

walraven

Catalogue

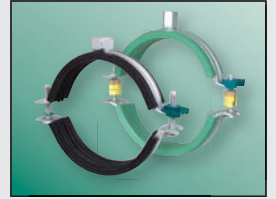


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Walraven Group

The Walraven Group is one of Europe's leading manufacturers of fixing, sanitary and fire protection systems for HVAC and sanitary installations.

Since its foundation in 1942 the family owned company has expanded into an international business with its own sales and production companies and around 950 employees.

Walraven is dedicated to serving the installation industry through full partnership with professional distributors.

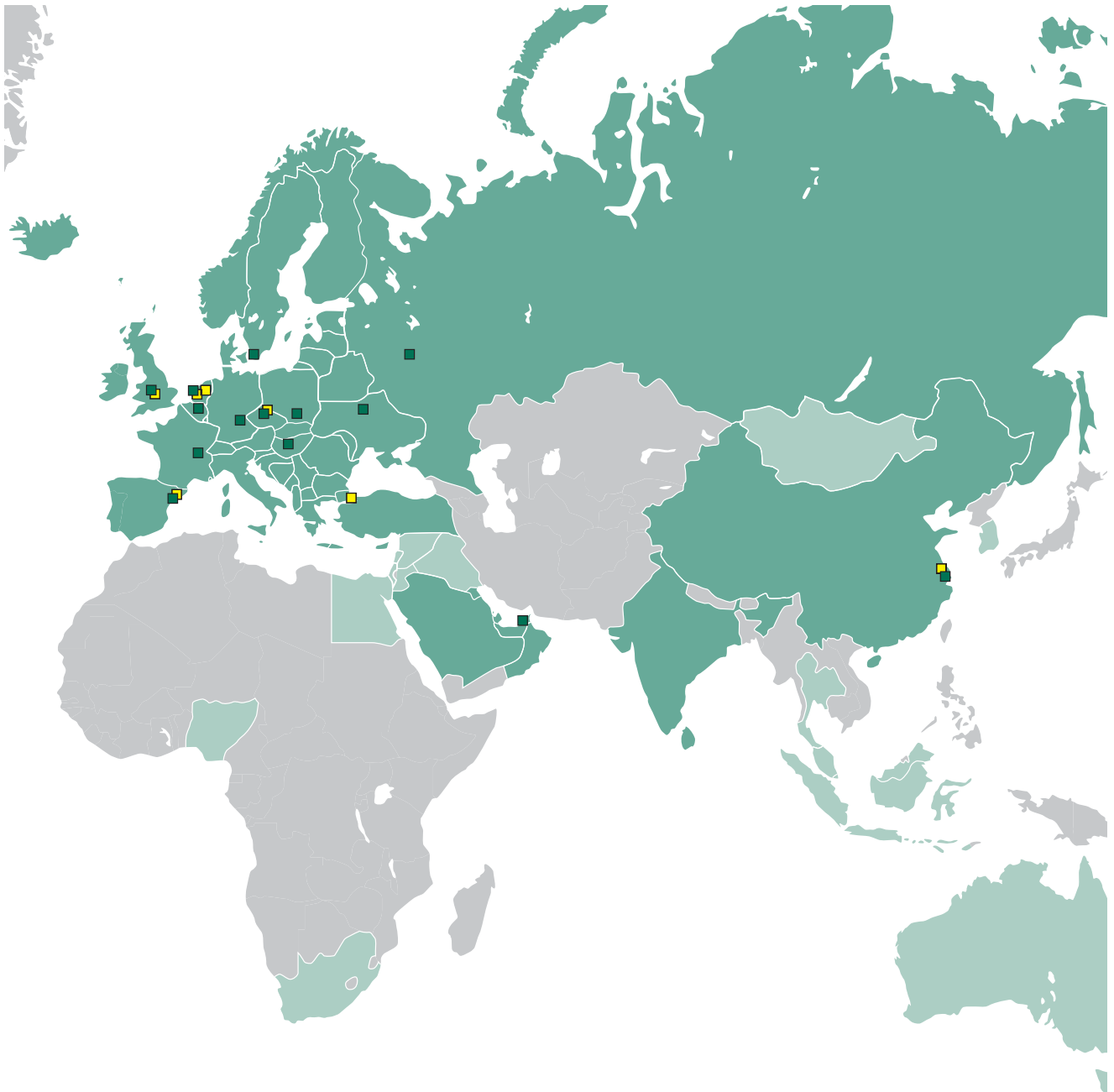


Market served by:

- Walraven companies
- Agents

Sales companies

Mijdrecht (NL) J. van Walraven Holding B.V. Headquarters Walraven B.V. The Netherlands Walraven International Other countries J. van Walraven B.V.	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
	Barcelona (ES) Isofix Walraven Iberia S.L. Spain – Portugal	Walled Lake (US) Walraven, Inc. United States of America – Canada	Moscow (RU) Walraven LLC Russia	Shanghai (CN) Walraven Shanghai, Ltd. China	Malmö (SE) Walraven Nordic AB Sweden – Denmark – Norway – Finland – Iceland



Production companies					
Kraków (PL) Walraven Sp. z o.o. Poland – Lithuania – Latvia – Estonia	Kyiv (UA) Walraven Ltd. Ukraine	Cista (CZ) Suchánek & Walraven s.r.o.	Horka (CZ) Suchánek & Walraven s.r.o.	Barcelona (ES) Isofix S.L.	Banbury (UK) Walraven Ltd.
Dubai (AE) Hira Walraven Middle East	Budapest (HU) Walraven Kft. Hungary – Romania	Silivri – Istanbul (TR) Jefelex Plastik Kauçuk	Gramsbergen (NL) Loko Gramsbergen B.V.	Horka (CZ) SWO Tooling s.r.o.	Changshu (CN) Walraven Metal Products (Changshu) Co. Ltd

INTERNATIONAL:



Explanation Max. Allowed Load

Maximum allowed load:

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

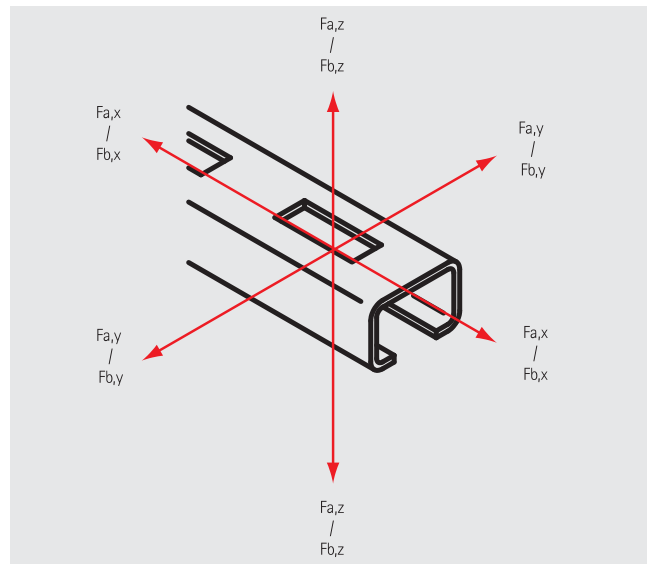
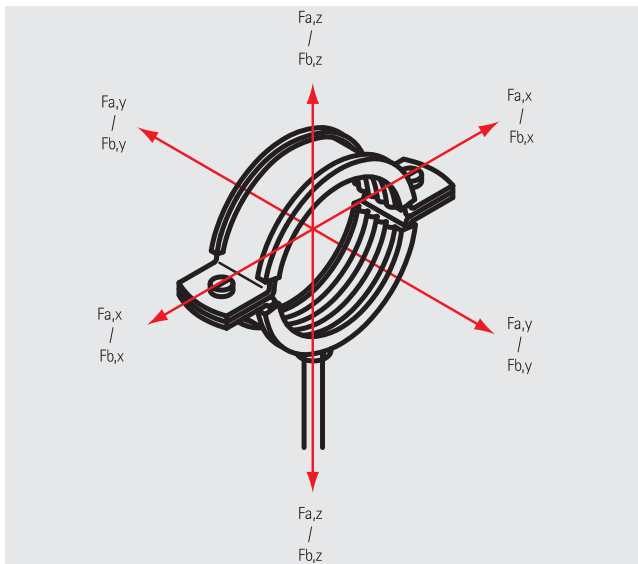
- a by Walraven developed measuring method
- the measuring method described in the testing prescriptions RAL-GZ 655, which is set up by the 'Gütegemeinschaft Rohrbefestigung'. If the product is provided with the 'RAL-Gütezeichen', the test results are checked by an independent testing institute.

