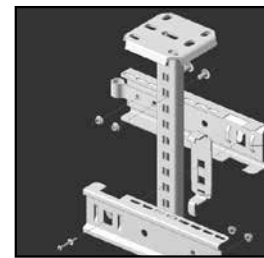


Standard supporting constructions

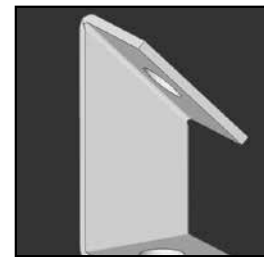


## FIRE-RESISTANT SYSTEMS

Non-standard supporting constructions



Accessories





## FIRE RESISTANCE

### STANDARD SUPPORTING CONSTRUCTION

<b>CABLE TRAYS</b>		
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### NON-STANDARD SUPPORTING CONSTRUCTION

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**INTRODUCTION**

The safety of people in case of fire can only be guaranteed if all the necessary safety installations remain operational. Cable support systems with preservation of functionality maintain their supporting function in case of fire and thereby contribute to the continuing operation of an installation. Until the European standard is published, VERGOKAN uses, the DIN 4102-12 Standard to test and certify the preservation of functionality of its installations.

**DIN 4102-12**

The DIN Standard 4102 part 12 defines the requirements and testing method for fire resistance of electric cable support systems required to maintain its integrity. The standard, limited to 1KV, specifies 3 categories of functional maintenance as follows: E30, E60 and E90. These categories designate the period of time for which the integrity of the installation is maintained. To determine which installations must have functional integrity in case of fire, we refer to local regulations.

**IMPLEMENTATION**

Cable support systems with functional integrity are tested for one configuration, which may be altered under certain conditions as long as the functional integrity of the cables isn't negatively influenced by the installation.

Permitted deviations are:

- The load per metre and/or the support distance may be reduced;
- The width of the trays/ladders and brackets may be reduced;
- The number of trays/ladders may be reduced;
- The horizontal distance between the trays and the ladders may be adapted;
- The material gauges may be increased;
- A setup may be horizontally or vertically offset, as long as the offset sections are adequately supported to prevent buckling or shearing;
- Any certified soffit fixed support system may also be used for wall mounting;
- A partition may be added to separate the cables with functional integrity from other cables;
- A bolted connection may be replaced by a welded connection.

**STANDARD SUPPORTING CONSTRUCTION**

The supporting constructions described in DIN Standard 4102 part 12 are also named cable independent supporting constructions. According to the regulations in Germany, all the cables with functional integrity according to DIN Standard 4102 part 12 are applicable to these constructions.

These constructions satisfy the following conditions:

- Support distance  $\leq 1200\text{mm}$
- Material gauge of the trays/ladder walls  $\geq 1,5\text{mm}$
- Height of the trays/ladders = 60mm
- Width of the ladders  $\leq 400\text{mm}$
- Width of the trays  $\leq 300\text{mm}$  (perforation rate 15 $\pm$ 5%)
- Rung distance of the ladders  $\leq 150\text{mm}$
- The extent of the arm is supported by a threaded rod fixed to the soffit
- The load is  $\leq 10\text{kg/lm}$  for cable trays and  $\leq 20\text{kg/lm}$  for cable ladders

Standard supporting constructions are tested according to DIN Standard 4102 part 12 and certified with "GS" certificates (Gutachterlichen Stellungnahme). These certificates can be found on our website.

**NON-STANDARD SUPPORTING CONSTRUCTION**

These are supporting constructions that don't comply with the conditions for standard supporting constructions. Non-standard supporting constructions are also tested in accordance with DIN Standard 4102 part 12. According to the German regulation, these supporting constructions are cable specific. That means that in these constructions, the cables with functional integrity must be of the same type and brand as specified in the ABP certificate (Allgemeines Bauaufsichtliches Prüfzeugnis).

DIN Standard 4102 part 12 is a German standard. Non-German test institutes can also be accredited to test according to this standard. However, our experience is that the German market doesn't recognise certificates issued by these non-German institutes. Please verify what the regulations are in your market.

## FAQ

Are there any restrictions regarding the installation of supporting constructions with functional integrity below ground?

**Answer:** No, as long as the construction to be installed matches the functional integrity requirements.

Which anchors/plugs should be used?

**Answer:** Certificated plugs or anchors with preservation of functionality that at least matches that of the supporting construction. These may be loaded to a maximum of 500N.

How many levels can I mount on a ceiling profile?

**Answer:** That depends on the relevant certificate. Normally one may assume that the maximum tensile stress and maximum bending moment on the ceiling profile may not be larger than the certificated setup.

May I lay cables without functional integrity onto an installation with functional integrity?

