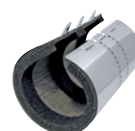


Know-how ■ Innovation  
System-thinking ■ Quality ■ Service



## Walraven Catalogue

Technical installation







**walraven**

It is our vision to become your  
preferred partner for integrated solutions  
in the global installation market.







# Walraven Group

## Walraven

Walraven is a manufacturer of a wide range of technical installation materials, with an emphasis on fixing systems, fire protection systems and sanitary systems. Since its founding in 1942, the family business has grown into an international company with more than 1000 skilled employees and its own sales and production sites in various countries in Europe.

Our employees think in solutions and are happy to assist you with well grounded advice and technical support. All this in close collaboration with specialised wholesale partners and distributors. Thanks to them Walraven products always close by and available at the right time in Europe, North and South America Middle East, Asia and Australia.

## Head office

J. van Walraven Holding B.V.  
Mijdrecht (NL)

## 19 Sales companies

### Mijdrecht (NL)

Walraven B.V.  
The Netherlands

### Mijdrecht (NL)

Walraven International  
Other countries

### Tienen (BE)

Walraven BVBA  
Belgium – Luxembourg

### Bayreuth (DE)

Walraven GmbH  
Germany – Austria – Switzerland  
Italy – South East Europe

### Grenoble (FR)

Walraven France Eurl  
France

### Banbury (UK)

Walraven Ltd.  
United Kingdom – Ireland

### Mladá Boleslav (CZ)

Walraven s.r.o.  
Czech republic – Slovak republic

### Kraków (PL)

Walraven Sp. z o.o.  
Poland – Lithuania – Latvia  
Estonia

### Kyiv (UA)

Walraven Ltd.  
Ukraine

### Barcelona (ES)

Walraven Iberia S.L.  
Spain – Portugal

### Danville (US)

Walraven, Inc.  
United States of America

### Shanghai (CN)

Walraven Shanghai, Ltd.  
China

### Malmö (SE)

Walraven Nordic AB  
Sweden – Denmark – Norway –  
Finland – Iceland

### Dubai (AE)

Hira Walraven  
Middle East

### Budapest (HU)

Walraven Kft.  
Hungary – Romania

### Mumbai (IN)

Diamond Walraven  
India

### Burlington (CA)

Taylor Walraven  
Canada

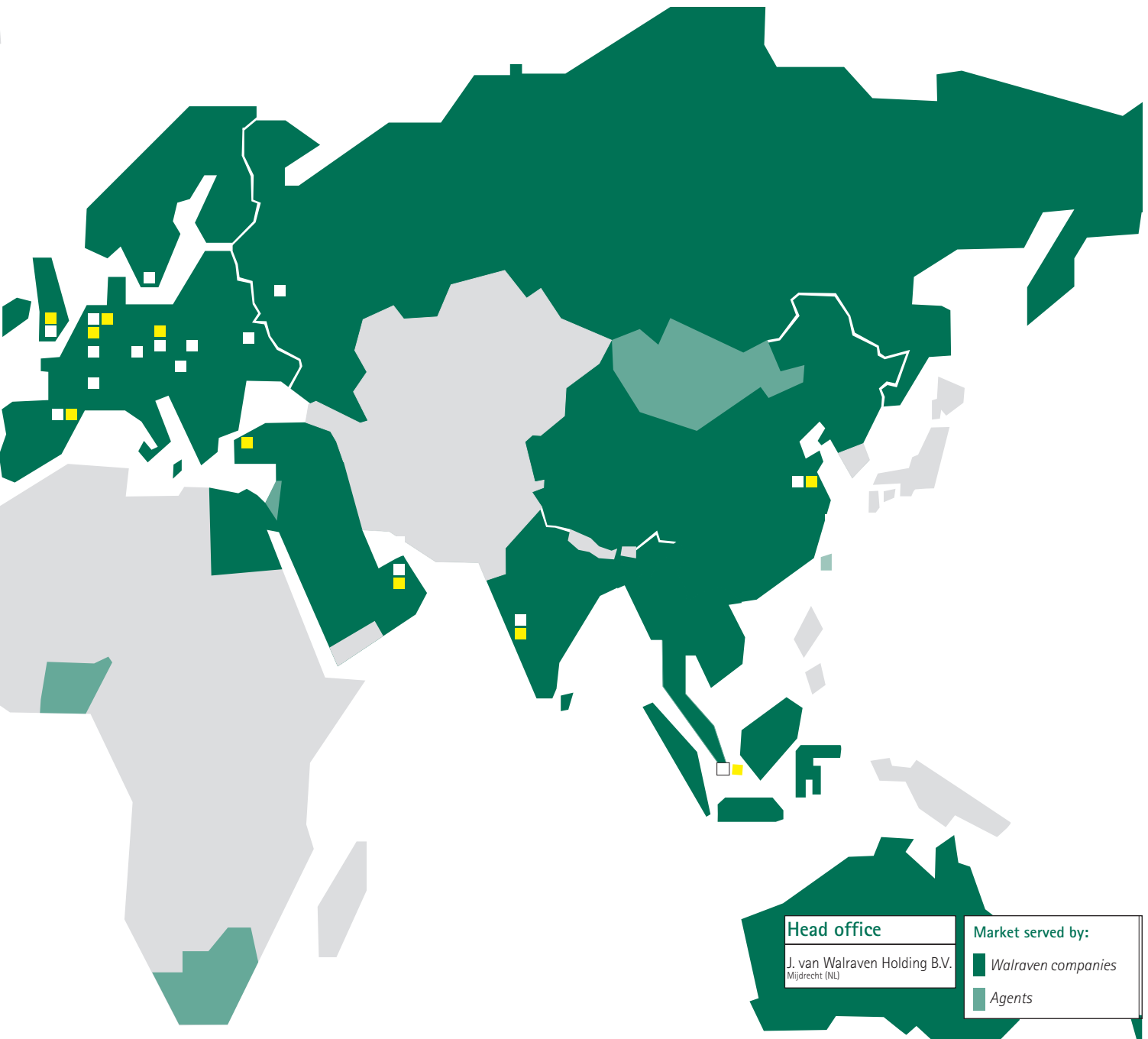
### Moscow (RU)

Walraven LLC  
Russia

### Singapore (SG)

Walraven Pte. Ltd.  
Singapore – Indonesia – Malaysia  
Thailand – Vietnam – Cambodia – Brunei  
Laos – Myanmar – Australia  
New Zealand – South Korea – Japan





## 13 Production / assembly companies

<b>Mijdrecht (NL)</b> J. van Walraven B.V.	<b>Cista (CZ)</b> Suchánek & Walraven s.r.o.	<b>Horka (CZ)</b> Suchánek & Walraven s.r.o.	<b>Barcelona (ES)</b> Walraven Iberia S.L.	<b>Banbury (UK)</b> Walraven Ltd.	<b>Istanbul (TR)</b> Jefelex Plastik Kauçuk
<b>Gramsbergen (NL)</b> Loko Gramsbergen B.V.	<b>Horka (CZ)</b> SWO Tooling s.r.o.	<b>Changshu (CN)</b> Walraven Metal Products (Changshu) Co. Ltd	<b>Danville (US)</b> Walraven, Inc.	<b>Mumbai (IN)</b> Diamond Walraven	<b>Burlington (CA)</b> Taylor Walraven
<b>Singapore (SG)</b> Walraven Pte. Ltd.					



# BIS Metal Pipe Clamps with Lining

## BISMAT® Flash

Catalogue page A 05 04



### Features and benefits

- single screw clamp
- with BISMAT® Flash quick locking system
- clamp easy to close with one hand
- the locking screw can be secured without use of tools
- material: steel
- zinc plated
- noise insulating lining, EPDM rubber, black
- age resistant lining
- sound insulating lining according DIN 4109
- optimised noise insulation due to soft closing without tools
- noise reduction according to ISO 3822-1 up to 23 dB(A)
- tested for fire safety

Part No. Walraven	Part No. Reece	Dmm mm	D" "	G	RAL	Pack 1
3373023	On request	20 - 23	1/2	M8	RAL <sup>2</sup>	50
3374018	510726	15 - 18	3/8	M8/10	RAL <sup>2</sup>	50
3374028	510728	25 - 28	3/4	M8/10	RAL <sup>2</sup>	50
3374035	510729	32 - 35	1	M8/10	RAL <sup>2</sup>	50
3374043	510730	40 - 43	1 1/4	M8/10	RAL <sup>2</sup>	50
3374051	510731	48 - 51	1 1/2	M8/10	RAL <sup>2</sup>	50
3374056	510732	53 - 56	-	M8/10	RAL <sup>2</sup>	50
3374063	510733	59 - 63	2	M8/10	RAL <sup>2</sup>	50

*RAL<sup>2</sup> = tested, certified and monitored by a third party according to RAL-GZ 655/B and RAL-GZ 656.*

*For detailed technical information about our RAL marked products, please see the RAL datasheet in our web catalogue.*

## Bifix® G2 with Lining (M10) (BUP1000)

Catalogue page A 05 72



### Features and benefits

- two-screw clamp
- quick closing mechanism for easy locking of the clamp with one hand
- 2 component rubber lining provides easy positioning of the pipe during installation
- when the clamp is closed, the pipe rests on soft black rubber lining for increased noise reduction
- material: steel
- surface protection:
  - product is part of the Walraven BIS UltraProtect® 1000 system
  - suitable for in- and outdoor applications
  - stands min. 1,000 hours salt spray test (max. 5% red rust) according to ISO 9227
- temperature resistance from -30 °C to +120 °C
- sound insulating lining according DIN 4109
- noise reduction according to ISO 3822-1 up to 23 dB(A)

Part No. Walraven	Part No. Reece	Dmm mm	D" "	DN	G	Pack 1
31285014	501099	10 - 14	1/4	8	M10	50
31285019	501107	15 - 19	3/8	10	M10	50
31285023	501108	20 - 23	1/2	15	M10	50
31285028	501109	25 - 28	3/4	20	M10	50
31285035	501110	31 - 35	1	25	M10	50
31285039	501111	36 - 39	-	-	M10	50
31285045	501112	40 - 45	1 1/4	32	M10	50
31285052	501113	48 - 52	1 1/2	40	M10	50
31285058	501114	54 - 58	-	-	M10	50
31285064	501115	60 - 64	2	50	M10	50
31285070	501116	66 - 70	-	-	M10	50
31285079	501117	75 - 79	2 1/2	65	M10	50
31285083	501118	80 - 83	-	-	M10	50
31285091	501119	88 - 91	3	80	M10	25
31285105	501120	100 - 105	-	-	M10	25
31285115	501121	108 - 115	4	100	M10	25
31285130	501122	125 - 130	-	-	M10	25
31285140	501123	133 - 140	5	125	M10	25
31285160	501124	152 - 160	-	-	M10	25
31285200	501125	192 - 200	-	-	M10	15



## BIS Heavy Duty Clamp HD1501 (BUP1000) – Special Order

Catalogue page A 10 04



### Features and benefits

- two-part clamp with two locking bolts
- up to and including 5": locking nut is captive, hidden in plastic holder
- heavy design
- bolts secured with anti-loss washer
- with CO2 welded connection nut
- material: steel
- surface protection:
  - product is part of the Walraven BIS UltraProtect® 1000 system
  - suitable for in- and outdoor applications
  - stands min. 1,000 hours salt spray test (max. 5% red rust) according to ISO 9227
- noise insulating lining, EPDM rubber, black
- age resistant lining
- sound insulating lining according DIN 4109
- noise reduction according to ISO 3822-1 up to 18 dB(A)
- tested for fire safety

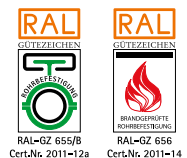
Part No.	Dmm mm	D" "	G	RAL	Pack 1
33138023	19 - 23	1/2	M8/10	RAL <sup>2</sup>	25
33138029	25 - 29	3/4	M8/10	RAL <sup>2</sup>	25
33138035	30 - 35	1	M8/10	RAL <sup>2</sup>	25
33138045	40 - 45	1 1/4	M8/10	RAL <sup>2</sup>	25
33138051	46 - 51	1 1/2	M8/10	RAL <sup>2</sup>	25
33138059	53 - 59	-	M8/10	RAL <sup>2</sup>	25
33138064	59 - 64	2	M8/10	RAL <sup>2</sup>	25
33148071	65 - 71	-	M10/12	RAL <sup>2</sup>	25
33148078	72 - 78	2 1/2	M10/12	RAL <sup>2</sup>	25
33148085	79 - 85	-	M10/12	RAL <sup>2</sup>	25
33148092	86 - 92	3	M10/12	RAL <sup>2</sup>	25
33148109	101 - 109	-	M10/12	RAL <sup>2</sup>	25
33148116	108 - 116	4	M10/12	RAL <sup>2</sup>	25
33148133	125 - 133	-	M10/12	RAL <sup>2</sup>	25
33148140	132 - 140	5	M10/12	RAL <sup>2</sup>	15
33148169	159 - 169	6	M10/12	RAL <sup>2</sup>	15

RAL<sup>2</sup> = tested, certified and monitored by a third party according to RAL-GZ 655/B and RAL-GZ 656.

For detailed technical information about our RAL marked products, please see the RAL datasheet in our web catalogue.

## BIS Heavy Duty Clamp HD1501 (BUP1000) – Special Order

Catalogue page A 10 09



### Features and benefits

- two-part clamp with two locking bolts
- heavy design
- bolts secured with anti-loss washer
- with CO2 welded connection nut
- material: steel
- surface protection:
  - product is part of the Walraven BIS UltraProtect® 1000 system
  - suitable for in- and outdoor applications
  - stands min. 1,000 hours salt spray test (max. 5% red rust) according to ISO 9227
- noise insulating lining, EPDM rubber, black
- age resistant lining
- sound insulating lining according DIN 4109
- noise reduction according to ISO 3822-1 up to 18 dB(A)
- tested for fire safety

Part No.	Dmm mm	D" "	G	RAL	Pack 1
33178188	178 - 188	-	G1/2"	RAL <sup>2</sup>	15
33178204	194 - 204	-	G1/2"	RAL <sup>2</sup>	15
33178213	203 - 213	-	G1/2"	RAL <sup>2</sup>	15
33178227	217 - 227	8	G1/2"	RAL <sup>2</sup>	2
33178250	240 - 250	-	G1/2"	RAL <sup>1</sup>	2
33178275	265 - 275	10	G1/2"	RAL <sup>1</sup>	2
33178325	315 - 325	12	G1/2"	RAL <sup>1</sup>	2
33178364	354 - 364	14	G1/2"	RAL <sup>1</sup>	2
33178408	398 - 408	16	G1/2"	RAL <sup>1</sup>	2
33178458	448 - 458	18	G1/2"	RAL <sup>1</sup>	2
33178509	499 - 509	20	G1/2"	RAL <sup>1</sup>	2

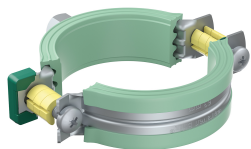
RAL<sup>1</sup> = tested, certified and monitored by a third party according to RAL-GZ 655/B.

RAL<sup>2</sup> = tested, certified and monitored by a third party according to RAL-GZ 655/B and RAL-GZ 656.

For detailed technical information about our RAL marked products, please see the RAL datasheet in our web catalogue.

## Bifix® 5000 G2 (BUP1000)

Catalogue page A 25 09



## Features and benefits

- two-screw clamp
- with quick locking system
- removable spacer washers allow the sliding or gripping of the pipe within the clamp
- material: steel
- surface protection:
  - product is part of the Walraven BIS UltraProtect® 1000 system
  - suitable for in- and outdoor applications
  - stands min. 1,000 hours salt spray test (max. 5% red rust) according to ISO 9227
- noise insulating lining, EPDM rubber, green
- lining: very suitable for applications with plastic pipes
- inner part of lining is flush to improve sliding of pipe in clamp
- age resistant lining
- sound insulating lining according DIN 4109

Part No. Walraven	Part No. Reece	Dmm mm	G	Pack 1
3188025	510763	25	M8/10	50
3188032	510764	32	M8/10	50
3188040	510765	40	M8/10	50
3188050	510766	50	M8/10	50
3188056	510767	56	M8/10	50
3188063	510768	63	M8/10	50
3188075	510769	75	M8/10	50
3188090	510770	90	M8/10	25
3188110	510771	110	M8/10	25
3188160	510772	160	M8/10	10



## BIS Plastic Pipe Clamps

### starQuick® Clamp (Grey)

Catalogue page C 05 05



#### Features and benefits

- one-part clamp
- clamp closes by applying pressure to the pipe
- for outdoor use and installations in swimming pool environments, chemical factories, zinc factories, etc.
- due to a patented profile it is possible to tack several clamps to each other
- material: modified PA6 (polyamide), grey (according to RAL 7035)
- resistant to UV, ageing, oil and petrol
- no corrosion, recyclable, halogen free
- temperature resistance from approx. -40 °F to approx. +194 °F constant, approx. 266°F peak (Note: temperature must be above 15°F during installation process)

Part No. Walraven	Part No. Reece	Dmm mm	D" "	DN	Type	Pack 1
0854012	1532524	12 - 14	1/4	8	SQ-12	100
0854015	1532525	14 - 16	-	-	SQ-15	100
0854018	510559	16 - 20	3/8	10	SQ-17	100
0854022	510560	20 - 23	1/2	15	SQ-20	50
0854028	510561	24 - 28	3/4	20	SQ-25	50
0854031	510556	28 - 32	-	-	SQ-28	50
0854035	510562	32 - 35	1	25	SQ-32	50
0854038	510563	35 - 40	-	-	SQ-36	25
0854042	510564	40 - 44	1 1/4	32	SQ-40	25
0854050	510565	44 - 50	-	-	SQ-47	25
0854054	510566	48 - 55	1 1/2	40	SQ-51	15
0854063	510567	59 - 65	2	50	SQ-59	15

$F_{a,x} = F_{a,z} / F_{b,x} = F_{b,z}$ .

Maximum allowed load at a temperature of +21 °C (+70 °F) and fixing with M6 BIS starQuick® nut + M6 steel treaded rod.

The values are recommended values and based on our nowadays technical knowledge, experience and statements in the literature as well as testing under laboratory circumstances. They do not relieve the user of own testing of the end product due to the big number of parameter of influence in the mounting process and the application. A legal confirmed assurance of properties or the suitability for a specific application cannot be based on our specifications.

