INSTYTUT TECHNIKI BUDOWLANEJ
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CZŁONEK EOTA i UEAtc

NATIONAL TECHNICAL ASSESSMENT
ITB-KOT-2018/0259 edition 4

This National Technical Assessment has been issued in accordance with the Regulation of the Minister of Infrastructure and Construction of November 17, 2016 on national technical assessments
Technical Assessment (Dz. U. of 2016, item 1968) by the Building Research Institute in Warsaw, at the request of:

WALRAVEN Sp. z o.o.
ul. Dymarek 2L, 31-983 Kraków

The National Technical Assessment ITB-KOT-2018/0259 edition 4 is a positive assessment of the performance of the following construction products for the intended use

WALRAVEN System components for installation fixings

The expiration date:
26th of September 2029

DYREKTOR
Instytutu Techniki Budowlanej
dr inż. Robert Geryło

Warszawa, 26 września 2024 r.

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1. TECHNICAL DESCRIPTION OF THE PRODUCT

The subject of this National Technical Assessment are WALRAVEN system components for fixing installation cables, manufactured by WALRAVEN Sp. z o.o., 2L Dymarek St, 31-983 Kraków, at production facilities in the Netherlands, the Czech Republic, England, Spain and Turkey.

The National Technical Assessment covers the types of products specified by the manufacturer and resulting from the performance characteristics given in Section 3 and the combination of materials and components.

The National Technical Assessment covers the following components of the WALRAVEN system:

- BIS RapidRail® rails, drawing A1,
- BIS RapidStrut® rails, drawing A2,
- clamps BISMAT® 2000, drawing. A3 i A4,
- clamps BIS Bifix® 1301, drawing A5,
- clamps BIS Bifix® G2, drawing A6 ÷ A8,
- clamps BIS HD 1501, drawing A9 ÷ A11,
- clamps BIS Bifix® 300, drawing A12,
- clamps HD 500, drawing A17,
- clamps BIS 434, drawing A18 i A19,
- clamps BISMAT® Flash, drawing A20,
- clamps BIS Aero, drawing. A21,
- clamps Spiro, drawing A22,
- clamps BIS KSB2, drawing A23,
- clamps BIS 2S, drawing A24 ÷ A27,
- clamps BIS BISMAT® 1000, drawing A28,
- clamps BIS TA 41, drawing A29,
- clamps Walraven, drawing A30,
- clamps StarQuick®, drawing A31,
- cantilever arms BIS RapidRail®, drawing A32,
- cantilever arms BIS RapidStrut®, drawing A33,
- cantilever arms BIS, drawing A34,
- clamps BISCLIPS® TIGER, drawing A35,drawing A36 ÷ A37,
- expansion guides BIS, drawing A38,
- expansion devices, drawings A39 ÷ A44,
- sliding nuts BIS RapidRail®, BIS RapidRail® STN i BIS RapidStrut® G2, drawings A45 ÷ A47,
- rail props BIS RapidRail® i BIS RapidStrut®, drawing A48,
- clamps, BISCLIPS® SB-ICTM, BISCLIPS® SB-TRM, BISCLIPS® SB-M, BISCLIPS® SB-M-B, BISCLIPS® SB-VM i BISCLIPS® SB-VM-B, drawings A49 ÷ A53,
- ball swivel hangers BIS, drawings A54 ÷ A57,

- swivel hammerfix BIS RapidRail®, drawing A58,
- trapezoidal sheet hangers, drawings A59,
- beam clamps RapidRail®, RapidStrut® i RapidStrut® HD, drawings A60 ÷ A62,
- toggle plug, drawing A63,
- Fixpoint consoles, drawings. A64 ÷ A66,
- Wall plates BIS RapidRail® i BIS RapidStrut® G2, drawings A67 ÷ A70,
- Base plates BIS RapidStrut®, drawing A71,
- connectors BIS RapidRail® 90°, BIS RapidRail® 135°, BIS RapidStrut® 90° i BIS RapidStrut® 135°,drawings A72 ÷ A75,
- connectors BIS RapidStrut®, drawing A76,
- connectors BIS RapidStrut® 2D, drawing A77,
- adjustable connectors BIS RapidStrut®, drawing A78,
- wall plate hinged BIS RapidStrut®, drawing A79,
- T-shape baseplate BIS RapidStrut®, drawing A80,
- linear connectiors BIS RapidRail®, drawing A81,
- linear connectors BIS RapidStrut® G2, drawing A82,
- cross connectors BIS RapidStrut® G2, drawing A83,
- triangle connectors RapidStrut®, drawing. A84.

The shape, dimensions and load capacity of WALRAVEN system elements are given in Appendix A. The deviations of the dimensions of the threads correspond to the PN-ISO 965-2:2001 standard. The deviations of the other dimensions of the elements covered by this National Technical Assessment correspond to tolerance class m according to the PN-EN 22768-1:1999 standard.

The materials from which the WALRAVEN system components are made are given in Appendix B, in Table B1.

WALRAVEN system components are used with the complementary accessories listed in in Appendix D:

- PC retractable cable clips (according to Fig. D1),
- BISCLIPS® GAM 8 cable clips (according to Figure D2)
- BIS inserts for the clamps (according to Figures D3 and D4)
- insulation blocks BISOFIX® i BISOFIX® PIR (according to Figures D5 and D6)..

2. INTENDED USE OF THE PRODUCT

Components of the WALRAVEN system are designed for suspension of installation cables, to the extent resulting from the performance characteristics specified in section 3.

For the sake of protection against corrosion, WALRAVEN system components with zinc coating and zinc-aluminum should be used in accordance with PN-EN ISO 14713-1:2017 and PN-EN ISO 9223:2012.

WALRAVEN system components made of corrosion-resistant steel should be used in accordance with Appendix A to the PN-EN 1993-1-4:2007 standard.

The design and characteristic load capacities of the WALRAVEN system components are given in in Appendix C.Elementy systemu WALRAVEN powinny być stosowane zgodnie z:

- technical design, developed for a specific object, taking into account Polish standards and technical and construction regulations, in particular the PN-B-03430:1983/Az3:2000 standard and the Regulation of the Minister of Infrastructure of April 12, 2002 on the technical conditions to be met by buildings and their location (Journal of Laws of 2022, item 1225, as amended),postanowieniami niniejszej Krajowej Oceny Technicznej,
- the instructions developed by the manufacturer and made available to customers.

3. PRODUCT PERFORMANCE CHARACTERISTICS AND THE METHODS USED TO EVALUATE THEM

3.1. Product performance characteristics

3.1.1. Design and characteristic load capacities. The design and characteristic load capacities of WALRAVEN system components are given in Appendix C. The design resistances, determined from the characteristic resistances, are determined taking into account the safety factor:

- 1.54 for mounting rails and consoles,
- 2,0 in the case of other elements.

3.1.2. Durability. For galvanized steel components, coatings with thicknesses not less than those specified in Appendix B, Table B1, shall ensure the durability of the components to the extent of p. 2.

In the case of corrosion-resistant steel components, the grades used shall ensure the durability of the components to the extent implied in p. 2.

3.2. Methods used to assess performance

3.2.1. Design and characteristic load capacities. The test of characteristic load capacities is carried out under conditions corresponding to the conditions of use. The test of characteristic load capacities is carried out using the criterion of the limit state of load capacity (destructive force) or, in the case of mounting rails and consoles, the criterion of the limit state of use (permissible deflection L/200) or, in the case of clamps, the criterion of permissible deformation of the clamp (2% of the diameter or 1.5 mm, the larger value being taken). The characteristic values are determined by the statistical method, assuming a quantile of the normal distribution of 0.05. To determine the design resistances, the values of the characteristic resistances obtained from the tests (ultimate limit state criterion) should be divided by the safety factors according to Section 3.1.1.

3.2.2. Durability. Testing of the thickness of zinc and zinc-aluminum coatings is performed according to PN-EN ISO 2808:2020.

4. PACKAGING, TRANSPORT AND STORAGE, AND HOW TO LABEL THE PRODUCT

The products covered by this National Technical Assessment should be delivered in the manufacturer's original packaging and stored and transported in accordance with the manufacturer's instructions.

The method of marking products with the construction mark should be in accordance with the Regulation of the Minister of Infrastructure and Construction of November 17, 2016 on the method of declaring the performance of construction products and the method of marking them with the construction mark (Journal of Laws of 2023, item 873).

The marking of the product with the construction mark should be accompanied by the following information:

- the last two digits of the year in which the construction mark was first placed on the construction product,
- the name and address of the manufacturer's headquarters or an identification mark that makes it possible to uniquely identify the name and address of the manufacturer's headquarters,
- The name and type designation of the construction product,
- the number and year of issue of the national technical assessment, according to which the performance characteristics were declared (ITB-KOT-2018/0259 edition 4),
- The number of the national declaration of performance
- The level or class of declared performance,

The address of the manufacturer's website, if the national declaration of performance is made available on it.

Along with the national declaration of performance, a safety data sheet and/or information on hazardous substances contained in the construction product, as referred to in Article 31 or 33 of Regulation (EC) No. 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) and establishing a European Chemicals Agency, should be provided or made available, as appropriate.

In addition, the labeling of a construction product that is a hazardous mixture according to REACH should comply with the requirements of Regulation (EC) No. 1272/2008 of the European Parliament and of the Council on classification, labeling and packaging of substances and mixtures (CLP), amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No. 1907/2006.

5. ASSESSMENT AND VERIFICATION OF CONSTANCY OF PERFORMANCE

5.1. National system of assessment and verification of constancy of performance

According to the Regulation of the Minister of Infrastructure and Construction dated November 17, 2016. on the way of declaring the performance of construction products and the way of marking them with the construction mark (Journal of Laws of 2023, item 873), the system 3 of evaluation and verification of constancy of performance.

5.2. Type testing

The performance characteristics evaluated in Section 3 constitute a type test of the products as long as there are no changes in raw materials, components, production line or production facility.

5.3. Factory production control

The manufacturer should have a factory production control system in place at the production site. All elements of this system, requirements and provisions, adopted by the manufacturer, should be documented in a systematic way, in the form of rules and procedures, including records of of the tests conducted. The factory production control should be adapted to the production technology and ensure the maintenance in series production of the declared performance of the product.

Factory production control includes specification and checking of raw materials and components, inspection and testing in the manufacturing process and control tests (according to section 5.4), carried out by the manufacturer in accordance with the established test plan and according to the principles and procedures set out in the in the factory production control documentation.

The results of production control should be systematically recorded. The records of the register should confirm that the products meet the criteria for evaluation and verification of constancy of performance. Individual products or batches of products and related production details must be fully identifiable and reproducible.

5.4. Control tests

Control tests should be carried out in accordance with the established test plan and according to the rules and procedures specified in the factory production control documentation, but not less frequently than specified in Table 1.

Table 1

Scope of control tests	Frequency
Shape and dimensions	For each batch of products [1)]
Durability	For each batch of products [1)]
Characteristic load capacities	Once every 5 years
[1)] The batch size of the products should be specified in the factory production control documentation	

6. REFERENCE

6.1. The National Technical Assessment ITB-KOT-2018/0259 edition 4 replaces the National Technical Assessment ITB-KOT-2018/0259 edition 3.

6.2. National Technical Assessment ITB-KOT-2018/0259 edition 4 is a positive assessment of the performance characteristics of those essential characteristics of WALRAVEN system components, which, according to with the intended use, resulting from the provisions of the Assessment, affect the fulfillment of the basic requirements by the construction objects in which the product will be used.

6.3. The National Technical Assessment ITB-KOT-2018/0259 edition 4 is not a document authorizing the marking of a construction product with a construction mark.

According to the Act of April 16, 2004 on construction products (Journal of Laws 2021, item 1213), the products covered by this National Technical Assessment may be placed on the market or made available on the domestic market if the manufacturer has assessed and verified the constancy of performance, prepared a national declaration of performance in accordance with the National Technical

Assessment ITB-KOT-2018/0259 edition 4, and marked the products with the construction mark, according to the accordance with the applicable regulations.

6.4. The National Technical Assessment ITB-KOT-2018/0259 edition 4 does not violate the rights arising from the provisions on the protection of industrial property, in particular the Act of June 30, 2000. - Industrial Property Law (Journal of Laws of 2023, item 1170). Ensuring these rights is the responsibility of the users of this National Technical Assessment of ITB.

6.5. ITB, issuing the National Technical Assessment, does not take responsibility for possible infringement of exclusive and acquired rights.

6.6. The National Technical Assessment does not relieve the manufacturer of products from responsibility for their proper quality, and construction contractors from responsibility for their proper application.

6.7. The validity of the National Technical Assessment may be renewed for successive periods, not exceeding than 5 years.

7. LIST OF DOCUMENTS USED IN THE PROCEEDINGS

7.1. Reports, test reports, evaluations and classifications

1. 01465/24/Z00NZK. Praca badawcza dotycząca elementów instalacyjnych Walraven. Zakład Konstrukcji Budowlanych, Geotechniki i Betonu ITB, Warszawa, 2024 r.
2. LZK00-01465/24/Z00NZK. Raport z badań elementów instalacyjnych Walraven. Zakład Konstrukcji Budowlanych, Geotechniki i Betonu ITB, Warszawa, 2024 r.
3. TR230706. RAL GZ-655 External monitoring (KIWA) 2023. Laboratorium Zakładowe Walraven, 2023 r.
4. P000117755/RAL. Raport z badan obejm Bifix G2. Kiwa Nederland B.V., 2022 r.
5. TR220808. RAL GZ-655 External monitoring (KIWA) 2022. Laboratorium Zakładowe Walraven, 2022 r.
6. TR230508, TR220902, TR221008, TR230203. Raporty z badań trwałości elementów systemu WALRAVEN. Laboratorium Zakładowe Walraven, 2022 ÷ 2023 r.
7. TR200405, TR210302, 40 4115355 2022, TR221111, TR221112, TR221112, TR220601, TR220205, TR221101, TR221001, TR221012, TR230604, TR230708, TR230504, TR230810. Raporty z badań nośności elementów systemu WALRAVEN. Laboratorium Zakładowe Walraven, 2020 ÷ 2023 r.
8. TR210905. RAL GZ-655 External monitoring (KIWA) 2021. Laboratorium Zakładowe Walraven, 2021 r.
9. 2103/524/21. Opinia techniczna. Materialprüfanstalt für das Bau-wesen, 2021 r.
10. 20070197/RAL/2S. Raport z badan obejm 2S. Kiwa Nederland B.V., 2020 r.
11. Raporty z badań obejm BIS 2S i BIS 2S EPDM. Zakład Konstrukcji Budowlanych i Geotechniki ITB, Warszawa, 2019 r.

12. 01378/18/Z00NZK. Opinia techniczna dotycząca elementów instalacyjnych Walraven. Zakład Konstrukcji Budowlanych i Geotechniki ITB, Warszawa, 2018 r.
13. LZM00-00522/18/Z00NZM. Raport z badań powłoki ochronnej. Zakład Inżynierii Materiałów Budowlanych ITB, Warszawa, 2018 r.
14. Raporty z badań obejm BIS 2S i BIS 2S EPDM. Laboratorium Zakładowe Walraven, 2018 r.
15. Raporty z badań obejm bis Bifix G2 BUP i KSB2. Laboratorium Zakładowe Walraven, 2014 ÷ 2015 r.
16. 02500/17/Z00NZK. Opinia techniczna dotycząca nośności elementów systemu WALRAVEN. Zakład Konstrukcji Budowlanych i Geotechniki ITB, Warszawa, 2017 r.
17. LZM00-02130/16/Z00NZM. Raport z badań powłoki ochronnej. Zakład Inżynierii Materiałów Budowlanych ITB, Warszawa, 2016 r.
18. Raporty z badań obejm BIS Clamp HD500 BUP do przewodów rurowych. Laboratorium Zakładowe Walraven, 2016 r.
19. Raporty z badań uchwytów ściennych BIS RapidRail i obejm bis Bifix G2 BUP epdm do przewodów rurowych oraz śrub montażowych systemu RapidStrut z szynami na wyrywanie. Laboratorium Zakładowe Walraven, 2015 r.
20. Raport z badania szyn montażowych na zginanie. Laboratorium Zakładowe Walraven, 2014 r.
21. Raporty z badań obejm do przewodów rurowych BISMAT 2000. Laboratorium Zakładowe Walraven, 2013 r.
22. Raport z badań uchwytów ściennych BIS RapidRail WM0-30. Laboratorium Zakładowe Walraven, 2011 r.
23. LOW-3082/10/Z00OWN. Raport z badań elementów systemu WALRAVEN do podwieszania przewodów instalacyjnych. Laboratorium Okuć i Ślusarki Budowlanej ITB, Poznań, 2010 r.
24. Raporty z badań obejm BIS Clamp HD500 zp, BIS Beugel HD1501 i BIS Beugel HD500 ev. Laboratorium Zakładowe Walraven, 2010 r.
25. LOW/048/2006. Raport z badań zestawu wyrobów systemu montażowego WALRAVEN. Laboratorium Okuć i Ślusarki Budowlanej ITB, Poznań, 2006 r.
26. Raport z badań obejm HD Clamp do przewodów rurowych. Laboratorium Zakładowe Walraven, 2004 r.

7.2. Standards and related documents

PN-EN 1561:2024 *Odlewnictwo. Żeliwo szare*

PN-EN 1993-1-4:2007 *Eurokod 3. Projektowanie konstrukcji stalowych. Część 1-4: Reguły ogólne. Reguły uzupełniające dla konstrukcji ze stali nierdzewnych*

PN-EN 10025-1:2019 *Wyroby walcowane na gorąco ze stali konstrukcyjnych. Część 1: Ogólne warunki techniczne dostawy*

PN-EN 10088-1:2024 *Stale odporne na korozję. Część 1: Wykaz stali odpornych na korozję*

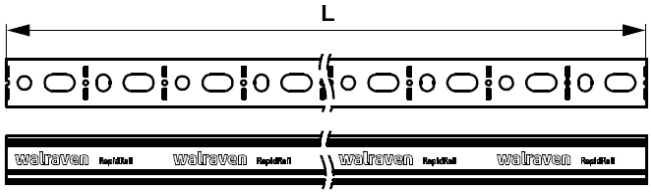
PN-EN 10111:2009 *Blachy i taśmy ze stali niskowęglowych walcowane na gorąco w sposób ciągły, przeznaczone do obróbki plastycznej na zimno. Warunki techniczne dostawy*

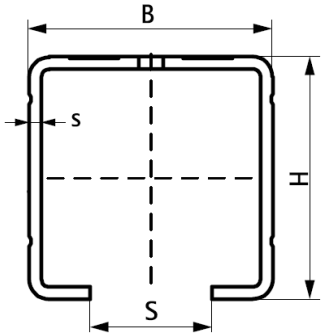
PN-EN 10132:2022 *Taśma stalowa wąska walcowana na zimno do obróbki cieplnej. Warunki techniczne dostawy*

PN-EN 10346:2015	*Wyroby płaskie stalowe powlekane ogniowo w sposób ciągły do obróbki plastycznej na zimno. Warunki techniczne dostawy*
PN-EN 22768-1:1999	*Tolerancje ogólne. Tolerancje wymiarów liniowych i kątowych bez indywidualnych oznaczeń tolerancji*
PN-EN ISO 898-1:2013	*Własności mechaniczne części złącznych wykonanych ze stali węglowej oraz stopowej. Część 1: Śruby i śruby dwustronne o określonych klasach własności. Gwint zwykły i drobnozwojny*
PN-EN ISO 898-2:2023	*Części złączne. Własności mechaniczne części złącznych wykonanych ze stali węglowej i stali stopowej. Część 2: Nakrętki o określonej klasie własności*
PN-EN ISO 2808:2020	*Farby i lakiery. Oznaczanie grubości powłoki*
PN-EN ISO 9223:2012	*Korozja metali i stopów. Korozyjność atmosfer. Klasyfikacja, określanie i ocena*
PN-EN ISO 14713-1:2017	*Powłoki cynkowe. Wytyczne i zalecenia dotyczące ochrony przed korozją konstrukcji z żeliwa i stali. Część 1: Zasady ogólne dotyczące projektowania i odporności korozyjnej*
PN-ISO 965-2:2001	*Gwinty metryczne ISO ogólnego przeznaczenia. Tolerancje. Część 2: Wymiary graniczne gwintów zewnętrznych i wewnętrznych ogólnego przeznaczenia. Klasa średniodokładna*
ITB-KOT-2018/0259 wydanie 3	*Elementy systemu WALRAVEN do mocowania przewodów instalacyjnych*

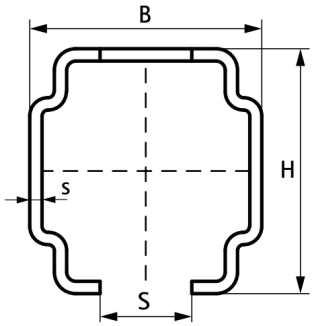
APPENDIXES

Annex A.





27x18, 30x15, 30x20, 30x30, 30x45



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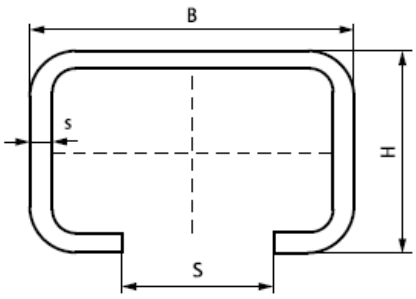
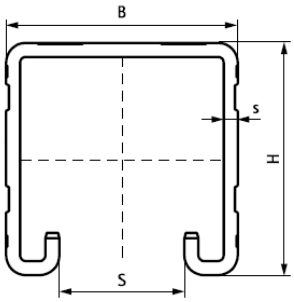


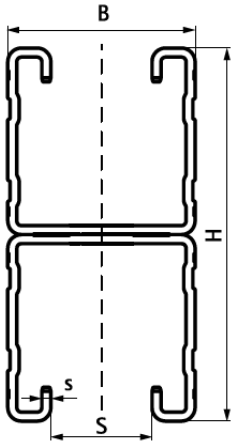
WM2

Pos.	Marking	Dimensions, mm				
		B	H	s	S	L
1	27x18	27	18	1,00	15	2000, 3000
2	30x15	30	15	1,50	15	500, 2000, 3000, 6000
3	30x20	30	20	1,25	15	2000, 3000, 6000
4	30x30	30	30	1,50	15	2000, 3000, 6000
5	30x45	30	45	2,00	15	2000, 6000
6	38x40	38	40	2,00	15	2000, 3000, 6000
7	WM2	30	30	2,00	15	2000, 3000, 6000

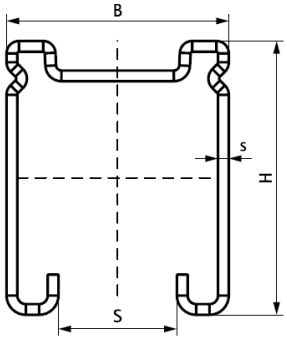
Rys. A1. Rails BIS RapidRail®



Rodzaj A



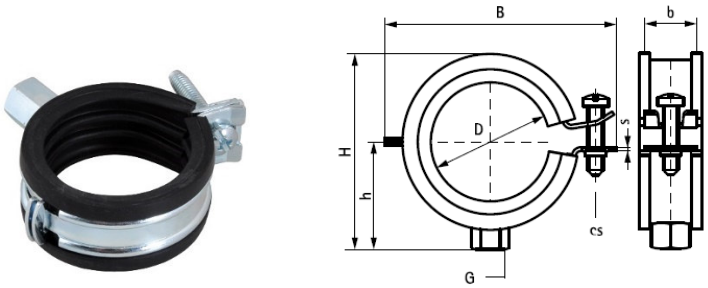
Rodzaj B



Rodzaj C

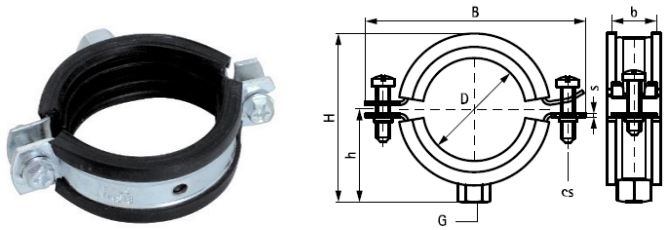
Pos.	Type	Marking	Dimensions, mm				
			B	H	s	S	L
1	A	21 L	41	21	1,5	22	2000, 3000, 6000
2	A	21 M	41	21	2,0	22	3000, 6000
3	A	21 H	41	21	2,5	22	2000, 3000, 6000
4	A	41 L	41	41	1,5	22	2000, 3000, 6000
5	A	41 M	41	41	2,0	22	2000, 3000, 6000
6	A	41 H	41	41	2,5	22	2000, 3000, 6000
7	A	41 H no holes	41	41	2,5	22	2000,3000, 6000
8	A	62 H	41	62	2,5	22	3000, 6000
9	A	82 H	41	82	2,5	22	3000, 6000
10	C	DS5	41	51	2,0	22	2000, 3000, 6000
11	B	41 x (2 x 21)	41	42	2,5	22	6000
12	B	41 x (2 x 41)	41	82	2,5	22	6000
13	B	41 x (2 x 62)	41	124	2,5	22	6000

Rys. A2. Rails BIS RapidStrut®



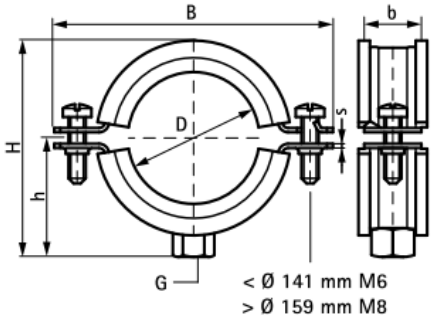
Pos.	Dimensions, mm					DN	D, "	G	cs
	D	B	H	h	b x s				
1	11 ÷ 14	48	32	20	20 x 1,00	8	¼	M8	M6
2	15 ÷ 18	48	36	22	20 x 1,00	10	⅜	M8	M6
3	20 ÷ 23	55	39	23	20 x 1,00	15	½	M8	M6
4	25 ÷ 28	60	44	26	20 x 1,00	20	¾	M8	M6
5	31 ÷ 35	67	51	30	20 x 1,00	25	1	M8	M6
6	36 ÷ 39	75	56	32	20 x 1,25	-	-	M8	M6
7	40 ÷ 43	75	60	34	20 x 1,25	32	1¼	M8	M6
8	44 ÷ 45	85	63	35	20 x 1,25	-	-	M8	M6
9	48 ÷ 51	85	66	37	20 x 1,25	40	1½	M8	M6
10	53 ÷ 56	89	72	40	20 x 1,25	-	-	M8	M6
11	59 ÷ 63	94	78	43	20 x 1,25	50	2	M8	M6
12	15 ÷ 18	48	44	30	20 x 1,00	10	⅜	M8/M10	M6
13	20 ÷ 23	55	47	31	20 x 1,00	15	½	M8/M10	M6
14	25 ÷ 28	60	52	34	20 x 1,00	20	¾	M8/M10	M6
15	31 ÷ 35	67	59	38	20 x 1,00	25	1	M8/M10	M6
16	40 ÷ 43	75	68	42	20 x 1,25	32	1¼	M8/M10	M6
17	48 ÷ 51	85	74	45	20 x 1,25	40	1½	M8/M10	M6
18	53 ÷ 56	89	80	48	20 x 1,25	-	-	M8/M10	M6
19	59 ÷ 63	94	86	51	20 x 1,25	50	2	M8/M10	M6

Rys. A3. Clamps BISMAT® 2000, with lining and connecting nut M8 or M8/M10



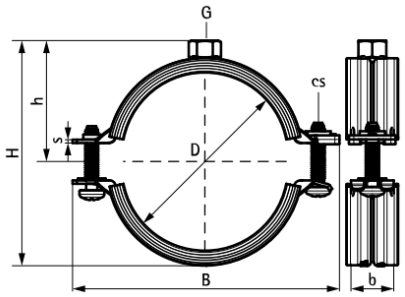
Pos.	Dimensions, mm					DN	D, "	G	cs
	D	B	H	h	b x s				
1	57 ÷ 64	107	90	52	23 x 2,00	50	2	M8/M10	M6
2	64 ÷ 70	115	99	56	23 x 2,00	-	-	M8/M10	M6
3	73 ÷ 80	126	109	61	23 x 2,00	65	2½	M8/M10	M6
4	83 ÷ 91	137	121	67	25 x 2,50	80	3	M8/M10	M6
5	100 ÷ 105	152	135	74	25 x 2,50	-	-	M8/M10	M6
6	108 ÷ 114	160	144	79	25 x 2,50	100	4	M8/M10	M6
7	116 ÷ 119	165	149	81	25 x 2,50	-	-	M8/M10	M6
8	122 ÷ 125	173	157	85	25 x 2,50	-	-	M8/M10	M6
9	133 ÷ 141	189	170	92	25 x 2,50	125	5	M8/M10	M6
10	159 ÷ 168	233	198	102	25 x 3,00	150	6	M10	M8
11	200 ÷ 210	273	239	122	25 x 3,00	-	-	M10	M8
12	210 ÷ 219	284	250	128	25 x 3,00	200	8	M10	M8

Rys. A4. Clamps BISMAT® 2000, with lining and connecting nut M8/M10 or M10



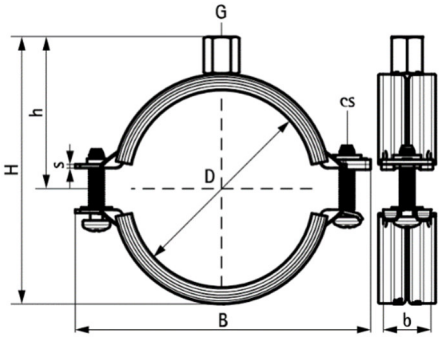
Pos.	Dimensions, mm					DN	D, "	G
	D	B	H	h	b x s			
1	11 ÷ 14	58	33	20	20 x 1,25	8	¼	M8
2	15 ÷ 19	64	39	23	20 x 1,25	10	⅜	M8
3	20 ÷ 23	67	42	24	20 x 1,25	15	½	M8
4	25 ÷ 28	72	47	27	20 x 1,25	20	¾	M8
5	31 ÷ 35	80	55	31	20 x 1,25	25	1	M8
6	40 ÷ 43	87	62	35	20 x 1,25	32	1¼	M8
7	47 ÷ 51	96	71	39	20 x 1,25	40	1½	M8
8	52 ÷ 56	100	75	41	20 x 1,25	-	-	M8
9	57 ÷ 64	108	83	45	20 x 1,25	50	2	M8
10	64 ÷ 67	109	87	46	20 x 2,00	-	-	M8
11	70 ÷ 76	118	96	51	20 x 2,00	65	2½	M8
12	86 ÷ 91	130	108	57	20 x 2,00	80	3	M8
13	100 ÷ 106	154	132	69	20 x 2,00	-	-	M8
14	108 ÷ 116	158	136	71	20 x 2,50	100	4	M8
15	15 ÷ 19	62	38	23	20 x 1,25	10	⅜	M10
16	20 ÷ 23	64	43	25	20 x 1,25	15	½	M10
17	25 ÷ 28	70	47	27	20 x 1,25	20	¾	M10
18	31 ÷ 35	78	55	31	20 x 1,25	25	1	M10
19	40 ÷ 43	85	63	35	20 x 1,25	32	1¼	M10
20	47 ÷ 51	97	72	39	20 x 1,25	40	1½	M10
21	52 ÷ 56	97	75	41	20 x 1,25	-	-	M10
22	57 ÷ 64	102	82	44	20 x 1,25	50	2	M10
23	64 ÷ 67	109	89	48	20 x 2,00	-	-	M10
24	70 ÷ 76	118	98	52	20 x 2,00	65	2½	M10
25	79 ÷ 85	124	104	55	20 x 2,00	-	-	M10
26	86 ÷ 91	130	109	58	20 x 2,00	80	3	M10
27	100 ÷ 106	154	135	72	20 x 2,00	-	-	M10
28	108 ÷ 116	158	137	72	25 x 2,50	100	4	M10
29	124 ÷ 132	170	149	78	25 x 2,50	-	-	M10
30	133 ÷ 141	179	159	83	25 x 2,50	125	5	M10
31	159 ÷ 168	233	195	101	25 x 2,50	150	6	M10
32	200 ÷ 210	273	235	120	25 x 2,50	-	-	M10
33	210 ÷ 219	285	247	126	25 x 2,50	200	8	M10
34	244 ÷ 250	317	279	142	25 x 2,50	-	-	M10

Rys. A5. Clamps BIS Bifix® 1301, with lining and connecting nut M8 lub M10



Pos.	Dimensions, mm					DN	D, "	G	cs
	D	B	H	h	b x s				
1	10 ÷ 14	59	34	21	20 x 1,25	8	¼	M8	M6
2	15 ÷ 19	63	38	23	20 x 1,25	10	⅜	M8	M6
3	20 ÷ 23	68	43	25	20 x 1,25	15	½	M8	M6
4	25 ÷ 28	74	49	28	20 x 1,25	20	¾	M8	M6
5	31 ÷ 35	80	55	31	20 x 1,25	25	1	M8	M6
6	36 ÷ 39	84	59	33	20 x 1,25	-	-	M8	M6
7	40 ÷ 45	91	66	37	20 x 1,25	32	1¼	M8	M6
8	48 ÷ 52	97	72	40	20 x 1,25	40	1½	M8	M6
9	54 ÷ 58	104	79	43	20 x 1,25	-	-	M8	M6
10	60 ÷ 64	109	84	46	20 x 1,25	50	2	M8	M6
11	66 ÷ 70	118	92	50	20 x 1,50	-	-	M8	M6
12	75 ÷ 79	125	100	54	20 x 1,50	65	2½	M8	M6
13	80 ÷ 83	131	106	57	20 x 1,50	-	-	M8	M6