**Answer:** Yes, as long as the cables with functional integrity are not influenced negatively. For example, the cables with and without functional integrity must be separated by a partition.

May I use coated cable trays or ladders with functional integrity?

**Answer:** The authorised use of coating on a cable tray needs to be specifically mentioned in the certificate. The most recent certificates obtained by Vergokan authorise the use of coatings. Consult your Vergokan contact to establish which certificates are applicable.

May I use a galvanised supporting construction?

**Answer:** Yes, it's also specifically mentioned in the certificate.

May I use a supporting construction in stainless steel?

**Answer:** Yes, as long as the load performance and other dimensions (such as material gauge) remains the same. Consult your Vergokan contact to establish which stainless steel products may be used.

May one use intersections, bends and tees in constructions with functional integrity?

**Answer:** Accessories are allowed as long as they are supported directly before and after each piece.

May I fit a cover onto a supporting construction with functional integrity?

**Answer:** A cover may have a negative impact on the cables in case of fire. A cover needs to be specifically tested and included in the certificate. Vergokan has not yet carried out tests with covers.

May I use a vertical installation with functional integrity in an open space (away from a wall)?

**Answer:** No, vertical installations must be fixed onto a wall.

For further questions, please contact our technical advisers.



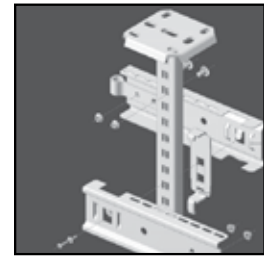




## FIRE-RESISTANT SYSTEMS

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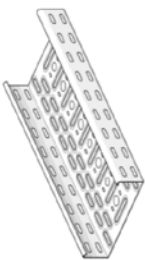



Standard supporting constructions



**SELECTION TABLES FOR FIRE-RESISTANT SYSTEMS**

**1. Standard supporting constructions**


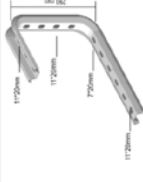

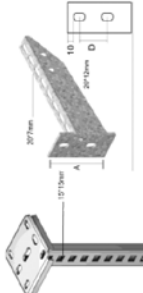
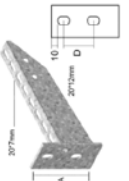
applicable with all DIN 4102-12 certified cables

		Conditions	Standard supporting constructions (nr 1 - nr 14)
<p>Constructions with cable tray</p> 	<b>KBS60</b>	<ul style="list-style-type: none"> <li>- Gauge = 1,5 mm</li> <li>- Max. width = 300 mm</li> <li>- Max. load (F) = 10 kg/m</li> <li>- Max. support distance (L) ≤ 1200 mm</li> <li>- Max. 3 levels</li> <li>- Percentage of perforations in the cable tray = 14 - 18%</li> <li>- Ends of the brackets are to be supported by a threaded rod</li> </ul>	<ol style="list-style-type: none"> <li>1. Fixing with threaded rod :                             <ul style="list-style-type: none"> <li>- Fixing to the ceiling (nr 1 - nr 3)</li> <li>- Fixing to the wall (nr 4 - nr 7)</li> </ul> </li> <li>2. Fixing with double threaded rod :                             <ul style="list-style-type: none"> <li>- Fixing to the ceiling (nr 8)</li> </ul> </li> </ol>
<p>Constructions with cable ladder</p> 	<b>KLBS60</b>	<ul style="list-style-type: none"> <li>- Gauge = 1,5 mm</li> <li>- Max. width = 400 mm</li> <li>- Max. load (F) = 20 kg/m</li> <li>- Max. support distance (L) ≤ 1200 mm</li> <li>- Max. rung distance = 150 mm</li> <li>- Max. 3 levels</li> <li>- Ends of the brackets are to be supported by a threaded rod</li> </ul>	<ol style="list-style-type: none"> <li>1. Fixing with threaded rod :                             <ul style="list-style-type: none"> <li>- Fixing to the ceiling (nr 11)</li> <li>- Fixing to the wall (nr 12 - nr 13)</li> </ul> </li> </ol>
<p>Vertical fixing</p> 	<b>KL60</b>	<ul style="list-style-type: none"> <li>- Max. width = 400 mm</li> <li>- Max. load (F) = 20 kg/m</li> <li>- Max. height ≤ 3500 mm</li> <li>- Max. support distance (L) ≤ 1200 mm</li> <li>- Use solid supporting blocks every 3500 mm</li> </ul>	<p>Fixing to the wall (nr 12)</p>
<p>Cable clamps</p> 	<b>DR15.30</b>	<ul style="list-style-type: none"> <li>- Max. support distance (L) without clamp support = 300 mm</li> <li>- The distance between 2 concrete anchors is max. 250 mm.</li> </ul>	<ul style="list-style-type: none"> <li>- Fixing to the ceiling and to the wall (nr 13)</li> <li>- Horizontal wall fixing (nr 14)</li> </ul>