### starQuick® Clamp (Copper Colour)

Catalogue page C 05 12



#### Features and benefits

- one-part clamp
- clamp closes by applying pressure to the pipe
- for outdoor use and installations in swimming pool environments, chemical factories, zinc factories, etc.
- due to a patented profile it is possible to tack several clamps to each other
- material: modified PA6 (polyamide), copper colour
- resistant to UV, ageing, oil and petrol
- no corrosion, recyclable, halogen free
- temperature resistance from approx. -40 °C to approx. +90 °C (constant); short to approx. +130 °C

Part No. Walraven	Part No. Reece	Dmm mm	D" "	Type	Appr.	Pack 1
0855818	510736	16 - 20	3/8	SQ-17		100
0855828	510737	24 - 28	3/4	SQ-25		50
0855831	510738	28 - 32	-	SQ-28		50

$F_{a,x} = F_{a,z} / F_{b,x} = F_{b,z}$ .

Maximum allowed load at a temperature of +21 °C (+70 °F) and fixing with M6 BIS starQuick® nut + M6 steel treaded rod.

The values are recommended values and based on our nowadays technical knowledge, experience and statements in the literature as well as testing under laboratory circumstances. They do not relieve the user of own testing of the end product due to the big number of parameter of influence in the mounting process and the application. A legal confirmed assurance of properties or the suitability for a specific application cannot be based on our specifications.

## starQuick® Duo Wall Plate

Catalogue page C 05 20



### Features and benefits

- for fixing of two pipes with starQuick® Clamps
- suitable for starQuick® Clamps up to SQ-20
- the distance between the pipe and the wall is equal to that of a single clip
- material: modified PA6 (polyamide), grey or white
- resistant to UV, ageing, oil and petrol
- no corrosion, recyclable, halogen free
- temperature resistance from approx. -40 °C to approx. +90 °C (constant); short to approx. +130 °C

Part No. Walraven	Part No. Reece	Model	Colour	Pack 1
0854000	510550	-	Grey (RAL 7035)	100

## starQuick® Distance Block

Catalogue page C 05 30



### Features and benefits

- for clamp fixing with a distance to the structure
- for screwing a clip to a distance block, use a screw of at least 55 mm
- suitable for SQ-10 up to SQ-36
- a starQuick® Clip can easily be stacked to a distance block
- for a larger stand off, distance blocks can be clicked together
- material: modified PA6 (polyamide), grey (according to RAL 7035)
- resistant to UV, ozone and chemicals
- no corrosion, recyclable, halogen free
- temperature resistance from approx. -40 °C to approx. +90 °C (constant); short to approx. +130 °C

Part No. Walraven	Part No. Reece	L	Bmm mm	Hmm mm	Pack 1
0854510	510734	27 mm	17	10	25

## starQuick® Rail

Catalogue page C 05 45



### Features and benefits

- for fixing of two or more pipes with starQuick® Clamps without nut
- the starQuick® Clamp is fixed to the rail by mean of the starQuick® Rail Adaptor (Part No. 0854313)
- material: PVC (polyvinylchloride), grey (according to RAL 7035)

Part No. Walraven	Part No. Reece	L	Pack 1
0854325	510041	1 m	25



## starQuick® Rail Adaptor

Catalogue page C 05 50



### Features and benefits

- suitable for starQuick® Clamps up to SQ-32
- for fixing of a starQuick® Clamp (without nut) on a starQuick® Rail or on a Strut-Adaptor (Part No. 0854331)
- material: modified PA6 (polyamide), grey (according to RAL 7035)
- resistant to UV, ageing, oil and petrol
- no corrosion, recyclable, halogen free
- temperature resistance from approx. -40 °C to approx. +90 °C (constant); short to approx. +130 °C

Part No. Walraven	Part No. Reece	For	Pack 1
0854313	510553	BIS starQuick®	20

## starQuick® Universal Rail Adaptor

Catalogue page C 05 57



### Features and benefits

- for fixing starQuick® Clamps to BIS RapidRail® or Strut Rail
- to add pipework quickly and simply to an existing installation
- suitable for SQ-10 up to SQ-51
- suitable for rail 27x18, 30x15, 30x20, 30x30, 30x45, 38x40 + Strut
- material: modified PA6 (polyamide), grey (according to RAL 7035)
- resistant to UV, ageing, oil and petrol
- no corrosion, recyclable, halogen free
- temperature resistance from approx. -40 °C to approx. +90 °C (constant); short to approx. +130 °C

Part No. Walraven	Part No. Reece	For Rail	Pack 1
0854332	9503229	27x18, 30x15, 30x20, 30x30, 30x45, 38x40 + Strut	50

## starQuick® Fixing Nut

Catalogue page C 05 65



### Features and benefits

- to make a threaded connection in a starQuick® Clamp
- entirely integrated in clamp (not protruding)
- material: PC (polycarbonate), grey or white
- no corrosion

Part No. Walraven	Part No. Reece	G	Colour	Pack 1
0854006	510551	M6	Grey (RAL 7035)	100

- temperature resistance from approx. -35 °C to approx. +110 °C (constant); short to approx. +125 °C

starQuick® Push Plug

Catalogue page C 05 75



Features and benefits

- for fixing of a starQuick® Clamp or other clamp with thread connection M6
- pre-drill hole Ø 6 mm and insert plug
- material: modified PA6 (polyamide), grey (according to RAL 7035)
- resistant to UV, ageing, oil and petrol
- no corrosion, recyclable, halogen free
- temperature resistance from approx. -40 °C to approx. +90 °C (constant); short to approx. +130 °C

Part No. Walraven	Part No. Reece	G	L	Pack 1
6101063	510742	M6	30 mm	50



## BIS Fixing Points and Sliding Devices

### BIS Ball Swivel Hanger – *Special Order*

Catalogue page E 10 05



#### Features and benefits

- for fastening hanging pipes with thermal expansion
- allows axial and radial pipe movements
- particularly suitable for larger distances to the ceiling
- with inspection hole to check screw-in depth (attention: when the threaded rod is screwed-in too deep, the ball swivel is blocked)
- screw-in depth is continuously variable (see LU)
- material: steel
- zinc plated
- tested for fire safety according to EN 1363-1

Part No.	G1	G2	L	Pack 1
6642010	M10	M10	49 mm	50

*Please note. Always use 2 ball swivel hangers and secure by additional hexagon nut (see application picture). The maximum length change that can be dealt with, depends on the fixing distance (ceiling - pipe). The height difference that occurs as a result, needs to be taken into consideration.*

*To be used in combination with BIS RapidRail® or BIS RapidStrut® Ball Swivel Hangers. Product can be found on page G 30 60 / H 24 75.*

### BIS Expansion Device (BUP1000) – *Special Order*

Catalogue page E 10 35



#### Features and benefits

- single support for pipe expansion
- secure parts ensure mechanism will not slide out
- fix directly on the building structure or in combination with rail systems
- suitable for ceiling mounting (suspended) and floor mounting (standing mounted)
- very low installation height, useful in small spaces
- a variety of connection possibilities, can be combined with Bifix® G2 or HD1501 Pipe Clamps
- material: metal parts made of steel; plastic parts made of POM (polyoxymethylene)
- friction coefficient  $\mu = 0.18$ ; Sliding friction coefficient  $\mu = 0.14$
- surface protection:
  - product is part of the Walraven BIS UltraProtect® 1000 system
  - suitable for in- and outdoor applications
  - stands min. 1,000 hours salt spray test (max. 5% red rust) according to ISO 9227
- temperature resistance up to +120 °C
- tested for fire safety according to EN 1363-1

Part No.	Model	G	SL (max.)mm mm	Pack 1
6668312	Single	M10/12	100	5

# BIS Suspension Components for Air Ducts

## BIS Support Bracket Rectangular Ductwork

Catalogue page F05 15



### Features and benefits

- for fixing of rectangular air ducts
- with hole Ø 4.5 mm for pop-rivet connection
- material: metal parts made of steel; silent block made of TPE rubber, black
- zinc plated
- sound insulating lining according DIN 4109

Part No. Walraven	Part No. Reece	Type	Pack 1
4125001	510638	L	50
4125003	510639	Z	50

## BIS Rubber Absorption Piece

Catalogue page F05 25



### Features and benefits

- noise insulating element
- e.g. for noise insulating suspension of fixing rail in combination with threaded rod M10
- rubber absorption pieces are suitable to use with RapidStrut® Rails and RapidRail® Profiles
- material: metal parts made of steel; silent block made of TPE rubber, black
- zinc plated
- noise insulation up to 16dB(A) on average, when combined with RapidRail® 27x18, compared to directly installed clamps

Part No. Walraven	Part No. Reece	Type	R	Bmm mm	Hmm mm	Pack 1
4125007	510482	M	10.1	30	19.5	100
4125006	510640	M + F	10.1	30	23.0	50

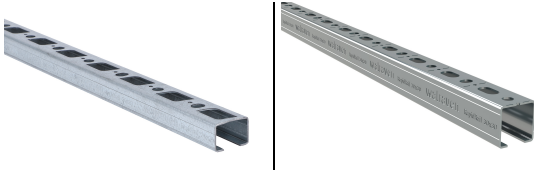
*The maximum allowed load can be higher under strict conditions and is depending on the frequency, for conditions and details please consult our technical department.*



## Walraven RapidRail® Fixing System

### Walraven RapidRail® Fixing Rail – Special Order

Catalogue page G 04 06



#### Features and benefits

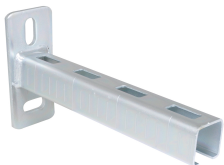
- C-profile
- for quick and adjustable fixing of one or multiple pipes
- with continuous perforation
- distance between rail end and first hole is always equal
- with sawing marks each 50 mm
- flexible hole pattern with anchor holes and also small holes to use wood screws
- unique hole pattern at rails 30x20, 30x45, 38x40 allows to click in Walraven RapidRail® Hammerfix from both sides
- material: steel 1.0242
- pre-galvanized
- for more information about the max. allowed load ( $F_{a,z}$ ) please refer to the loading tables or our online datasheet 'Technical Details Walraven RapidRail®'

Part No.	L	Bmm mm	Hmm mm	smm mm	BndS
650530202	2.0 m	30	20	1.25	20
650530302	2.0 m	30	30	1.50	20

For more information about the max. allowed load ( $F_{a,z}$ ) please refer to the loading tables or our online datasheet 'Technical Details Walraven RapidRail®'.

### BIS RapidRail® Cantilever Arm (BUP1000) – Special Order

Catalogue page G 10 05



#### Features and benefits

- wall plate with welded C-profile
- perfectly suitable for hanging to the ceiling
- slots at 90° to each other to simplify fixing
- CO2 welded
- a continuous graduated centimetre scale on one side
- unique perforation on rail 30x20, 30x30 and 38x40 allows for hanging on both sides
- material: steel
- surface protection:
  - product is part of the Walraven BIS UltraProtect® 1000 system
  - suitable for in- and outdoor applications
  - stands min. 1,000 hours salt spray test (max. 5% red rust) according to ISO 9227
- for more information about the max. allowed load ( $F_{a,z}$ ) please refer to the loading tables or our online datasheet 'Technical Details BIS RapidRail®'

Part No.	L	From rail	ST	Pack 1
6603720	200 mm	30x20		20
6603230	300 mm	30x30		10
6603250	500 mm	30x30		20

For more information about the max. allowed load ( $F_{a,z}$ ) please refer to the loading tables or our online datasheet 'Technical Details BIS RapidRail®'.

## BIS RapidRail® Wall Plate

Catalogue page G 15 05



## Features and benefits

- flexible base plate for rails
- for wall fixing of rail
- rail can be fixed with slot downwards or sideways
- Part No. 6613200: suitable for 27x18, 30x15, 30x20, 30x30, 30x45
- slots at 90° to each other to simplify fixing
- CO2 welded
- with pre-assembled BIS RapidRail® Sliding nut(s) for a quick fixing, and retains assembly in place before final tightening
- material: metal parts made of steel 1.0332; spring(s) made of POM (polyoxymethylene), green zinc plated

Part No. Walraven	Part No. Reece	For Rail	L	B m m	H m m	Pack 1
6613200	510371	27x18, 30x15, 30x20, 30x30, 30x45	100 mm	50	123	25

## BIS Rail Prop

Catalogue page G 20 05



## Features and benefits

- 45° support bracket
- for fixing support under, top or on side of a cantilever arm
- also used to strengthen rail constructions
- cantilever arm of 30x45 not suitable for 'run-through fixing'
- suitable for rail 27x18, 30x15, 30x20, 30x30, 30x45
- CO2 welded
- material: steel
- zinc plated

Part No. Walraven	Part No. Reece	Hmm mm	For Rail	Pack 1
6628220	510373	250	27x18, 30x15, 30x20, 30x30, 30x45	10
Rail Props for 38x40 Rail? See Part No. 66288530.				

## BIS RapidRail® Slide Nut

Catalogue page G 30 05



## Features and benefits

- slide nut with washer and BIS RapidRail® spring
- suitable for rail 27x18, 30x15, 30x20, 30x30, 30x45, 38x40
- ready-to-use pre-assembled for a quick fixing, and retains assembly in place before final tightening

Part No. Walraven	Part No. Reece	G	For Rail	Pack 1
6513106	510600	M6	27x18, 30x15, 30x20, 30x30, 30x45, 38x40	50
6513110	510602	M10	27x18, 30x15, 30x20, 30x30, 30x45, 38x40	50



- material: metal parts made of steel 1.0332;  
spring(s) made of POM (polyoxymethylene), green
- zinc plated

## BIS RapidRail® Hammerfix

Catalogue page G 30 50



### Features and benefits

- slide nut with stud bolt, washer and BIS RapidRail® spring
- suitable for rail 27x18, 30x15, 30x20, 30x30, 30x45, 38x40
- ready-to-use pre-assembled for a quick fixing, and retains assembly in place before final tightening
- material: metal parts made of steel 1.0332;  
spring(s) made of POM (polyoxymethylene), green
- zinc plated

Part No. Walraven	Part No. Reece	G	L	For Rail	Fa,zN N	Pack 1
6523602	On request	M6	20 mm	27x18, 30x15, 30x20, 30x30, 30x45, 38x40	2,000	25
6523002	510603	M10	25 mm	27x18, 30x15, 30x20, 30x30, 30x45, 38x40	2,900	25
6523004	510604	M10	40 mm	27x18, 30x15, 30x20, 30x30, 30x45, 38x40	2,900	25
6523006	510605	M10	60 mm	27x18, 30x15, 30x20, 30x30, 30x45, 38x40	2,900	25
6523010	510606	M10	100 mm	27x18, 30x15, 30x20, 30x30, 30x45, 38x40	2,900	25
6523016	510607	M10	160 mm	27x18, 30x15, 30x20, 30x30, 30x45, 38x40	2,900	25

## BIS RapidRail® Ball Swivel Hanger

Catalogue page G 30 60



### Features and benefits

- slide nut with ball swivel hanger, washer and BIS RapidRail® spring
- recommended for metal pipes up to DN 50, plastic pipes up to DN 100
- suitable for rail 27x18, 30x15, 30x20, 30x30, 30x45, 38x40
- ready-to-use pre-assembled for a quick fixing, and retains assembly in place before final tightening
- with inspection hole to check screw-in depth (attention: when the threaded rod is screwed-in too deep, the ball swivel is blocked)
- screw-in depth is continuously variable (see LU)
- material: metal parts made of steel 1.0332;  
spring(s) made of POM (polyoxymethylene), green
- zinc plated

Part No. Walraven	Part No. Reece	G	L	For Rail	RAL	Pack 1
6520210	510630	M10	70 mm	27x18, 30x15, 30x20, 30x30, 30x45, 38x40	RAL <sup>1</sup>	25

*RAL<sup>1</sup> = tested, certified and monitored by a third party according to RAL-GZ 655/D in combination with Rail 30x15, 30x30, 30x20 and 30x45.*

*For detailed technical information about our RAL marked products, please see the RAL datasheet in our web catalogue.*

*Please note. Always use 2 ball swivel hangers and secure by additional hexagon nut (see application picture). The maximum length change that can be dealt with, depends on the fixing distance (ceiling - pipe). The height difference that occurs as a result, needs to be taken into consideration.*

*To be used in combination with BIS Ball Swivel Hangers. Product can be found on page E 10 05.*

## BIS Washer (U-shaped)

Catalogue page G 30 85



### Features and benefits

- U-shaped washer
- U-shaped for extra stability
- Part No. 65351XX: suitable for 30x15, 30x20, 30x30, 30x45, 38x40
- material: steel
- pre-galvanized

Part No. Walraven	Part No. Reece	For Rail	d1mm mm	Pack 1
6535110	510611	30x15, 30x20, 30x30, 30x45, 38x40	Ø 10.5	50

## BIS RapidRail® Connector 90°

Catalogue page G 35 05



### Features and benefits

- connector with pre-assembled BIS RapidRail® Slide nut(s)
- to make rail fabrications
- suitable for rail 27x18, 30x15, 30x20, 30x30, 30x45, 38x40
- ready-to-use pre-assembled for a quick fixing, and retains assembly in place before final tightening
- material: metal parts made of steel 1.0332; spring(s) made of POM (polyoxymethylene), green
- zinc plated

Part No. Walraven	Part No. Reece	For Rail	RAL	Pack 1
6584001	510343	27x18, 30x15, 30x20, 30x30, 30x45, 38x40		25

## BIS RapidRail® Connector 135°

Catalogue page G 35 10



### Features and benefits

- connector with pre-assembled BIS RapidRail® Slide nut(s)
- to make rail fabrications
- suitable for rail 27x18, 30x15, 30x20, 30x30, 30x45, 38x40
- with pre-assembled BIS RapidRail® Sliding nut(s) for a quick fixing, and retains assembly in place before final tightening
- material: metal parts made of steel 1.0332; spring(s) made of POM (polyoxymethylene), green
- zinc plated

Part No. Walraven	Part No. Reece	Model	For Rail	RAL	Pack 1
6584051	510346	Long / long	27x18, 30x15, 30x20, 30x30, 30x45, 38x40	RAL <sup>1</sup>	25