Rys. A6. Clamps BIS Bifix® G2, with lining and connecting nut M8

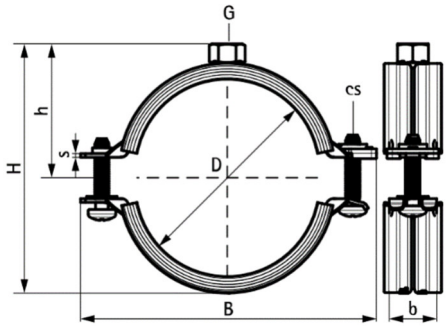


Pos.	Dimensions, mm					DN	D, "	G	cs
	D	B	H	h	b x s				
1	10 ÷ 14	59	42	30	20 x 1,25	8	¼	M8/M10	M6
2	15 ÷ 19	63	46	31	20 x 1,25	10	⅜	M8/M10	M6
3	20 ÷ 23	68	51	33	20 x 1,25	15	½	M8/M10	M6
4	25 ÷ 28	74	57	36	20 x 1,25	20	¾	M8/M10	M6
5	31 ÷ 35	80	63	39	20 x 1,25	25	1	M8/M10	M6
6	36 ÷ 39	84	67	41	20 x 1,25	-	-	M8/M10	M6
7	40 ÷ 45	91	74	45	20 x 1,25	32	1¼	M8/M10	M6
8	48 ÷ 52	97	80	48	20 x 1,25	40	1½	M8/M10	M6
9	54 ÷ 58	104	87	51	20 x 1,25	-	-	M8/M10	M6
10	60 ÷ 64	109	92	54	20 x 1,25	50	2	M8/M10	M6
11	66 ÷ 70	118	100	58	20 x 1,50	-	-	M8/M10	M6
12	75 ÷ 79	125	108	62	20 x 1,50	65	2½	M8/M10	M6
13	80 ÷ 83	131	114	65	20 x 1,50	-	-	M8/M10	M6
14	88 ÷ 91	142	123	70	23 x 2,00	80	3	M8/M10	M6

Rys. A7. Clamps BIS Bifix® G2, with lining and connecting nut M8/M10

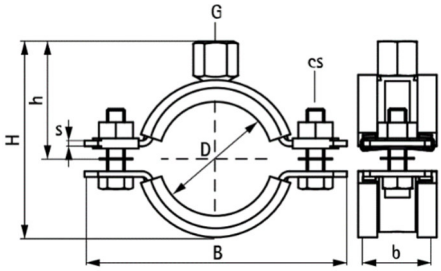
Pos.	Dimensions, mm					DN	D, "	G	cs
	D	B	H	h	b x s				
15	92 ÷ 97	147	132	73	23 x 2,00	-	-	M8/M10	M6
16	100 ÷ 105	155	137	77	23 x 2,00	-	-	M8/M10	M6
17	108 ÷ 115	163	145	81	23 x 2,00	100	4	M8/M10	M6
18	125 ÷ 130	180	162	89	23 x 2,00	-	-	M8/M10	M6
19	133 ÷ 140	189	171	94	23 x 2,00	125	5	M8/M10	M6
20	152 ÷ 160	208	190	102	23 x 2,00	-	-	M8/M10	M6
21	165 ÷ 169	225	203	111	25 x 2,50	150	6	M8/M10	M8
22	176 ÷ 180	238	209	117	25 x 2,50	-	-	M8/M10	M8
23	192 ÷ 200	257	238	127	25 x 2,50	-	-	M8/M10	M8
24	205 ÷ 210	269	249	133	25 x 2,50	-	-	M8/M10	M8
25	219 ÷ 225	283	265	140	25 x 2,50	200	8	M8/M10	M8

Rys. A7, c.d. Clamps BIS Bifix® G2, with lining and connecting nut M8/M10



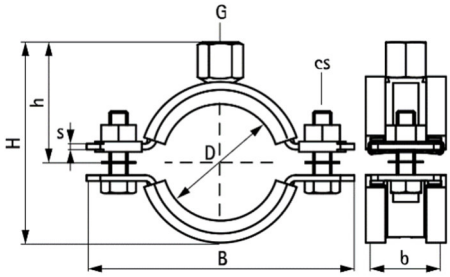
Pos.	Dimensions, mm					DN	D, "	G	cs
	D	B	H	h	b x s				
1	10 ÷ 14	59	34	21	20 x 1,25	8	¼	M10	M6
2	15 ÷ 19	63	38	23	20 x 1,25	10	⅜	M10	M6
3	20 ÷ 23	68	43	25	20 x 1,25	15	½	M10	M6
4	25 ÷ 28	74	49	28	20 x 1,25	20	¾	M10	M6
5	31 ÷ 35	80	55	31	20 x 1,25	25	1	M10	M6
6	36 ÷ 39	84	59	33	20 x 1,25	-	-	M10	M6
7	40 ÷ 45	91	66	37	20 x 1,25	32	1¼	M10	M6
8	48 ÷ 52	97	72	40	20 x 1,25	40	1½	M10	M6
9	54 ÷ 58	104	79	43	20 x 1,25	-	-	M10	M6
10	60 ÷ 64	109	84	46	20 x 1,25	50	2	M10	M6
11	66 ÷ 70	118	92	52	20 x 1,50	-	-	M10	M6
12	75 ÷ 79	125	100	56	20 x 1,50	65	2½	M10	M6
13	80 ÷ 83	131	106	59	20 x 1,50	-	-	M10	M6
14	88 ÷ 91	142	115	64	23 x 2,00	80	3	M10	M6
15	92 ÷ 98	147	123	73	23 x 2,00	-	-	M10	M6
16	100 ÷ 105	155	129	71	23 x 2,00	-	-	M10	M6
17	108 ÷ 115	163	137	75	23 x 2,00	100	4	M10	M6
18	125 ÷ 130	180	154	83	23 x 2,00	-	-	M10	M6
19	133 ÷ 140	189	163	88	23 x 2,00	125	5	M10	M6
20	152 ÷ 160	208	182	97	23 x 2,00	-	-	M10	M6
21	165 ÷ 169	225	195	103	25 x 2,50	150	6	M10	M8
22	176 ÷ 180	238	201	109	25 x 2,50	-	-	M10	M8
23	192 ÷ 200	257	230	119	25 x 2,50	-	-	M10	M8
24	205 ÷ 210	269	241	125	25 x 2,50	-	-	M10	M8
25	219 ÷ 225	283	257	132	25 x 2,50	200	8	M10	M8

Rys. A8. Clamps BIS Bifix® G2, with lining and connecting nut M10



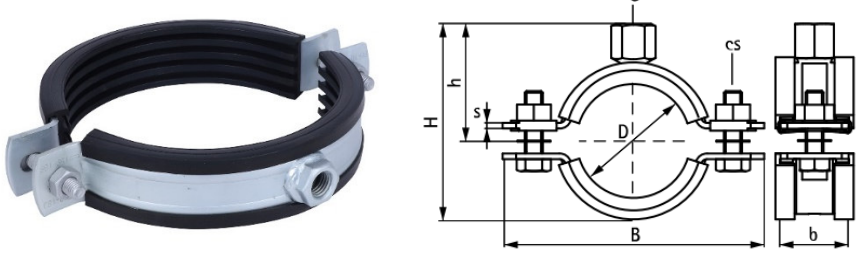
Pos.	Dimensions, mm					DN	D, "	G	cs
	D	B	H	h	b x s				
1	15 ÷ 19	81	55	35	30 x 2,5	10	⅜	M8/M10	M8
2	19 ÷ 23	84	58	37	30 x 2,5	15	½	M8/M10	M8
3	25 ÷ 29	91	64	40	30 x 2,5	20	¾	M8/M10	M8
4	30 ÷ 35	98	70	43	30 x 2,5	25	1	M8/M10	M8
5	40 ÷ 45	109	80	48	30 x 2,5	32	1¼	M8/M10	M8
6	46 ÷ 51	115	86	51	30 x 2,5	40	1½	M8/M10	M8
7	53 ÷ 59	122	93	55	30 x 2,5	-	-	M8/M10	M8
8	59 ÷ 64	129	99	57	30 x 2,5	50	2	M8/M10	M8
9	65 ÷ 71	136	116	71	30 x 3,0	-	-	M10/M12	M8
10	72 ÷ 78	144	123	74	30 x 3,0	65	2½	M10/M12	M8
11	79 ÷ 85	152	130	78	30 x 3,0	-	-	M10/M12	M8
12	86 ÷ 92	159	136	81	30 x 3,0	80	3	M10/M12	M8
13	101 ÷ 109	175	154	90	30 x 3,0	-	-	M10/M12	M8
14	108 ÷ 116	182	160	93	30 x 3,0	100	4	M10/M12	M8
15	125 ÷ 133	200	178	102	30 x 3,0	-	-	M10/M12	M8
16	132 ÷ 140	207	184	104	30 x 3,0	125	5	M10/M12	M8
17	159 ÷ 169	254	223	124	38 x 4,0	150	6	M10/M12	M10
18	178 ÷ 188	274	242	133	38 x 4,0	-	-	M10/M12	M10
19	194 ÷ 204	290	258	141	38 x 4,0	-	-	M10/M12	M10
20	203 ÷ 213	299	267	146	38 x 4,0	-	-	M10/M12	M10
21	217 ÷ 227	322	282	152	38 x 4,0	200	8	M10/M12	M12

Rys. A9. Clamps BIS HD 1501, with lining and connecting nut M8/M10 or M10/M12



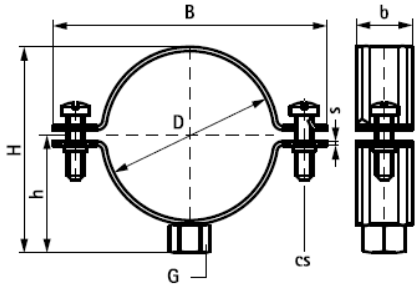
Pos.	Dimensions, mm					DN	D, "	G	cs
	D	B	H	h	b x s				
17	159 ÷ 169	254	220	120	38 x 4,0	150	6	M16	M10
18	178 ÷ 188	274	239	130	38 x 4,0	-	-	M16	M10
19	194 ÷ 204	290	255	138	38 x 4,0	-	-	M16	M10
20	203 ÷ 213	299	264	143	38 x 4,0	-	-	M16	M10
21	217 ÷ 227	322	278	150	38 x 4,0	200	8	M16	M12
22	240 ÷ 250	345	302	163	38 x 4,0	-	-	M16	M12
23	265 ÷ 275	367	327	175	48 x 5,0	250	10	M16	M12
24	315 ÷ 325	414	374	198	48 x 5,0	300	12	M16	M12
25	354 ÷ 364	453	412	217	48 x 5,0	350	14	M16	M12
26	398 ÷ 408	497	456	239	48 x 5,0	400	16	M16	M12
27	448 ÷ 458	548	506	264	48 x 5,0	450	18	M16	M12
28	499 ÷ 509	599	557	289	48 x 5,0	500	20	M16	M12

Rys. A10. Clamps BIS HD 1501, with lining and connecting nut M16



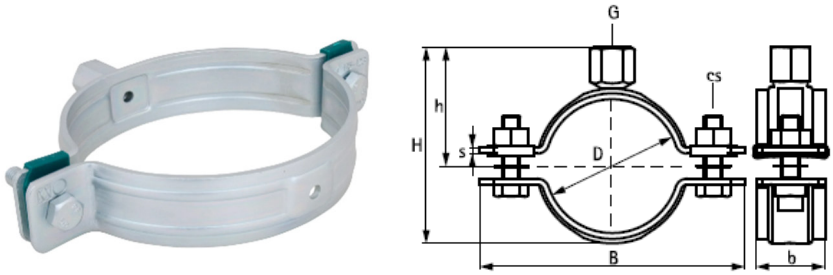
Pos.	Dimensions, mm					DN	D, "	G, "	cs
	D	B	H	h	b x s				
1	15 ÷ 19	81	50	30	30 x 2,5	10	⅜	½	M8
2	19 ÷ 23	84	53	32	30 x 2,5	15	½	½	M8
3	25 ÷ 29	91	59	35	30 x 2,5	20	¾	½	M8
4	30 ÷ 35	98	65	38	30 x 2,5	25	1	½	M8
5	40 ÷ 45	109	75	43	30 x 2,5	32	1¼	½	M8
6	46 ÷ 51	115	81	46	30 x 2,5	40	1½	½	M8
7	53 ÷ 59	122	88	50	30 x 2,5	-	-	½	M8
8	59 ÷ 64	129	94	53	30 x 2,5	50	2	½	M8
9	65 ÷ 71	136	102	57	30 x 3,0	-	-	½	M8
10	72 ÷ 78	144	109	60	30 x 3,0	65	2½	½; ¾	M8
11	79 ÷ 85	152	116	64	30 x 3,0	-	-	½; ¾	M8
12	86 ÷ 92	159	123	68	30 x 3,0	80	3	½; ¾	M8
13	101 ÷ 109	175	140	74	30 x 3,0	-	-	½; ¾	M8
14	108 ÷ 116	182	147	79	30 x 3,0	100	4	½; ¾	M8
15	125 ÷ 133	200	164	86	30 x 3,0	-	-	½; ¾	M8
16	132 ÷ 140	207	171	91	30 x 3,0	125	5	½; ¾	M8
17	159 ÷ 169	254	210	110	38 x 4,0	150	6	½; ¾; 1	M10
18	178 ÷ 188	274	229	120	38 x 4,0	-	-	½; ¾; 1	M10
19	194 ÷ 204	290	245	128	38 x 4,0	-	-	½; ¾; 1	M10
20	203 ÷ 213	299	254	133	38 x 4,0	-	-	½; ¾; 1	M10
21	217 ÷ 227	322	268	140	38 x 4,0	200	8	½; ¾; 1	M12
22	240 ÷ 250	345	292	153	38 x 4,0	-	-	½; 1	M12
23	265 ÷ 275	367	317	165	48 x 5,0	250	10	½; 1	M12
24	315 ÷ 325	414	364	188	48 x 5,0	300	12	½; 1	M12
25	354 ÷ 364	453	402	207	48 x 5,0	350	14	½; 1	M12
26	398 ÷ 408	497	446	229	48 x 5,0	400	16	½; 1	M12
27	448 ÷ 458	548	496	254	48 x 5,0	450	18	½; 1	M12
28	499 ÷ 509	599	547	279	48 x 5,0	500	20	½; 1	M12

Rys. A11. Clamps BIS HD 1501, with lining and connecting nut ½", ¾ " lub 1 "



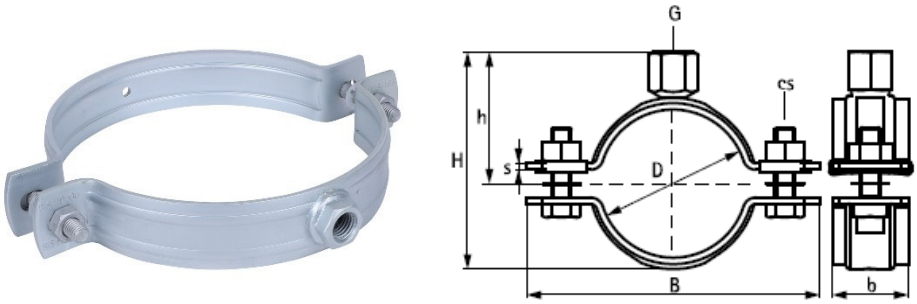
Pos.	Dimensions, mm					DN	D, "	G	cs
	D	B	H	h	b x s				
1	15 ÷ 19	56	31	19	20 x 1,25	10	⅜	M8	M6
2	20 ÷ 22	58	33	20	20 x 1,25	15	½	M8	M6
3	25 ÷ 28	64	39	23	20 x 1,25	20	¾	M8	M6
4	31 ÷ 35	72	47	27	20 x 1,25	25	1	M8	M6
5	40 ÷ 43	80	54	31	20 x 1,25	32	1¼	M8	M6
6	47 ÷ 51	87	62	35	20 x 1,25	40	1½	M8	M6
7	54 ÷ 60	96	71	39	20 x 1,25	-	-	M8	M6
8	72 ÷ 76	109	86	46	20 x 2,00	-	-	M8	M6
9	85 ÷ 89	124	101	54	20 x 2,00	80	3	M8	M6
10	110 ÷ 118	154	131	69	20 x 2,50	100	4	M8	M6
11	62 ÷ 68	102	80	44	20 x 2,00	-	-	M10	M6
12	72 ÷ 76	109	87	48	20 x 2,00	-	-	M10	M6
13	79 ÷ 85	118	96	52	20 x 2,00	-	-	M10	M6
14	85 ÷ 89	124	102	55	20 x 2,00	80	3	M10	M6
15	100 ÷ 105	139	117	62	20 x 2,00	-	-	M10	M6
16	106 ÷ 111	146	124	66	20 x 2,00	-	-	M10	M6
17	110 ÷ 118	154	132	70	20 x 2,50	100	4	M10	M6
18	122 ÷ 127	163	140	74	20 x 2,50	-	-	M10	M6
19	129 ÷ 134	170	148	78	20 x 2,50	-	-	M10	M6
20	139 ÷ 144	179	157	83	20 x 2,50	125	5	M10	M6
21	150 ÷ 155	192	172	91	20 x 2,50	-	-	M10	M6
22	157 ÷ 162	196	174	91	20 x 2,50	-	-	M10	M6
23	164 ÷ 169	203	181	95	20 x 2,50	150	6	M10	M6
24	193 ÷ 200	256	216	112	25 x 2,50	-	-	M10	M8
25	212 ÷ 219	273	233	121	25 x 2,50	200	8	M10	M8

Rys. A12. Clamps BIS Bifix® 300, without lining and connecting nut M8 or M10



Pos.	Dimensions, mm					DN	D, "	G	cs
	D	B	H	h	b x s				
1	15 ÷ 19	75	46	32	30 x 2,5	10	⅜	M8/M10	M8
2	19 ÷ 23	78	50	34	30 x 2,5	15	½	M8/M10	M8
3	25 ÷ 30	84	57	38	30 x 2,5	20	¾	M8/M10	M8
4	31 ÷ 36	91	63	41	30 x 2,5	25	1	M8/M10	M8
5	37 ÷ 42	98	69	44	30 x 2,5	-	-	M8/M10	M8
6	40 ÷ 45	101	72	45	30 x 2,5	32	1¼	M8/M10	M8
7	47 ÷ 52	109	79	49	30 x 2,5	40	1½	M8/M10	M8
8	53 ÷ 58	115	85	52	30 x 2,5	-	-	M8/M10	M8
9	59 ÷ 65	122	92	55	30 x 2,5	50	2	M8/M10	M8
10	66 ÷ 71	129	98	58	30 x 2,5	-	-	M8/M10	M8
11	72 ÷ 78	136	115	70	30 x 3,0	65	2½	M10/M12	M8
12	79 ÷ 85	144	122	75	30 x 3,0	-	-	M10/M12	M8
13	86 ÷ 92	152	129	78	30 x 3,0	80	3	M10/M12	M8
14	98 ÷ 106	165	143	85	30 x 3,0	-	-	M10/M12	M8
15	108 ÷ 116	175	153	90	30 x 3,0	100	4	M10/M12	M8
16	116 ÷ 123	182	160	94	30 x 3,0	-	-	M10/M12	M8
17	125 ÷ 133	193	170	99	30 x 3,0	-	-	M10/M12	M8
18	132 ÷ 140	200	177	102	30 x 3,0	125	5	M10/M12	M8
19	148 ÷ 154	215	191	109	30 x 3,0	-	-	M10/M12	M8
20	159 ÷ 169	240	207	117	38 x 4,0	150	6	M10/M12	M10
21	173 ÷ 183	254	221	124	38 x 4,0	-	-	M10/M12	M10
22	192 ÷ 202	274	240	133	38 x 4,0	-	-	M10/M12	M10
23	208 ÷ 219	290	256	141	38 x 4,0	-	-	M10/M12	M10
24	217 ÷ 227	299	265	146	38 x 4,0	200	8	M10/M12	M10

Rys. A13. Clamps HD500, without lining and connecting nut M8/M10 or M10/M12

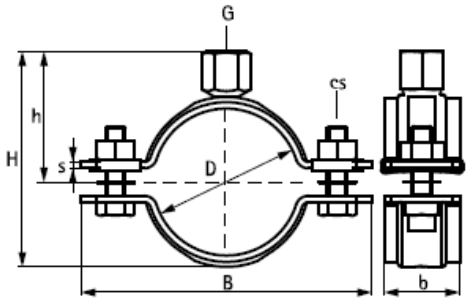


Pos.	Dimensions, mm					DN	D, "	G	cs
	D	B	H	h	b x s				
1	159 ÷ 169	241	193	103	38 x 4,0	150	6	M16	M10
2	173 ÷ 183	255	207	110	38 x 4,0	-	-	M16	M10
3	192 ÷ 202	274	226	130	38 x 4,0	-	-	M16	M10
4	217 ÷ 227	299	263	144	38 x 4,0	200	8	M16	M10
5	229 ÷ 241	322	277	151	38 x 4,0	-	-	M16	M12

Rys. A14. Clamps HD500, without lining and connecting nut M16

Pos.	Dimensions, mm					DN	D, "	G	cs
	D	B	H	h	b x s				
6	244 ÷ 254	335	290	158	38 x 4,0	-	-	M16	M12
7	254 ÷ 264	345	300	163	38 x 4,0	-	-	M16	M12
8	267 ÷ 279	360	315	170	38 x 4,0	250	10	M16	M12
9	279 ÷ 289	367	324	175	48 x 5,0	-	-	M16	M12
10	292 ÷ 302	380	337	181	48 x 5,0	-	-	M16	M12
11	315 ÷ 325	403	358	193	48 x 5,0	300	12	M16	M12
12	350 ÷ 360	439	395	210	48 x 5,0	350	14	M16	M12
13	364 ÷ 374	453	409	217	48 x 5,0	-	-	M16	M12
14	379 ÷ 389	468	424	225	48 x 5,0	-	-	M16	M12
15	398 ÷ 408	487	443	234	48 x 5,0	400	16	M16	M12
16	408 ÷ 418	498	441	227	48 x 5,0	-	-	M16	M12
17	424 ÷ 436	515	471	248	48 x 5,0	-	-	M16	M12
18	448 ÷ 458	537	493	259	48 x 5,0	450	18	M16	M12
19	499 ÷ 509	588	544	285	48 x 5,0	500	20	M16	M12

Rys. A14, c.d. Clamps HD500, without lining and connecting nut M16

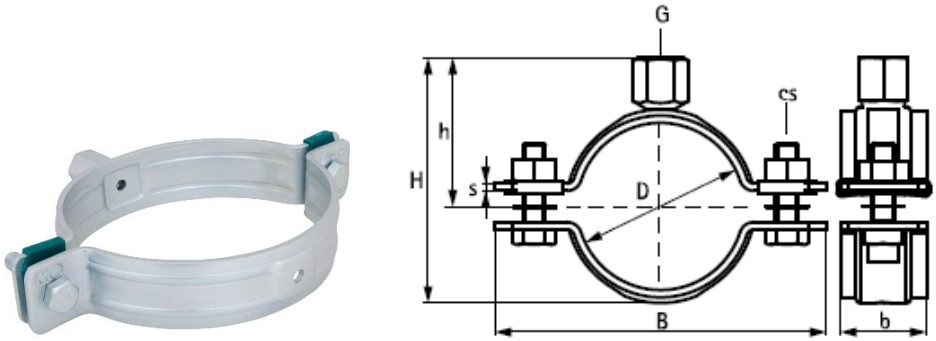


Pos.	Dimensions, mm					DN	D, "	G, "	cs
	D	B	H	h	b x s				
1	15 ÷ 19	75	43	29	30 x 2,5	10	⅜	½	M8
2	19 ÷ 23	78	47	31	30 x 2,5	15	½	½	M8
3	25 ÷ 30	84	54	35	30 x 2,5	20	¾	½	M8
4	31 ÷ 36	91	60	38	30 x 2,5	25	1	½	M8
5	37 ÷ 42	98	66	40	30 x 2,5	-	-	½	M8
6	40 ÷ 45	101	69	42	30 x 2,5	32	1¼	½	M8
7	47 ÷ 52	109	76	46	30 x 2,5	40	1½	½	M8
8	53 ÷ 58	115	82	48	30 x 2,5	-	-	½	M8
9	59 ÷ 65	122	89	52	30 x 2,5	50	2	½	M8
10	66 ÷ 71	129	95	55	30 x 2,5	-	-	½	M8
11	72 ÷ 78	136	103	59	30 x 3,0	65	2½	½	M8
12	79 ÷ 85	144	110	63	30 x 3,0	-	-	½	M8
13	86 ÷ 92	152	117	66	30 x 3,0	80	3	½	M8
14	98 ÷ 106	165	131	73	30 x 3,0	-	-	½	M8
15	108 ÷ 116	175	141	78	30 x 3,0	100	4	½	M8
16	125 ÷ 133	193	158	87	30 x 3,0	-	-	½	M8
17	132 ÷ 140	200	165	90	30 x 3,0	125	5	½	M8
18	148 ÷ 154	215	179	97	30 x 3,0	-	-	½	M8
19	159 ÷ 169	240	195	105	38 x 4,0	150	6	½	M10
20	173 ÷ 183	254	209	112	38 x 4,0	-	-	½	M10
21	192 ÷ 202	274	228	122	38 x 4,0	-	-	½	M10
22	208 ÷ 219	290	244	130	38 x 4,0	-	-	½	M10
23	217 ÷ 227	299	253	134	38 x 4,0	200	8	½	M10

Rys. A15. Clamps HD500, without lining and connecting nut ½"

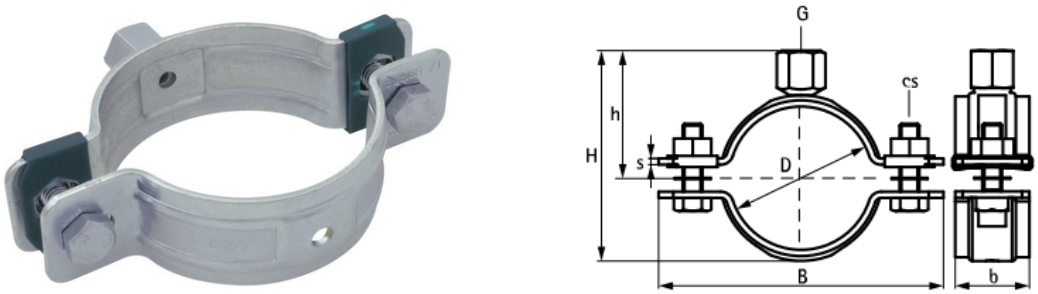
Pos.	Dimensions, mm					DN	D, "	G, "	cs
	D	B	H	h	b x s				
24	244 ÷ 254	335	280	148	38 x 4,0	-	-	½	M12
25	267 ÷ 279	360	305	160	38 x 4,0	250	10	½	M12
26	279 ÷ 289	367	314	165	48 x 5,0	-	-	½	M12
27	315 ÷ 325	403	348	183	48 x 5,0	300	12	½	M12
28	350 ÷ 360	439	385	200	48 x 5,0	350	14	½	M12
29	398 ÷ 408	487	433	224	48 x 5,0	400	16	½	M12
30	424 ÷ 436	515	461	238	48 x 5,0	-	-	½	M12
31	448 ÷ 458	537	483	249	48 x 5,0	450	18	½	M12
32	499 ÷ 509	588	534	275	48 x 5,0	500	20	½	M12
33	554 ÷ 564	643	589	302	48 x 5,0	-	-	½	M12

Rys. A15, c.d. Clamps HD500, without lining and connecting nut ½"



Pos.	Dimensions, mm					DN	D, "	G, "	cs
	D	B	H	h	b x s				
1	159 ÷ 169	241	200	105	38 x 4,0	150	6	1	M10
2	173 ÷ 183	255	214	112	38 x 4,0	-	-	1	M10
3	192 ÷ 202	274	233	122	38 x 4,0	-	-	1	M10
4	217 ÷ 227	299	258	134	38 x 4,0	200	8	1	M10
5	244 ÷ 254	335	258	148	38 x 4,0	-	-	1	M12
6	279 ÷ 289	368	319	314	48 x 5,0	-	-	1	M12
7	315 ÷ 325	404	355	348	48 x 5,0	300	12	1	M12
8	350 ÷ 360	440	390	385	48 x 5,0	350	14	1	M12
9	398 ÷ 408	488	438	433	48 x 5,0	400	16	1	M12
10	448 ÷ 458	538	488	483	48 x 5,0	450	18	1	M12
11	499 ÷ 509	589	539	534	48 x 5,0	500	20	1	M12
12	554 ÷ 564	644	594	589	48 x 5,0	-	-	1	M12

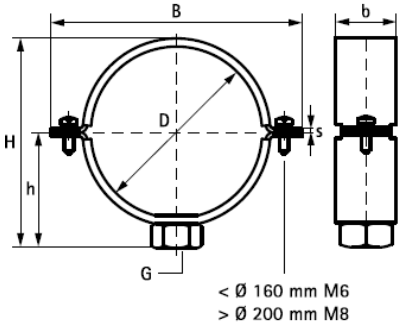
Rys. A16. Clamps HD500, without lining and connecting nut 1"



Rys. A17. Clamps HD500, without lining and connecting nut M8/M10, M10/M12, M12 or M16

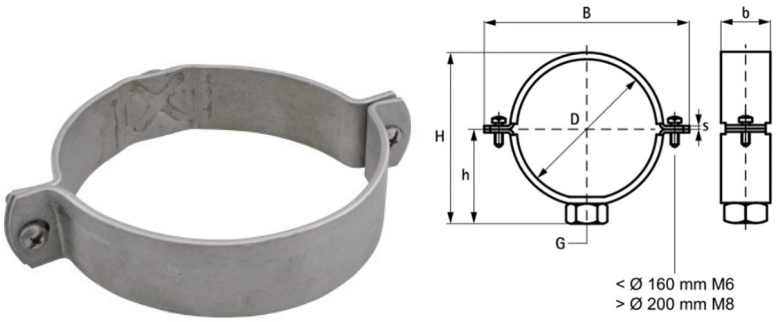
Pos.	Dimensions, mm					DN	D, "	G	cs
	D	B	H	h	b x s				
1	19 ÷ 23	78,5	50,0	34,0	30 x 2,5	15	½	M8/M10	M8
2	25 ÷ 30	85,0	57,0	37,5	30 x 2,5	20	¾	M8/M10	M8
3	31 ÷ 36	90,5	63,0	40,5	30 x 2,5	25	1	M8/M10	M8
4	40 ÷ 45	101,7	71,0	45,0	30 x 2,5	32	1¼	M8/M10	M8
5	47 ÷ 52	108,8	78,0	48,5	30 x 2,5	40	1½	M8/M10	M8
6	59 ÷ 65	120,8	89,5	55,0	30 x 2,5	50	2	M8/M10	M8
7	72 ÷ 78	137,0	112,0	71,0	30 x 3,0	65	2½	M10/M12	M8
8	86 ÷ 92	151,1	126,0	78,0	30 x 3,0	80	3	M10/M12	M8
9	108 ÷ 116	174,8	151,0	90,0	30 x 3,0	100	4	M10/M12	M8
10	132 ÷ 140	199,0	164,0	93,0	30 x 3,0	125	5	M12	M8
11	159 ÷ 169	240,5	192,0	105,0	38 x 4,0	150	6	M12	M10
12	208 ÷ 219	290,8	249,0	134,0	38 x 4,0	200	8	M16	M10

Rys. A17, c.d. Clamps HD500, without lining and connecting nut M8/M10, M10/M12, M12 or M16



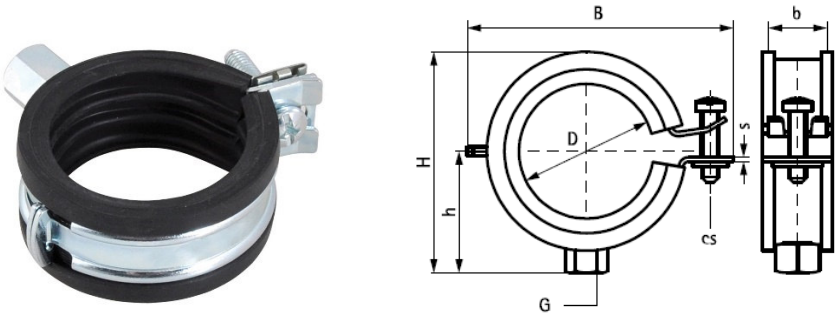
Pos.	Dimensions, mm					DN	G
	D	B	H	h	b x s		
1	40	82	63	37	30 x 3,0	32	M10
2	50	92	73	42	30 x 3,0	40	M10
3	56	98	79	45	30 x 3,0	50	M10
4	63	105	86	48	30 x 3,0	57	M10
5	75	117	98	54	30 x 3,0	70	M10
6	90	132	113	62	30 x 3,0	80	M10
7	110	152	133	72	30 x 3,0	100	M10
8	125	167	148	79	30 x 3,0	125	M10
9	160	202	185	98	30 x 3,0	150	M10
10	200	278	223	117	38 x 4,0	200	M10
11	250	328	273	142	38 x 4,0	250	M10
12	315	393	338	174	38 x 4,0	315	M10
13	40	82	68	42	30 x 3,0	32	½"
14	50	92	78	47	30 x 3,0	40	½"
15	56	98	84	50	30 x 3,0	50	½"
16	63	105	91	53	30 x 3,0	57	½"
17	75	117	103	59	30 x 3,0	70	½"
18	90	132	118	67	30 x 3,0	80	½"
19	110	152	138	77	30 x 3,0	100	½"
20	125	167	153	84	30 x 3,0	125	½"
21	160	202	188	102	30 x 3,0	150	½"
22	160	237	187	101	38 x 4,0	150	1"
23	200	278	230	123	38 x 4,0	200	1"
24	225	303	254	135	38 x 4,0	-	1"
25	250	325	280	153	38 x 4,0	250	1"
26	315	393	345	181	38 x 4,0	300	1"

Rys. A18. Clamps BIS 434, without lining and connecting nut M10, ½" or 1"