For plastic clamps also the breaking load is mentioned.

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

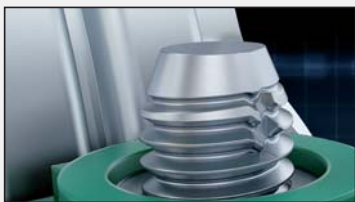
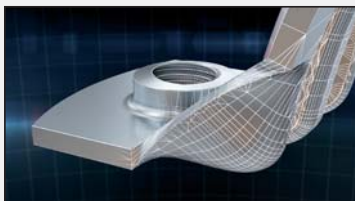
Fa = maximum allowed load

Fb = breaking load



BIS Bifix® G2

The next generation



BIS Bifix® Clamp, now even better!

- For indoor & outdoor use
- Increased strength
- Comfortable & secure to install
- Full range Ø 10 - 200 mm

BIS Metal Pipe Clamps with Lining

BISMAT® Flash	Part No.	Reece Code	D (mm)	G	Fa,z (Kg)	RAL	Pack
  	337 4 018	510726	15 - 18	M8/10	50	RAL ²	50
	337 4 023	510727	20 - 23	M8/10	50	RAL ²	50
	337 4 028	510728	25 - 28	M8/10	50	RAL ²	50
	337 4 035	510729	32 - 35	M8/10	50	RAL ²	50
	337 4 043	510730	40 - 43	M8/10	70	RAL ²	50
	337 4 051	510731	48 - 51	M8/10	70	RAL ²	50
	337 4 056	510732	53 - 56	M8/10	70	RAL ²	50
	337 4 063	510733	57 - 63	M8/10	70	RAL ²	50

RAL² = tested, certified and monitored by a third party according to RAL-GZ 655/B and RAL-GZ 656.
For detailed technical information about RAL marked products, please see the RAL datasheet on the Walraven website.

BISMAT® Flash



Insert pipe



Close clamp / push screw



Done!

BIS Bifix® G2 with Lining (BUP1000)	Part No.	Reece Code	D (mm)	G	Fa,z (Kg)	Pack
	312 8 014	510744	10 - 14	M10	80	50
	312 8 019	510745	15 - 19	M10	80	50
	312 8 023	510746	20 - 23	M10	80	50
	312 8 028	510747	25 - 28	M10	80	50
	312 8 035	510748	31 - 35	M10	80	50
	312 8 039	510749	36 - 39	M10	80	50
	312 8 045	510750	40 - 45	M10	80	50
	312 8 052	510751	48 - 52	M10	80	50
	312 8 058	510752	54 - 58	M10	80	50
	312 8 064	510753	60 - 64	M10	80	50
	312 8 070	510754	66 - 70	M10	100	50
	312 8 079	510755	75 - 79	M10	100	50
	312 8 083	510756	80 - 83	M10	100	50
	312 8 091	510757	88 - 91	M10	180	25
	312 8 105	510758	100 - 105	M10	180	25

BIS Bifix® G2 with Lining (BUP1000)



Part No.	Reece Code	D (mm)	G	Fa,z (Kg)	Pack
312 8 115	510759	108 - 115	M10	180	25
312 8 130	510760	125 - 130	M10	180	25
312 8 160	510761	152 - 160	M10	180	25
312 8 200	510762	192 - 200	M10	250	15

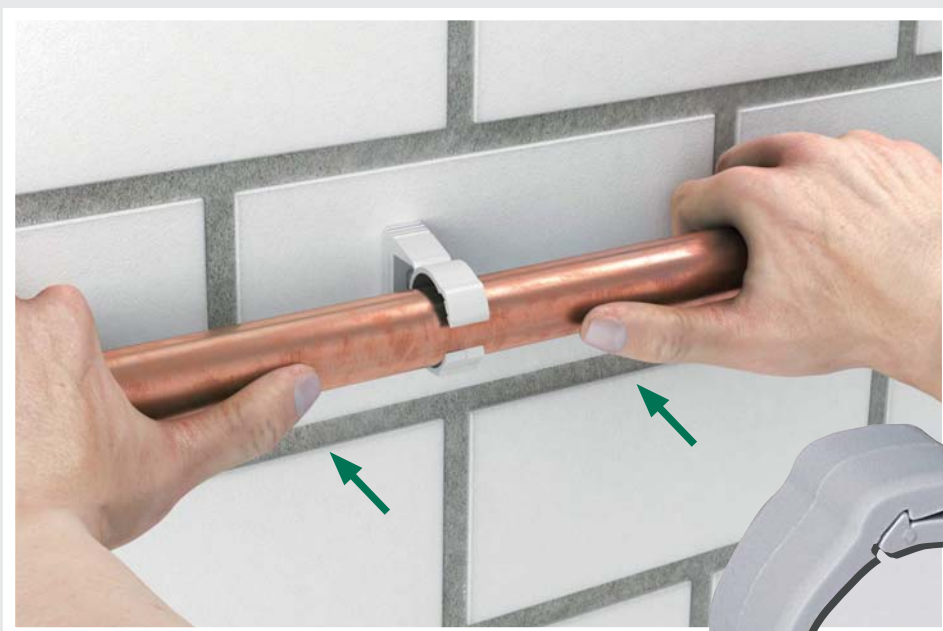
BIS Bifix® 5000 G2 (BUP1000)



Part No.	Reece Code	D (mm)	G	Fa,z (Kg)	Pack
318 8 025	510763	25	M8/10	60	50
318 8 032	510764	32	M8/10	60	50
318 8 040	510765	40	M8/10	60	50
318 8 050	510766	50	M8/10	60	50
318 8 056	510767	56	M8/10	60	50
318 8 063	510768	63	M8/10	60	50
318 8 075	510769	75	M8/10	60	50
318 8 090	510770	90	M8/10	140	25
318 8 110	510771	110	M8/10	140	25
318 8 160	510772	160	M8/10	170	10

BIS starQuick®

Fast, easy and reliable!



Fixing of two or more pipes



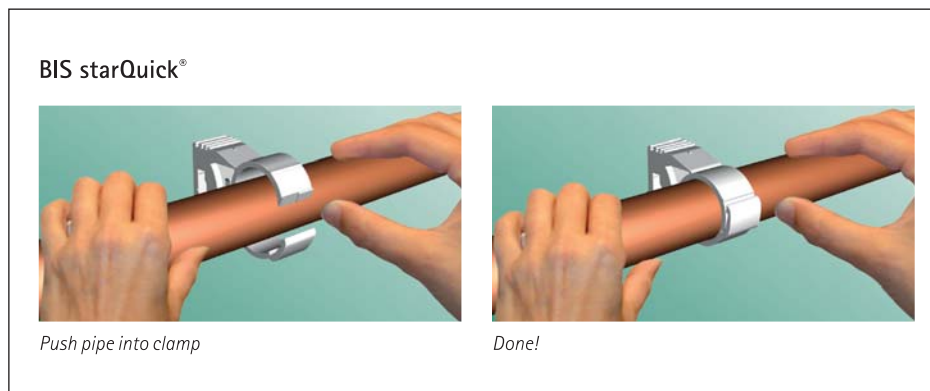
1. Tacking - tacking up to 32 mm



2. Duo Wallplate

BIS Plastic Pipe Clamps

BIS starQuick® Clamps (Grey)	Part No.	Reece Code	D (mm)	Type	Fa,z (Kg)	Approval	Pack
  	085 4 012	510557	12 - 14	SQ-12	18	KIWA	100
	085 4 015	510558	14 - 16	SQ-15	20	KIWA	100
	085 4 018	510559	16 - 20	SQ-17	23	KIWA	100
	085 4 022	510560	20 - 23	SQ-20	27	KIWA	50
	085 4 028	510561	24 - 28	SQ-25	28	KIWA	50
	085 4 035	510562	32 - 35	SQ-32	33	KIWA	50
	085 4 038	510563	35 - 40	SQ-36	37	KIWA	25
	085 4 042	510564	40 - 44	SQ-40	40	KIWA	25
	085 4 050	510565	44 - 50	SQ-47	43	-	25
	085 4 054	510566	48 - 55	SQ-51	47	-	15
	085 4 063	510567	59 - 65	SQ-59	50	-	15