*RAL<sup>1</sup> = tested, certified and monitored by a third party according to RAL-GZ 655/D in combination with Rail 30x15, 30x30, 30x20 and 30x45.  
For detailed technical information about our RAL marked products, please see the RAL datasheet in our web catalogue.*

## BIS RapidRail® Connector

Catalogue page G 35 35



### Features and benefits

- connector with pre-assembled BIS RapidRail® Slide nut(s)





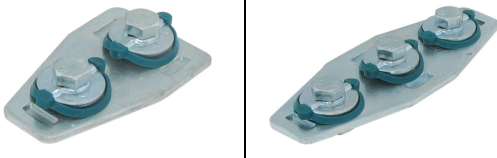
- to make rail fabrications
- suitable for rail 27x18, 30x15, 30x20, 30x30, 30x45, 38x40
- ready-to-use pre-assembled for a quick fixing, and retains assembly in place before final tightening
- material: metal parts made of steel 1.0332; spring(s) made of POM (polyoxymethylene), green
- zinc plated

Part No. Walraven	Part No. Reece	For Rail	RAL	Pack 1
6543001	510613	27x18, 30x15, 30x20, 30x30, 30x45, 38x40	RAL <sup>1</sup>	25

*RAL<sup>1</sup> = tested, certified and monitored by a third party according to RAL-GZ 655/D in combination with Rail 30x15, 30x30, 30x20 and 30x45.  
For detailed technical information about our RAL marked products, please see the RAL datasheet in our web catalogue.*

## BIS RapidRail® T- and X-Connector

Catalogue page G 35 45



### Features and benefits

- connector with pre-assembled BIS RapidRail® Slide nut(s)
- to make rail fabrications
- suitable for rail 27x18, 30x15, 30x20, 30x30, 30x45, 38x40
- ready-to-use pre-assembled for a quick fixing, and retains assembly in place before final tightening
- material: metal parts made of steel 1.0332; spring(s) made of POM (polyoxymethylene), green
- zinc plated

Part No. Walraven	Part No. Reece	For Rail	RAL	Pack 1
6584090	510349	27x18, 30x15, 30x20, 30x30, 30x45, 38x40	RAL <sup>1</sup>	25
6584091	510350	27x18, 30x15, 30x20, 30x30, 30x45, 38x40	RAL <sup>1</sup>	25

*RAL<sup>1</sup> = tested, certified and monitored by a third party according to RAL-GZ 655/D in combination with Rail 30x15, 30x30, 30x20 and 30x45.  
For detailed technical information about our RAL marked products, please see the RAL datasheet in our web catalogue.*

## BIS RapidRail® Cross Connector

Catalogue page G 35 50



### Features and benefits

- connector with pre-assembled BIS RapidRail® Slide nut(s)
- to make rail fabrications
- ready-to-use pre-assembled for a quick fixing, and retains assembly in place before final tightening
- material: metal parts made of steel 1.0332; spring(s) made of POM (polyoxymethylene), green
- zinc plated

Part No. Walraven	Part No. Reece	For Rail	RAL	Pack 1
6584152	510739	30x20	RAL <sup>1</sup>	25
6584153	510740	30x30	-	25

*RAL<sup>1</sup> = tested, certified and monitored by a third party according to RAL-GZ 655/D in combination with Rail 30x15, 30x30, 30x20 and 30x45.  
For detailed technical information about our RAL marked products, please see the RAL datasheet in our web catalogue.*

## BIS RapidRail® Beam Clamp

Catalogue page G 40 05



### Features and benefits

- for a solid fixing to steel construction without the need for welding or drilling
- always use 2 beam clamps per fixing
- material: steel
- zinc plated

Part No. Walraven	Part No. Reece	Amm mm	For Rail	Pack 1
6585011	510620	< 16	27x18, 30x15, 30x20, 30x30, 30x45, 38x40	50
<i>Note! Safe load (Fa,z) is only per set of beamclamps, per loading situation the max. allowed load of the rail must be calculated.</i>				

## BIS Rail End Cap

Catalogue page G 45 05



### Features and benefits

- for clean finishing of rail end, covers all burrs
- easy to fix securely
- material: PE (polyethylene)

Part No. Walraven	Part No. Reece	For Rail	Colour	Pack 1
6566000	510614	27x18, 30x20	Green	50
6566002	510615	30x30	Green	25

## BIS Rubber Strip

Catalogue page G 45 10



### Features and benefits

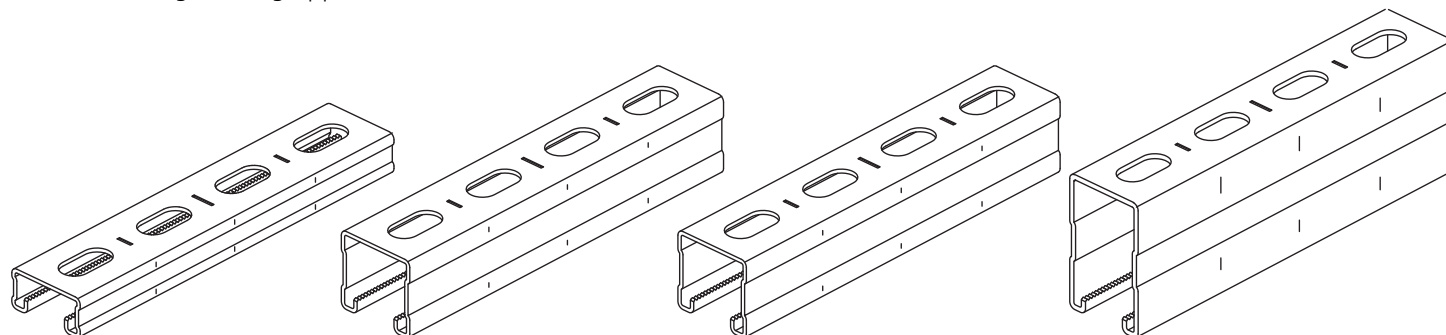
- noise insulating lining for rail
- also usable for threaded rod M6, M8 or M10
- suitable for rail 27x18, 30x15, 30x20, 30x30, 30x45, 38x40
- material: EPDM rubber, black
- chlorine free and resistant to ageing
- resistant to ozone, UV, weather and sea water
- shore A hardness 55 ±5
- building material class B2 according to DIN 4102-1 and class E according to EN 13501-1
- temperature resistance from -30 °C to +110 °C
- sound insulating lining according DIN 4109

Part No. Walraven	Part No. Reece	L	For Rail	Pack 1
6568001	510616	30 m	27x18, 30x15, 30x20, 30x30, 30x45, 38x40	30

# Walraven RapidStrut® Fixing Rail (BUP1000)

(H 04 13)

for medium weight fixing applications



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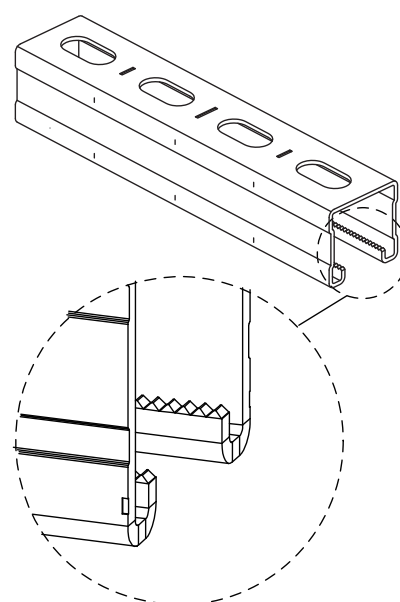
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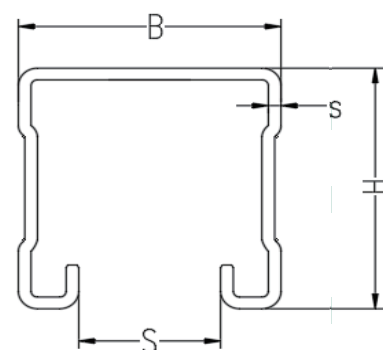
## Features and Benefits

- universal rail system
- corrosion protection remains intact after cutting
- distance between rail end and first hole is always equal
- inward formed flanges with serrated profile for extra grip
- with continuous smart hole pattern including round anchor holes
- with sawing marks each 50 mm on all 3 sides of the profile
- material: steel 1.0242 (S250GD)
- surface protection:
  - product is part of the Walraven BIS UltraProtect® 1000 system
  - suitable for in- and outdoor applications
  - stands min. 1,000 hours salt spray test (max. 5% red rust) according to ISO 9227
- strut 41x41x2.5 and above tested for fire safety according to EN 1363-1
- Walraven RapidStrut® channel support systems (type 21|L, 21|H, 41|L, 41|H) conform to BS 6946:1988, the British Standard Specification for metal channel cable support systems for electrical installations



Part No.	Type	L	B (mm)	H (mm)	s (mm)	S (mm)	Package (m)
65096829	21   H	6 m	41	21	2.50	22	600
65096845	41   M	6 m	41	41	2.00	22	600
65096846	41   H	6 m	41	41	2.50	22	600
65096890	82   H	6 m	41	82	2.50	22	240

For more information about the max. allowed load ( $F_{0,2}$ ) please refer to the loading tables or our online datasheet 'Technical Details BIS RapidStrut®'.



### Complementary

BIS RapidStrut® Slide Nut G2 (BUP1000)  
BIS RapidStrut® Hammerfix G2 (BUP1000)  
BIS Yeti® 130 Support System

### Complementary

BIS Yeti® 280 Support System

### Alternative

Walraven RapidStrut® Fixing Rail DS 5 (BUP1000)



# Walraven RapidStrut® Fixing System

## Walraven RapidStrut® Cantilever Arm (BUP1000)

Catalogue page H 08 06



### Features and benefits

- base plate with welded C-profile
- for quick and adjustable fixing of one or multiple pipes
- CO2 welded
- with continuous perforation
- with sawing marks each 50 mm on all 3 sides of the profile
- well balanced relation between base plate and profile for optimal use of load performance
- material: profiles made of steel 1.0038 (S235JR)
- material: base plate type 21 | H made of steel 1.0044 (S275JR)
- material: base plate type 41 | M and 41 | H made of steel 1.0045 (S355JR)
- surface protection:
  - product is part of the Walraven BIS UltraProtect® 1000 system
  - suitable for in- and outdoor applications
  - stands min. 1,000 hours salt spray test (max. 5% red rust) according to ISO 9227
- strut type 41 | H and above tested for fire safety according to EN 1366-1
- for more information about the max. allowed load ( $F_{a,z}$ ) please refer to the loading tables or our online datasheet 'Walraven RapidStrut® Data Sheet'

Part No. Walraven	Part No. Reece	L	Bmm mm	Hmm mm	smm mm	Pack 1
66084115	510520	150 mm	50	137.5	7.0	10
66084130	On request	300 mm	50	137.5	7.0	10
66084145	On request	450 mm	50	137.5	7.0	10
66084160	On request	600 mm	50	137.5	7.0	8
66084198	On request	1,000 mm	50	137.5	7.0	1

For more information about the max. allowed load ( $F_{a,z}$ ) please refer to the loading tables or our online datasheet 'Walraven RapidStrut® Data Sheet'.

## Walraven RapidStrut® Base Plate G2 (BUP1000)

Catalogue page H 12 03



### Features and benefits

- flexible base plate for Strut rails
- suitable for all Strut rail up to 82mm height
- open side of rails 41x41 can be turned to all sides
- at high loads we advise to install with throughbolts
- timesaving with pre-assembled fasteners
- material: metal parts made of steel 1.0332; spring(s) made of POM (polyoxymethylene), green
- surface protection:
  - product is part of the Walraven BIS UltraProtect® 1000 system
  - suitable for in- and outdoor applications
  - stands min. 1,000 hours salt spray test (max. 5% red rust) according to ISO 9227
- tested for fire safety according to EN 1366-1

Part No. Walraven	Part No. Reece	L	Bm mm	Hm mm	Fa,zN N	Pack 1
665885400	510800	107 mm	85	180	3,636	10

$F_{a,z}$ : max. allowed load in combination with 2 slide nuts M10, tightened with 40 Nm.  
 $F_{a,z}$ : max. allowed load in combination with 2 throughbolts M10, tightened with 40 Nm.  
 $M_{a,y}$ : max. moment in combination with 2 throughbolts M10, tightened with 40 Nm.

## BIS Strut Base Plate Heavy Duty (BUP1000) – Special Order

Catalogue page H 12 13



### Features and benefits

- heavy base plate for Strut rails
- can be used together with slide nut with plastic tabs or throughbolts
- Part No. 66588641: for Rail Strut 41x41 + 41x21D
- hole pattern is adapted to the hole pattern of Strut rails
- closed profile for increased structural strength
- material: steel 1.0332
- surface protection:
  - product is part of the Walraven BIS UltraProtect® 1000 system
  - suitable for in- and outdoor applications
  - stands min. 1,000 hours salt spray test (max. 5% red rust) according to ISO 9227

Part No.		
66588641		
Part No. 66588641: $F_{a,z}$ : max. allowed load in combination with 3 slide nuts M10, tightened with 40 Nm. $F_{a,z}$ 2: max. allowed load in combination with 2 throughbolts M10, tightened with 40 Nm. $M_{a,y}$ : max. moment in combination with 2 throughbolts M10, tightened with 40 Nm.		

## BIS Rail Prop (BUP1000)

Catalogue page H 16 05



### Features and benefits

- 45° support bracket
- for fixing support under, top or on side of a cantilever arm
- also used to strengthen rail constructions
- CO2 welded
- material: steel 1.0332
- surface protection:
  - product is part of the Walraven BIS UltraProtect® 1000 system
  - suitable for in- and outdoor applications
  - stands min. 1,000 hours salt spray test (max. 5% red rust) according to ISO 9227

Part No. Walraven	Part No. Reece	For Rail	Pack 1
66288530	510715	Strut + 38x40	10

## Walraven RapidStrut® Slide Nut G2 (BUP1000)

Catalogue page H 24 04



### Features and benefits

- slide nut with washer and BIS RapidStrut® spring
- ready-to-use pre-assembled for a quick fixing, and retains assembly in place before final tightening

- material: metal parts made of steel 1.0332; spring(s) made of POM (polyoxymethylene), green
- surface protection:
  - product is part of the Walraven BIS UltraProtect® 1000 system
  - suitable for in- and outdoor applications
  - stands min. 1,000 hours salt spray test (max. 5% red rust) according to ISO 9227

Part No.	Part No.	G	Pack 1
665185110	510716	M10	20
665185112	510717	M12	20

*M10 tested for fire safety according to EN 1366-1.  
M12 tested for fire safety according to EN 1366-1.  
Tested values in combination with BIS RapidStrut® Rail 41x41x2.5mm.  
More details can be found on the Technical Datasheet.*

## Walraven Strut Slide Nut (hdg) – Special Order

Catalogue page H 24 25



### Features and benefits

- material: slide nut made of steel 1.0332; spring made of spring steel DIN17223 (class A)
- hot dip galvanized
- tested for fire safety

Part No.	G	L	For Rail	Pack 1
6518210	M10	33 mm	Strut 41x41	100
6518212	M12	33 mm	Strut 41x41	100

*M10 and above tested for fire safety.  
Tested values in combination with BIS RapidStrut® Rail 41x41x2.5mm.  
More details can be found on the Technical Datasheet.*

## Walraven RapidStrut® Slide Nut with Plastic Tabs (BUP1000)

Catalogue page H 24 35



### Features and benefits

- slide nut with plastic 'tabs'
- for all types of Strut Rail
- for tight fixing of accessories (e.g. connectors) on rail
- with plastic tabs which simplifies inserting and positioning
- material: slide nut made of steel 1.0332; tabs made of PP (polypropylene), green
- surface protection:
  - product is part of the Walraven BIS UltraProtect® 1000 system
  - suitable for in- and outdoor applications
  - stands min. 1,000 hours salt spray test (max. 5% red rust) according to ISO 9227
- tested for fire safety

Part No. Walraven	Part No. Reece	G	For Rail	mm mm	Pack 1
651868010	510711	M10	Strut	8.0	100

*M10 tested for fire safety according to EN 1366-1.  
Tested values in combination with BIS RapidStrut® Rail 41x41x2.5mm.  
More details can be found on the Technical Datasheet.*

## Walraven RapidStrut® Hammerfix G2 (BUP1000)

Catalogue page H 24 49





## Features and benefits

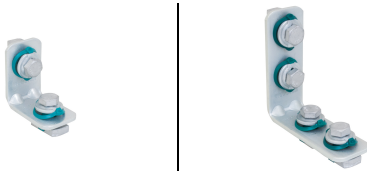
- slide nut with stud bolt, washer and BIS RapidStrut® spring
- material: metal parts made of steel 1.0332; spring(s) made of POM (polyoxymethylene), green
- surface protection:
  - product is part of the Walraven BIS UltraProtect® 1000 system
  - suitable for in- and outdoor applications
  - stands min. 1,000 hours salt spray test (max. 5% red rust) according to ISO 9227

Part No. Walraven	Part No. Reece	G	L	Pack 1
652785004	510712	M10	40 mm	15
652785006	510713	M10	60 mm	5
652785008	510709	M10	80 mm	5
652785204	On request	M12	40 mm	5

M10 tested for fire safety according to EN 1366-1.  
M12 tested for fire safety according to EN 1366-1.  
Tested values in combination with BIS RapidStrut® Rail 41x41x2.5mm.