SELECTION TABLES FOR FIRE-RESISTANT SYSTEMS

1. Standard supporting constructions

applicable with all DIN 4102-12 certified cables

		Conditions	Standard supporting constructions (nr 1 - nr 8)
<p><b>KBS60</b></p>  <p><b>Constructions with cable tray</b> <b>KBS60</b></p>		<p>- Gauge = 1,5 mm - Max. width = 300 mm - Max. load (F) = 10 kg/m - Max. support distance (L) ≤ 1200 mm - Max. 3 levels - Percentage of perforations in the cable tray = 14 - 18% - Ends of the brackets are to be supported by a threaded rod</p>	<p>1. Fixing with threaded rod : - Fixing to the ceiling (nr 1 - nr 3) - Fixing to the wall (nr 4 - nr 7)</p> <p>2. Fixing with double threaded rod : - Fixing to the ceiling (nr 8)</p>
<p><b>1. Fixing with threaded rod</b></p>			
<p><b>Nr 1 : Fixing to the ceiling</b></p> 	<p><b>Code</b> Certificate <b>GS 3305/9930 - 2 Mu : F = 10 kg/m, L = 1200 mm, Max. 2 levels, Variant 3, Annexes 8, 9, 13</b></p> <p>KBS60.100 - 300.150 KBS60.100 - 300 COMEGA290.150 - 400</p>	<p><b>To fix with :</b> KPBS100 - 300 VMK6.10 Concrete anchor M 12 + YOMEGA</p>	<p><b>Amount</b> 1 12 - 18 1 + 1</p> <p><b>Remark</b> KPBS100 : 12; KPBS150 : 16; KPBS200 - 300 : 18</p> <p>E 30 - E 90</p>
<p><b>Nr 2 : Fixing to the ceiling</b></p> 	<p><b>Code</b> Certificate <b>GS 3305/9930 - 2 Mu : F = 10 kg/m, L = 1200 mm, Max. 3 levels, Variant 2, Annexes 4-7, 13</b></p> <p>KBS60.100 - 300.150 KBS60.100 - 300 HDHSL300 - 1200 KCLBS100 - 300 HDBSKLEM TIM8 - 10 - 12 KBS60.100 - 300.150</p>	<p><b>To fix with :</b> KPBS100 - 300 VMK6.10 Concrete anchor M 12 VM4.40 M 8 - 10 - 12 VMK6.10</p>	<p><b>Amount</b> 1 12 - 18 2 1 1 2</p> <p><b>Remark</b> KPBS100 : 12; KPBS150 : 16; KPBS200 - 300 : 18</p> <p>E 30 - E 90</p>
<p><b>Nr 3 : Fixing to the ceiling</b></p> 	<p><b>Code</b> Certificate <b>GS 3305/9930 - 2 Mu : F = 10 kg/m, L = 1200 mm, Max. 3 levels, Variant 1, Annexes 1-3, 7, 13</b></p> <p>KBS60.100 - 300.150 KBS60.100 - 300 KPBS100 - 300 HDHSL300 - 1200 HDWK100 - 300</p>	<p><b>To fix with :</b> KPBS100 - 300 VMK6.10 Concrete anchor M 10 B10.40 + CRO10 + M10</p>	<p><b>Amount</b> 1 12 - 18 2 2 + 4 + 2</p> <p><b>Remark</b> KPBS100 : 12; KPBS150 : 16; KPBS200 - 300 : 18 For symmetrical fixing : M 12 B12.50 + CRO12 + M12</p> <p>E 30 - E 90</p>
<p><b>Nr 4 : Fixing to the wall (45°)</b></p> 	<p><b>Code</b> Certificate <b>GS 3305/9930 - 2 Mu : F = 10 kg/m, L = 1200 mm, Max. 1 level, Variant 1, Annexes 11, 13</b></p> <p>KBS60.100 - 300.150 KPBS100 - 300 HDWK100-300 HDBSKLEM TIM10 HDVS41.45 HDVS41.45 KBS60.100 - 300.150</p>	<p><b>To fix with :</b> KPBS100 - 300 VMK6.10 Concrete anchor M 10 M10 + CRO10 Concrete anchor M 12 B12.50 + RO12 + M12 VMK6.10</p>	<p><b>Amount</b> 1 12 - 18 2 6 + 4 1 1 + 2 + 1 2</p> <p><b>Remark</b> KPBS100 : 12; KPBS150 : 16; KPBS200 - 300 : 18</p> <p>E 30 - E 90</p>