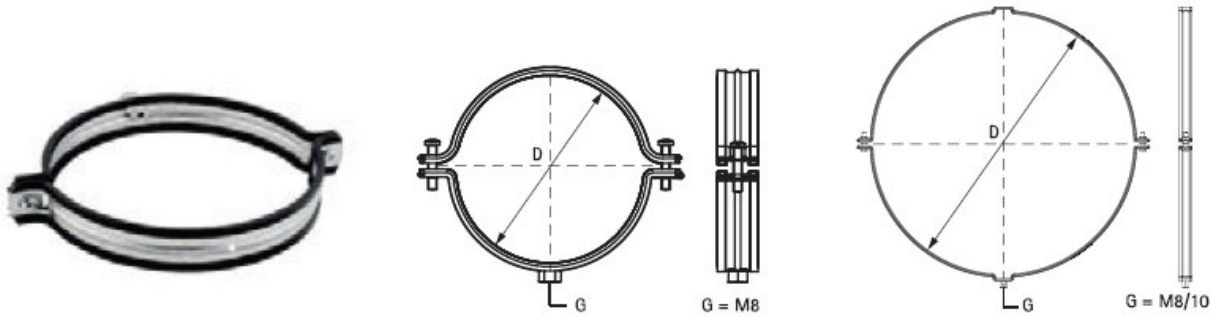
Pos.	Dimensions, mm					DN	G
	D	B	H	h	b x s		
1	32	75	50	30	30 x 3,0	25	M10
2	40	82	58	34	30 x 3,0	32	M10
3	50	92	69	39	30 x 3,0	40	M10
4	63	105	81	45	30 x 3,0	57	M10
5	75	117	94	51	30 x 3,0	70	M10
6	90	132	108	59	30 x 3,0	80	M10
7	110	152	128	69	30 x 3,0	100	M10
8	125	167	143	76	30 x 3,0	125	M10
9	160	202	178	92	30 x 3,0	150	M10
10	200	278	218	112	30 x 3,0	200	M10
11	200	278	251	147	30 x 3,0	200	1"
12	250	330	301	172	30 x 3,0	250	1"

Rys. A19. Clamps BIS 434, without lining and connecting nut M10 or 1"



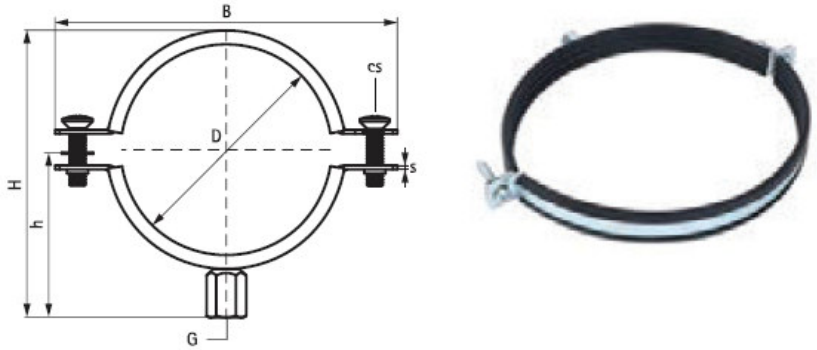
Pos.	Dimensions, mm					DN	D, "	G	cs
	D	B	H	h	b x s				
1	15 ÷ 18	49	38	22	20 x 1,00	10	⅜	M8	M6
2	20 ÷ 23	54	39	23	20 x 1,00	15	½	M8	M6
3	25 ÷ 28	59	44	26	20 x 1,00	20	¾	M8	M6
4	32 ÷ 35	65	51	30	20 x 1,00	25	1	M8	M6
5	40 ÷ 43	74	60	34	20 x 1,25	32	1¼	M8	M6
6	48 ÷ 51	82	66	37	20 x 1,25	40	1½	M8	M6
7	53 ÷ 56	85	76	42	20 x 1,25	-	-	M8	M6
8	59 ÷ 63	91	82	45	20 x 1,25	50	2	M8	M6
9	15 ÷ 18	49	44	30	20 x 1,00	10	⅜	M8/M10	M6
10	20 ÷ 23	54	47	31	20 x 1,00	15	½	M8/M10	M6
11	25 ÷ 28	59	52	34	20 x 1,00	20	¾	M8/M10	M6
12	32 ÷ 35	65	59	38	20 x 1,00	25	1	M8/M10	M6
13	40 ÷ 43	74	68	42	20 x 1,25	32	1¼	M8/M10	M6
14	48 ÷ 51	82	74	45	20 x 1,25	40	1½	M8/M10	M6
15	53 ÷ 56	85	84	50	20 x 1,25	-	-	M8/M10	M6
16	59 ÷ 63	91	90	53	20 x 1,25	50	2	M8/M10	M6

Rys. A20. Clamps BISMAT® Flash, with lining and connecting nut M8 or M8/M10



Pos.	D, mm	G
1	80	M8
2	100	M8
3	125	M8
4	140	M8
5	150	M8
6	160	M8
7	180	M8
8	200	M8
9	225	M8
10	250	M8
11	280	M8
12	300	M8
13	315	M8
14	355	M8
15	400	M8
16	450	M8/M10
17	500	M8/M10
18	560	M8/M10
19	600	M8/M10
20	630	M8/M10
21	710	-
22	800	-
23	900	-
24	1000	-

Rys. A21. Clamps BIS Aero, with lining and connecting nut M8 or M8/M10 or without nut



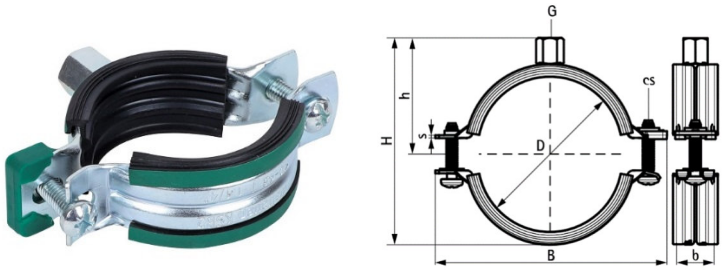
Pos.	D, mm	G	cs
1	80	M8/M10	M6
2	100	M8/M10	M6
3	112	M8/M10	M6

Rys. A22. Clamps Spiro, with lining and connecting nut M8/M10

Pos.	D, mm	G	cs

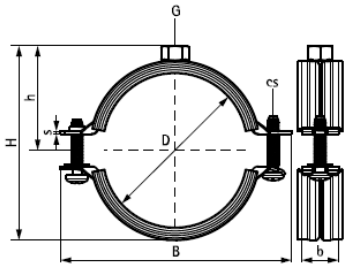
4	125	M8/M10	M6
5	140	M8/M10	M6
6	150	M8/M10	M6
7	160	M8/M10	M6
8	180	M8/M10	M6
9	200	M8/M10	M6
10	225	M8/M10	M6
11	250	M8/M10	M6
12	280	M8/M10	M6
13	300	M8/M10	M6
14	315	M8/M10	M6
15	355	M8/M10	M6
16	400	M8/M10	M6
17	450	M8/M10	M6
18	500	M8/M10	M6
19	560	M8/M10	M10
20	600	M8/M10	M10
21	630	M8/M10	M10

Rys. A22, c.d. Clamps Spiro, with lining and connecting nut M8/M10



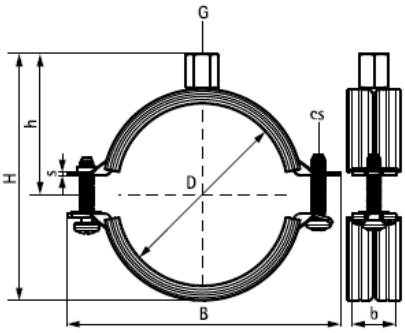
Pos.	Dimensions, mm					DN	D, "	G	cs
	D	B	H	h	b x s				
1	10 ÷ 14	59	42	30	20 x 1,25	8	⅛ ÷ ¼	M8/M10	M6
2	15 ÷ 19	63	46	31	20 x 1,25	10	⅜	M8/M10	M6
3	20 ÷ 23	68	51	33	20 x 1,25	15	½	M8/M10	M6
4	25 ÷ 28	74	57	36	20 x 1,25	20	¾	M8/M10	M6
5	31 ÷ 35	80	63	39	20 x 1,25	25	1	M8/M10	M6
6	36 ÷ 39	84	67	41	20 x 1,25	-	-	M8/M10	M6
7	40 ÷ 45	91	74	45	20 x 1,25	32	1¼	M8/M10	M6
8	48 ÷ 52	97	80	48	20 x 1,25	40	1½	M8/M10	M6
9	54 ÷ 58	104	87	51	20 x 1,25	-	-	M8/M10	M6
10	60 ÷ 64	109	92	54	20 x 1,25	50	2	M8/M10	M6
11	66 ÷ 70	118	100	58	20 x 1,50	-	-	M8/M10	M6
12	75 ÷ 79	125	108	62	20 x 1,50	65	2½	M8/M10	M6
13	80 ÷ 83	132	114	65	20 x 1,50	-	-	M8/M10	M6
14	88 ÷ 91	142	123	70	23 x 2,00	80	3	M8/M10	M6
15	100 ÷ 105	155	137	77	23 x 2,00	-	-	M8/M10	M6
16	108 ÷ 115	164	145	81	23 x 2,00	100	4	M8/M10	M6
17	125 ÷ 130	181	162	89	23 x 2,00	-	-	M8/M10	M6
18	133 ÷ 140	189	171	94	23 x 2,00	125	5	M8/M10	M6
19	152 ÷ 160	209	190	102	23 x 2,00	-	-	M8/M10	M6
20	165 ÷ 169	225	203	111	25 x 2,50	150	6	M8/M10	M8
21	176 ÷ 180	238	209	117	25 x 2,50	-	-	M8/M10	M8
22	192 ÷ 200	257	238	127	25 x 2,50	-	-	M8/M10	M8
23	205 ÷ 210	269	249	133	25 x 2,50	-	-	M8/M10	M8
24	219 ÷ 225	283	265	140	25 x 2,50	200	8	M8/M10	M8

Rys. A23. Clamps BIS KSB2



Pos.	Dimensions, mm					DN	D, "	G	cs
	D	B	H	h	b x s				
1	10 ÷ 14	51	32	20	20 x 1,00	6 ÷ 8	⅛ ÷ ¼	M8	M5
2	15 ÷ 19	56	37	22	20 x 1,00	10	⅜	M8	M5
3	20 ÷ 24	62	43	25	20 x 1,00	15	½	M8	M5
4	25 ÷ 30	69	50	29	20 x 1,00	20	¾	M8	M5
5	31 ÷ 37	75	56	32	20 x 1,00	25	1	M8	M5
6	38 ÷ 46	84	66	37	20 x 1,25	32	1¼	M8	M5
7	47 ÷ 52	93	75	41	20 x 1,25	40	1½	M8	M5
8	53 ÷ 61	99	81	44	20 x 1,25	50	2	M8	M5
9	62 ÷ 67	106	87	47	20 x 1,25	-	-	M8	M5

Rys. A24. Clamps BIS 2S, with lining and connecting nut M8

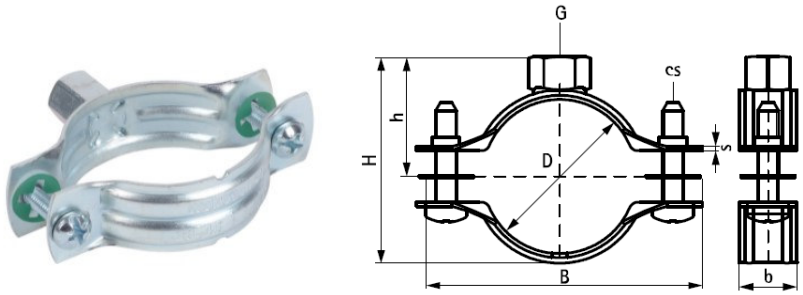


Pos.	Dimensions, mm					DN	D, "	G	cs
	D	B	H	h	b x s				
1	10 ÷ 14	51	40	28	20 x 1,00	6 ÷ 8	⅛ ÷ ¼	M8/M10	M5
2	15 ÷ 19	56	45	30	20 x 1,00	10	⅜	M8/M10	M5
3	20 ÷ 24	62	51	33	20 x 1,00	15	½	M8/M10	M5
4	25 ÷ 30	69	58	37	20 x 1,00	20	¾	M8/M10	M5
5	31 ÷ 37	75	64	40	20 x 1,00	25	1	M8/M10	M5
6	38 ÷ 46	84	74	45	20 x 1,25	32	1¼	M8/M10	M5
7	47 ÷ 52	93	83	49	20 x 1,25	40	1½	M8/M10	M5
8	53 ÷ 61	99	89	52	20 x 1,25	50	2	M8/M10	M5
9	62 ÷ 67	106	95	55	20 x 1,25	-	-	M8/M10	M5
10	68 ÷ 74	118	103	60	20 x 1,50	-	-	M8/M10	M6
11	75 ÷ 81	124	109	63	20 x 1,50	65	2½	M8/M10	M6
12	82 ÷ 87	130	115	66	20 x 1,50	-	-	M8/M10	M6
13	88 ÷ 95	143	127	72	23 x 2,00	80	3	M8/M10	M6
14	96 ÷ 103	153	136	76	23 x 2,00	-	-	M8/M10	M6
15	104 ÷ 112	159	142	79	23 x 2,00	-	-	M8/M10	M6
16	113 ÷ 118	168	151	84	23 x 2,00	100	4	M8/M10	M6
17	119 ÷ 127	178	161	89	23 x 2,00	-	-	M8/M10	M6
18	128 ÷ 137	185	168	92	23 x 2,00	-	-	M8/M10	M6
19	138 ÷ 144	194	177	97	23 x 2,00	125	5	M8/M10	M6
20	145 ÷ 153	203	186	101	23 x 2,00	-	-	M8/M10	M6

Rys. A25. Clamps BIS 2S, with lining and connecting nut M8/M10

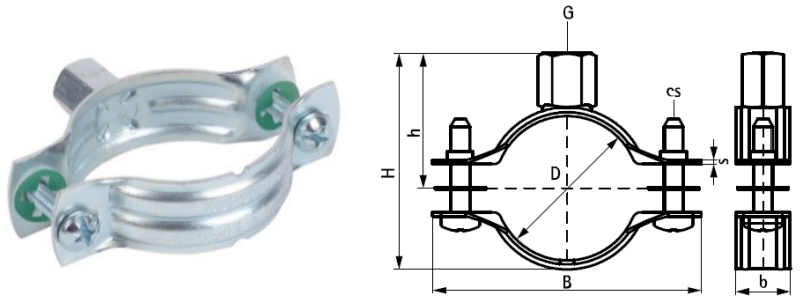
Pos.	Dimensions, mm					DN	D, "	G	cs
	D	B	H	h	b x s				
21	154 ÷ 162	211	194	105	25 x 2,50	-	-	M8/M10	M6
22	163 ÷ 172	227	210	114	25 x 2,50	150	6	M8/M10	M6
23	173 ÷ 183	239	221	120	25 x 2,50	-	-	M8/M10	M6
24	184 ÷ 194	249	232	125	25 x 2,50	-	-	M8/M10	M6
25	195 ÷ 205	260	243	130	25 x 2,50	-	-	M8/M10	M6
26	206 ÷ 216	271	253	136	25 x 2,50	-	-	M8/M10	M6
27	217 ÷ 225	279	261	140	25 x 2,50	200	8	M8/M10	M6

Rys. A25, c.d. Clamps BIS 2S, without lining and connecting nut M8/M10



Pos.	Dimensions, mm					DN	D, "	G	cs
	D	B	H	h	b x s				
1	10 ÷ 14	46	27	17	20 x 1,00	6 ÷ 8	⅛ ÷ ¼	M8	M5
2	15 ÷ 19	51	32	20	20 x 1,00	10	⅜	M8	M5
3	20 ÷ 24	56	37	22	20 x 1,00	15	½	M8	M5
4	25 ÷ 30	62	43	25	20 x 1,00	20	¾	M8	M5
5	31 ÷ 37	69	50	29	20 x 1,00	25	1	M8	M5
6	38 ÷ 46	78	60	34	20 x 1,25	32	1¼	M8	M5
7	47 ÷ 52	84	66	37	20 x 1,25	40	1½	M8	M5
8	53 ÷ 61	93	75	41	20 x 1,25	50	2	M8	M5
9	62 ÷ 67	99	81	44	20 x 1,25	-	-	M8	M5

Rys. A26. Clamps BIS 2S, without lining and connecting nut M8

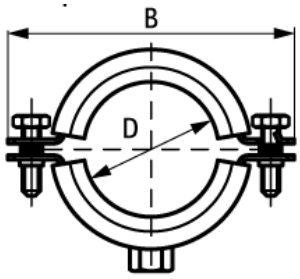


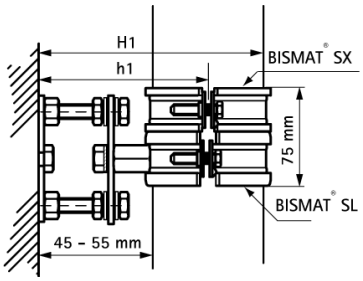
Pos.	Dimensions, mm					DN	D, "	G	cs
	D	B	H	h	b x s				
1	10 ÷ 14	46	35	25	20 x 1,00	6 ÷ 8	⅛ ÷ ¼	M8/M10	M5
2	15 ÷ 19	51	40	28	20 x 1,00	10	⅜	M8/M10	M5
3	20 ÷ 24	56	45	30	20 x 1,00	15	½	M8/M10	M5
4	25 ÷ 30	62	51	33	20 x 1,00	20	¾	M8/M10	M5
5	31 ÷ 37	69	58	37	20 x 1,00	25	1	M8/M10	M5
6	38 ÷ 46	78	68	42	20 x 1,25	32	1¼	M8/M10	M5
7	47 ÷ 52	84	74	45	20 x 1,25	40	1½	M8/M10	M5
8	53 ÷ 61	93	83	49	20 x 1,25	50	2	M8/M10	M5

Rys. A27. Clamps BIS 2S, without lining and connecting nut M8/M10

Pos.	Dimensions, mm					DN	D, "	G	cs
	D	B	H	h	b x s				
9	62 ÷ 67	99	89	53	20 x 1,25	-	-	M8/M10	M5
10	68 ÷ 74	111	96	56	20 x 1,50	-	-	M8/M10	M6
11	75 ÷ 81	118	103	60	20 x 1,50	65	2½	M8/M10	M6
12	82 ÷ 87	124	109	63	20 x 1,50	-	-	M8/M10	M6
13	88 ÷ 95	136	119	68	23 x 2,00	80	3	M8/M10	M6
14	96 ÷ 103	143	127	72	23 x 2,00	-	-	M8/M10	M6
15	104 ÷ 112	153	136	76	23 x 2,00	-	-	M8/M10	M6
16	113 ÷ 118	159	142	79	23 x 2,00	100	4	M8/M10	M6
17	119 ÷ 127	168	151	84	23 x 2,00	-	-	M8/M10	M6
18	128 ÷ 137	178	161	89	23 x 2,00	-	-	M8/M10	M6
19	138 ÷ 144	185	168	92	23 x 2,00	125	5	M8/M10	M6
20	145 ÷ 153	194	177	97	23 x 2,00	-	-	M8/M10	M6
21	154 ÷ 162	203	186	101	25 x 2,50	-	-	M8/M10	M6
22	163 ÷ 172	217	199	109	25 x 2,50	150	6	M8/M10	M6
23	173 ÷ 183	227	210	114	25 x 2,50	-	-	M8/M10	M6
24	184 ÷ 194	239	221	120	25 x 2,50	-	-	M8/M10	M6
25	195 ÷ 205	249	232	125	25 x 2,50	-	-	M8/M10	M6
26	206 ÷ 216	260	243	130	25 x 2,50	-	-	M8/M10	M6
27	217 ÷ 225	271	253	136	25 x 2,50	200	8	M8/M10	M6

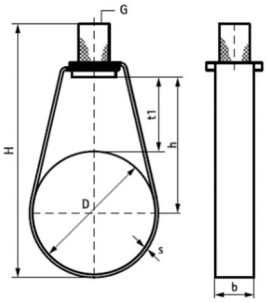
Rys. A27, c.d. Clamps BIS 2S, without lining and connecting nut M8/M10





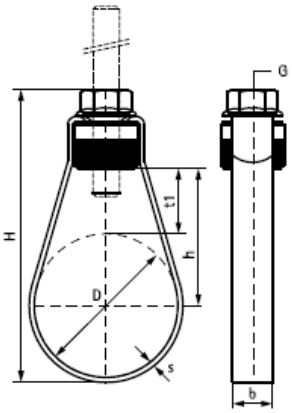
Pos.	Dimensions, mm				DN	Type
	D	B	H1	h1		
1	75	144	140 ÷ 150	93 ÷ 102	70	KA
2	78	154	140 ÷ 150	93 ÷ 103	70	GA
3	83	144	143 ÷ 153	94 ÷ 104	80	GA
4	89	164	147 ÷ 154	102 ÷ 109	80	KA / GA
5	110	176	175 ÷ 185	110 ÷ 120	100	KA / GA
6	125	192	190 ÷ 200	118 ÷ 128	125	KA
7	160	233	235 ÷ 245	137 ÷ 147	150	KA / GA
8	210	284	280 ÷ 290	162 ÷ 172	200	GA
KA – plasrtic pipes; GA – cast iron pipes						

Rys. A28. Clamps BIS BISMAT® 1000 with lining



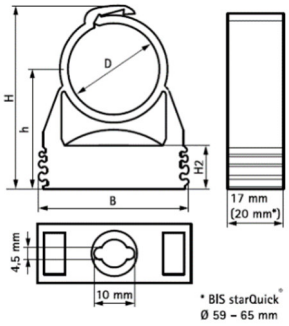
Pos.	Dimensions, mm					DN	D, "	G
	D	t1	H	h	b x s			
1	23	40	86	51	16 x 1,0	15	½	M10
2	28	34	86	48	16 x 1,0	20	¾	M10
3	35	30	89	48	16 x 1,0	25	1	M10
4	44	30	98	52	16 x 1,0	32	1¼	M10
5	50	31	105	56	16 x 1,0	40	1½	M10
6	62	30	117	61	16 x 1,0	50	2	M10
7	77	29	130	68	22 x 2,0	65	2½	M10
8	90	28	143	74	22 x 2,0	80	3	M10
9	115	35	175	93	22 x 2,0	100	4	M10
10	142	40	213	111	25 x 3,0	125	5	M12
11	170	48	250	132	25 x 3,0	150	6	M12
12	221	56	312	167	25 x 3,0	200	8	M12

Rys. A29. Clamps BIS TA 41



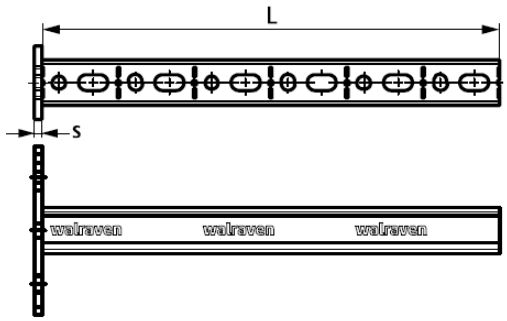
Pos.	Dimensions, mm					DN	D, "	G
	D	t1	H	h	b x s			
1	26,9	43	71	56	12 x 1,5	20	¾	M8
2	33,7	44	79	61	12 x 1,5	25	1	M8
3	42,4	45	89	66	12 x 1,5	32	1¼	M8
4	48,3	47	97	71	12 x 1,5	40	1½	M8
5	60,3	50	112	80	12 x 1,5	50	2	M8
6	33,7	46	81	63	12 x 1,5	25	1	M10
7	42,4	47	91	68	12 x 1,5	32	1¼	M10
8	48,3	58	108	82	12 x 1,5	40	1½	M10
9	60,3	52	114	82	12 x 1,5	50	2	M10
10	76,1	61	140	99	15 x 2,5	65	2½	M10
11	88,9	70	161	114	15 x 2,5	80	3	M10
12	114,3	87	204	144	15 x 2,5	100	4	M10
13	139,7	91	233	161	15 x 2,5	125	5	M12
14	168,3	105	276	189	15 x 2,5	150	6	M12
15	219,1	131	353	241	25 x 2,5	200	8	M16

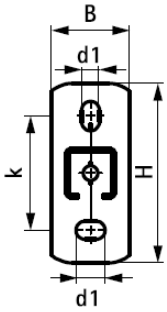
Rys. A30. Clamps Walraven



Pos.	Dimensions, mm					DN	D, "
	D	B	H	h	H2		
1	10 ÷ 12	29	32	23	10,5	6	⅛
2	12 ÷ 14	29	34	23	10,5	8	¼
3	14 ÷ 16	29	36	24	10,5	-	-
4	16 ÷ 20	29	40	26	10,5	10	⅜
5	20 ÷ 23	29	44	27	10,5	15	½
6	24 ÷ 28	40	50	31	10,5	20	¾
7	28 ÷ 32	40	53	32	10,5	-	-
8	32 ÷ 35	43	57	34	10,5	25	1
9	35 ÷ 40	47	66	41	12,0	-	-
10	40 ÷ 44	52	70	42	12,0	32	1¼
11	44 ÷ 50	57	76	45	12,0	-	-
12	48 ÷ 55	63	81	47	12,0	40	1½
13	59 ÷ 65	74	94	55	12,0	50	2

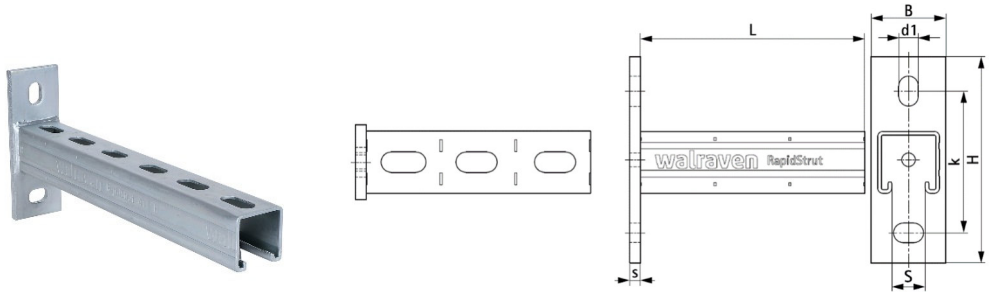
Rys. A31. Clamps StarQuick®





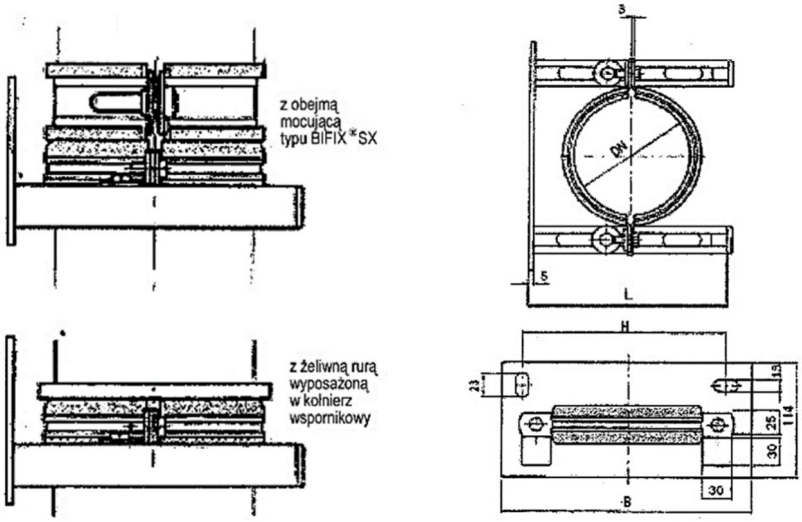
Pos.	Marking	Dimensions, mm						
		L	B	H	s	d1	S	k
1	BIS RapidRail® 27x18	150	38	110	4,0	16 x 11	15	70
2	BIS RapidRail® 27x18	200	38	110	4	16 x 11	15	70
3	BIS RapidRail® 27x18	300	38	110	4,0	16 x 11	15	70
4	BIS RapidRail® 27x18	500	38	110	4,0	16 x 11	15	70
5	BIS RapidRail® 30x15	200	38	110	4,0	16 x 11	15	70
6	BIS RapidRail® 30x15	300	38	110	4,0	16 x 11	15	70
7	BIS RapidRail® 30x20	150	38	110	4,0	16 x 11	15	70
8	BIS RapidRail® 30x20	200	38	110	4,0	16 x 11	15	70
9	BIS RapidRail® 30x20	250	38	110	4,0	16 x 11	15	70
10	BIS RapidRail® 30x30	200	48	110	5,0	18 x 11	15	70
11	BIS RapidRail® 30x30	250	48	110	5,0	18 x 11	15	70
12	BIS RapidRail® 30x30	300	48	110	5,0	18 x 11	15	70
13	BIS RapidRail® 30x30	400	48	110	5,0	18 x 11	15	70
14	BIS RapidRail® 30x30	500	48	110	5,0	18 x 11	15	70

Rys. A32. Cantilever arms BIS RapidRail®



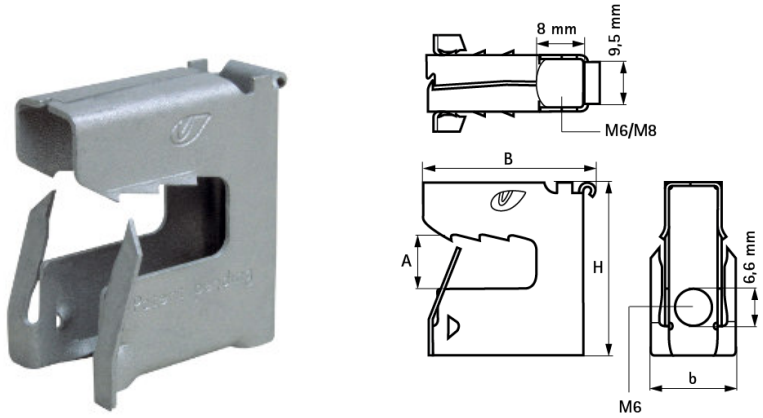
Pos.	Marking	Dimensions, mm						
		L	B	H	s	d1	S	k
1	BIS RapidStrut® 21 H	200	50	110	5,0	18 x 11	22	70
2	BIS RapidStrut® 21 H	300	50	110	5,0	18 x 11	22	70
3	BIS RapidStrut® 21 H	450	50	110	5,0	18 x 11	22	70
4	BIS RapidStrut® 21 H	600	50	110	5,0	18 x 11	22	70
5	BIS RapidStrut® 41 M	300	50	137,5	7,0	20 x 13	22	95
6	BIS RapidStrut® 41 M	450	50	137,5	7,0	20 x 13	22	95
7	BIS RapidStrut® 41 M	600	50	137,5	7,0	20 x 13	22	95
8	BIS RapidStrut® 41 H	150	50	137,5	7,0	20 x 13	22	95
9	BIS RapidStrut® 41 H	200	50	137,5	7,0	20 x 13	22	95
10	BIS RapidStrut® 41 H	300	50	137,5	7,0	20 x 13	22	95
11	BIS RapidStrut® 41 H	400	50	137,5	7,0	20 x 13	22	95
12	BIS RapidStrut® 41 H	450	50	137,5	7,0	20 x 13	22	95
13	BIS RapidStrut® 41 H	500	50	137,5	7,0	20 x 13	22	95
14	BIS RapidStrut® 41 H	600	50	137,5	7,0	20 x 13	22	95
15	BIS RapidStrut® 41 H	750	50	137,5	7,0	20 x 13	22	95
16	BIS RapidStrut® 41 H	1000	50	137,5	7,0	20 x 13	22	95
17	BIS RapidStrut® 41 H	1200	50	137,5	7,0	20 x 13	22	95

Rys. A33. Cantilever arms BIS RapidStrut®



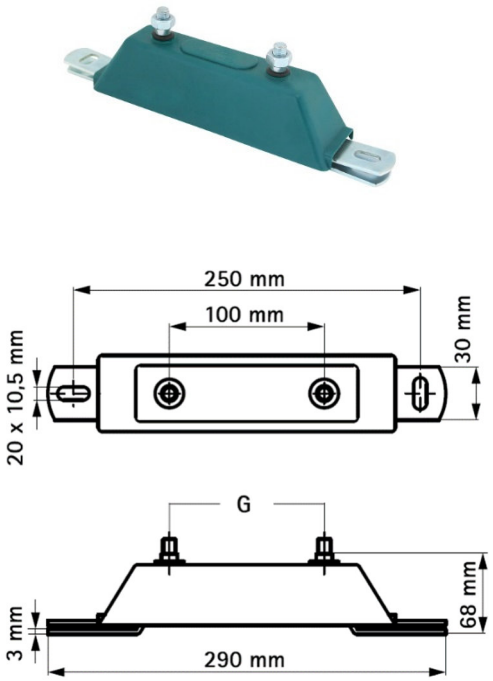
Pos.	DN	Dimensions, mm		
		B	H	L
1	70	212	167	210
2	100	244	199	210
3	125	269	224	210
4	150	293	248	210
5	200	343	298	250

Rys. A34. Cantilevers BIS

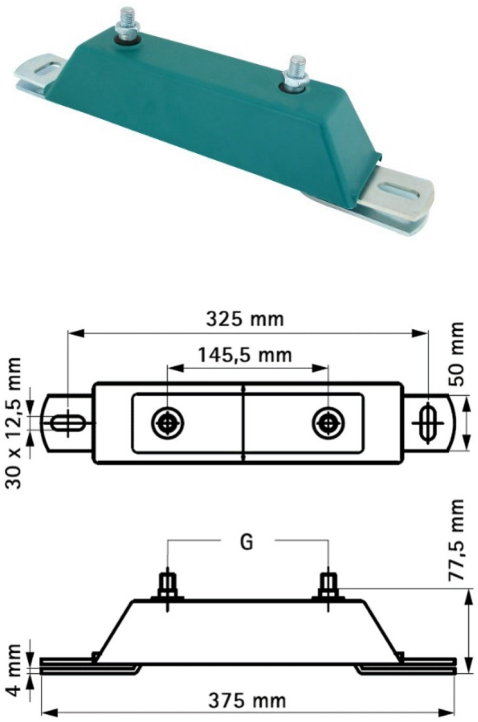


Pos.	Marking	Dimensions, mm		
		A	B	H
1	TIGER 8R	2 ÷ 8	30	30
2	TIGER 8	2 ÷ 8	30	30
3	TIGER 8B	2 ÷ 8	30	30
4	TIGER 16R	8 ÷ 16	32	38
5	TIGER 16	8 ÷ 16	32	38
6	TIGER 16B	8 ÷ 16	32	38
7	TIGER 24R	16 ÷ 24	42	48
8	TIGER 24	16 ÷ 24	42	48
9	TIGER 24B	16 ÷ 24	42	48

