	TI-6,3xL * TI-T25-6,3xL * TIA-T25-6,3xL *
SDS- 5,0x 160/ 100-	5,0	160	100	SP	
SDS- 5,0x 210/ 150-	5,0	210	150	SP	
SDS- 5,0x 260/ 200-	5,0	260	200	SP	
SDS- 5,0x 310/ 250-	5,0	310	250	SP	
SDS- 5,0x 360/ 300-	5,0	360	300	SP	
SDS- 5,5x 160/ 100-	5,5	160	100	SP	TI-6,3xL * TI-T25-6,3xL * TIA-T25-6,3xL *
SDS- 5,5x 210/ 150-	5,5	210	150	SP	
SDS- 5,5x 260/ 200-	5,5	260	200	SP	
SDS- 5,5x 310/ 250-	5,5	310	250	SP	
SDS- 5,5x 360/ 290-	5,5	360	290	SP	
SDS- 5,5x 410/ 350-	5,5	410	350	SP	
SDS- 6,3x 110/ 50-	6,3	110	50	SP	DT-6,3xL *
SDS- 6,3x 160/ 100-	6,3	160	100	SP	
SDS- 6,3x 210/ 150-	6,3	210	150	SP	
SDS- 6,3x 260/ 200-	6,3	260	200	SP	
SDS- 6,3x 285/ 225-	6,3	285	225	SP	
SDS- 6,3x 360/ 300-	6,3	360	300	SP	
SDS- 6,3x 410/ 350-	6,3	410	350	SP	
SDS- 6,3x 510/ 450-	6,3	510	450	SP	

All approvals and recommended design values are based upon close tolerance pilot holes that are drilled using SFS intec SP carbide drill bits.

* Technical performance values of the TI fasteners may differ between projects due to variation in the hardness of locally sourced concrete aggregates. Optimum performance can be determined by site testing using different drill diameters, for example between SDS-5,0 and SDS-5,2. Consult your SFS representative for further information.

IP50-B



Application
This tool is available for hire from SFS intec Limited. Please contact your SFS intec representative for full details.

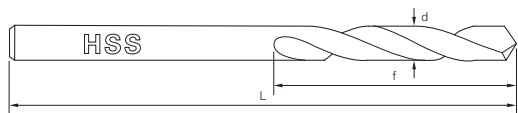
Technical details	
Screwgun:	FEIN ABOP 13-2 18V
Stroke:	50 mm
Power supply:	Battery. Charges on 230V supply
Overall length:	540 mm
Weight:	3.4 kg

RM-20



Application
Including 4 nozzles.

Order information



d diameter | L Length | f flute length | All measurements in mm

Order code				Application information
Type	d	L	f	
HSS- 7,0x 109/	69			For steel or aluminium.
HSS- 7,0x 156/	102			
HSS- 7,0x 225/	155			
HSS- 7,0x 290/	200			
HSS- 7,0x 370/	250			

DI650

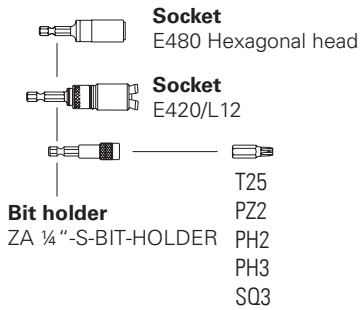
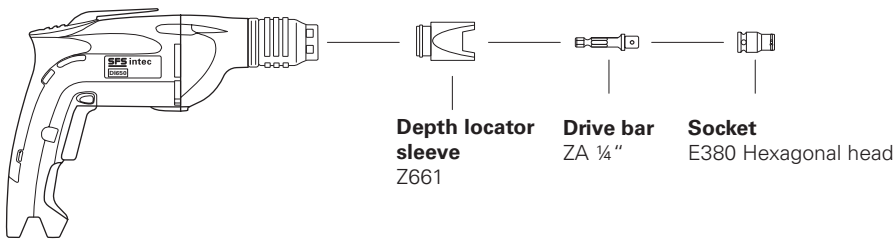
DI650



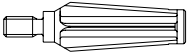
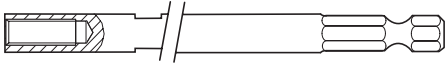
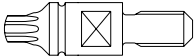
Application
Power screwdriver for manual installation of fasteners.

Technical details	
Power tool:	DI650
Wattage:	650 W
Max. revs:	2000 rpm
Power supply:	110 V / 230 V
Max. torque:	20 Nm
Overall length:	290 mm
Weight:	1,6 kg

Isofast® tooling summary



Setting tools for *Isotak*® sleeve systems

	AJ-M6	Attachment bit for the use with ZA1/4" bit extension for the sleeve height adjustment with a drilling tool in the TIA system
	ZA1/4"-M6-300 ZA1/4"-M6-750	Drive bar for <i>isotak</i> ® sleeve installation
	ZA1/4"-M6-EXT100	Drive bar extension for <i>isotak</i> ® sleeve installation
	ZH-11-RING	Adapter ring that combines with the ZA1/4"-M6-300/750 drive bars and the T25-32-M6 bits to provide grip when installing <i>isotak</i> ® R45 and R75 sleeves.
	T25-32-M6	Insert bit for T25 drive
	SQ3-40-M6	Insert bit for SQ3 drive

isoweld[®]3000



Application
High-tech induction tool for the welding of the membrane to the field fastening stress plate. Easy, user-friendly and ergonomic working. Integrated security functions: search and control function, temperature compensation, power compensation, etc.

Technical details	
Power tool:	<i>isoweld</i> [®] 3000
Wattage:	3000 W
Height:	82 cm
Width:	58 cm
Depth:	49 cm
Weight:	20 kg (tool) 38 kg (tool and case)

- Accessories**
- Transport case (24 x 33 x 89 cm)
 - Calibration template
 - Operating instructions
 - Installation instructions
 - Suction cup

The above tool and accessories shown on page 9.11 are available to hire from SFS Group Fastening Technology Limited. Please contact your SFS representative for full details.

FI-H hand inductor



Application

Hand inductor for working in narrow areas or on verticals.
Must be plugged in at the *isoweld®*3000 induction tool.
With the same functions as the *isoweld®*3000 induction tool.

Technical details

Height:	13,5 cm
Diameter:	11 cm
Cable length:	4 m
Weight:	2,2 kg

The above tool is available to hire from SFS Group Fastening Technology Limited.
Please contact your SFS representative for full details.

FI-Magnet Set



Application

Magnets for the *isoweld®* system. Have to be applied for at least one minute directly after the welding process. Available as a set of 10 magnets or as a single magnet. Stick is removable for the working with the hand inductor FI-H.

Technical details

<u>Single magnet</u>	
Height with stick:	1 m
Height without stick:	18 cm
Weight:	1,35 kg
<u>Magnet set (incl. case)</u>	
Height:	24 cm
Width:	33 cm
Length:	89 cm
Weight:	13,5 kg (10 magnets) 27,0 kg (10 magnets and case)

The above tool is available to hire from SFS Group Fastening Technology Limited.
Please contact your SFS representative for full details.

FI80-T19



Application

Stand-up setting tool for the installation of *isoweld*® fasteners, stress plates and sleeves

Technical details

Power tool:	DI650
Wattage:	650 W
Max. revs:	2000 rpm
Power supply:	110 V / 230 V
Height:	730 mm
Weight:	3,8 kg

Notes

This image shows a full page of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There is no text or other markings on the paper.

Notes

[illegible]

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