BIS starQuick® Clamps (Copper Colour)	Part No.	Reece Code	D (mm)	Type	Fa,z (Kg)	Approval	Pack
  	085 5 812	510735	12 - 14	SQ-12	18	KIWA	100
	085 5 818	510736	16 - 20	SQ-17	23	KIWA	100
	085 5 828	510737	24 - 28	SQ-25	28	KIWA	50
	085 5 831	510738	28 - 32	SQ-28	30	KIWA	50

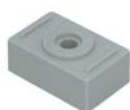
BIS starQuick® Duo Wallplate	Part No.	Reece Code	Fa,z (Kg)	Pack
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085 4 000	510550	60	100
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BIS starQuick® Distance Block	Part No.	Reece Code	Pack
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085 4 510	510734	25
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BIS starQuick® Rail	Part No.	Reece Code	L	Pack
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085 4 325	510041	1 m	25
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BIS starQuick® Rail Adaptor	Part No.	Reece Code	Pack
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085 4 313	510553	20
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BIS starQuick® Universal Rail Adaptor	Part No.	Reece Code	For	Pack
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085 4 332	9503229	WM15, 2 + Strut	50
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BIS starQuick® Fixing Nut	Part No.	Reece Code	G	Pack
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085 4 006	510551	M6	100
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BIS starQuick® Push Plug	Part No.	Reece Code	G	L	Pack
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610 1 063	510742	M6	30 mm	50
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BIS Fixing Points and Sliding Devices

BIS Expansion Device	Part No.	Reece Code	Model	G	Fa,z (Kg)	Pack
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666 3 312	510461	Single	M10/12	480	5
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BIS Expansion Guide Assembly (FG)	Part No.	Reece Code	Type	G	d1 (mm)	Fa,z (Kg)	Pack
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666 3 612	510475	FG2	M10/12	Ø 13	150	5
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Fa,z is total functional load.

BIS Suspension Components for Air Ducts

BIS Support Brackets Rectangular Ductwork	Part No.	Reece Code	Type	Fa,z (Kg)	Pack
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412 5 001



412 5 003

412 5 001	510638	L	110	50
412 5 003	510639	Z	53	50

BIS Rubber Absorption Pieces	Part No.	Reece Code	Type	Pack
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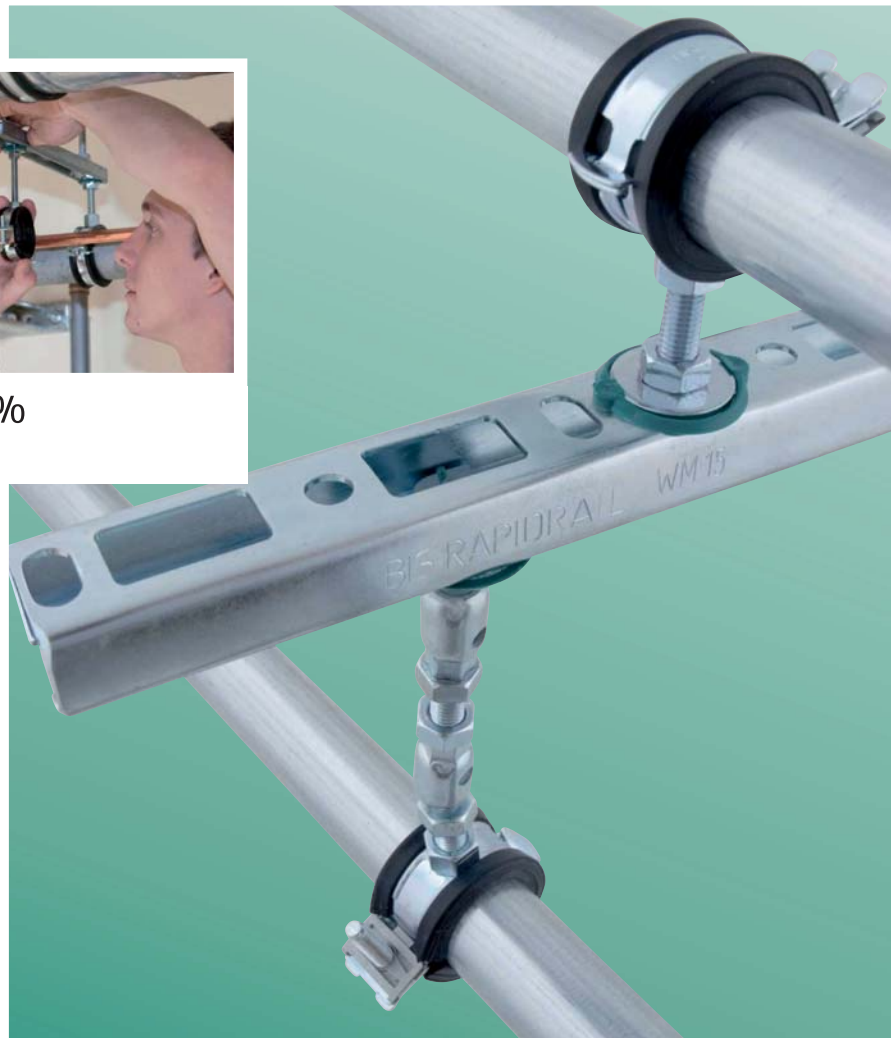
412 5 006	510640	M + F	50
412 5 007	510482	M	100

BIS RapidRail® Fixing System

Fast and easy fixing!



Saves up to 40%
in fixing time!



Quick and easy fixing to the rail



1. Insert



2. Turn 1/4 stroke



3. Slide



4. Lock

Technical Details BIS RapidRail® Fixing Rail

System BIS RapidRail® – Table of rail section properties

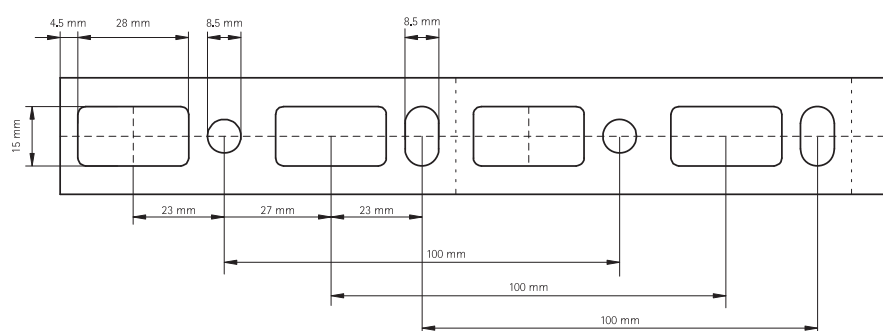
Type	Weight (kg / m)	Moment of inertia cm ⁴		Section modulus cm ³	
		I _y	I _z	W _y	W _z
WM15	0.86	0.49	1.66	0.49	1.10
WM2	1.34	1.71	2.65	1.08	1.76

The values of fixing rail in stainless steel are higher than those mentioned above.
See loading tables for safe working loads.