## BIS RapidStrut® Rail Connector 90° G2 (BUP1000)

Catalogue page H 28 04



## Features and benefits

- connector with pre-assembled BIS RapidStrut® Slide nut(s)
- to make fabrication with Strut Rail
- ready-to-use pre-assembled for a quick fixing, and retains assembly in place before final tightening
- 'Direct Twist' technology for easy and secure installation
- visual guide to check the position of the slide nut
- Part No. 66588520X: optimized for easy installation with electrical tools
- material: metal parts made of steel 1.0332; spring(s) made of POM (polyoxymethylene), green
- surface protection:
  - product is part of the Walraven BIS UltraProtect® 1000 system
  - suitable for in- and outdoor applications
  - stands min. 1,000 hours salt spray test (max. 5% red rust) according to ISO 9227

Part No. Walraven	Part No. Reece	Model	Type	Pack 1
665885202	On request	Short / short	2 sides pre-assembled	50
665885205	510719	Long / long	2 sides pre-assembled	20

## BIS RapidStrut® Rail Connector 135° G2 (BUP1000)

Catalogue page H 28 54



## Features and benefits

- connector with pre-assembled BIS RapidStrut® Slide nut(s)
- to make fabrication with Strut Rail
- ready-to-use pre-assembled for a quick fixing, and retains assembly in place before final tightening
- 'Direct Twist' technology for easy and secure installation
- visual guide to check the position of the slide nut
- optimized for easy installation with electrical tools

Part No. Walraven	Part No. Reece	Model	Type	Pack 1
665885235	510722	Long / long	2 sides pre-assembled	20

- material: metal parts made of steel 1.0332; spring(s) made of POM (polyoxymethylene), green
- surface protection:
  - product is part of the Walraven BIS UltraProtect® 1000 system
  - suitable for in- and outdoor applications
  - stands min. 1,000 hours salt spray test (max. 5% red rust) according to ISO 9227

## BIS RapidStrut® Rail Connector – U-shaped G2 (BUP1000)

Catalogue page H 28 89



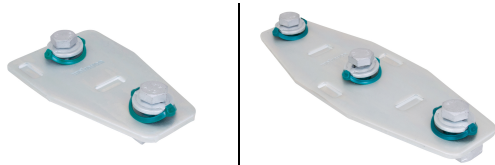
### Features and benefits

- connector with pre-assembled BIS RapidStrut® Slide nut(s)
- to make fabrication with Strut Rail
- ready-to-use pre-assembled for a quick fixing, and retains assembly in place before final tightening
- material: metal parts made of steel 1.0332; spring(s) made of POM (polyoxymethylene), green
- surface protection:
  - product is part of the Walraven BIS UltraProtect® 1000 system
  - suitable for in- and outdoor applications
  - stands min. 1,000 hours salt spray test (max. 5% red rust) according to ISO 9227

Part No. Walraven	Part No. Reece	For Rail	Pack 1
665885421	510725	Strut	20

## BIS RapidStrut® Rail T- and X-Connector G2 (BUP1000)

Catalogue page H 28 109



### Features and benefits

- connector with pre-assembled BIS RapidStrut® Slide nut(s)
- to make fabrication with Strut Rail
- ready-to-use pre-assembled for a quick fixing, and retains assembly in place before final tightening
- 'Direct Twist' technology for easy and secure installation
- visual guide to check the position of the slide nut
- optimized for easy installation with electrical tools
- material: metal parts made of steel 1.0332; spring(s) made of POM (polyoxymethylene), green
- surface protection:
  - product is part of the Walraven BIS UltraProtect® 1000 system
  - suitable for in- and outdoor applications
  - stands min. 1,000 hours salt spray test (max. 5% red rust) according to ISO 9227

Part No. Walraven	Part No. Reece	Type	Pack 1
665885213	510720	T	20
665885223	510721	X	15

## BIS RapidStrut® Cross Connector G2 (BUP1000)

Catalogue page H 28 134



### Features and benefits

- connector with pre-assembled BIS RapidStrut® Slide nut(s)
- to make fabrication with Strut Rail
- ready-to-use pre-assembled for a quick fixing, and retains assembly in place before final tightening
- 'Direct Twist' technology for easy and secure installation
- visual guide to check the position of the slide nut
- optimized for easy installation with electrical tools
- material: metal parts made of steel 1.0332; spring(s) made of POM (polyoxymethylene), green
- surface protection:
  - product is part of the Walraven BIS UltraProtect® 1000 system
  - suitable for in- and outdoor applications
  - stands min. 1,000 hours salt spray test (max. 5% red rust) according to ISO 9227

Part No. Walraven	Part No. Reece	hmm mm	For Rail	Pack 1
665885402	510723	20	Strut 41x21	25
665885404	510724	40	Strut 41x41	25

## BIS Strut Rail Beam Clamp

Catalogue page H 36 05



### Features and benefits

- for a solid fixing to steel construction without the need for welding or drilling
- always use 2 beam clamps per fixing
- material: steel 1.0332
- hot dip galvanized

Part No. Walraven	Part No. Reece	L	For Rail	Pack 1
66581711	510526	69 mm	Strut 41x21 + 41x41 + 41x21D	25
Also available in stainless steel 1.4401 (AISI 316).				

## BIS Strut Rail End Cap

Catalogue page H 39 05



### Features and benefits

- for clean finishing of rail end, covers all burrs
- easy to fix securely
- material: PE (polyethylene), green

Part No. Walraven	Part No. Reece	For Rail	Pack 1
6566021	510714	Strut 41x21	50
6566041	510525	Strut 41x41	50
6566082	On request	Strut 41x82	50

BIS Strut Rubber Strip

Catalogue page H 39 20



Features and benefits

- noise insulating lining for rail
- also usable for threaded rod M6, M8 or M10
- material: EPDM rubber, black
- chlorine free and resistant to ageing
- resistant to ozone, UV, weather and sea water
- shore A hardness 70 ±5
- building material class B2 according to DIN 4102-1 and class E according to EN 13501-1
- temperature resistance from -30 °C to +110 °C
- sound insulating lining according DIN 4109

Part No. Walraven	Part No. Reece	R	L	Pack 1
6568041	510617	1/4 - 1/2"	30 m	30



## BIS Rooftop + Solar Fixings

### BIS Yeti® 480 Support System – Special Order

Catalogue page I 04 05



Nr. 1762-001-19 ITB No. LZM00-02259

#### Features and benefits

- modular supporting system for HVAC equipment, solar panels, walkways, pipe work, cable runs, etc.
- for flat and low pitched roofs
- adjustable up to 7° to compensate roof pitch
- 360° rotatable insert for BIS RapidStrut® 41x41 or BIS RapidStrut® DS 5 (41x52 mm)
- with non-slip anti-vibration mat (at PVC roofs a separating layer must be installed to protect against plasticizer migration - see Walraven BIS Yeti® Triplex Separation Layer)
- with optional stackable ballast block for increased weight / stability
- mouldings made of WPC, a composite of recycled plastic and wood fibre
- resistant to UV and chemical influences
- noise reduction according to DIN EN ISO 10140-1 and DIN EN ISO 10140-3 up to 31 dB(A)
- UV-resistance according to EN ISO 16474-3:2014-02 - certified by ITB

Part No.	Model	For Rail	Pack 1
67685001	Vertical	Strut 41x41 + DS 5 (41x51)	
67685101	Horizontal	Strut 41x41 + DS 5 (41x51)	

\* = Maximum allowed load for Strut 41x41x2.5.  
 \*\* = Maximum allowed load for Strut 41x51x2.0 - DS5.  
 For a detailed calculation and for support how to spread the load please contact Walraven Technical Support.  
 In cases where a foot is used in roof applications, the installer is obliged to verify maximum load capacity of roof before installation.

### BIS Yeti® 335 Support System – Special Order

Catalogue page I 04 10



Nr. 1762-001-19 ITB No. LZM00-02259

#### Features and benefits

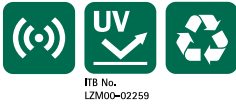
- modular supporting system for HVAC equipment, solar panels, walkways, pipe work, cable runs, etc.
- for flat roofs
- for horizontal and vertical applications
- 360° rotatable insert for BIS RapidStrut® 41x41 or BIS RapidStrut® DS 5 (41x52 mm)
- with non-slip anti-vibration mat
- mouldings made of WPC, a composite of recycled plastic and wood fibre
- resistant to UV and chemical influences
- noise reduction according to DIN EN ISO 10140-1 and DIN EN ISO 10140-3 up to 31 dB(A)
- UV-resistance according to EN ISO 16474-3:2014-02 - certified by ITB

Part No.	Model	For Rail	Pack 1
67685201	Vertical	Strut 41x41 + DS 5 (41x51)	1

\* = Maximum allowed load for Strut 41x41x2.5.  
 \*\* = Maximum allowed load for Strut 41x51x2.0 - DS5.  
 For a detailed calculation and for support how to spread the load please contact Walraven Technical Support.  
 In cases where a foot is used in roof applications, the installer is obliged to verify maximum load capacity of roof before installation.

BIS Yeti® 280 Support System – Special Order

Catalogue page I 04 30



ITB No.  
LZM00-02259

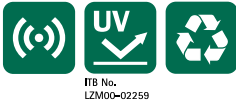
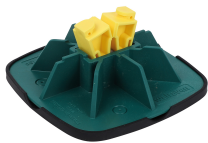
Features and benefits

- modular supporting system for HVAC equipment, solar panels, walkways, pipe work, cable runs, etc.
- for flat roofs
- for vertical rail adaption (RapidStrut 41x41)
- with non-slip anti-vibration mat
- mouldings made of WPC, a composite of recycled plastic and wood fibre
- plastic components made from 100% recycled material
- noise reduction according to DIN EN ISO 10140-1 and DIN EN ISO 10140-3
- UV-resistance according to EN ISO 16474-3:2014-02 – certified by ITB

Part No.		
67685280		
<p>* = Maximum allowed load for Strut 41x41x2.5. For a detailed calculation and for support how to spread the load please contact Walraven Technical Support. In cases where a foot is used in roof applications, the installer is obliged to verify maximum load capacity of roof before installation.</p>		

BIS Yeti® 130 Support System – Special Order

Catalogue page I 04 50



ITB No.  
LZM00-02259

Features and benefits

- modular supporting system for light rooftop installations
- for horizontal and vertical applications
- flexible and cost-effective solution for pipes, cable runs, air duct channels etc.
- with non-slip anti-vibration mat
- with unique click-mechanism for quick and safe installation
- mouldings made of WPC, a composite of recycled plastic and wood fibre
- plastic components made from 100% recycled material
- resistant to UV and chemical influences
- noise reduction according to DIN EN ISO 10140-1 and DIN EN ISO 10140-3
- UV-resistance according to EN ISO 16474-3:2014-02 – certified by ITB

Part No.		
67685130		
<p>For a detailed calculation and for support how to spread the load please contact Walraven Technical Support. In cases where a foot is used in roof applications, the installer is obliged to verify maximum load capacity of roof before installation.</p>		

BIS Ursus Foot Support System (BUP1000) – Special Order

Catalogue page I 04 20



## Features and benefits

- for supporting small pipework systems, ductwork runs and cable trays
- to support climate installations, walkways on flat roofs, etc.
- does not penetrate the waterproof membrane (at PVC roofs a separating layer must be installed to protect against plasticizer migration - see Walraven BIS Yeti® Triplex Separation Layer)
- material: vulcanized rubber, black; Strut Rail made of steel 1.0242
- UV resistant
- Strut Rail: surface protection:
  - product is part of the BIS UltraProtect® 1000 system
  - suitable for in- and outdoor applications
  - stands min. 1,000 hours salt spray test (max. 5% red rust) according to ISO 9227

Part No.	Model	L	Pack 1
67687250	Horizontal, including rail	250 mm	1
67687400	Horizontal, including rail	400 mm	1
67687601	Horizontal, including rail	600 mm	1
<p><i>For a detailed calculation and for support how to spread the load please contact Walraven Technical Support.</i></p> <p><i>In cases where a foot is used in roof applications, the installer is obliged to verify maximum load capacity of roof before installation.</i></p>			

## BIS Fixing Accessories

### BIS Wall Plate 670

Catalogue page K 15 05



#### Features and benefits

- fixings to ceiling or floor (only tension loads recommended)
- slots at 90° to each other to simplify fixing
- with resistance welded connection nut
- material: steel
- zinc plated

Part No. Walraven	Part No. Reece	G	Pack 1
6703010	510621	M10	50

### BIS Wall Plate 672 (Male Thread)

Catalogue page K 15 15



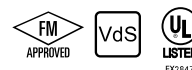
#### Features and benefits

- fixings to ceiling or floor (only tension loads recommended)
- slots at 90° to each other to simplify fixing
- with resistance welded male stud bolt
- material: steel
- zinc plated

Part No. Walraven	Part No. Reece	G2	Pack 1
6723010	510622	M10 x 35	50

### BIS Beam Clamp Model C

Catalogue page K 20 05



#### Features and benefits

- for a solid fixing to steel construction without the need for welding or drilling
- bolt with hexagon head according to DIN 933 strength class 8.8, screw point with cup ring according to EN ISO 4753 and lock nut
- material: beam clamp made of cast iron; bolt of hardened steel, nut of steel, zinc plated

Part No. Walraven	Part No. Reece	Amm mm	R	Appr.	Pack 1
6003910	9503020	≤20	Ø 11 mm		50
6003912	9503021	≤26	Ø 13 mm		25

*Tighten the set screw with hand and apply a further 1/2 turn with a spanner.  
Tighten counter nut with hand and apply a further 1/8 turn with a spanner.  
Certificates available on request.*



## BIS Hanger Bolt

Catalogue page K 40 05



### Features and benefits

- with hexagon for fine setting
- material: steel
- zinc plated

Part No. Walraven	Part No. Reece	G	L	Pack 1
6283008	510647	M10	80 mm	50
6283010	510648	M10	100 mm	50
6283012	510649	M10	120 mm	50
6283014	On request	M10	140 mm	50
6283018	On request	M10	180 mm	50
6283020	On request	M10	200 mm	50

## BIS Pig Tail Chain Hook – *Special Order*

Catalogue page K 50 25



### Features and benefits

- material: steel
- zinc plated

Part No.	G	d1mm mm	Pack 1
6940006	M6	15.0	100

## BIS Threaded Nipple – *Special Order*

Catalogue page K 55 25



### Features and benefits

- for creating male thread to for example clamp or wall plate
- material: steel
- zinc plated
- tested for fire safety

Part No.	Model	G	Pack 1
6413006	Round Collar	M6	100

## BIS Stud Connector

Catalogue page K 55 30



### Features and benefits

- to connect 2 male threaded components
- material: steel
- zinc plated

Part No. Walraven	Part No. Reece	G	L	Pack 1
6453940	9503024	M10	40 mm	50
6453240	9503025	M12	40 mm	50

BIS Thread Adaptor (M/F)

Catalogue page K 55 35



Features and benefits

- to enlarge or reduce the thread size in the connection of clamps, etc.
- material: steel
- zinc plated

Part No. Walraven	Part No. Reece	G1	G2	Pack 1
6473308	510635	M8	M10	100
6473312	510636	M12	M10	50
6473416	On request	M16	M12	50

BIS Threaded Rod Connector

Catalogue page K 55 41



Features and benefits

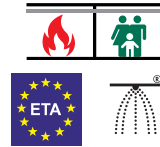
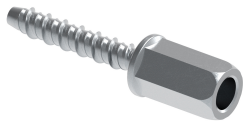
- to connect 2 male threaded components
- vertically adjustable
- material: steel
- pre-galvanized

Part No. Walraven	Part No. Reece	G	Pack 1
6455010	510708	M10	25

## BIS Fastenings

### W-LX-N Concrete Screw

Catalogue page L 03 59



#### Features and benefits

- very high load capacity
- approved for use in precast prestressed hollow core slabs
- up to 3 anchoring depths provide maximum installation flexibility
- reduced edge and anchor spacing distances
- removable
- unique tip and thread geometry prevents concrete spalling
- material: steel
- zinc plated
- fire resistance class R30-R120 for design of anchorages under exposure to fire
- complies with VdS CEA 4001:2014-04 (05) and VdS CEA 4001:2018-01 (06) for applications with sprinkler systems in concrete elements
- substrate type:
  - cracked concrete
  - non-cracked concrete
  - precast pre-stressed hollow core slabs

Part No. Walraven	Part No. Reece	G	L	d0mm mm	h0mm mm	Pack 1
62433304	510645	M8/10	35 mm	6	45	100
<p><i>*Performance and installation data is given for the specified European Technical Assessment. For full product data please refer to product data sheets. ETA-21/0612 according to EAD 330232-00-0601 anchoring in cracked and non-cracked concrete; ETA-21/0613 according to EAD 330747-00-0601 for multiple use for non-structural applications.</i></p> <p><i>**Recommended load includes a partial safety factor and an overall partial safety factor for action of 1.4. The partial safety factor for action depends on the type of loading and shall be taken from national regulations. All anchor failure modes and the entire relevant product European Technical Assessment must be considered for anchor design.</i></p>						

### BIS Hammer-in Shoulder Stud

Catalogue page L 15 05



#### Features and benefits

- hammer-in instead of screw-in
- impact head to prevent head damage
- plug with shoulder
- material: hammer-in stud made of steel; plug made of PA (polyamide), grey
- zinc plated, passivated

Part No. Walraven	Part No. Reece	G	L	Pack 1
6373640	510633	M6	40 mm	100

### BIS Hammer-in Stud – Special Order

Catalogue page L 15 10



Features and benefits

- impact head to prevent head damage
- with hexagon for fine setting
- plug with shoulder
- material: hammer-in stud made of steel; plug made of PA (polyamide), grey
- zinc plated

Part No.		G	L	Pack 1
6223808		M8	80 mm	100

BIS Wash Basin Fixing Kit PE

Catalogue page L 20 45



Features and benefits

- fixing set for wash-hand basins
- Material: metal parts made of steel 1.0332 (DD11); washer made of PE (polyethylene) colour white; plastic plugs made of PE (polyethylene) colour grey
- zinc plated
- consists of:
  - 2 Bolt-wood screws
  - 2 PE special washers ø40
  - 2 hexagon nuts M10
  - 2 washers DIN125A for M10
  - 2 plugs of PE

Part No. Walraven	Part No. Reece
RC00657500	1851574



## BIS Stainless Steel Pipe Support Fixings

BIS Bifix® 1301 Stainless Steel

Catalogue page M 05 05



### Features and benefits

- two-screw clamp
- with quick locking system
- material: stainless steel 1.4404 (AISI 316L)
- noise insulating lining, EPDM rubber, black
- age resistant lining
- sound insulating lining according DIN 4109

Part No. Walraven	Part No. Reece	Dmm mm	D" "	G	Pack 1
3127018	9502270	15 - 19	3/8	M10	50
3127023	9502271	20 - 23	1/2	M10	50
3127029	9502272	25 - 28	3/4	M10	50
3127035	510136	31 - 35	1	M10	50
3127043	510137	40 - 43	1 1/4	M10	50
3127049	510488	47 - 51	1 1/2	M10	50
3127056	510489	52 - 56	-	M10	50
3127063	510139	57 - 64	2	M10	50
3127067	510140	64 - 67	-	M10	25
3127076	510141	70 - 76	2 1/2	M10	25
3127085	9501074	79 - 85	-	M10	25
3127091	510143	86 - 91	3	M10	25
3127106	510144	100 - 106	-	M10	25
3127116	510145	108 - 116	4	M10	25
3127132	9501075	124 - 132	-	M10	25
3127141	9501076	133 - 141	5	M10	25
3127168	9501077	159 - 168	6	M10	15
3127250	9501078	244 - 250	-	M10	10

## BIS Stainless Steel Wall Plate Resistance Welded

Catalogue page M 65 05



### Features and benefits

- slots at 90° to each other to simplify fixing
- Part No. 6717010: CO2 welded
- Part No. 670 7 OXX: material: stainless steel 1.4301 (AISI 304)

Part No. Walraven	Part No. Reece	G	L	Pack 1
6707010	510659	M10	80 mm	50



# Project Engineering

## From the experts at Walraven

### Experience solving technical problems

Working with fixing and fire protection systems can be complex due to advancing technology and changing building requirements. When preparing or executing a project you may encounter a problem that you cannot solve yourself. Walraven Project Engineering has vast experience in solving technical problems.

