

RSTEEL®

2022

PRODUCT CATALOG

Version 2.4

E-Mail: info@repo.eu

Website: www.repo.eu

AAA®
Highest Creditworthiness
© Bisnode 2022

THE
STRONGEST
IN FINLAND
2022
asiakastieto.fi



OUR PROMISE

We work hard to earn your business, blending the talents of our people with the quality of our products and services for safer, economical and reliable construction leading to customer success.



RSTEEL® provides high quality
steel products for precast and
cast-in-situ construction

With every **RSTEEL®** components, you know you're getting
more than just a piece of steel

R-Group Baltic OÜ

Kõrtsi tee 7/1

Lehmja Küla, Rae Vald

75306 Harjumaa

ESTONIA

www.rsteel.fi

Why Choose RSTEEL®

Our core values
are cornerstone of
who we are,
what we stand
for and
what we do

Innovation

We work tirelessly to improve our products, services and processes.

We anticipate and acknowledge the changes within our industry and shape it through cutting edge technology, clear, flexible structures and processes.

Customer Satisfaction

We promote a customer driven corporate culture by considering our customers in all we do. We are committed to provide good customer service through quality products, efficient services, and innovative solutions leading to value creation for our customers.

People

We value our people as our greatest assets. We foster a collaborative and mutually supportive environment where people can contribute, innovate and excel. We treat our employees and all our partners with professionalism, dignity and respect.

Integrity

We believe in doing the right thing. We are honest, open, ethical, and fair in everything that we do. We value accountability as an organization and individually.

Quality

Uncompromised commitment to highest standard of Quality in services and products. We take pride in providing high value products and services, which ensures customer satisfaction and benefits to our associates, customers, shareholders, suppliers, our communities and the environment.



Environment & Safety First



Our Commitment to Environmental Policy

We use a company-wide environmental management system and educate our staff members on a regular basis. We comply with all statutory obligations and requirements, and have prepared ourselves for any possible environmental damages. We save both energy and natural resources by cutting down on our emissions and waste. We use chemicals with minimal environmental effects. We work with suppliers and interest groups who use certified environmental management systems. We comply with the ISO 14001:2004 standard.

Safety and Quality

RSTEEL'S values, vision and strategy provide a solid foundation for our quality objectives. We use quality assurance meetings and auditing processes to constantly maintain and develop seamless cooperation between purchasing, sales and warehousing units. Our assortment of products is approved by EN 1090 standard in Sweden and Norway. RSTEEL® products are designed to be durable and functional, and our extensive testing ensures their quality. We comply with strict quality control in accordance to the guidelines of the Finnish and European Concrete Associations and the ISO 9001:2000 certificates that we have been granted. In addition, we perform further quality control in cooperation with KIWA and ITB Building Research Institute.

Terms of Sales



Product use

Products in this catalog are designed and manufactured for the specific purposes shown, and should not be used with other components not approved by a qualified Designer. Modifications to products or changes in installations should only be made by a qualified Designer. The performance of such modified products or altered installations is the sole responsibility of the Designer.

Indemnity

Customers or Designers modifying products or installations, or designing non-catalog products for fabrication by R-GROUP BALTIC OÜ shall, regardless of specific instructions to the user, indemnify, defend and hold harmless R-GROUP BALTIC OÜ and its subsidiaries for any and all claimed loss or damage occasioned in whole or in part by non-catalog or modified products.

Non-Catalog and modified products

Consult R-GROUP BALTIC OÜ for applications for which there is no catalog product, or for components for use in hostile environments, with loading or erection requirements. R-GROUP BALTIC OÜ cannot and does not make any representations regarding the suitability of use or load-carrying capacities of non-catalog products. R-GROUP BALTIC OÜ provides no warranty, express or implied, on non-catalog products.



General Notes

These general notes are provided to ensure proper installation of RSTEEL® products and must be followed fully.

Product design and safe working load changes

RSTEEL® reserves the right to change product specifications, designs and models without notice or liability for such changes. Any such changes will only be made to improve the product or to increase product safety.

Quality steel

Steel used for each RSTEEL® product is individually selected based on the product's steel specifications, including strength, thickness, formability, finish and weldability. Contact RSTEEL® for steel information on specific products.

Information

Unless otherwise noted, dimensions are in MILLIMETERS, loads are in Mpa, KGS or TONNES.

Product models

Some model configurations may differ from those shown in this catalog. Contact RSTEEL® for further details.

Product safety factors

Do not overload. Do not exceed catalog allowable loads, which would jeopardize the connection.

Welding consideration

Do not weld products listed in this catalog unless this publication specifically identifies a product as acceptable for welding, or unless specific approval for welding is provided in writing by RSTEEL®. Some steels have poor weldability and a tendency to crack when welded. Cracked steel will not carry load and must be replaced.

Product safety

RSTEEL® products are not to be applied or installed until the user and or the installer has a clear understanding of the information contained within the appropriate product publication. All contractors must instruct their employees in the appropriate use and installation of RSTEEL® products.

Product installation

Misuse, misapplication or lack of proper supervision or inspection can cause serious accidents. If you are uncertain about a product application, contact RSTEEL® for explanation and prudently field test the application before its use.

Worn working parts

All construction-related working parts are subject to wear, misuse, overloading, corrosion, alteration, etc. which may affect the performance of the products. Therefore, all working parts must be inspected regularly.

Product and Coating Finishes

Products manufactured by RSTEEL® can be supplied in several different coatings or finishes to meet specific corrosion resistance requirements.



AVAILABLE FINISHES AND COATINGS

Plain

Unprotected steel sometimes referred to as black, basic or raw steel. It will corrode or rust when exposed to the elements. If the anchor is embedded with concrete, the best environment friendly option for anchors coatings is uncoated. Protective painting shall be applied to the visible surfaces of the plain products excluding the lifting systems. Products are delivered with an approximately 40 µm shop priming. Primer is used to prevent rusting happening at element storage time.

Electro zinc coating

A bright shiny or sometimes dull finish generally 0.0002 to 0.001 inch thick zinc coating. The degree of corrosion protection will vary based on the severity of the environment in which it is used.

Hot dip galvanized

Semi-bright to very dull finish. It is a much heavier coating than electro-plate. Hot dip galvanized (HDG) provides a higher degree of corrosion resistance than electro-plate, but is not suitable for threaded or tight-fitting products.

Acid Resistant

Acid resistant plates are used in extreme conditions in industrial plants and offshore projects with high corrosive environment.

Stainless steel

Stainless steel offers high corrosion resistance in any environment. It is non-magnetic and can be painted with no special preparation.

Safe storage



RSTEEL® products must be stored and protected in dry conditions, preferably under a roof. The components might corrode when they are unprotected and exposed to outdoor weather conditions including large temperature variations, fertilizers, fumes, snow, ice, humidity, acidic atmospheres, or salt and more. These conditions may damage and shorten the standing time, which increases costs.

Table of Content

1. Lifting Systems	17
2. Wire Loops	45
3. Fixing Inserts	51
4. Fastening Systems	55
5. Bolts and Shoes	66
6. Channels	76
7. Balcony Connectors	88
8. Slab Support	93
9. Magnets	97
10. Frame Shoes	102
11. Cut and Bend	104
General Terms and Sales Conditions	107
Sales Team	110
Contact us	111

Our Products

This product catalogue is designed for you to easily search and navigate your desired product.

1 Lifting Systems

1.1 Threaded Lifting Systems



19

R



20

RLS



21

RTA



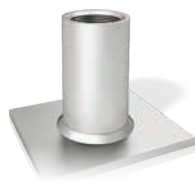
22

RWTL



23

RWTS



24

RPAS



25

**RLL
lifting key**



25

**RLL lifting key with
Pressure Plate**



25

**THS3
Lifting Key**



26

RNP



27





RMP






27

RMR

1.2 Spherical Head Lifting Systems

 <p>RLA</p>	29	 <p>TH2 Lifting Clutch</p>	30	 <p>TH2 Lifting Clutch Caliber</p>	31	 <p>RLARF</p>	33
--	----	---	----	---	----	--	----

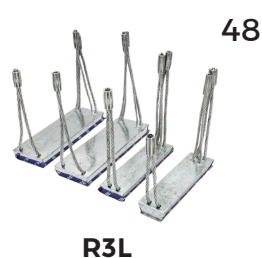
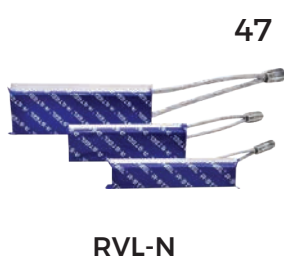
1.3 Quick Lock Lifting Systems

 <p>REA</p>	35	 <p>RHA</p>	36	 <p>RCL</p>	37	 <p>RPA</p>	38
 <p>RSEA</p>	39	 <p>RHEA</p>	39	 <p>Quick Lift Ring Clutch</p>	40	 <p>Holding Plate</p>	40
 <p>RRFB</p>	40	 <p>RPFB</p>	41	 <p>RSFB</p>	41	 <p>RMFB</p>	41
 <p>Holding Plate and Screw</p>	42						

1.4 Cast In-Loop and other Lifting Systems



2 Wire Loops



3 Fixing Inserts



4 Fastening Systems





62

RT 15/16


62

RT 25/26


62

RT 36/37


63

RT 39E


63

RT 43/45/46


64

RT 23/24


64

RT 38


65

RT 39


65

RT 44

5 Bolts and Shoes



68

RPP

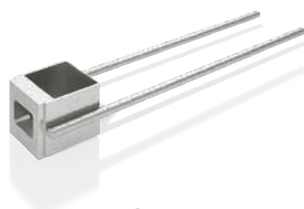

70

RPP-E

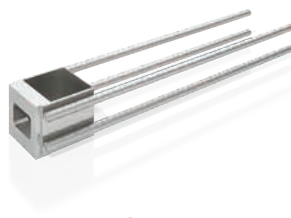

73

RPK-N3


73

**RPK-E3
RPK-E5**


74

RSK N


75

RSK E

6 Channels

77



Cold Rolled

77



Hot Rolled

77



Hot Rolled With Teeth

7 Balcony Connectors

89



RPS Balcony Hinge

92



370 Square Tubes

8 Slab Support

94



ROK

9 Magnets

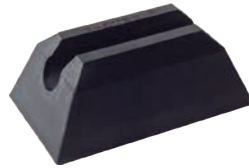
Fastening Plate Magnets



L115 x 115 x 5 Steel

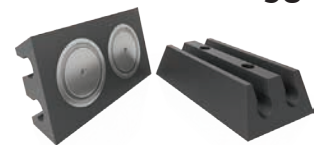
98

Electric Tube Magnets



Magnet with Space for 1 Tube

98



Magnet with Space for 2 Tubes

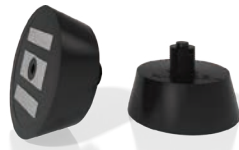
98

Inserts Magnets



Low Socket

98



High Socket

98

Box Magnets



Distribution

99



Instrument

99

High Mold Magnet



2100 KG

99



2100 KG

99



1000 KG

99

Wire Loop Box Magnets



Loop Box Magnets Type 1

100



Loop Box Magnets Type 2

100



Shutter Magnet

100



Triangle Magnet Chamfer

101



10 Frame Shoes



102

K1 Small



102

K2 Big



102

K3 Female

11 Mesh and Rebar



105

Cut & Bend



105

Tying Wire



1.

Lifting Systems

RSTEEL® offers a comprehensive range of high quality lifting systems designed for safe lifting and transportation of various types of precast elements. Your selection may be based upon technical or economic requirement or due to already owned/available lifting equipment.

RSTEEL® lifting systems are divided into four types:

- 1.1 Threaded Lifting Systems
- 1.2 Spherical Head Lifting Systems
- 1.3 Quick Lock Lifting Systems
- 1.4 Cast In-Loop and other Lifting Systems

1.1 Threaded Lifting Systems

LIFTING SYSTEMS

RSTEEL® Threaded Lifting System consists of Threaded Anchors, Lifting Devices and other accessories.

Anchors



R



RLS



RTA



RWTL



RWTS



RPAS

Accessories



Wire Loop Lifting Device



Wire Loop Lifting Device equipped with Pressure Plate Device



THS3 Lifting Key



RNP



RMP



RMR

Salient features

- Load capacities ranging from 0.5 to 12.5 Tons.
- Used for lifting all kind of precast elements. Used for lifting angle from 0 to 90 degrees.
- Easy to install and can also be recessed if required.

Notes

- If the lifting angle is greater than 45°, lifting device equipped with pressure plate must be used.
- If the lifting angle is greater than 15°, additional reinforcement must be provided.
- If the lifting anchor is used in extreme cold environment (less than -25°C), then resistance against breaking must be separately checked.

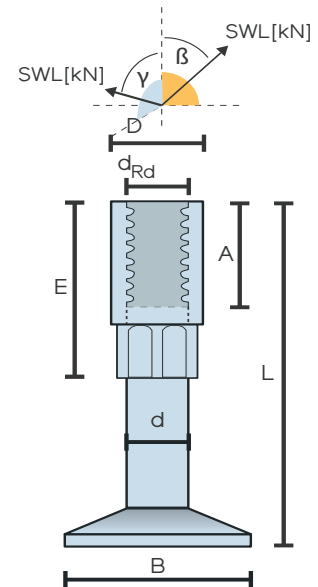
R Lifting Anchor

Dimensions of R Lifting Anchor

Lifting Anchor	L [mm] ±2	A [mm] ±1	dRd [mm] *	E [mm] ±2	D [mm] **	B [mm] +2/-0	d [mm] **
R 16	100	29	16	45	22 / 20	42 / 27	16
R 20S	115	40	20	60	28 / 25	54 / 34	20
R 20	140	40	20	60	28 / 25	54 / 34	20
R 24S	130	46	24	70	32 / 29	63 / 40	24
R 24	150	46	24	70	32 / 29	63 / 40	24
R 30S	175	60	30	90	40 / 37	78 / 50	30
R 30	200	60	30	90	40 / 37	78 / 50	30
R 36S	225	69	36	105	48 / 45	99 / 60	36
R 36	250	69	36	105	48 / 45	99 / 60	36

*Tolerance of Rd Thread 6h and 6H (DIN 405)
 ** Measurement tolerance (DIN1030/EN10060).
 Also available in M threads

■ - Dimensions before 03.2022
 ■ - Dimensions after 03.2022



Resistances of R Lifting Anchor

Lifting Anchor	Load Group	Safe Working Loads (SWL) [kN]			
		Wall elements			Slabs
		β = 0° - 45° ≥C12/15	γ = 0° - 10° ≥C12/15	γ = 10° - 90° ≥C12/15	β = 0° - 45° ≥C12/15
R16	1.2	12	12	6	12
R20	2.0	20	20	10	20
R24	2.5	25	25	12.5	25
R30	4.0	40	40	20	40
R36	6.3	63	63	31.5	63

R Lifting Anchor Materials and Standards

Ordering Code	Anchor Part	Standard	Threaded Casing	Standard	Type
R	S235JR+AR	SFS-EN 10025	S235JR+AR	SFS-EN 10025	Electro Zinced and Yellow Passivated
Rr	S235JR+AR	SFS-EN 10025	1.4301	SFS-EN 10088	Stainless
Rh	S235JR+AR	SFS-EN 10025	1.4401	SFS-EN 10088	Acid Resistant

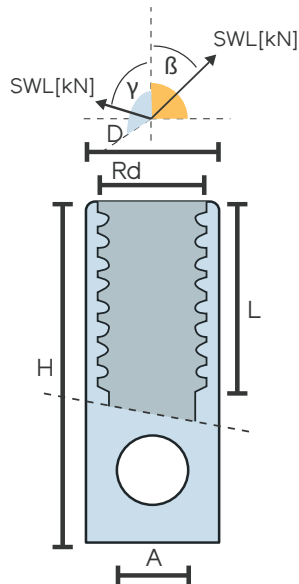
Approvals

► CE-marked



eesti betooniühing

RLS (Crosshole) Lifting Anchor

 LIFTING SYSTEMS
 THREADED LIFTING SYSTEMS


Dimensions of RLS Lifting Anchor

Lifting Anchor	D [mm] *	Rd [mm] **	H [mm] ±1	L [mm] ±2	A [mm] ±0.1
RLS12	15.5	12	40	22	8
RLS14	18	14	47	25	10
RLS16	21.4	16	54	27	13
RLS18	22.3	28	65	34	13
RLS20	27	20	69	35	15
RLS24	31	24	78	43	18
RLS30	40	30	103	56	22
RLS36	47	36	125	68	27
RLS42	54	42	145	80	32
RLS52	67	52	195	97	40

* According to EN ISO 1127

** According to DIN 405 / Also available in M threads

Resistances of RLS Lifting Anchor

Lifting Anchor	Safe working loads (SWL) [kN]		
	β = 0° - 15° ≥C12/15	β = 15° - 45° ≥C12/15	γ = 0° - 90° ≥C12/15
RLS12	5.0	5.0	2.5
RLS14	8.0	8.0	4.0
RLS16	12.0	12.0	6.0
RLS18	16.0	16.0	8.0
RLS20	20.0	20.0	10.0
RLS24	25.0	25.0	12.5
RLS30	40.0	40.0	20.0
RLS36	63.0	63.0	31.5
RLS42	80.0	80.0	40.0
RLS52	125.0	125.0	62.5



RLS Lifting Anchor Materials and Standards

Lifting Insert Type and Size	Material	Standard	Type
RLS (Rd12 - Rd16 and Rd20 - Rd52)	E355	EN 10305	Yellow passivated / Electro zinc
RLS (Rd18)	E235	EN 10305	Yellow passivated / Electro zinc
RLSr (Rd12 - Rd52)	1.4301	EN 10088	Stainless
RLSh (Rd12 - Rd52)	1.4401	EN 10088	Acid Resistant

Approvals

► CE-marked

RTA, RWTL, RWTS Lifting Anchors

 LIFTING SYSTEMS
 THREADED LIFTING SYSTEMS

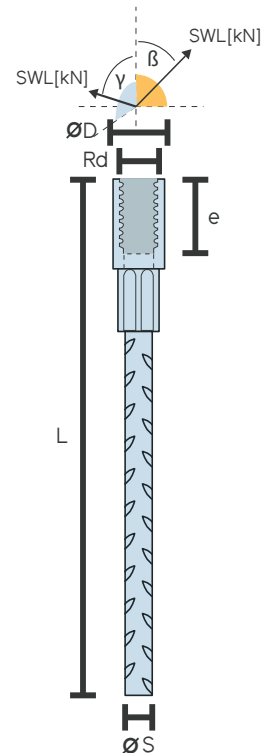
RSTEEL® provides inner thread sockets equipped with ribbed steel bars for anchoring. RWTL Anchors (long wavy tail anchor) and RWTS Anchors (short wavy tail anchors) are quick to install and versatile for lifting most types of precast units. The socket of the wavy tail is available in high grade zinc plated steel, stainless steel, and acid resistant materials. RWTL Anchors are available with Rd12 to Rd52 threads and RWTS Anchors are available with Rd12 to Rd42 threads, along with ribbed steel bar material B500B.

RTA (Tail) Lifting Anchor

Dimensions of RTA Lifting Anchor

Lifting Anchor	Rd* [mm]	L ±5 [mm]	Ø _D ±0.1 [mm]	e ±1 [mm]	Ø _S ±0.1 [mm]
RTA 12X195	12	195	15.5	22	8
RTA 14X235	14	235	18	25	10
RTA 16X275	16	275	21.4	27	12
RTA 16X400	16	400	21.4	27	12
RTA 18X305	18	305	22.3	34	14
RTA 20X360	20	360	27	35	14
RTA 24X400	24	400	31	43	16
RTA 30X505	30	505	40	56	20
RTA36X690	36	690	47	68	25
RTA 42X840	42	840	54	80	28
RTA 52X950	52	950	67	97	32
RTA 20X1500	20	1500	27	35	14
RTA 24X1600	24	1600	31	43	16
RTA 30X1900	30	1900	40	56	20

Long RTA Lifting Part



*Rd thread tolerance 6H

Resistances of RTA Lifting Anchor

Lifting Anchor	Safe working loads (SWL) [kN]		
	β = 0° - 45° ≥C12/15	γ = 0° - 15° ≥C12/15	γ = 15° - 90° ≥C12/15
RTA 12X195	5.0	5.0	2.5
RTA 14X235	8.0	8.0	4.0
RTA 16X275	12.0	12.0	6.0
RTA 16X400	12.0	12.0	6.0
RTA 18X305	16.0	16.0	8.0
RTA 20X360	20.0	20.0	10.0
RTA 24X400	25.0	25.0	12.5
RTA 30X505	40.0	40.0	20.0
RTA36X690	63.0	63.0	31.5
RTA 42X840	80.0	80.0	40.0
RTA 52X950	125.0	125.0	62.5



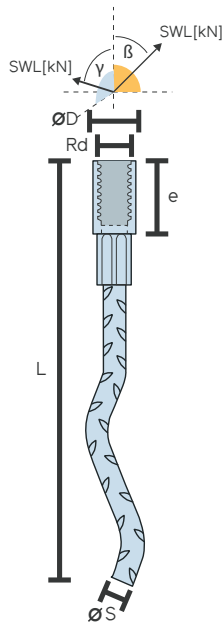
Safe working loads in table apply for all RTA types (RTA, RTAr, RTAh).

Resistances of (Long) RTA Lifting Anchor

Lifting Anchor	Safe working loads (SWL) [kN]		
	$\beta = 0^\circ - 45^\circ$ C12/15	$\gamma = 0^\circ - 15^\circ$ C12/15	$\gamma = 15^\circ - 90^\circ$ C12/15
RTA 20X1500	20.0	20.0	10.0
RTA 24X1600	25.0	25.0	12.5
RTA30X1900	40.0	40.0	20.0

Safe working loads in table apply for all RTA types (RTA, RTAr, RTAh).

RWTL (Long Wavy Tail) Lifting Anchor



Dimensions of RWTL Lifting Anchor

Lifting Anchor	Rd* [mm]	L ±5 [mm]	Ø _D ±0.1 [mm]	e ±1 [mm]	Ø _S ±0.1 [mm]
RWTL 12X137	12	137	15	22	8
RWTL 14X170	14	170	18	25	10
RWTL 16X216	16	216	21.4	27	12
RWTL 18X235	18	235	22.3	34	14
RWTL 20X257	20	257	27	35	14
RWTL 24X360	24	360	31	43	16
RWTL 30X450	30	450	40	56	20
RWTL 36X570	36	570	47	68	25
RWTL 42X620	42	620	54	80	28
RWTL 52X880	52	880	67	97	32

* Rd thread tolerance 6H

Resistances of RWTL Lifting Anchor

Lifting Anchor	Safe working loads (SWL) [kN]		
	$\beta = 0^\circ - 45^\circ$ ≥C12/15	$\gamma = 0^\circ - 15^\circ$ ≥C12/15	$\gamma = 15^\circ - 90^\circ$ ≥C12/15
RWTL 12X137	5.0	5.0	2.5
RWTL 14X170	8.0	8.0	4.0
RWTL 16X216	12.0	12.0	6.0
RWTL 18X235	16.0	16.0	8.0
RWTL 20X257	20.0	20.0	10.0
RWTL 24X360	25.0	25.0	12.5
RWTL 30X450	40.0	40.0	20.0
RWTL 36X570	63.0	63.0	31.5
RWTL 42X620	80.0	80.0	40.0
RWTL 52X880	125.0	125.0	62.5

Safe working loads in table apply for all RWTL types (RWTL, RWTLr, RWTLh).

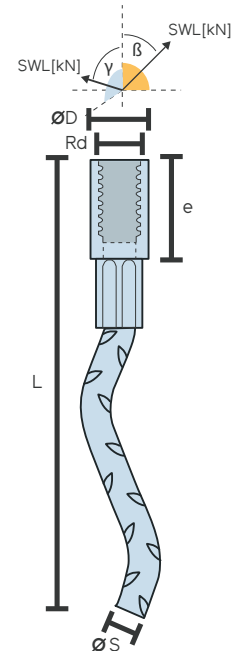


RWTS (Short Wavy Tail) Lifting Anchor

Dimensions of RWTS Lifting Anchor

Lifting Anchor	Rd* [mm]	L [mm] ±5	Ø _D [mm] ±0.1	e [mm] ±1	Ø _S [mm] ±0.1
RWTS 12X108	12	108	15.5	22	8
RWTS 14X130	14	130	18	25	10
RWTS 16X167	16	167	21.4	27	12
RWTS 18X175	18	175	22.3	34	14
RWTS 20X187	20	187	27	35	14
RWTS 24X240	24	240	31	43	16
RWTS 30X300	30	300	40	56	20
RWTS 36X380	36	380	47	68	25
RWTS 42X450	42	450	54	80	28

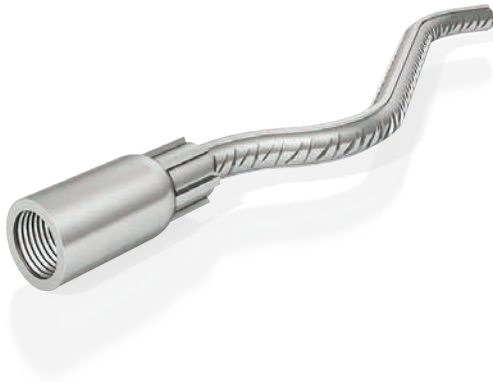
* Rd thread tolerance 6H



Resistances of RWTS Lifting Anchor

Safe working loads (SWL) [kN]

Lifting Anchor	β = 0° - 45° C12/15	γ = 0° - 90° C12/15
RWTS 12X108	2.6	1.3
RWTS 14X130	3.9	1.9
RWTS 16X167	6.3	3.1
RWTS 18X175	7.3	3.6
RWTS 20X187	7.8	3.9
RWTS 24X240	12.3	6.2
RWTS 30X300	17.0	8.5
RWTS 36X380	28.9	14.4
RWTS 42X450	37.2	18.6



Safe working loads in table apply for all RWTS types (RWTS, RWTSr, RWTSsh).

RTA, RWTL and RWTS Lifting Anchor Materials and Standards

Ordering Code	Inner Thread Socket	Standard	Type
RTA	S235J2+N	SFS-EN 10025	Electro zined and yellow passivated
RTAr	1.4301	SFS-EN 10088	Stainless
RTAh	1.4401	SFS-EN 10088	Acid resistant
RWTL	S235J2+N	SFS-EN 10025	Electro zined and yellow passivated
RWTLr	1.4301	SFS-EN 10088	Stainless
RWTLh	1.4401	SFS-EN 10088	Acid resistant
RWTS	S235J2+N	SFS-EN 10025	Electro zined and yellow passivated
RWTSr	1.4301	SFS-EN 10088	Stainless
RWTSsh	1.4401	SFS-EN 10088	Acid resistant

In all types ribbed steel bar material B500B. (Standard SFS1215/ SFS 1300)

Approvals

► CE-marked



eesti betooniühing

RPAS (Plate) Lifting Anchor

RPAS plate lifting anchors consist of steel tube with inner thread welded to a flat steel plate and used with threaded lifting keys. RPAS anchors are anchored to concrete with anchor reinforcement. RPAS plate lifting inserts are suitable for lifting of slabs, plates, tubes and other thin pre-cast concrete elements.

RPAS plate lifting inserts are available in two materials. Standard delivery surface finish is black (uncoated) and mild steel. RPAS plate lifting inserts are available also from stainless steel.



Dimensions and Resistance of the RPAS Lifting Anchor

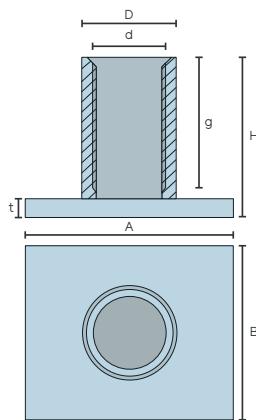


Plate Lifting Socket	d	D [mm]	g [mm]	H [mm]	A [mm]	B [mm]	t [mm]	Safe working loads (SWL) [kN]	
								$\beta = 0^\circ - 15^\circ$	$\beta = 15^\circ - 45^\circ$
RPAS12 M / Rd12		15.5	22	30	35	25	3	5	5
RPAS14 M / Rd14		18	25	33	35	35	3	8	8
RPAS16 M / Rd16		21.4	27	35	50	35	3	12	12
RPAS20 M / Rd20		27	35	47	60	60	5	20	20
RPAS24 M / Rd24		31	43	54	80	60	5	25	25
RPAS30 M / Rd30		40	56	72	100	80	6	40	40
RPAS36 M / Rd36		47	68	84	130	100	6	63	63
RPAS42 M / Rd42		54	80	100	130	130	8	80	80
RPAS52 M / Rd52		67	100	120	150	130	8	125	125

RPAS Lifting Anchor Materials and Standards

Lifting Insert type and size	Thread	Material	Standard	Type
RPAS M/Rd	M/Rd	E355	EN 1 0305	Electro zincd and yellow passivated
RPASR M/Rd	M/RD	1. 4571	EN 10 088	Stainless steel











Approvals

► CE-marked

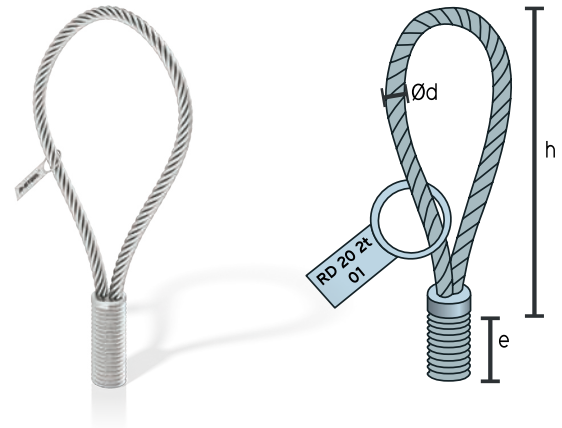
For edge distance, additional reinforcement, and other technical information kindly contact our sales team.

Accessories for Threaded Lifting Anchors

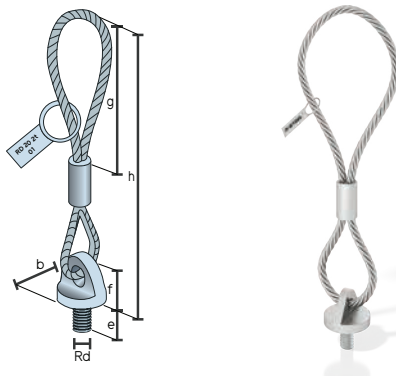
Dimensions and Resistances of RLL-lifting key

Product	Thread	Ød (mm)	e (mm)	h (mm)	Safe working loads (SWL) [kN] $\beta = 0^\circ - 45^\circ$
 RLL 0.5	12	6	22	133	5
 RLL 0.8	14	7	25	130	8
 RLL 1.2	16	8	27	138	12
 RLL 1.6	18	9	34	156	16
 RLL 2.0	20	10	35	180	20
 RLL 2.5	24	12	43	212	25
 RLL 4.0	30	16	56	244	40
 RLL 6.3	36	18	67	293	63
 RLL 8.0	42	20	80	350	80
 RLL 12.5	52	26	97	433	125







RLL-lifting key



RLL-lifting key with pressure plate



Dimensions and Resistances of RLL-lifting key with pressure plate

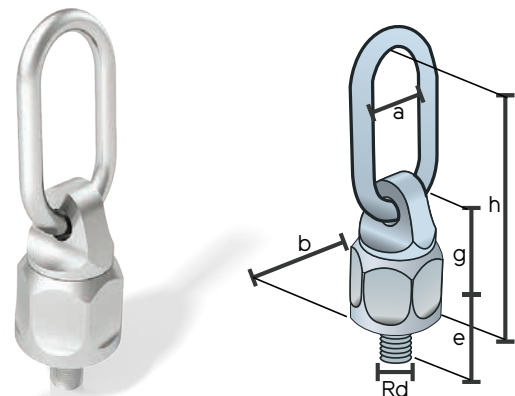
Product	Thread	b [mm]	e [mm]	g [mm]	h [mm]	f [mm]	F _{all} [kN]
 RLL 0.5	12	60	18	180	310	35	5
 RLL 1.2	16	60	24	180	345	40	12
 RLL 2.0	20	60	30	220	410	45	20
 RLL 2.5	24	60	36	220	435	50	25
 RLL 4.0	30	80	45	240	490	55	40
 RLL 6.3	36	90	54	260	570	65	63

THS3 - Lifting Key

Dimensions and Resistances of Full Metallic Lifting Device Equipped with Pressure plate

Product	Thread	a [mm]	b [mm]	e [mm]	g [mm]	h [mm]	F _{all} [kN]
THS3 16	Rd 16	60	56	21	60	150	12
THS3 20	Rd 20	60	70	26	74	160	20
THS3 24	Rd 24	75	74	31	78	185	25
THS3 30	Rd 30	90	90	39	90	220	40
THS3 36	Rd 36	100	101	47	107	255	63

THS3 42 is also available.
Tailor made solutions are also available.
For lifting angles more than 45 degrees, the capacity has to be reduced by half.