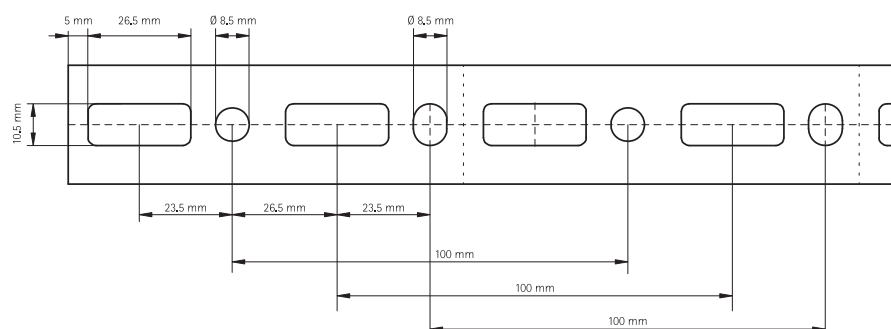
Perforation pattern for fixing to ceiling or wall.

Distance between rail end and first hole is always equal.

WM15 (30 x 20 mm)



WM2 (30 x 30 mm)

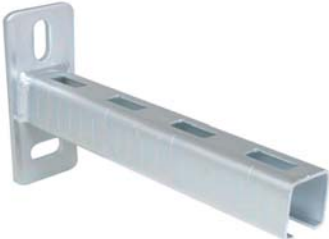


BIS RapidRail® Fixing System

BIS RapidRail® Fixing Rail	Part No.	Reece Code	L	Type	RAL	Pack
	650 5 015	510268	2 m	WM15 - 30x20	RAL ¹	20
	650 5 002	510267	2 m	WM2 - 30x30	RAL ¹	20



RAL1 = tested, certified and monitored by a third party according to RAL-GZ 655/C.
 For detailed technical information about RAL marked products, please see the RAL datasheet on the Walraven website.
 For more information about the max. allowed load (Fa,z) please refer to the loading tables or our online datasheet 'Technical Details BIS RapidRail®'.

BIS RapidRail® Cantilever Arms (BUP1000)	Part No.	Reece Code	L	Type	Pack
	660 3 720	510367	200 mm	WM15 - 30x20	20
	660 3 230	510365	300 mm	WM2 - 30x30	10
	660 3 250	510366	500 mm	WM2 - 30x30	20

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

BIS RapidRail® Wall Plate	Part No.	Reece Code	For Rail	Pack
	661 3 200	510371	WM15, 2	25

BIS Rail Prop	Part No.	Reece Code	H (mm)	For Rail	Pack
	662 8 220	510373	250	WM15, 2	10

BIS RapidRail® Slide Nuts



Part No.	Reece Code	G	For Rail	Fa,z (Kg)	Pack
651 3 106	510600	M6	WM15, 2	200	50
651 3 110	510602	M10	WM15, 2	290	50

BIS RapidRail® Hammerfix



Part No.	Reece Code	G	L	Fa,z (Kg)	Pack
652 3 602	510662	M6	20 mm	200	25
652 3 002	510603	M10	25 mm	200	25
652 3 004	510604	M10	40 mm	290	25
652 3 006	510605	M10	60 mm	290	25
652 3 010	510606	M10	100 mm	290	25
652 3 016	510607	M10	160 mm	290	25

BIS RapidRail®



1. Insert



2. Turn 1/4 stroke



3. Slide



4. Lock

BIS RapidRail® Ball Swivel Hanger



Part No.	Reece Code	G	L	Fa,z (Kg)	RAL	Pack
652 0 210	510630	M10	70 mm	228	RAL ¹	25

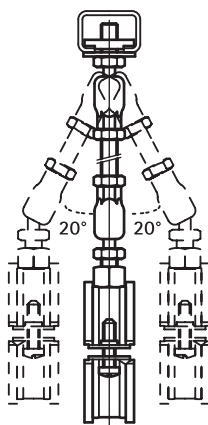
RAL1 = tested, certified and monitored by a third party according to RAL-GZ 655/D in combination with Rail WM2 and 15.

For detailed technical information about RAL marked products, please see the RAL datasheet on the Walraven website.

Please note: always use 2 ball swivel hangers. 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.

In combination with BIS Ball Swivel Hangers!

BIS Ball Swivel Hanger	Part No.	Reece Code	G	L	Fa,z (Kg)	Pack
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664 2 010	510743	M10	49 mm	310	50
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Please note: always use 2 ball swivel hangers. 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.

In combination with BIS RapidRail® Ball Swivel Hangers!

BIS Washer (U-shaped)	Part No.	Reece Code	For Rail	d1 (mm)	Pack
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653 5 110	510611	WM15, 2	Ø 10,5	50
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BIS RapidRail® Connector 90°	Part No.	Reece Code	Model	Fa,z (Kg)	Fa,x (Kg)	RAL	Pack
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658 4 001	510343	Long / long	156	110	RAL ¹	25
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RAL1 = tested, certified and monitored by a third party according to RAL-GZ 655/D in combination with Rail WM15 and 2.
For detailed technical information about RAL marked products, please see the RAL datasheet on the Walraven website.

BIS RapidRail® Connector 135°	Part No.	Reece Code	Model	Fa,z (Kg)	Fa,x (Kg)	RAL	Pack
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658 4 051	510346	Long / long	156	110	RAL ¹	25
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RAL1 = tested, certified and monitored by a third party according to RAL-GZ 655/D in combination with Rail WM15 and 2.
For detailed technical information about RAL marked products, please see the RAL datasheet on the Walraven website.

BIS RapidRail® Connector	Part No.	Reece Code	For Rail	Fa,z (Kg)	RAL	Pack
 	654 3 001	510613	WM15, 2	154	RAL ¹	25
RAL1 = tested, certified and monitored by a third party according to RAL-GZ 655/D in combination with Rail WM15 and 2. For detailed technical information about RAL marked products, please see the RAL datasheet on the Walraven website.						

BIS RapidRail® T- and X-Connector	Part No.	Reece Code	Type	For Rail	Fa,z (Kg)	RAL	Pack
 	658 4 090	510349	T	WM15, 2	34	RAL ¹	25
	658 4 091	510350	X	WM15, 2	34	RAL ¹	25
RAL1 = tested, certified and monitored by a third party according to RAL-GZ 655/D in combination with Rail WM15 and 2. For detailed technical information about RAL marked products, please see the RAL datasheet on the Walraven website.							

BIS RapidRail® Cross Connectors	Part No.	Reece Code	For Rail	Fa,z (Kg)	Fa,x (Kg)	RAL	Pack
	658 4 152	510739	WM15	122	68	RAL ¹	25
	658 4 153	510740	WM2	122	68	-	25
 RAL-GZ 655/D Copyright © 2012-10 RAL1 = tested, certified and monitored by a third party according to RAL-GZ 655/D. For detailed technical information about RAL marked products, please see the RAL datasheet on the Walraven website.							

BIS RapidRail® Beam Clamp	Part No.	Reece Code	A (mm)	For Rail	Fa,z (Kg)	Pack
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658 5 011	510620	< 16	WM15, 2	450	50
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BIS Rail End Caps	Part No.	Reece Code	For Rail	Pack
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WM15



WM2



656 6 000	510614	WM15 (30x20 mm)	50
656 6 002	510615	WM2 (30x30 mm)	25

BIS Rubber Strip	Part No.	Reece Code	L	For Rail	Pack
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656 8 001	510616	30 m	WM15, 2	30
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Pipe support system for indoor and outdoor use

- Unique system in scope, composition and corrosion resistance
- For fixing or supporting mechanical installations, solar systems and more



Corrosion resistance
C1 - C4
ISO 12944-2

Salt spray test
1000 hour
ISO 9227

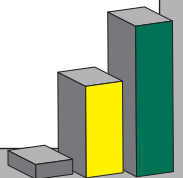
Optimal protection

- All applied surface treatments effortlessly withstand a salt spray test of at least 1000 hours*
- Suitable for corrosive environments (C1-C4 in accordance with ISO 12944-2)