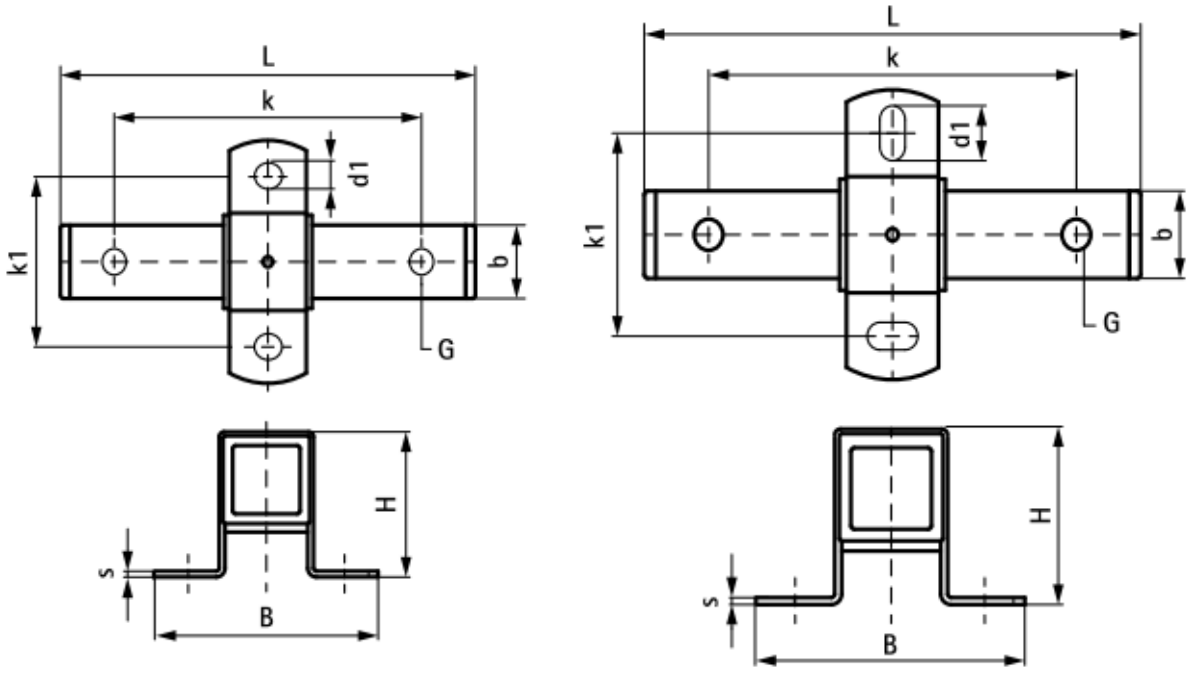
Rys. A35. Clamps BISCLIPS® TIGER



Rys. A36. Fixpoints BIS dB-Fix® 80



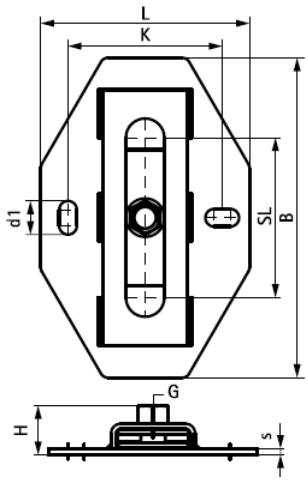
Rys. A37. Fixpoints BIS dB-Fix® 200



FG2 **FG3**

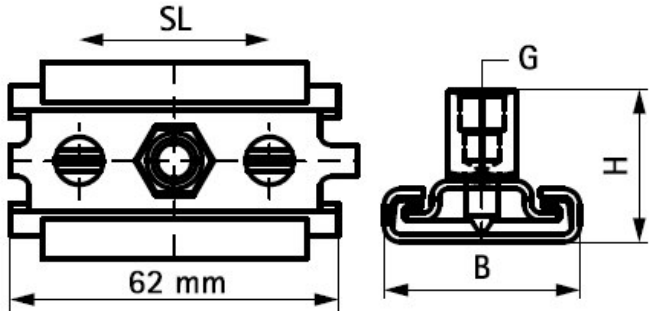
Pos.	Marking	G	Dimensions, mm								
			L	B	H	b	s	d1	k	k1	SL_{max}
1	FG2	M10/M12	170	135	46	35	3,0	Ø13	120	100	60
2	FG3	Ø13/ Ø17	255	146	90	40	5,0	20 x 13	200	100	120

Rys. A38. Expansion guides BIS



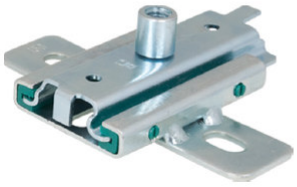
Pos.	Dimensions, mm							G
	B	H	s	d1	k	L	SL_{max}	
1	200	30,5	4,0	21 x 11	96	130	100	M8/M10
2	200	32,5	4,0	21 x 11	96	130	100	M10/M12
3	200	30,5	4,0	21 x 11	96	130	100	M16

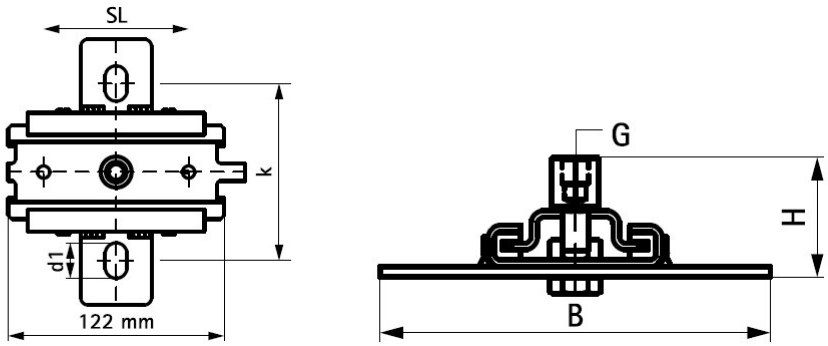
Rys. A39. Expansion devices BIS - single



Pos.	Dimensions, mm				G
	B	H	d1	SL_{max}	
1	37	29	8,4	42	M8/M10

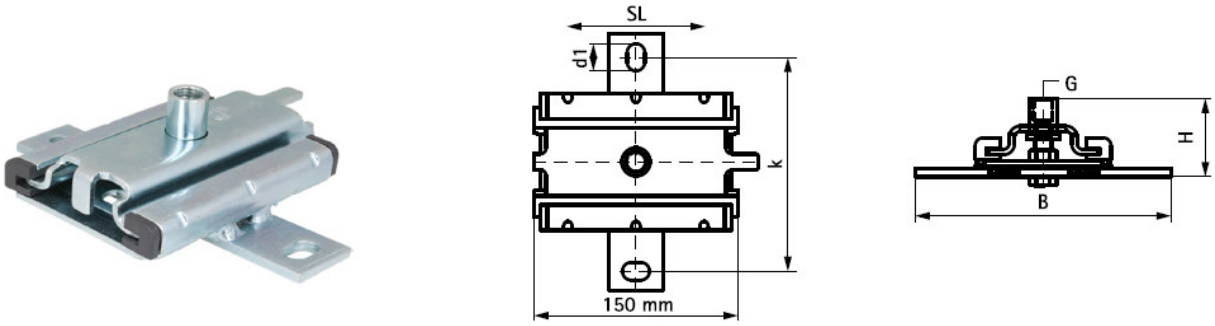
Rys. A40. Expansion devices BIS - single





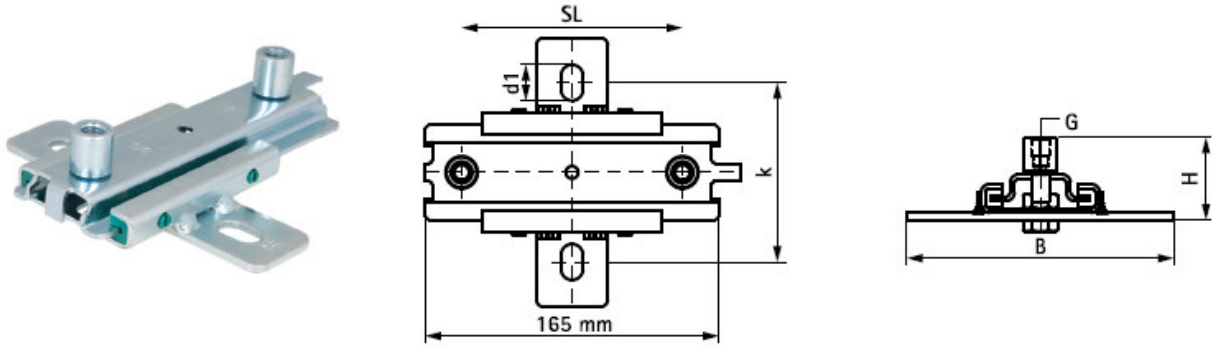
Pos.	Dimensions, mm					G
	B	H	d1	k	SL_{max}	
1	150	46	20 x 12,5	100	80	M10/M12

Rys. A41. Expansion devices BIS - single



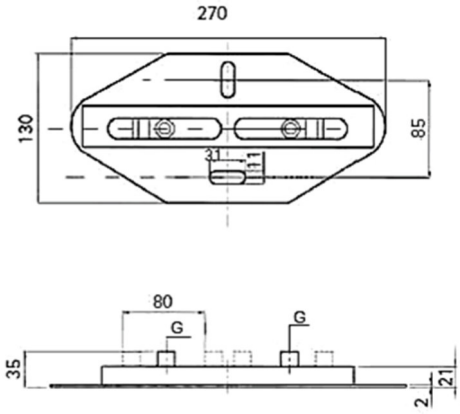
Pos.	Dimensions, mm					G
	B	H	d1	k	SL_{max}	
1	188	57	20 x 12,5	157	120	M12/M16

Rys. A42. Expansion devices BIS - single



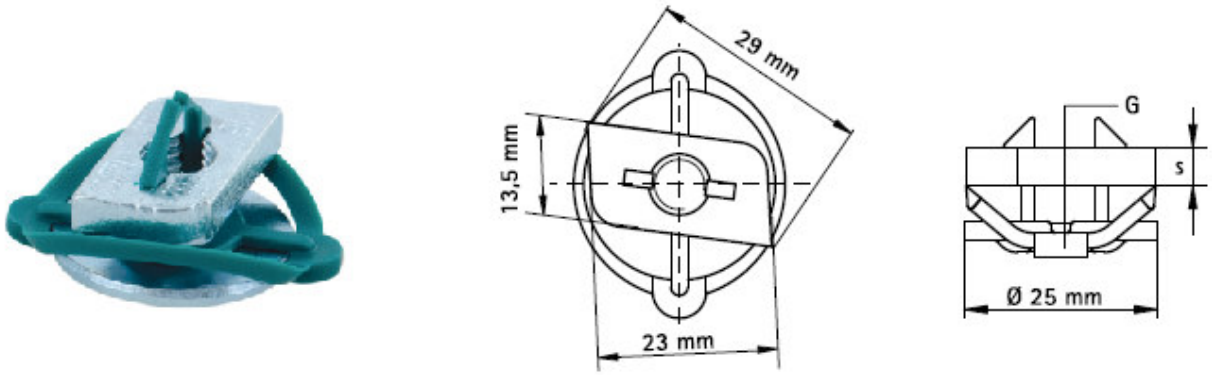
Poz.	Dimensions, mm					G
	B	H	d1	k	SL_{max}	
1	150	46	20 x 12,5	100	140	M10/M12

Rys. A43. Expansion devices BIS - double



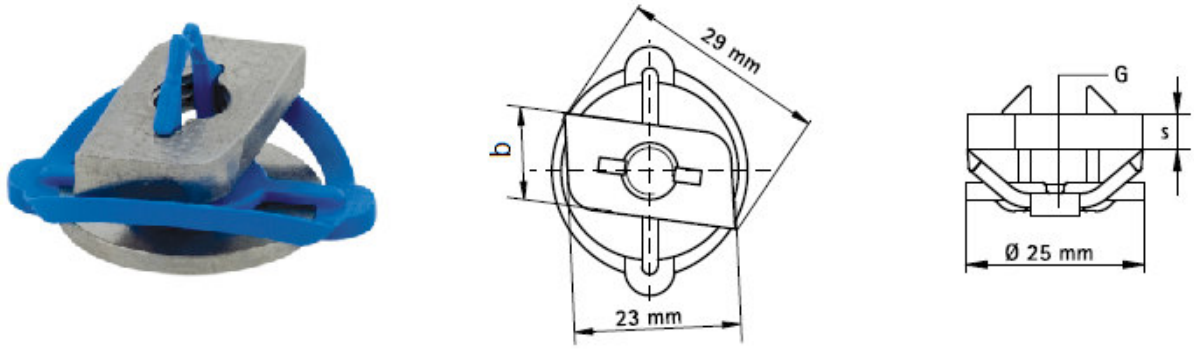
Poz.	Sliding range SL_{max}, mm	G
1	80	M8/M10

Rys. A44. Expansion devices BIS - double



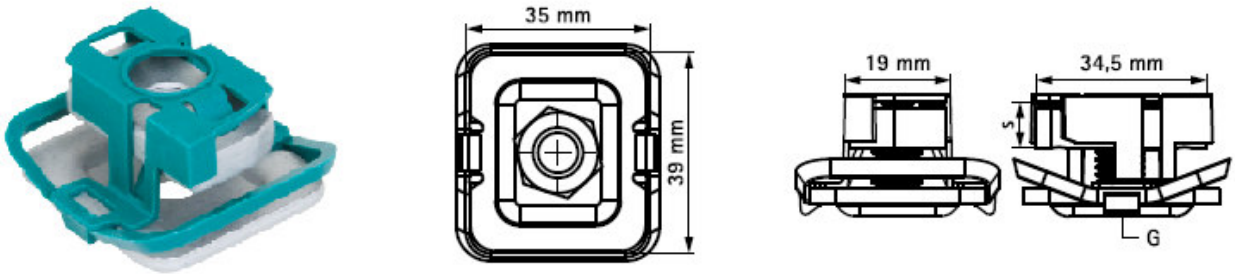
Pos.	s, mm	G	T_{inst}, Nm
1	4,0	M6	7,5
2	5,0	M8	10,0
3	5,0	M10	10,0

Rys. A45. Sliding nuts BIS RapidRail®



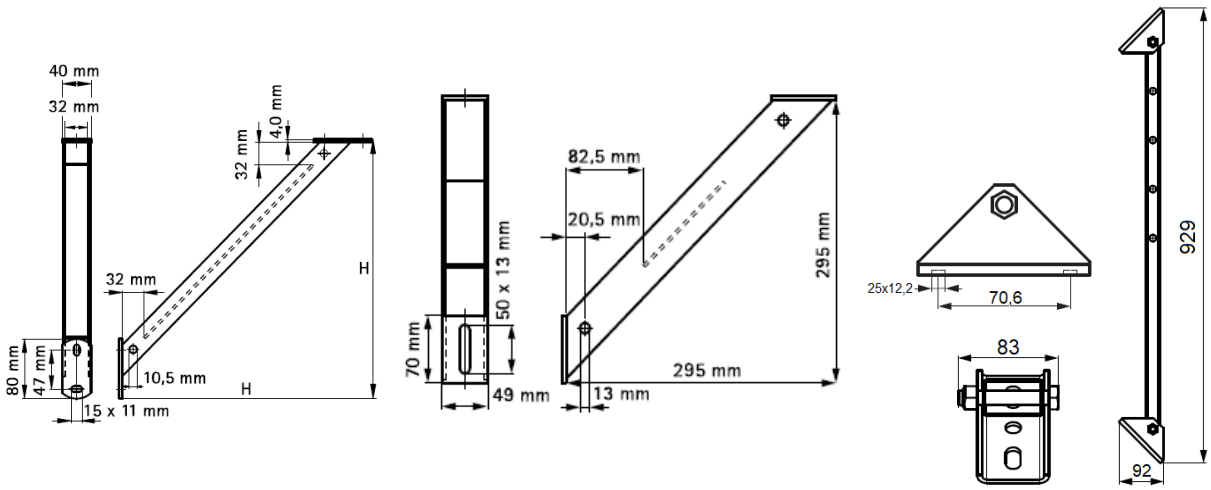
Pos.	b x s, mm	G	T_{inst}, Nm
1	13,5 x 4,0	M6	7,5
2	13,5 x 5,0	M8	10,0
3	14,0 x 5,0	M10	10,0

Rys. A46. Sliding nuts BIS RapidRail® STN



Pos.	s, mm	G	T_{inst}, Nm
1	5,0	M6	7,0
2	6,0	M8	11,0
3	8,0	M10	15,0
4	9,0	M12	22,0

Rys. A47. Sliding nuts BIS RapidStrut® G2

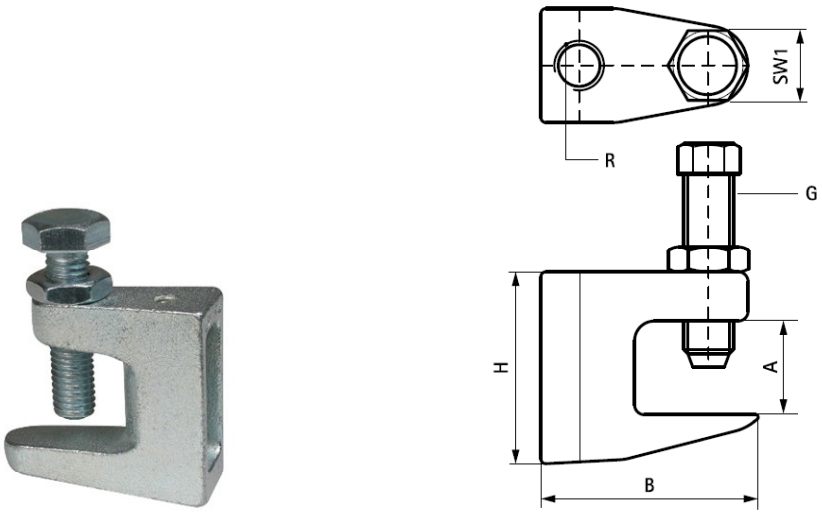


Type A **Type B** **Type C**

Pos.	Type	H, mm	Dedicated for rail type
1	A	250	BIS RapidRail® WM0 BIS RapidRail® WM1 BIS RapidRail® WM15 BIS RapidRail® WM2
2	A	350	BIS RapidRail® WM0 BIS RapidRail® WM1 BIS RapidRail® WM15 BIS RapidRail® WM2
3	B	-	BIS RapidStrut® 41 x (2 x 21) BIS RapidStrut® 41 x (2 x 41) BIS RapidStrut® 41 x (2 x 62) BIS RapidStrut® 41 x (2 x 82)
4	C	-	BIS RapidStrut® 41 x (2 x 21) BIS RapidStrut® 41 x (2 x 41) BIS RapidStrut® 41 x (2 x 62) BIS RapidStrut® 41 x (2 x 82)

Rys. A48. Rail props BIS RapidRail® i BIS RapidStrut®

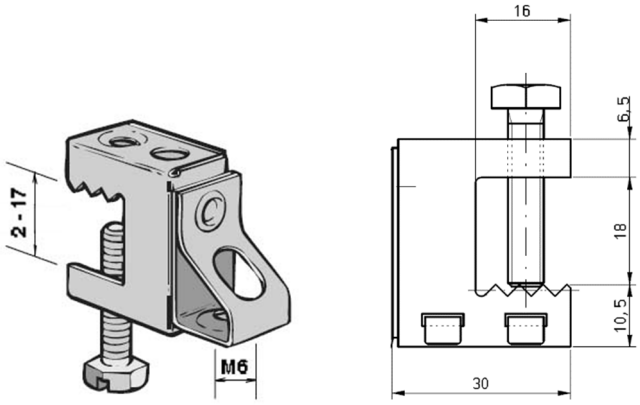
(dimensions in mm)



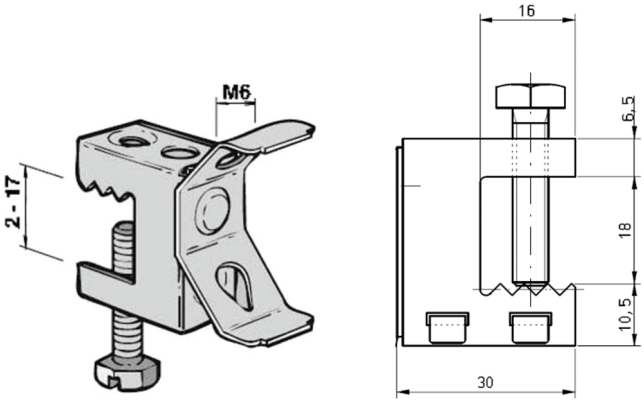
Rys. A49. Beam clamps model C

Pos.	Dimensions, mm				G	R
	A	B	H	SW1		
1	≤ 18	38	35	13	M8	M6
2	≤ 23	50	45	17	M10	M6
3	≤ 18	38	35	13	M8	M8
4	≤ 23	50	45	17	M10	M8
5	≤ 20	44	42	17	M10	M10
6	≤ 28	58	58	19	M12	M10
7	≤ 26	58	54	17	M10	M12
8	≤ 28	58	58	19	M12	M16
9	≤ 18	38	35	13	M8	Ø9
10	≤ 23	50	45	17	M10	Ø9
11	≤ 20	44	42	17	M10	Ø11
12	≤ 26	58	54	17	M10	Ø13

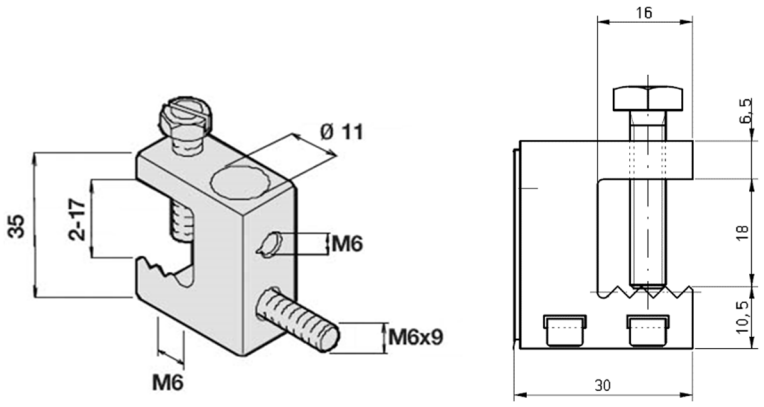
Rys. A51, c.d. Beam clamps model C



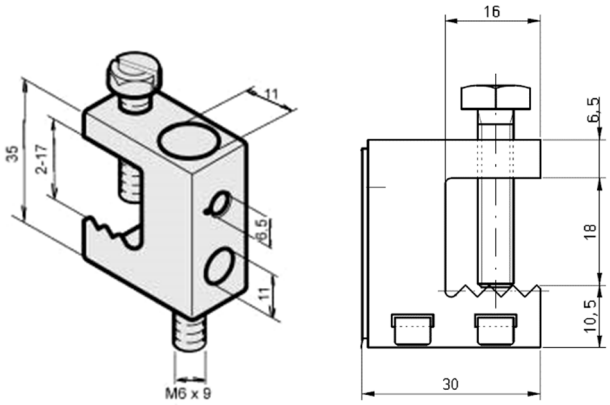
Rys. A50. Clamps BISCLIPS® SB-ICTM
(dimensions in mm)



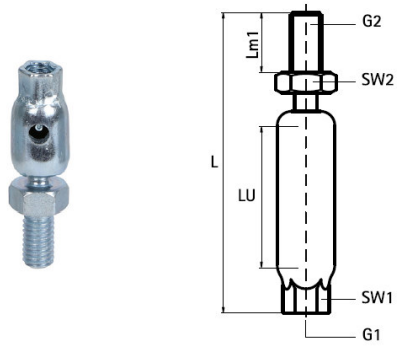
Rys. A51. Clamps BISCLIPS® SB-TRM
(dimensions in mm)



Rys. A52. Clamps BISCLIPS® SB-M i SB-M-B
(dimensions in mm)

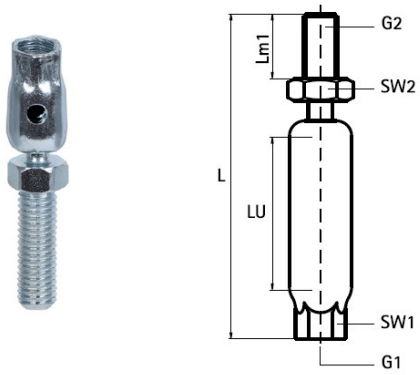


Rys. A53. Clamps BISCLIPS® SB-VM i SB-VM-B
(dimensions in mm)



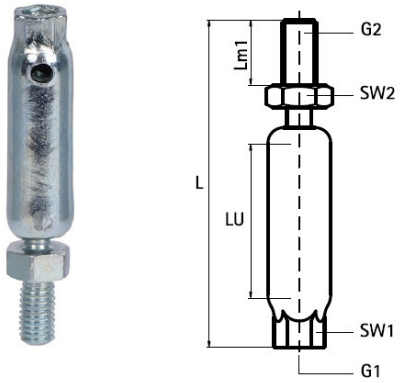
Pos.	Dimensions, mm					G1	G2
	L	LU	Lm1	SW1	SW2		
1	49	7	15	10	13	M8	M8
2	49	7	15	12	13	M10	M10

Rys. A54. Swivel hangers BIS



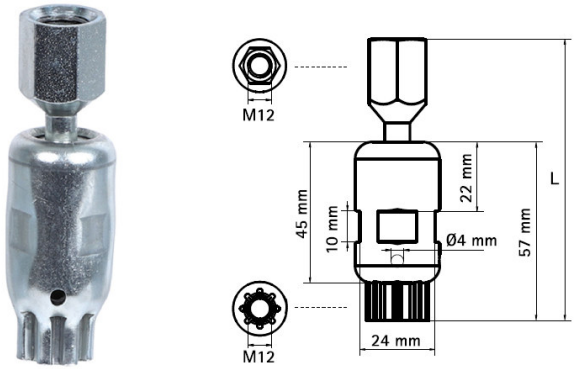
Pos.	Dimensions, mm					G1	G2
	L	LU	Lm1	SW1	SW2		
1	64	7	30	12	13	M10	M10

Rys. A55. Swivel hangers BIS



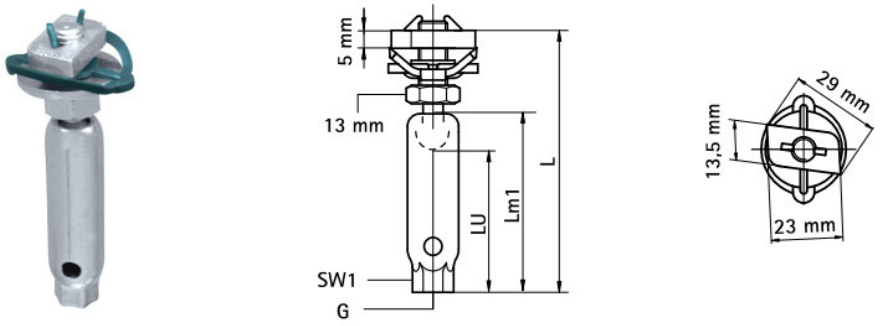
Pos.	Dimensions, mm					G1	G2
	L	LU	Lm1	SW1	SW2		
1	79	32	20	10	13	M8	M8
2	79	32	20	12	13	M10	M10

Rys. A56. Swivel hangers BIS



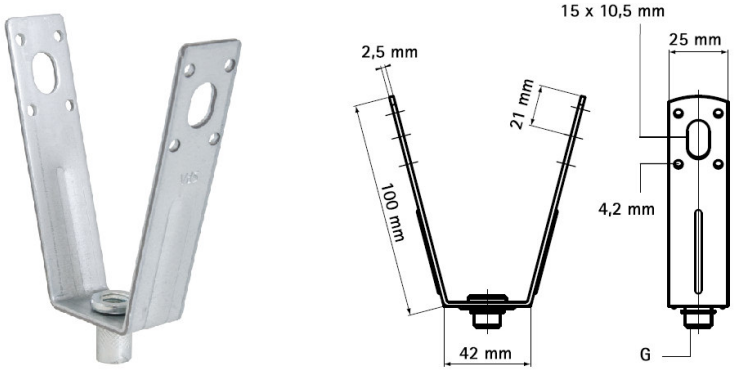
Pos.	Dimensions, mm				G1	G2
	L	LU	SW1	SW2		
1	90	30	24	19	M12	M12

Rys. A57. Swivel hangers BIS



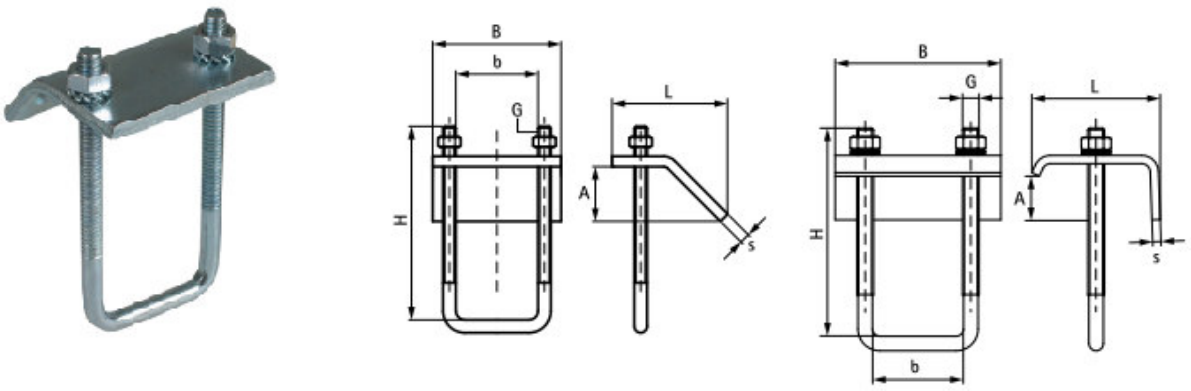
Pos.	Dimensions, mm				G	T_{inst}, Nm
	L	LU	Lm1	SW1		
1	45	18	25	10	M8	15,0
2	70	43	50	10	M8	15,0
3	45	18	25	12	M10	15,0
4	70	43	50	12	M10	15,0

Rys. A58. Swivel hammerfix BIS RapidRail®



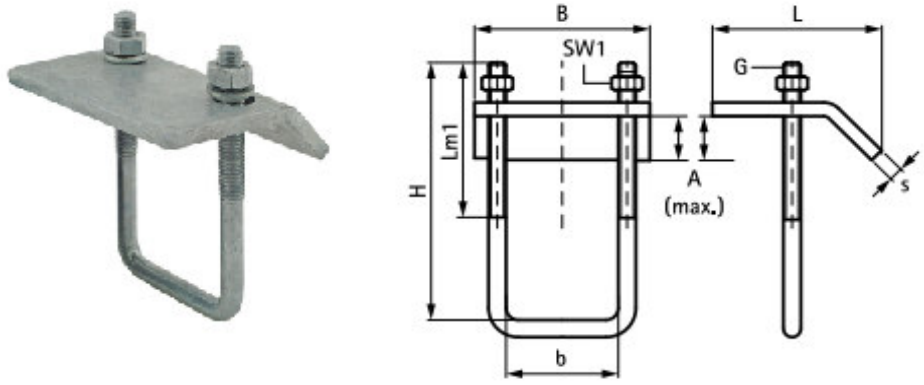
G = Ø13,0 mm, M8 lub M10

Rys. A59. Trapezoidal sheet hangers



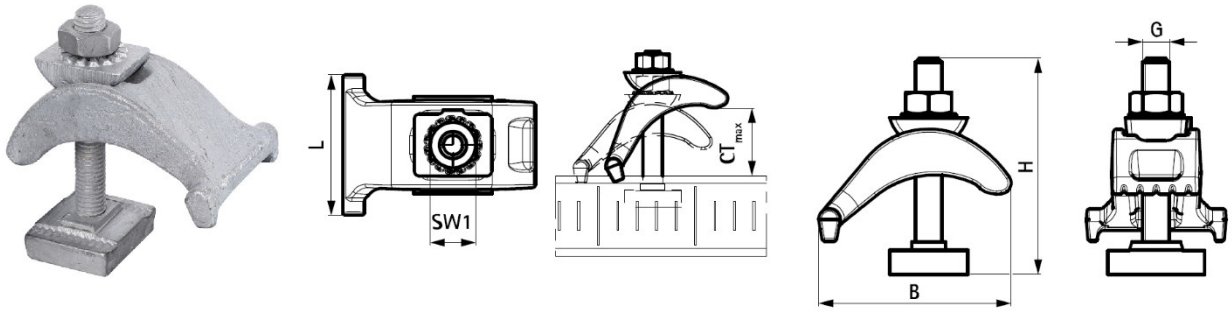
Pos.	Dimensions, mm						G	T_{inst}, Nm
	A	L	B	H	b	s		
1	< 16	45,0	50	75	31	4,0	M6	15,0
2	< 20	60,9	80	100	44	4,0	M8	15,0