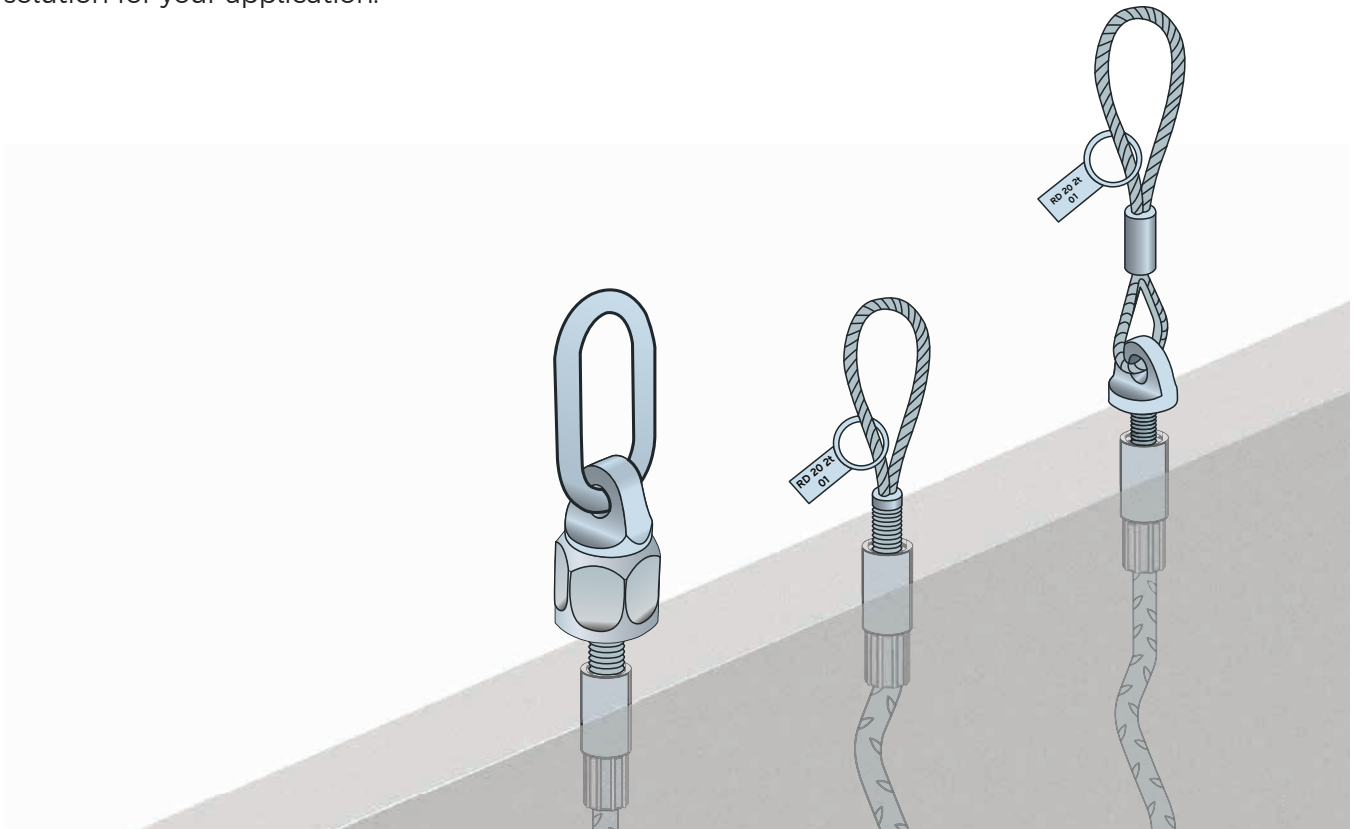
Approvals

► CE-marked

Notes

- The length of the inner thread in the lifting must be long enough for the thread of the lifting device to fit completely in to the lifting anchor. This allows for full usage of the capacity of the lifting anchor and the lifting device and is particularly important when using lifting devices equipped with pressure plate.
- The pressure plate must be securely against the concrete with all of its surface area to be able to fully use the capacity of the lifting device.
- Other certified lifting devices may be used with the R lifting anchors. When using lifting devices from other manufacturers, the user must make sure the thread of the lifting device fits completely in the lifting anchor and the capacity is adequate.
- In lifting devices equipped with a pressure plate, the diameter of the pressure plate must be at least as large as in the lifting devices with pressure plate in this user manual.
- Hot dip galvanized also available on request.

RSTEEL® range of products has a wide selection of standard applications such as nailing plates, recess formers, plastic caps etc. RSTEEL® Lifting System has a color code for easy recognition of every thread size. Tailor made solutions for your special demands are also available. We stock a full range of fixing accessories and have access to a wide range of others, please ask should you be unable to find a solution for your application.

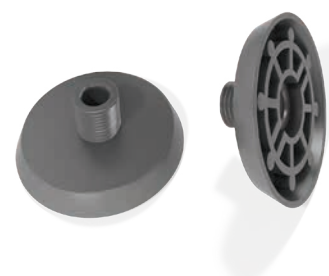
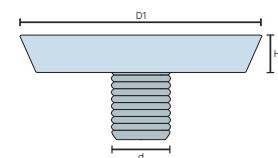


RNP Plastic Nailing Plate

The nailing plate is used to fix the lifting anchors to the formwork. The nailing plate is made of plastic and is color coded according to the thread size. Available in 10 thread sizes from M12 to M52 The recess formed by the nailing plate is a perfect fit for our lifting devices

Dimensions and Loads of RNP Plastic Nailing Plate

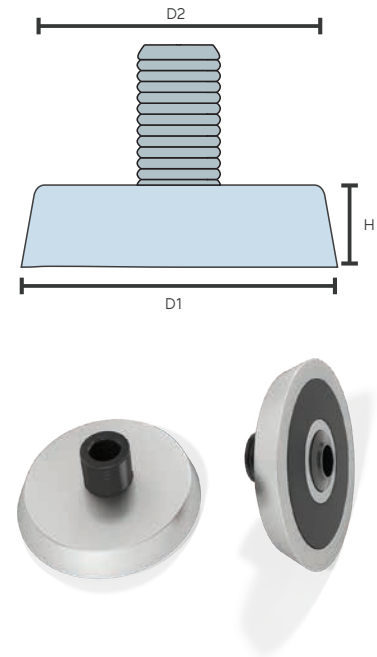
Description	Thread	Dimension		Color
	d (mm)	H (mm)	D1 (mm)	
RNP 12	M12	10	40	Orange
RNP 14	M14	10	40	White
RNP 16	M16	10	40	Red
RNP 18	M18	10	55	Pink
RNP 20	M20	10	55	Light Green
RNP 24	M24	10	55	Dark Gray
RNP 30	M30	10	70	Dark Green
RNP 36	M36	10	70	Blue
RNP 42	M42	12	95	Light Gray
RNP 52	M52	12	95	Yellow



RMP Fixing Magnet

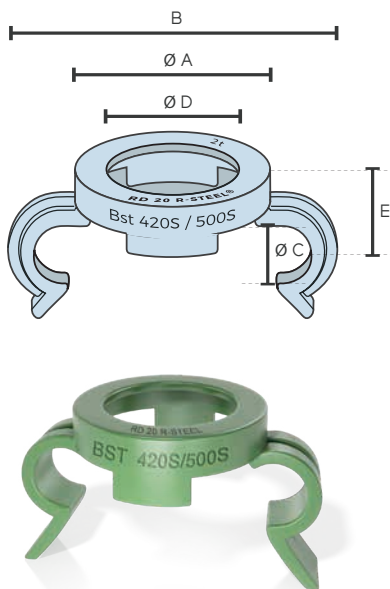
Dimensions and Loads of RMP Fixing Magnet

Description	Thread	Dimension		
	OD	D1 (mm)	D2 (mm)	H (mm)
RMP 12	12	49.5	46	10
RMP 14	14	54.5	51	10
RMP 16	16	58.2	55	10
RMP 18	18	61.5	58	10
RMP 20	20	72.5	69	10
RMP 24	24	77.2	73	12
RMP 30	30	93.2	89	12
RMP 36	36	104.2	100	12
RMP 42	42	114.3	109	15
RMP 52	52	134.3	129	15



RMR MARKING RING

Provides an economical method for additional reinforcement to be fixed to the RSTEEL® Lifting Insert. Color coded rings provides a clear indication of the lifting thread diameter and safe working load.



Dimensions and Loads of RMR Marking Ring

Description	SWL (kg)	Ø _A (mm)	B (mm)	Ø _C (mm)	Ø _D (mm)	E (mm)	Color
RMR M12	0.24	18.5	35	6.5	12.5	10.0	Orange
RMR M14	0.30	21.5	38	6.5	14.5	11.0	White
RMR M16	0.36	25.5	46	8.5	17.0	12.0	Red
RMR M18	0.62	28.5	49	8.5	19.0	14.5	Pink
RMR M20	0.66	31.5	52	8.5	21.0	14.5	Light Green
RMR M24	0.72	35.0	60	11.0	25.5	15.5	Dark Gray
RMR M30	1.74	44.0	73	13.0	31.5	16.5	Dark Green
RMR M36	1.20	52.5	86	15.0	37.5	22.5	Blue
RMR M42	1.35	59.5	97	17.0	44.0	23.5	Light Gray
RMR M52	2.25	73.0	119	22.0	54.0	31.0	Yellow

1.2 Spherical Head Lifting Systems

LIFTING SYSTEMS

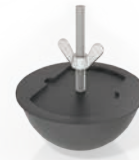
RSTEEL® offers safe and simple coupling through its spherical head lifting system suitable for axial, diagonal or lateral lifting of precast element. Spherical Head Lifting Systems consists of lifting anchor, Lifting Accessories such as lifting clutch (3D lifting System) recess former and holding screws. The lifting clutch, recess former and lifting anchor only correspond when they are from the same load group. The load group is clearly marked on the lifting clutch.

Anchors



RLA

Accessories

**TH2
Lifting Clutch****TH2 Lifting
Clutch Caliber****RLARF Rubber
Recess Formers**

Salient features

- Rapid coupling and release.
- Load capacities ranging from 1.3 to 32 Tons.
- Used for lifting Heavy precast elements such as beams, wall panels, thick slabs and concrete pipes.
- No parts protruding over the component surface.

RLA Lifting Anchor

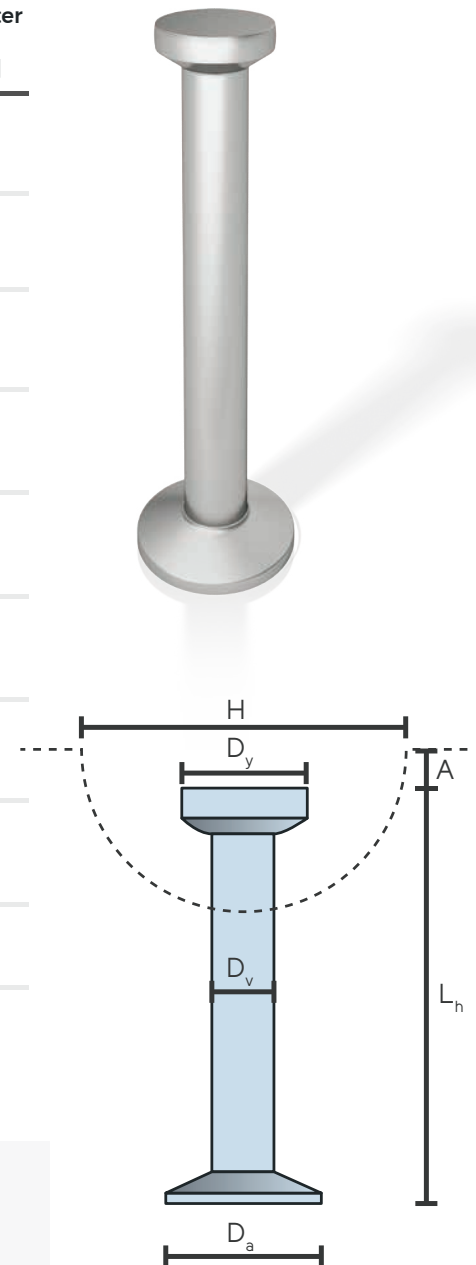
Dimensions and Loads of Class RLA Lifting Anchor

Lifting Anchor	Diameter D_y [mm]	±	Diameter D_v [mm]	±	Diameter D_a [mm]	Length L_h [mm]	±	Installation Depth A [mm]	Diameter H [mm]
RLA 1.3 (40, 50, 65, 85, 120)	19	0.5	10	0.2	25	40 - 120	2.0	10	60
RLA 2.5 (55, 65, 85, 120, 170)	26	0.5	14	0.2	35	55 - 170	2.0	11	74
RLA 4.0 (75, 100, 120, 170, 210, 340)	36	0.5	18	0.2	45	75 - 340	2.0	15	94
RLA 5.0 (85, 95, 120, 180, 240)	36	0.5	20	0.2	50	85 - 240	2.0	15	94
RLA 7.5 (100, 120, 140, 165, 200, 300)	47	0.5	24	0.2	60	100 - 300	2.0	15	118
RLA 10 (115, 135, 150, 170, 250, 340)	47	0.5	28	0.2	70	115 - 340	3.0	15	118
RLA 15 (140, 165, 200, 300, 400)	69	0.5	34	0.3	85	140 - 400	3.0	15	160
RLA 20 (200, 240, 250, 340, 500)	70	0.5	38	0.5	98	200 - 500	3.0	15	160
RLA 32 (320, 500, 700, 1200)	88	0.5	50	0.8	135	320 - 1200	3.0	15	214
RLA 45 (500, 1200)	88	0.5	50	0.8	135	500 - 1200	3.0	15	214

Greatest allowed lifting angle is 90°.

The Load Group of the RLA Lifting Anchors is presented in the name of the RLA Lifting Anchor.

For RLA Lifting Anchor, load group is in tons.



RLA Lifting Anchor Materials and Standards

Ordering Code	Lifting Anchor	Standard	Type
RLA	S355J2+N	SFS-EN 10025	Plain
RLAz	S355J2+N	SFS-EN 10025	Hot dip galvanized
RLAez	S355J2+N	SS-EN 10025	Electro zincd
RLAr	1.4301	SFS-EN 10088	Stainless
RLAh	1.4401	SFS-EN 10088	Acid resistant

Approvals

► CE-marked



eesti betooniühing

Accessories for Spherical Head Lifting Anchors

TH2 lifting clutch



TH2 Lifting Clutch Load Groups

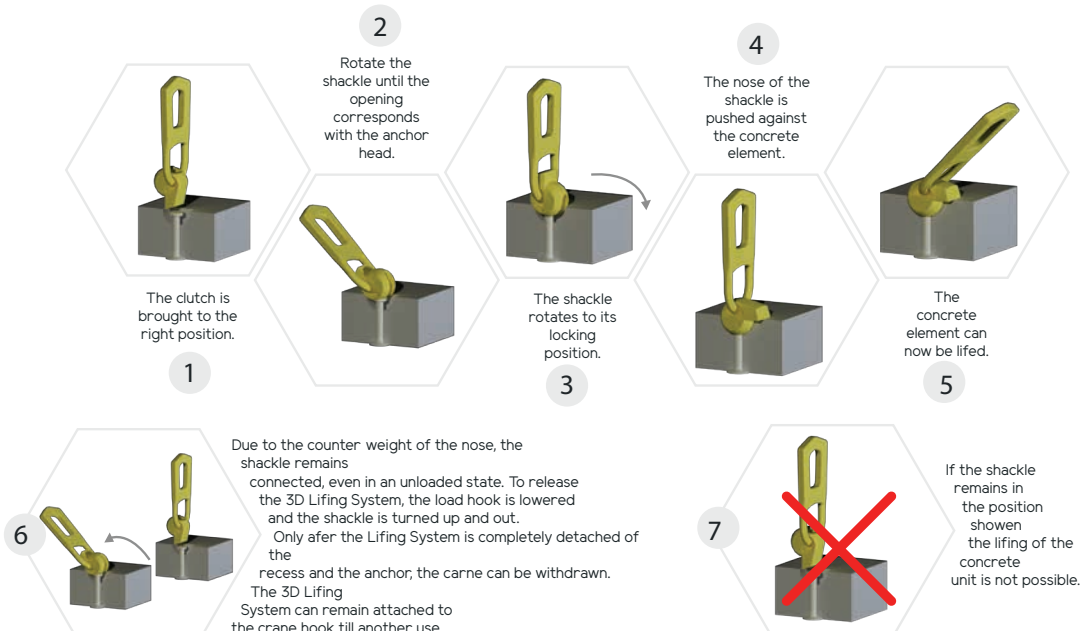
TH2	Load Group [t]
TH2 1.3	1.3
TH2 2.5	2.5
TH2 4.0/5.0	5.0
TH2 7.5/10.0	10.0
TH2 15.0/20.0	20.0
TH2 32.0	32.0
TH2 45.0	45.0

Here t refers to load group of all spherical Lifting Anchors
Note: Surface coatings: White zinced and yellow passivated

TH2 clutch can be used with spherical head lifting anchors. The TH2 clutch is made of high quality steel and they are designed with a safety factor. The special design of the clutch ensures a tight and safe connection to the spherical head lifting anchor. The shackle fits the hemispherical cavity created by the recess former perfectly. The lifting clutch, recess former and lift-ing anchor only correspond when they are from the same load group. The load group is clearly marked on the lifting clutch. The TH2 clutch is a heavy duty lifting device for load groups from 1.3 - 45 tons.

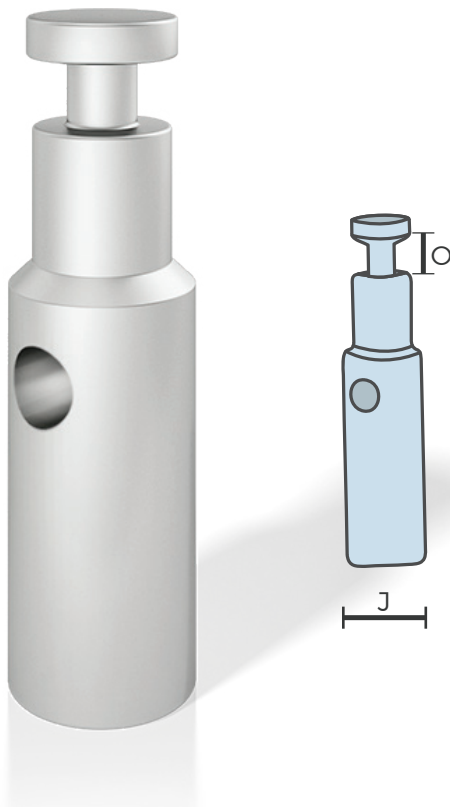


Operating Instructions



TH2 - lifting clutch caliber

In common with all lifting devices, the lifting system TH2 must be checked at least twice a year by trained personnel. Any defects found should be corrected before use. It is important to determine the amount of wear. The lettering and identification of the lifting system must be visible. If the shackle is deformed or the mouth opening is enlarged, the 3D Lifting System must be taken out of use and cannot be repaired. If the limiting dimensions given in the tables below are exceeded for "H" or fall below for "M" a further use of the Lifting System is not safe. Repairs, especially welding operations to the Lifting System are strictly forbidden. Do not combine our products with accessories from other manufacturers.



TYPE	H MAXIMUM [mm]	M MAXIMUM [mm]
Caliber SH 1.3	13	5,5
Caliber SH 2.5	18	7
Caliber SH 5.0	24	9
Caliber SH 10.0	33	12
Caliber SH 20.0	45	18
Caliber SH 32.0	56	25
Caliber SH 45.0	56	25

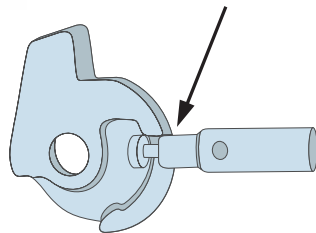
TYPE	H MAXIMUM [mm]	M MAXIMUM [mm]
SHR 40/50	24	9
SHR 75/100	33	12

Dimension "M" Checking

The dimension "M" must be checked in this zone with risk of fracture during usage.

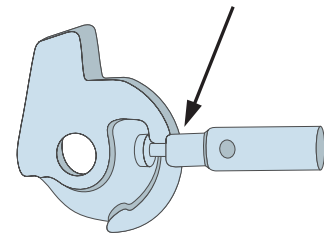
Acceptable

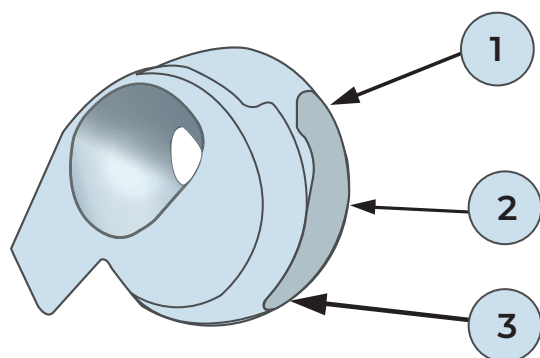
Dimension "M" is larger than minimum permitted.



Not Acceptable

In this case dimension "M" is less than allowed.





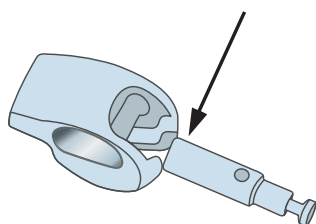
Dimension "H" Checking

The "H" dimension must be checked in at least 3 zones with risk of enlargement during usage.

Primary Zone

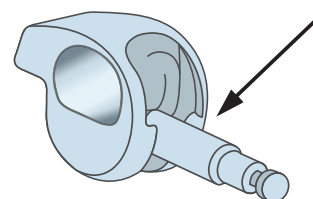
Acceptable

Dimension "H" is less than maxim permitted.



Not Acceptable

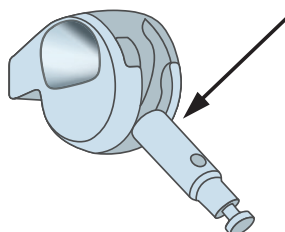
In this case dimension "H" is larger than allowed.



Secondary Zone

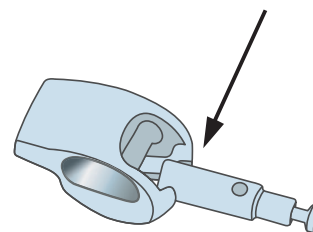
Acceptable

Dimension "H" is less than maxim permitted.



Not Acceptable

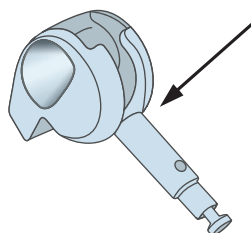
In this case dimension "H" is larger than allowed.



The Third Zone

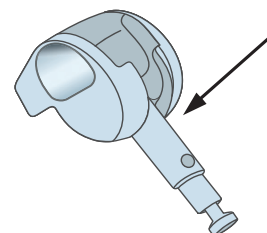
Acceptable

Dimension "H" is less than maxim permitted.



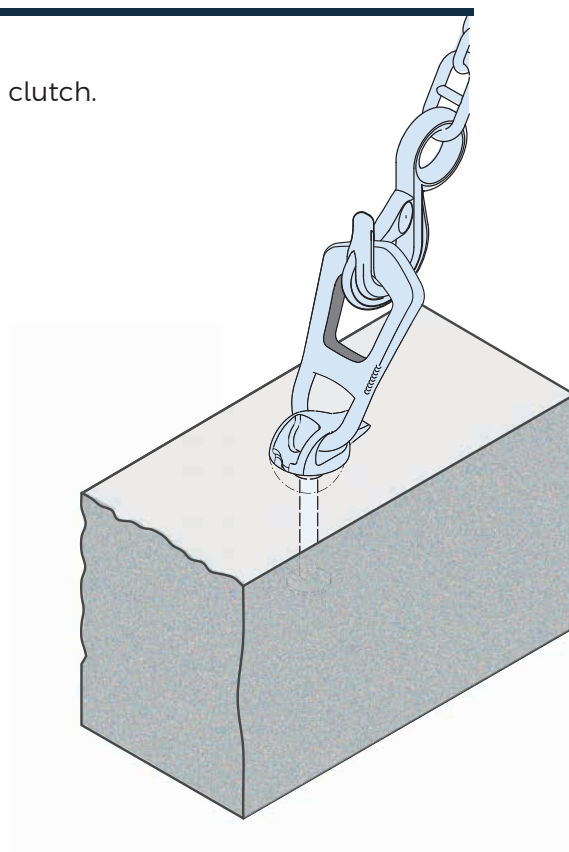
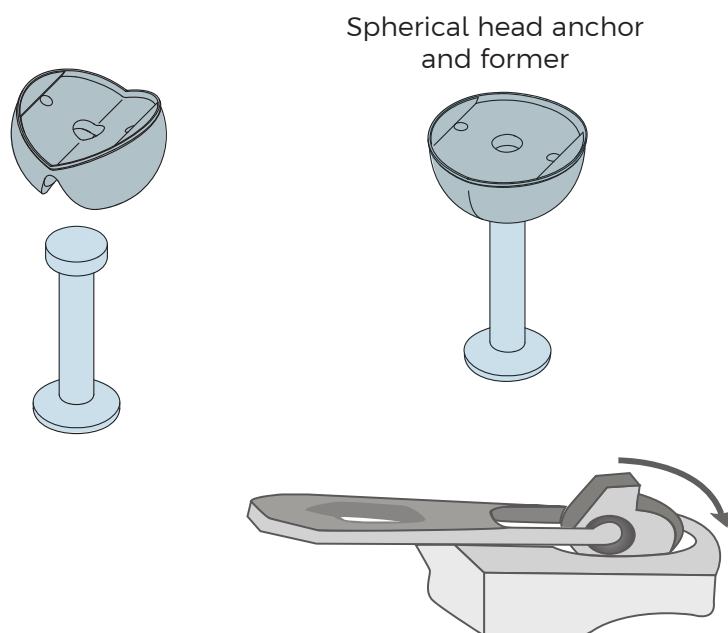
Not Acceptable

In this case dimension "H" is larger than allowed.

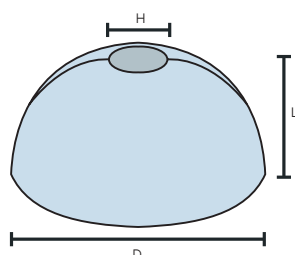


Accessories for Spherical Head Lifting

Designed to hold the anchor in position and leave a recess for the clutch.



RLARF Rubber Recess Formers



The colour coded round rubber recess formers are produced from oil and temperature resistant rubber and can be reused. There are six sizes available with different load classes.

Dimensions and loads of RLARF Rubber Recess Formers

Description	Load Group (T)	Dimension			Color
		D (mm)	L (mm)	H (mm)	
RLARF 1.3	1.3	63.5	36	14.5	Blue
RLARF 2.5	2.5	73.5	37.5	14.5	Yellow
RLARF 5.0	5.0	94.5	47	19.10	Blue
RLARF 10.0	10.0	122	60	23.50	Yellow
RLARF 20.0	20.0	165	79.50	40	Black
RLARF 32.0	32.0	230	107.50	47.60	Black

1.3 Quick Lock Lifting Systems

LIFTING SYSTEMS

RSTEEL® offers high quality and cost effective system for lifting of all types of concrete elements through its Quick Lock lifting System. The Quick lock lifting systems consists of flat steel lifting anchors, accessories such as ring clutch, recess formers, holding plate and screw.

Quick Lock Lifting Anchors


REA

RHA

RCL

RPA

RSEA

RHEA

Accessories


Quick Lift Ring Clutch

Holding Plate

RRFB

RPFB

RSFB

RMFB

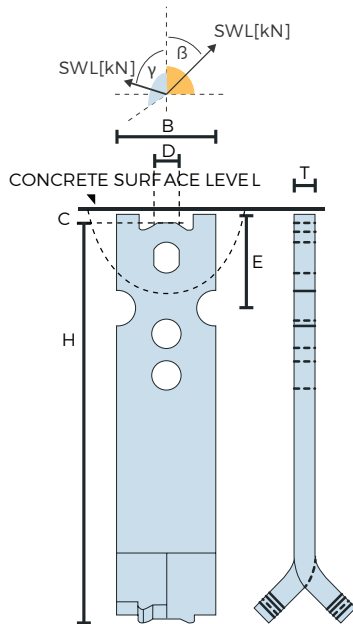
Holding Plate and Screw

Salient features

- Load capacities ranging from 1.4 to 26 Tons.
- Numerous different anchor types available
- Used for lifting in all directions

REA (Erection) Anchor

REA erection anchors enable lifting of columns, beams, walls and other pre-cast concrete elements. REA lifting inserts can be used in all lifting directions and for lifting angles up to 90 degrees.



Dimensions and load class of REA Lifting Anchor

Lifting Anchor	H [mm]	B [mm]	D [mm]	T [mm]	C [mm]	E [mm]
REA 1.4	200	55	8.5	6	8	45
REA 2.5	230			10		
REA 4.0	270	70	12	12	11	66
REA 5.0	290			15		
REA 7.5	320	95	17.5	15	17	88
REA 10.0	390			20		
REA 12.5	500	148	23	20	19	89
REA 17.0	500			25		
REA 22.0	500			30		

Resistance of REA Lifting Anchor

Lifting Anchor	Safe working loads (SWL) [kN]			
	$\beta = 0^\circ - 15^\circ$	$\beta = 15^\circ - 45^\circ$	$\gamma = 0^\circ - 10^\circ$	$\gamma = 10^\circ - 90^\circ$
REA 1.4	14	14	14	7
REA 2.5	25	25	25	12.5
REA 4.0	40	40	40	20
REA 5.0	50	50	50	25
REA 7.5	75	75	75	37.5
REA 10.0	100	100	100	50
REA 12.5	125	125	125	62.5
REA 17.0	170	170	170	85
REA 22.0	220	220	220	110

Safe working loads in table apply for all REA and REAZ types.