Better than Hot Dip Galvanizing

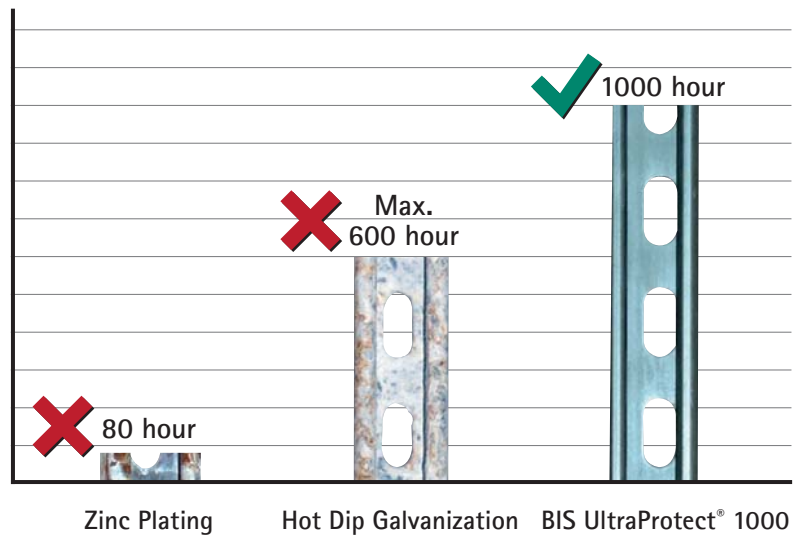
- Higher corrosion resistance: 1000 hours* versus 300 - 600 hours (with a layer thickness of 50 - 80 µm)
- Threaded products are also well protected
- Products feel smooth and are also visually appealing



* Until the occurrence of maximum 5% red rust

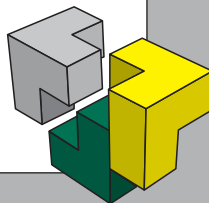
** The FAQs and installation tips can be found on our website www.walraven.com/int/bis-ultraprotect.

The proof after 1000 hours salt spray test



Complementary system

- The products in the BIS UltraProtect® 1000 system combine together perfectly
- Can also be combined with zinc plated, pre-galvanized or hot dip galvanized products**



For installation tips and more info:

www.walraven.com/int/bis-ultraprotect



BIS RapidStrut® Fixing System

Quick and versatile fixing system



Saves up to 40%
in fixing time!

Quick and easy fixing to the rail



1. Insert



2. Turn 1/4 stroke



3. Slide



4. Lock

BIS RapidStrut® Fixing System

BIS RapidStrut® Cantilever Arms (BUP1000)	Part No.	Reece Code	L	From Rail	Pack
 	660 3 861	510520	150 mm	Strut 41x41x2.5	10
	660 3 862	510521	300 mm	Strut 41x41x2.5	10
	660 3 863	510522	450 mm	Strut 41x41x2.5	10
	660 3 864	510523	600 mm	Strut 41x41x2.5	8

Strut 41x41x2.5 and above tested for fire safety.
For more information about the max. allowed load (Fa,z) please refer to the loading tables or our online datasheet 'Technical Details BIS RapidStrut®'.

BIS RapidStrut® Wall Plate (BUP1000)	Part No.	Reece Code	For Rail	Pack
 	6668 3 400	510710	Strut	10

BIS Rail Prop (BUP1000)	Part No.	Reece Code	For Rail	Pack
	6628 8 530	510715	Strut	10

BIS RapidStrut® Slide Nuts G2 (BUP1000)	Part No.	Reece Code	G	Fa,z (Kg)	Fa,x (Kg)	Pack
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6651 8 5110	510716	M10	950	200	20
6651 8 5112	510717	M12	1,000	200	20

BIS Strut Slide Nuts (zp)	Part No.	Reece Code	G	For Rail	Fa,z (Kg)	Pack
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651 7 210	9503022	M10	Strut 41x41	950	100
651 7 212	9503023	M12	Strut 41x41	1,000	100

BIS RapidStrut® Slide Nut Plastic Tabs (BUP1000)	Part No.	Reece Code	G	Fa,z (Kg)	Pack
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6518 6 8010	510711	M10	950	100
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BIS RapidStrut® Hammerfix G2 (BUP1000)



Part No.	Reece Code	G	L	Fa,z (Kg)	Fa,x (Kg)	Pack
6527 8 5004	510712	M10	40 mm	950	200	5
6527 8 5006	510713	M10	60 mm	950	200	5
6527 8 5008	510709	M10	80 mm	950	200	5

BIS RapidStrut®



1. Insert



2. Turn 1/4 stroke



3. Slide



4. Lock

BIS RapidStrut® Rail Connector 90° G2 (BUP1000)



Part No.	Reece Code	Model	Type	Pack
6658 8 5205	510719	Long / long	2 sides pre-assembled	20

BIS RapidStrut® Rail Connector 135° G2 (BUP1000)



Part No.	Reece Code	Model	Type	Pack
6658 8 5235	510722	Long / long	2 sides pre-assembled	20

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



Part No.	Reece Code	For Rail	Pack
6658 8 5421	510725	Strut	20

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



Part No.	Reece Code	Type	For Rail	Pack
6658 8 5213	510720	T	Strut	20
6658 8 5223	510721	X	Strut	15

BIS RapidStrut® Cross Connectors G2 (BUP1000)



Part No.	Reece Code	H (mm)	For Rail	Pack
6658 8 5402	510723	20	Strut 41x21	25
6658 8 5404	510724	40	Strut 41x41	25

BIS Strut Rail Beam Clamp



Part No.	Reece Code	L	For Rail	Fa,z (Kg)	Pack
6658 1 711	510526	90 mm	Strut 41x21 + 41x41 + 41x21D	570	25

BIS Strut Rail End Caps	Part No.	Reece Code	For Rail	Pack
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656 6 021	510714	Strut 41x21	50
656 6 041	510525	Strut 41x41	50

BIS Strut Rubber Strip	Part No.	Reece Code	R	L	Pack
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656 8 041	510617	1/4 - 1/2"	30 m	30
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BIS Fixing Accessories

BIS Wall Plate 670	Part No.	Reece Code	G	Fa,z (Kg)	Pack
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670 3 010	510621	M10	250	50
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BIS Wall Plate 672 (Male Thread)	Part No.	Reece Code	G2	Fa,z (Kg)	Pack
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672 3 010	510622	M10 x 35	200	50
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BIS Beam Clamps Model C	Part No.	Reece Code	A (mm)	R	Fa,z (Kg)	Approval	Pack
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600 3 910	9503020	≤20	Ø 11 mm	250	VdS, FM	50
600 3 912	9503021	≤26	Ø 13 mm	350	VdS, FM	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 Bolts	Part No.	Reece Code	G	L	Pack
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628 3 008	510647	M10	80 mm	50
628 3 010	510648	M10	100 mm	50
628 3 012	510649	M10	120 mm	50
628 3 014	510625	M10	140 mm	50
628 3 018	510626	M10	180 mm	50
628 3 020	510627	M10	200 mm	50

BIS Threaded Nipple	Part No.	Reece Code	Model	G	Pack
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641 3 006	510634	Round Collar	M6	100
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BIS Stud Connectors	Part No.	Reece Code	G	L	Pack
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645 3 940	9503024	M10	40 mm	50
645 3 240	9503025	M12	40 mm	50

BIS Thread Adaptors (M/F)	Part No.	Reece Code	G1	G2	Pack
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647 3 308	510635	M10	M8	100
647 3 312	510636	M10	M12	50

BIS Stud Connector	Part No.	Reece Code	G	Fa,z (Kg)	Pack
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645 5 010	510708	M10	400	25
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BIS Fastenings

BIS TSM Concrete Screw	Part No.	Reece Code	Model	Fa,z (Kg)	Fa,x (Kg)	Pack
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625 3 606	510645	Female Thread	60	330	50
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Max. allowed load (Fa,z) refers to cracked and non-cracked concrete (classification C20/25). The values apply without influence of spacing and edge distance. In case of fire and for detailed information please see ETA-10/0114, ETA-10/0115 and ETA-06/0124.