Rys. A60. Beam clamps RapidRail®



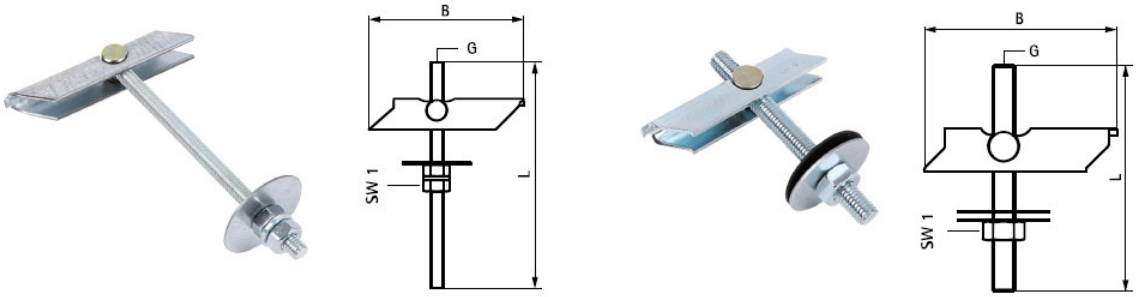
Pos.	Dimensions, mm								G	T_{inst}, Nm
	A	L	B	H	b	s	Lm1	SW1		
1	17,5	69	80	90	-	5,5	60	17	M10	15
2	20,0	69	80	130	44	6,0	75	17	M10	15

Rys. A61. Beam clamps RapidStrut®



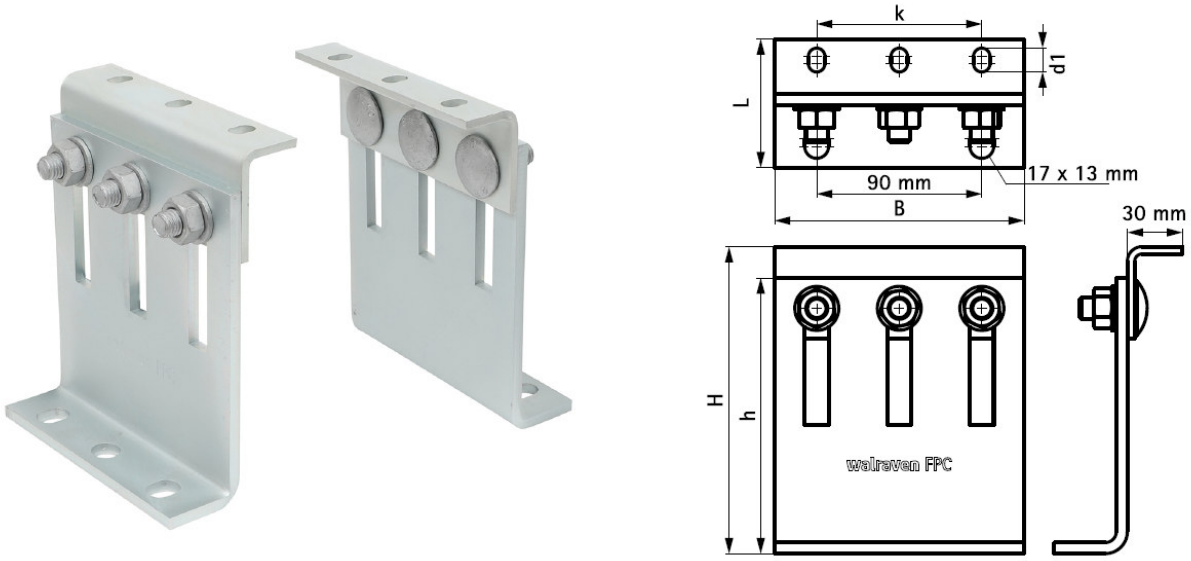
Pos.	Dimensions, mm					G	T_{inst}, Nm
	L	B	H	CT_{max}	SW1		
1	52	72	80	35	17	M10	30,0

Rys. A62. Beam clamps RapidStrut® HD



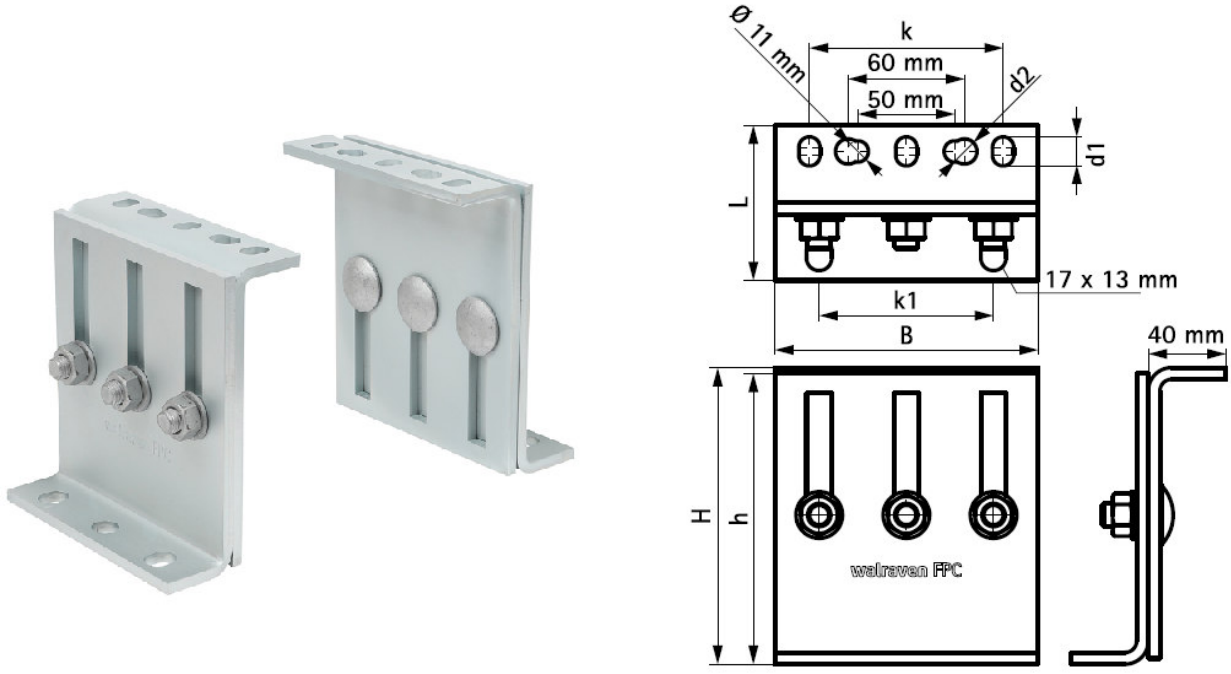
Poz.	Wymiary, mm				G
	L	B	H	SW1	
1	100	68,5	17	10	M6
2	100	74,0	20	13	M8
3	100	84,0	25	17	M10

Rys. A63. Dyble przechylne BIS



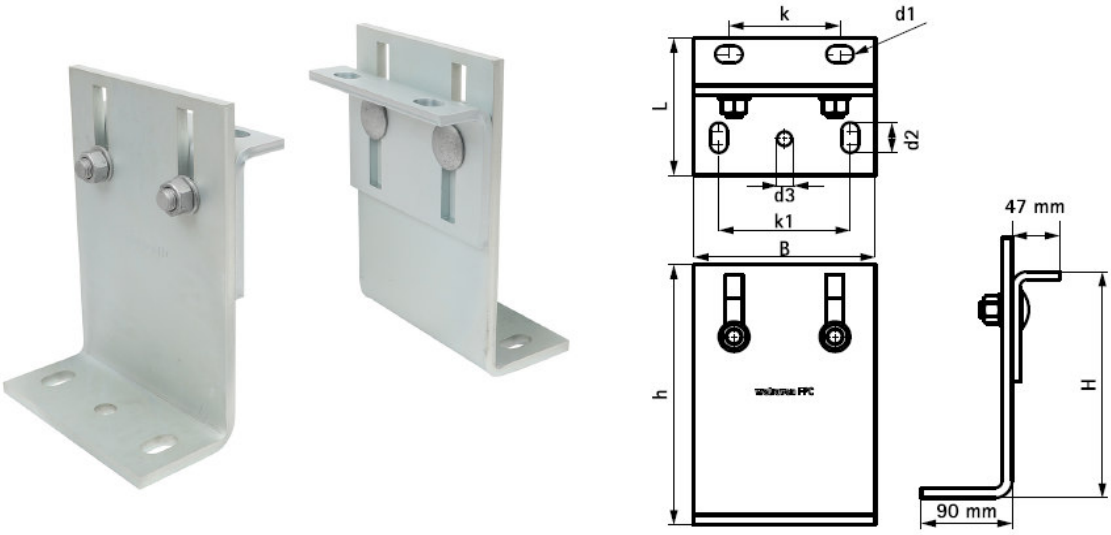
Pos.	Dimensions, mm					
	L	B	H	h	d1	k
1	70	136	110 ÷ 167	150	13 x 9	90

Rys. A64. Fixpoint consoles BIS FIX (light)



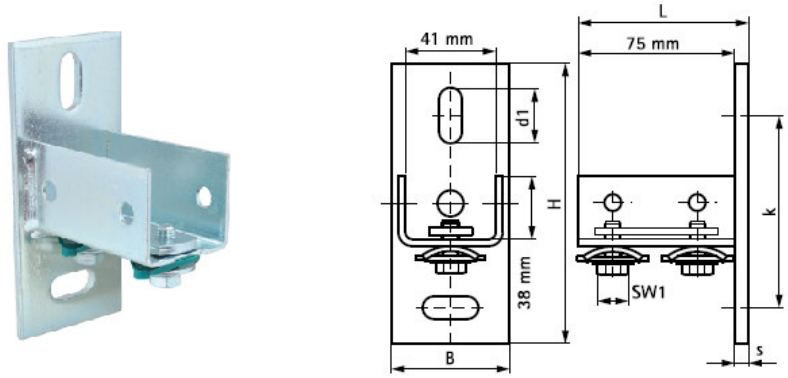
Pos.	Dimensions, mm							
	L	B	H	h	d1	d2	k	k1
1	80	136	153 ÷ 268	150	15 x 11	13,0	100	90

Rys. A65. Fixpoints consoles BIS FIX (medium)



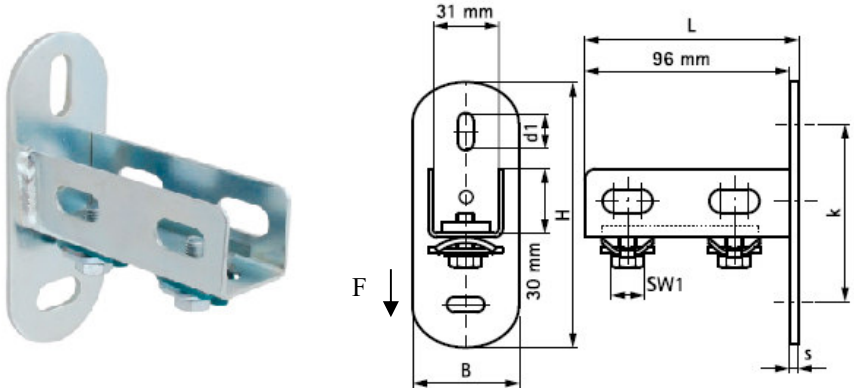
Pos.	Dimensions, mm								
	L	B	H	h	d1	d2	d3	k	k1
1	137	180	226 ÷ 333	260	27 x 17	30 x 17	17,0	110	130

Rys. A66. Fixpoint consoles BIS FIX (heavy)



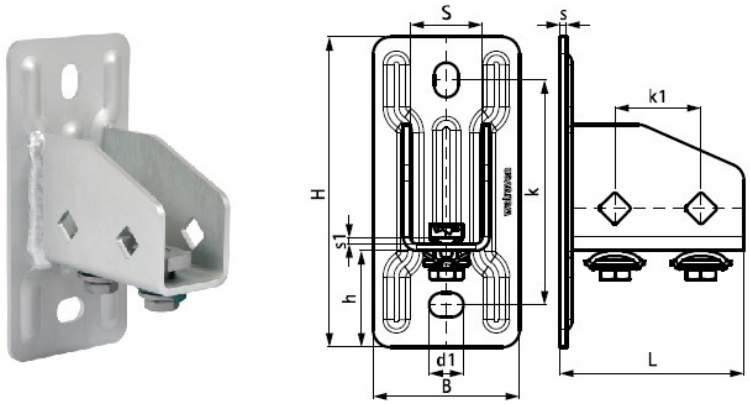
Pos.	Dimensions, mm						
	L	B	H	s	d1	k	SW1
1	80	60	133	5,0	25 x 11	93	13

Rys. A67. Wallplates BIS RapidRail®



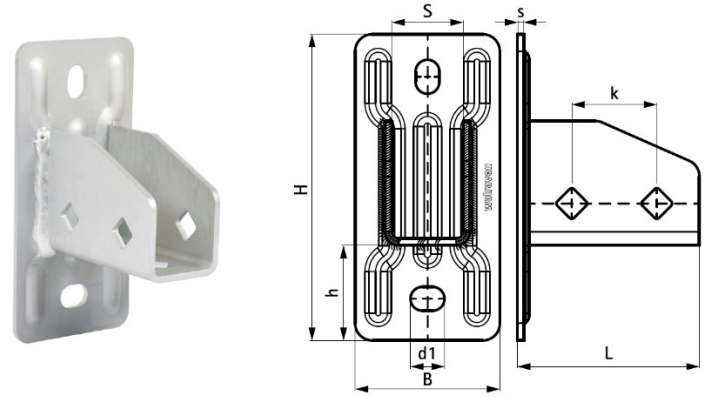
Pos.	Dimensions, mm						
	L	B	H	s	d1	k	SW1
1	100	50	123	4,0	25 x 11	83	13

Rys. A68. Wallplates BIS RapidRail®



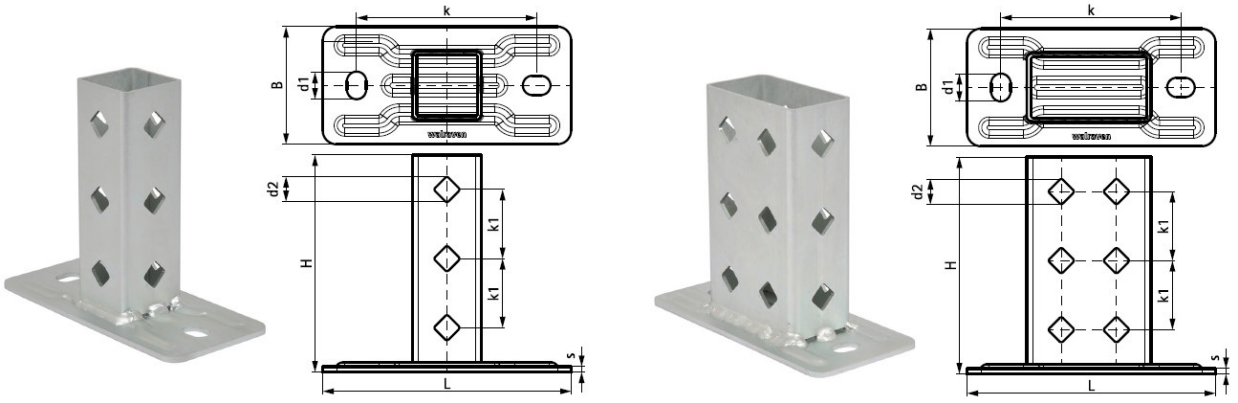
Pos.	Dimensions, mm								
	L	B	H	h	s	d1	S	k	k1
1	107	85	180	56	4,0	20 x 14	42	130,5	50

Rys. A69. Wallplates BIS RapidStrut® G2



Pos.	Dimensions, mm							
	L	B	H	h	s	d1	S	k
1	107	85	180	56	4,0	20 x 14	42	50

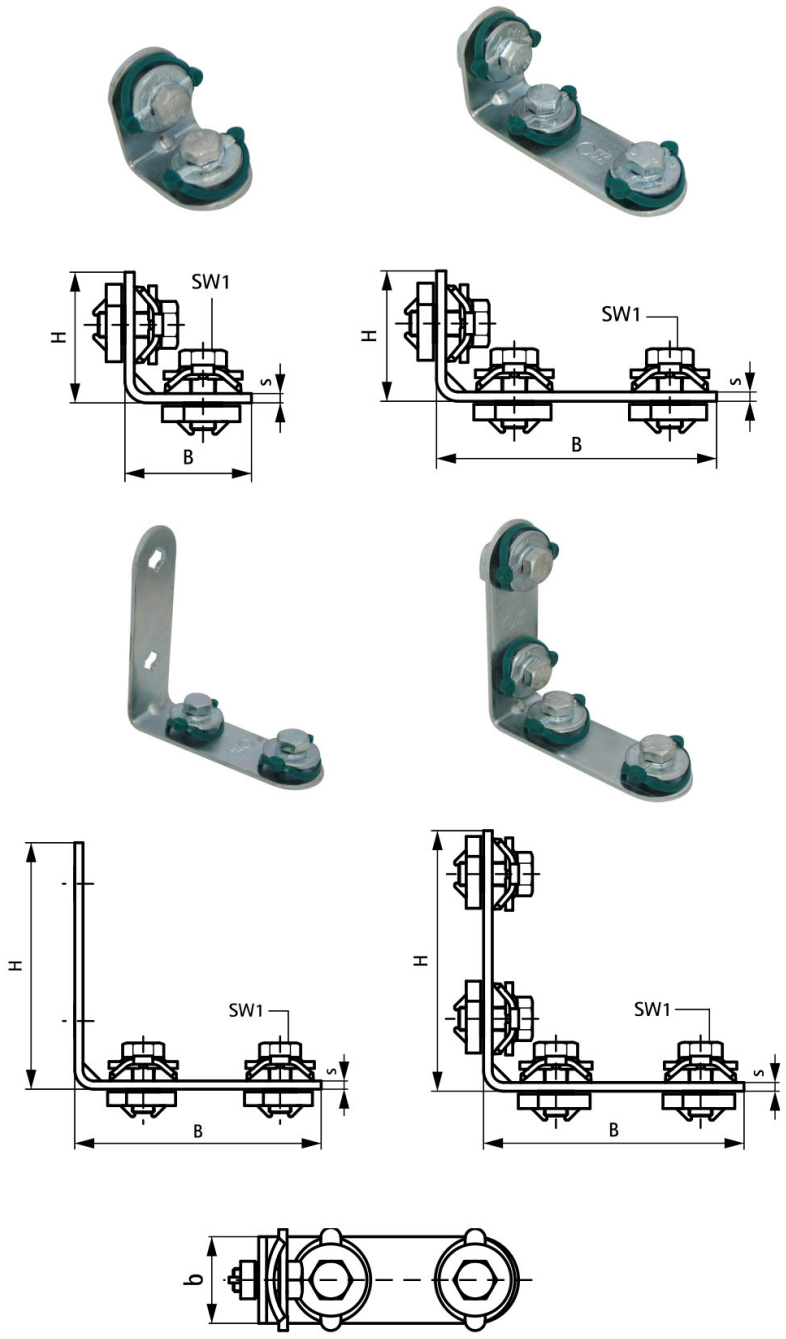
Rys. A70. Wallplates BIS RapidStrut® G2



Rodzaj A **Rodzaj B**

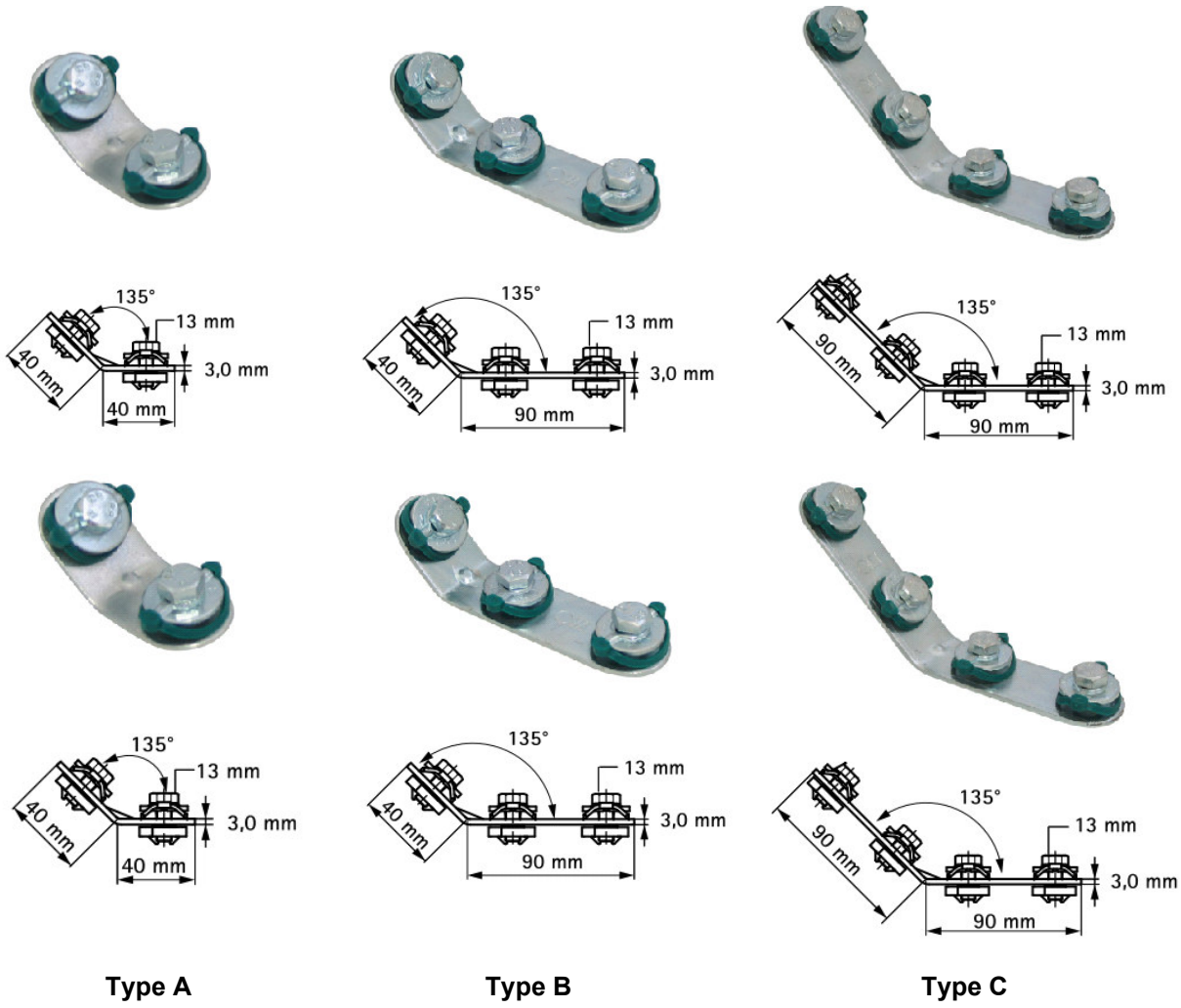
Pos.	Type	Dimensions, mm							
		L	B	H	s	d1	d2	k	k1
1	A	180	85	157	4,0	20 x 14	13,8	130	50
2	B	180	85	157	4,0	20 x 14	13,8	130	50

Rys. A71. Floor plates BIS RapidStrut®

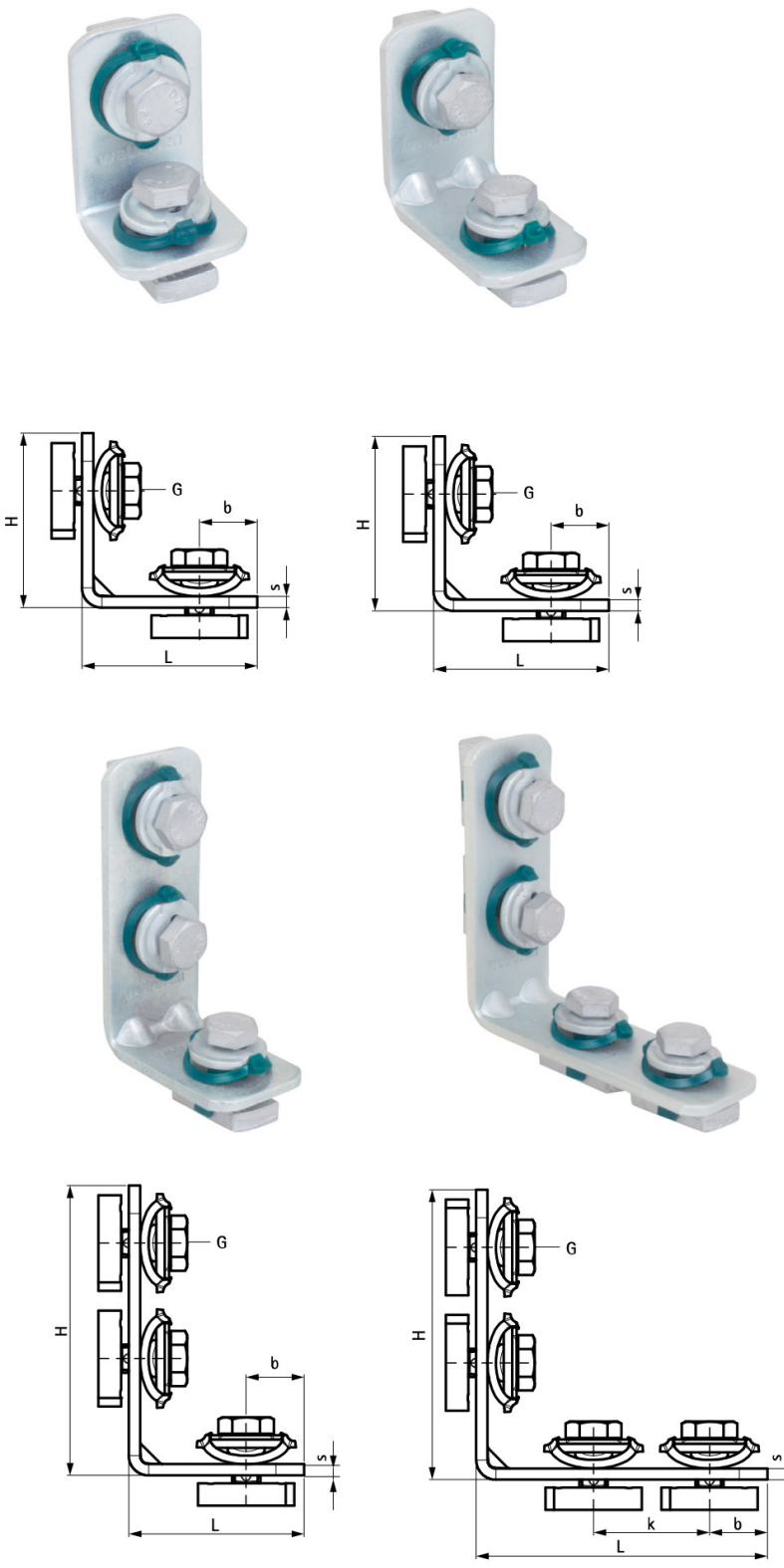


Pos.	Dimensions, mm				
	B	H	b	s	SW1
1	43,5	43,5	30	3,0	13
2	93,5	43,5	30	3,0	13
3	93,5	93,5	30	3,0	13
4	93,5	93,5	30	3,0	13

Rys. A72. Connectors BIS RapidRail® 90°

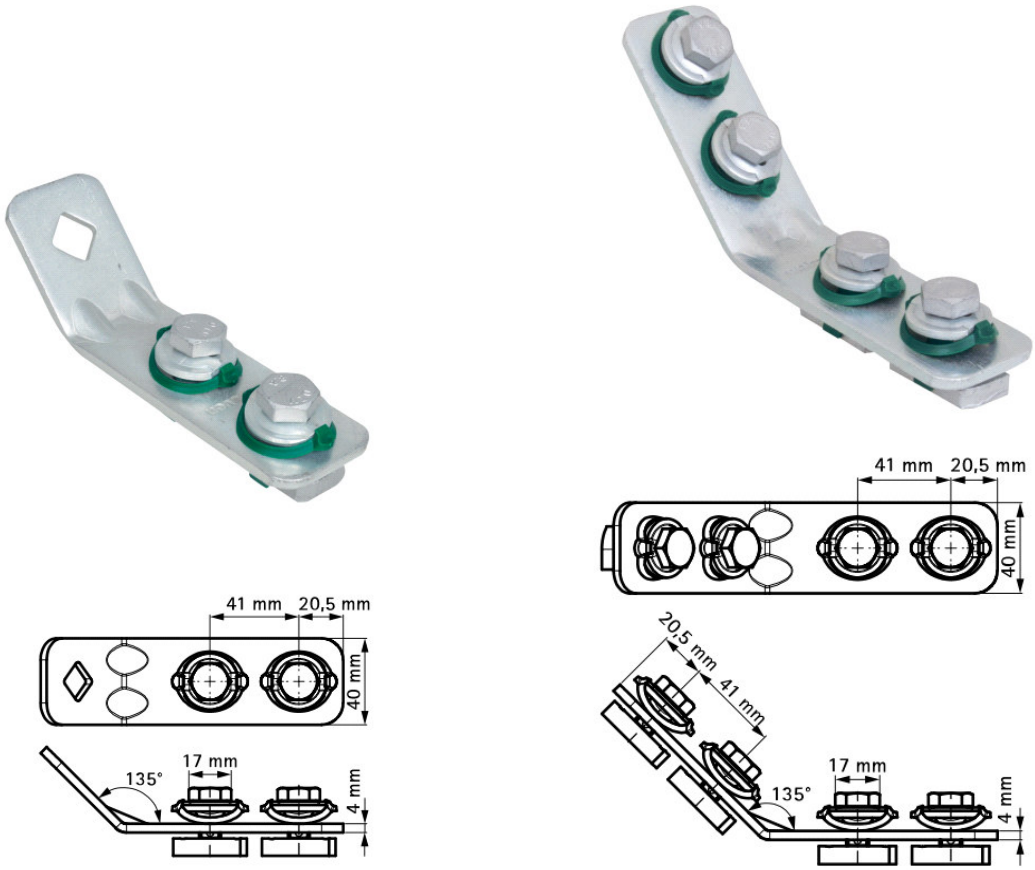


Rys. A73. Connectors BIS RapidRail® 135°

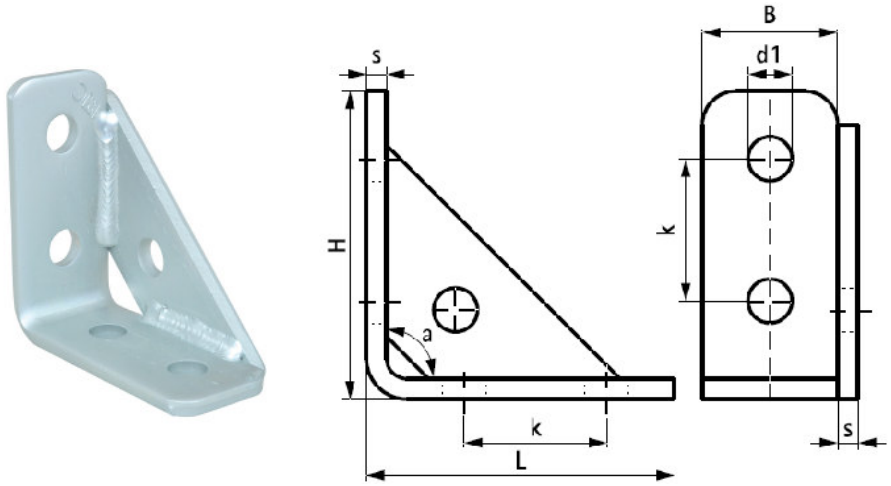


Pos.	Dimensions, mm				
	L	H	b	s	k
1	42	62	20,5	4,0	-
2	62	62	20,5	4,0	-
3	62	103	20,5	4,0	41
4	103	103	20,5	4,0	41