REA Erection Anchor Materials and Standards

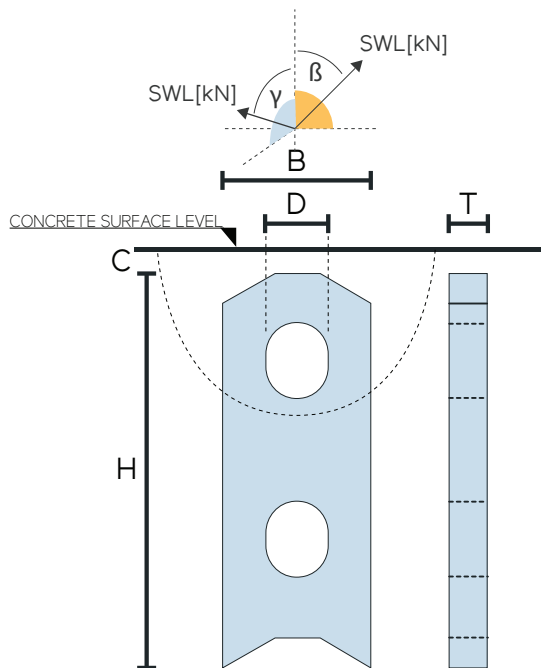
Ordering Code	Lifting Anchor	Standard	Type
REA 2.5	S355J2	EN 10025	Uncoated
REAZ 2.5	S355J2	EN 10025	Hot dip galvanized
REAEZ 2.5	S355J2	EN 10025	Electro zinc

Approvals

► CE-marked



RHA (Two Hole) Anchor



Dimensions and Loads of RHA Lifting Anchor

Lifting Anchor	H [mm]	B [mm]	D [mm]	T [mm]	C [mm]
RHA 1.4	90		14	6	10
RHA 2.5	90	30		10	
RHA 3.0	120			10	
RHA 4.0	120	40	18	12	10
RHA 5.0	120			15	
RHA 7.5	160			16	
RHA 10.0	165	60	26	20	15
RHA 14.0	240	80		20	
RHA 22.0	300	90	35	30	15
RHA 26.0	300	120		30	

Resistance of RHA Lifting Anchor

Lifting Anchor	Safe working loads (SWL) [kN] In wall elements				Safe working loads (SWL) [kN] In slab elements	
	β = 0° - 15°	β = 15° - 45°	γ = 0° - 10°	γ = 10° - 90°	β = 0° - 15°	β = 15° - 45°
RHA 1.4	14	14	14		7	7
RHA 2.5	25	25	25		12	12
RHA 3.0	30	30	30		15	15
RHA 4.0	40	40	40		20	20
RHA 5.0	50	50	50		21	21
RHA 7.5	75	75	75	Not Allowed	33	33
RHA 10.0	100	100	100		50	50
RHA 14.0	140	140	140		65	65
RHA 22.0	220	220	220		65	65
RHA 26.0	260	260	260		130	130

RHA Anchor Materials and Standards

Ordering Code	Anchor	Standard	Type
RHA 2.5	S355J2	EN 10025	Uncoated
RHAz 2.5	S355J2	EN 10025	Hot dip galvanized
RHAez 2.5	S355J2	EN 10025	Electro zincd

Approvals

► CE-marked

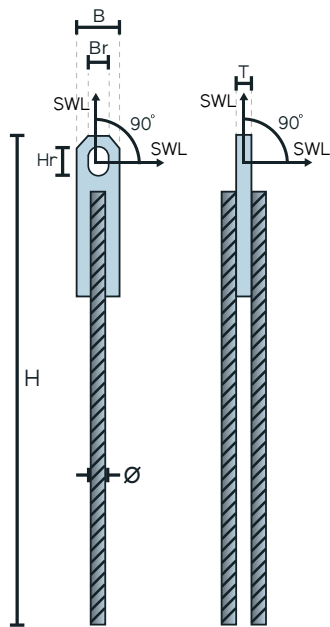


RCL Lifting Anchor

RCL lifting anchors are flat steel parts with ribbed steel bar for anchoring.

Main usage of RCL lifting parts is lifting of one storey high balcony columns.

RCL lifting parts are made entirely of stainless steel. RCL lifting parts are not removed or cut after installation of column. RCL lifting parts remain in structure and can be used eg. for anchoring horizontal forces in connection between balcony column and balcony slab.



Dimensions of RCL Lifting Anchor

Lifting Anchor	H (mm) ±6	B* (mm)	T* (mm)	Br (mm) ±1	Hr (mm) ±1	Ø (mm)	n (pcs)
RCL2	390	30	10	14	20	11	1+1
RCL4	470	40	15	17	25	11	2+2

n = number of ribbed steel bars

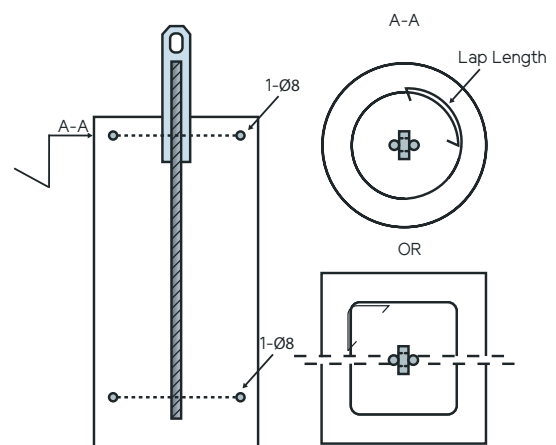
* According to SFS-EN 10278

Resistances of RCL Lifting Anchor

Lifting Anchor	Safe Working Loads (SWL) [kN]		
	C12/15	C16/20	C20/25
RCL2	5.0	5.2	5.2
RCL4	9.3	12.4	13.2

RCL lifting anchor placement in elements

RCL lifting parts are placed on top of column and in the center of gravity of the column. When using RCL lifting parts additional reinforcement must always be installed (reinforcement 1+1 pcs Ø8 mm A500HW, B500B or similar ribbed steel). Reinforcement of column may be used as reinforcement of RCL lifting parts. Additional reinforcement is primarily to prevent concrete breaking during lifting and installation of column.



RCL Lifting Anchor Materials and Standards

Ordering Code	Flat Steel	Standard	Ribbed Steel Bar	Standard
RCL2	1.4301	SFS-EN 10088	B600KX / B600XB / B600XC	SFS1259, SFS1259:2016
RCL4	1.4301	SFS-EN 10088	B600KX / B600XB / B600XC B600KX / B600KB / B600KC	SFS1259, SFS1259:2016

Approvals

► CE-marked

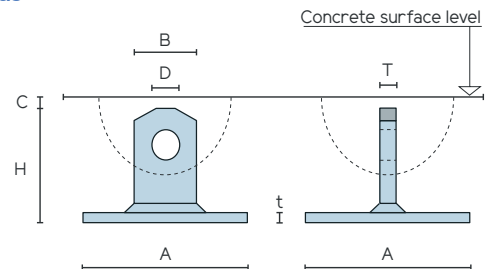
RPA (Plate) Lifting Anchor



RPA plate lifting insert system are lifting inserts consisting of flat steel insert welded to a flat steel plate and used with rapid release lifting keys. These lifting inserts are anchored to concrete with anchor reinforcement. RPA plate lifting inserts are suitable for lifting of slabs, plates, tubes and other thin pre-cast concrete. RPA plate lifting inserts are available in two materials. Standard delivery surface finish is black (uncoated). RPA plate lifting inserts are available also from stainless steel.

Dimensions & Resistance of RPA Plate Lifting Anchor

Plate Lifting Anchor	H [mm]	B [mm]	D [mm]	T [mm]	t [mm]	A [mm]	C [mm]	Safe working loads (SWL) [kN]	
								$\beta = 0^\circ - 15^\circ$	$\beta = 15^\circ - 45^\circ$
RPA 1.4	55	30	14	6	8	80	10	14	14
RPA 2.5	80			10	8	80		25	25
RPA 5.0	120	40	18	15	10	100	10	50	50
RPA 10.0	160	60	26	20	12	140	15	100	100



RPA Plate Lifting Anchor Materials and Standards

lifting Insert type and size	Material	Standard	Type
RPA 5.0	S355J2	EN 10025	Uncoated
RPA 10.0	1.4571	EN 10088	Stainless steel

Approvals

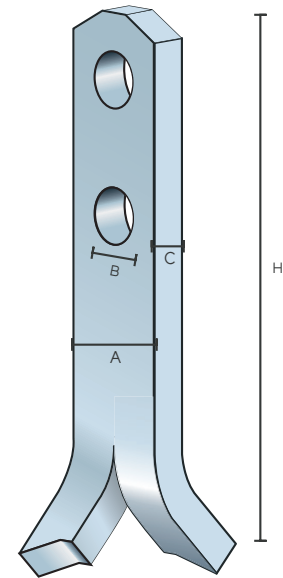
► CE-marked

RSEA (Erection) Lifting Anchor

LIFTING SYSTEMS
QUICK LOCK LIFTING SYSTEMS

Dimensions & Load class of RSEA Erection Anchor

Lifting Anchor	H [mm]	A [mm]	B [mm]	C [mm]
RSEA 1.4 (110,130,160,210)	110 - 210	30	14	6
RSEA 2.5 (150,200,250)	150 - 250	30	14	10
RSEA 3.0 (160,200,280)	160 - 280	40	18	10
RSEA 4.0 (180,240,320)	180 - 320	40	18	12
RSEA 5.0 (180,240,400)	180 - 400	40	18	15
RSEA 5.3 (220,260,340)	220 - 340	60	26	12
RSEA 7.5 (260,300,420)	260 - 420	60	26	16
RSEA 10.0 (300,370,520)	300 - 520	60	26	20
RSEA 14.0 (370,460)	370 - 460	80	35	20
RSEA 22.0 (500,620)	500 - 620	80	35	26



RSEA Erection Anchor Materials and Standards

Ordering Code	Lifting Anchor	Standard	Type
RSEAr	1.4301	SFS-EN 10088	Stainless
RSEAh	1.4401	SFS-EN 10088	Acid resistant

Zinc plated and hot dip galvanized finish also available

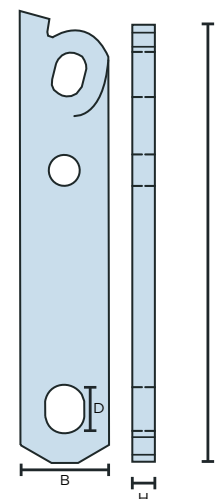


RHEA (Erection) Lifting Anchor

LIFTING SYSTEMS
QUICK LOCK LIFTING SYSTEMS

Dimensions and loads of RHEA Erection Anchor

Lifting Anchor	L [mm]	B [mm]	D [mm]	H [mm]
RHEA 2.5	200	40	22	10
RHEA 5.0	300	60	30	15
RHEA 7.5	350	80	46	16
RHEA 10.0	350	80	46	20



Available for sale in specific markets only. For more details, please contact your RSTEEL® Area Sales Manager

Accessories for Quick Lock Lifting Anchor

Quick Lift Ring Clutch

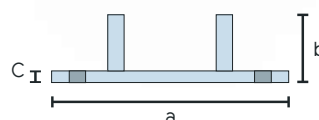
The lifting clutch is made of special steel casting. The lifting bolt of the quick lift clutch is inserted into the hole of the lifting insert and can be easily and quickly removed after lifting.

- Available in the following load groups: 2.5, 5.0, 10.0, 26.0 Tons.
- Every quick lift clutch is marked with load capacities and a batch number.



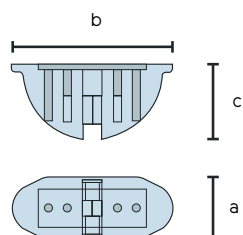
Holding Plate

Load Group	a [mm]	b [mm]	c [mm]
2.5	73	15	4
5.0	85	30	4
10.0	128	40	6



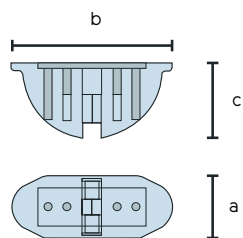
RPFB Rubber Recess Former Bayonet

The lifting clutch is made of special steel casting. The lifting bolt of the quick lift clutch is inserted into the hole of the lifting insert and can be easily and quickly removed after lifting.



Load Group	a [mm]	b [mm]	c [mm]	Thread	Color
1.4	28	60	33.5	M6	Orange
2.5	43	103	46.5	M8	Orange
5.0	53	130	59.5	M8	Black
7.5	69.5	164	80	M12	Green
10.0	69.5	164	80	M12	Green

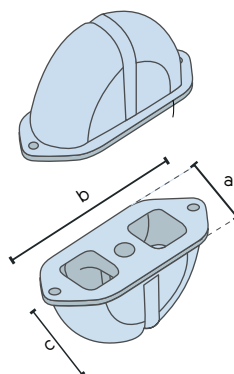
RPFB Plastic Recess Former Bayonet



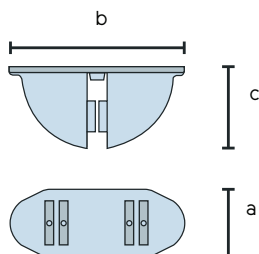
Load Group	a [mm]	b [mm]	c [mm]	Thread	Color
1.4	28	60	33.5	M6	Orange
2.5	43	103	46.5	M8	Orange
5.0	53	130	59.5	M8	Black
7.5	69.5	164	80	M12	Green
10.0	69.5	164	80	M12	Green
12.5	112	230	108	M16	Blue

RSFB Steel Recess Former Bayonet

Load Group	a [mm]	b [mm]	c [mm]	Thread
2.5	37	102	45	M8
5.0	48	126	59	M8
10.0	70	184	84	M12



RMFB Magnetic Recess Former Bayonet

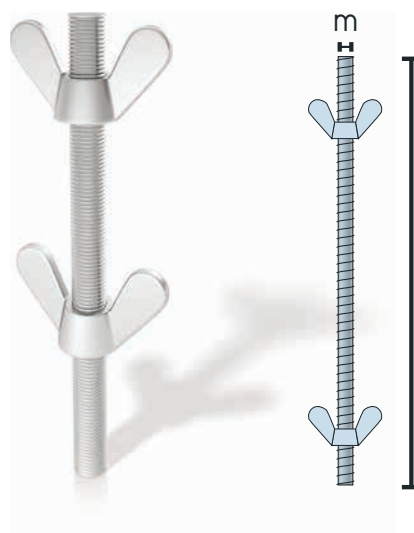


Load Group	a (mm)	b (mm)	c (mm)
2.5	43	45	104
5.0	49	59	126
7.5	67	85	188
10.0	67	85	188

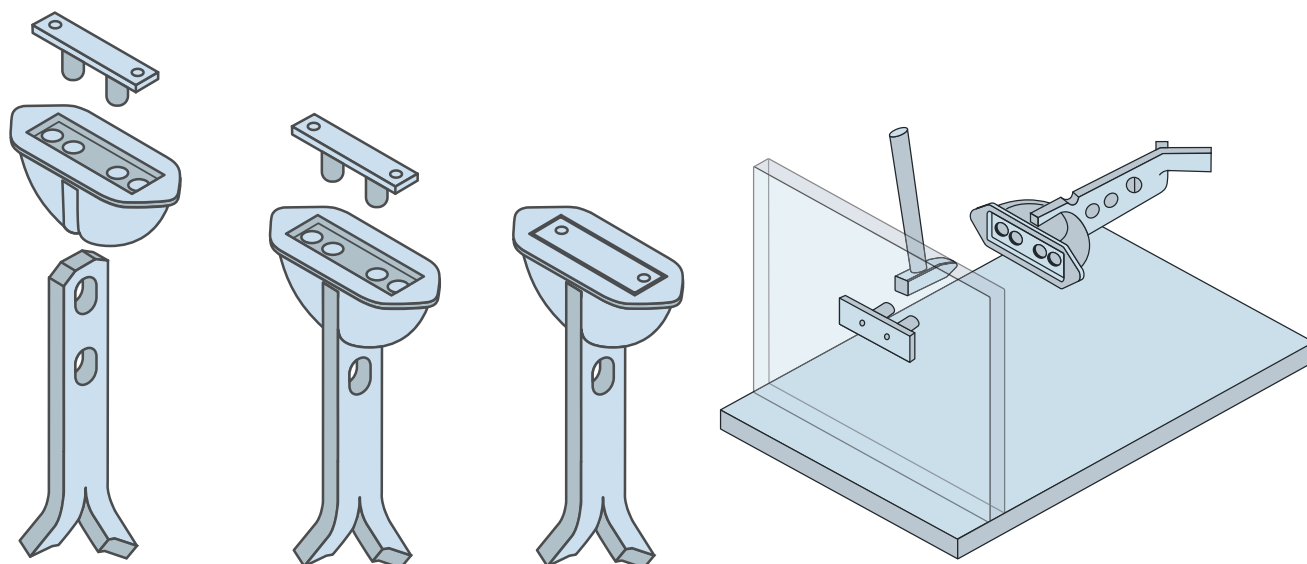
Holding Screw

For fastening of the recess former through the formwork.

Load Group	i (mm)	m (mm)
2.5	160	M8
5.0	160	M8
10.0	160	M12
26.0	180	M16



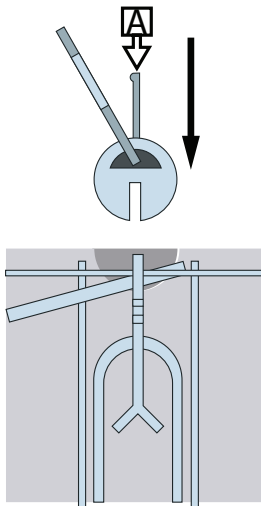
Installation



Use of Quick Lift Ring Clutch

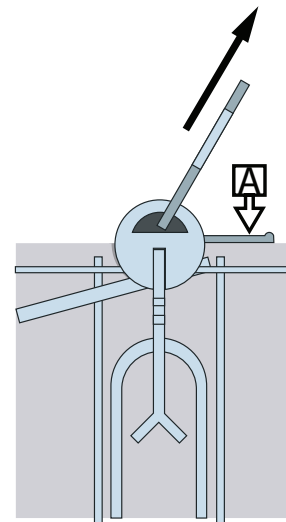
1. Engagement

Quick lift clutch is inserted into the recess formed in the concrete and the locking bolt A is closed manually. When closing the locking bolt it must be ensured that the quick lift clutch is fully engaged and the locking bolt is flush with concrete surface.



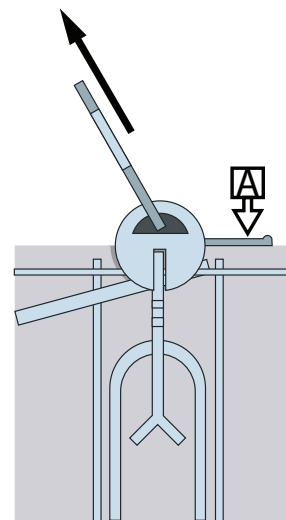
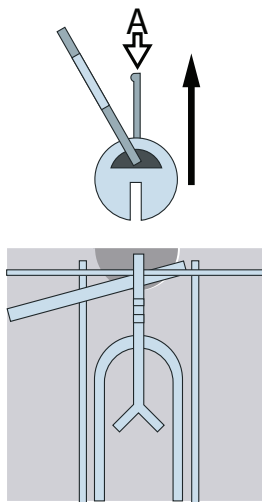
2. Lifting

The quick lift clutch system can be subjected to loads in any direction and no extra or special parts are required for angled lifts and tilting. It is essential to follow the instructions regarding rebars in concrete in section 3. Once the ring clutch has been engaged in the anchor, the shackle can move in any direction, even under load.



3. Release

To release the quick lift clutch from the lifting insert, shift the locking bolt back by hand. This will release the lifting clutch.



RWRA Lifting System

LIFTING SYSTEMS
CAST IN LOOP and other LIFTING SYSTEMS

RWRA Wire Rope Cast in Lifting Loops are one of the most economic lifting systems designed for lifting precast concrete units where the lifting points will be hidden once installed in its final position. It has a color coded tag that identifies the SWL of the loop. It is used for applications such as beams or big concrete elements where there is usually sufficient surrounding concrete.

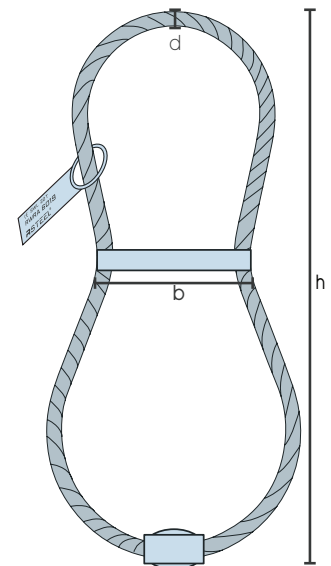
Salient features

- Economic and simple process for precast lifting.
- Requires no lifting clutch.
- Available in standard sizes up to 25 tons.
- Color coded tag for easy identification



Dimensions and loads of RWRA Cast in Loop Lifting System

Lifting Anchor	Load Class	Height	Width	Wire Diameter
	(kN)	h (mm)	b (mm)	d (mm)
RWRA 0,8	8,0	200	85	6
RWRA 1,2	12,0	225	90	7
RWRA 1,6	16,0	245	100	8
RWRA 2,0	20,0	265	125	9
RWRA 2,0	20,0	900	270	9
RWRA 2,5	25,0	285	140	10
RWRA 4,0	40,0	345	160	12
RWRA 5,2	52,0	390	180	14
RWRA 6,3	63,0	415	210	16
RWRA 8,0	80,0	460	220	18
RWRA 10,0	100,0	510	250	20
RWRA 12,5	125,0	570	280	22
RWRA 16,0	160,0	640	295	24
RWRA 20,0	200,0	715	320	28
RWRA 25,0	250,0	800	380	30



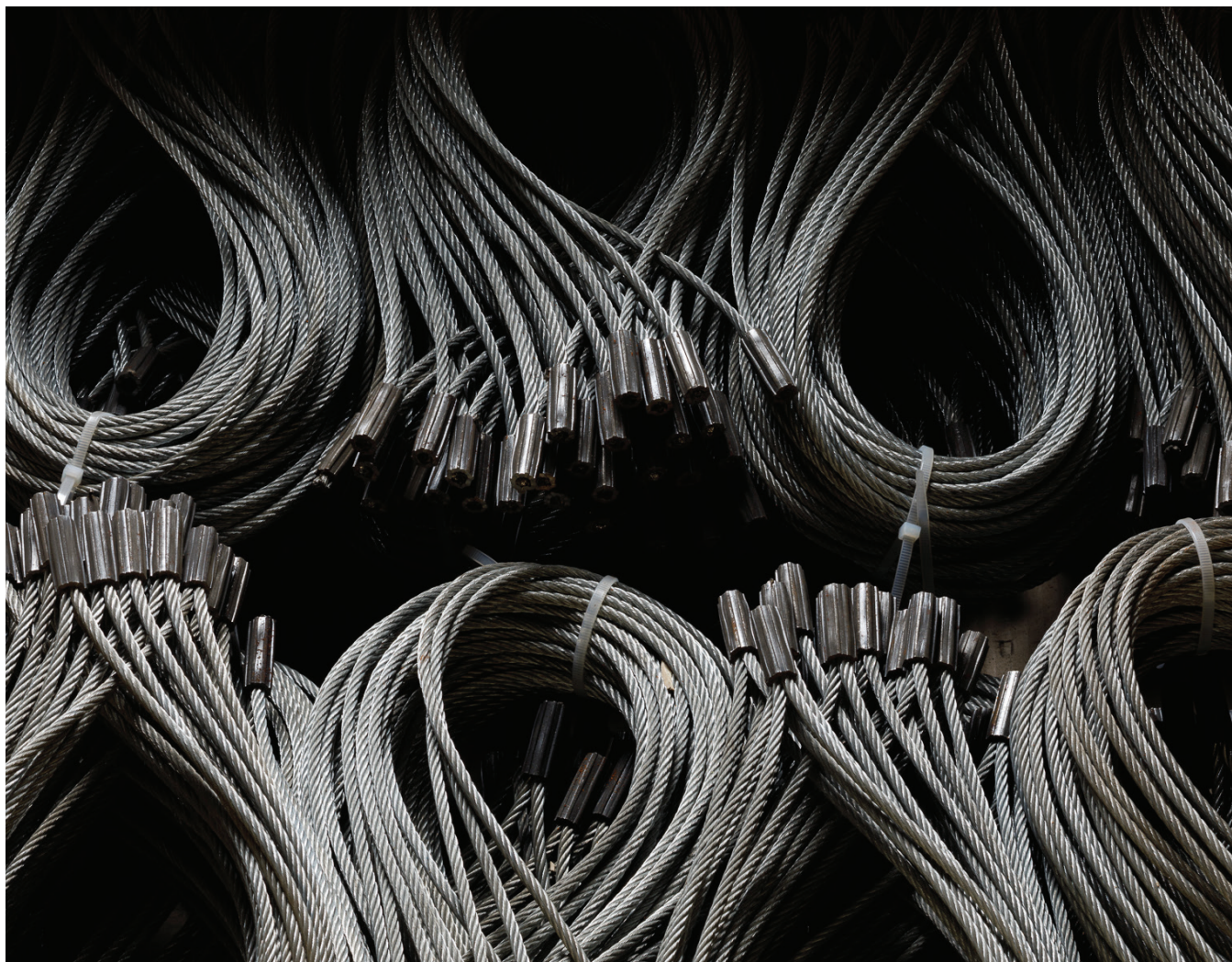
Approvals

- CE-marked

Notes

- European standard for ropes, replaces DIN 3060,3064,3066
- Dimension depends on wire rope stiffness
- Tolerance: $b < 130 = +5$; $b > 130 = +10$
- Rope type: EN 12385-4

Available for sale in specific markets only. For more details, please contact your RSTEEL® Area Sales Manager



2.

Wire Loops

2.1 Wire Loop Boxes

2.2 RSTEEL® Wire Loops

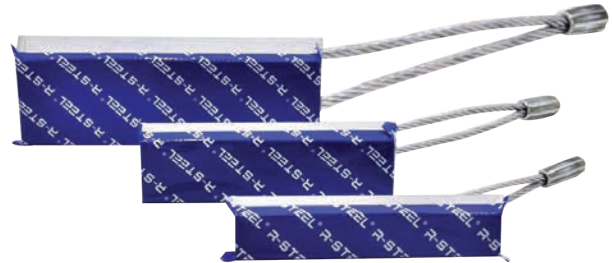
Wire Loop Boxes

WIRE LOOPS

Wire Loop Boxes manufactured by R-Group Finland Oy are steel parts consisting of a high strength steel wire and a steel box. RSTEEL® Wire Loop boxes are very easy to use on site. Our wire loop box range includes: Single wire loop boxes and Triple wire loop boxes.



RVL Single Wire
Loop Box



RVL-N Single Wire
Loop Box



R3L-wire loop

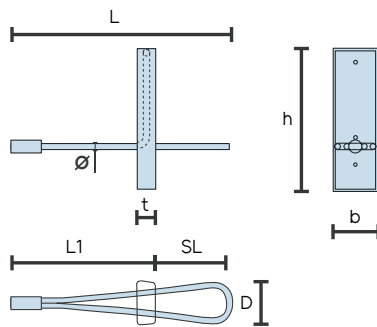
Salient features

- Triple Wire Loop Box offers unique solution for joining double walls to precast elements. Design resistances can be achieved in all directions.
- Highly efficient product available for both precast and cast in situ structure. It is mainly used in the connection of slabs, walls and columns.
- Standard wire lengths of 60 mm, 80 mm, 100 mm, 120 mm and 140 mm are available single wire loop and wire lengths of 80 mm and 100 mm are available for triple wire loop.
- The steel box and the wire rope are zinc coated and socket are electro zinced coated.
- **Hot Dip Galvanized version also available**
- **Double wire loop are available for sale only in specific markets.**

RVL Single Wire Loop Box

WIRE LOOPS

Dimensions of RVL Single Wire Loop



Wire Rope Loop	SL (mm) ±10	L (mm) ±20	L1 (mm) ±10	h (mm) ±2	b (mm) ±2	t (mm) ±2	Ø (mm) *	D (mm)
RVL 60	60	276	210	160	50	20	6	60
RVL 80	80	296	210	160	50	20	6	60
RVL 80/9	80	356	280	120	79	30	9	100
RVL 100	100	316	210	160	50	20	6	65
RVL 120	120	336	210	160	50	20	6	70
RVL 140/8	140	528	370	200	70	30	8	100
RVL 140/9	140	428	280	200	70	30	9	100

* according to SFS-EN 12385.

Thickness of the steel plate of the box is 0.5 mm.

On request 0.6 and 0.7 mm also available

Special version with 9 mm wire also available

RVL-N Single Wire Loop Box

Dimensions of RVL-N Single Wire Loop

Wire Rope Loop	SL (mm) ±10	L (mm) ±20	L1 (mm) ±10	h (mm) ±2	b (mm) ±2	t (mm) ±2	Ø* (mm)	D (mm)
RVL 60N	60	236	170	160	36	20	5	40
RVL 80N	80	256	170	160	36	20	5	45
RVL 140 N	140	310	170	160	36	20	5	50

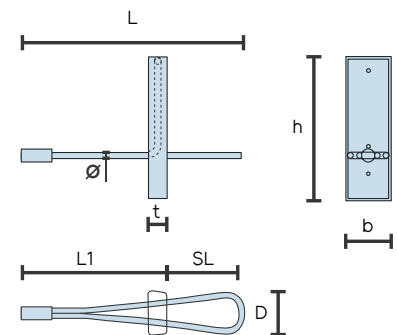
* according to SFS-EN 12385.

Thickness of the steel plate of the box is 0.5 mm.

On request 0.6 and 0.7 mm also available

Special version with 9 mm wire also available

For resistance please refer to technical manual.



RVL and RVL-N Single Wire Loop Materials and Standards

Ordering Code	Steel Box	Standard	Wire Rope	Standard	Compression Sleeve	Standard
RVL (60-140)	1.0330	SFS-EN 10130	High strength steel wire rope SE-Zn	SFS-EN 12385	1.0046	SFS-EN 10025
RVL (60-140)N	1.0330	SFS-EN 10130	High strength steel wire rope SE-Zn	SFS-EN 12385	1.0046	SFS-EN 10025

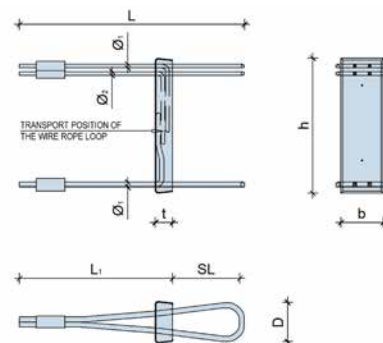
Approvals

► Finland: 5B-EC 2 8 M1 / 5B 402 (For RVL)

R3L - Wire Loop

Dimensions of R3L - Wire Loop

Product	SL (mm) ±10	L (mm) ±20	L1 (mm) ±10	h (mm) ±2	b (mm) ±2	t (mm) ±2	Ø ₁ (mm)	Ø ₂ (mm)	D (mm)
R3L Thin	80	296	210	180	50	20	6	5	60
	100	316	210	180	50	20	6	5	65
	120	336	210	180	50	20	6	5	70
R3L Wide	80	301	215	220	80	25	6	5	60
	100	321	215	220	80	25	6	5	60
	120	341	215	220	80	25	6	5	70



R3L - Wire Loop Materials and Standards

Ordering Code	Steel Box	Standard	Wire Rope	Standard	Compression Sleeve	Standard
R3L Thin/Wide (80-120)	SGCC	JIS G3302	High strength steel wire rope (fu=1770MPa)	GB/T 20118-2006 EN 12385-2.R-Wire	Q195	GB/T 701-2008

Approvals

► Finland: 5B-EC 2 135

RSTEEL® Wire Loops

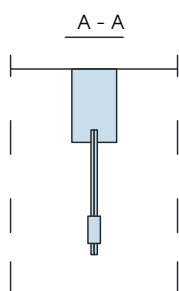
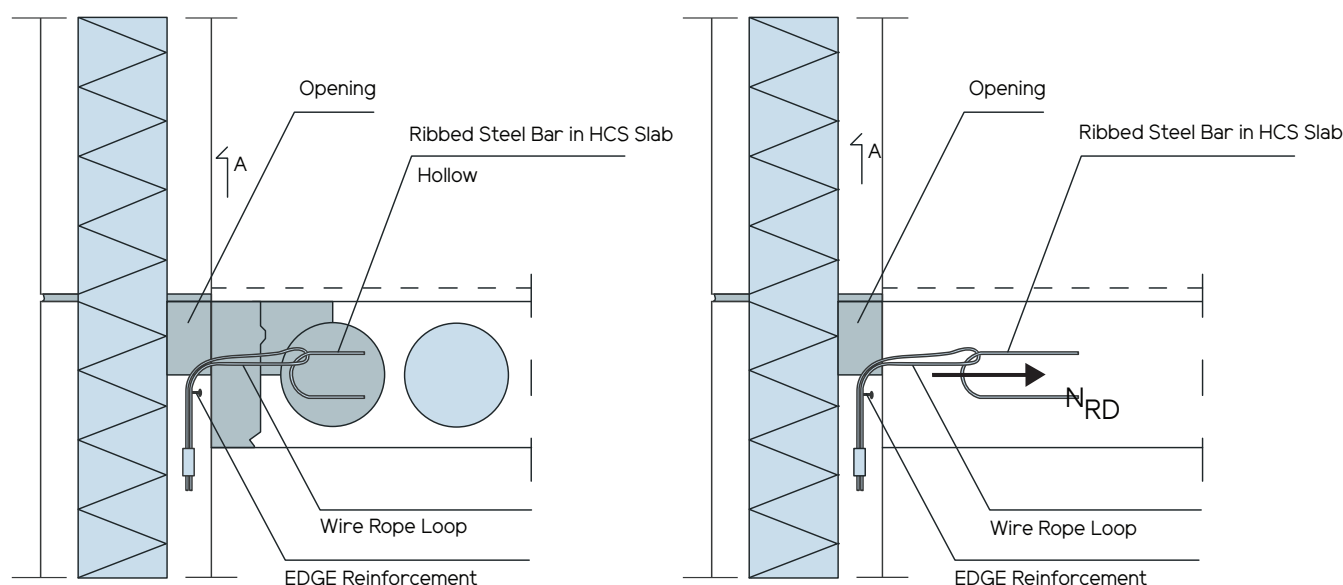
WIRE LOOPS

RSTEEL® Loops are steel parts installed to concrete before casting. In RSTEEL® Loop a flexible wire rope is bent to loop and held together by compression sleeve. RSTEEL® Loop may be used e.g. to tie concrete wall elements to the building frame with ribbed steel bars installed through the wire rope loop. It can be used as Pasi-loop and normal connection.