### From engineering to onsite construction support

Around our products we offer a wide range of technical consultancy in the areas of:

- Support for pipe work, air ducts or cable ducts
- Support for technical installations on rooftops (such as solar panels, climate installations)
- Secondary constructions
- Clamp fixing advice and plans
- Pipe and cable penetrations through fire rated separations
- Prefabrication service
- Calculations
- Assembly instructions
- Onsite construction support



### Our expertise is available to you!

Based on your individual requirements our Project Engineering staff deliver you a proposal, well grounded with detailed calculations, AutoCAD drawings and parts lists.

[www.walraven.com](http://www.walraven.com)



## Information: Pipe Loading Tables

Copper				Pressure Pipe			
Size	OD	Weight (per meter)		Size	OD	Weight (per meter)	
		empty	filled			empty	filled
(mm)	(mm)	(kg)	(kg)	(mm)	(mm)	(kg)	(kg)
15	12.70	0.30	0.39	15	21.30	0.15	0.35
20	19.05	0.51	0.74	20	26.75	0.17	0.61
25	25.40	0.82	1.23	25	33.55	0.32	1.02
32	31.75	1.04	1.72	32	42.25	0.43	1.53
40	38.10	1.26	2.25	40	48.25	0.57	2.01
50	50.80	1.69	3.52	50	60.35	0.88	3.14
65	63.50	2.12	5.04	65	75.35	1.27	4.89
80	76.20	3.41	7.57	80	88.90	1.92	6.83
100	101.60	4.56	12.12	100	114.30	3.33	11.45
125	127.00	5.71	17.71	150	160.30	6.33	22.31
150	152.40	8.37	25.57				

Gal / Steel Med				Geberit			
Size	OD	Weight (per meter)		Size	OD	Weight (per meter)	
		empty	filled			empty	filled
(mm)	(mm)	(kg)	(kg)	(mm)	(mm)	(kg)	(kg)
15	21.30	1.22	1.42	40	40.00	0.33	1.24
20	26.90	1.58	1.94	50	50.00	0.42	1.94
25	33.70	2.44	3.02	56	56.00	0.47	2.40
32	42.40	3.14	4.16	63	63.00	0.54	3.10
40	48.30	3.61	4.99	75	75.00	0.64	4.40
50	60.30	5.10	7.30	90	90.00	0.90	6.30
65	76.10	6.51	10.21	110	110.00	1.35	9.42
80	88.90	8.47	13.57	160	160.00	2.84	19.75
100	114.30	12.10	20.76	200	200.00	3.58	31.20
150	165.10	19.20	38.10				

DWV				Raupiano			
Size	OD	Weight (per meter)		Size	OD	Weight (per meter)	
		empty	filled			empty	filled
(mm)	(mm)	(kg)	(kg)	(mm)	(mm)	(kg)	(kg)
40	43.00	0.35	1.38	40	40.00	0.23	1.27
50	56.00	0.55	2.16	50	50.00	0.29	1.98
65	69.00	0.85	3.40	75	75.00	0.55	4.44
80	83.00	1.22	4.83	110	110.00	1.17	9.53
100	110.00	2.61	10.37	160	160.00	2.42	19.13
150	160.00	5.70	21.88				

This datasheet is to be used as a tool for selecting the correct fixing materials only. Although Walraven does everything possible to ensure the accuracy of all data within this sheet, we cannot be held responsible for information supplied by third parties, i.e. standardisation institutes and pipe manufacturers.

## Explanation Max. Allowed Load

### Maximum allowed load:

From most of our products a maximum allowed load is included in the article tables. Stated values are determined by:

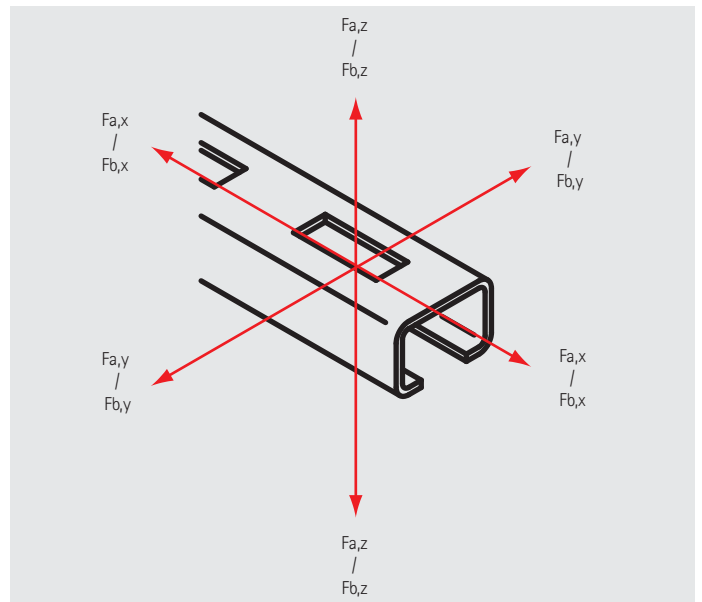
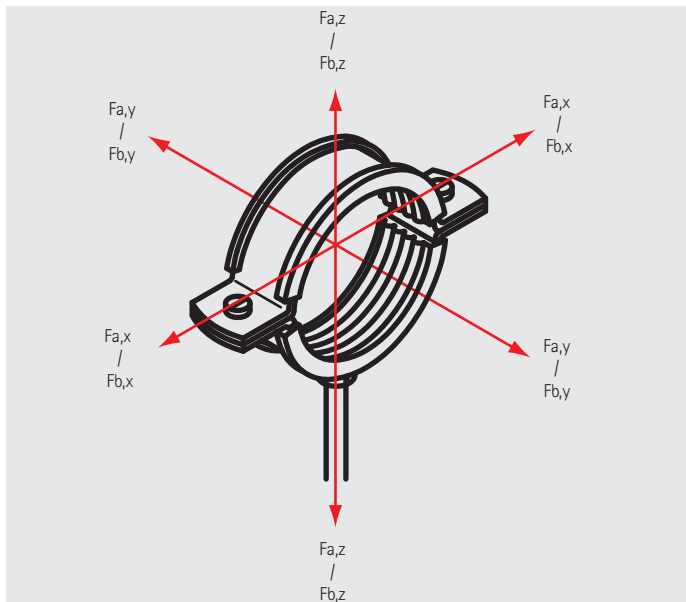
- a by Walraven developed measuring method
- the measuring method described in the testing prescriptions RAL-GZ 655, which is set up by the 'Gütegemeinschaft Rohrbefestigung'. If the product is provided with the 'RAL-Gütezeichen', the test results are checked by an independent testing institute.

For plastic clamps the breaking load is included.

### Force directions (F) x, y and z (at 20 °C)

Fa = maximum allowed load

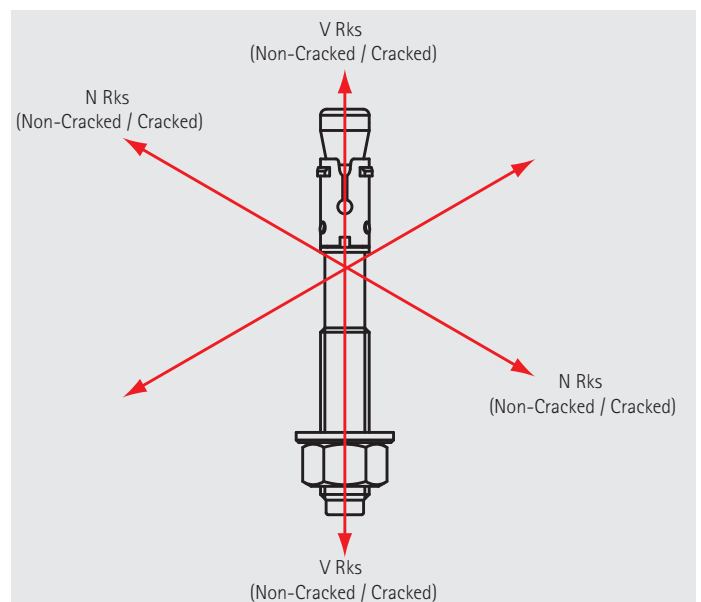
Fb = breaking load



### Force directions Anchoring

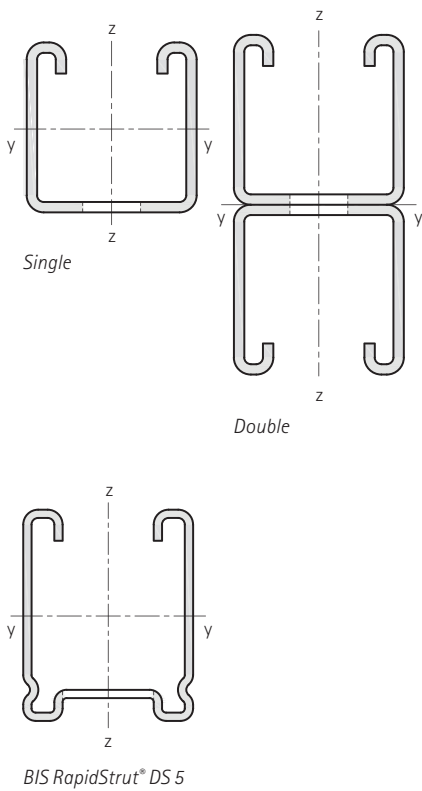
V Rks = Characteristic resistance value in non cracked or cracked concrete (kN) shear load with standard embedment depth

N Rks = Characteristic resistance value in non cracked or cracked concrete (kN) tension load with standard embedment depth





System BIS RapidStrut® - Table of rail section properties



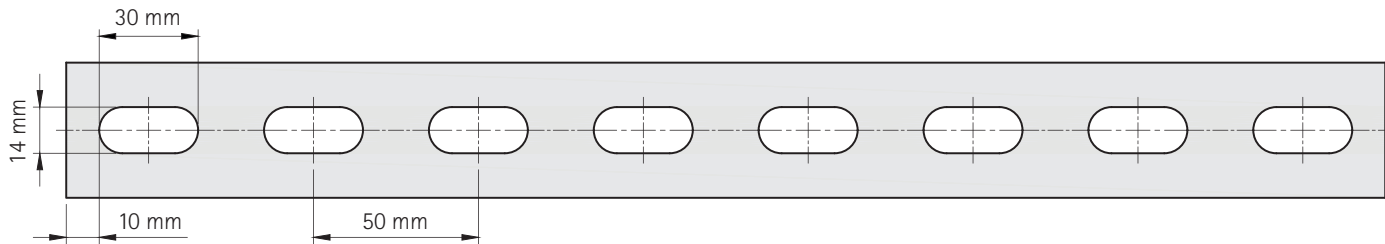
Type	Weight (kg / m)	Moment of inertia cm <sup>4</sup>		Section modulus cm <sup>3</sup>	
		I <sub>y</sub>	I <sub>z</sub>	W <sub>y</sub>	W <sub>z</sub>
41x21 - 1.5	1.15	0.78	3.70	0.72	1.80
41x21 - 2.0	1.34	0.90	4.59	0.84	2.22
41x21 - 2.5	1.78	1.01	5.40	0.93	2.61
41x41 - 1.5	1.65	4.46	6.20	2.12	3.00
41x41 - 2.0	2.35	5.34	7.79	2.56	3.77
41x41 - 2.5	2.45	6.26	9.30	2.97	4.50
41x51 - 2.0 (DS 5)	2.62	8.81	9.49	3.44	4.60
41x62 - 2.5	3.33	18.03	13.20	5.75	6.39
41x82 - 2.5	4.08	37.31	16.89	9.00	8.18
41x21D - 2.5	3.56	5.70	10.76	2.77	5.21
41x41D - 2.5	4.90	36.79	18.56	8.91	8.99
41x62D - 2.5	6.66	111.21	26.37	17.94	12.77
41x82D - 2.5	8.16	240.93	33.90	29.38	16.42

See Rail load tables for safe working loads.

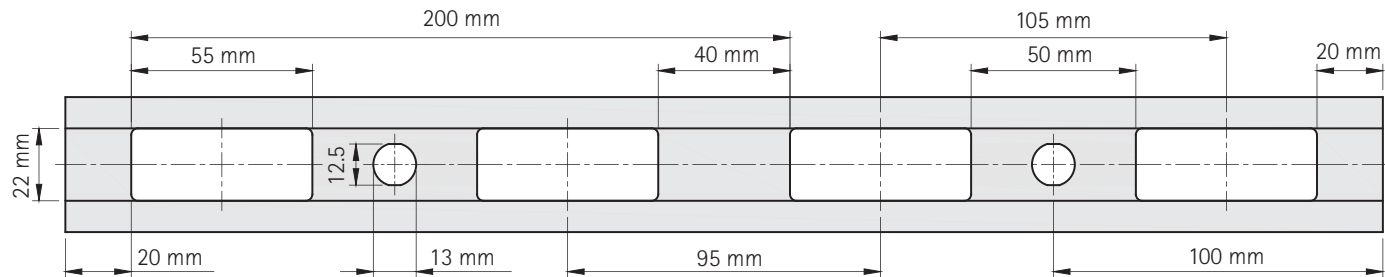
Perforation pattern of rails

Distance between rail end and first hole is always equal.

BIS RapidStrut® - 1.5 / 2.0 / 2.5 mm



BIS RapidStrut® DS 5 - 2.0 mm



# Calculation method

The published safe working loads are calculated with perforated (slotted) rail.

Loads are calculated taking into consideration a maximum deflection ( $f$ ) of  $L/200$  (according to RAL-GZ 655/B) and a maximum bending stress of  $160 \text{ N/mm}^2$  (see picture 1).

1 N (Newton) = 0.102 kg

1 kg = 9.8 N (Newton)

## Fixing of rails to walls or ceilings

The strength of the anchoring of the rail has not been taken into consideration. The installer must verify that the bolts and wall plugs used are suitable for the maximum permitted loading of the rail.

## Reading the rail loading tables

The stated values are only valid for the fixing rail. The maximum safe load of all other construction parts have to be verified. The stated maximum safe load is calculated for a static load at free bending support (see picture 2).

Where the segment is marked with a hyphen, the stated length cannot be safely loaded.

## Special conditions

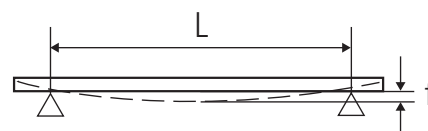
In case of doubt or for special conditions not stated in the loading tables, please do not hesitate to contact our technical department for their advice.

## Hanging of rails from the ceiling

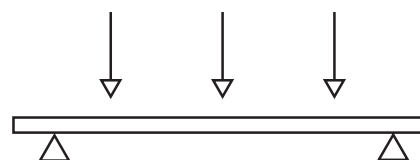
When hanging rails from the ceiling we recommend the use of U-formed washers on the open side of the rail (see picture 3).

## Methods of loading

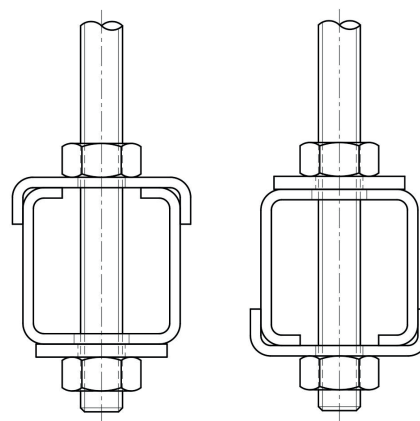
Where loads are suspended beneath rails (e.g. hanging pipes), the load must not exceed the relevant safe load of the slide nut. To increase rigidity of the installation we recommend the use of a U-formed washer (see picture 4).