Rys. A74. Connectors BIS RapidStrut® 90°

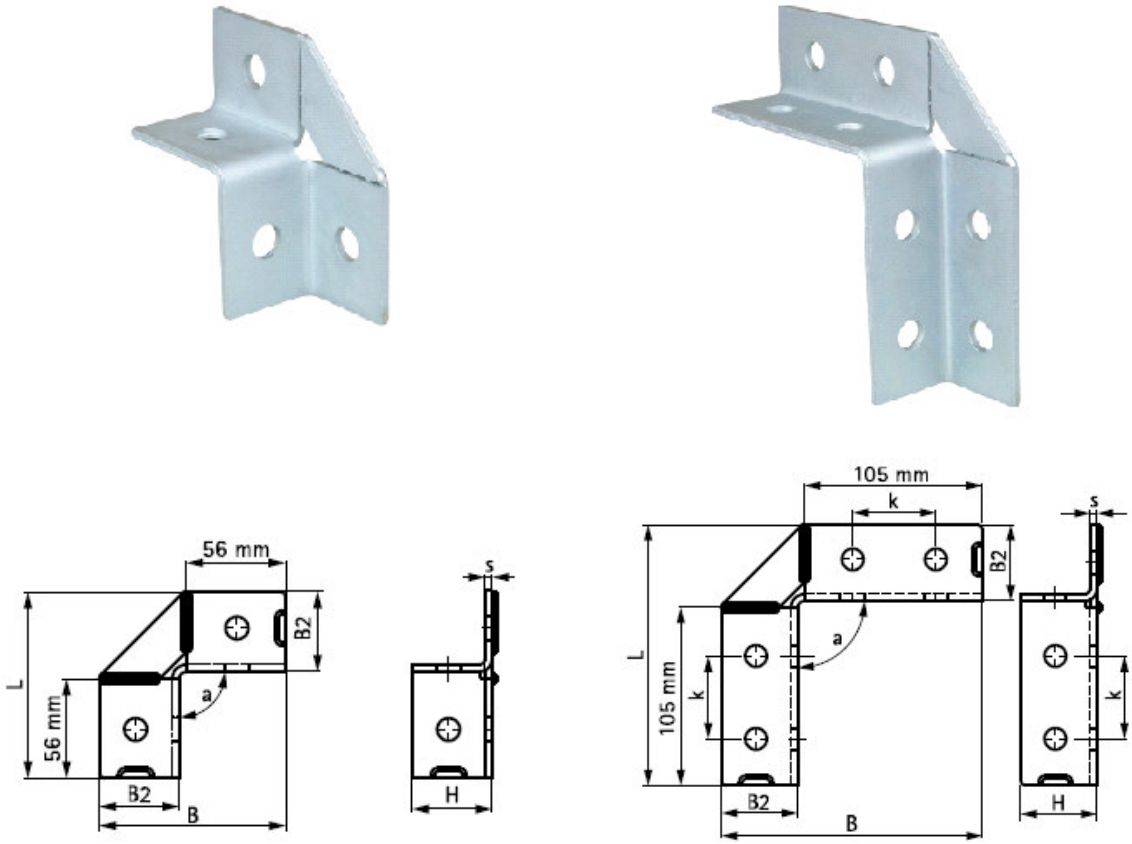


Rys. A75. Connectors BIS RapidStrut® 135°



Pos.	Dimensions, mm						α, °
	L	B	H	s	d1	k	
1	91	40	91	6	13	42	90

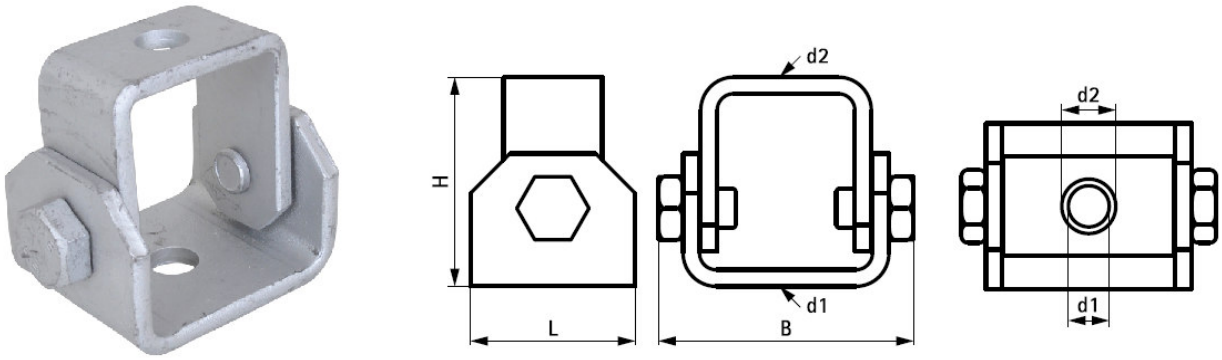
Rys. A76. Connectors BIS RapidStrut®,



Type A **Type B**

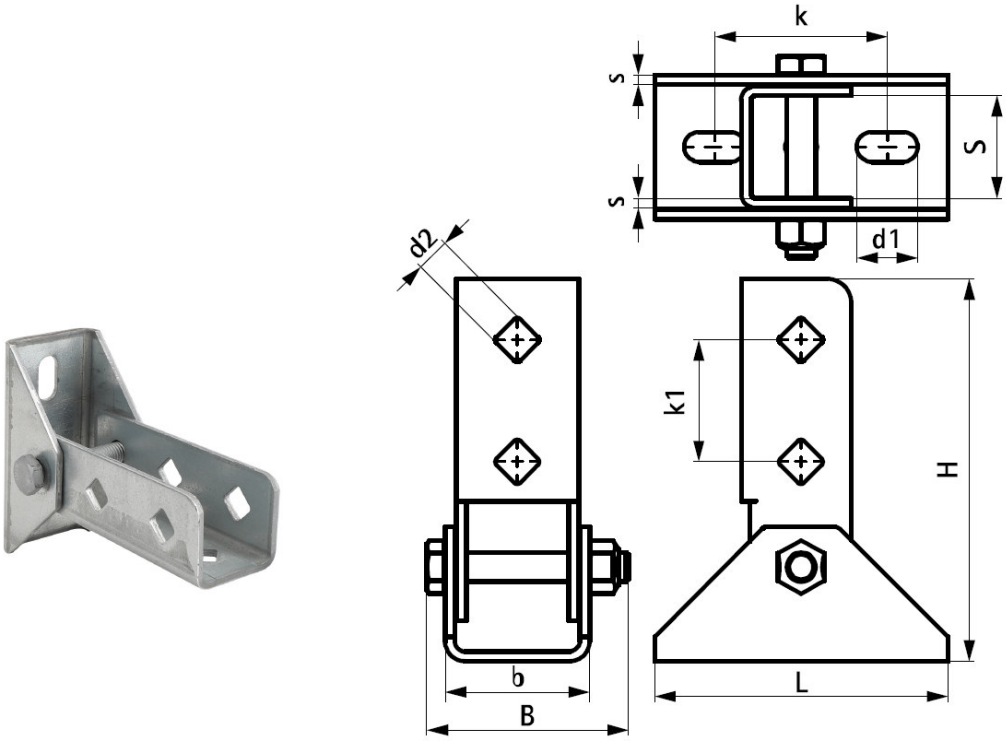
Pos.	Type	Dimensions, mm							α, °
		d	L	B	B2	H	s	k	
1	A	13	105	105	45	45	4,0	-	90
2	B	13	154	154	45	45	4,0	49	90

Rys. A77. Connectors BIS RapidStrut® 2D



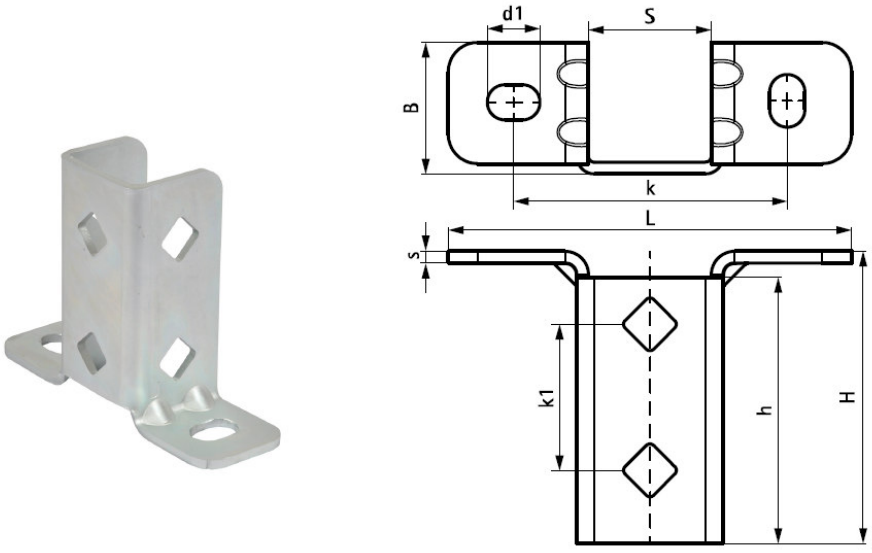
Pos.	Dimensions, mm				
	L	B	H	d1	d2
1	50	78	63	13	13

Rys. A78. Adjustable connector BIS RapidStrut®



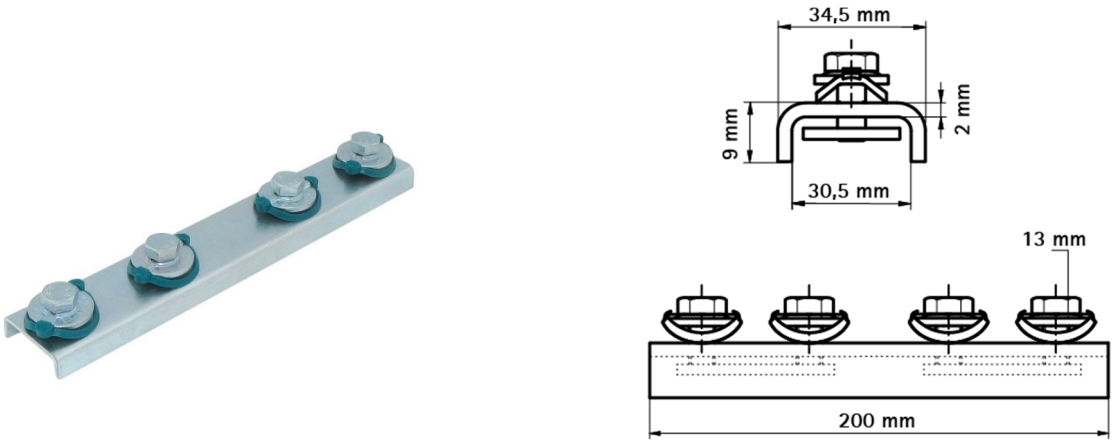
Poz.	Dimensions, mm									
	L	B	H	b	s	d1	d2	S	k	k1
1	120	83	157	59	4,0	25 x 12,2	13,8	42	71	50

Rys. A79. Wallplate hinged BIS RapidStrut®

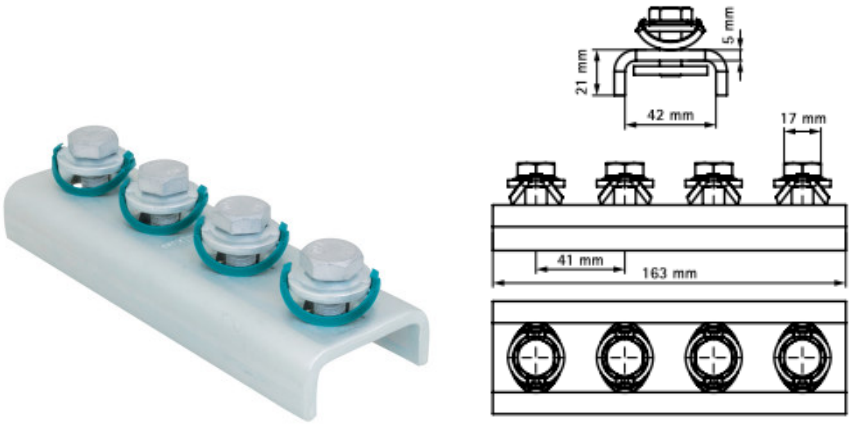


Pos.	Dimensions, mm								
	L	B	H	h	s	d1	S	k	k1
1	138	45	100	91	4,0	18 x 12	42	95	50

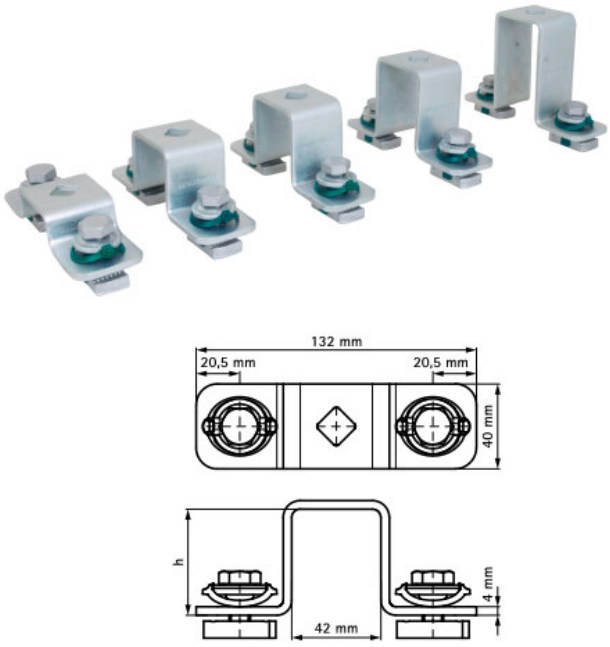
Rys. A80. T-shape base plate BIS RapidStrut®



Rys. A81. Linear connectors BIS RapidRail®

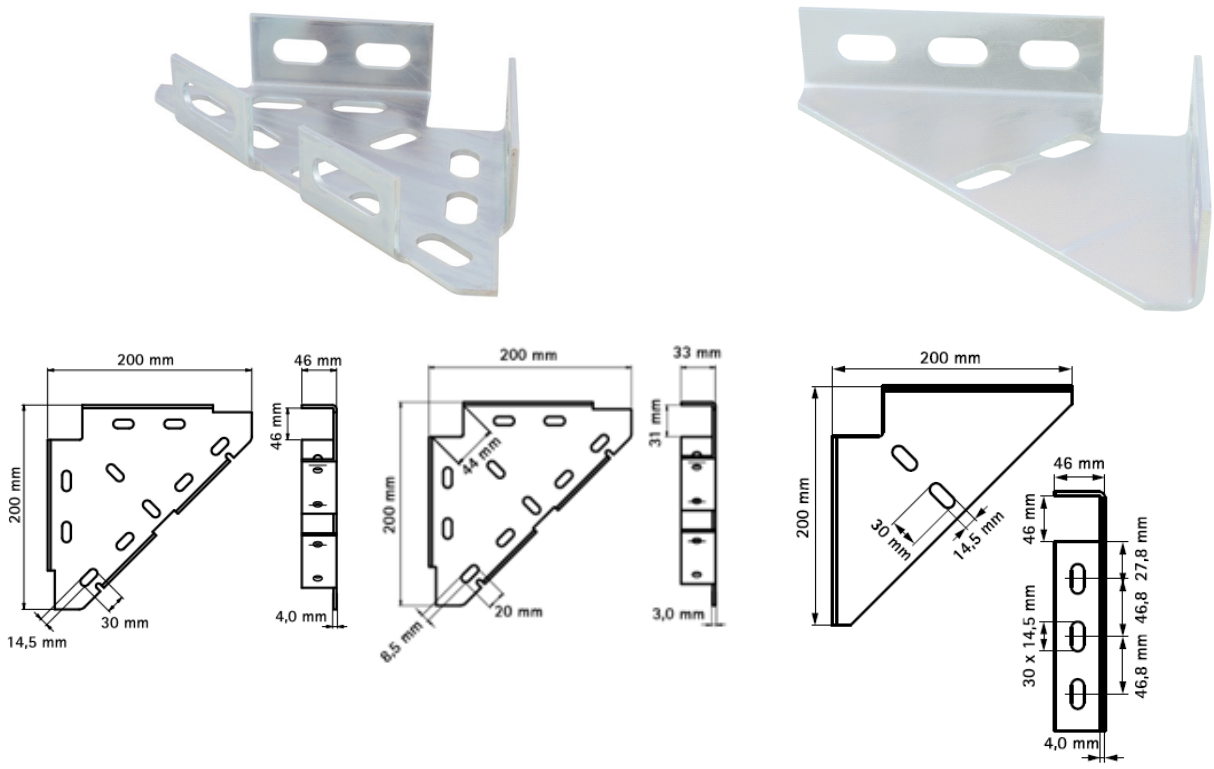


Rys. A82. Linear connectors BIS RapidStrut® G2



h = 20, 40, 50, 60, 80 mm

Rys. A83. Cross connectors RapidStrut® G2



Type A **Type B** **Type C**

Rys. A84. Triangle connectors RapidStrut®

Apendix B.

Table B1

Pos.	Marking	Material	Standard	Coating	Coating thickness, µm
1	*2*	*3*	*4*	*5*	*6*
1	Szyny montażowe BIS RapidRail®; Szyny montażowe BIS RapidStrut® (rys. A1 i A2)	stal gatunku 1.0242	PN-EN 10346:2015	cynkowa elektrolityczna	≥ 6
				cynkowo-aluminiowa BIS UltraProtect®	≥ 8
		stal gatunku 1.4301, 1.4401 lub 1.4404	PN-EN 10088-1:2024	-	-
2	Obejmy BISMAT® 2000 (rys. A3 i A4)	stal gatunku 1.0332	PN-EN 10346:2015	cynkowa elektrolityczna	≥ 6
		śruby klasy własności mechanicznych min. 4.8	PN-EN ISO 898-1:2013	cynkowa elektrolityczna	≥ 6
		nakrętki klasy własności mechanicznych min. 4.8	PN-EN ISO 898-2:2023	cynkowa elektrolityczna	≥ 6
		okładzina EPDM	-	-	-
3	Obejmy BIS Bifix® 1301 (rys. A5)	stal gatunku 1.4404	PN-EN 10088-1:2024	-	-
		śruby klasy własności mechanicznych min. 4.8	PN-EN ISO 898-1:2013		
		nakrętki klasy własności mechanicznych min. 4.8	PN-EN ISO 898-2:2023		
		okładzina EPDM	-		
4	Obejmy BIS Bifix® G2 (rys. A6 ÷ A8)	stal gatunku 1.0332	PN-EN 10346:2015	cynkowo-aluminiowa BIS UltraProtect®	≥ 8
		śruby klasy własności mechanicznych min. 4.8	PN-EN ISO 898-1:2013	cynkowo-aluminiowa BIS UltraProtect®	≥ 8
		nakrętki klasy własności mechanicznych min. 4.8	PN-EN ISO 898-2:2023	cynkowo-aluminiowa BIS UltraProtect®	≥ 8
		okładzina EPDM	-		
5	Obejmy BIS HD 1501 (rys. A9 ÷ A11)	stal gatunku 1.0332	PN-EN 10346:2015	cynkowo-aluminiowa BIS UltraProtect®	≥ 8
		śruby klasy własności mechanicznych min. min. 4.8	PN-EN ISO 898-1:2013	cynkowo-aluminiowa BIS UltraProtect®	≥ 8
		nakrętki klasy własności mechanicznych min. 4.8	PN-EN ISO 898-2:2023	cynkowo-aluminiowa BIS UltraProtect®	≥ 8
		stal gatunku 1.4401	PN-EN 10088-1:2024	-	-
		śruby klasy własności mechanicznych min. min. 4.8	PN-EN ISO 898-1:2013		
		nakrętki klasy własności mechanicznych min. 4.8	PN-EN ISO 898-2:2023		
		okładzina EPDM	-		
6	Obejmy BIS Bifix® 300 (rys. A12)	stal gatunku 1.4404	PN-EN 10088-1:2024	-	-
		śruby klasy własności mechanicznych min. 4.8	PN-EN ISO 898-1:2013		
		nakrętki klasy własności mechanicznych min. 4.8	PN-EN ISO 898-2:2023		

Table B1, c.d.

Pos.	Marking	Material	Standard	Coating	Coating thickness, µm
1	*2*	*3*	*4*	*5*	*6*
7	Obejmy HD 500 (rys. A13 ÷ A16)	stal gatunku 1.0332	PN-EN 10346:2015	cynkowo-aluminiowa BIS UltraProtect®	≥ 8
		śruby klasy własności mechanicznych min. 4.8	PN-EN ISO 898-1:2013	cynkowo-aluminiowa BIS UltraProtect®	≥ 8
		stal gatunku 1.4401	PN-EN 10088-1:2024	-	-
		śruby klasy własności mechanicznych min. 4.8	PN-EN ISO 898-1:2013		
		nakrętki klasy własności mechanicznych min. 4.8	PN-EN ISO 898-2:2023		
8	Obejmy HD 500 (rys. A17)	stal gatunku 1.4401	PN-EN 10088-1:2024	-	-
		śruby klasy własności mechanicznych min. 4.8	PN-EN ISO 898-1:2013	-	-
		nakrętki klasy własności mechanicznych min. 4.8	PN-EN ISO 898-2:2023	-	-
9	Obejmy BIS 434 (rys. A18)	stal gatunku 1.0242	PN-EN 10346:2015	cynkowa elektrolityczna	≥ 6
		śruby klasy własności mechanicznych min. 4.8	PN-EN ISO 898-1:2013	cynkowa elektrolityczna	≥ 6
		nakrętki klasy własności mechanicznych min. 4.8	PN-EN ISO 898-2:2023	cynkowa elektrolityczna	≥ 6
10	Obejmy BIS 434 (rys. A19)	stal gatunku 1.4401	PN-EN 10088-1:2024	-	-
		śruby klasy własności mechanicznych min. 4.8	PN-EN ISO 898-1:2013	-	-
		nakrętki klasy własności mechanicznych min. 4.8	PN-EN ISO 898-2:2023	-	-
11	Obejmy BISMAT® Flash (rys. A20)	stal gatunku 1.0242	PN-EN 10346:2015	cynkowa elektrolityczna	≥ 6
		śruby klasy własności mechanicznych min. 4.8	PN-EN ISO 898-1:2013	cynkowa elektrolityczna	≥ 6
		nakrętki klasy własności mechanicznych min. 4.8	PN-EN ISO 898-2:2023	cynkowa elektrolityczna	≥ 6
		okładzina EPDM	-		
12	Obejmy BIS Aero (rys. A21)	stal gatunku 1.0226	PN-EN 10346:2015	cynkowa elektrolityczna	≥ 6
		śruby klasy własności mechanicznych min. 4.8	PN-EN ISO 898-1:2013	cynkowa elektrolityczna	≥ 6
		nakrętki klasy własności mechanicznych min. 4.8	PN-EN ISO 898-2:2023	cynkowa elektrolityczna	≥ 6
		okładzina TPE	-		
13	Obejmy Spiro (rys. A22)	stal gatunku 1.0037	PN-EN 10346:2015	cynkowa elektrolityczna	≥ 6
		śruby klasy własności mechanicznych min. 4.8	PN-EN ISO 898-1:2013	cynkowa elektrolityczna	≥ 6
		nakrętki klasy własności mechanicznych min. 4.8	PN-EN ISO 898-2:2023	cynkowa elektrolityczna	≥ 6
		stal gatunku 1.4404	PN-EN 10088-1:2024	-	-
		śruby klasy własności mechanicznych min. 4.8	PN-EN ISO 898-1:2013		
		nakrętki klasy własności mechanicznych min. 4.8	PN-EN ISO 898-2:2023		
		okładzina EPDM	-		
14	Obejmy BIS KSB2 (rys. A23)	stal gatunku 1.0332	PN-EN 10346:2015	cynkowa elektrolityczna	≥ 6
		śruby klasy własności mechanicznych min. 4.8	PN-EN ISO 898-1:2013	cynkowa elektrolityczna	≥ 6
		nakrętki klasy własności mechanicznych min. 4.8	PN-EN ISO 898-2:2023	cynkowa elektrolityczna	≥ 6
		okładzina EPDM	-		

Table B1, c.d.

Pos.	Marking	Material	Standard	Coating	Coating thickness, µm
1	*2*	*3*	*4*	*5*	*6*
15	Obejmy BIS 2S (rys. A24 ÷ A27)	stal gatunku 1.0332	PN-EN 10346:2015	cynkowa elektrolityczna	≥ 6
		śruby klasy własności mechanicznych min. 4.8	PN-EN ISO 898-1:2013	cynkowa elektrolityczna	≥ 6
		nakrętki klasy własności mechanicznych min. 4.8	PN-EN ISO 898-2:2023	cynkowa elektrolityczna	≥ 6
		okładzina EPDM	-		
16	Obejmy BIS BISMAT® 1000 (rys. A28)	stal gatunku 1.0332	PN-EN 10346:2015	cynkowa elektrolityczna	≥ 6
		śruby klasy własności mechanicznych min. 4.8	PN-EN ISO 898-1:2013	cynkowa elektrolityczna	≥ 6
		nakrętki klasy własności mechanicznych min. 4.8	PN-EN ISO 898-2:2023	cynkowa elektrolityczna	≥ 6
		okładzina EPDM	-		
17	Obejmy BIS TA 41 (rys. A29)	stal gatunku 1.0226	PN-EN 10346:2015	cynkowa elektrolityczna	≥ 6
		nakrętki klasy własności mechanicznych min. 4.8	PN-EN ISO 898-2:2023	cynkowa elektrolityczna	≥ 6
18	Obejmy Walraven (rys. A30)	stal gatunku 1.0226	PN-EN 10346:2015	cynkowa elektrolityczna	≥ 6
		nakrętki klasy własności mechanicznych min. 4.8	PN-EN ISO 898-2:2023	cynkowa elektrolityczna	≥ 6
19	Obejmy StarQuick® (rys. A31)	poliamid (PA6)	-	-	-
20	Konsole ścienne BIS RapidRail® (rys. A32)	płyta ze stali gatunku 1.0332	PN-EN 10111:2009	cynkowa elektrolityczna	≥ 6
		szyna ze stali gatunku 1.0330 lub 1.0038	PN-EN 10025-1:2019		
		stal gatunku 1.4401	PN-EN 10088-1:2024	-	
21	Konsole ścienne BIS RapidStrut® (rys. A33)	płyta ze stali gatunku 1.0044 lub 1.0045	PN-EN 10025-1:2019	cynkowo-aluminiowa BIS UltraProtect®	≥ 8
		szyna ze stali gatunku 1.0038	PN-EN 10025-1:2019		
		stal gatunku 1.4401	PN-EN 10088-1:2024	-	-
22	Konsole ścienne BIS (rys. A34)	płyta ze stali gatunku 1.0332	PN-EN 10111:2009	cynkowa elektrolityczna	≥ 6
		obejma ze stali gatunku 1.0332	PN-EN 10346:2015	cynkowa elektrolityczna	≥ 6
23	Obejmy klipsowe BISCLIPS® TIGER (rys. A35)	stal gatunku C67S	PN-EN 10132:2022	cynkowa elektrolityczna	≥ 6
24	Uchwyty (punkty stałe) BIS dB-Fix®80 i BIS dB-Fix® 200 (rys. A36 i A37)	stal gatunku 1.0332	PN-EN 10346:2015	cynkowa elektrolityczna	≥ 6
		okładzina EPDM	-	-	-
25	Podpory kierunkowe BIS (rys. A38)	stal gatunku 1.0332	PN-EN 10346:2015	cynkowo-aluminiowa BIS UltraProtect®	≥ 8
		stal gatunku 1.4404	PN-EN 10088-1:2024	-	-
		elementy ślizgowe PE	-	-	-
26	Uchwyty ślizgowe BIS (rys. A39 ÷ A44)	stal gatunku 1.0332	PN-EN 10346:2015	cynkowa elektrolityczna	≥ 6
		stal gatunku 1.4404	PN-EN 10088-1:2024	-	-
		elementy ślizgowe POM lub PPS lub PE	-	-	-
27	Nakrętki ślizgowe BIS RapidRail® (rys. A45)	płyta ze stali gatunku 1.0332	PN-EN 10111:2009	cynkowa elektrolityczna	≥ 6
		sprężyny POM	-	-	-
28	Nakrętki ślizgowe BIS RapidRail® STN (rys. A46)	stal gatunku 1.4401	PN-EN 10088-1:2024	-	-
		sprężyny POM	-	-	-
29	Nakrętki BIS RapidStrut® G2 (rys. A47)	płyta ze stali gatunku 1.0332	PN-EN 10111:2009	cynkowo-aluminiowa BIS UltraProtect®	≥ 8
		sprężyny POM	-	-	-

Table B1, c.d.

Pos.	Marking	Material	Standard	Coating	Coating thickness, µm
1	*2*	*3*	*4*	*5*	*6*
30	Wsporniki do konsol BIS RapidRail® (rys. A48)	stal gatunku 1.0332	PN-EN 10346:2015	cynkowa elektrolityczna	≥ 6
		stal gatunku 1.4401	PN-EN 10088-1:2024	-	-
31	Wsporniki do konsol BIS RapidStrut® (rys. A48)	stal gatunku 1.0332	PN-EN 10346:2015	cynkowo-aluminiowa BIS UltraProtect®	≥ 8
		stal gatunku 1.4401	PN-EN 10088-1:2024	-	-
32	Zaciskowe klamry do dźwigarów BIS (rys. A49)	zaczep z żeliwa	PN-EN 1561:2024	cynkowa elektrolityczna	≥ 6
		śruby klasy własności mechanicznych min. 4.8	PN-EN ISO 898-1:2013	cynkowa elektrolityczna	≥ 6
		nakrętki klasy własności mechanicznych min. 4.8	PN-EN ISO 898-2:2023	cynkowa elektrolityczna	≥ 6
		zaczep z żeliwa	PN-EN 1561:2024	cynkowo-aluminiowa BIS UltraProtect®	≥ 8
		śruby klasy własności mechanicznych min. 4.8	PN-EN ISO 898-1:2013	cynkowo-aluminiowa BIS UltraProtect®	≥ 8
		nakrętki klasy własności mechanicznych min. 4.8	PN-EN ISO 898-2:2023	cynkowo-aluminiowa BIS UltraProtect®	≥ 8
		stal gatunku 1.4404	PN-EN 10088-1:2024	-	-
		śruby klasy własności mechanicznych min. 4.8	PN-EN ISO 898-1:2013		
		nakrętki klasy własności mechanicznych min. 4.8	PN-EN ISO 898-2:2023		
33	Zaciskowe klamry do dźwigarów BISCLIPS® SB-ICTM, BISCLIPS® SB-TRM, BISCLIPS® SB-M, BISCLIPS® SB-M-B, BISCLIPS® SB-VM i BISCLIPS® SB-VM-B (rys. A50 ÷ A53)	stal gatunku C67S	PN-EN 10132:2022	cynkowo-aluminiowa BIS UltraProtect®	≥ 8
34	Śruby wahadłowe BIS (rys. A54 ÷ A57)	stal gatunku 1.0332	PN-EN 10346:2015	cynkowa elektrolityczna	≥ 6
35	Śruby młotkowe wahadłowe BIS RapidRail® (rys. A58)	płyta ze stali gatunku 1.0332	PN-EN 10111:2009	cynkowa elektrolityczna	≥ 6
		sprężyny POM	-		
36	Wieszaki BIS do blach trapezowych (rys. A59)	stal gatunku 1.0226	PN-EN 10346:2015	cynkowa elektrolityczna	≥ 6
		stal gatunku 1.0242	PN-EN 10346:2015	cynkowo-aluminiowa BIS UltraProtect®	≥ 8
		stal gatunku 1.4404	PN-EN 10088-1:2024	-	-
37	Zaczepy do dźwigarów RapidRail® (rys. A60)	stal gatunku 1.0332	PN-EN 10346:2015	cynkowa elektrolityczna	≥ 6
		stal gatunku 1.4401	PN-EN 10088-1:2024	-	-
38	Zaczepy do dźwigarów RapidStrut® i RapidStrut® HD (rys. A61 i A62)	stal gatunku 1.0038	PN-EN 10025-1:2019	cynkowa elektrolityczna	≥ 6
		stal gatunku 1.4401 oraz 1.4404	PN-EN 10088-1:2024	-	-
39	Dyble przechylne BIS (rys. A63)	stal gatunku 1.0332	PN-EN 10346:2015	cynkowa elektrolityczna	≥ 6
		podkładka gumowa	-	-	-

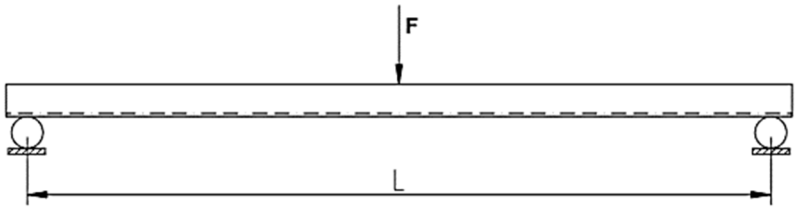
Table B1, c.d.

Pos.	Marking	Material	Standard	Coating	Coating thickness, µm
1	*2*	*3*	*4*	*5*	*6*
40	Konsole mocujące BI FIX (rys. A64 ÷ A66)	stal gatunku 1.0332	PN-EN 10346:2015	cynkowo-aluminiowa BIS UltraProtect®	≥ 8
		śruby klasy własności mechanicznych min. 4.8	PN-EN ISO 898-1:2013	cynkowo-aluminiowa BIS UltraProtect®	≥ 8
		nakrętki klasy własności mechanicznych min. 4.8	PN-EN ISO 898-2:2023	cynkowo-aluminiowa BIS UltraProtect®	≥ 8
		stal gatunku 1.4401 i 1.4404	PN-EN 10088-1:2024	-	-
		śruby klasy własności mechanicznych min. 4.8	PN-EN ISO 898-1:2013		
		nakrętki klasy własności mechanicznych min. 4.8	PN-EN ISO 898-2:2023		
41	Uchwyty ścienne BIS RapidRail® (rys. A67 i A68)	płyta ze stali gatunku 1.0332	PN-EN 10111:2009	cynkowa elektrolityczna	≥ 6
		płyta ze stali gatunku 1.4401 oraz 1.4404	PN-EN 10088-1:2024	-	-
		sprężyny POM	-	-	-
42	Uchwyty ścienne BIS RapidStrut® G2 (rys. A69 i A70)	płyta ze stali gatunku 1.0332	PN-EN 10111:2009	cynkowa elektrolityczna	≥ 6
				cynkowo-aluminiowa BIS UltraProtect®	≥ 8
		śruby klasy własności mechanicznych min. 4.8	PN-EN ISO 898-1:2013	cynkowo-aluminiowa BIS UltraProtect®	≥ 8
		nakrętki klasy własności mechanicznych min. 4.8	PN-EN ISO 898-2:2023	cynkowo-aluminiowa BIS UltraProtect®	≥ 8
		sprężyny POM	-	-	-
43	Uchwyty podłogowe BIS RapidStrut® G2 (rys. A71)	płyta ze stali gatunku 1.0332	PN-EN 10111:2009	cynkowo-aluminiowa BIS UltraProtect®	≥ 8
		profil ze stali gatunku 1.0039	PN-EN 10025-1:2019	cynkowo-aluminiowa BIS UltraProtect®	≥ 8
44	Kątowniki montażowe BIS RapidRail® 90° i BIS RapidRail® 135° (rys. A72 i A73)	płyta ze stali gatunku 1.0332	PN-EN 10111:2009	cynkowa elektrolityczna	≥ 6
		stal gatunku 1.4401	PN-EN 10088-1:2024	-	-
		sprężyny POM	-	-	-
45	Kątowniki montażowe BIS RapidStrut® 90° i BIS RapidStrut® 135° (rys. A74 i A75)	stal gatunku 1.0332	PN-EN 10111:2009	cynkowo-aluminiowa BIS UltraProtect®	≥ 8
		stal gatunku 1.4401 oraz 1.4404	PN-EN 10088-1:2024	-	-
		sprężyny POM	-	-	-
46	Kątowniki BIS RapidStrut®, wzmocnione (rys. A76)	stal gatunku 1.0332	PN-EN 10111:2009	cynkowo-aluminiowa BIS UltraProtect®	≥ 8
		stal gatunku 1.4404	PN-EN 10088-1:2024	-	-
47	Kątowniki BIS RapidStrut® 2D (rys. A77)	stal gatunku 1.0038	PN-EN 10025-1:2019	cynkowo-aluminiowa BIS UltraProtect®	≥ 8
		stal gatunku 1.4401	PN-EN 10088-1:2024	-	-

Table B1, c.d.