BIS Nylon Plugs	Part No.	Reece Code	L	HØ (mm)	Fa,z (Kg)	Pack
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610 0 010	510631	50 mm	10	77	50
610 0 012	510632	60 mm	12	155	25

Max. allowed load (Fa,z) in concrete with maximum screw diameter.

BIS Hammer-in Shoulder Stud	Part No.	Reece Code	G	L	Pack
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637 3 640	510633	M6	40 mm	100
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BIS Hammer-in Stud	Part No.	Reece Code	G	L	Pack
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622 3 808	510644	M8	80 mm	100
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BIS Wash Basin Fixing Kit PE	Part No.	Reece Code		Pack
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RC 0065 7 500	1851574		50
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BIS Stainless Steel Pipe Support Fixings

BIS Bifix® 1301 Stainless Steel (Grade 316)	Part No.	Reece Code	D (mm)	D (")	G	Fa,z (Kg)	Pack
	312 7 018	9502270	15 - 19	3/8	M10	90	50
	312 7 023	9502271	20 - 23	1/2	M10	90	50
	312 7 029	9502272	25 - 28	3/4	M10	90	50
	312 7 035	510136	31 - 35	1	M10	90	50
	312 7 043	510137	40 - 43	1 1/4	M10	90	50
	312 7 049	510488	47 - 51	1 1/2	M10	90	50
	312 7 056	510489	52 - 56	-	M10	90	50
	312 7 063	510139	57 - 64	2	M10	90	50
	312 7 067	510140	64 - 67	-	M10	135	25
	312 7 076	510141	70 - 76	2 1/2	M10	135	25
	312 7 085	9501074	79 - 85	-	M10	135	25
	312 7 091	510143	86 - 91	3	M10	135	25
	312 7 106	510144	100 - 106	-	M10	135	25
	312 7 116	510145	108 - 116	4	M10	171	25
	312 7 132	9501075	124 - 132	-	M10	171	25
	312 7 141	9501076	133 - 141	5	M10	171	25
	312 7 168	9501077	159 - 168	6	M10	171	15
	312 7 250	9501078	244 - 250	-	M10	171	10

BIS Stainless Steel Wall Plate (Grade 316)	Part No.	Reece Code	G	L	Fa,z (Kg)	Pack
	670 7 010	510659	M10	80 mm	250	50

Our expertise is available for you!

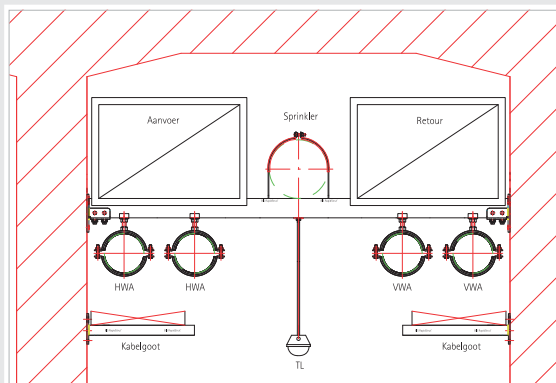
Working with fixing systems becomes more and more complex due to advancing technology and changing building requirements. When preparing or executing a project you may encounter a problem that you cannot solve yourself.

Walraven Project Engineering has vast experience in solving technical problems. Based on your individual requirements our Project Engineering staff deliver you a proposal, well grounded with detailed calculations, AutoCAD-drawings and parts lists. Our expertise is available for you!



From engineering to on-site construction support

- Support for pipe work, air ducts or cable ducts
- Support for technical installations on roof tops (such as solar panels, climate installations)
- Secondary constructions
- Clamp fixing advice and plans
- Prefabrication service
- Calculation
- Assembly instructions
- On-site construction support



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Information: Pipe Loading Tables

Copper			
Size	OD	Weight (per meter)	
		empty	filled
(mm)	(mm)	(kg)	(kg)
15	12.70	0.30	0.39
20	19.05	0.51	0.74
25	25.40	0.82	1.23
32	31.75	1.04	1.72
40	38.10	1.26	2.25
50	50.80	1.69	3.52
65	63.50	2.12	5.04
80	76.20	3.41	7.57
100	101.60	4.56	12.12
125	127.00	5.71	17.71
150	152.40	8.37	25.57

Pressure Pipe			
Size	OD	Weight (per meter)	
		empty	filled
(mm)	(mm)	(kg)	(kg)
15	21.30	0.15	0.35
20	26.75	0.17	0.61
25	33.55	0.32	1.02
32	42.25	0.43	1.53
40	48.25	0.57	2.01
50	60.35	0.88	3.14
65	75.35	1.27	4.89
80	88.90	1.92	6.83
100	114.30	3.33	11.45
150	160.30	6.33	22.31

Gal / Steel Med			
Size	OD	Weight (per meter)	
		empty	filled
(mm)	(mm)	(kg)	(kg)
15	21.30	1.22	1.42
20	26.90	1.58	1.94
25	33.70	2.44	3.02
32	42.40	3.14	4.16
40	48.30	3.61	4.99
50	60.30	5.10	7.30
65	76.10	6.51	10.21
80	88.90	8.47	13.57
100	114.30	12.10	20.76
150	165.10	19.20	38.10

Geberit			
Size	OD	Weight (per meter)	
		empty	filled
(mm)	(mm)	(kg)	(kg)
40	40.00	0.33	1.24
50	50.00	0.42	1.94
56	56.00	0.47	2.40
63	63.00	0.54	3.10
75	75.00	0.64	4.40
90	90.00	0.90	6.30
110	110.00	1.35	9.42
160	160.00	2.84	19.75
200	200.00	3.58	31.20

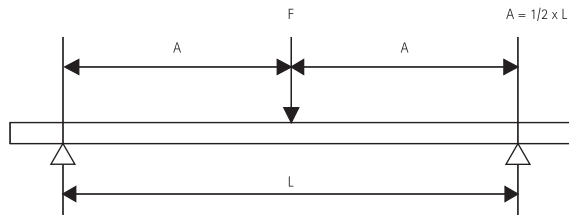
DWV			
Size	OD	Weight (per meter)	
		empty	filled
(mm)	(mm)	(kg)	(kg)
40	43.00	0.35	1.38
50	56.00	0.55	2.16
65	69.00	0.85	3.40
80	83.00	1.22	4.83
100	110.00	2.61	10.37
150	160.00	5.70	21.88

Raupiano			
Size	OD	Weight (per meter)	
		empty	filled
(mm)	(mm)	(kg)	(kg)
40	40.00	0.23	1.27
50	50.00	0.29	1.98
75	75.00	0.55	4.44
110	110.00	1.17	9.53
160	160.00	2.42	19.13

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.

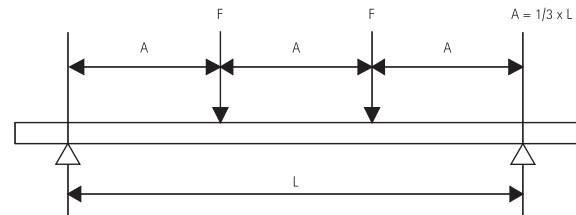
Loading Tables BIS RapidRail® and BIS RapidStrut®