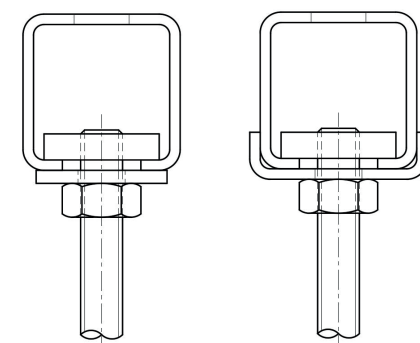
Picture 1



Picture 2

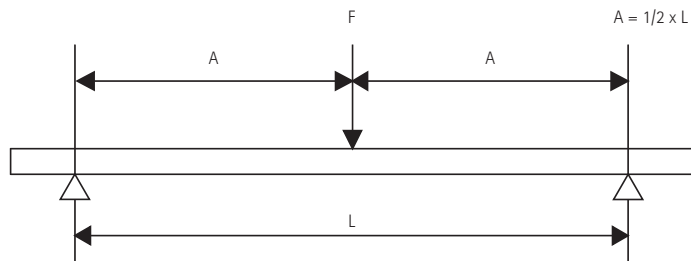






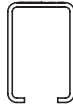

Picture 3



Picture 4

## BIS RapidRail® Fixing rail: suspension on 1 point



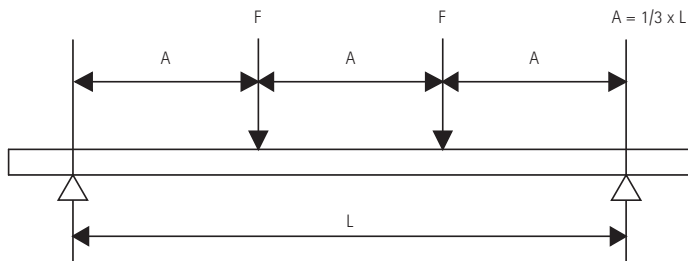
						
L (mm)	WM0 (27 x 18)	WM1 (30 x 15)	WM15 (30 x 20)	WM2 (30 x 30)	WM30 (30 x 45)	WM35 (38 x 40)
250	758	899	1,249	3,238	5,199	4,821
300	631	749	1,041	2,698	4,333	4,018
350	541	642	892	2,313	3,714	3,444
400	474	562	781	2,023	3,250	3,013
450	421	499	694	1,799	2,889	2,679
500	379	449	625	1,619	2,600	2,411
600	316	358	521	1,349	2,166	2,009
700	266	263	446	1,156	1,857	1,722
800	204	202	348	1,012	1,625	1,507
900	161	159	275	899	1,444	1,339
1,000	130	129	223	780	1,300	1,205
1,200	91	90	155	542	1,083	1,004
1,400	67	66	114	398	928	841
1,600	51	50	87	305	812	644
1,800	40	40	69	241	643	509
2,000	33	32	56	195	521	412
2,250	26	25	44	154	412	326
2,500	21	21	36	125	333	264
2,750	17	17	29	103	275	218
3,000	14	14	25	87	231	183
3,250	12	12	21	74	197	156
3,500	11	11	18	64	170	135
3,750	-	-	16	55	148	117
4,000	-	-	14	49	130	103
4,250	-	-	12	43	115	91
4,500	-	-	11	39	103	81
4,750	-	-	-	35	92	73
5,000	-	-	-	31	83	66
5,250	-	-	-	28	76	60
5,500	-	-	-	26	69	55
5,750	-	-	-	24	63	50
6,000	-	-	-	22	58	46





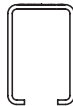

Max. allowed load in N.

The stated values are only valid for the fixing rail.

The maximum safe load of all other construction parts have to be verified.

## BIS RapidRail® Fixing rail: 2 equal loads



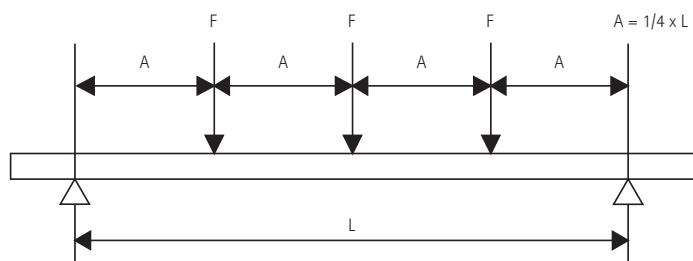
						
L (mm)	WM0 (27 x 18)	WM1 (30 x 15)	WM15 (30 x 20)	WM2 (30 x 30)	WM30 (30 x 45)	WM35 (38 x 40)
250	568	674	937	2,428	3,900	3,616
300	474	562	781	2,023	3,250	3,013
350	406	481	669	1,734	2,785	2,583
400	355	421	586	1,518	2,437	2,260
450	316	374	521	1,349	2,166	2,009
500	284	303	468	1,214	1,950	1,808
600	213	210	363	1,012	1,625	1,507
700	156	155	267	867	1,393	1,291
800	120	118	204	715	1,219	1,130
900	95	94	161	565	1,083	1,004
1,000	77	76	131	458	975	904
1,200	53	53	91	318	812	672
1,400	39	39	67	234	624	494
1,600	30	30	51	179	478	378
1,800	24	23	40	141	377	299
2,000	19	19	33	114	306	242
2,250	15	15	26	90	242	191
2,500	12	12	21	73	196	155
2,750	10	10	17	61	162	128
3,000	-	-	15	51	136	108
3,250	-	-	12	43	116	92
3,500	-	-	11	37	100	79
3,750	-	-	-	33	87	69
4,000	-	-	-	29	76	60
4,250	-	-	-	25	68	54
4,500	-	-	-	23	60	48
4,750	-	-	-	20	54	43
5,000	-	-	-	18	49	39
5,250	-	-	-	17	44	35
5,500	-	-	-	15	40	32
5,750	-	-	-	14	37	29
6,000	-	-	-	13	34	27







Max. allowed load in N. per suspension point (F).

The stated values are only valid for the fixing rail.

The maximum safe load of all other construction parts have to be verified.

## BIS RapidRail® Fixing rail: 3 equal loads



						
L (mm)	WM0 (27 x 18)	WM1 (30 x 15)	WM15 (30 x 20)	WM2 (30 x 30)	WM30 (30 x 45)	WM35 (38 x 40)
250	379	449	625	1,619	2,600	2,411
300	316	374	521	1,349	2,166	2,009
350	271	321	446	1,156	1,857	1,722
400	237	281	390	1,012	1,625	1,507
450	210	250	347	899	1,444	1,339
500	189	217	312	809	1,300	1,205
600	153	151	260	674	1,083	1,004
700	112	111	191	578	928	861
800	86	85	147	506	812	753
900	68	67	116	406	722	670
1,000	55	54	94	328	650	603
1,200	38	38	65	228	542	482
1,400	28	28	48	168	448	354
1,600	21	21	37	128	343	271
1,800	17	17	29	101	271	214
2,000	14	14	23	82	219	174
2,250	11	11	19	65	173	137
2,500	-	-	15	53	140	111
2,750	-	-	12	43	116	92
3,000	-	-	10	36	97	77
3,250	-	-	-	31	83	66
3,500	-	-	-	27	72	57
3,750	-	-	-	23	62	49
4,000	-	-	-	21	55	43
4,250	-	-	-	18	49	38
4,500	-	-	-	16	43	34
4,750	-	-	-	15	39	31
5,000	-	-	-	13	35	28
5,250	-	-	-	12	32	25
5,500	-	-	-	11	29	23
5,750	-	-	-	-	27	21
6,000	-	-	-	-	24	19

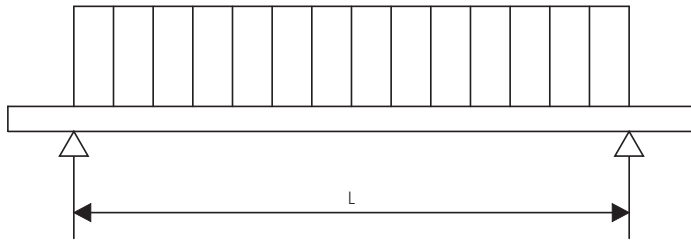
Max. allowed load in N. per suspension point (F).







The stated values are only valid for the fixing rail.

The maximum safe load of all other construction parts have to be verified.



## BIS RapidRail® Fixing rail: Uniformly distributed load



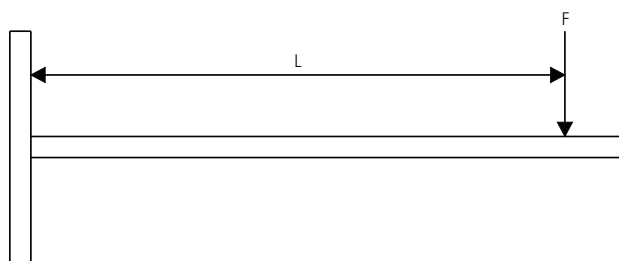
						
L (mm)	WM0 (27 x 18)	WM1 (30 x 15)	WM15 (30 x 20)	WM2 (30 x 30)	WM30 (30 x 45)	WM35 (38 x 40)
250	1,516	1,797	2,499	6,475	10,399	9,643
300	1,263	1,498	2,082	5,396	8,666	8,036
350	1,083	1,284	1,785	4,625	7,428	6,888
400	947	1,123	1,562	4,047	6,499	6,027
450	842	998	1,388	3,597	5,777	5,357
500	758	826	1,249	3,238	5,199	4,821
600	580	574	990	2,698	4,333	4,018
700	426	421	727	2,313	3,714	3,444
800	326	323	557	1,950	3,250	3,013
900	258	255	440	1,541	2,889	2,679
1,000	209	206	356	1,248	2,600	2,411
1,200	145	143	248	867	2,166	1,832
1,400	106	105	182	637	1,701	1,346
1,600	82	81	139	488	1,302	1,031
1,800	64	64	110	385	1,029	814
2,000	52	52	89	312	833	660
2,250	41	41	70	247	658	521
2,500	33	33	57	200	533	422
2,750	28	27	47	165	441	349
3,000	23	23	40	139	370	293
3,250	20	20	34	118	316	250
3,500	17	17	29	102	272	215
3,750	15	15	25	89	237	188
4,000	13	13	22	78	208	165
4,250	12	11	20	69	185	146
4,500	10	10	18	62	165	130
4,750	-	-	16	55	148	117
5,000	-	-	14	50	133	106
5,250	-	-	13	45	121	96
5,500	-	-	12	41	110	87
5,750	-	-	11	38	101	80
6,000	-	-	-	35	93	73






Max. allowed load in N.

The stated values are only valid for the fixing rail.

The maximum safe load of all other construction parts have to be verified.

## BIS RapidRail® Cantilever arms: Suspension on 1 point



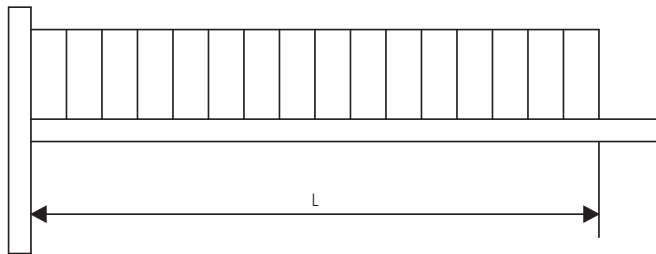
L (mm)	 WM0 (27 x 18)	 WM1 (30 x 15)	 WM15 (30 x 20)	 WM2 (30 x 30)	 WM35 (38 x 40)
150	316	358	521	1,349	2,009
200	204	202	348	1,012	1,507
250	130	129	223	780	1,205
300	91	90	155	542	1,004
350	67	66	114	398	841
400	51	50	87	305	644
500	33	32	56	195	412
600	23	22	39	135	286
700	17	16	28	100	210
800	13	13	22	76	161
900	10	-	17	60	127
1,000	-	-	14	49	103






Max. allowed load in N.

The stated values are only valid for the fixing rail.

The maximum safe load of all other construction parts have to be verified.

## BIS RapidRail® Cantilever arms: Uniformly distributed load



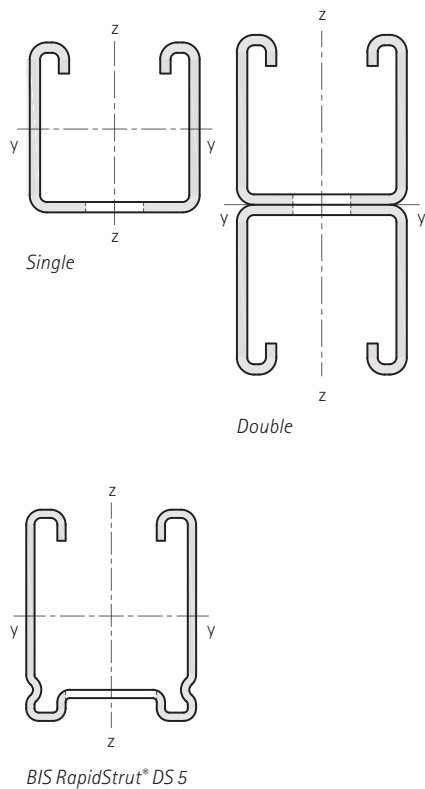
L (mm)	 WM0 (27 x 18)	 WM1 (30 x 15)	 WM15 (30 x 20)	 WM2 (30 x 30)	 WM35 (38 x 40)
150	631	749	1,041	2,698	4,018
200	474	538	781	2,023	3,013
250	348	344	594	1,619	2,411
300	242	239	413	1,349	2,009
350	177	176	303	1,061	1,722
400	136	134	232	813	1,507
500	87	86	149	520	1,099
600	60	60	103	361	763
700	44	44	76	265	561
800	34	34	58	203	429
900	27	27	46	161	339
1,000	22	22	37	130	275

Max. allowed load in N.

The stated values are only valid for the fixing rail.

The maximum safe load of all other construction parts have to be verified.

## System BIS RapidStrut® - Table of rail section properties



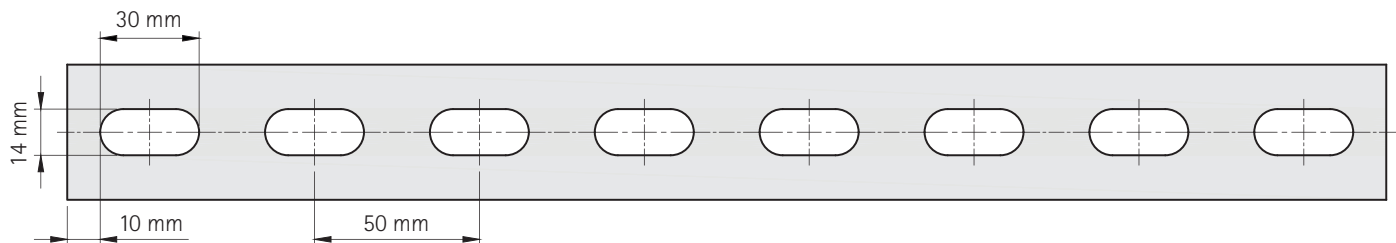
Type	Weight (kg / m)	Moment of inertia cm <sup>4</sup>		Section modulus cm <sup>3</sup>	
		I <sub>y</sub>	I <sub>z</sub>	W <sub>y</sub>	W <sub>z</sub>
41x21 - 1.5	1.15	0.78	3.70	0.72	1.80
41x21 - 2.0	1.34	0.90	4.59	0.84	2.22
41x21 - 2.5	1.78	1.01	5.40	0.93	2.61
41x41 - 1.5	1.65	4.46	6.20	2.12	3.00
41x41 - 2.0	2.35	5.34	7.79	2.56	3.77
41x41 - 2.5	2.45	6.26	9.30	2.97	4.50
41x51 - 2.0 (DS 5)	2.62	8.81	9.49	3.44	4.60
41x62 - 2.5	3.33	18.03	13.20	5.75	6.39
41x82 - 2.5	4.08	37.31	16.89	9.00	8.18
41x21D - 2.5	3.56	5.70	10.76	2.77	5.21
41x41D - 2.5	4.90	36.79	18.56	8.91	8.99
41x62D - 2.5	6.66	111.21	26.37	17.94	12.77
41x82D - 2.5	8.16	240.93	33.90	29.38	16.42

See Rail load tables for safe working loads.

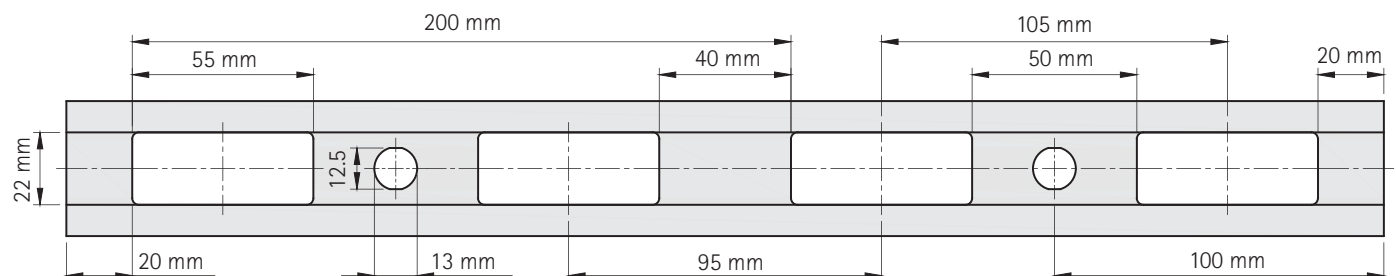
## Perforation pattern of rails

Distance between rail end and first hole is always equal.