Pos.	Marking	Material	Standard	Coating	Coating thickness, µm
1	*2*	*3*	*4*	*5*	*6*
48	Łączniki przechylne BIS RapidStrut® (rys. A78)	stal gatunku 1.0332	PN-EN 10111:2009	cynkowo-aluminiowa BIS UltraProtect®	≥ 8
		stal gatunku 1.4401	PN-EN 10088-1:2024	-	-
49	Stopy przechylne BIS RapidStrut® (rys. A79)	stal gatunku 1.0242	PN-EN 10346:2015	cynkowo-aluminiowa BIS UltraProtect®	≥ 8
		stal gatunku 1.4404	PN-EN 10088-1:2024	-	-
50	Kątowniki konstrukcyjne BIS RapidStrut® (rys. A80)	stal gatunku 1.0242	PN-EN 10346:2015	cynkowo-aluminiowa BIS UltraProtect®	≥ 8
		stal gatunku 1.4404	PN-EN 10088-1:2024	-	-
51	Łączniki szyn montażowych BIS RapidRail® (rys. A81)	stal gatunku 1.0332	PN-EN 10111:2009	cynkowo-aluminiowa BIS UltraProtect®	≥ 8
		sprężyny POM	-	-	-
52	Łączniki szyn montażowych BIS RapidStrut® G2 (rys. A82)	stal gatunku 1.4404	PN-EN 10088-1:2024	-	-
		sprężyny POM	-	-	-
53	Łączniki siodłowe do szyn montażowych RapidStrut® G2 (rys. A83)	stal gatunku 1.0332	PN-EN 10111:2009	cynkowo-aluminiowa BIS UltraProtect®	≥ 8
		sprężyny POM	-	-	-
54	Kątowniki montażowe RapidStrut® (rys. A84)	stal gatunku 1.0332	PN-EN 10111:2009	cynkowo-aluminiowa BIS UltraProtect®	≥ 8

Załącznik C.

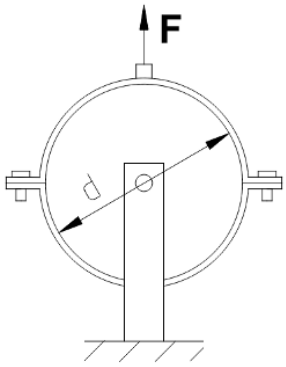


Rys. C1. Force application diagram (concerns table C1)

Table C1. Characteristic load capacities for rails (rys. A1 ÷ A2)

Pos.	Marking	Draw. no.	Dimensions, mm				Characteristic load F [1], N			
			B	H	s	S	Supports span L, mm			
							500	1000	2000	3000
1	27x18	A1	27	18	1,00	15	400	139	29	-
2	30x15	A1	30	15	1,50	15	492	138	27	-
3	30x20	A1	30	20	1,25	15	638	213	50	-
4	30x30	A1	30	30	1,50	15	1405	698	185	68
5	30x45	A1	30	45	2,00	15	1510	728	201	79
6	38x40	A1	38	40	2,00	15	2855	1421	478	190
7	WM2	A1	30	30	2,00	15	1619	780	195	87
8	BIS RapidStrut® 21 L	A2	41	21	1,5	22	1190	458	102	20
9	BIS RapidStrut® 21 M	A2	41	21	2,0	22	1427	553	122	35
10	BIS RapidStrut® 21 H	A2	41	21	2,5	22	1600	624	137	38
11	BIS RapidStrut® 41 L	A2	41	41	1,5	22	3209	1598	579	236
12	BIS RapidStrut® 41 M	A2	41	41	2,0	22	4063	2024	720	292
13	BIS RapidStrut® 41 H	A2	41	41	2,5	22	4694	2337	837	339
14	BIS RapidStrut® 41 H bez perforacji	A2	41	41	2,5	22	4694	2337	837	339
15	BIS RapidStrut® 62 H	A2	41	62	2,5	22	9006	4491	2220	1030
16	BIS RapidStrut® 82 H	A2	41	82	2,5	22	14108	7039	3489	2178
17	BIS RapidStrut® DS5	A2	41	51	2,0	22	5477	2730	1214	509
18	BIS RapidStrut® 41 x (2 x 21)	A2	41	42	2,5	22	3367	1670	674	253
19	BIS RapidStrut® 41 x (2 x 41)	A2	41	82	2,5	22	10859	5411	2669	1739
20	BIS RapidStrut® 41 x (2 x 62)	A2	41	124	2,5	22	21884	10917	5409	3552
21	BIS RapidStrut® 41 x (2 x 82)	A2	41	164	2,5	22				

[1] allowable deflection L/200



Rys. C2. Force application diagram (dot. tablic C2 ÷ C26)

Table C2. Design load capacities for clamps BISMAT® 2000 (rys. A3)

Pos.	D, mm	G	Design load F, N
1	11 ÷ 14	M8	600
2	15 ÷ 18	M8	600
3	20 ÷ 23	M8	600
4	25 ÷ 28	M8	600
5	31 ÷ 35	M8	600
6	36 ÷ 39	M8	600
7	40 ÷ 43	M8	800
8	44 ÷ 45	M8	800
9	48 ÷ 51	M8	800
10	53 ÷ 56	M8	800
11	59 ÷ 63	M8	800
12	15 ÷ 18	M8/M10	600
13	20 ÷ 23	M8/M10	600
14	25 ÷ 28	M8/M10	600
15	31 ÷ 35	M8/M10	600
16	40 ÷ 43	M8/M10	800
17	48 ÷ 51	M8/M10	800
18	53 ÷ 56	M8/M10	800
19	59 ÷ 63	M8/M10	800

Table C3. Design load capacities for clamps BISMAT® 2000 (rys. A4)

Pos.	D, mm	G	Design load F, N
1	57 ÷ 64	M8/M10	520
2	64 ÷ 70	M8/M10	520
3	73 ÷ 80	M8/M10	520
4	83 ÷ 91	M8/M10	935
5	100 ÷ 105	M8/M10	935
6	108 ÷ 114	M8/M10	935
7	116 ÷ 119	M8/M10	935
8	122 ÷ 125	M8/M10	935
9	133 ÷ 141	M8/M10	935
10	159 ÷ 168	M10	1220
11	200 ÷ 210	M10	1220
12	210 ÷ 219	M10	1220

Table C4. Design load capacities for clamps BIS Bifix® 1301 (rys. A5)

Pos.	D, mm	G	Design load F, N
1	11 ÷ 14	M8	900
2	15 ÷ 19	M8	900
3	20 ÷ 23	M8	900
4	25 ÷ 28	M8	900
5	31 ÷ 35	M8	900
6	40 ÷ 43	M8	900
7	47 ÷ 51	M8	900
8	52 ÷ 56	M8	900
9	57 ÷ 64	M8	900
10	64 ÷ 67	M8	1350
11	70 ÷ 76	M8	1350
12	86 ÷ 91	M8	1350
13	100 ÷ 106	M8	1350
14	108 ÷ 116	M8	1710
15	15 ÷ 19	M10	900
16	20 ÷ 23	M10	900
17	25 ÷ 28	M10	900
18	31 ÷ 35	M10	900
19	40 ÷ 43	M10	900
20	47 ÷ 51	M10	900
21	52 ÷ 56	M10	900
22	57 ÷ 64	M10	900
23	64 ÷ 67	M10	1350
24	70 ÷ 76	M10	1350
25	79 ÷ 85	M10	1350
26	86 ÷ 91	M10	1350
27	100 ÷ 106	M10	1350
28	108 ÷ 116	M10	1710
29	124 ÷ 132	M10	1710
30	133 ÷ 141	M10	1710
31	159 ÷ 168	M10	1710
32	200 ÷ 210	M10	1710
33	210 ÷ 219	M10	1710
34	244 ÷ 250	M10	1710

Table C5. Design load capacities for clamps BIS Bifix® G2 (rys. A6)

Pos.	D, mm	G	Design load F, N
1	10 ÷ 14	M8	700
2	15 ÷ 19	M8	700
3	20 ÷ 23	M8	700
4	25 ÷ 28	M8	700
5	31 ÷ 35	M8	700
6	36 ÷ 39	M8	700
7	40 ÷ 45	M8	700
8	48 ÷ 52	M8	700
9	54 ÷ 58	M8	700
10	60 ÷ 64	M8	700
11	66 ÷ 70	M8	800
12	75 ÷ 79	M8	800
13	80 ÷ 83	M8	800

Table C6. Design load capacities for clamps BIS Bifix® G2 (rys. A7)

Pos.	D, mm	G	Design load F, N
1	10 ÷ 14	M8/M10	700
2	15 ÷ 19	M8/M10	700
3	20 ÷ 23	M8/M10	700
4	25 ÷ 28	M8/M10	700
5	31 ÷ 35	M8/M10	700
6	36 ÷ 39	M8/M10	700
7	40 ÷ 45	M8/M10	700
8	48 ÷ 52	M8/M10	700
9	54 ÷ 58	M8/M10	700
10	60 ÷ 64	M8/M10	700
11	66 ÷ 70	M8/M10	800
12	75 ÷ 79	M8/M10	800
13	80 ÷ 83	M8/M10	800
14	88 ÷ 91	M8/M10	1700
15	92 ÷ 97	M8/M10	1700
16	100 ÷ 105	M8/M10	1700
17	108 ÷ 115	M8/M10	1700
18	125 ÷ 130	M8/M10	1700
19	133 ÷ 140	M8/M10	1700
20	152 ÷ 160	M8/M10	1700
21	165 ÷ 169	M8/M10	2000
22	176 ÷ 180	M8/M10	2500
23	192 ÷ 200	M8/M10	2500
24	205 ÷ 210	M8/M10	2500
25	219 ÷ 225	M8/M10	2500

Table C7. Design load capacities for clamps BIS Bifix® G2 (rys. A8)

Pos.	D, mm	G	Design load F, N
1	10 ÷ 14	M10	800
2	15 ÷ 19	M10	800
3	20 ÷ 23	M10	800
4	25 ÷ 28	M10	800
5	31 ÷ 35	M10	800
6	36 ÷ 39	M10	800
7	40 ÷ 45	M10	800
8	48 ÷ 52	M10	800
9	54 ÷ 58	M10	800
10	60 ÷ 64	M10	800
11	66 ÷ 70	M10	1000
12	75 ÷ 79	M10	1000
13	80 ÷ 83	M10	1000
14	88 ÷ 91	M10	1800
15	92 ÷ 98	M10	1800
16	100 ÷ 105	M10	1800
17	108 ÷ 115	M10	1800
18	125 ÷ 130	M10	1800
19	133 ÷ 140	M10	1800
20	152 ÷ 160	M10	1800
21	165 ÷ 169	M10	2500
22	176 ÷ 180	M10	2500
23	192 ÷ 200	M10	2500
24	205 ÷ 210	M10	2500
25	219 ÷ 225	M10	2500

Table C8. Design load capacities for clamps BIS HD 1501 (rys. A9)

Pos.	D, mm	G	Design load F, N
1	15 ÷ 19	M8/M10	1500
2	19 ÷ 23	M8/M10	1500
3	25 ÷ 29	M8/M10	1500
4	30 ÷ 35	M8/M10	1500
5	40 ÷ 45	M8/M10	1500
6	46 ÷ 51	M8/M10	1500
7	53 ÷ 59	M8/M10	1500
8	59 ÷ 64	M8/M10	1500
9	65 ÷ 71	M10/M12	2300
10	72 ÷ 78	M10/M12	2300
11	79 ÷ 85	M10/M12	2300
12	86 ÷ 92	M10/M12	2300
13	101 ÷ 109	M10/M12	2300
14	108 ÷ 116	M10/M12	2300
15	125 ÷ 133	M10/M12	2300
16	132 ÷ 140	M10/M12	2300
17	159 ÷ 169	M10/M12	3800
18	178 ÷ 188	M10/M12	3800
19	194 ÷ 204	M10/M12	3800
20	203 ÷ 213	M10/M12	3800
21	217 ÷ 227	M10/M12	3800

Table C9. Design load capacities for clamps BIS HD 1501 (rys. A10)

Pos.	D, mm	G	Design load F, N
1	159 ÷ 169	M16	3800
2	178 ÷ 188	M16	3800
3	194 ÷ 204	M16	3800
4	203 ÷ 213	M16	3800
5	217 ÷ 227	M16	3800
6	240 ÷ 250	M16	3800
7	265 ÷ 275	M16	9200
8	315 ÷ 325	M16	9200
9	354 ÷ 364	M16	9200
10	398 ÷ 408	M16	9200
11	448 ÷ 458	M16	9200
12	499 ÷ 509	M16	9200

Table C10. Design load capacities for clamps BIS HD 1501 (rys. A11)

Pos.	D, mm	G	Design load F, N
1	15 ÷ 19	½"	1500
2	19 ÷ 23	½"	1500
3	25 ÷ 29	½"	1500
4	30 ÷ 35	½"	1500
5	40 ÷ 45	½"	1500
6	46 ÷ 51	½"	1500
7	53 ÷ 59	½"	1500
8	59 ÷ 64	½"	1500
9	65 ÷ 71	½"	2300
10	72 ÷ 78	½"; ¾"	2300
11	79 ÷ 85	½"; ¾"	2300
12	86 ÷ 92	½"; ¾"	2300
13	101 ÷ 109	½"; ¾"	2300

Table C10, c.d. Design load capacities for clamps BIS HD 1501 (rys. A11)

Pos.	D, mm	G	Design load F, N
14	108 ÷ 116	½"; ¾"	2300
15	125 ÷ 133	½"; ¾"	2300
16	132 ÷ 140	½"; ¾"	2300
17	159 ÷ 169	½"; ¾"; 1"	3800
18	178 ÷ 188	½"; ¾"; 1"	3800
19	194 ÷ 204	½"; ¾"; 1"	3800
20	203 ÷ 213	½"; ¾"; 1"	3800
21	217 ÷ 227	½"; ¾"; 1"	3800
22	240 ÷ 250	½"; 1"	3800
23	265 ÷ 275	½"; 1"	9200
24	315 ÷ 325	½"; 1"	9200
25	354 ÷ 364	½"; 1"	9200
26	398 ÷ 408	½"; 1"	9200
27	448 ÷ 458	½"; 1"	9200
28	499 ÷ 509	½"; 1"	9200
29	554 ÷ 564	½"; 1"	9200

Table C11. Design load capacities for clamps BIS Bifix® 300 (rys. A12)

Pos.	D, mm	G	Design load F, N
1	15 ÷ 19	M8	1000
2	20 ÷ 22	M8	1000
3	25 ÷ 28	M8	1000
4	31 ÷ 35	M8	1000
5	40 ÷ 43	M8	1000
6	47 ÷ 51	M8	1000
7	54 ÷ 60	M8	1000
8	72 ÷ 76	M8	1500
9	85 ÷ 89	M8	1500
10	110 ÷ 118	M8	1500
11	62 ÷ 68	M10	1500
12	72 ÷ 76	M10	1500
13	79 ÷ 85	M10	1500
14	85 ÷ 89	M10	1500
15	100 ÷ 105	M10	1500
16	106 ÷ 111	M10	1500
17	110 ÷ 118	M10	1500
18	122 ÷ 127	M10	1500
19	129 ÷ 134	M10	1500
20	139 ÷ 144	M10	1500
21	150 ÷ 155	M10	1500
22	157 ÷ 162	M10	1500
23	164 ÷ 169	M10	1500
24	193 ÷ 200	M10	1500
25	212 ÷ 219	M10	1500

Table C12. Design load capacities for clamps HD500 (rys. A13)

Pos.	D, mm	G	Design load F, N
1	15 ÷ 19	M8/M10	2100
2	19 ÷ 23	M8/M10	2100
3	25 ÷ 30	M8/M10	2100
4	31 ÷ 36	M8/M10	2100
5	37 ÷ 42	M8/M10	2100

Table C12, c.d. Design load capacities for clamps HD500 (rys. A13)

Pos.	D, mm	G	Design load F, N
1	15 ÷ 19	M8/M10	2100
2	19 ÷ 23	M8/M10	2100
3	25 ÷ 30	M8/M10	2100
4	31 ÷ 36	M8/M10	2100
5	37 ÷ 42	M8/M10	2100
6	40 ÷ 45	M8/M10	2100
7	47 ÷ 52	M8/M10	2100
8	53 ÷ 58	M8/M10	2100
9	59 ÷ 65	M8/M10	2100
10	66 ÷ 71	M8/M10	2100
11	72 ÷ 78	M10/M12	4000
12	79 ÷ 85	M10/M12	4000
13	86 ÷ 92	M10/M12	4000
14	98 ÷ 106	M10/M12	4000
15	108 ÷ 116	M10/M12	4000
16	116 ÷ 123	M10/M12	4000
17	125 ÷ 133	M10/M12	4000
18	132 ÷ 140	M10/M12	4000
19	148 ÷ 154	M10/M12	4000
20	159 ÷ 169	M10/M12	8200
21	173 ÷ 183	M10/M12	8200
22	192 ÷ 202	M10/M12	8200
23	208 ÷ 219	M10/M12	8200
24	217 ÷ 227	M10/M12	8200

Table C13. Design load capacities for clamps HD500 (rys. A14)

Pos.	D, mm	G	Design load F, N
1	159 ÷ 169	M16	8200
2	173 ÷ 183	M16	8200
3	192 ÷ 202	M16	8200
4	217 ÷ 227	M16	8200
5	229 ÷ 241	M16	8200
6	244 ÷ 254	M16	8200
7	254 ÷ 264	M16	8200
8	267 ÷ 279	M16	8200
9	279 ÷ 289	M16	12000
10	292 ÷ 302	M16	12000
11	315 ÷ 325	M16	12000
12	350 ÷ 360	M16	12000
13	364 ÷ 374	M16	12000
14	379 ÷ 389	M16	12000
15	398 ÷ 408	M16	12000
16	408 ÷ 418	M16	12000
17	424 ÷ 436	M16	12000
18	448 ÷ 458	M16	12000
19	499 ÷ 509	M16	12000

Table C14. Design load capacities for clamps HD500 (rys. A15)

Pos.	D, mm	G	Design load F, N
1	15 ÷ 19	½"	2100
2	19 ÷ 23	½"	2100
3	25 ÷ 30	½"	2100
4	31 ÷ 36	½"	2100
5	37 ÷ 42	½"	2100
6	40 ÷ 45	½"	2100
7	47 ÷ 52	½"	2100
8	53 ÷ 58	½"	2100
9	59 ÷ 65	½"	2100
10	66 ÷ 71	½"	2100
11	72 ÷ 78	½"	4000
12	79 ÷ 85	½"	4000
13	86 ÷ 92	½"	4000
14	98 ÷ 106	½"	4000
15	108 ÷ 116	½"	4000
16	125 ÷ 133	½"	4000
17	132 ÷ 140	½"	4000
18	148 ÷ 154	½"	4000
19	159 ÷ 169	½"	8200
20	173 ÷ 183	½"	8200
21	192 ÷ 202	½"	8200
22	208 ÷ 219	½"	8200
23	217 ÷ 227	½"	8200
24	244 ÷ 254	½"	8200
25	267 ÷ 279	½"	8200
26	279 ÷ 289	½"	12000
27	315 ÷ 325	½"	12000
28	350 ÷ 360	½"	12000
29	398 ÷ 408	½"	12000
30	424 ÷ 436	½"	12000
31	448 ÷ 458	½"	12000
32	499 ÷ 509	½"	12000
33	554 ÷ 564	½"	12000

Table C15. Design load capacities for clamps HD500 (rys. A16)

Pos.	D, mm	G	Design load F, N
1	159 ÷ 169	1"	8200
2	173 ÷ 183	1"	8200
3	192 ÷ 202	1"	8200
4	217 ÷ 227	1"	8200
5	244 ÷ 254	1"	8200
6	279 ÷ 289	1"	12000
7	315 ÷ 325	1"	12000
8	350 ÷ 360	1"	12000
9	398 ÷ 408	1"	12000
10	448 ÷ 458	1"	12000
11	499 ÷ 509	1"	12000
12	554 ÷ 564	1"	12000

Table C16. Design load capacities for clamps HD500 (rys. A17)

Pos.	D, mm	G	Design load F, N
1	19 ÷ 23	M8/M10	2700
2	25 ÷ 30	M8/M10	2700
3	31 ÷ 36	M8/M10	2700
4	40 ÷ 45	M8/M10	2700
5	47 ÷ 52	M8/M10	2700
6	59 ÷ 65	M8/M10	2700
7	72 ÷ 78	M10/M12	5000
8	86 ÷ 92	M10/M12	5000
9	108 ÷ 116	M10/M12	5000
10	132 ÷ 140	M12	5000
11	159 ÷ 169	M12	5800
12	208 ÷ 219	M16	5800

Table C17. Design load capacities for clamps BIS 434 (rys. A18)

Pos.	D, mm	G	Design load F, N
1	40	M10	1100
2	50	M10	1100
3	56	M10	1100
4	63	M10	1100
5	75	M10	1100
6	90	M10	1100
7	110	M10	1100
8	125	M10	1100
9	160	M10	1100
10	200	M10	6200
11	250	M10	6200
12	315	M10	6200
13	40	½"	1100
14	50	½"	1100
15	56	½"	1100
16	63	½"	1100
17	75	½"	1100
18	90	½"	1100
19	110	½"	1100
20	125	½"	1100
21	160	½"	1100
22	160	1"	6200
23	200	1"	6200
24	225	1"	6200
25	250	1"	6200
26	315	1"	6200

Table C18. Design load capacities for clamps BIS 434 (rys. A19)

Pos.	D, mm	G	Design load F, N
1	32	M10	4160
2	40	M10	4160
3	50	M10	4160
4	63	M10	4160
5	75	M10	4160
6	90	M10	4160
7	110	M10	4160
8	125	M10	4160

Table C18, c.d. Design load capacities for clamps BIS 434 (rys. A19)

Pos.	D, mm	G	Design load F, N
9	160	M10	4160
10	200	M10	4160
11	200	1"	3180
12	250	1"	3180

Table C19. Design load capacities for clamps BISMAT® Flash (rys. A20)

Pos.	D, mm	G	Design load F, N
1	15 ÷ 18	M8	400
2	20 ÷ 23	M8	400
3	25 ÷ 28	M8	500
4	32 ÷ 35	M8	500
5	40 ÷ 43	M8	700
6	48 ÷ 51	M8	700
7	53 ÷ 56	M8	700
8	59 ÷ 63	M8	700
9	15 ÷ 18	M8/M10	400
10	20 ÷ 23	M8/M10	400
11	25 ÷ 28	M8/M10	500
12	32 ÷ 35	M8/M10	500
13	40 ÷ 43	M8/M10	700
14	48 ÷ 51	M8/M10	700
15	53 ÷ 56	M8/M10	700
16	59 ÷ 63	M8/M10	700

Table C20. Design load capacities for clamps BIS Aero (rys. A21)

Pos.	D, mm	G	Design load F, N
1	80	M8	700
2	100	M8	700
3	125	M8	700
4	140	M8	720
5	150	M8	720
6	160	M8	720
7	180	M8	720
8	200	M8	720
9	225	M8	720
10	250	M8	720
11	280	M8	720
12	300	M8	720
13	315	M8	720
14	355	M8	720
15	400	M8	720
16	450	M8/M10	1150
17	500	M8/M10	1150
18	560	M8/M10	1150
19	600	M8/M10	1150
20	630	M8/M10	1150
21	710	-	1150
22	800	-	1150
23	900	-	1150
24	1000	-	1150
25	1120	-	1150
26	1250	-	1150

Table C21. Design load capacities for clamps Spiro (rys. A22)

Pos.	D, mm	G	Design load F, N
1	80	M8/M10	500
2	100	M8/M10	500
3	112	M8/M10	500
4	125	M8/M10	500
5	140	M8/M10	500
6	150	M8/M10	500
7	160	M8/M10	500
8	180	M8/M10	500
9	200	M8/M10	500
10	225	M8/M10	500
11	250	M8/M10	500
12	280	M8/M10	500
13	300	M8/M10	500
14	315	M8/M10	500
15	355	M8/M10	500
16	400	M8/M10	500
17	450	M8/M10	1100
18	500	M8/M10	1100
19	560	M8/M10	1300
20	600	M8/M10	1300
21	630	M8/M10	1300

Table C22. Design load capacities for clamps BIS KSB2 (rys. A23)

Pos.	D, mm	G	Design load F, N
1	10 ÷ 14	M8/M10	495
2	15 ÷ 19	M8/M10	495
3	20 ÷ 23	M8/M10	495
4	25 ÷ 28	M8/M10	495
5	31 ÷ 35	M8/M10	495
6	36 ÷ 39	M8/M10	495
7	40 ÷ 45	M8/M10	495
8	48 ÷ 52	M8/M10	495
9	54 ÷ 58	M8/M10	495
10	60 ÷ 64	M8/M10	495
11	66 ÷ 70	M8/M10	560
12	75 ÷ 79	M8/M10	560
13	80 ÷ 83	M8/M10	560
14	88 ÷ 91	M8/M10	1055
15	100 ÷ 105	M8/M10	1055
16	108 ÷ 115	M8/M10	1055
17	125 ÷ 130	M8/M10	1055
18	133 ÷ 140	M8/M10	1055
19	152 ÷ 160	M8/M10	1055
20	165 ÷ 169	M8/M10	2250
21	176 ÷ 180	M8/M10	2250
22	192 ÷ 200	M8/M10	2250
23	205 ÷ 210	M8/M10	2250
24	219 ÷ 225	M8/M10	2250

Table C23. Design load capacities for clamps BIS 2S (rys. A24)

Pos.	D, mm	G	Design load F, N
1	10 ÷ 14	M8	330
2	15 ÷ 19	M8	330
3	20 ÷ 24	M8	330
4	25 ÷ 30	M8	330
5	31 ÷ 37	M8	330
6	38 ÷ 46	M8	500
7	47 ÷ 52	M8	500
8	53 ÷ 61	M8	500
9	62 ÷ 67	M8	500

Table C24. Design load capacities for clamps BIS 2S (rys. A25)

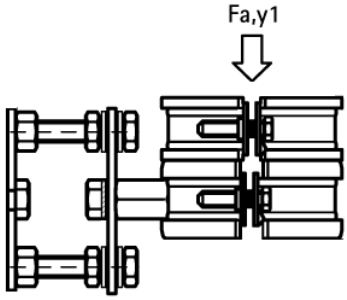
Pos.	D, mm	G	Design load F, N
1	10 ÷ 14	M8/M10	330
2	15 ÷ 19	M8/M10	330
3	20 ÷ 24	M8/M10	330
4	25 ÷ 30	M8/M10	330
5	31 ÷ 37	M8/M10	330
6	38 ÷ 46	M8/M10	500
7	47 ÷ 52	M8/M10	500
8	53 ÷ 61	M8/M10	500
9	62 ÷ 67	M8/M10	500
10	68 ÷ 74	M8/M10	850
11	75 ÷ 81	M8/M10	850
12	82 ÷ 87	M8/M10	850
13	88 ÷ 95	M8/M10	1000
14	96 ÷ 103	M8/M10	1000
15	104 ÷ 112	M8/M10	1000
16	113 ÷ 118	M8/M10	1000
17	119 ÷ 127	M8/M10	1000
18	128 ÷ 137	M8/M10	1000
19	138 ÷ 144	M8/M10	1000
20	145 ÷ 153	M8/M10	1000
21	154 ÷ 162	M8/M10	1000
22	163 ÷ 172	M8/M10	2350
23	173 ÷ 183	M8/M10	2350
24	184 ÷ 194	M8/M10	2350
25	195 ÷ 205	M8/M10	2350
26	206 ÷ 216	M8/M10	2350
27	217 ÷ 225	M8/M10	2350

Table C25. Design load capacities for clamps BIS 2S (rys. A26)

Pos.	D, mm	G	Design load F, N
1	10 ÷ 14	M8	700
2	15 ÷ 19	M8	700
3	20 ÷ 24	M8	700
4	25 ÷ 30	M8	700
5	31 ÷ 37	M8	700
6	38 ÷ 46	M8	850
7	47 ÷ 52	M8	850
8	53 ÷ 61	M8	850
9	62 ÷ 67	M8	850

Table C26. Design load capacities for clamps BIS 2S (rys. A27)

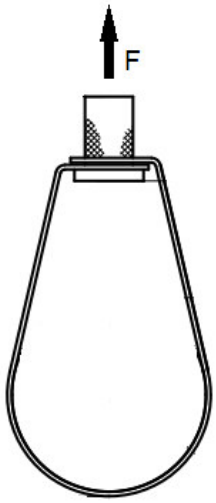
Pos.	D, mm	G	Design load F, N
1	10 ÷ 14	M8/M10	700
2	15 ÷ 19	M8/M10	700
3	20 ÷ 24	M8/M10	700
4	25 ÷ 30	M8/M10	700
5	31 ÷ 37	M8/M10	700
6	38 ÷ 46	M8/M10	850
7	47 ÷ 52	M8/M10	850
8	53 ÷ 61	M8/M10	850
9	62 ÷ 67	M8/M10	850
10	68 ÷ 74	M8/M10	1400
11	75 ÷ 81	M8/M10	1400
12	82 ÷ 87	M8/M10	1400
13	88 ÷ 95	M8/M10	2000
14	96 ÷ 103	M8/M10	2000
15	104 ÷ 112	M8/M10	2000
16	113 ÷ 118	M8/M10	2000
17	119 ÷ 127	M8/M10	2000
18	128 ÷ 137	M8/M10	2000
19	138 ÷ 144	M8/M10	2000
20	145 ÷ 153	M8/M10	2000
21	154 ÷ 162	M8/M10	2000
22	163 ÷ 172	M8/M10	3300
23	173 ÷ 183	M8/M10	3300
24	184 ÷ 194	M8/M10	3300
25	195 ÷ 205	M8/M10	3300
26	206 ÷ 216	M8/M10	3300
27	217 ÷ 225	M8/M10	3300



Rys. C3. Force application diagram (C27)

Tablica C27. Design load capacities for clamps BIS BISMAT® 1000 (rys. A28)

Poz.	D, mm	B	Design load $F_{a,y1}$, N
1	75	144	650
2	78	154	650
3	83	144	820
4	89	164	820
5	110	176	820
6	125	192	820
7	160	233	820
8	210	284	820



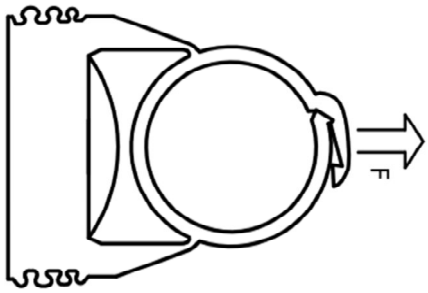
Rys. C4. Force application diagram (C28 i C29)

Tablica C28. Design load capacities for clamps BIS TA 41 (rys. A29)

Poz.	D, mm	G	Design load F, N
1	23	M10	1500
2	28	M10	1500
3	35	M10	1500
4	44	M10	1500
5	50	M10	1500
6	62	M10	1500
7	77	M10	4500
8	90	M10	4500
9	115	M10	4500
10	142	M12	5200
11	170	M12	5200
12	221	M12	5200

Tablica C29. Design load capacities for clamps Walraven (rys. A30)

Poz.	D, mm	G	Design load F, N
1	26,9	M8	2000
2	33,7	M8	2000
3	42,4	M8	2000
4	48,3	M8	2000
5	60,3	M8	2000
6	33,7	M10	2000
7	42,4	M10	2000
8	48,3	M10	2000
9	60,3	M10	2000
10	76,1	M10	3500
11	88,9	M10	3500
12	114,3	M10	3500
13	139,7	M12	5000
14	168,3	M12	5000
15	219,1	M16	8000

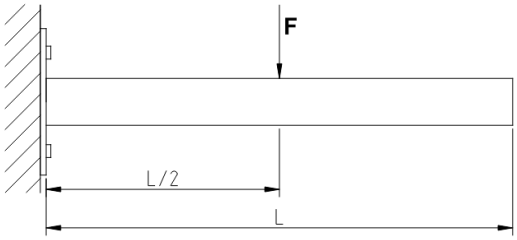


Rys. C5. Force application diagram (C30)

Tablica C30. Design load capacities for clamps StarQuick® (rys. A31)

Poz.	D, mm	B, mm	Design load F, N
1	10 ÷ 12	29	500
2	12 ÷ 14	29	550
3	14 ÷ 16	29	600
4	16 ÷ 20	29	700
5	20 ÷ 23	29	800
6	24 ÷ 28	40	850
7	28 ÷ 32	40	900
8	32 ÷ 35	43	1000
9	35 ÷ 40	47	1100
10	40 ÷ 44	52	1200
11	44 ÷ 50	57	1300
12	48 ÷ 55	63	1400
13	59 ÷ 65	74	1500

3



Rys. C6. Force application diagram (C31 ÷ 33)

Tablica C31. Design load capacities for cantilever arms BIS RapidRail® (rys. A32)

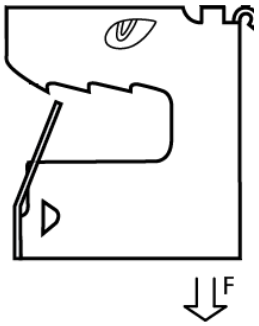
Poz.	Oznaczenie	L, mm	B, mm	Design load F, N
1	BIS RapidRail® 27x18	150	38	200
2	BIS RapidRail® 27x18	200	38	149
3	BIS RapidRail® 27x18	300	38	99
4	BIS RapidRail® 27x18	500	38	46
5	BIS RapidRail® 30x15	200	38	141
6	BIS RapidRail® 30x15	300	38	93
7	BIS RapidRail® 30x20	150	38	208
8	BIS RapidRail® 30x20	200	38	155
9	BIS RapidRail® 30x20	250	38	124
10	BIS RapidRail® 30x30	200	48	385
11	BIS RapidRail® 30x30	250	48	307
12	BIS RapidRail® 30x30	300	48	256
13	BIS RapidRail® 30x30	400	48	191
14	BIS RapidRail® 30x30	500	48	151