Suspension on 1 point



BIS RapidRail®		BIS RapidStrut®		
L (mm)	WM15 (30 x 20)	WM2 (30 x 30)	41x21 2.5	41x41 2.5
250	124.9	323.8	238.1	761.1
300	104.1	269.8	198.4	634.2
350	89.2	231.3	170.1	543.6
400	78.1	202.3	148.8	475.7
450	69.4	179.9	132.3	422.8
500	62.5	161.9	119.0	380.5
600	52.1	134.9	99.2	317.1
700	44.6	115.6	85.0	271.8
800	34.8	101.2	71.9	237.8
900	27.5	89.9	56.8	211.4
1,000	22.3	78.0	46.0	190.3
1,200	15.5	54.2	32.0	158.6
1,400	11.4	39.8	23.5	135.9
1,600	8.7	30.5	18.0	111.4
1,800	6.9	24.1	14.2	88.1
2,000	5.6	19.5	11.5	71.3
2,250	4.4	15.4	9.1	56.4
2,500	3.6	12.5	7.4	45.6
2,750	2.9	10.3	6.1	37.7
3,000	2.5	8.7	5.1	31.7
3,250	2.1	7.4	4.4	27.0
3,500	1.8	6.4	3.8	23.3
3,750	1.6	5.5	3.3	20.3
4,000	1.4	4.9	2.9	17.8
4,250	1.2	4.3	2.5	15.8
4,500	1.1	3.9	2.3	14.1
4,750	-	3.5	2.0	12.6
5,000	-	3.1	1.8	11.4
5,250	-	2.8	1.7	10.4
5,500	-	2.6	1.5	9.4
5,750	-	2.4	1.4	8.6
6,000	-	2.2	1.3	7.9

2 equal loads



BIS RapidRail®		BIS RapidStrut®		
L (mm)	WM15 (30 x 20)	WM2 (30 x 30)	41x21 2.5	41x41 2.5
250	93.7	242.8	178.6	570.8
300	78.1	202.3	148.8	475.7
350	66.9	173.4	127.5	407.7
400	58.6	151.8	111.6	356.8
450	52.1	134.9	99.2	317.1
500	46.8	121.4	89.3	285.4
600	36.3	101.2	74.4	237.8
700	26.7	86.7	55.2	203.9
800	20.4	71.5	42.2	178.4
900	16.1	56.5	33.4	158.6
1,000	13.1	45.8	27.0	142.7
1,200	9.1	31.8	18.8	116.3
1,400	6.7	23.4	13.8	85.4
1,600	5.1	17.9	10.6	65.4
1,800	4.0	14.1	8.3	51.7
2,000	3.3	11.4	6.8	41.9
2,250	2.6	9.0	5.3	33.1
2,500	2.1	7.3	4.3	26.8
2,750	1.7	6.1	3.6	22.1
3,000	1.5	5.1	3.0	18.6
3,250	1.2	4.3	2.6	15.9
3,500	1.1	3.7	2.2	13.7
3,750	-	3.3	1.9	11.9
4,000	-	2.9	1.7	10.5
4,250	-	2.5	1.5	9.3
4,500	-	2.3	1.3	8.3
4,750	-	2.0	1.2	7.4
5,000	-	1.8	1.1	6.7
5,250	-	1.7	-	6.1
5,500	-	1.5	-	5.5
5,750	-	1.4	-	5.1
6,000	-	1.3	-	4.7

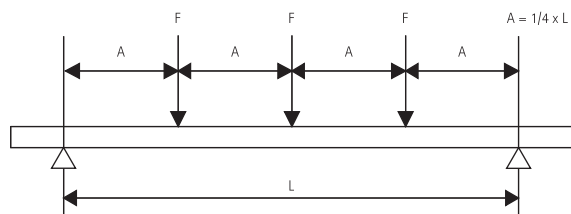
Max. allowed load in Kg. per suspension point (F).

The stated values are only valid for the fixing rail.

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

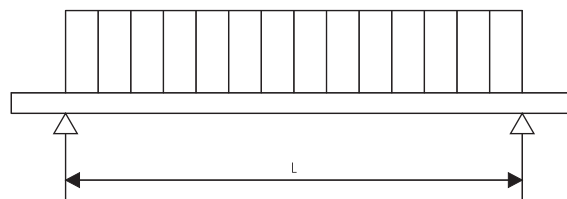
Loading Tables BIS RapidRail® and BIS RapidStrut®

Suspension on 3 points



L (mm)	BIS RapidRail®		BIS RapidStrut®	
	WM15 (30 x 20)	WM2 (30 x 30)	41x21 2.5	41x41 2.5
250	62.5	161.9	119.0	380.5
300	52.1	134.9	99.2	317.1
350	44.6	115.6	85.0	271.8
400	39.0	101.2	74.4	237.8
450	34.7	89.9	66.1	211.4
500	31.2	80.9	59.5	190.3
600	26.0	67.4	49.6	158.6
700	19.1	57.8	39.6	135.9
800	14.7	50.6	30.3	118.9
900	11.6	40.6	23.9	105.7
1,000	9.4	32.8	19.4	95.1
1,200	6.5	22.8	13.5	79.3
1,400	4.8	16.8	9.9	61.3
1,600	3.7	12.8	7.6	46.9
1,800	2.9	10.1	6.0	37.1
2,000	2.3	8.2	4.8	30.0
2,250	1.9	6.5	3.8	23.7
2,500	1.5	5.3	3.1	19.2
2,750	1.2	4.3	2.6	15.9
3,000	1.0	3.6	2.2	13.3
3,250	-	3.1	1.8	11.4
3,500	-	2.7	1.6	9.8
3,750	-	2.3	1.4	8.5
4,000	-	2.1	1.2	7.5
4,250	-	1.8	1.1	6.7
4,500	-	1.6	-	5.9
4,750	-	1.5	-	5.3
5,000	-	1.3	-	4.8
5,250	-	1.2	-	4.4
5,500	-	1.1	-	4.0
5,750	-	-	-	3.6
6,000	-	-	-	3.3

Uniformly distributed load



L (mm)	BIS RapidRail®		BIS RapidStrut®	
	WM15 (30 x 20)	WM2 (30 x 30)	41x21 2.5	41x41 2.5
250	249.9	647.5	476.2	1,522.2
300	208.2	539.6	396.8	1,268.5
350	178.5	462.5	340.1	1,087.3
400	156.2	404.7	297.6	951.4
450	138.8	359.7	264.5	845.7
500	124.9	323.8	238.1	761.1
600	99.0	269.8	198.4	634.2
700	72.7	231.3	150.3	543.6
800	55.7	195.0	115.1	475.7
900	44.0	154.1	90.9	422.8
1,000	35.6	124.8	73.7	380.5
1,200	24.8	86.7	51.2	317.0
1,400	18.2	63.7	37.6	232.9
1,600	13.9	48.8	28.8	178.3
1,800	11.0	38.5	22.7	140.9
2,000	8.9	31.2	18.4	114.1
2,250	7.0	24.7	14.6	90.2
2,500	5.7	20.0	11.8	73.0
2,750	4.7	16.5	9.7	60.4
3,000	4.0	13.9	8.2	50.7
3,250	3.4	11.8	7.0	43.2
3,500	2.9	10.2	6.0	37.3
3,750	2.5	8.9	5.2	32.5
4,000	2.2	7.8	4.6	28.5
4,250	2.0	6.9	4.1	25.3
4,500	1.8	6.2	3.6	22.5
4,750	1.6	5.5	3.3	20.2
5,000	1.4	5.0	2.9	18.3
5,250	1.3	4.5	2.7	16.6
5,500	1.2	4.1	2.4	15.1
5,750	1.1	3.8	2.2	13.8
6,000	-	3.5	2.0	12.7

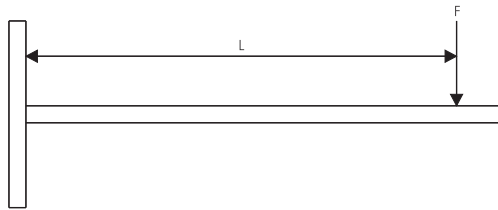
Max. allowed load in Kg. per suspension point (F).

The stated values are only valid for the fixing rail.

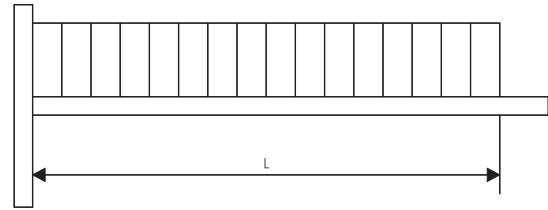
The maximum safe load of all other construction parts has to be verified.