Dimensions of RSTEEL® Wire Loop

RSTEEL® Wire Loop	Wire Diameter
	Ø (mm)
RSTEEL® Wire Loop 6	6

Principles of using RSTEEL® Wire Loop



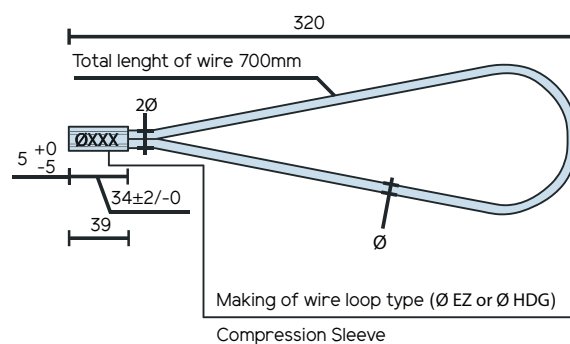
RSTEEL® Wire Loop Materials and Standards

Part	Material	Standard
Wire rope	high strength steel wire SE-Zn	SFS-EN 12385
Compression sleeve	1.0046	SFS-EN 10025



RSTEEL® Wire Loop Resistances

RSTEEL® Wire Loop	Resistance in ultimate limit state for horizontal force
	N_{RD} (kN)
RSTEEL® Wire Loop 5	4.8
RSTEEL® Wire Loop 6	6.1



RSTEEL® Loop surface treatment and ordering code

RSTEEL® Wire Loop	RSTEEL® Wire Loop surface treatment	Ordering code	Marking in compression sleeve
RSTEEL® Wire Loop 6	Electro zinced	RSTEEL® Wire Loop 6	6 EZ
RSTEEL® Wire Loop 6	Hot Dip Galvanized	RSTEEL® Wire Loop 6 HDG	6 HDG

Approvals

► Finland: 5B-EC 2 56 / 5B 367



3.

Fixing Inserts

RSTEEL® offers comprehensive range of fixing inserts.

- 3.1 RV Inserts
- 3.2 RVT Inserts
- 3.3 RVS Inserts

Salient features

- Cost effective fixing systems designed to ensure maximum safety.
- Fixings are available in various sizes and variations, with and without nailing plates.
- Plastic Stopper Caps are also available to protect threads from weathering and ingress of dirt or foreign matter.

RV Insert

FIXING INSERTS

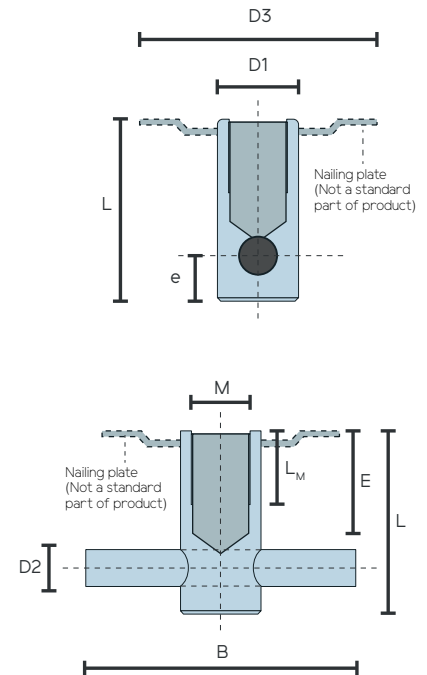
RV Inserts are inner thread inserts designed for attachment to concrete elements. Inserts anchor to concrete with the help of anchor pin which is attached to the body of the insert.

Dimensions and Tolerances of the RV Inserts

Insert Size	L (mm) ±1	M (mm) *	LM (mm) +2/-0	E (mm) ±1	D1 (mm) **	D2 (mm) **	B (mm) ±1	e (mm) ±1	D3 (mm) ±1
M 10x45	45	10	20	26	15	6	50	5	34
M 10x50	50	10	20	26	15	8	60	10	34
M 10x60	60	10	20	32	15	8	60	12.5	34
M 12x50	50	12	24	32	18	8	60	10	40
M 12x70	70	12	24	34	18	10	75	15	40
M 16x50	50	16	28	31	24	8	60	10	44
M 16x70	70	16	32	40	24	10	75	15	44
M 16x90	90	16	32	40	24	10	75	15	44
M 20x100	100	20	35	45	28	12	85	25	48
M 24x120	120	24	45	60	34	15	110	30	57
M 24x150	150	24	45	60	34	15	110	30	57

* Thread tolerance 6H

** According to the measurement standard of the material
For resistances, please refer to the technical manual



RV Inserts Materials and Standards

Ordering code	Anchor Pin	Standard	Inner thread	Standard	Type
RV	S235JR+AR / C45	SFS-EN 10025 SFS-EN 10250	S235JR+AR / C45	SFS-EN 10025 SFS-EN 10250	Electro zinc and yellow passivated
RVr	1.4301 / A2	SFS-EN 10088 EN ISO 3506	1.4301 / A2	SFS-EN 10088 EN ISO 3506	Stainless

In all inserts types, The nailing plate is the same material as the insert

Approvals

► Finland: 5B-EC 2 44

Notes

- RV Inserts are designed for concrete strengths C16/20, C20/25, C25/30, C30/37, C34/35 and C40/50.
- If the RV insert is used in extremely cold environment (less than -25°C), the necessary reliability against breaking must be separately checked.

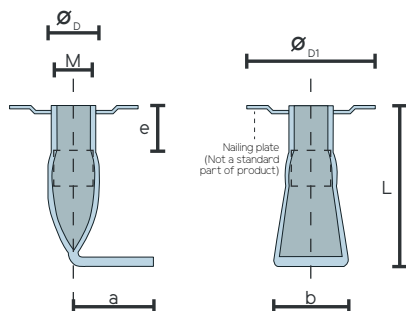


RVT Insert

FIXING INSERTS

RVT Inserts are bent inner thread sockets installed to concrete before casting. These Inserts anchor to concrete with compression between concrete and the bend at the bottom of the insert. The product has been designed for concrete C16/20 and C25/30

Dimensions and Tolerances of the RVT Insert



* Thread tolerance 6H (metric thread)
For resistances, please refer to the technical manual.

Insert Size	M (mm) 1	L (mm) ±1	Ø _b (mm) ±0.1	e (mm) ±1	a (mm) ±1	b (mm) ±1	Ø _{D1} (mm) ±0.1
RVT M8x50	8	50	11	8	20	15	30
RVT M10x45	10	45	13	13	25	18	34
RVT M10x60	10	60	13	13	25	18	34
RVT M12x45	12	45	16	14	25	23	40
RVT M12x50	12	50	16	14	25	23	40
RVT M12x70	12	70	16	24	30	23	40
RVT M16x50	16	50	22	19	30	31	44
RVT M16x60	16	60	22	19	30	31	44
RVT M16x100	16	100	22	19	35	31	44
RVT M20x80	20	80	27	24	30	38	48
RVT M20x100	20	100	27	24	35	38	48
RVT M24x100	24	100	32	28	30	45	52

RVT Inserts Materials and Standards

Ordering code	Insert	Standard	Type
RVT	S235JR+AR	SFS-EN 10025	Electro zincd yellow passivated
RVTr	1.4301	SFS-EN 10088	Stainless
RVTh	1.4401	SFS-EN 10088	Acid resistant

Approvals

► Finland: 5B-EC 2 90



RVS Insert

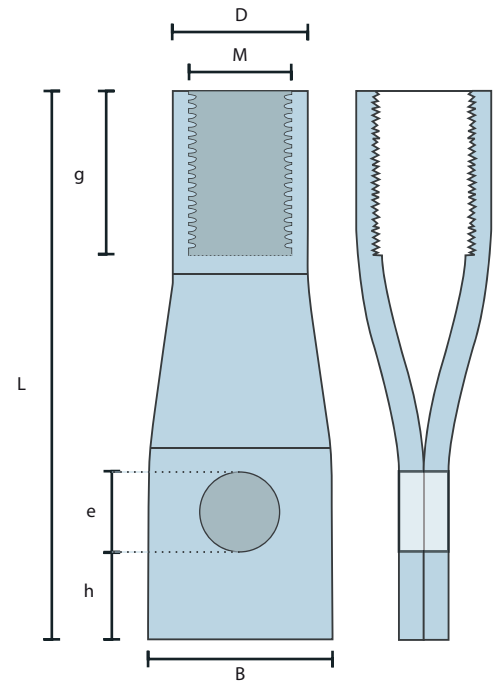
FIXING INSERTS

RVS Insert is used for the fixing and transporting of light precast concrete units. A reinforcement bar has to be inserted through the cross holes thus a safe transmission of the static forces into the concrete is guaranteed.

Dimensions and Tolerances of the RVS Insert

Insert Size	M (mm)	D (mm) 1	g (mm) ±1	L (mm) +4/-0	B (mm) ±1	h (mm) ±1	e (mm) +1/-0
RVS 8x50	M8	12	6	50	15	4.53	8.3
RVS 10x50	M10	14	16	50	20	10	10
RVS 12x60	M12	16	22	60	23	10	10
RVS 14x80	M14	20	25	80	28	12	14
RVS 16x90	M16	22	27	90	30	15	14
RVS 20x95	M20	28	35	95	39	23	16
RVS 24x105	M24	32	43	105	45	26	18
RVS 27x125	M27	35	48	125	48	26	20
RVS 30x140	M30	40	56	140	56	30	20

Dimensions and safe working loads at concrete strength of 25 N/mm²



RVS Inserts Materials and Standards

Ordering code	Insert	Standard	Type
RVS	E355	SFS-EN 10305	Electro zincd yellow passivated
RVSr	1.4301	SFS-EN 10088	Stainless
RVSh	1.4401	SFS-EN 10088	Acid resistant





4.

Fastening Systems

Fastening products are standard steel components embedded in concrete for connecting steel or precast elements by welding. It develops its load resistance by virtue of anchorage provided by studs or bars welded to steel plate.

Improved RBKL, KL, RJKL plates and RT steel parts under UNITED Fastening Plates project.

United Fastening plates was a project together with other Finnish precast accessories suppliers. All the participating manufacturers now offer the RBKL, KL, RJKL plates and RT standard steel parts with the same capacities and they are changeable between the manufacturers.

Advantages

- Improved Capacities
- User guides updated as per Finland's best industry experts
- Standardized Sizes and features
- Easies the job done in element factory.

Fastening Plates

FASTENING SYSTEMS

RSTEEL® fastening products are categorized into the following types based on their area of application and load carrying capacities.



RBKL Fastening Plates



KL Fastening Plates



RJKL Fastening Plates

Standard Steel Parts

FASTENING SYSTEMS

- Wide array of fastening plates
- Used in attachment of concrete elements.

RT Non-Standard Steel Parts



15/16



25/26



36/37

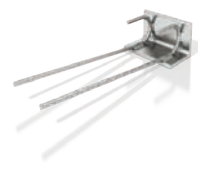


39E



43/45/46

RT Standard Steel Parts



23/24



38



44



39

Salient features

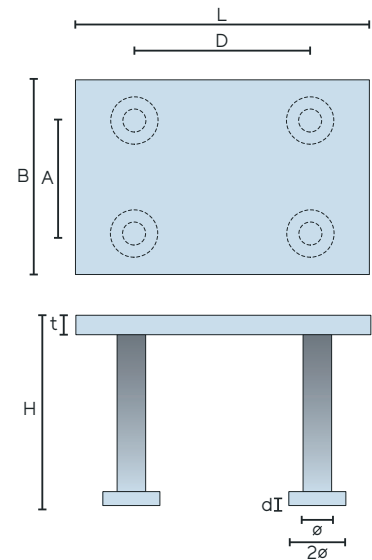
- Both Hot Dip Galvanized as well as Epoxy coated are available.
- Load capacities ranging from 0.5 to 12.5 Tons.
- All plates available in steel, stainless steel, and acid resistant materials.
- Fastening plates are marked with KIWA control mark, the emblem of R-Group Baltic OÜ, the type of the fastening plate and production date.
- All plain steel plates come with painting to prevent rusting at the warehouse and at the site.
- RSTEEL® fastening plates are tested, approved and, in terms of load resistance, designed according to Eurocodes.
- RSTEEL® also provides tailor made fastening products as per customers requirements.
- Fastening plates S235JR+AR have a 40 µm protective painting on top surface and on sides.
- Plates 1.4301 and 1.4401 have no surface coating.
- Resistances are calculated for concrete C25/30.
- Resistances take into account the manufacturing tolerances and an assembly tolerance of ± 15 mm.
- Dimensioning for dynamic loads must be done separately

RBKL Fastening Plates

FASTENING SYSTEMS

Dimensions and resistances of RBKL Fastening Plate

RBKL BxL (mm)	H (mm)	A (mm)	D (mm)	t (mm)	Ø (mm)	2Ø (mm)	d (mm)
RBKL 50x100	68	-	60	8	10	19	7
RBKL 50x100	108	-	60	8	10	19	7
RBKL 100x100	68	60	60	8	10	19	7
RBKL 100x100	108	60	60	8	10	19	7
RBKL 100x150	70	60	90	10	10	19	7
RBKL 100x150	110	60	90	10	10	19	7
RBKL 100x200	72	70	120	12	13	25	8
RBKL 100x200	112	70	120	12	13	25	8
RBKL 100x200	162	70	120	12	13	25	8
RBKL 100x300	165	60	180	15	16	32	8
RBKL 150x150	70	90	90	10	10	19	7
RBKL 150x150	110	90	90	10	10	19	7
RBKL 150x150	162	90	90	12	13	25	8
RBKL 200x200	72	120	120	12	13	25	8
RBKL 200x200	112	120	120	12	13	25	8
RBKL 200x200	162	120	120	12	16	32	8
RBKL 200x300	165	120	120	15	16	32	8
RBKL 250x250	165	170	170	15	16	32	8
RBKL 300x300	165	180	180	15	16	32	8



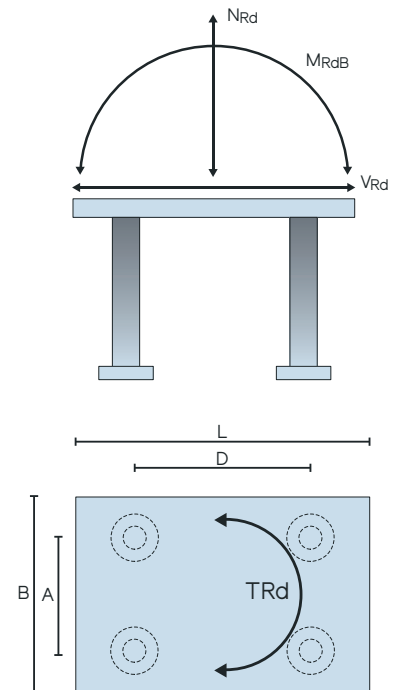
RBKL Fastening Plate Materials and Standards

Ordering Code	Plate	Plate Standard	Anchor	Standard	Type
RBKL	S355J2+N	SFS-EN10025	SD1	SFS-EN ISO 13918	Plain Steel
RBKLr	1.4301	SFS-EN10088	SD1	SFS-EN ISO 13918	Stainless
RBKLH	1.4401	SFS-EN10088	SD1	SFS-EN ISO 13918	Acid Resistant
RBKLrr	1.4301	SFS-EN10088	SD3	SFS-EN ISO 13918	Entirely stainless
RBKLHrr	1.4401	SFS-EN10088	SD3	SFS-EN ISO 13918	Acid Resistant + Stainless

Hot Dip Galvanized and Epoxy versions also available

Resistances of RBKL Fastening Plate

RBKL BxL (mm)	H (mm)	N_{Rd} (kN)	V_{Rd} (kN)	M_{RdL} (kNm)	M_{RdB} (kNm)	T_{Rd} (kNm)
RBKL 50x100	68	12,71	25,43	0,74	0,28	0,7
RBKL 50x100	108	32,37	32,99	1,84	0,56	0,91
RBKL 100x100	68	16,53	33,07	0,98	0,98	1,29
RBKL 100x100	108	38,25	65,97	2,34	2,34	2,57
RBKL 100x150	70	19,53	39,06	1,57	1,17	1,98
RBKL 100x150	110	42,46	65,97	3,73	2,68	3,34
RBKL 100x200	72	23,06	46,11	2,26	1,43	3,05
RBKL 100x200	112	47,47	94,94	5,27	3,16	6,27
RBKL 100x200	162	75,85	111,50	8,85	5,13	7,36
RBKL 100x300	165	84,04	168,08	13,82	5,58	15,42
RBKL 150x150	70	21,93	43,86	1,78	1,78	2,64
RBKL 150x150	110	45,96	65,97	4,12	4,12	3,97
RBKL 150x150	162	74,63	111,50	6,94	6,94	6,70
RBKL 200x200	72	27,54	55,08	2,72	2,72	4,48
RBKL 200x200	112	53,76	107,53	6,10	6,10	8,74
RBKL 200x200	162	83,04	166,08	10,12	10,12	13,51
RBKL 200x300	165	93,62	168,89	15,83	11,60	17,68
RBKL 250x250	165	100,04	168,89	15,04	15,04	19,71
RBKL 300x300	165	103,21	168,89	17,62	17,62	20,90



Approvals

- Finland: 5B EC2 50

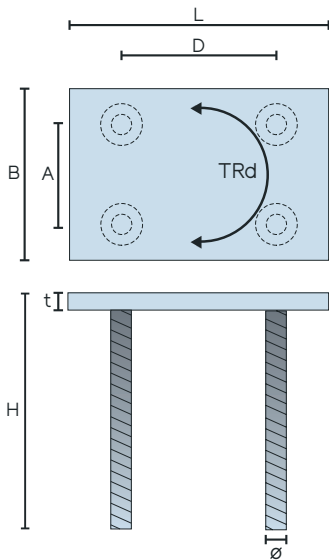
For single load effects for cracked C25/30 concrete without additional reinforcement and without considering the effect of edge distances.



eesti betooniühing

KL Fastening Plates

FASTENING SYSTEMS



Dimensions of KL Fastening Plate

KL BxL (mm)	H (mm)	A (mm)	D (mm)	t (mm)	Ø (mm)
KL 50x100	218	-	60	8	12
KL 100x100	218	60	60	8	12
KL 100x150	220	60	90	10	12
KL 150x150	222	90	90	12	16
KL 100x200	222	60	120	12	16
KL 200x200	312	120	120	12	20
KL 250x250	315	150	150	15	20
KL 100x300	315	60	180	15	20
KL 200x300	315	120	180	15	20
KL 300x300	315	180	180	15	20

KL Fastening Plate Materials and Standards

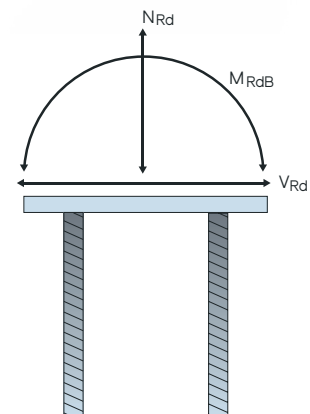
Ordering Code	Plate	Plate Standard	Anchor	Anchor Standard	Type
KL	S355J2+N	SFS-EN10025	B500B / BSt 500 S	SFS 1300	Plain steel
KLR	1.4301	SFS-EN10088	B500B / BSt 500 S	SFS 1300	Stainless
KLH	1.4401	SFS-EN10088	B500B / BSt 500 S	SFS 1300	Acid resistant

Hot Dip Galvanized and Epoxy versions also available



Resistances of KL Fastening Plate

KL BxL (mm)	H (mm)	N _{Rd} (kN)	V _{Rd} (kN)	M _{RdL} (kNm)	M _{RdB} (kNm)	T _{Rd} (kNm)
KL 50x100	218	15.3	17.6	0.7	1.4	0.7
KL 100x100	218	39.6	35.1	2.8	2.8	2.1
KL 100x150	220	45.2	35.1	3.0	4.6	2.7
KL 150x150	222	73.4	71.3	6.7	6.7	5.8
KL 100x200	222	58.9	62.4	3.7	7.7	6.1
KL 200x200	312	158.2	119.5	16.7	16.7	12.3
KL 250x250	315	195.8	124.9	24.9	24.9	15.4
KL 100x300	315	110.3	97.5	6.3	19.9	13.8
KL 200x300	315	170.3	119.5	17.6	26.8	15.8
KL 300x300	315	207.9	128.6	31.1	31.1	18.6



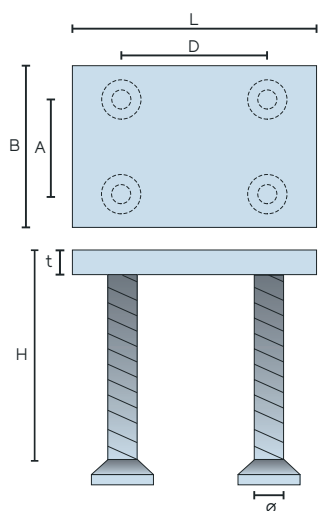
Approvals

► Finland: 5B EC2 51

For single load effects for cracked C25/30 concrete without additional reinforcement and without considering the effect of edge distances

RJKL Fastening Plates

FASTENING SYSTEMS



Dimensions of RJKL Fastening Plate

RJKL LxB (mm)	H (mm)	A (mm)	D (mm)	t (mm)	Ø (mm)
RJKL 150x150	220	90	90	25	16
RJKL 150x150	285	90	90	25	16
RJKL 150x200	220	120	100	25	20
RJKL 150x200	355	120	100	25	20
RJKL 150x250	220	190	100	25	20
RJKL 150x250	355	190	100	25	20
RJKL 200x200	220	120	120	25	20
RJKL 200x200	355	120	120	25	20
RJKL 200x250	220	190	120	25	20
RJKL 200x250	355	190	120	25	20
RJKL 200x300	280	200	120	25	25
RJKL 200x300	435	200	120	25	25
RJKL 250x250	220	190	190	25	20
RJKL 250x250	355	190	190	25	20
RJKL 300x300	280	200	200	25	25
RJKL 300x300	435	200	200	25	25
RJKL 300x500	280	133	200	30	25
RJKL 300x500	435	133	200	30	25
RJKL 400x400	280	300	300	30	25
RJKL 400x400	435	300	300	30	25
RJKL 500x500	280	400	400	30	25
RJKL 500x500	435	400	400	30	25
RJKL 600x600	280	500	500	30	25
RJKL 600x600	435	500	500	30	25

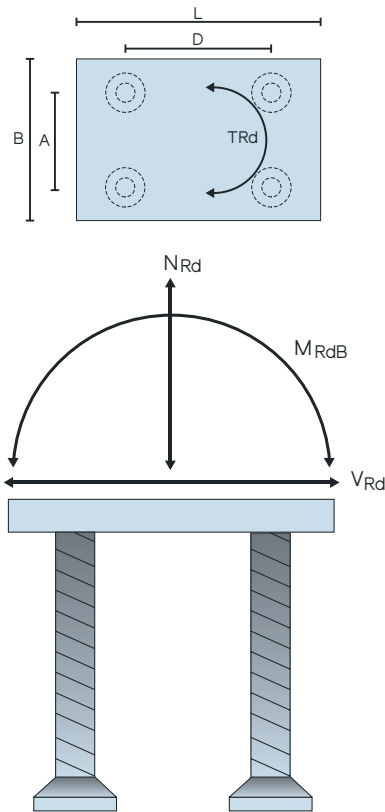
RJKL Fastening Plate Materials and Standards

Ordering Code	Plate	Plate Standard	Anchor	Anchor Standard	Type
RJKL	S355J2+N+Z15	SFS-EN10025 + SFS-EN10164	B500B	SFS 1300	Uncoated
RJKLR	1.4301+Z15	SFS-EN10088 + SFS-EN10164	B500B	SFS 1300	Stainless
RJKLH	1.4401+Z15	SFS-EN10088 + SFS-EN10164	B500B	SFS 1300	Acid Resistant

Hot Dip Galvanized and Epoxy versions also available



Resistances of RJKL Fastening Plate



RJKL LxB (mm)	H (mm)	N_{Rd} (kN)	V_{Rd} (kN)	M_{RdL} (kNm)	M_{RdB} (kNm)	T_{Rd} (kNm)
RJKL 150x150	220	112,9	143,2	10,34	10,34	8,36
RJKL 150x150	285	153,6	143,2	14,13	14,13	8,36
RJKL 150x200	220	116,9	229,1	11,50	14,31	17,09
RJKL 150x200	355	223,8	229,1	20,69	25,87	17,09
RJKL 150x250	220	127,8	236,1	12,74	20,25	24,55
RJKL 150x250	355	237,3	236,1	22,73	37,96	24,55
RJKL 200x200	220	120,1	235,5	15,06	15,06	19,15
RJKL 200x200	355	227,7	235,5	27,86	27,86	19,15
RJKL 200x250	220	131,3	239,2	16,63	21,16	26,05
RJKL 200x250	355	241,5	239,2	30,35	40,17	26,05
RJKL 200x300	280	177,7	355,4	23,00	33,39	40,23
RJKL 200x300	435	316,8	374,9	39,87	59,81	42,44
RJKL 250x250	220	143,6	249,5	23,30	23,30	32,64
RJKL 250x250	355	256,1	249,5	43,39	43,39	32,64
RJKL 300x300	280	193,1	386,2	37,01	37,01	53,25
RJKL 300x300	435	335,0	391,8	66,02	66,02	54,02
RJKL 300x500	280	231,3	462,6	44,97	94,08	50,84
RJKL 300x500	435	380,4	742,8	77,35	155,43	81,64
RJKL 400x400	280	233,4	404,5	58,16	58,16	84,39
RJKL 400x400	435	382,1	404,5	102,95	102,95	84,39
RJKL 500x500	280	277,6	411,2	82,33	82,33	114,84
RJKL 500x500	435	432,4	411,2	143,42	143,42	114,84
RJKL 600x600	280	325,6	415,2	109,54	109,54	145,33
RJKL 600x600	435	485,7	415,2	187,63	187,63	145,33

Approvals

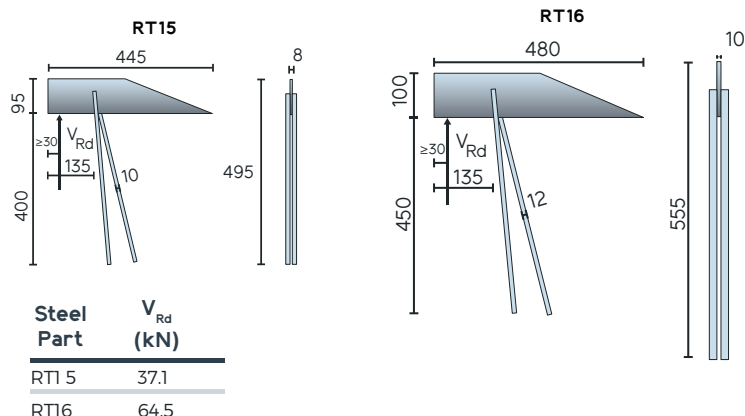
- Finland: 5B EC2 52

For single load effects for cracked C25/30 concrete without additional reinforcement and without considering the effect of edge distances

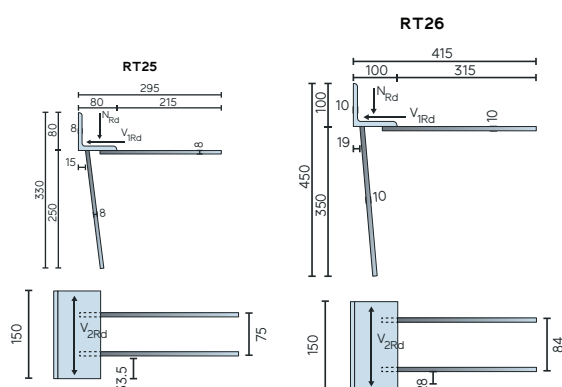
RT Non-Standard Steel Parts

FASTENING SYSTEMS

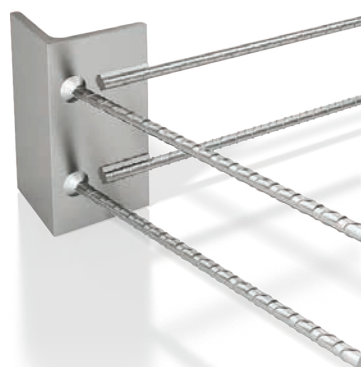
RT 15 / RT 16 Panel Element Support



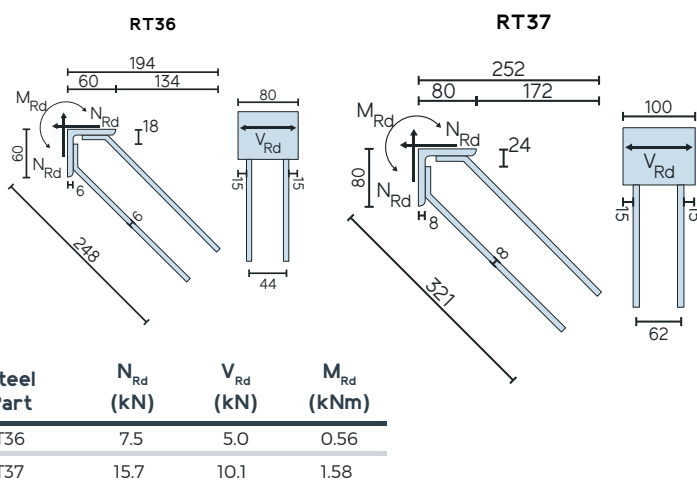
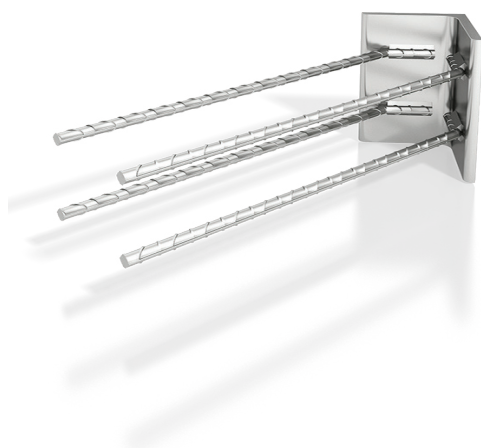
RT 25 / RT 26 Panel Element Counter-support



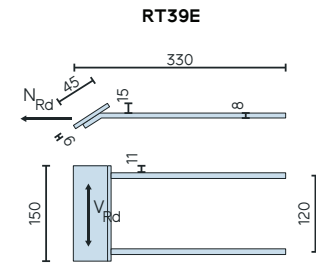
Steel Part	N_{Rd} (kN)	V_{1Rd} (kN)	V_{2Rd} (kN)
RT25	90.6	16.3	7.5
RTR25	83.1	13.2	7.5
RT26	121.5	25.5	12.4
RTR26	112.1	20.6	12.4