Tablica C32. Design load capacities for cantilever arms BIS RapidStrut® (rys. A33)

Poz.	Oznaczenie	L, mm	B, mm	Design load F, N
1	BIS RapidStrut® 21 H	200	50	1663
2	BIS RapidStrut® 21 H	300	50	1107
3	BIS RapidStrut® 21 H	450	50	735
4	BIS RapidStrut® 21 H	600	50	548
5	BIS RapidStrut® 41 M	300	50	1107
6	BIS RapidStrut® 41 M	450	50	735
7	BIS RapidStrut® 41 M	600	50	548
8	BIS RapidStrut® 41 H	150	50	2218
9	BIS RapidStrut® 41 H	200	50	1662
10	BIS RapidStrut® 41 H	300	50	1106
11	BIS RapidStrut® 41 H	400	50	827
12	BIS RapidStrut® 41 H	450	50	743
13	BIS RapidStrut® 41 H	500	50	659
14	BIS RapidStrut® 41 H	600	50	547
15	BIS RapidStrut® 41 H	750	50	434
16	BIS RapidStrut® 41 H	1000	50	280
17	BIS RapidStrut® 41 H	1200	50	189

Tablica C33. Design load capacities for cantilevers BIS (rys. A34)

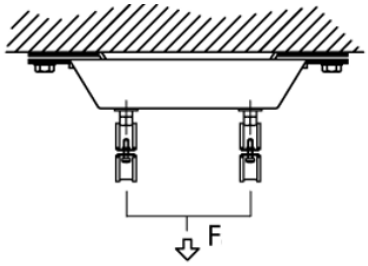
Poz.	DN	Design load F, N
1	70	3000
2	100	3000
3	125	3000
4	150	3000
5	200	3000



Rys. C7. Force application diagram (C34)

Tablica C34. Design load capacities for clamps BISCLIPS® TIGER (rys. A35)

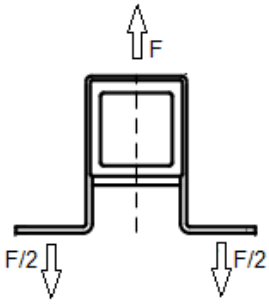
Poz.	Oznaczenie	Design load F, N
1	TIGER 8R	1200
2	TIGER 8	1200
3	TIGER 8B	1200
4	TIGER 16R	1200
5	TIGER 16	1200
6	TIGER 16B	1200
7	TIGER 24R	1200
8	TIGER 24	1200
9	TIGER 24B	1200



Rys. C8. Force application diagram (C35)

Tablica C35. Design load capacities for BIS dB-Fix® (rys. A36 i A37)

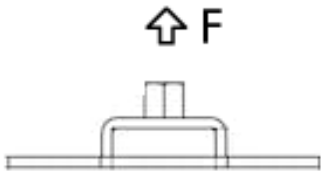
Poz.	Oznaczenie	Design load F, N
1	BIS dB-Fix® 80	2700
2	BIS dB-Fix® 200	6600



Rys. C9. Force application diagram (C36)

Tablica C36. Design load capacities for expansion guides BIS (rys. A38)

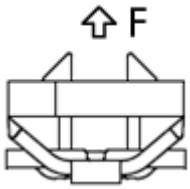
Poz.	Oznaczenie	Design load F, N
1	FG2	1500
2	FG3	7500



Rys. C10. Force application diagram (C37)

Tablica C37. Design load capacities for expansion devices BIS (A39 ÷ A44)

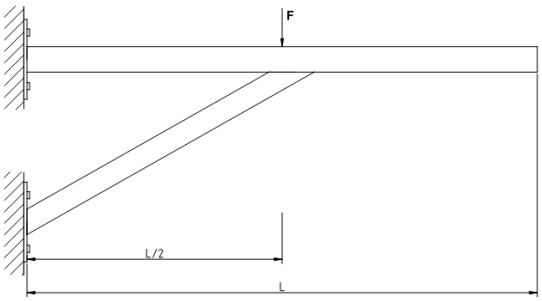
Pos.	Marking	Rys.	Design load F, N
1	BIS - pojedyncze (M8/M10)	A39	3500
2	BIS - pojedyncze (M10/M12)	A39	4800
3	BIS - pojedyncze (M16)	A39	4800
4	BIS - pojedyncze	A40	700
5	BIS - pojedyncze	A41	2300
6	BIS - pojedyncze	A42	9000
7	BIS - podwójne	A43	2300
8	BIS - podwójne	A44	4700



Rys. C11. Force application diagram (C38)

Tablica C38. Design load capacities for sliding nuts BIS (A45 ÷ A47)

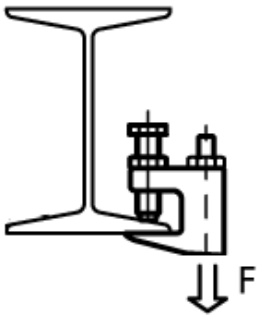
Poz.	Oznaczenie	Rys.	Design load F, N
1	BIS RapidRail® (M6)	A45	2000
2	BIS RapidRail® (M8)	A45	2700
3	BIS RapidRail® (M10)	A45	2900
4	BIS RapidRail® STN (M6)	A46	2000
5	BIS RapidRail® STN (M8)	A46	2700
6	BIS RapidRail® STN (M10)	A46	2900
7	BIS RapidStrut® G2 (M6)	A47	2660
8	BIS RapidStrut® G2 (M8)	A47	3120
9	BIS RapidStrut® G2 (M10)	A47	5000
10	BIS RapidStrut® G2 (M12)	A47	5000



Rys. C12. Force application diagram (C39)

Tablica C39. Design load capacities for props BIS RapidRail® i BIS RapidStrut® (rys. A48)

Poz.	Rodzaj	H, mm	Design load F, N
1	A	250	4500
2	A	350	4500
3	B	-	2700
4	C	-	7500



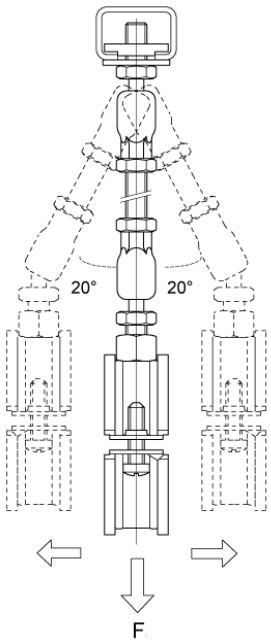
Rys. C13. Force application diagram (C40 i C41)

Tablica C40. Design load capacities for beam clamps model C (rys. A49)

Poz.	B, mm	H, mm	G	R	Design load F, N
1	38	35	M8	M6	1200
2	50	45	M10	M6	2500
3	38	35	M8	M8	1200
4	50	45	M10	M8	2500
5	44	42	M10	M10	2500
6	58	58	M12	M10	2500
7	58	54	M10	M12	3500
8	58	58	M12	M16	5500
9	38	35	M8	Ø9	1200
10	50	45	M10	Ø9	2500
11	44	42	M10	Ø11	2500
12	58	54	M10	Ø13	3500

Tablica C41. Design load capacities for clamps BISCLIPS® (rys. A50 ÷ A53)

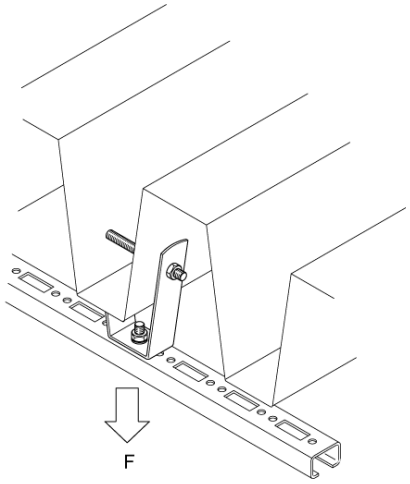
Poz.	Oznaczenie	Rys.	Design load F, N
1	BISCLIPS® SB-ICTM	A50	550
2	BISCLIPS® SB-TRM	A51	250
3	BISCLIPS® SB-M, SB-M-B	A52	550
4	BISCLIPS® SB-VM, SB-VM-B	A53	550



Rys. C14. Force application diagram (C42)

Tablica C42. Design load capacities for swivel hangers BIS (rys. A54 ÷ A58)

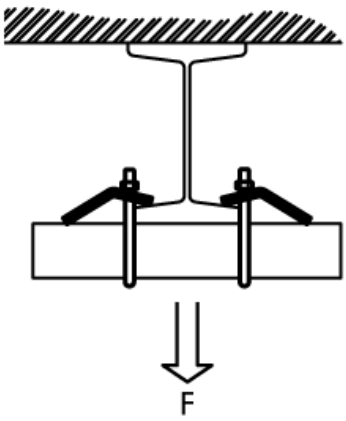
Poz.	Oznaczenie	Rys.	Design load F, N
1	BIS (M8)	A54	3100
2	BIS (M10)	A54	3100
3	BIS (M10)	A55	3100
4	BIS (M8)	A56	3100
5	BIS (M10)	A56	3100
6	BIS (M12)	A57	3100
7	BIS RapidRail® (L = 45 mm, M8)	A58	2000
8	BIS RapidRail® (L = 70 mm, M8)	A58	2000
9	BIS RapidRail® (L = 45 mm, M10)	A58	2000
10	BIS RapidRail® (L = 70 mm, M10)	A58	2000



Rys. C15. Force application diagram (C43)

Tablica C43. Design load capacities for trapezoidal sheet hangers BIS (rys. A59)

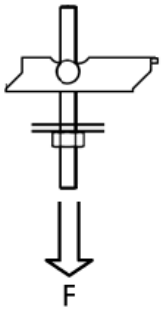
Poz.	G	Design load F, N
1	Ø13,0	2300
2	M8	2300
3	M10	2300



Rys. C16. Force application diagram (C44)

Tablica C44. Design load capacities for beam clamps (rys. A60 ÷ A62)

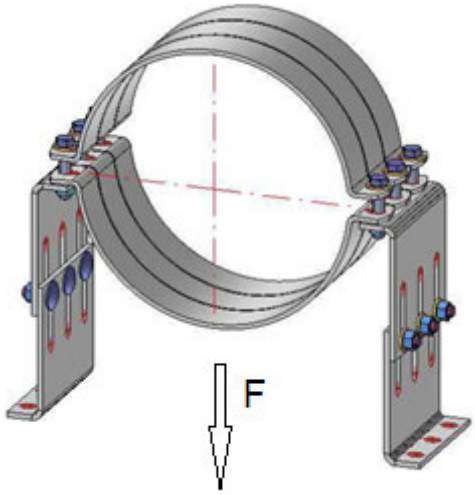
Poz.	Oznaczenie	Rys.	Design load F, N
1	RapidRail® (M6)	A60	2500
2	RapidRail® (M8)	A60	2500
3	RapidStrut® (Lm1 = 60 mm)	A61	5700
4	RapidStrut® (Lm1 = 75 mm)	A61	5700
5	RapidStrut® HD	A62	7800



Rys. C17. Force application diagram (C45)

Tablica C45. Design load capacities for toggle plugs (rys. A63)

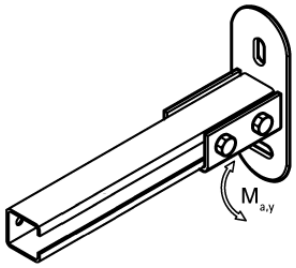
Poz.	Oznaczenie	Rys.	Design load F, N
2	BIS (M6)	A64	2650
3	BIS (M8)	A64	4290
4	BIS (M10)	A64	6600



Rys. C18. Force application diagram (C46)

Tablica C46. Design load capacities for fixpoint consoles BIS FIX (A64 ÷ A66)

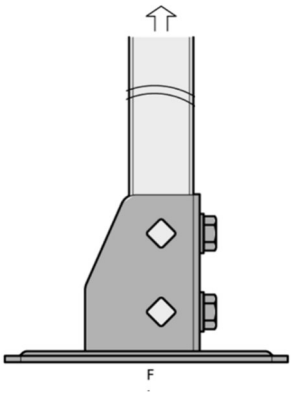
Poz.	Oznaczenie	Rys.	Design load F, N
1	BIS FIX (light)	A64	4000
2	BIS FIX (medium)	A65	8000
3	BIS FIX (heavy)	A66	10000



Rys. C19. Force application diagram (C47)

Tablica C47. Design load capacities for wallplates BIS RapidRail® (rys. A67 i A68)

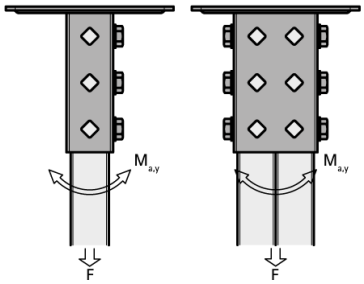
Poz.	Oznaczenie	Rys.	Design load M_a,y, N
1	BIS RapidRail®	A67	310
2	BIS RapidRail®	A68	140



Rys. C20. Force application diagram (C48)

Tablica C48. Design load capacities for wallplates BIS RapidStrut® G2 (rys. A69 i A70)

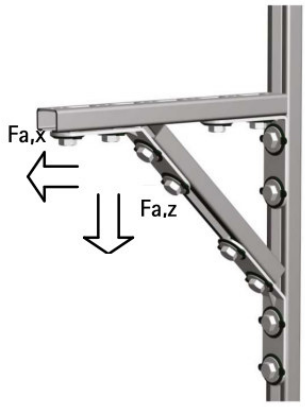
Poz.	Oznaczenie	Rys.	Design load F, N
1	BIS RapidStrut® G2	A69	5151
2	BIS RapidStrut® G2	A70	5151



Rys. C21. Force application diagram (C49)

Tablica C49. Design load capacities for base plates BIS RapidStrut® (rys. A71)

Poz.	Rodzaj	Design load	
		F, N	$M_{a,y}$, Nm
1	A	4242	258
2	B	17273	606



Rys. C22. Force application diagram (C50 ÷ C53)

Tablica C50. Design load capacities for connectors BIS RapidRail® 90° (rys. A72)

Poz.	Oznaczenie	B, mm	H, mm	Design load	
				$F_{a,z}$, N	$F_{a,x}$, N
1	BIS RapidRail® 90°	43,5	43,5	1186	345
2	BIS RapidRail® 90°	93,5	43,5	1186	345
3	BIS RapidRail® 90°	93,5	93,5	1562	720
4	BIS RapidRail® 90°	93,5	93,5	1562	720

Tablica C51. Design load capacities for connectors BIS RapidRail® 135° (rys. A73)

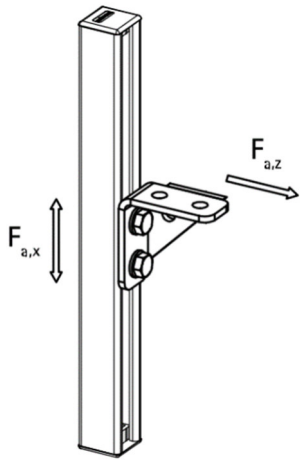
Poz.	Oznaczenie	Design load	
		$F_{a,z}$, N	$F_{a,x}$, N
1	BIS RapidRail® 135° (A)	1336	448
2	BIS RapidRail® 135° (B)	1336	448
3	BIS RapidRail® 135° (C)	1562	1109

Tablica C52. Design load capacities for connectors BIS RapidStrut® 90° (rys. A74)

Poz.	Oznaczenie	L, mm	H, mm	Design load	
				$F_{a,z}$, N	$F_{a,x}$, N
1	BIS RapidStrut® 90°	42	62	4000	2270
2	BIS RapidStrut® 90°	62	62	4000	2270
3	BIS RapidStrut® 90°	62	103	4500	4700
4	BIS RapidStrut® 90°	103	103	4500	4700

Tablica C53. Design load capacities for connectors BIS RapidStrut® 135° (rys. A75)

Poz.	Oznaczenie	Design load	
		$F_{a,z}$, N	$F_{a,x}$, N
1	BIS RapidStrut® 135° (A)	4000	2270
2	BIS RapidStrut® 135° (B)	4500	4700



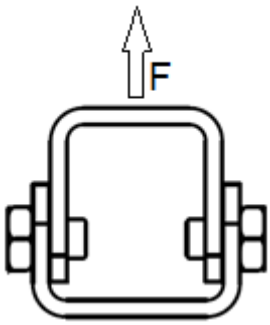
Rys. C23. Force application diagram (C54 i C55)

Tablica C54. Design load capacities for connectors BIS RapidStrut® (rys. A76)

Poz.	Oznaczenie	Design load	
		$F_{a,z}$, N	$F_{a,x}$, N
1	BIS RapidStrut®	4000	3000

Tablica C55. Design load capacities for connectors BIS RapidStrut® 2D (rys. A77)

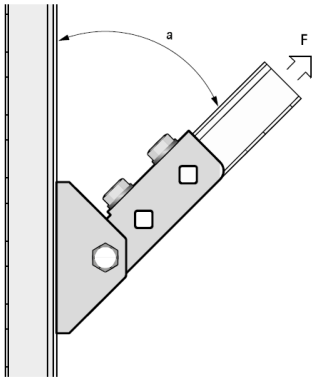
Poz.	Rodzaj	Design load	
		$F_{a,z}$, N	$F_{a,x}$, N
1	A	7060	1840
2	B	7310	3420



Rys. C24. Force application diagram (C56)

Tablica C56. Design load capacities for connectors adjustable connectors BIS RapidStrut® (rys. A78)

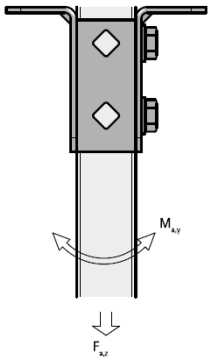
Poz.	Oznaczenie	Design load F, N
1	BIS RapidStrut®	9950



Rys. C25. Force application diagram (C57)

Tablica C57. Design load capacities for wallplate hinged BIS RapidStrut® (rys. A79)

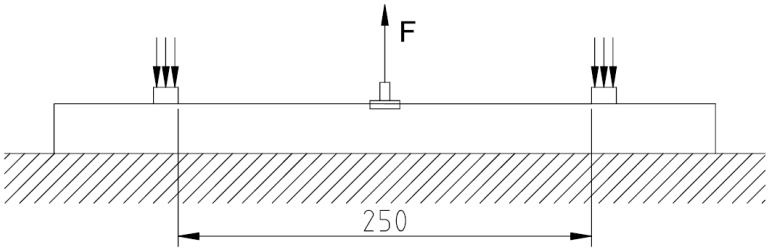
Poz.	Oznaczenie	Design load F, N
1	BIS RapidStrut®	2500



Rys. C26. Force application diagram (C58)

Tablica C58. Design load capacities for T-shape base plate BIS RapidStrut®(rys. A80)

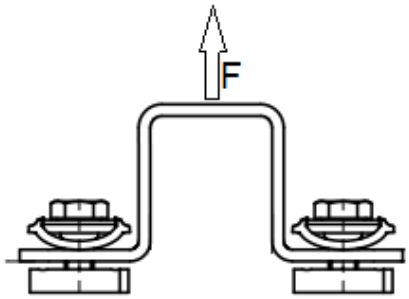
Poz.	Oznaczenie	Design load	
		$F_{a,z}$, N	$M_{a,y}$, Nm
1	BIS RapidStrut®	3636	164



Rys. C27. Force application diagram (C59)
(dimensions in mm)

Tablica C59. Design load capacities for linear connectorsBIS (rys. A81 i A82)

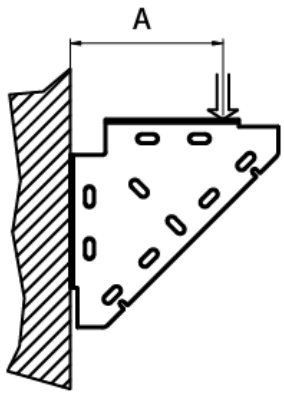
Poz.	Oznaczenie		Design load F, N
1	BIS RapidRail®		1850
2	BIS RapidStrut® G2		1850



Rys. C28. Force application diagram (C60)

Tablica C60. Design load capacities for cross connectors RapidStrut® G2 (rys. A83)

Poz.	h, mm	Design load F, N
1	20	3818
2	40	4385
3	50	2974
4	60	4839
5	80	4601



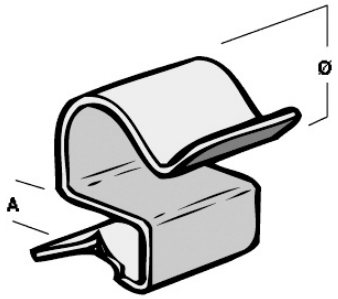
A = 120 mm

Rys. C29. Force application diagram (C61)

Tablica C61. Design load capacities for triangle connectors RapidStrut® (rys. A84)

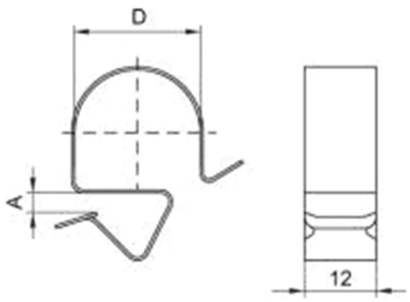
Poz.	Rodzaj	Design load F, N
1	A	2700
2	B	2700
3	C	2700

Apendix D.



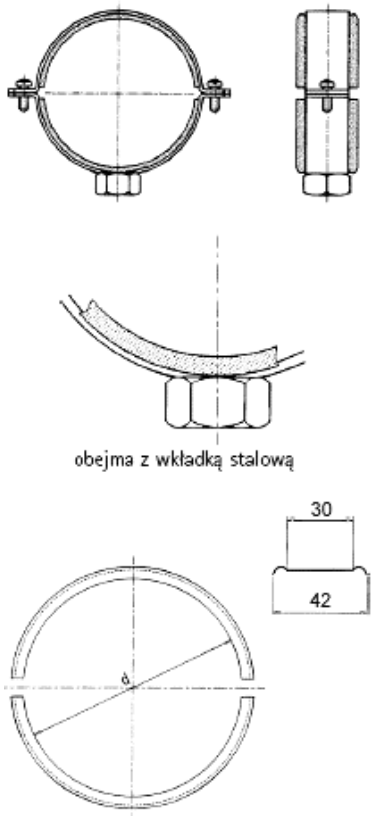
Pos.	Marking	Dimensions, mm	
		A	Ø
1	PC	2 ÷ 4	4,5 ÷ 5,5
2	PC	2 ÷ 4	6,0 ÷ 7,0
3	PC	2 ÷ 4	7,0 ÷ 9,0
4	PC	2 ÷ 4	10,0 ÷ 11,0
5	PC	2 ÷ 4	12,0 ÷ 14,0
6	PC	2 ÷ 4	15,0 ÷ 18,0
7	PC	2 ÷ 4	19,0 ÷ 24,0
8	PC	2 ÷ 4	25,0 ÷ 30,0
9	PC	4 ÷ 7	4,5 ÷ 5,5
10	PC	4 ÷ 7	6,0 ÷ 7,0
11	PC	4 ÷ 7	7,0 ÷ 9,0
12	PC	4 ÷ 7	10,0 ÷ 11,0
13	PC	4 ÷ 7	12,0 ÷ 14,0
14	PC	4 ÷ 7	15,0 ÷ 18,0
15	PC	4 ÷ 7	19,0 ÷ 24,0
16	PC	4 ÷ 7	25,0 ÷ 30,0
17	PC	8 ÷ 12	4,5 ÷ 5,5
18	PC	8 ÷ 12	6,0 ÷ 7,0
19	PC	8 ÷ 12	7,0 ÷ 9,0
20	PC	8 ÷ 12	10,0 ÷ 11,0
21	PC	8 ÷ 12	12,0 ÷ 14,0
22	PC	8 ÷ 12	15,0 ÷ 18,0
23	PC	8 ÷ 12	19,0 ÷ 24,0
24	PC	8 ÷ 12	25,0 ÷ 30,0
25	PC	8 ÷ 12	4,5 ÷ 5,5

Rys. D1. Slide-in cable clips PC



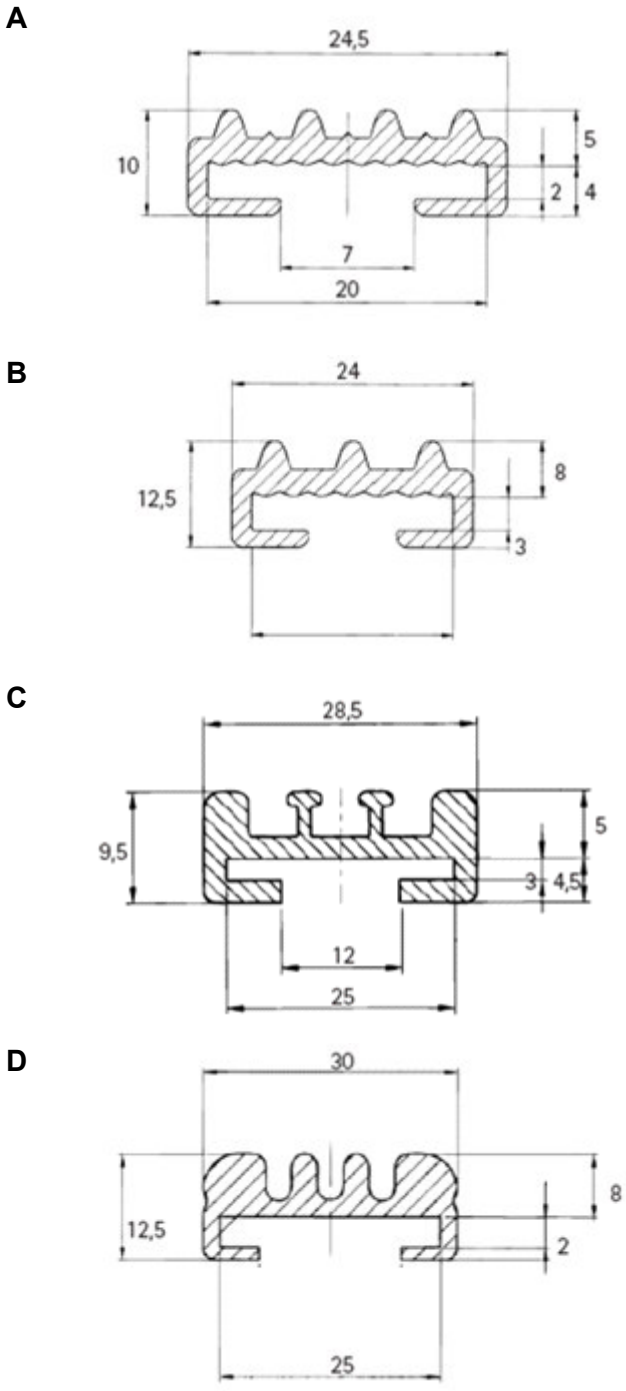
Pos.	Dimensions, mm	
	D	A
1	6 ÷ 9	2 ÷ 7
2	10 ÷ 14	2 ÷ 7
3	15 ÷ 21	2 ÷ 7
4	22 ÷ 32	2 ÷ 7
5	6 ÷ 9	8 ÷ 12
6	10 ÷ 14	8 ÷ 12
7	15 ÷ 21	8 ÷ 12
8	22 ÷ 32	8 ÷ 12

Rys. D2. Clamps BISCLIPS® GAM 8,
(dimensions in mm)

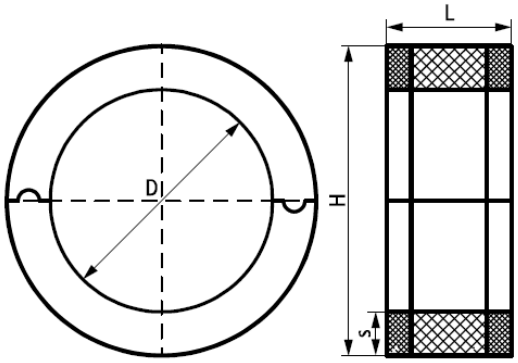


Diameter d: 40, 50, 56, 63, 75, 90, 110, 125, 160, 200, 225, 250, 315 mm

Rys. D3. Steel inlays BIS for clamps
(dimensions in mm)



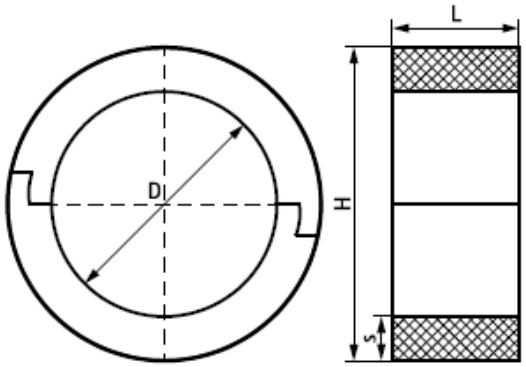
Rys. D4. Clamps lining BIS made of EPDM or silicone
(dimensions in mm)



Pos.	D	L	BISOFIX® E13		BISOFIX® E19		BISOFIX® E25		BISOFIX® E32	
			H	s	H	s	H	s	H	s
	[mm]									
1	8,0	50	34,6	13,3	-	-	-	-	-	-
2	10,2	50	36,8	13,3	-	-	-	-	-	-
3	12,0	50	38,8	13,3	50,6	19,3	50	62,6	76,6	32,3
4	15,0	50	41,6	13,3	54,0	19,5	50	66,0	80,0	32,5
5	17,2 ÷ 18,0	50	44,6	13,3	56,6	19,3	50	68,6	82,6	32,3
6	21,3 ÷ 22,0	50	48,6	13,3	60,3	19,3	50	75,4	88,0	330,
7	26,9 ÷ 28,0	50	55,0	13,3	66,6	19,3	50	78,6	100,0	36,0
8	33,7 ÷ 35,0	50	61,6	13,3	78,4	19,9	50	88,0	100,0	32,5
9	42,4	50	69,0	13,3	81,0	19,3	50	100,0	108,0	32,8
10	48,3	50	74,9	13,3	88,1	19,3	50	100,1	112,9	32,3
11	54,0	50	80,6	13,3	100,0	23,0	50	104,6	124,6	35,3
12	57,0	50	83,6	13,3	103,0	23,0	50	107,6	124,9	35,3
13	60,3	50	88,1	13,9	10,1	19,9	50	110,9	124,9	32,3
14	64,0	50	100,0	18,0	114,6	25,3	50	128,6	152,0	44,0
15	70,0	50	102,6	16,3	124,6	27,3	50	134,6	152,0	41,0
16	76,1	50	108,7	16,3	126,7	25,3	50	140,7	156,7	40,3
17	88,9	50	124,7	17,9	139,5	253	50	153,5	176,1	43,6
18	101,6	50	134,2	16,3	152,2	25,3	50	166,2	192,0	45,2
19	108,0	50	140,6	16,3	158,6	25,3	50	176,0	192,0	42,0
20	114,3	50	142,1	18,9	164,9	25,3	50	178,9	194,9	40,3
21	133,0	100	165,6	16,3	192,0	29,5	100	197,6	218,4	42,7
22	139,7	100	176,1	18,2	192,1	26,2	100	205,1	220,3	40,3
23	159,0	100	192,6	16,3	210,6	25,3	100	224,6	241,0	40,5
24	168,3	100	200,9	16,3	218,9	26,3	100	232,9	248,9	40,3
25	219,1	100	-	-	269,7	263	100	283,7	315,1	48
26	273,1	100	-	-	323,6	25,3	-	-	353,6	40,3
27	323,9	100	-	-	374,5	25,3	-	-	-	-
28	356,0	100	-	-	406,6	25,3	-	-	-	-

Rys. D5. Cold blocks BISOFIX®

(dimensions in mm)



Poz.	D	L	BISOFIX® PIR 20		BISOFIX® PIR 30		BISOFIX® PIR 40		BISOFIX® PIR 50	
			H	s	H	s	H	s	H	s
	[mm]									
1	12,0	75	52,0	20	72,0	30	92,0	40	112,0	50
2	15,0 ÷ 16,0	75	55,0	20	75,0	30	95,0	40	115,0	50
3	17,2 ÷ 18,0	75	58,0	20	78,0	30	98,0	40	118,0	50
4	21,3 ÷ 22,0	75	62,0	20	82,0	30	102,0	40	122,0	50
5	26,9 ÷ 28,0	75	68,0	20	88,0	30	108,0	40	128,0	50
6	33,7 ÷ 35,0	75	75,0	20	95,0	30	115,0	40	135,0	50
7	42,4	75	82,4	20	102,4	30	122,4	40	142,4	50
8	48,3	75	88,3	20	108,3	30	128,3	40	148,3	50
9	54,0	75	94,0	20	114,0	30	134,0	40	154,0	50
10	56,0 ÷ 57,0	75	97,0	20	117,0	30	137,0	40	157,0	50
11	60,3	75	100,3	20	120,3	30	140,3	40	160,3	50
12	64,0	75	104,0	20	124,0	30	144,0	40	164,0	50
13	70,0	75	110,0	20	130,0	30	150,0	40	170,0	50
14	76,1	75	116,1	20	136,1	30	156,1	40	176,1	50
15	88,9	75	128,9	20	148,9	30	168,9	40	188,9	50
16	101,6	75	141,6	20	161,6	30	181,6	40	201,6	50
17	108,0	75	148,0	20	168,0	30	188,0	40	208,0	50
18	114,3	100	154,3	20	174,3	30	164,3	40	214,3	50
19	133,0	100	173,0	20	190,0	30	213,0	40	233,0	50
20	139,7	100	179,7	20	199,7	30	219,7	40	239,7	50
21	159,0	100	200,0	20	220,0	30	240,0	40	260,0	50
22	168,3	100	208,3	20	228,3	30	248,3	40	268,3	50
23	219,1	150	251,0	20	279,1	30	299,1	40	319,1	50
24	273,1	150	313,0	20	333,0	30	-	-	373,1	50
25	323,9	150	-	-	384,0	30	-	-	424,0	50
26	406,4	150	-	-	-	-	-	-	506,4	50

Rys. D6. Cold blocks BISOFIX® PIR

(dimensions in mm)