Loading Tables BIS RapidRail® and BIS RapidStrut®

Suspension on 1 point



Uniformly distributed load



BIS RapidRail®			BIS RapidStrut®	
L (mm)	WM15 (30 x 20)	WM2 (30 x 30)	41x21 2.5	41x41 2.5
100	78.1	202.3	148.8	475.7
150	52.1	134.9	99.2	317.1
200	34.8	101.2	71.9	237.8
250	22.3	78.0	46.0	190.3
300	15.5	54.2	32.0	158.6
350	11.4	39.8	23.5	135.9
400	8.7	30.5	18.0	111.4
450	6.9	24.1	14.2	88.1
500	5.6	19.5	11.5	71.3
550	4.6	16.1	9.5	58.9
600	3.9	13.5	8.0	49.5
700	2.8	10.0	5.9	36.4
800	2.2	7.6	4.5	27.9
900	1.7	6.0	3.6	22.0
1,000	1.4	4.9	2.9	17.8
1,100	1.2	4.0	2.4	14.7
1,200	-	3.4	2.0	12.4
1,300	-	2.9	1.7	10.6
1,400	-	2.5	1.5	9.1
1,500	-	2.2	1.3	7.9

BIS RapidRail®			BIS RapidStrut®	
L (mm)	WM15 (30 x 20)	WM2 (30 x 30)	41x21 2.5	41x41 2.5
100	156.2	404.7	297.6	951.4
150	104.1	269.8	198.4	634.2
200	78.1	202.3	148.8	475.7
250	59.4	161.9	119.0	380.5
300	41.3	134.9	85.3	317.1
350	30.3	106.1	62.6	271.8
400	23.2	81.3	48.0	237.8
450	18.3	64.2	37.9	211.4
500	14.9	52.0	30.7	190.2
550	12.3	43.0	25.4	157.2
600	10.3	36.1	21.3	132.1
700	7.6	26.5	15.7	97.0
800	5.8	20.3	12.0	74.3
900	4.6	16.1	9.5	58.7
1,000	3.7	13.0	7.7	47.6
1,100	3.1	10.7	6.3	39.3
1,200	2.6	9.0	5.3	33.0
1,300	2.2	7.7	4.5	28.1
1,400	1.9	6.6	3.9	24.3
1,500	1.7	5.8	3.4	21.1

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

The stated values are only valid for the fixing rail.

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

Information: Surface Treatment

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

BIS UltraProtect® 1000 system

The BIS UltraProtect® 1000 system is the ideal and most durable solution for securing supporting mechanical installations, solar systems and many other types of installations. The products in the BIS UltraProtect® 1000 system have very high corrosion resistance. They effortlessly withstand a salt spray test of at least 1000 hours* (in accordance with ISO 9227). The salt spray test shows that the corrosion resistance of BIS UltraProtect® 1000 products is considerably higher than that of, for example, hot dip galvanized products (approximately 300-600 hours).

Although the system utilises 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

The products to be treated are cleaned, degreased and pickled. The protective coating is then applied in an electrolytic process. The thickness of the layer of zinc is between 1 and 20 µm (0.001 – 0.020 mm) 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-galvanized

Also known as sendzimir galvanization. Pre-galvanizing is a continuous thermal galvanizing process. The strip steel is guided through a bath containing liquid zinc after having been cleaned, degreased and pickled. 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 method is excellently suited for products with a screw thread, which are to be used indoors or in a non-corrosive environment.

Hot dip galvanizing

Also known as 'thermal galvanizing', 'full bath galvanizing' or 'centrifugal 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 150 µm (0.050 – 0.50 mm). In consequence the process is less suitable for products with screw thread. Hot dip galvanized products are suitable for inside as well as outside use and also for damp and light-corrosive environments.

Stainless steel 316 (1.4401)

Stainless steel 316 is one of the best corrosion resistant types of stainless steel. It offers a superior corrosion resistance compared to many other types of stainless steel in very 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 repair the protective layer.

Products from stainless steel 316 can be applied in aggressive situations such as a sea climate and industry.

* Until the occurrence of maximum 5% red rust

Information: Surface Treatment (Cont.)

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 space 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.

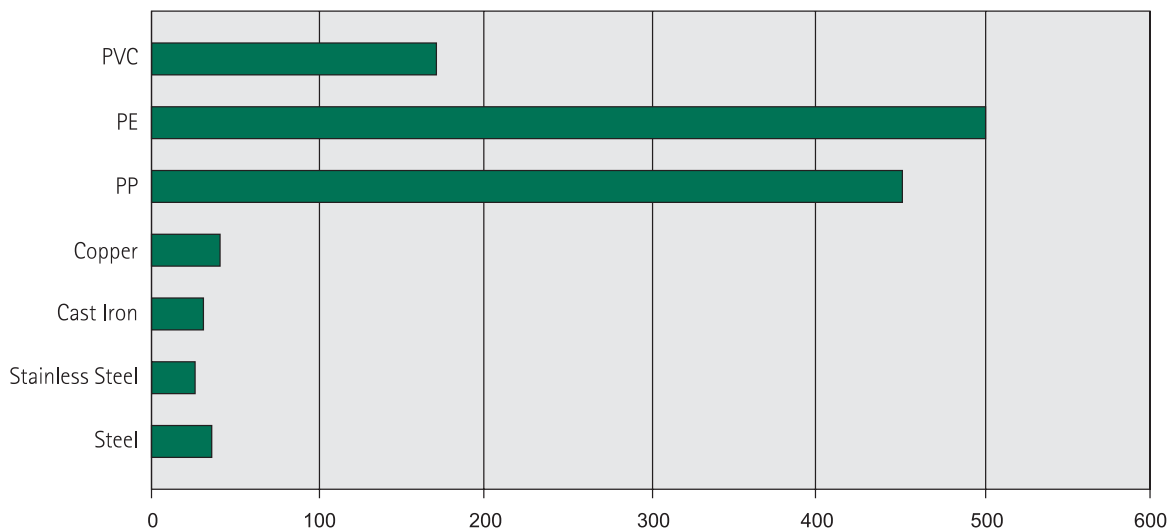
This test does not give a perfect protection duration (this depends on the surroundings in which the product is applied), but does offer a comparative view of the various surface treatments.

Table 1: results of salt-spray test

	Thickness protection layer (µm)	Hours until 5% red rust*
BIS UltraProtect® 1000 system	- **	1,000
Surface treatment		
Zinc plating, blue passivation	8 - 10	72
Zinc plating, yellow passivation	8 - 10	80
Pre-galvanized	25	150
Hot-dip galvanizing	50 - 80	300 - 600
* Until the occurrence of maximum 5% red rust		
** Method and thickness protection layer differ per product		

Information: Thermal Expansion

Thermal expansion per pipe type (mm)



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

Calculation method:

$$\Delta L = L \times \alpha \times \Delta T$$

ΔL = length change in mm

L = pipe length in meters

α = linear expansion coefficient

ΔT = temperature difference $T_{\text{max.}} - T_{\text{min.}}$

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

$T_{\text{max.}}$ = +60 °C

$T_{\text{min.}}$ = +20 °C

Installation temperature: +20 °C

ΔT = +60 °C - +20 °C = 40 °C (difference minimum/maximum temperature)

ΔL = 20 x 0.012 x 40 = 9.6 mm (expansion in mm = 20 x 40 x α = 9.6 mm)

Please note: if the installation temperature is higher than $T_{\text{min.}}$ (for example coolant pipes) the pipe will contract a certain length.

Example 2:

Pipe material: Stainless Steel

Pipe length: 50 meter

$T_{\text{min.}}$ = -30 °C

$T_{\text{max.}}$ = +30 °C

Installation temperature: +20 °C

ΔT warm = +30 °C - +20 °C = 10 °C

ΔT cold = +20 °C - -30 °C = 50 °C

ΔT total = ΔT warm + ΔT cold = 10 °C + 50 °C = 60 °C

ΔL warm = 50 x 0.01 x 10 = 5 mm expansion

ΔL cold = 50 x 0.01 x 50 = 25 mm contraction

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