RT 36 / RT 37 Corner Fixing Insert



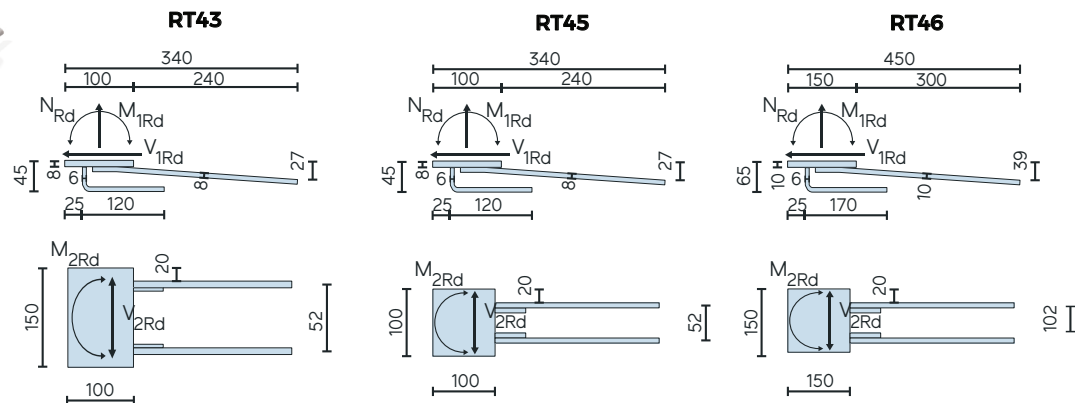
RT 39E Edge Fixing Insert for a TT Slab



Steel Part	N_{Rd} (kN)	V_{Rd} (kN)
RT39E	12.7	11.9



RT 43 / RT 45 / RT 46 Edge Fixing Insert



Steel Part	N_{Rd} (kN)	V_{1Rd} (kN)	V_{2Rd} (kN)	M_{1Rd} (kNm)	M_{2Rd} (kNm)
RT43	7.62	26.0	8.66	0.24	0.73
RT45	5.99	20.5	6.8	0.19	0.57
RT46	8.60	43.49	13.53	0.38	1.81

RT Steel Parts Materials and Standards

Ordering code	Plate	Standard	Angle plate	Standard	Ribbed Steel Bar	Standard	Type
RT	S235JR+AR/ S355J2+N	SFS-EN 10025	S235J2+N	SFS-EN 10025	B500B	SFS 1300	Plain Steel
RTR	1.4301	SFS-EN 10088	1.4301	SFS-EN 10088	B500B	SFS 1300	Stainless
RTRr	1.4301	SFS-EN 10088	1.4301	SFS-EN 10088	B600XB	SFS 1259	Entirely Stainless
RTH	1.4401	SFS-EN 10088	1.4401	SFS-EN 10088	B500B	SFS 1300	Acid Resistant

Approvals

- Finland: 5B-EC 2 85
- Please note that approval doesn't cover RTR46

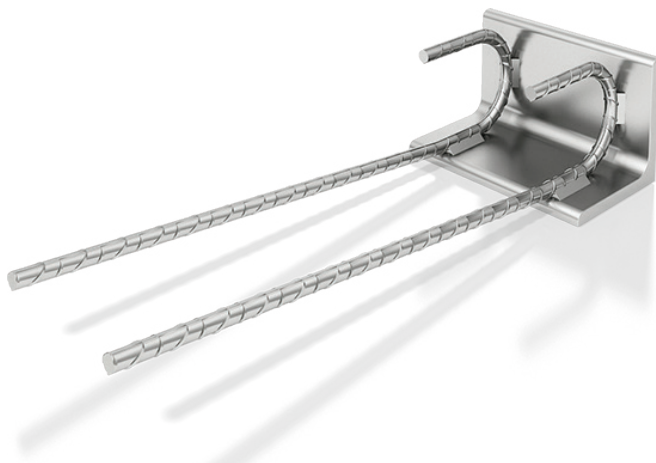
Hot Dip Galvanized and Epoxy versions also available on request



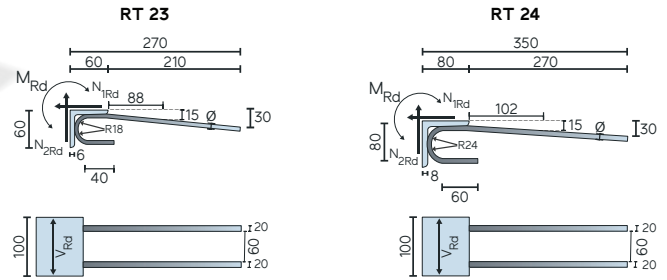
eesti betooniühing

RT Standard Steel Parts

FASTENING SYSTEMS



RT 23 / RT 24 Edge Fixing Insert



Resistances of RT 23 Steel Parts

Steel Part	N_{1Rd} (kN)	N_{2Rd} (kN)	V_{Rd} (kN)	M_{Rd} (kNm)
RT, RTR	14.2	4.5	6.8	0.6
RTRr	12.2	3.4	5.1	0.6

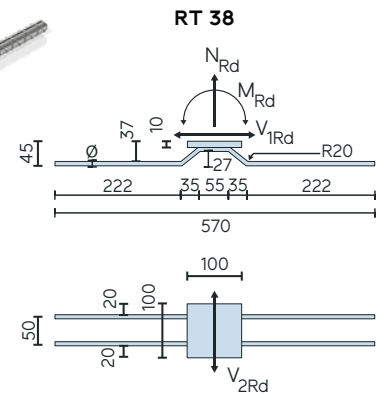
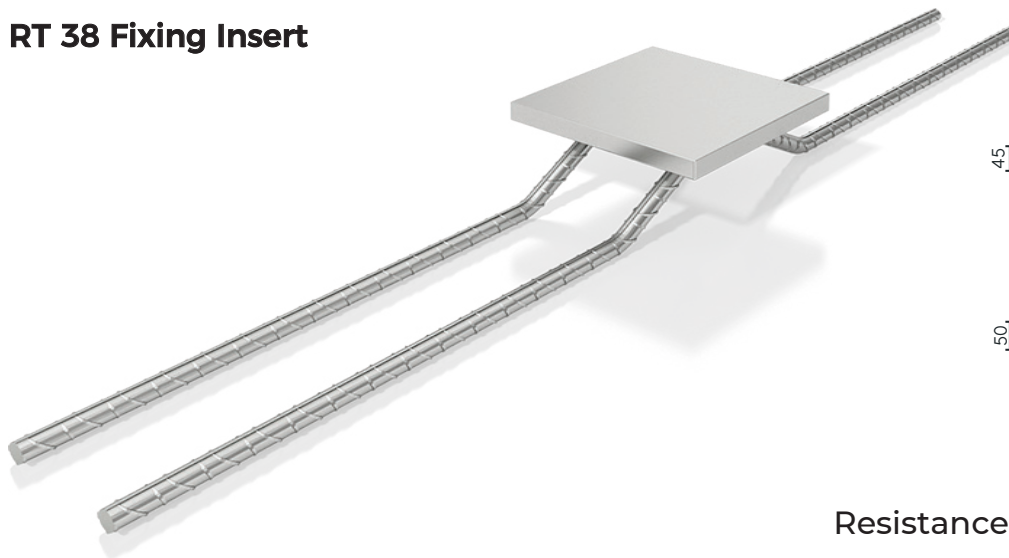
RT 23, RTR 23: $\phi = 6$ mm
RTRr 23: $\phi = 5$ mm

Resistances of RT 24 Steel Parts

Steel Part	N_{1Rd} (kN)	N_{2Rd} (kN)	V_{Rd} (kN)	M_{Rd} (kNm)
RT, RTR	24.2	8.0	12.0	1.4
RTRr	21.6	6.7	10.1	1.3

RT 24, RTR 24: $\phi = 8$ mm
RTRr 24: $\phi = 7$ mm

RT 38 Fixing Insert



Resistances of RT 38 Steel Parts

Steel Part	N_{Rd} (mm)	V_{1Rd} (mm)	V_{2Rd} (mm)	M_{Rd} (mm)
RT	14.4	16.2	6.8	0.6
RTR	13.0	14.5	5.7	0.6

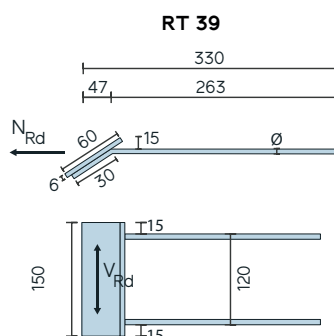
RT 38, RTR 38: $\phi = 8$ mm
RTRr 38: $\phi = 7$ mm

Min fastening area: 44mm x 44mm

RT 39 Steel Parts

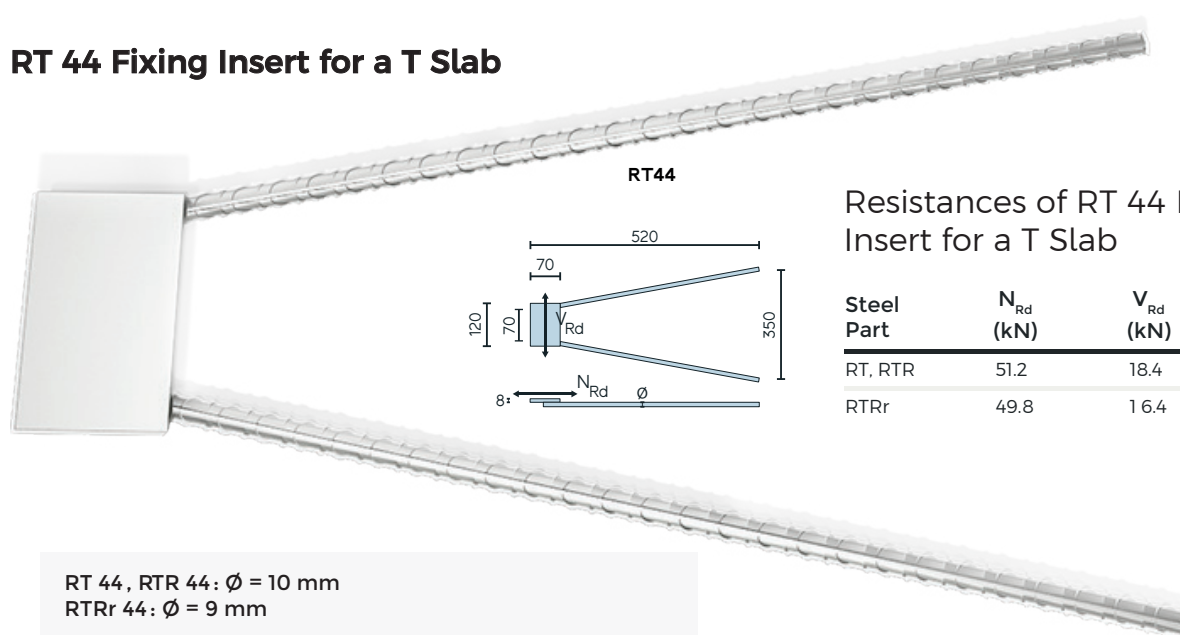
Resistances of RT 39 Steel Parts

Steel Part	N_{Rd} (kN)	V_{Rd} (kN)
RT, RTR	13.5	11.8
RTRr	11.8	9.9



RT 39, RTR 39: $\phi = 8$ mm
RTRr 39: $\phi = 7$ mm

RT 44 Fixing Insert for a T Slab



Resistances of RT 44 Fixing Insert for a T Slab

Steel Part	N_{Rd} (kN)	V_{Rd} (kN)
RT, RTR	51.2	18.4
RTRr	49.8	16.4

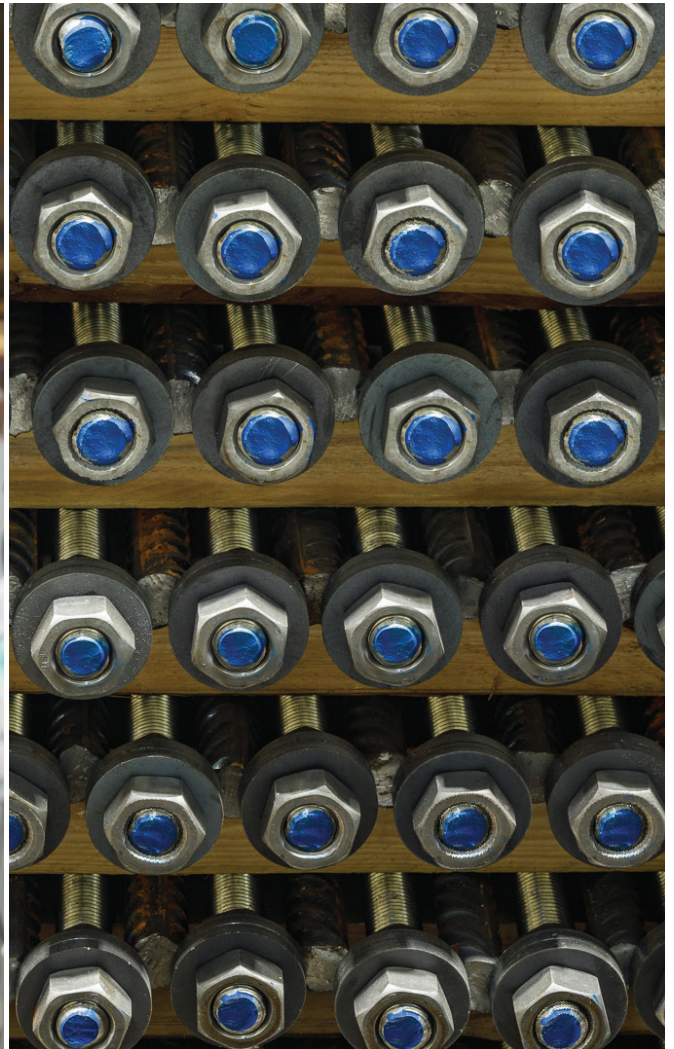
RT 44, RTR 44: $\phi = 10$ mm
RTRr 44: $\phi = 9$ mm

RT Steel Parts Materials and Standards

Ordering code	Plate	Standard	Ribbed Steel Bar	Standard
RT	S2355JR+AR/S355J2+N	SFS-EN 10025	B500B/ BSt 500 S	SFS 1300
RTR	1.4301	SFS-EN 10088	B500B/ BSt 500 S	SFS 1300
RTRr	1.4301	SFS-EN 10088	B600XB / B600XC	SFS 1259

Approvals

► Finland: 5B EC2 53



5.

Bolts & Shoes

Bolt connections are fastening elements used to connect precast building components such as beams, columns and walls to adjoining elements or foundations. Prefabricated system with bolt connection is a convenient, safe and quick option due to its rapid assembly. The connection is simple to adjust and immediately load bearing.

RSTEEL® offers high quality robotic welded anchor bolts, column shoes, and wall shoes for safe and easy installations.

There are three types of Bolts and shoes offered by RSTEEL®

5.1 RPP and RPP-E Base Bolts

5.2 RPK-N3, RPK-E3 and RPK-E5 Column Shoes

5.3 RSK-N and RSK-E Wall Shoes

RPP and RPP-E Base Bolts

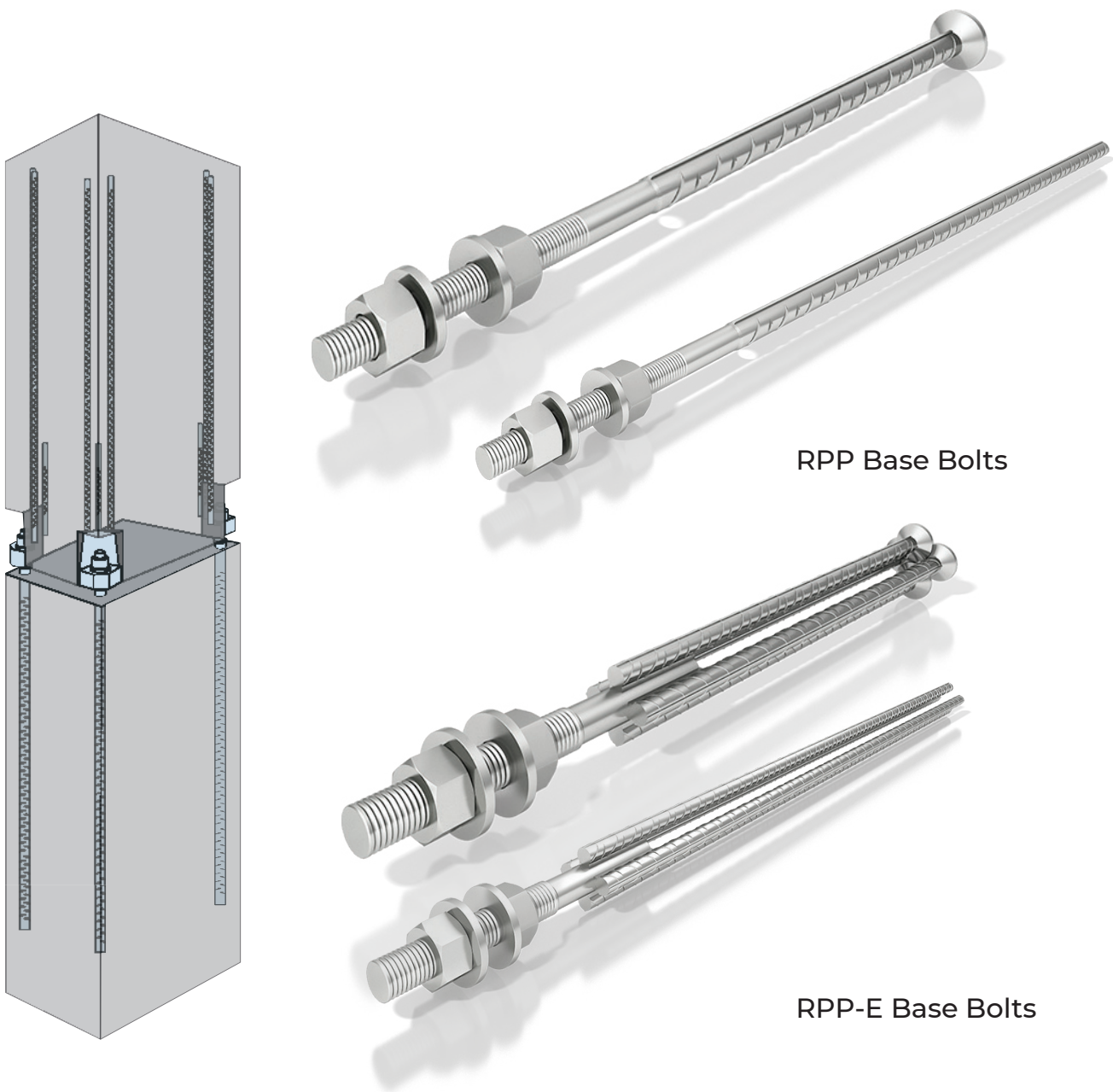
BOLTS AND SHOES

RPP Bolts are Anchor bolts used for moderate loads and RPP-E Bolts are used for high loads.

The product range consists of:

Headed Anchor Bolts (RPP-L and RPP-E-L) short stud-headed anchor bolts used as basic bolts suitable for use as foundation anchor connections.

Straight Anchor Bolts (RPP-P and RPP-E-P) long anchor bolts with ribbed bars used as overlapping bolts suitable for forming continuous columns which have been prepared as independent precast components.



RPP Base Bolts

RPP-E Base Bolts

RPP Base Bolts

BOLTS AND SHOES

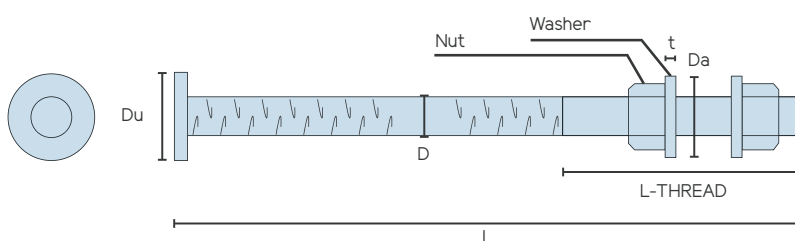
Base bolts transfer tension, compression and shear forces to reinforced concrete foundation structures. Tension and compression forces are transferred by anchorage of the ribbed rebars, and by bearing onto anchorage plates. Shear forces are transferred to the concrete by bearing onto the shank of the bolt.

It can be provided with Hot Dip Galvanized finish on request.



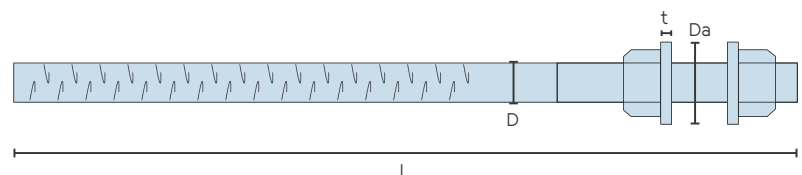
Dimensions of RPP Base Bolt

Base Bolt	Size	Thread		Bar		Washer	RPP-P		RPP-L		Color
		I-Thread (mm)	Net Tensile Area (mm ²)	D (mm)	Du (mm)	Da/t (mm)	L (mm)	Weight (kg)	L (mm)	Weight (kg)	
RPP M16	16	140	157	16	38	38/6	810	1.7	280	0.9	Yellow
RPP M20	20	140	245	20	46	46/6	960	2.9	350	1.4	Blue
RPP M24	24	170	352	25	55	55/6	1160	4.9	430	2.2	Grey
RPP M30	30	190	561	32	70	65/8	1460	9.8	500	4.1	Green
RPP M39	39	200	976	40	90	90/10	2000	21.8	700	9.2	Orange



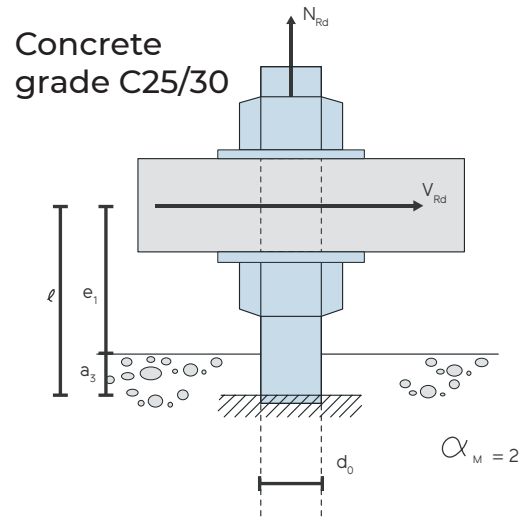
RPP-L

RPP-P



Resistances of the RPP

Base Bolt	Tension	Shear	Net tensile area	lever arm
	N_{Rd} (kN)	V_{Rd} (kN)	a (mm ²)	l (mm)
RPP M16	62.2	4.5	157	65
RPP M20	97.0	8.3	245	69
RPP M24	139.4	13.0	352	76
RPP M30	222.2	23.0	561	86
RPP M39	386.5	44.3	976	103



N_{Rd} = nominal design tension resistance
 V_{Rd} = nominal design shear resistance
 $e1$ = base grout thickness + 0,5 x base plate thickness
 $a3$ = 0,5 x $d0$

For further details related to resistances, please refer to our technical manual.

RPP Base Bolts Materials and Standards

Ordering Code	Ribbed Bars	Standards	Nuts	Standard	Washers	Standard
RPP-L	B500B	SFS 1300 EN 10080 (SFS 1300) / (BSt500S DIN 488) (K500C-T SS 212540) (B500NC NS 3576-3)	Grade 8 dimensions	EN 20899-2 EN ISO 898-2 EN-ISO 4032	S355J2	EN 10025
RPP-P	B500B	SFS 1300 EN 10080 (SFS 1300) (A500HW SFS 1215) / (BSt500S DIN 488) (K500C-T SS 212540) (B500NC NS 3576-3)	Grade 8 dimensions	EN 20898-2 EN ISO 898-2 EN-ISO 4032	S355J2	EN 10025

Approvals

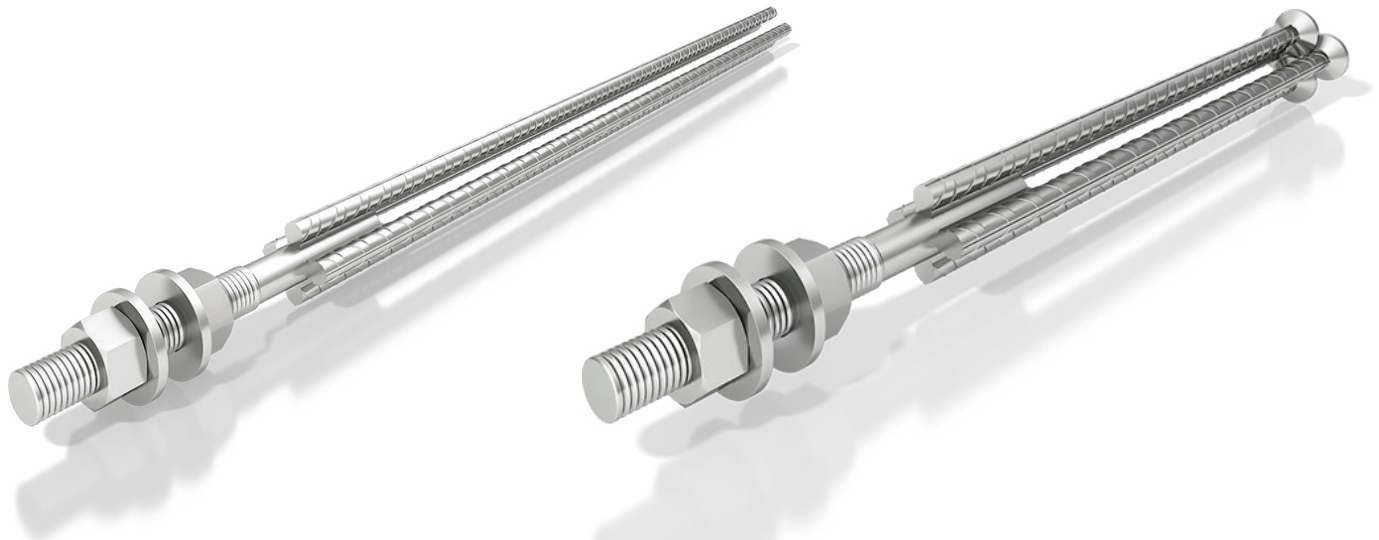
- Finland: 5B EC2 24 M1 / 5B EC2 15
- Sweden / Norway: EN 1090
- Poland : ITB-KOT-2022/2138 & Nr 020-UWB-2953/W

RPP-E Base Bolts

BOLTS AND SHOES

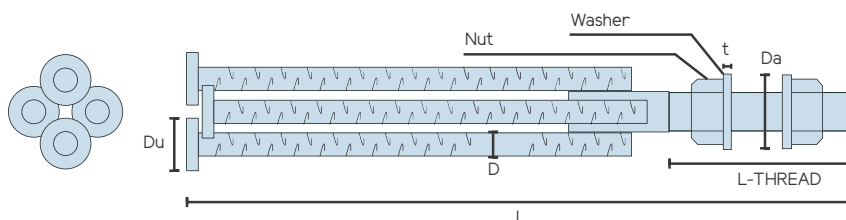
RSTEEL® RPP-E constitutes 2 to 4 headed high quality reinforcement bars which are factory welded to a threaded high-strength steel stud. There are two main anchor types: long anchors (type P) and short anchors (type L). RPP-E-P the long type ribbed bar bolts are suitable as overlapping bolts in precast columns and as base bolts. These bolts are suitable for anchoring in large area components such as foundations or walls with sufficiently large edge distances.

It is available in Hot Dip Galvanized finish.



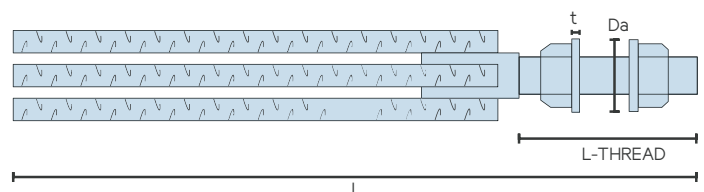
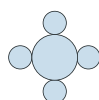
Dimensions of RPP-E Base Bolt

Base Bolt	Size	Thread		Bar		Washer	RPP-E-P		RPP-E-L		Color
		I-Thread (mm)	Net Tensile Area (mm²)	n/D (mm)	Du (mm)	Da/t (mm)	L (mm)	Weight (kg)	L (mm)	Weight (kg)	
RPP-E M30	30	190	561	2/25	55	65/8	1705	14.6	670	7.0	Black
RPP-E M36	36	190	817	4/20	46	80/8	1370	17.8	740	8.6	Red
RPP-E M39	39	200	976	3/25	55	90/10	1710	21.1	880	11.0	Brown
RPP-E M45	45	220	1306	4/25	55	100/10	1720	30.0	980	15.9	Purple
RPP-E M52	52	250	1758	4/32	70	100/12	1860	49.6	1140	30.0	White
RPP-E M60	60	310	2362	4/32	70	115/12	2390	63.8	1330	36.4	Blue



RPP-E-L

RPP-E-P



Resistances of the RPP-E

Base	Tension	Shear	Net tensile area	Lever arm
Base Bolt	N_{Rd} (kN)	V_{Rd} (kN)	a (mm ²)	l (mm)
RPP-E M30	299.2	36.7	561	78
RPP-E M36	435.7	55.5	817	91
RPP-E M39	520.5	64.4	976	103
RPP-E M45	696.5	92.6	1306	110
RPP-E M52	937.6	129.1	1758	124
RPP-E M60	1259.7	174.6	2362	142

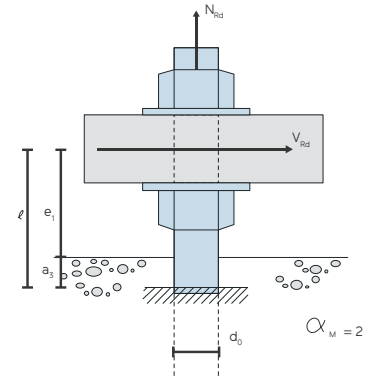
N_{Rd} = nominal design tension resistance

V_{Rd} = nominal design shear resistance

e_1 = base grout thickness + 0,5 x base plate thickness

$a_3 = 0,5 \times d_0$

For further details related to resistances, please refer to our technical manual.