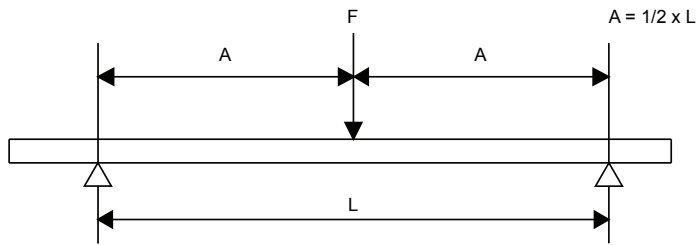
### BIS RapidStrut® - 1.5 / 2.0 / 2.5 mm



### BIS RapidStrut® DS 5 - 2.0 mm



## BIS RapidStrut® Fixing rail: suspension on 1 point



L (mm)	Single									Double			
	41x21 x1.5	41x21 x2.0	41x21 x2.5	41x41 x1.5	41x41 x2.0	41x41 x2.5	41x51 x2.0	41x62 x2.5	41x82 x2.5	41x21D	41x41D	41x62D	41x82D
250	1,848	2,153	2,381	5,427	6,556	7,611	8,812	14,730	23,035	7,081	22,797	46,461	75,937
300	1,540	1,794	1,984	4,523	5,463	6,342	7,343	12,275	19,196	5,901	18,997	38,718	63,281
350	1,320	1,538	1,701	3,877	4,683	5,436	6,294	10,522	16,453	5,058	16,283	33,187	54,241
400	1,155	1,346	1,488	3,392	4,098	4,757	5,507	9,206	14,397	4,426	14,248	29,038	47,461
450	1,027	1,196	1,323	3,015	3,642	4,228	4,895	8,183	12,797	3,934	12,665	25,812	42,187
500	924	1,076	1,190	2,714	3,278	3,805	4,406	7,365	11,517	3,540	11,398	23,231	37,969
600	770	897	992	2,261	2,732	3,171	3,671	6,138	9,598	2,950	9,499	19,359	31,641
700	660	769	850	1,938	2,341	2,718	3,147	5,261	8,227	2,529	8,142	16,593	27,120
800	557	642	719	1,696	2,049	2,378	2,754	4,603	7,198	2,213	7,124	14,519	23,730
900	440	508	568	1,508	1,821	2,114	2,448	4,092	6,399	1,967	6,332	12,906	21,094
1,000	356	411	460	1,357	1,639	1,903	2,203	3,683	5,759	1,770	5,699	11,615	18,984
1,200	247	286	320	1,131	1,366	1,586	1,836	3,069	4,799	1,475	4,749	9,679	15,820
1,400	182	210	235	969	1,171	1,359	1,573	2,630	4,113	1,264	4,071	8,297	13,560
1,600	139	161	180	794	952	1,114	1,377	2,302	3,599	1,015	3,562	7,260	11,865
1,800	110	127	142	628	752	881	1,224	2,046	3,199	802	3,166	6,453	10,547
2,000	89	103	115	508	609	713	1,004	1,841	2,879	650	2,850	5,808	9,492
2,250	70	81	91	402	481	564	794	1,624	2,559	513	2,533	5,162	8,437
2,500	57	66	74	325	390	456	643	1,315	2,303	416	2,280	4,646	7,594
2,750	47	54	61	269	322	377	531	1,087	2,094	344	2,072	4,224	6,903
3,000	40	46	51	226	271	317	446	913	1,890	289	1,863	3,872	6,328
3,250	34	39	44	193	231	270	380	778	1,611	246	1,588	3,574	5,841
3,500	29	34	38	166	199	233	328	671	1,389	212	1,369	3,319	5,424
3,750	25	29	33	145	173	203	286	584	1,210	185	1,193	3,097	5,062
4,000	22	26	29	127	152	178	251	514	1,063	162	1,048	2,904	4,746
4,250	20	23	25	113	135	158	222	455	942	144	928	2,733	4,467
4,500	18	20	23	100	120	141	198	406	840	128	828	2,504	4,219
4,750	16	18	20	90	108	126	178	364	754	115	743	2,248	3,997
5,000	14	16	18	81	97	114	161	329	680	104	671	2,029	3,797
5,250	13	15	17	74	88	104	146	298	617	94	608	1,840	3,616
5,500	12	14	15	67	81	94	133	272	562	86	554	1,676	3,452
5,750	11	12	14	62	74	86	122	249	515	79	507	1,534	3,302
6,000	-	11	13	56	68	79	112	228	473	72	466	1,409	3,052

Max. allowed load in N.

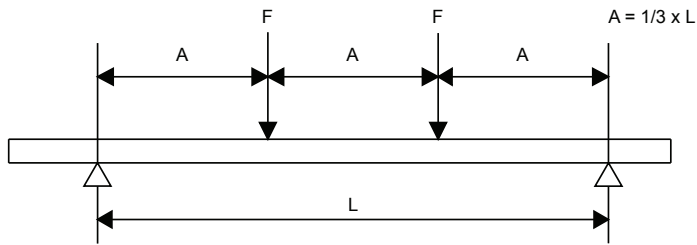
The stated values are only valid for the fixing rail.

The maximum safe load of all other construction parts have to be verified.

For large spans and high rail flanks ( $\geq 62\text{mm}$ ), depending on the load, appropriate measures against occurring torsional forces may have to be taken.



## BIS RapidStrut® Fixing rail: 2 equal loads



L (mm)	Single									Double			
	41x21 x1.5	41x21 x2.0	41x21 x2.5	41x41 x1.5	41x41 x2.0	41x41 x2.5	41x51 x2.0	41x62 x2.5	41x82 x2.5	41x21D	41x41D	41x62D	41x82D
250	1,386	1,615	1,786	4,070	4,917	5,708	6,609	11,048	17,276	5,311	17,098	34,846	56,953
300	1,155	1,346	1,488	3,392	4,098	4,757	5,507	9,206	14,397	4,426	14,248	29,038	47,461
350	990	1,153	1,275	2,907	3,512	4,077	4,720	7,891	12,340	3,793	12,213	24,890	40,681
400	866	1,009	1,116	2,544	3,073	3,568	4,130	6,905	10,798	3,319	10,686	21,779	35,596
450	770	897	992	2,261	2,732	3,171	3,671	6,138	9,598	2,950	9,499	19,359	31,641
500	693	807	893	2,035	2,459	2,854	3,304	5,524	8,638	2,655	8,549	17,423	28,476
600	578	670	744	1,696	2,049	2,378	2,754	4,603	7,198	2,213	7,124	14,519	23,730
700	427	492	552	1,454	1,756	2,039	2,360	3,946	6,170	1,897	6,106	12,445	20,340
800	327	377	422	1,272	1,537	1,784	2,065	3,452	5,399	1,660	5,343	10,889	17,798
900	258	298	334	1,131	1,366	1,586	1,836	3,069	4,799	1,475	4,749	9,679	15,820
1,000	209	241	270	1,018	1,229	1,427	1,652	2,762	4,319	1,328	4,274	8,712	14,238
1,200	145	168	188	829	993	1,163	1,377	2,302	3,599	1,059	3,562	7,260	11,865
1,400	107	123	138	609	730	854	1,180	1,973	3,085	778	3,053	6,223	10,170
1,600	82	94	106	466	559	654	921	1,726	2,699	596	2,672	5,445	8,899
1,800	65	74	83	368	442	517	728	1,489	2,399	471	2,375	4,840	7,910
2,000	52	60	68	298	358	419	590	1,206	2,160	381	2,137	4,356	7,119
2,250	41	48	53	236	283	331	466	953	1,920	301	1,900	3,872	6,328
2,500	33	39	43	191	229	268	377	772	1,598	244	1,575	3,485	5,695
2,750	28	32	36	158	189	221	312	638	1,320	202	1,302	3,168	5,178
3,000	23	27	30	133	159	186	262	536	1,109	169	1,094	2,904	4,746
3,250	20	23	26	113	135	159	223	457	945	144	932	2,680	4,381
3,500	17	20	22	97	117	137	192	394	815	124	804	2,430	4,068
3,750	15	17	19	85	102	119	168	343	710	108	700	2,117	3,797
4,000	13	15	17	75	89	105	147	302	624	95	615	1,860	3,560
4,250	12	13	15	66	79	93	131	267	553	84	545	1,648	3,350
4,500	10	12	13	59	71	83	116	238	493	75	486	1,470	3,164
4,750	-	11	12	53	63	74	105	214	443	68	436	1,319	2,858
5,000	-	-	11	48	57	67	94	193	399	61	394	1,191	2,579
5,250	-	-	-	43	52	61	86	175	362	55	357	1,080	2,340
5,500	-	-	-	39	47	55	78	159	330	50	325	984	2,132
5,750	-	-	-	36	43	51	71	146	302	46	298	900	1,950
6,000	-	-	-	33	40	47	66	134	277	42	273	827	1,791

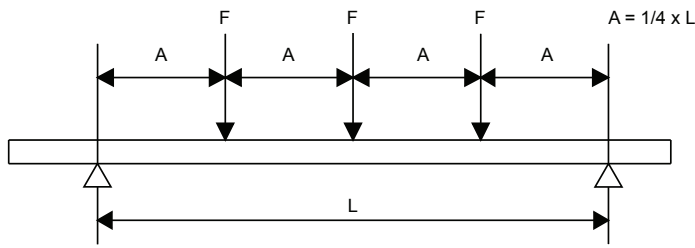
Max. allowed load in N. per suspension point (F).

The stated values are only valid for the fixing rail.

The maximum safe load of all other construction parts have to be verified.

For large spans and high rail flanks ( $> 62\text{mm}$ ), depending on the load, appropriate measures against occurring torsional forces may have to be taken.

## BIS RapidStrut® Fixing rail: 3 equal loads



L (mm)	Single									Double			
	41x21 x1.5	41x21 x2.0	41x21 x2.5	41x41 x1.5	41x41 x2.0	41x41 x2.5	41x51 x2.0	41x62 x2.5	41x82 x2.5	41x21D	41x41D	41x62D	41x82D
250	924	1,076	1,190	2,714	3,278	3,805	4,406	7,365	11,517	3,540	11,398	23,231	37,969
300	770	897	992	2,261	2,732	3,171	3,671	6,138	9,598	2,950	9,499	19,359	31,641
350	660	769	850	1,938	2,341	2,718	3,147	5,261	8,227	2,529	8,142	16,593	27,120
400	578	673	744	1,696	2,049	2,378	2,754	4,603	7,198	2,213	7,124	14,519	23,730
450	513	598	661	1,508	1,821	2,114	2,448	4,092	6,399	1,967	6,332	12,906	21,094
500	462	538	595	1,357	1,639	1,903	2,203	3,683	5,759	1,770	5,699	11,615	18,984
600	385	449	496	1,131	1,366	1,586	1,836	3,069	4,799	1,475	4,749	9,679	15,820
700	306	353	396	969	1,171	1,359	1,573	2,630	4,113	1,264	4,071	8,297	13,560
800	234	270	303	848	1,024	1,189	1,377	2,302	3,599	1,106	3,562	7,260	11,865
900	185	214	239	754	911	1,057	1,224	2,046	3,199	983	3,166	6,453	10,547
1,000	150	173	194	678	820	951	1,101	1,841	2,879	885	2,850	5,808	9,492
1,200	104	120	135	565	683	793	918	1,534	2,399	738	2,375	4,840	7,910
1,400	77	88	99	437	524	613	787	1,315	2,057	558	2,035	4,148	6,780
1,600	59	68	76	335	401	469	661	1,151	1,800	427	1,781	3,630	5,933
1,800	46	53	60	264	317	371	522	1,023	1,600	338	1,583	3,226	5,273
2,000	38	43	48	214	257	300	423	865	1,440	274	1,425	2,904	4,746
2,250	30	34	38	169	203	237	334	684	1,280	216	1,266	2,581	4,219
2,500	24	28	31	137	164	192	271	554	1,146	175	1,130	2,323	3,797
2,750	20	23	26	113	136	159	224	458	947	145	934	2,112	3,452
3,000	17	19	22	95	114	133	188	385	796	122	785	1,936	3,164
3,250	14	16	18	81	97	114	160	328	678	104	669	1,787	2,921
3,500	12	14	16	70	84	98	138	283	585	89	576	1,659	2,712
3,750	11	12	14	61	73	85	120	246	509	78	502	1,518	2,531
4,000	-	11	12	54	64	75	106	216	448	68	441	1,335	2,373
4,250	-	-	11	47	57	67	94	192	397	61	391	1,182	2,233
4,500	-	-	-	42	51	59	84	171	354	54	349	1,054	2,109
4,750	-	-	-	38	45	53	75	153	317	48	313	946	1,998
5,000	-	-	-	34	41	48	68	138	287	44	282	854	1,850
5,250	-	-	-	31	37	44	61	126	260	40	256	775	1,678
5,500	-	-	-	28	34	40	56	114	237	36	233	706	1,529
5,750	-	-	-	26	31	36	51	105	217	33	214	646	1,399
6,000	-	-	-	24	29	33	47	96	199	30	196	593	1,285

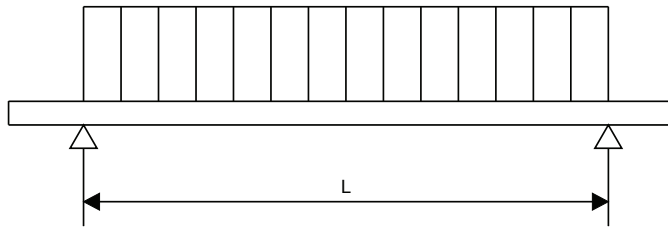
Max. allowed load in N. per suspension point (F).

The stated values are only valid for the fixing rail.

The maximum safe load of all other construction parts have to be verified.

For large spans and high rail flanks ( $> 62\text{mm}$ ), depending on the load, appropriate measures against occurring torsional forces may have to be taken.

## BIS RapidStrut® Fixing rail: uniformly distributed load



L (mm)	Single									Double			
	41x21 x1.5	41x21 x2.0	41x21 x2.5	41x41 x1.5	41x41 x2.0	41x41 x2.5	41x51 x2.0	41x62 x2.5	41x82 x2.5	41x21D	41x41D	41x62D	41x82D
250	3,697	4,306	4,762	10,854	13,112	15,222	17,623	29,460	46,070	14,162	45,594	92,923	151,875
300	3,081	3,588	3,968	9,045	10,927	12,685	14,686	24,550	38,391	11,802	37,995	77,436	126,562
350	2,640	3,076	3,401	7,753	9,366	10,873	12,588	21,043	32,907	10,116	32,567	66,373	108,482
400	2,310	2,691	2,976	6,784	8,195	9,514	11,014	18,413	28,794	8,851	28,496	58,077	94,922
450	2,054	2,392	2,645	6,030	7,285	8,457	9,791	16,367	25,594	7,868	25,330	51,624	84,375
500	1,848	2,153	2,381	5,427	6,556	7,611	8,812	14,730	23,035	7,081	22,797	46,461	75,937
600	1,540	1,794	1,984	4,523	5,463	6,342	7,343	12,275	19,196	5,901	18,997	38,718	63,281
700	1,163	1,342	1,503	3,877	4,683	5,436	6,294	10,522	16,453	5,058	16,283	33,187	54,241
800	891	1,028	1,151	3,392	4,098	4,757	5,507	9,206	14,397	4,426	14,248	29,038	47,461
900	704	812	909	3,015	3,642	4,228	4,895	8,183	12,797	3,934	12,665	25,812	42,187
1,000	570	658	737	2,714	3,278	3,805	4,406	7,365	11,517	3,540	11,398	23,231	37,969
1,200	396	457	512	2,260	2,708	3,170	3,671	6,138	9,598	2,887	9,499	19,359	31,641
1,400	291	336	376	1,660	1,989	2,329	3,147	5,261	8,227	2,121	8,142	16,593	27,120
1,600	223	257	288	1,271	1,523	1,783	2,511	4,603	7,198	1,624	7,124	14,519	23,730
1,800	176	203	227	1,004	1,204	1,409	1,984	4,059	6,399	1,283	6,332	12,906	21,094
2,000	143	164	184	814	975	1,141	1,607	3,288	5,759	1,039	5,699	11,615	18,984
2,250	113	130	146	643	770	902	1,270	2,598	5,119	821	5,066	10,325	16,875
2,500	91	105	118	521	624	730	1,028	2,104	4,355	665	4,293	9,292	15,187
2,750	75	87	97	430	516	604	850	1,739	3,599	550	3,548	8,448	13,807
3,000	63	73	82	362	433	507	714	1,461	3,024	462	2,981	7,744	12,656
3,250	54	62	70	308	369	432	609	1,245	2,577	394	2,540	7,148	11,683
3,500	47	54	60	266	318	373	525	1,074	2,222	339	2,190	6,624	10,848
3,750	41	47	52	231	277	325	457	935	1,936	296	1,908	5,770	10,125
4,000	36	41	46	203	244	285	402	822	1,701	260	1,677	5,071	9,492
4,250	32	36	41	180	216	253	356	728	1,507	230	1,486	4,492	8,934
4,500	28	32	36	161	193	225	317	649	1,344	205	1,325	4,007	8,437
4,750	25	29	33	144	173	202	285	583	1,206	184	1,189	3,596	7,791
5,000	23	26	29	130	156	183	257	526	1,089	166	1,073	3,246	7,031
5,250	21	24	27	118	141	166	233	477	988	151	974	2,944	6,378
5,500	19	22	24	108	129	151	212	435	900	137	887	2,682	5,811
5,750	17	20	22	98	118	138	194	398	823	126	812	2,454	5,317
6,000	16	18	20	90	108	127	179	365	756	115	745	2,254	4,883

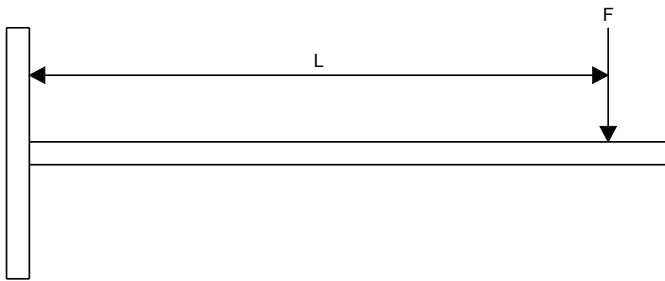
Max. allowed load in N.

The stated values are only valid for the fixing rail.

The maximum safe load of all other construction parts have to be verified.

For large spans and high rail flanks (> = 62mm), depending on the load, appropriate measures against occurring torsional forces may have to be taken.

## BIS RapidStrut® Cantilever arms: suspension on 1 point



L (mm)	Single									Double			
	41x21 x1.5	41x21 x2.0	41x21 x2.5	41x41 x1.5	41x41 x2.0	41x41 x2.5	41x51 x2.0	41x62 x2.5	41x82 x2.5	41x21D	41x41D	41x62D	41x82D
100	1,155	1,346	1,488	3,392	4,098	4,757	5,507	9,206	14,397	4,426	14,248	29,038	47,461
150	770	897	992	2,261	2,732	3,171	3,671	6,138	9,598	2,950	9,499	19,359	31,641
200	557	642	719	1,696	2,049	2,378	2,754	4,603	7,198	2,213	7,124	14,519	23,730
250	356	411	460	1,357	1,639	1,903	2,203	3,683	5,759	1,770	5,699	11,615	18,984
300	247	286	320	1,131	1,366	1,586	1,836	3,069	4,799	1,475	4,749	9,679	15,820
350	182	210	235	969	1,171	1,359	1,573	2,630	4,113	1,264	4,071	8,297	13,560
400	139	161	180	794	952	1,114	1,377	2,302	3,599	1,015	3,562	7,260	11,865
450	110	127	142	628	752	881	1,224	2,046	3,199	802	3,166	6,453	10,547
500	89	103	115	508	609	713	1,004	1,841	2,879	650	2,850	5,808	9,492
550	74	85	95	420	504	589	830	1,674	2,618	537	2,591	5,280	8,629
600	62	71	80	353	423	495	697	1,427	2,399	451	2,375	4,840	7,910
700	45	52	59	259	311	364	512	1,048	2,057	331	2,035	4,148	6,780
800	35	40	45	199	238	279	392	803	1,661	254	1,638	3,630	5,933
900	27	32	36	157	188	220	310	634	1,313	200	1,294	3,226	5,273
1,000	22	26	29	127	152	178	251	514	1,063	162	1,048	2,904	4,746
1,100	18	21	24	105	126	147	208	425	879	134	866	2,619	4,315
1,200	15	18	20	88	106	124	174	357	738	113	728	2,201	3,955
1,300	13	15	17	75	90	106	149	304	629	96	620	1,875	3,651
1,400	11	13	15	65	78	91	128	262	542	83	535	1,617	3,390
1,500	-	11	13	56	68	79	112	228	473	72	466	1,409	3,052

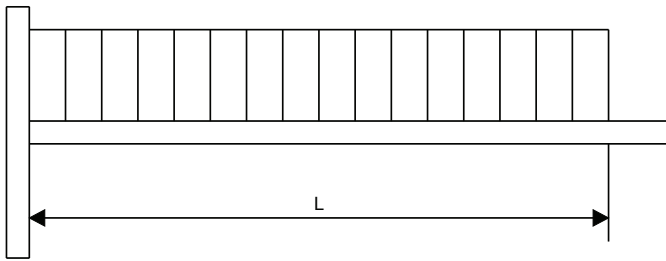
Max. allowed load in N.