Concrete
grade C25/30

RPP-E Base Bolts Materials and Standards

Ordering Code	Ribbed Bars	Standards	Threaded Bars	Standard
RPP-E-L >	B500B	SFS 1300 EN 10080 (SFS 1300) (BSt500S DIN 488) (K500C-T SS 212540) (B500NC NS 3576-3)	High Strength Steel Bars	$f_{yk} \sim 700\text{MPa}$; $f_{uk} \sim 800\text{MPa}$; $f_{yk}/f_{uk} \sim 1.08$; $\epsilon_{uk} \sim 5\%$
	Nuts	Standard	Washers	Standard
	Grade 10 dimensions	EN 20899-2, EN ISO 898-2 EN-ISO 4032	S355J2	EN 10025
	Ribbed Bars	Standards	Threaded Bars	Standard
RPP-E-P >	B500B	SFS 1300 EN 10080 (SFS 1300) (BSt500S DIN 488) (K500C-T SS 212540) (B500NC NS 3576-3)	High Strength Steel Bars	$f_{yk} \sim 700\text{MPa}$; $f_{uk} \sim 800\text{MPa}$; $f_{yk}/f_{uk} \sim 1.08$; $\epsilon_{uk} \sim 5\%$
	Nuts	Standard	Washers	Standard
	Grade 10 dimensions	EN 20899-2, EN ISO 898-2 EN-ISO 4032	S355J2	EN 10025
	Ribbed Bars	Standards	Threaded Bars	Standard

Approvals

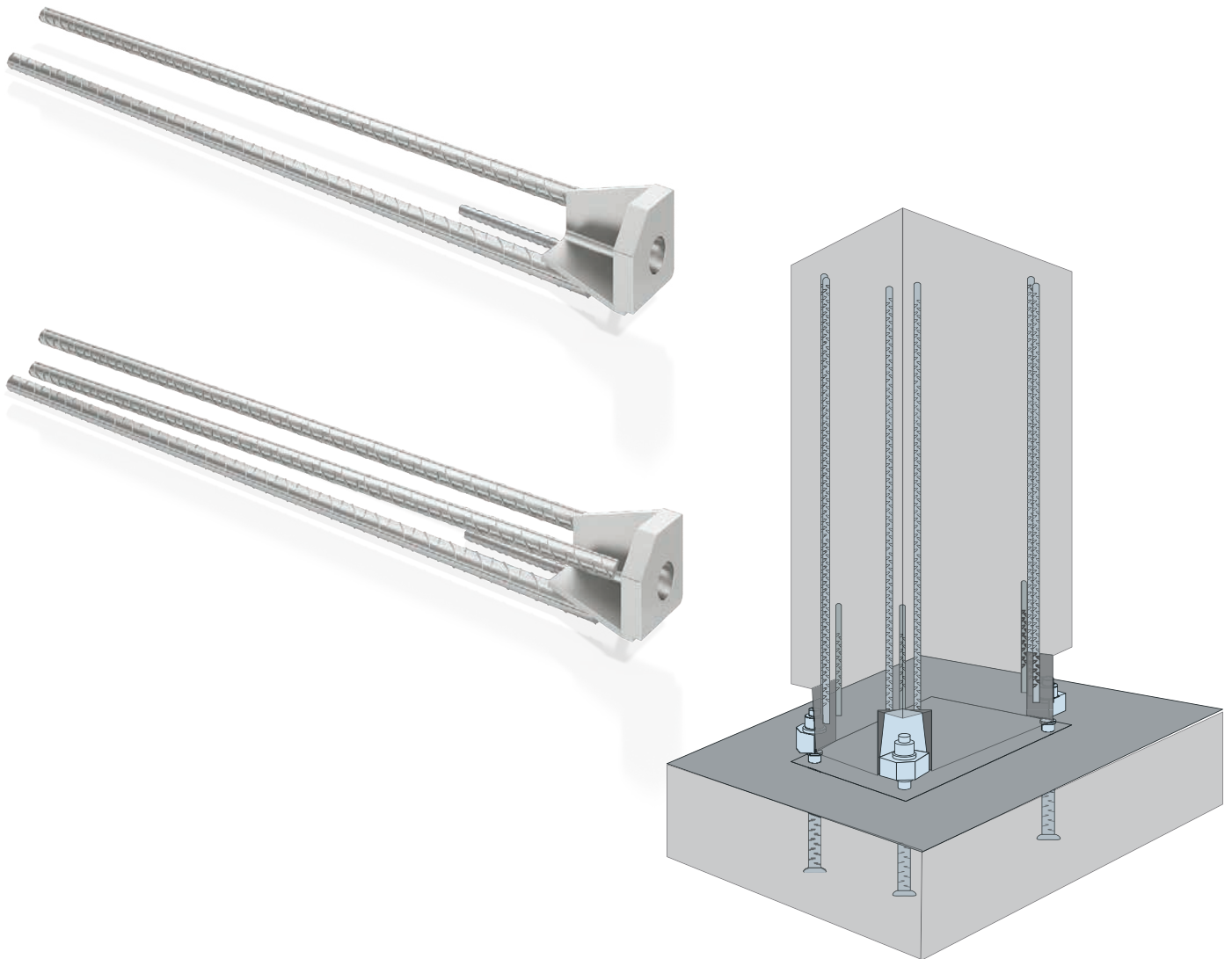
- ▶ Finland: 5B EC2 24 M1 / 5B EC2 15 M2
- ▶ Sweden / Norway: EN 1090
- ▶ Poland: ITB-KOT-2022/2138 & Nr 020-UWB-2953/W

RPK-N3, RPK-E3 & RPK-E5 Column Shoes BOLTS AND SHOES

Column shoes are fastening components that are used to create moment resisting connections for precast columns. Stresses developed within the column are transferred to the column shoes, through the anchor bolts and across the grouted gap, to the adjoined structures e.g. to the foundations.

It is possible to adjust the vertical position and level of the column using the column shoes. The gap that remains between the base of the column and the top of the adjoined structure is grouted up as soon as possible after the connection is set. The base connection, once grouted, is designed to be stronger than the cross-section of the column.

RPK-N3 Column Shoes are designed to correspond with the resistance of RPP Bolts, and, correspondingly, RPK-E3 and RPK-E5 Column Shoes correspond with the resistance of RPP-E base Bolts.



Dimensions and resistances of the RPK-N3 Shoes

Column Shoes	B	C	E	H	t	D	X	Weight	Resistances		
	(mm) +3,-0	(mm) +2,-0	(mm) ±1	(mm) +0/-10	(mm)	(mm) +2,-0	(mm)	(kg)	RPP Base Bolt	N _{Rd} [kN]	Color
M16	102	85	50	597	15	28	30	2.4	M16	62.2	Yellow
M20	100	89	50	820	20	31	30	4.3	M20	97.0	Dark Blue
M24	120	98	50	1185	30	35	30	6.5	M24	139.4	Grey
M30	130	105	50	1390	45	40	30	11.5	M30	222.2	Green
M39	210	135	60	1910	50	55	37	25.5	M39	386.5	Orange

Minimum concrete grade of the column is C30/37

Dimensions and resistances of the RPK-E5 Shoes

New product 2022

Column Shoes	B	C	E	H	t	D	X	Weight	Resistances		
	(mm) +3,-0	(mm) +2,-0	(mm) ±1	(mm) +0/-10	(mm)	(mm) +2,-0	(mm)	(kg)	RPP-E Base Bolt	N _{Rd} [kN]	Color
M30	205	112	50	1264	30	45	30	16.0	M30	299.2	Black
M36	190	132	60	1415	40	55	37	24.4	M36	435.7	Red
M39	255	139	60	1664	50	55	37	30.2	M39	520.5	Brown
M45	290	153	60	2141	50	65	37	48.1	M45	696.5	Purple
M52	395	160	60	2177	60	70	37	76.3	M52	937.6	White

Minimum concrete grade of the column is C35/45

Approvals

- Finland: 5B EC2 45 / 5B EC2 20 M2
- Sweden / Norway: EN 1090
- Poland: ITB-KOT-2022/2137 & Nr 020-UWB-1090/Z

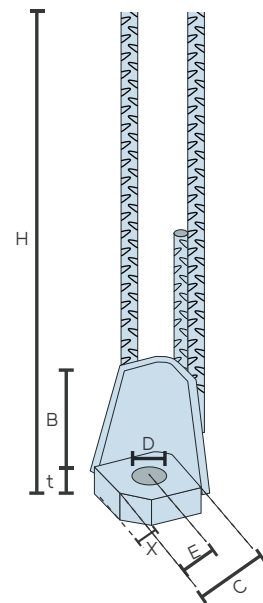
Dimensions and resistances of the RPK-E3 Shoes

Column Shoes	B	C	E	H	t	D	X	Weight	Resistances		
	(mm) +3,-0	(mm) +2,-0	(mm) ±1	(mm) +0/-10	(mm)	(mm) +2,-0	(mm)	(kg)	RPP-E Base Bolt	N _{Rd} [kN]	Color
M30	200	105	50	1340	40	45	30	16.5	M30	299.2	Black
M36	190	118	60	1585	45	55	37	27.6	M36	435.7	Red
M39	255	125	60	1915	50	55	37	34.1	M39	520.5	Brown
M45	290	148	60	2090	60	65	37	64.4	M45	696.5	Purple
M52	395	148	60	2815	70	70	37	86.2	M52	937.6	White

Minimum concrete grade of the column is C30/37

Materials and Standards of the RPK Column Shoes

Ordering Code	Plates	Standard	Rebars	Standard
RPK-N3	S355J2	SFS-EN 10025	B500B	EN 10080 (SFS 1300)
	S355J2+N	SFS-EN 10025		(BSt500S DIN 488) (K500C-T SS 212540) (B500NC NS 3576-3)
RPK-E3	S355J2	SFS-EN 10025	B500B	EN 10080 (SFS 1300)
	S355J2+N	SFS-EN 10025		(BSt500S DIN 488) (K500C-T SS 212540) (B500NC NS 3576-3)
RPK-E5	S355J2	SFS-EN 10025	B500B	EN 10080 (SFS 1248)
	S355J2+N	SFS-EN 10025		(BSt500S DIN 488) (K500C-T SS 212540) (B500NC NS 3576-3)



Approvals

- Finland: 5B EC2 45 / 5B EC2 20 M2
- Sweden / Norway: EN 1090

RSK-N RSK-E Wall Shoes

BOLTS AND SHOES

Wall shoes are fastening components that are used with RPP and RPP-E base bolts to create tension resisting connections across joints between two precast wall elements or between precast wall element and a site cast structure. Compression stresses are transferred directly across the grout filled joint. Shear stresses along the joint are transferred by friction or by additional installed shear studs for this purpose.

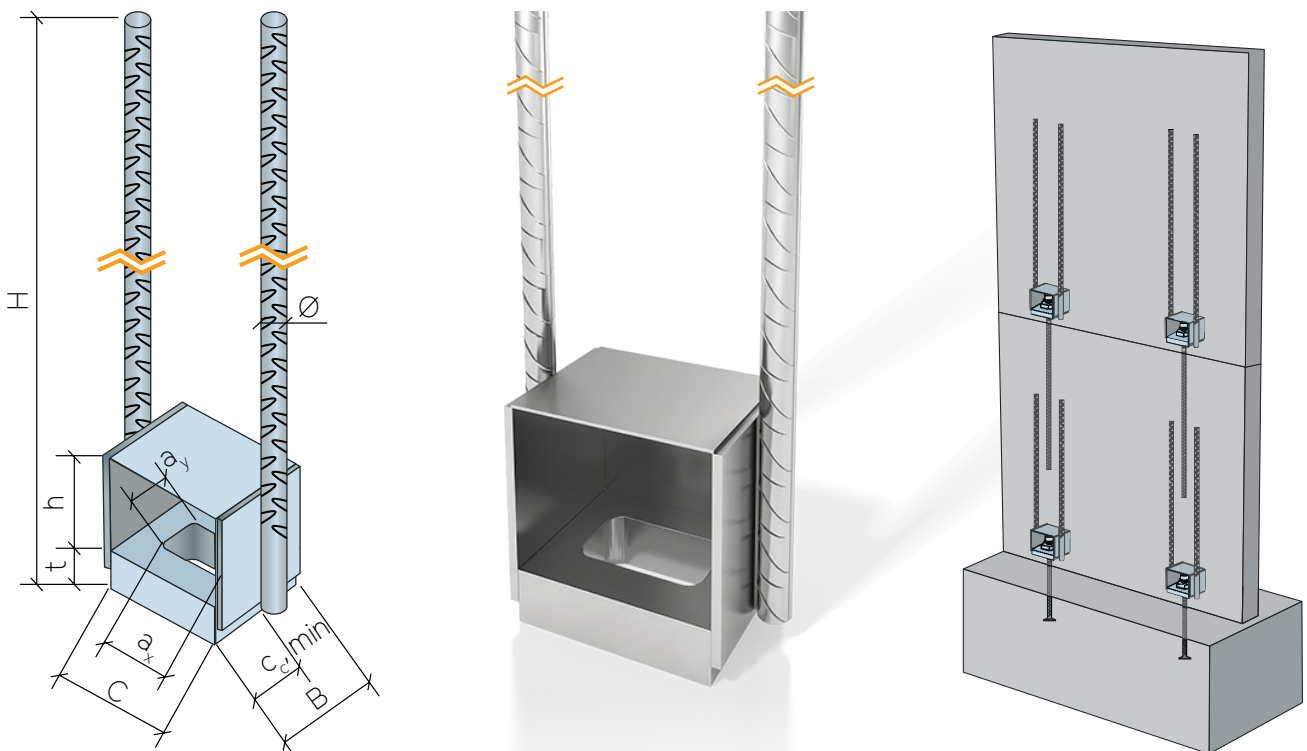
Tension stresses developed at the joint are transferred within the wall, via reinforcement, to the next wall joint above and below. The wall shoes are designed with matching design tension resistance of the associated RPP and RPP-E base bolts.

Materials and Standards of the RSK-N Wall Shoes

Wall Shoes	B	C	Ø	H	h	Kt	ka _x	ka _y	c _c	c	e	weight	RAL	Resistances		
														RPP Base Bolt	N _{Rd} [kN]	Color
M16	80	119	12	630	80	30	76	36	34	60	5	4	N16	M16	62.2	Yellow
M20	90	124	16	800	90	35	80	40	37	65	5	6.3	N20	M20	97.0	Blue
M24	110	129	20	965	105	35	84	49	45	80	10	10.1	N24	M24	139.4	Grey
M30	120	144	25	1170	115	40	90	55	47.5	95	10	16.2	N30	M30	222.2	Green
M39	145	165	32	1600	140	50	99	64	56.5	115	10	34.1	N39	M39	386.5	Orange

Minimum concrete grade of the column is C30/37

RAL washer plates are supplied with the wall shoes for forming the connection to the appropriate base bolts



Dimensions and resistances of the RSK-E Wall Shoes

Wall Shoes	B (mm)	C (mm)	Ø (mm)	H (mm)	h (mm)	t (mm)	a _x (mm)	a _y (mm)	c _c (mm)	c (mm)	e (mm)	weight (kg)	RAL	Resistances		
														RPP Base Bolt	N _{Rd} [kN]	Color
M30	130	145	25	1460	120	45	90	55	52.5	95	10	20.3	E30	M30	299.2	■
M36	150	164	32	1765	140	55	96	61	59	110	10	37.1	E36	M36	435.7	■
M39	150	165	25	1650	147	60	99	64	22.5	115	10	38.3	E39	M39	520.5	■
M45	175	180	32	2015	162	70	105	75	28.5	130	10	69.6	E45	M45	696.5	■
M52	230	210	32	2215	185	80	112	82	33	155	10	89.6	E52	M52	937.6	□

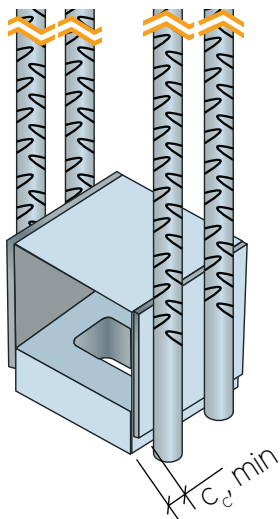
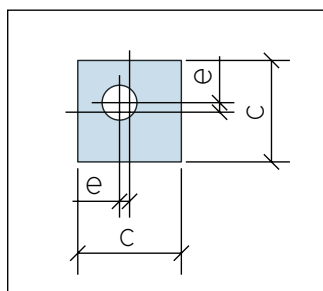
Minimum concrete grade of the wall is C20/25

Materials and standards of the RSK Wall Shoes

Ordering Code	Plates	Standard	Rebars	Standard
RSK-N	S355J2 S355J2+N	SFS-EN 10025 SFS-EN 10025	B500B	EN 10080 (SFS 1300) (BSt500S DIN 488) (K500C-T SS 212540) (B500NC NS 3576-3)
RSK-E	S355J2 S355J2+N	SFS-EN 10025 SFS-EN 10025	B500B	EN 10080 (SFS 1300) (BSt500S DIN 488) (K500C-T SS 212540) (B500NC NS 3576-3)

Approvals

- Finland: 5B EC2 58
- Sweden / Norway: EN 1090





6.

Channels

An anchor channel is a fixing equipment used in concrete elements, it is easy to use, saves time and is economic. Fix the anchor channel on the mould, place the concrete and use a T-bolt to fasten your construction. The foam filler in the anchor channel prevents concrete in the channel.

The use of anchor channels increased a lot in the last years. The capabilities are almost endless for example curtain walls, supporting systems for pipelines and cables or fixing equipment

6.1 Cold Rolled Anchor Channel

6.2 Hot Rolled Anchor Channel

6.3 Hot Rolled Anchor Channel with Teeth

Channels

CHANNELS



Cold Rolled
Anchor Channel



Hot Rolled
Anchor Channel



Hot Rolled Anchor
Channel with Teeth

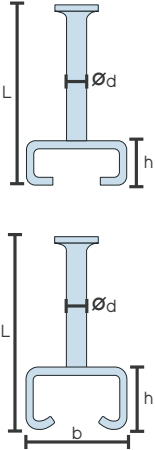
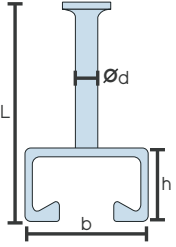
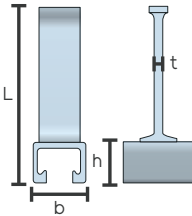
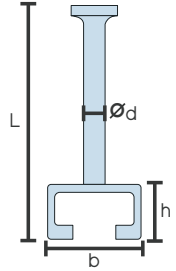
Salient features

- High degree of corrosion protection due to stainless steel or hot-dip galvanized design offered.
- The National Building Materials Test Center has done tensile tests of our anchor channels, we can provide the test report on request.
- Reduces construction time.
- The quality and safety is one of the most important topics for us. So we check our products strictly. For raw material, we not only do the dimensional inspection, but also load tests. During the production, the quality department will test our products constantly. All tests are executed according to European standards. RSTEEL® ensures that every product has the required application and security needs.
- Adjustable fixing place, safe installation, no welding, no drilling offered.
- Can be installed in tensile and compressive

For Resistances, available lengths, anchor arrangements and installation instructions, please refer to our technical manual on RSTEEL® website

Anchor Channel list

CHANNELS

Cold Rolled Channel	k/zn	L [mm]	h [mm]	b [mm]	d [mm]	Material	Weight [kg/m]	Match T-bolt
	28/15	47	15	28	6	HDG SS	1.20 1.13	WD 28/15 M6, M8, M10
	38/17	68	17	38	8	HDG SS	1.97 1.88	WD 38/17 M10, M12, M16
	40/25	76	25	40	8	HDG SS	2.35 2.25	WD 40/22 M10, M12, M16
	49/30	90	30	39	10	HDG SS	3.43 3.30	WD 50/30 M10, M12 M16, M20
Hot Rolled Channel	w/zn	L [mm]	h [mm]	b [mm]	d [mm]	Material	Weight [kg/m]	Match T-bolt
	40/22	74	22	40	8	HDG SS	2.43 2.3	WD 40/22 M10, M12 M16
	50/30	90	30	50	10	HDG SS	3.76 3.57	WD 50/30 M10, M12 M16, M20
	52/34	152.5	34	52	11	HDG SS	5.80 5.63	WD 50/30 M10, M12 M16, M20
Hot Rolled Channel	w/zn	L [mm]	h [mm]	b [mm]	t [mm]	Material	Weight [kg/m]	Match T-bolt
	55/42	182	42	55	7.1	HDG	8.32	WD 55/42 M10, M12 M16, M20 M24
	72/48	176	48	72	7.1	HDG SS	10.48 10.37	WD 72/48 M20, M24 M27, M30
Hot Rolled Channel with teeth	w t /zn	L [mm]	h [mm]	b [mm]	d [mm]	Material	Weight [kg/m]	Match T-bolt
	30/21	80	21	30	8	HDG	1.83	WD 30/21 M12
	38/23	96	23	38	10	HDG SS	2.82 2.71	WD 38/23 M12, M16

T-BOLT LIST

CHANNELS

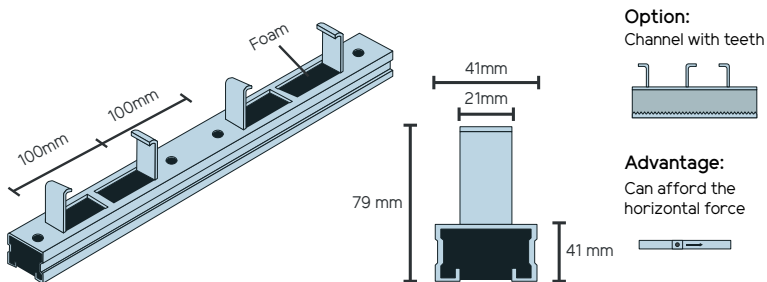
We usually sell T-bolts with a grade of 8.8 for our anchor channels to reduce the chance of a failure of the screw, but can provide other grades on request. The length of the thread is variable. The material consists of stainless steel, hot dipped steel or galvanized steel. You should not go below the following minimum interim distances.

T bolt WD 28/15		Ss, min (mm)	
	M6	30	
	M8	40	
	M10	50	
T bolt WD 38/23		Ss, min (mm)	
	M12	60	
	M16	80	
T bolt WD 38/17		Ss, min (mm)	
	M10	50	
	M12	60	
	M16	80	
T bolt WD 55/42		Ss, min (mm)	
	M10	50	
	M12	60	
	M16	80	
	M20	100	
	M24	120	
T bolt WD 40/22		Ss, min (mm)	
	M10	50	
	M12	60	
	M16	80	
T bolt WD 72/48		Ss, min (mm)	
	M20	100	
	M24	120	
	M27	135	
	M30	150	
T bolt WD 50/30		Ss, min (mm)	
	M10	50	
	M12	60	
	M16	80	
	M20	100	
T bolt WD 30/21		Ss, min (mm)	
	M12	60	

Standard Duty Cast-In Channel

CHANNELS

With the height of 41 mm, the concrete cast-in channel have a standard duty. The thickness of C-channel is 2.5mm. Products are provided with foam filler. End cap can be provided on request.



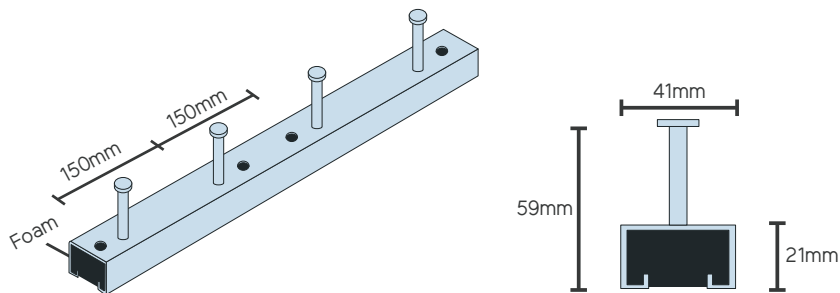
Surface	HDG ASTM A123/A123M ASTM A153/A153M
	GB/T 13912-2002 GB/T 5267.3-2008
	DIN EN ISO 14713: 2010 DIN EN ISO 10684: 2004
Material	Cold Rolled C-channel
	Carbon steel/Stainless steel

Product No.	(KG)	Max. Allowable Point Load* (KN)	Min. Spacing of Point Load* (mm)	Max. Allowable Uniform Load* (KN)
CIC-SD-41/41-0200-2.5	0.72	5.34	-	5.34
CIC-SD-41/41-0300-2.5	1.03	8.90	-	8.90
CIC-SD-41/41-0400-2.5	1.22	8.90	304.8	17.79
CIC-SD-41/41-0500-2.5	1.62	8.90	304.8	17.79
CIC-SD-41/41-0600-2.5	1.81	8.90	304.8	17.79
CIC-SD-41/41-0800-2.5	2.39	8.90	304.8	23.33
CIC-SD-41/41-0900-2.5	2.79	8.90	304.8	26.28
CIC-SD-41/41-1000-2.5	3.00	8.90	304.8	29.17
CIC-SD-41/41-1200-2.5	3.57	8.90	304.8	35
CIC-SD-41/41-1500-2.5	4.55	8.90	304.8	43.75
CIC-SD-41/41-1800-2.5	5.32	8.90	304.8	52.50
CIC-SD-41/41-2100-2.5	6.30	8.90	304.8	61.25
CIC-SD-41/41-2400-2.5	7.08	8.90	304.8	70.00
CIC-SD-41/41-2700-2.5	7.90	8.90	304.8	78.75
CIC-SD-41/41-3000-2.5	8.83	8.90	304.8	87.50
CIC-SD-41/41-3600-2.5	10.59	8.90	304.8	105.00
CIC-SD-41/41-4200-2.5	12.32	8.90	304.8	122.50
CIC-SD-41/41-4800-2.5	14.13	8.90	304.8	140.00
CIC-SD-41/41-5400-2.5	16.01	8.90	304.8	157.50
CIC-SD-41/41-6000-2.5	17.61	8.90	304.8	175.00

Special length of products can be supplied as request.

*Load is under C30 Concrete

With the height of 41 mm, the concrete cast-in channel have a standard duty. This type have round end anchor and thickness of C-channel is 2.5mm. Products are provided with foam filler. End cap can be provided on request.



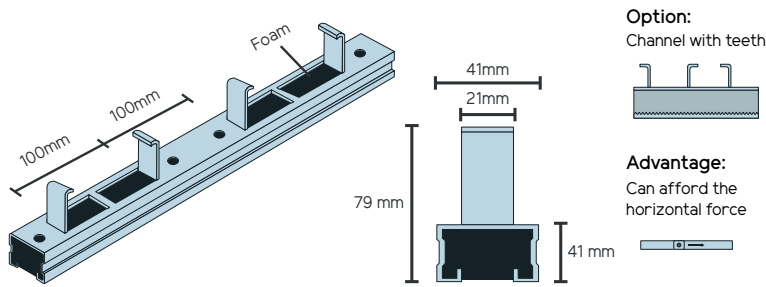
Surface	HDC ASTM A123/A123M ASTM A153/A153M
	GB/T 13912-2002 GB/T 5267.3-2008
	DIN EN ISO 14713: 2010 DIN EN ISO 10684: 2004
Material	Cold Rolled C-channel
	Carbon steel/Stainless steel

Product No.	(KG)	Max. Allowable Point Load* (KN)	Min. Spacing of Point Load* (mm)	Max. Allowable Uniform Load* (KN)
CIC-SD-41/41-0200-2.5	0.72	5.34	-	5.34
CIC-SD-41/41-0300-2.5	1.03	8.90	-	8.90
CIC-SD-41/41-0400-2.5	1.22	8.90	304.8	17.79
CIC-SD-41/41-0500-2.5	1.62	8.90	304.8	17.79
CIC-SD-41/41-0600-2.5	1.81	8.90	304.8	17.79
CIC-SD-41/41-0800-2.5	2.39	8.90	304.8	23.33
CIC-SD-41/41-0900-2.5	2.79	8.90	304.8	26.28
CIC-SD-41/41-1000-2.5	3.00	8.90	304.8	29.17
CIC-SD-41/41-1200-2.5	3.57	8.90	304.8	35
CIC-SD-41/41-1500-2.5	4.55	8.90	304.8	43.75
CIC-SD-41/41-1800-2.5	5.32	8.90	304.8	52.50
CIC-SD-41/41-2100-2.5	6.30	8.90	304.8	61.25
CIC-SD-41/41-2400-2.5	7.08	8.90	304.8	70.00
CIC-SD-41/41-2700-2.5	7.90	8.90	304.8	78.75
CIC-SD-41/41-3000-2.5	8.83	8.90	304.8	87.50
CIC-SD-41/41-3600-2.5	10.59	8.90	304.8	105.00
CIC-SD-41/41-4200-2.5	12.32	8.90	304.8	122.50
CIC-SD-41/41-4800-2.5	14.13	8.90	304.8	140.00
CIC-SD-41/41-5400-2.5	16.01	8.90	304.8	157.50
CIC-SD-41/41-6000-2.5	17.61	8.90	304.8	175.00

Special length of products can be supplied as request.

*Load is under C30 Concrete

With the height of 41 mm, the concrete cast-in channel have a standard duty. The thickness of C-channel is 2.0mm. Products are provided with foam filler. End cap can be provided on request.



Surface	HDG ASTM A123/A123M ASTM A153/A153M
	GB/T 13912-2002 GB/T 5267.3-2008
	DIN EN ISO 14713: 2010 DIN EN ISO 10684: 2004
Material	Cold Rolled C-channel
	Carbon steel/Stainless steel

Product No.	Wt./pcs (KG)	Max. Allowable Point Load* (KN)	Min. Spacing of Point Load* (mm)	Max. Allowable Uniform Load* (KN)
CIC-SD-41/41-0200-2.0	0.72	5.34	-	5.34
CIC-SD-41/41-0300-2.0	1.03	8.90	-	8.90
CIC-SD-41/41-0400-2.0	1.22	8.90	304.8	17.79
CIC-SD-41/41-0500-2.0	1.62	8.90	304.8	17.79
CIC-SD-41/41-0600-2.0	1.81	8.90	304.8	17.79
CIC-SD-41/41-0800-2.0	2.39	8.90	304.8	23.33
CIC-SD-41/41-0900-2.0	2.79	8.90	304.8	26.28
CIC-SD-41/41-1000-2.0	3.00	8.90	304.8	29.17
CIC-SD-41/41-1200-2.0	3.57	8.90	304.8	35
CIC-SD-41/41-1500-2.0	4.55	8.90	304.8	43.75
CIC-SD-41/41-1800-2.0	5.32	8.90	304.8	52.50
CIC-SD-41/41-2100-2.0	6.30	8.90	304.8	61.25
CIC-SD-41/41-2400-2.0	7.08	8.90	304.8	70.00
CIC-SD-41/41-2700-2.0	7.90	8.90	304.8	78.75
CIC-SD-41/41-3000-2.0	8.83	8.90	304.8	87.50
CIC-SD-41/41-3600-2.0	10.59	8.90	304.8	105.00
CIC-SD-41/41-4200-2.0	12.32	8.90	304.8	122.50
CIC-SD-41/41-4800-2.0	14.13	8.90	304.8	140.00
CIC-SD-41/41-5400-2.0	16.01	8.90	304.8	157.50
CIC-SD-41/41-6000-2.0	17.61	8.90	304.8	175.00

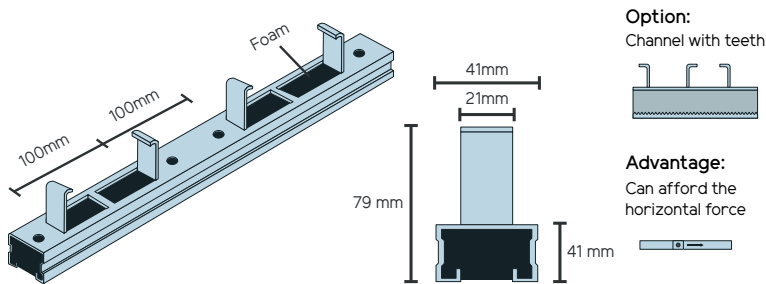
Special length of products can be supplied as request.

*Load is under C30 Concrete

Light Duty Cast-In Channel

CHANNELS

With the height of 21 mm, the concrete cast-in channel have a light duty. The thickness of C-channel is 2.5mm. Products are provided with foam filler. End cap can be provided on request.