The stated values are only valid for the fixing rail.

The maximum safe load of all other construction parts have to be verified.

For large spans and high rail flanks ( $> 62\text{mm}$ ), depending on the load, appropriate measures against occurring torsional forces may have to be taken.

## BIS RapidStrut® Cantilever arms: uniformly distributed load



L (mm)	Single									Double			
	41x21 x1.5	41x21 x2.0	41x21 x2.5	41x41 x1.5	41x41 x2.0	41x41 x2.5	41x51 x2.0	41x62 x2.5	41x82 x2.5	41x21D	41x41D	41x62D	41x82D
100	2,310	2,691	2,976	6,784	8,195	9,514	11,014	18,413	28,794	8,851	28,496	58,077	94,922
150	1,540	1,794	1,984	4,523	5,463	6,342	7,343	12,275	19,196	5,901	18,997	38,718	63,281
200	1,155	1,346	1,488	3,392	4,098	4,757	5,507	9,206	14,397	4,426	14,248	29,038	47,461
250	924	1,076	1,190	2,714	3,278	3,805	4,406	7,365	11,517	3,540	11,398	23,231	37,969
300	660	761	853	2,261	2,732	3,171	3,671	6,138	9,598	2,950	9,499	19,359	31,641
350	485	559	626	1,938	2,341	2,718	3,147	5,261	8,227	2,529	8,142	16,593	27,120
400	371	428	480	1,696	2,049	2,378	2,754	4,603	7,198	2,213	7,124	14,519	23,730
450	293	338	379	1,508	1,821	2,114	2,448	4,092	6,399	1,967	6,332	12,906	21,094
500	238	274	307	1,356	1,625	1,902	2,203	3,683	5,759	1,732	5,699	11,615	18,984
550	196	227	254	1,121	1,343	1,572	2,003	3,348	5,235	1,432	5,181	10,559	17,258
600	165	190	213	942	1,128	1,321	1,836	3,069	4,799	1,203	4,749	9,679	15,820
700	121	140	157	692	829	970	1,367	2,630	4,113	884	4,071	8,297	13,560
800	93	107	120	530	635	743	1,046	2,140	3,599	677	3,562	7,260	11,865
900	73	85	95	418	501	587	827	1,691	3,199	535	3,166	6,453	10,547
1,000	59	69	77	339	406	476	670	1,370	2,835	433	2,795	5,808	9,492
1,100	49	57	63	280	336	393	553	1,132	2,343	358	2,310	5,280	8,629
1,200	41	48	53	235	282	330	465	951	1,969	301	1,941	4,840	7,910
1,300	35	41	45	201	240	281	396	811	1,678	256	1,654	4,467	7,302
1,400	30	35	39	173	207	243	342	699	1,447	221	1,426	4,148	6,780
1,500	26	30	34	151	181	211	298	609	1,260	192	1,242	3,757	6,328

Max. allowed load in N.

The stated values are only valid for the fixing rail.

The maximum safe load of all other construction parts have to be verified.

For large spans and high rail flanks ( $> 62\text{mm}$ ), depending on the load, appropriate measures against occurring torsional forces may have to be taken.



## Information: Surface Treatment

To improve the corrosion resistance of steel products, Walraven uses all kinds of methods. Below you will find an overview:

### BIS UltraProtect® 1000 system

The BIS UltraProtect® 1000 system is the ideal and most durable solution for securing or supporting mechanical installations, solar systems and many other types of installations. The products in the BIS UltraProtect® 1000 system have very high corrosion resistance and can be applied in C1-C4 environments. BIS UltraProtect® 1000 products effortlessly withstand a salt spray test of at least 1,000 hours\* (in accordance with ISO 9227). Although the system utilizes a relatively thin protective coating, the corrosion resistance is high. Not only does the BIS UltraProtect® 1000 system offer a smooth and fine finish, the products are also visually appealing. An additional benefit of the relatively thin protective coating is that threaded products are also well protected against corrosion. The BIS UltraProtect® 1000 products, including threaded items such as bolts, nuts and threaded rods, have superior corrosion resistance.\*\*

### Zinc plating (blue)

The protective coating is applied in an electrolytic process after cleaning, degreasing and pickling. The thickness of the layer of zinc is between 5 and 15 µm and is determined by the current intensity and the duration of the galvanizing process. After the galvanizing process the products are passivated to extend the protection period.

### Pre-galvanizing

Pre-galvanizing is a continuous thermal galvanizing process applied before material treatment in manufacturing processes. The strip steel is guided through a bath containing liquid zinc after having been cleaned, degreased and pickled. The thickness of the layer of zinc is between 20 and 25 µm. Later the steel is cut to the required width. The sides of this cut material are not galvanized. This is also the case with any holes that may be drilled in the pre-galvanized material. The sides of material thinner than 1,5 mm are protected somewhat by the zinc layer on the top and bottom by the electrolytic process of 'pulling together'.

This surface protection is suitable for threaded products, which are to be used indoors or in a non-corrosive environment.

\* Until the occurrence of maximum 5% red rust.

\*\* The warranty conditions are applicable for C1-C4 corrosive environments according to ISO 12944-2. See our website [walraven.com](http://walraven.com) for further information.

### Hot dip galvanizing

The products to be treated are cleaned, degreased and pickled and subsequently put into an immersion bath of liquid zinc. The immersion bath has a temperature of 550 °C. In this process an alloy of zinc/iron develops on the surface and is then covered by a layer of pure zinc.

The thickness of the zinc layer varies between 50 and 100 µm. In consequence the process is less suitable for products with threaded holes or rods. Hot dip galvanized products are suitable for indoor as well as outdoor use and also for damp and light-corrosive environments.

The application for hot dip galvanizing processes is limited to the heavy systems.

### Stainless steel 316 (1.4401) and 316L (1.4404)

Stainless steel 316 is one of the best corrosion resistant types of stainless steel. It offers a superior corrosion resistance in many corrosive environments. The protective layer is damaged by treatments such as punching, drilling and welding. That is why, after the last treatment, all stainless steel products receive an extra treatment which pickles and passivates to restore the protective layer. Products from stainless steel 316 can be applied in aggressive situations such as a sea climate and industry.

### Powder coating

A protective layer of epoxy powder in any specified color is baked onto pre-treated products. The pre-treatment may differ per product and per application. In marine environment, the most durable solution is the combination of BIS UltraProtect® 1000 combined with powder coating.

The combined treatment reaches well over 1,000 hours in salt spray test without any signs of red rust.

## Information: Surface Treatment (Cont.)

### Delta-Tone 9000

Delta-Tone 9000 consists of zinc and aluminium particles that are held together by an inorganic binder. This offers an effective protection against corrosion even with a limited thickness of the coating. Delta-Tone 9000 is applied in an immersion/centrifugal or spray process and then dried at a temperature of 200 °C. With this method an even layer is formed over the whole product with a thickness of 10 – 12 µm. Subsequently Delta-Tone 9000 forms a connection with the metal underneath.

In contrast to electrolytic and thermal galvanizing, with Delta-Tone 9000 there is no danger of hydrogen embrittlement in materials with an increased carbon content, such as spring steel. To improve the corrosion resistance, the process can be repeated which increases the thickness each time by 10 – 12 µm.

Products protected by Delta-Tone 9000 are suitable for outdoor use as well as moderate corrosive environments.

Surface treatment	Thickness protection layer (µm)	Hours until 5% red rust*
BIS UltraProtect® 1000	– **	1,000
Zinc plating (blue)	5 - 10	72
Pre-galvanizing	20 - 25	150
Hot dip galvanizing	50 - 80	300 - 600
Powder coating	100	1,000
Delta-Tone 9000	10 - 12	480

\* Until the occurrence of maximum 5% red rust.

\*\* Method and thickness protection layer differ per product.

Walraven products are not treated with surface treatments containing Chromium 6.

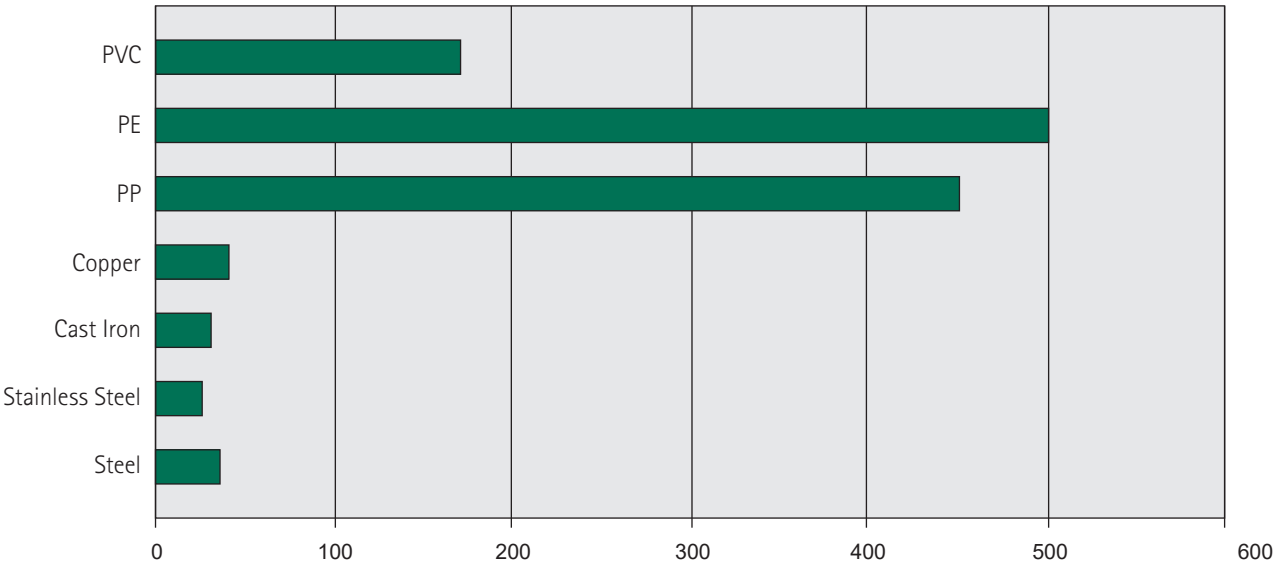
### Salt-spray test

To compare the protection duration of various surface treatments, a salt-spray test is carried out according to ISO 9227. In this test products are placed in a closed cabinet and sprayed with a salt solution. The products will start to corrode. The point at which 'white' and then 'red' rust appears is noted down.

This test does not give a perfect protection duration (this depends on the surroundings in which the product is applied), but does offer a comparative view of the various surface treatments.

# Information: Thermal Expansion

Thermal expansion per pipe type (mm)



Pipe length: 50 meter  
 Temperature difference: +50 °C

## Calculation method:

- $\Delta L = L \times \alpha \times \Delta T$
- $\Delta L$  = length change in mm
- L = pipe length in meters
- $\alpha$  = linear expansion coefficient
- $\Delta T$  = temperature difference T-max. - T-min.

Pipe material	Expansion (mm/m °C)*
PVC	0.0700
PE	0.2000
PP	0.1800
Copper	0.0170
Cast iron	0.0115
Stainless Steel	0.0100
Steel	0.0120
* indication	

## Example 1:

- Pipe material: Steel
- Pipe length: 20 meter
- T-max. = +60 °C
- T-min. = +20 °C
- Installation temperature: +20 °C
- $\Delta T = +60\text{ °C} - +20\text{ °C} = 40\text{ °C}$  (difference minimum/maximum temperature)
- $\Delta L = 20 \times 0.012 \times 40 = 9.6\text{ mm}$  (expansion in mm =  $20 \times 40 \times \alpha = 9.6\text{ mm}$ )

**Please note:** if the installation temperature is higher than T-min. (for example coolant pipes) the pipe will contract a certain length.

## Example 2:

- Pipe material: Stainless Steel
- Pipe length: 50 meter
- T-min. = -30 °C
- T-max. = +30 °C
- Installation temperature: +20 °C
- $\Delta T\text{ warm} = +30\text{ °C} - +20\text{ °C} = 10\text{ °C}$
- $\Delta T\text{ cold} = +20\text{ °C} - -30\text{ °C} = 50\text{ °C}$
- $\Delta T\text{ total} = \Delta T\text{ warm} + \Delta T\text{ cold} = 10\text{ °C} + 50\text{ °C} = 60\text{ °C}$
- $\Delta L\text{ warm} = 50 \times 0.01 \times 10 = 5\text{ mm expansion}$
- $\Delta L\text{ cold} = 50 \times 0.01 \times 50 = 25\text{ mm contraction}$

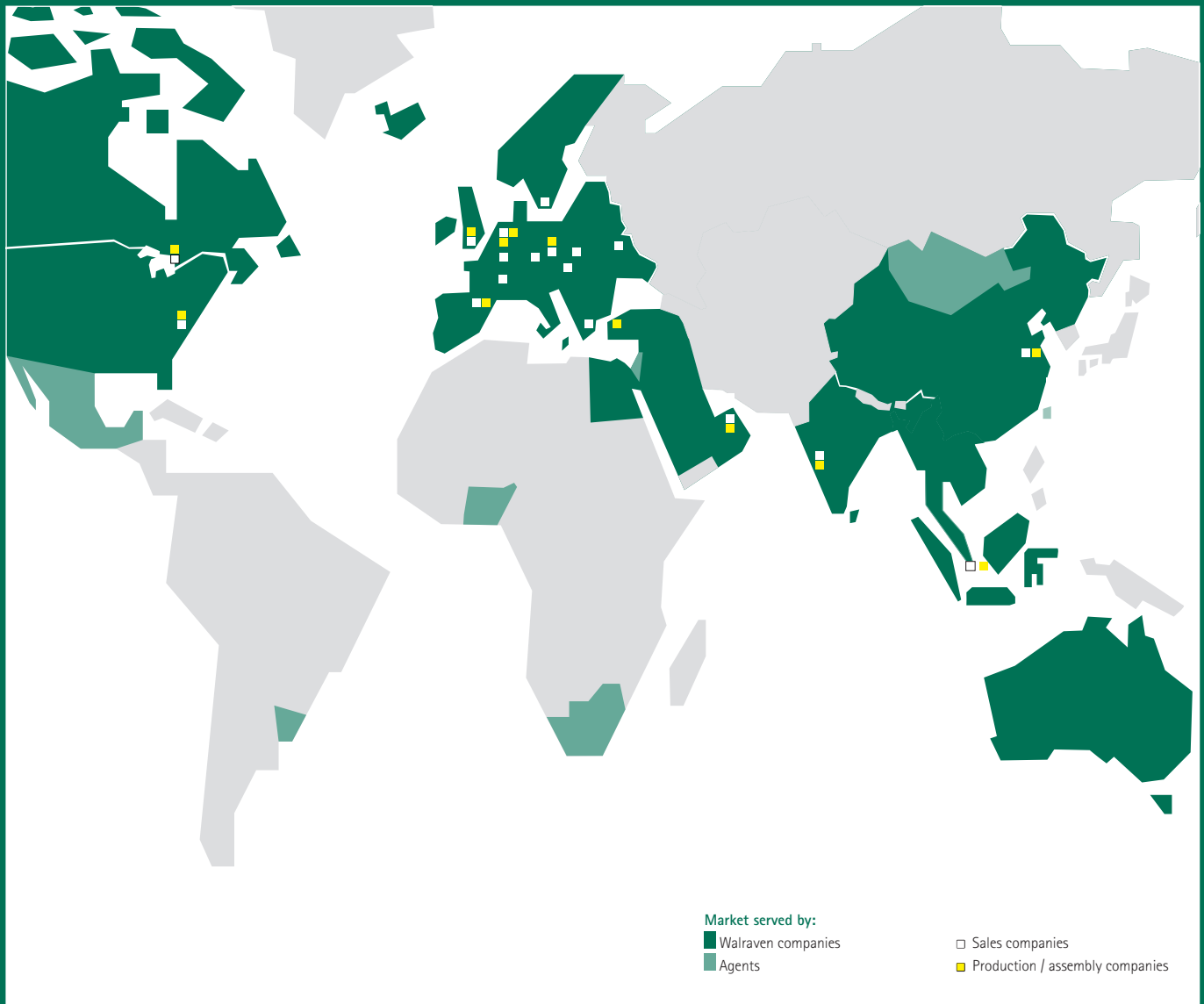
J. van Walraven Holding B.V. declares that research was done into the applicability of CE marking for all Walraven pipe support products. Research showed that, at present, no CE marking following the Construction Products Directive (305/2011/EU) is applicable for these products.

Furthermore, J. van Walraven Holding B.V. declares that as soon as any legal obligation following the Construction Products Directive will be applicable to one or more of Walraven's pipe support products, J. van Walraven Holding B.V. will comply with all legal obligations.

The quality and/or surface treatment of any adjoining components, as well as climate conditions, may alter the performance or corrosion resistance of Walraven products. If required, please consult us for more information before use. Our company cannot be held liable for any loss or damage caused by non-compliance, or by any non authorised modification to the product.

For questions and / or comments regarding the content of this catalogue you can send an email to [nl-mijd-catalogue@walraven.com](mailto:nl-mijd-catalogue@walraven.com).

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