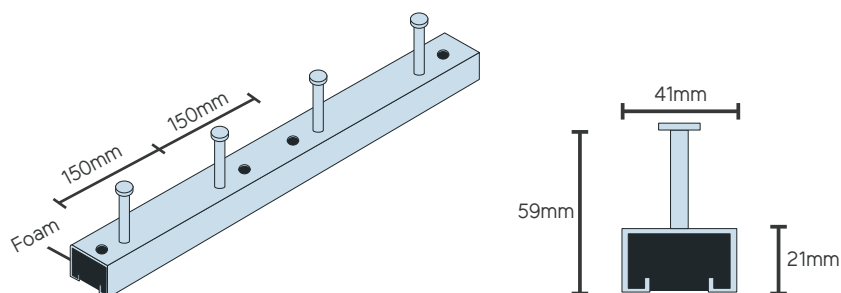
Surface	HDG ASTM A123/A123M ASTM A153/A153M
	GB/T 13912-2002 GB/T 5267.3-2008
	DIN EN ISO 14713: 2010 DIN EN ISO 10684: 2004
Material	Cold Rolled C-channel
	Carbon steel/Stainless steel

Product No.	Wt./pcs (KG)	Max. Allowable Point Load* (KN)	Min. Spacing of Point Load* (mm)	Max. Allowable Uniform Load* (KN)
CIC-LD-4 1/21-0200-2.5	0.55	4.45	-	4.45
CIC-LD-4 1/21-0300-2.5	0.79	6.67	-	6.67
CIC-LD-4 1/21-0400-2.5	0.84	6.67	304.8	13.34
CIC-LD-4 1/21-0500-2.5	1.05	6.67	304.8	13.34
CIC-LD-4 1/21-0600-2.5	1.26	6.67	304.8	13.34
CIC-LD-4 1/21-0800-2.5	1.68	6.67	304.8	17.50
CIC-LD-4 1/21-0900-2.5	1.89	6.67	304.8	19.69
CIC-LD-4 1/21-1000-2.5	2.10	6.67	304.8	21.88
CIC-LD-4 1/21-1200-2.5	2.52	6.67	304.8	26.25
CIC-LD-4 1/21-1500-2.5	3.15	6.67	304.8	32.81
CIC-LD-4 1/21-1800-2.5	3.77	6.67	304.8	39.38
CIC-LD-4 1/21-2100-2.5	4.40	6.67	304.8	45.94
CIC-LD-4 1/21-2400-2.5	5.03	6.67	304.8	52.50
CIC-LD-4 1/21-2700-2.5	5.67	6.67	304.8	59.06
CIC-LD-4 1/21-3000-2.5	6.29	6.67	304.8	65.63
CIC-LD-4 1/21-3600-2.5	7.55	6.67	304.8	78.75
CIC-LD-4 1/21-4200-2.5	8.81	6.67	304.8	91.88
CIC-LD-4 1/21-4800-2.5	10.07	6.67	304.8	105.00
CIC-LD-4 1/21-5400-2.5	11.33	6.67	304.8	118.13
CIC-LD-4 1/21-6000-2.5	12.59	6.67	304.8	131.25

Special length of products can be supplied as request.

*Load is under C30 Concrete

With the height of 21 mm, the concrete cast-in channel have a light duty. This type have round end anchor and the thickness of C-channel is 2.5mm. Products are provided with foam filler. End cap can be provided on request.



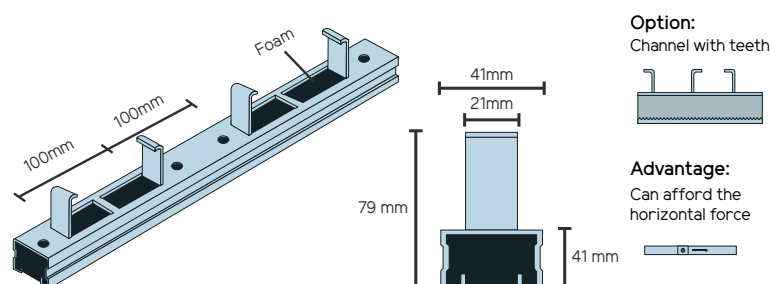
Surface	HDG ASTM A123/A123M ASTM A153/A153M
	GB/T 13912-2002 GB/T 5267.3-2008
	DIN EN ISO 14713: 2010 DIN EN ISO 10684: 2004
Material	Cold Rolled C-channel
	Carbon steel/Stainless steel

Product No.	Wt/pcs (KG)	Max. Allowable Point Load* (KN)	Min. Spacing of Point Load* (mm)	Max. Allowable Uniform Load* (KN)
CIC-RLD-4 1/21-0200-2.5	0.55	4.45	-	4.45
CIC-RLD-4 1/21-0300-2.5	0.79	6.67	-	6.67
CIC-RLD-4 1/21-0400-2.5	0.84	6.67	304.8	13.34
CIC-RLD-4 1/21-0500-2.5	1.05	6.67	304.8	13.34
CIC-RLD-4 1/21-0600-2.5	1.26	6.67	304.8	13.34
CIC-RLD-4 1/21-0800-2.5	1.68	6.67	304.8	17.50
CIC-RLD-4 1/21-0900-2.5	1.89	6.67	304.8	19.69
CIC-RLD-4 1/21-1000-2.5	2.10	6.67	304.8	21.88
CIC-RLD-4 1/21-1200-2.5	2.52	6.67	304.8	26.25
CIC-RLD-4 1/21-1500-2.5	3.15	6.67	304.8	32.81
CIC-RLD-4 1/21-1800-2.5	3.77	6.67	304.8	39.38
CIC-RLD-4 1/21-2100-2.5	4.40	6.67	304.8	45.94
CIC-RLD-4 1/21-2400-2.5	5.03	6.67	304.8	52.50
CIC-RLD-4 1/21-2700-2.5	5.67	6.67	304.8	59.06
CIC-RLD-4 1/21-3000-2.5	6.29	6.67	304.8	65.63
CIC-RLD-4 1/21-3600-2.5	7.55	6.67	304.8	78.75
CIC-RLD-4 1/21-4200-2.5	8.81	6.67	304.8	91.88
CIC-RLD-4 1/21-4800-2.5	10.07	6.67	304.8	105.00
CIC-RLD-4 1/21-5400-2.5	11.33	6.67	304.8	118.13
CIC-RLD-4 1/21-6000-2.5	12.59	6.67	304.8	131.25

Special length of products can be supplied as request.

*Load is under C30 Concrete

With the height of 21 mm, the concrete cast-in channel have a light duty. The thickness of C-channel is 2.0mm. Products are provided with foam filler. End cap can be provided on request.



Surface	HDG ASTM A123/A123M ASTM A153/A153M
	GB/T 13912-2002 GB/T 5267.3-2008
	DIN EN ISO 14713: 2010 DIN EN ISO 10684: 2004
Material	Cold Rolled C-channel
	Carbon steel/Stainless steel

Product No.	Wt./pcs (KG)	Max. Allowable Point Load* (KN)	Min. Spacing of Point Load* (mm)	Max. Allowable Uniform Load* (KN)
CIC-LD-4 1/21-0200-2.0	0.55	4.45	-	4.45
CIC-LD-4 1/21-0300-2.0	0.79	6.67	-	6.67
CIC-LD-4 1/21-0400-2.0	0.84	6.67	304.8	13.34
CIC-LD-4 1/21-0500-2.0	1.05	6.67	304.8	13.34
CIC-LD-4 1/21-0600-2.0	1.26	6.67	304.8	13.34
CIC-LD-4 1/21-0800-2.0	1.68	6.67	304.8	17.50
CIC-LD-4 1/21-0900-2.0	1.89	6.67	304.8	19.69
CIC-LD-4 1/21-1000-2.0	2.10	6.67	304.8	21.88
CIC-LD-4 1/21-1200-2.0	2.52	6.67	304.8	26.25
CIC-LD-4 1/21-1500-2.0	3.15	6.67	304.8	32.81
CIC-LD-4 1/21-1800-2.0	3.77	6.67	304.8	39.38
CIC-LD-4 1/21-2100-2.0	4.40	6.67	304.8	45.94
CIC-LD-4 1/21-2400-2.0	5.03	6.67	304.8	52.50
CIC-LD-4 1/21-2700-2.0	5.67	6.67	304.8	59.06
CIC-LD-4 1/21-3000-2.0	6.29	6.67	304.8	65.63
CIC-LD-4 1/21-3600-2.0	7.55	6.67	304.8	78.75
CIC-LD-4 1/21-4200-2.0	8.81	6.67	304.8	91.88
CIC-LD-4 1/21-4800-2.0	10.07	6.67	304.8	105.00
CIC-LD-4 1/21-5400-2.0	11.33	6.67	304.8	118.13
CIC-LD-4 1/21-6000-2.0	12.59	6.67	304.8	131.25

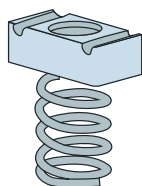
Special length of products can be supplied as request.

*Load is under C30 Concrete

Accessories List

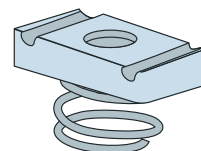
CHANNELS

Spring Nuts Regular



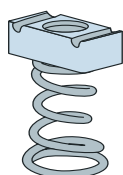
No	Size	Weight/100 KG
SNR 1006	M6	3.3
SNR 1007	M8	3.5
SNR 1008	M10	4.0
SNR 1010	M12	3.4

Spring Nuts Shorts



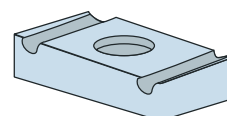
No	Size	Weight/100 KG
SNS 4006	M6	3.1
SNS 1007	M8	3.5
SNS 1008	M10	3.9
SNS 1010	M12	3.6

Nuts Regular Long



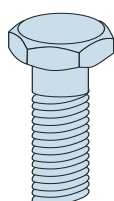
No	Size	Weight/100 KG
SNL 5006	M6	3.2
SNL 5007	M8	2.7
SNL 5008	M10	4.5
SNL 5010	M12	5.4

Channel Nuts w/o Spring



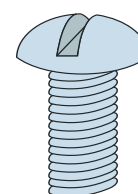
No	Size	Weight/100 KG
CN 3006	M6	3.1
CN 3007	M8	3.5
CN 3008	M10	3.8
CN 3010	M12	3.6

Hex Head Cap Screw



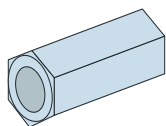
No	Size* Length	Weight/100 KG
HHS 2006	M6*20	1.0
HHS 2007	M8*20	1.0
HHS 2008	M8*25	1.1
HHS 2009	M10*25	2.6
HHS 2010	M10*30	2.8
HHS 2011	M10*35	2.9
HHS 2012	M12*25	3.8
HHS 2013	M12*30	4.2
HHS 2014	M12*35	4.6

Round Head Machine Screw



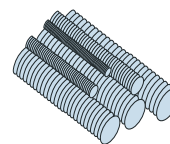
No	Size* Length	Weight/100 KG
RHS 3006	M6*20	1.0
RHS 3007	M8*20	1.0
RHS 3008	M8*25	1.0
RHS 3009	M10*25	2.0
RHS 3010	M10*30	2.0

Coupler Nuts



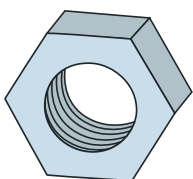
No	Size* Length	Weight/100 KG
CN 1006	M6*20	1.0
CN 1007	M8*20	2.0
CN 1008	M10*30	4.0
CN 1009	M12*40	8.0
CN 1010	M16*50	12.0
CN 1011	M20*50	19.0

Threaded Rod



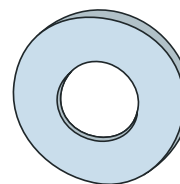
No	Size mm	Weight/100 KG/M
TR 2001	6	0.15
TR 2002	8	0.35
TR 2003	10	0.45
TR 2004	12	0.8
TR 2005	16	1.3
TR 2006	20	1.86

Hex Nuts



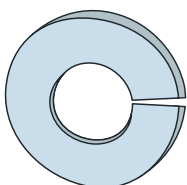
Size mm	Weight/100 KG
6	0.4
8	0.4
10	0.7
12	1.8
16	3.3
20	5.6

Fast Washers

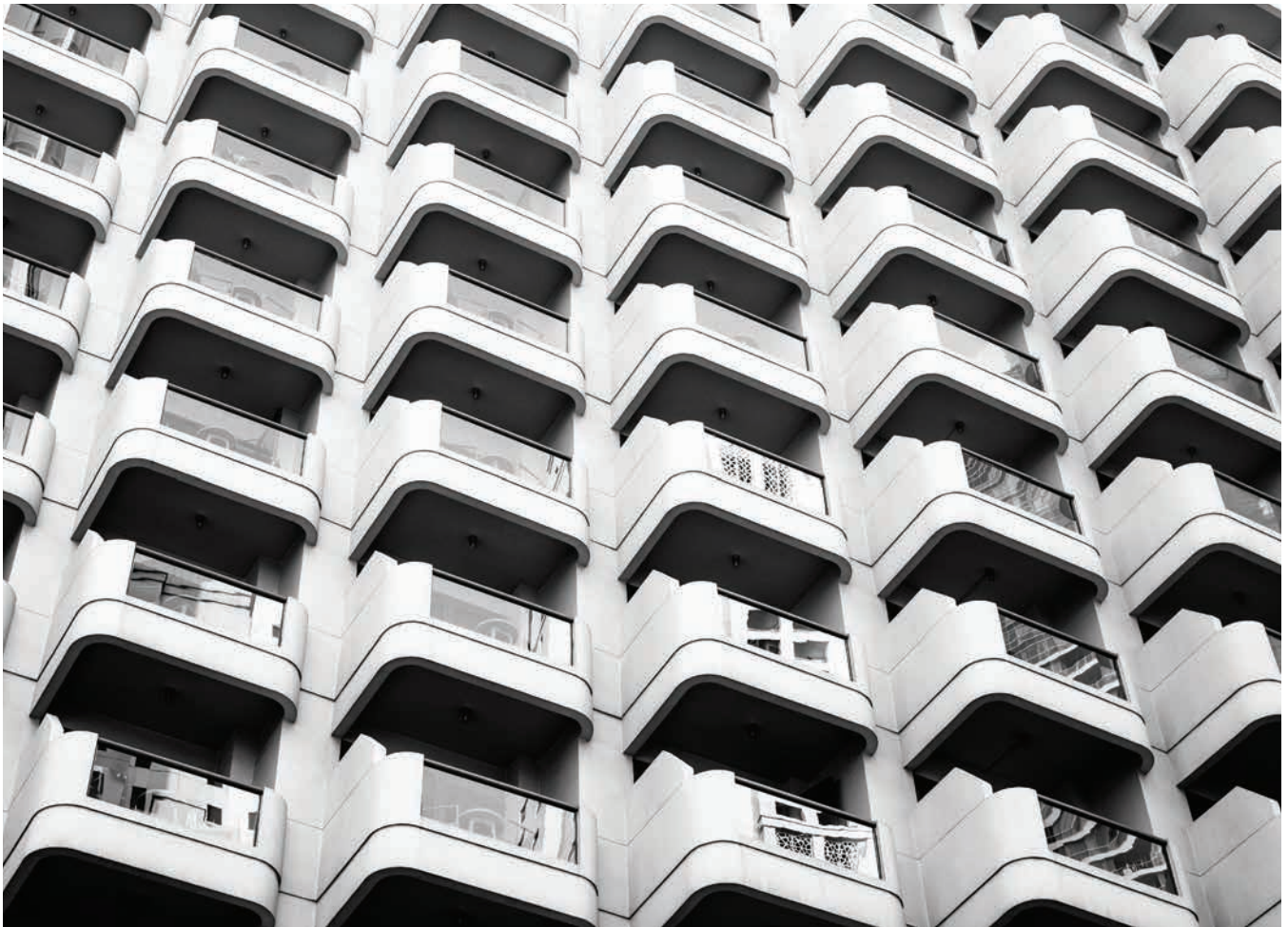


Size mm	Weight/100 KG
6	0.2
8	0.2
10	0.3
12	0.4
16	0.7
20	0.9

Lock Washers



Size mm	Weight/100 KG
6	0.2
8	0.2
10	0.3
12	0.4
16	0.6
20	1.0



7.

Balcony Connectors

RSTEEL® provides two types of product in these categories:

7.1 RPS Balcony Hinges

7.2 Square Tubes

RPS Balcony Hinges

BALCONY CONNECTORS

RPS balcony hinges manufactured by R-Group Baltic OÜ are steel parts used in pre-cast concrete buildings to transfer horizontal loads from balcony slab to the building floor and at the same time allowing vertical movement of balcony due to temperature changes.

RPS balcony hinge consists of R30 or R36 lifting anchor installed to the balcony slab before casting and balcony hinge steel part installed to the floor grouting. These parts are connected with an attachment screw.

The way of connection is different from those of other balcony hinges, there is a connecting plate open of its lower edge, whereby the installation from top down is easy and can be performed without tools.

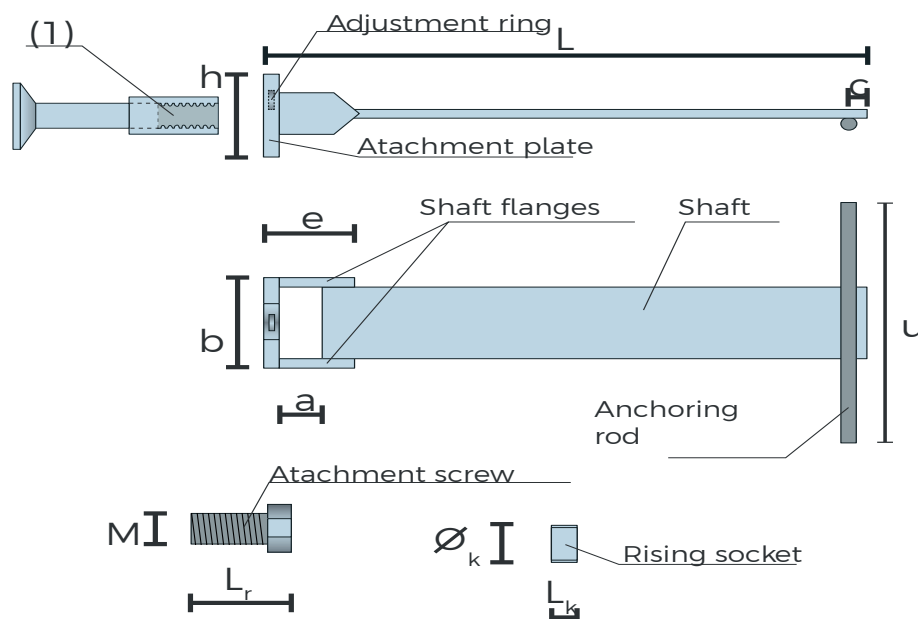
The connecting sections include a connecting screw fastenable to the connecting anchor and between them an elevating sleeve by means of which the distance of the connecting screw from the connecting anchor is adjusted.

An adjusting ring is installed in the connecting plate and the adjusting ring is arranged to adjust the correct position of the steel section in the installation stage.

The connecting anchors of the RPS also operate as the lifting inserts of the balcony slab during the installation of the balcony slab. One end of the steel section is installed at the work site in a connection formed by the connecting anchor, the elevating sleeve and the connecting screw and the other end is fastened to the slabs of the building in connection with the installation of the balcony slabs.

RPS balcony hinge steel part is stainless steel (except ribbed steel part in concrete).

RPS-balcony hinge is used with threaded anchors supplied by RSTEEL. Anchors are sold separately.



Salient features

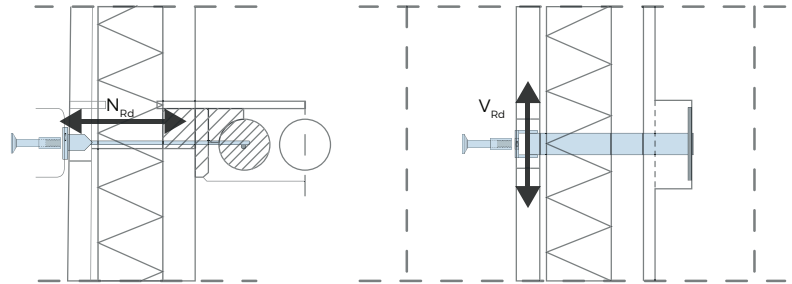
- It is a unique product as lifting anchor can be reused, so no separate anchors are used for this product.
- Also no cutting is required at the construction site.
- RPS consists of various functional parts which save labour and material during the manufacture, liftings and fastening of the balcony slab.
- It is dimensioned such that its construction also considers the increased U-value requirements of exterior walls.

Dimensions of the RPS Balcony Hinges (in millimeters [mm])

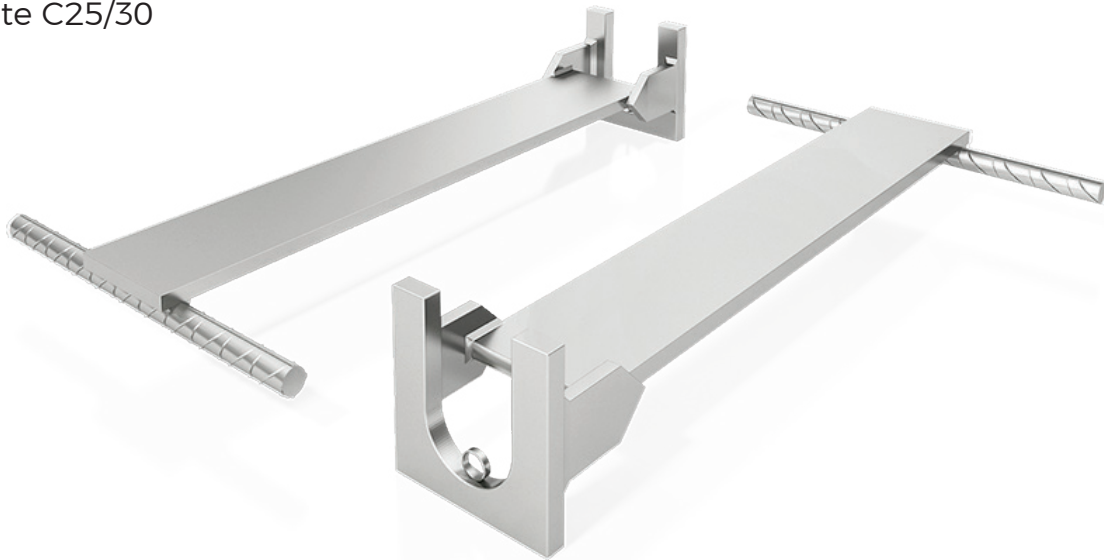
Balcony Hinge Size	Total length L	h (mm)	b (mm)	e (mm)	a (mm)	u (mm)	c (mm)	L _r	M (mm)	L _k (mm)	Ø _k (mm)
RPS30	According to order	100	86	69	27	265	16	79	30	14	35
RPS36	According to order	100	96	74	32	275	16	83	36	14	42

Resistances of the RPS Balcony Hinges

Balcony Hinge Size	N _{Rd} [kN]	V _{Rd} [kN]
RPS30	26.5	8.0
RPS36	26.5	8.0



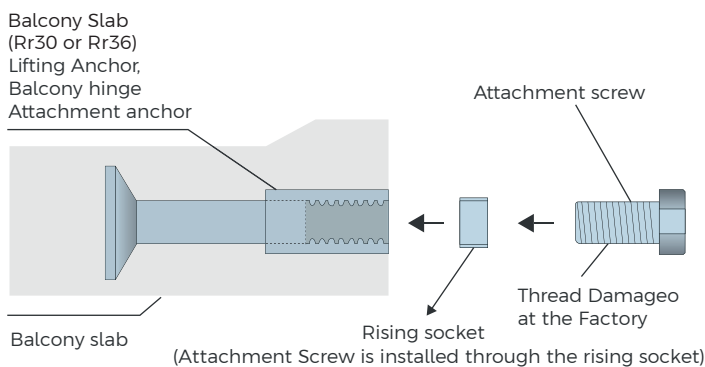
Concrete C25/30



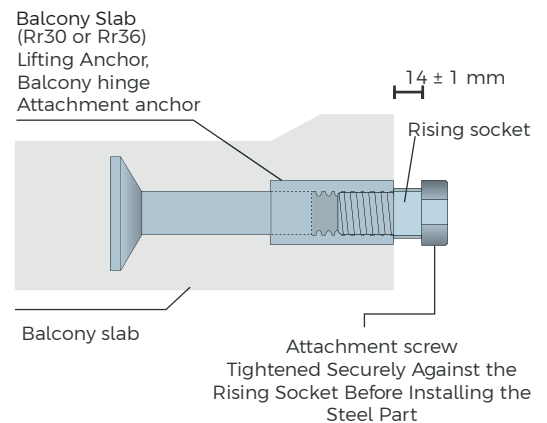
Attaching the balcony slab

In the first phase the attachment screw is screwed to the R lifting anchor through the rising socket and tightened securely. Attachment screw is locked by damaging the thread before assembly (done at the factory).

Installation of the attachment screw

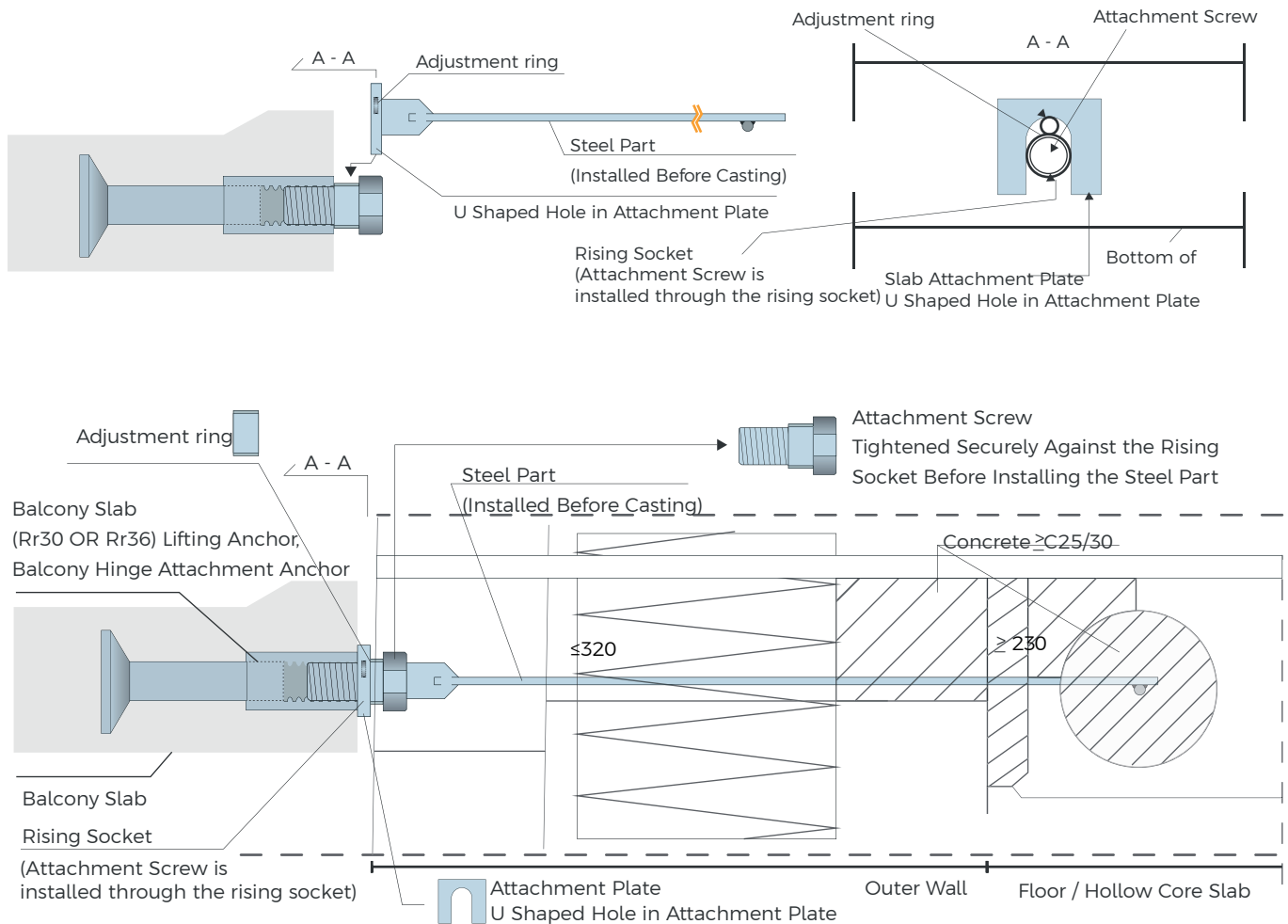


Attachment screw and rising socket installed



In the second phase the U-shaped attachment plate is placed over the rising socket, behind the attachment screw.

Installing the steel part



Materials and standards of the RPS Balcony Hinges

Ordering Code	Shaft Shaft flanges	Standard	Attachment plate Attachment screw	Standard	Anchoring rod	Standard
RPSXX-L	1.4301	SFS-EN 10088	1.4306	SFS-EN 10088	B500B	SFS 1300
	Rising Socket	Standard	Adjustment Ring	Standard		
	1.4306	SFS-EN 10088	1.4404	SFS-EN 10088		

Ordering Code

Total length L of the balcony hinge is notified when ordering. Ordering code is RPSXX-L (mm), eg. RPS30 balcony hinge with total length of 600 mm, ordering code is RPS30-L600.

Approvals

► Finland: 5B-EC 2 57 / 5B 403

370 Square Tubes

BALCONY CONNECTORS

The square tubes are made of stainless steel and come in the following sizes

Size

- 80x80x5mm
- 80x80x6mm
- 100x100x5mm
- 100x100x6mm

- Special dimensions also available on request.
- STALA 350 or equivalent also available





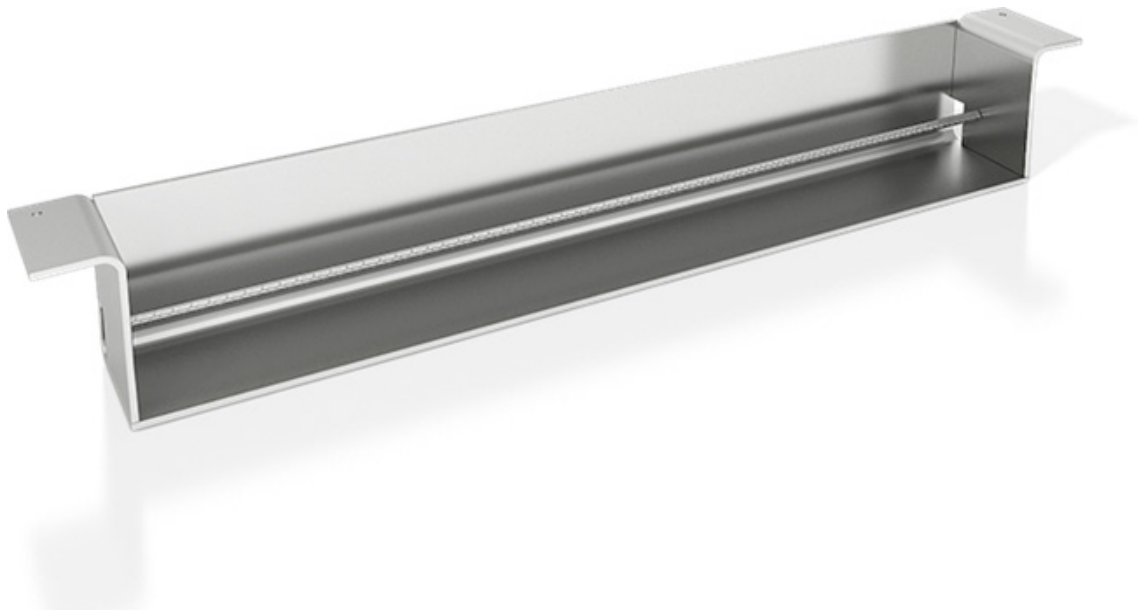
8.

**Slab
Support**

ROK Slab Supports

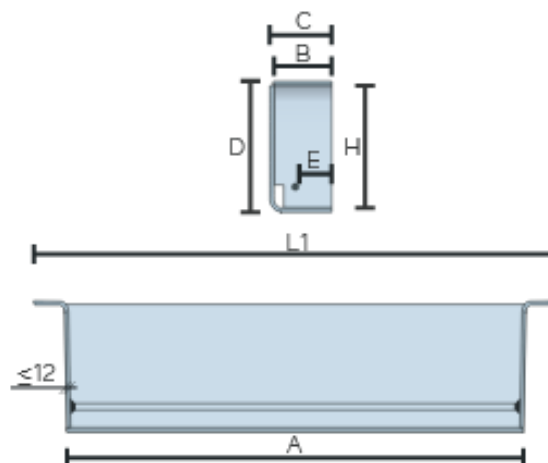
SLAB SUPPORT

ROK-hollow core slab supports are factory made steel parts designed for support of hollow core slabs end at holes in slab structure. ROK-supports transfers slab end support reaction to adjacent slabs or walls in both installation of slabs and in the final situation. ROK (together with seam grout) acts as support structure until fire resistance class R60 without separate fire protection.



ROK-HC Slab Support Materials and Standards

Ordering Code	Front plate	Standard	Side plate	Standard	Fire steel bar	Standard
ROK	S355J2+N	SFS-EN 10025	S355J2+N	SFS-EN 10025	B500B	SFS 1300



Approvals

► Finland: 5B-EC 2 134

For resistances please refer to the technical manual available on RSTEEL® website.



eesti betooniühing

Product ROK	H-L	L1 (mm) ±2	H (mm) ±1	A (mm) ±1	B (mm) ±1	C (mm) ±1	D (mm) ±1	E (mm) ±1
ROK	150-1200	1360	150	1190	150	156	162	87
ROK	175-1200	1360	175	1190	150	156	187	87
ROK	200-1200	1360	200	1190	150	156	212	87
ROK	220-1200	1360	220	1190	150	156	230	87
ROK	265-1200	1360	265	1190	150	156	275	87
ROK	300-1200	1360	300	1190	150	156	310	87
ROK	320-1200	1360	320	1190	150	156	330	87
ROK	350-1200	1360	350	1190	150	156	360	87
ROK	370-1200	1360	370	1190	150	156	380	87
ROK	400-1200	1360	400	1190	180	186	412	117
ROK	450-1200	1360	450	1190	180	186	462	117
ROK	500-1200	1360	500	1190	180	186	512	117
ROK	150-1800	1960	150	1790	150	156	162	87
ROK	175-1800	1960	175	1790	150	156	187	87
ROK	200-1800	1960	200	1790	150	158	214	87
ROK	220-1800	1960	220	1790	150	158	234	87
ROK	265-1800	1960	265	1790	150	158	279	87
ROK	300-1800	1960	300	1790	150	158	314	87
ROK	320-1800	1960	320	1790	150	158	334	87
ROK	350-1800	1960	350	1790	150	158	364	87
ROK	370-1800	1960	370	1790	150	158	384	87
ROK	400-1800	1960	400	1790	180	188	416	117
ROK	450-1800	1960	450	1790	180	188	466	117
ROK	500-1800	1960	500	1790	180	188	516	117
ROK	150-2400	2560	150	2390	150	158	164	87
ROK	175-2400	2560	175	2390	150	158	189	87
ROK	200-2400	2560	200	2390	150	158	214	87
ROK	220-2400	2560	220	2390	150	158	234	87
ROK	265-2400	2560	265	2390	150	158	279	87
ROK	300-2400	2560	300	2390	150	158	314	87
ROK	320-2400	2560	320	2390	150	158	334	87
ROK	350-2400	2560	350	2390	150	158	364	87
ROK	370-2400	2560	370	2390	150	158	384	87
ROK	400-2400	2560	400	2390	180	190	418	117
ROK	450-2400	2560	450	2390	180	190	468	117
ROK	500-2400	2560	500	2390	180	190	518	117

Support ROKS	H-L	L1 (mm) ±2	H (mm) ±1	A (mm) ±1	B (mm) ±1	C (mm) ±1	D (mm) ±1	E (mm) ±1
ROKS (Solid) 150-1200		1360	150	1190	150	158	166	87
ROKS (Solid) 175-1200		1360	175	1190	150	158	191	87
ROKS (Solid) 200-1200		1360	200	1190	150	158	216	87
ROKS (Solid) 220-1200		1360	220	1190	150	158	236	87
ROKS (Solid) 265-1200		1360	265	1190	150	158	281	87
ROKS (Solid) 300-1200		1360	300	1190	150	158	316	87
ROKS (Solid) 320-1200		1360	320	1190	150	158	336	87
ROKS (Solid) 350-1200		1360	350	1190	150	160	368	87
ROKS (Solid) 370-1200		1360	370	1190	150	160	388	87
ROKS (Solid) 400-1200		1360	400	1190	180	188	416	117
ROKS (Solid) 450-1200		1360	450	1190	180	188	466	117
ROKS (Solid) 500-1200		1360	500	1190	180	188	516	117
ROKS (Solid) 150-1800		1960	150	1790	150	160	170	87
ROKS (Solid) 175-1800		1960	175	1790	150	160	195	87
ROKS (Solid) 200-1800		1960	200	1790	150	160	220	87
ROKS (Solid) 220-1800		1960	220	1790	150	160	240	87
ROKS (Solid) 265-1800		1960	265	1790	150	160	285	87
ROKS (Solid) 300-1800		1960	300	1790	150	160	320	87
ROKS (Solid) 320-1800		1960	320	1790	150	160	340	87
ROKS (Solid) 350-1800		1960	350	1790	150	160	370	87
ROKS (Solid) 370-1800		1960	370	1790	150	160	390	87
ROKS (Solid) 400-1800		1960	400	1790	180	190	420	117
ROKS (Solid) 450-1800		1960	450	1790	180	190	470	117
ROKS (Solid) 500-1800		1960	500	1790	180	190	520	117
ROKS (Solid) 150-2400		2560	150	2390	150	160	170	87
ROKS (Solid) 175-2400		2560	175	2390	150	160	195	87
ROKS (Solid) 200-2400		2560	200	2390	150	160	220	87
ROKS (Solid) 220-2400		2560	220	2390	150	160	240	87
ROKS (Solid) 265-2400		2560	265	2390	150	160	285	87
ROKS (Solid) 300-2400		2560	300	2390	150	160	320	87
ROKS (Solid) 320-2400		2560	320	2390	150	160	340	87
ROKS (Solid) 350-2400		2560	350	2390	150	160	370	87
ROKS (Solid) 370-2400		2560	370	2390	150	160	390	87
ROKS (Solid) 400-2400		2560	400	2390	180	190	420	117
ROKS (Solid) 450-2400		2560	450	2390	180	190	470	117
ROKS (Solid) 500-2400		2560	500	2390	180	190	520	117



9.

Magnets

RSTEEL® provides eight types of product in these categories, Which are as follows:

9.1 Fastening Plate Magnets

9.2 Electrical Tubes Magnets

- Electrical Tube Magnet with Space for 1 Tube
- Electrical Tube Magnet with Space for 2 Tubes

9.3 Inserts Magnets

- Low Socket
- High Socket

9.4 Box Magnets

- Distribution box magnet
- Instrument box magnet

9.5 Shutter Magnets

- Magnetic Systems

9.6 Wire Loop Box Magnets

- Loop Box Magnets Type 1
- Loop Box Magnets Type 2

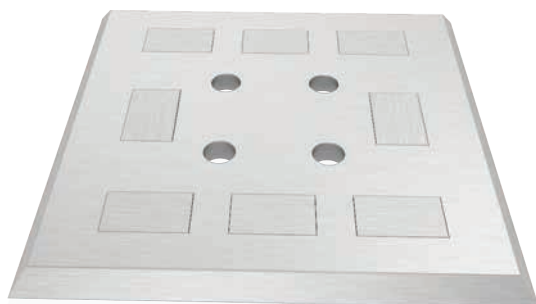
9.7 Precast Concrete Magnet

9.8 Triangle Magnet Chamfer

Magnets

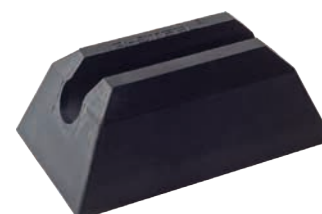
MAGNETS

Fastening Plate Magnets

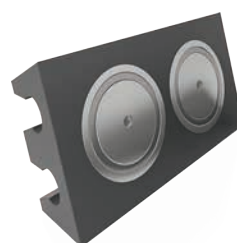
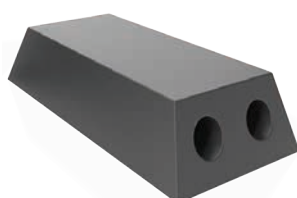
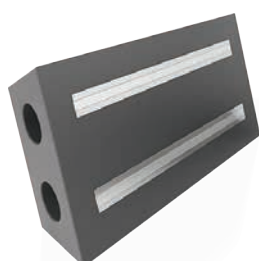


L115 x 115 x 5 Steel

Electrical Tubes Magnets



Electrical Tube Magnet with Space for 1 Tube



Electrical Tube Magnet with Space for 2 Tubes

Inserts Magnets



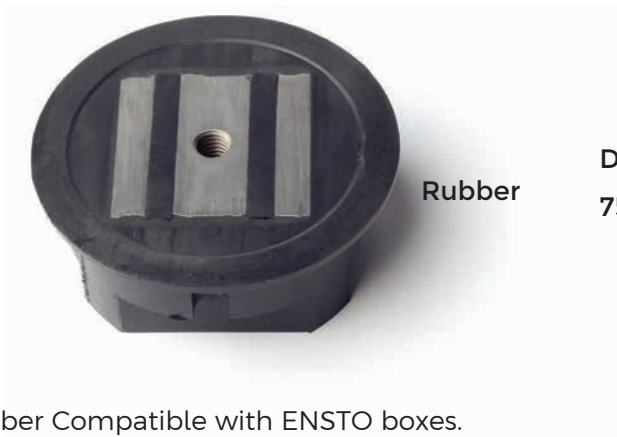
Low Socket



High Socket

Box Magnets

Distribution box magnet



Rubber Compatible with ENSTO boxes.

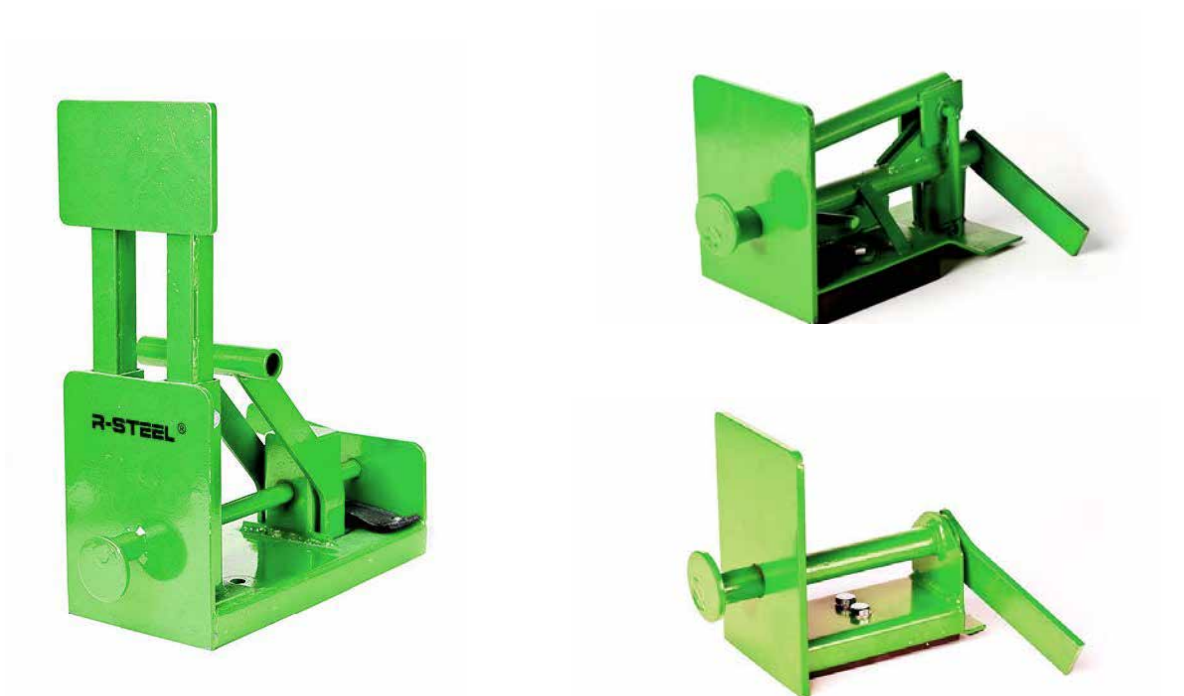
Instrument box magnet



Diameter
75 x 29.8

Rubber Compatible with ENSTO boxes.

Shutter Magnets



Magnetic Systems
2100kg - 2100kg - 1000kg

Wire Loop Box Magnets



Loop Box
Magnets Type 1

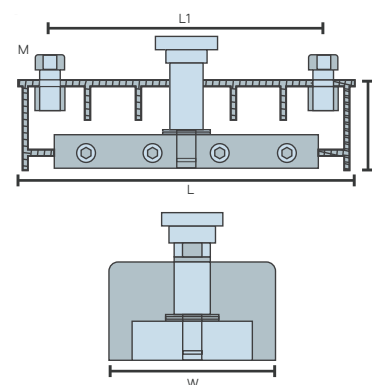


Loop Box
Magnets Type 2

Shutter magnet

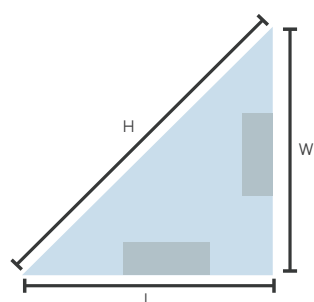
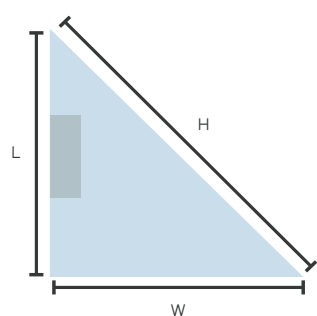
Dimensions and loads of Shutter Magnet

Description	Force	Dimension				
	(kg)	L (mm)	L1 (mm)	h (mm)	M (mm)	W (mm)
900	900	280	230	60	12	70
1600	1600	270	218	60	16	120
2100	2100	320	270	60	16	120
2500	2500	320	270	60	16	120
3100	3100	320	270	60	16	160



Triangle Magnet Chamfer

Dimensions of Triangle Magnet Chamfer



Description	Dimension				Length of magnetic (mm)
	L (mm)	W (mm)	H (mm)	Length (mm)	
1 Side	10	10	15	3000	50%
1 Side	10	10	15	3000	100%
2 Side	10	10	15	3000	50%
2 Side	10	10	15	3000	100%
Bottom	8	3	12	3000	100%
Bottom	8	3	12	3000	50%
1 Side	10	10	14	3000	100%
1 Side	10	10	14	3000	50%
2 Side	15	15	21	3000	100%
2 Side	15	15	21	3000	50%
Bottom	15	15	21	3000	50%
Bottom	15	15	21	3000	100%



10.

Frame Shoes

Frame Shoes are used in precast walls with door or window opening to eliminate drilling in concrete for the purpose of fixing their frames. These frame shoes already have screw / bolt for easy fixing of frames in precast wall.

Frame shoes have three different Models :

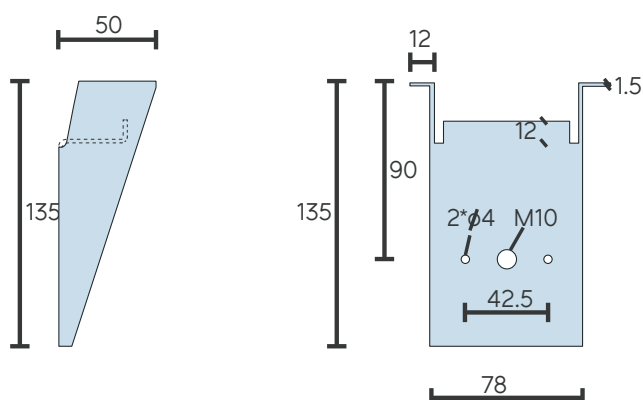
- 10.1 K1 - Small. Steel, zinc-coated
- 10.2 K2 - Big. Steel, zinc-coated
- 10.3 K3 - Female. Steel, zinc-coated

Frame Shoes

FRAME SHOES

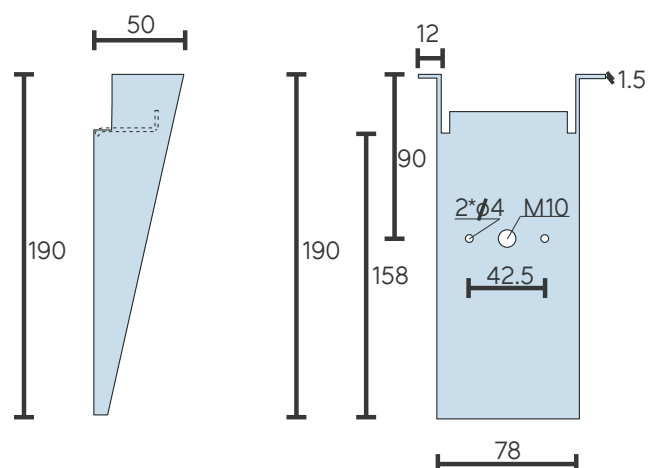
K1 Small.

Material : Steel, Zinc-coated



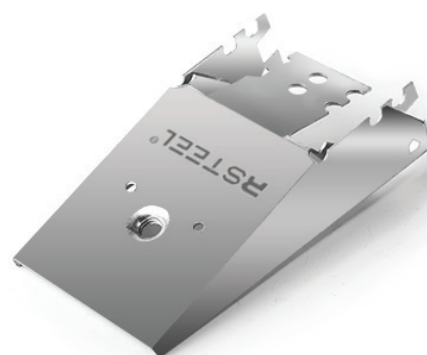
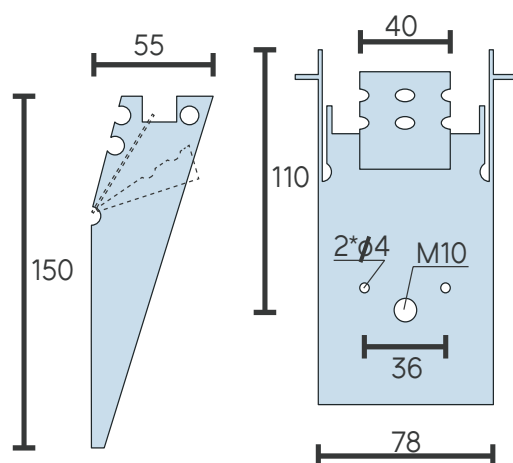
K2 Big.

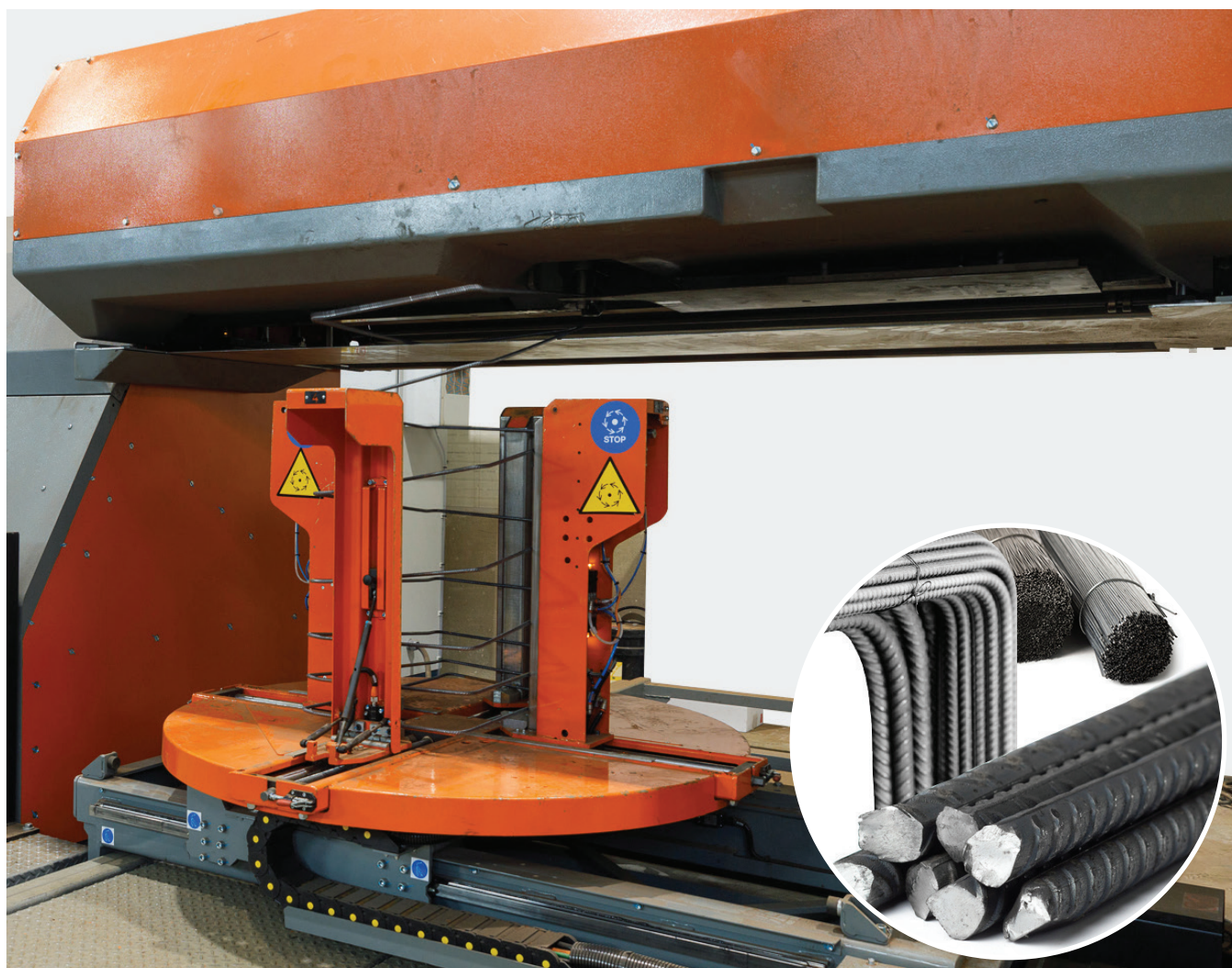
Material : Steel, Zinc-coated



K3 Female.

Material : Steel, Zinc-coated





11.

Cut and Bend

RSTEEL® provides four types of product in this category

11.1 Cut & Bend

11.2 Tying Wires

Cut and Bend Bars

MESH & REBARS

Materials : B500B/B500A/B500K

Dimensions 8 to 12 mm with Spirex machine

Manufacture

According to customer needs



Tying Wire

MESH & REBARS



Aisi 304

0.7x330

0.7x350

0.9x300

0.9x350

0.9x400

0.9x450

0.9x550

Copper Coated

0.9x400

0.9x450

1.1x400

1.1x450

1.2x450

1.2x550

Hot-Galvanized

0.7x330

0.7x350

0.7x450

0.9x400

1.2x450

1.2x550

Black

0.9x400

CREATE A NOTE

GENERAL TERMS OF SALES AGREEMENTS

The following general terms of sales agreements (the General Terms) shall apply to all agreements under which products are purchased from R-Group Baltic OÜ, regardless whether such agreements are in oral, in writing, or concluded digitally (including via e-mail confirmation). The General Terms shall not apply in case the parties have excluded their applicability.

1. Definitions

1.1 In these General Terms, the following definitions shall apply:

1.1.1 The Buyer is the legal or natural person who purchases the Goods from the Seller in accordance with these General Terms and the agreement reached between the Seller and the Buyer;

1.1.2 The General Terms shall mean these general terms of sales agreements;

1.1.3 The Goods shall mean the products to be sold by the Seller to the Buyer in accordance with the agreement reached between the Seller and the Buyer;

1.1.4 The Seller shall mean R-Group Baltic OÜ, an Estonian limited liability company with the registry code 12489489.

2. Object of the Agreement

The Seller obliges to sell and the Buyer obliges to purchase the Goods indicated in the Order

placed by the Buyer on the conditions provided in these General Terms.

3. Purchase of the Goods

The Seller obliges to sell and the Buyer obliges to purchase the Goods indicated in the Order placed by the Buyer on the conditions provided in these General Terms.

3.1 The Buyer submits an order request to the Seller either by e-mail or in another manner agreed between the parties, indicating at least the specifications of the Goods requested, their quantity as well as the place of delivery. Based on the order request, the Seller shall submit an offer to the Buyer, which shall include the purchase price of the Order as well as the term of delivery. Such an offer shall remain valid within five business days from the issuance thereof, unless otherwise indicated by the Seller on the offer notice. An Order shall become binding on the Parties if the Buyer confirms the Order to the Seller by e-mail or in another manner agreed upon between the parties.

3.2 The Buyer shall examine the delivered Goods immediately as of receipt of the Goods and notify the Seller immediately in writing of any and all deficiencies discovered and that it should have discovered when performing due examination of the Goods. In case the Buyer does not notify the Seller of deficiencies in accordance with this clause, the Buyer will not be entitled to rely on such deficiencies nor bring any claims against the Seller regarding the same.

3.3 The ownership of the Goods shall be deemed transferred from the Seller to the Buyer as of the moment the Buyer has completed due payment of the total purchase price for the Goods.

4. Delivery

4.1 In the absence of an express agreement on

the terms of the delivery of the Goods, the Goods shall be delivered as follows:

4.1.1 In case the delivery is completed by a way of sea transportation, the delivery shall be completed according to FOB Incoterms® 2010, and

4.1.1 In case the Parties shall use any other way of transportation, the delivery shall be complete according to FCA Incoterms® 2010.

4.2 The term of delivery shall be indicated by the Seller and approved by the Buyer in accordance with Section 3.1

4.3 The Buyer shall bear all taxes and duties associated with the transportation of the Goods (regardless of the agreed Incoterms® 2010 delivery condition used) if not otherwise agreed between the Parties.

4.4 The risk of accidental loss of and damage to the Goods passes from the Seller to the Buyer according to the Incoterms® 2010 delivery condition agreed between the Parties. If the Parties have not agreed on applying an Incoterms® 2010 delivery condition, the risk of accidental loss of and damage shall pass to the Buyer as of the moment the Goods are transferred to the first carrier.

5. Quality

5.1 The quality of the Goods shall correspond to the requirements of the standards applicable to the Goods according to the laws of the Republic of Estonia.

5.2 Where the delivered Goods do not meet the quality requirements as set out in Section 5.1 of the General Terms, the Seller shall replace the Goods not meeting the quality requirements within a reasonable period of time, except in cases the defects are insignificant or have occurred due to the fault of the Buyer or replacement is not possible or otherwise excluded by law. The

Buyer shall not be entitled to use any other remedies against the Seller, except for the claim for replacement as provided herein, unless the Seller does not replace the Goods not meeting the quality requirements (except if replacement is impossible or otherwise excluded by law), in which case the Buyer may use remedies against the Seller in accordance with these General Terms.

6. Purchase Price

6.1 The purchase price of the Goods shall be indicated by the Seller in accordance with the Seller's price list as may be amended from time to time. The purchase price for a particular lot of Goods shall be indicated by the Seller upon issuing an offer for and Order under Section 3.1

6.2 The Buyer is obliged to pay for the Goods within five business days as of the moment of receipt of the corresponding invoice from the Seller, unless a longer term for payment is provided on the invoice.

6.3 The Parties may agree that the Seller shall submit a pro forma invoice or invoice for advance payment and the Buyer shall become obliged to complete the payment under such invoice R-Group Baltic OÜ | Kõrtsi tee 7/1, Lehmja Küla, Rae Vald, 75306 Harjumaa ESTONIA | Mob. +372 578 396 76 | VAT: EE101645610 | reg. no. 12489489 | Tel. +372 578 39676 | www.repo.eu | www.rsteel.fi in accordance with the provisions of these General Terms. Until due payment under the invoice by the Buyer, the Seller shall not become obliged to take any actions for the performance of the Order. In case the Buyer is on delay with conducting payment under preliminary invoice all other terms under the agreement will delayed correspondingly. If the delay of the Buyer exceeds 14 days, the Seller shall have a right to unilaterally terminate the agreement immediately by way of

issuing a respective notice to the Buyer.

6.4 The parties may agree that the Goods are to be stored at the warehouse of the Buyer or at the warehouse of a third party and that the Seller becomes entitled to issue the invoice for the Goods and Buyer becomes obliged to pay for the Goods from the moment the Buyer has withdrawn the Goods from the said warehouse. The Buyer shall notify the Seller of withdrawal of the Goods, indicating also which Goods are to be withdrawn, prior to their withdrawal. The Goods shall be withdrawn within one month from their receipt at the warehouse, if not otherwise agreed between the parties. In case the Goods have not been withdrawn within the mentioned period, the Seller will nevertheless become entitled to issue the invoice for the entire lot of the Goods as from the expiry of the said term. The Seller may also, at its sole discretion, choose to recall the Goods from the warehouse and order redelivery to the Seller at the cost of the Buyer.

7. Liability

7.1 The Seller shall be liable only for a breach of the agreement if such breach is caused by intentional actions or gross negligence of the Seller. In any case, the Seller shall not be liable for a breach which arises in connection with the actions or omissions of the Seller's supplier.

7.2 In case the Seller breaches an obligation arising from the agreement, the Seller shall not be liable for any indirect damage sustained by the Buyer, including loss of profit, purely economic loss, whereas indirect damage shall also include damage related to claims by third parties for lost profits, purely economic loss or other indirect or consequential loss or damage of third parties presented against the Buyer. The Seller's liability related to a particular lot of the Goods is in any case limited with the purchase price as of the lot

of the Goods provided on the relevant invoice. 7.3 In case the Buyer is on delay with paying for the Goods, it shall be obliged to pay to the Seller a default interest of 0.1% of the delayed sum per each day of delay.

8. Force Majeure

No party shall be liable for failure to perform its obligations (other than any payment obligations) under this agreement because of the occurrence of a force majeure event. A force majeure event shall mean any event beyond the control and without the fault or negligence of the party whose performance hereunder is delayed in consequence of such event, including, but not limited to, acts of God, expropriation or confiscation of facilities, acts of war, rebellion or sabotage, fires, floods, epidemics, communicable disease outbreak, explosions, riots, strikes, unavoidable delays in delivery or transportation, terrorism, unavoidable casualties, lightning or unusually.



**Let us work together to
build safe, reliable and
enduring structures**



RSTEEL®

Sales Team

BELIEVES IN COLLECTIVE POWER OF TEAMWORK COMMITMENT AND INNOVATION

FINLAND / WEST EU

Johannes Kivikangas
+358 405 513 979
johannes.kivikangas@repo.eu

FINLAND

Esa Kylliäinen
+358 401 260 716
esa.kylliainen@repo.eu

Suvi Kylliäinen
+358 405 513 879
suvi.kylliainen@repo.eu

CENTRAL AND EASTERN EUROPE

Marvet Suurkivi
+372 526 5480
marvet@repo.eu

SCANDINAVIA

Ivanz Kuzins
+371 2541 0762
ivans.kuzins@repo.eu

ASIA

Jari Karjalainen
+60 12 417 3001
+358 45 6577 442
jari.karjalainen@repo.eu

Mimi Khalid
+60 179 482 439
mimi.khalid@repo.eu

Technical support : technical@repo.eu , +372 5190 7929



Contact Us

Selling
Products
in
50+
Countries Worldwide

R-GROUP
Baltic OÜ
Kõrtsi tee 7/1
Lehmja Küla, Rae Vald
75306 Harjumaa
ESTONIA

T: +372 578 396 76
T: +358 20 722 9420

VAT No. EE101645610
Reg. No. 12489489

REST OF THE WORLD

Contact our HQ for sales
for other countries. We will be
glad to entertain you.

R-Group

We have more than 50 years of experience in the precast concrete industry.

R-Group Corporation is a Finnish leading global supplier of precast accessories and concrete connections. With more than 50 years of experience in the precast industry, RSTEEL® provides sustainable solutions for safe, reliable and enduring structures throughout the world. RSTEEL® comply with strict quality control in accordance with the guidelines of the Finnish and European Concrete Associations and the ISO 9001- ISO14001 certificates. We are dedicated to providing you with the best quality solutions at competitive prices.

OUR WEB & SOCIAL NETWORK



www.repo.eu



info@repo.eu



[/company/13220821/](https://www.linkedin.com/company/13220821/)



[/rsteelgroup](https://www.facebook.com/rsteelgroup)

HEADQUARTERS

R-GROUP BALTIC OÜ
Kõrtsi tee 7/1 Lehmja Küla,
Rae Vald 75306 Harjumaa ESTONIA
Mob. +372 578 396 76
Email: info@repo.eu