Nr 6 : Fixing to the wall (90°)	Code	To fix with :	Amount	Remark	Class
	<b>Certificate GS 3305/9930 – 2 Mu : F = 10 kg/m, L = 1200 mm, Max. 3 levels, Variant 1, Annexes 11, 13</b>				
	KBS50.100 - 300.150	KPBS100 - 300	1	KPBS100 : 12; KPBS150 : 16; KPBS200 - 300 : 18	E 30 - E 90
	KPBS100 - 300	VMK6.10	12 - 18		
	HDWK100-300	Concrete anchor M 10	2		
	HDBSKLEM		1		
	TIM10 - 12	Concrete anchor M 10 - 12	1		
KBS50.100 - 300.150	VMK6.10	2	1 level: M 10; 2-3 levels : M 12 Fixing of the cable tray onto HDWK		
<b>Nr 6 : Fixing to the wall (45°)</b> 	<b>Certificate GS 3305/9930 – 2 Mu : F = 10 kg/m, L = 1200 mm, Max. 1 level, Variant 2, Annexes 12-13</b>				
	KBS50.100 - 300.150	KPBS100 - 300	1	KPBS100 : 12; KPBS150 : 16; KPBS200 - 300 : 18	E 30 - E 90
	KPBS100 - 300	VMK6.10	12 - 18		
	LOMEGA150.100 - 400	Concrete anchor M 10 + VOMEGA	2 + 1		
	TIM10	M10 + CRO10	6 + 4		
	HDVS41.45	Concrete anchor M 12	1		
HDVS41.45	B10.20 + RO10 + M10	1 + 2 + 1	Fixing TIM onto HDVS41.45 For fixing to the wall 45° Fixing HDVS41.45 onto LOMEGA		
KBS50.100 - 300.150	VMK6.10	2	Fixing of the cable tray onto LOMEGA		
<b>Nr 7 : Fixing to the wall (90°)</b> 	<b>Certificate GS 3305/9930 – 2 Mu : F = 10 kg/m, L = 1200 mm, Max. 3 levels, Variant 2, Annexes 12-13</b>				
	KBS50.100 - 300.150	KPBS100 - 300	1	KPBS100 : 12; KPBS150 : 16; KPBS200 - 300 : 18	E 30 - E 90
	KPBS100 - 300	VMK6.10	12 - 18		
	LOMEGA150.100 - 400	Concrete anchor M 10 + VOMEGA	2 + 1		
	TIM10 - 12	Concrete anchor M 10 - 12	1		
	TIM10 - 12	M10 - 12 + CRO10 - 12	2 + 2		
KBS50.100 - 300.150	VMK6.10	2	1 level: M 10; 2-3 levels : M 12 Fixing TIM onto LOMEGA Fixing of the cable tray onto LOMEGA		

**2. Fixing with double threaded rod**


Nr 8 : Fixing to the ceiling	Code	To fix with :	Amount	Remark	Class
	<b>Certificate GS 3305/9930 – 2 Mu : F = 10 kg/m, L = 1200 mm, Max. 3 levels, Variant 6, Annexes 24983/2010: 10</b>				
	KBS50.100 - 300.150	KPBS100 - 300	1	KPBS100 : 12; KPBS150 : 16; KPBS200 - 300 : 18	E 30 - E 90
	KPBS100 - 300	VMK6.10	12 - 18		
	TIM8 - 10 - 12	Concrete anchor M 8 - 10 - 12	2		
	MPC1.41.21.150	M8 - 10 - 12 + RO8 - 10 - 12	4		
	KBS50.100 - 300.150	VMK6.10 + CRO6	2 + 2		
			1 level: M 8; 2 levels : M 10; 3 levels : M 12 1 level: M 8; 2 levels : M 10; 3 levels : M 12 Fixing of the cable tray onto MPCL		

- Install with certified concrete anchors  
 - The quantities of products required is based on the smallest construction (1 level + asymmetrical).

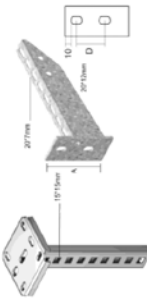
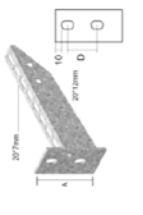
SELECTION TABLES FOR FIRE-RESISTANT SYSTEMS

1. Standard supporting constructions

applicable with all DIN 4102-12 certified cables

		Conditions	Standard supporting constructions (nr 9 - nr 11)
<p><b>Constructions with cable ladder</b> <b>KLBS60</b></p> 	<p><b>KLBS60</b></p>	<ul style="list-style-type: none"> <li>- Gauge = 1,5 mm</li> <li>- Max. width = 400 mm</li> <li>- Max. load (F) = 20 kg/m</li> <li>- Max. support distance (L) ≤ 1200 mm</li> <li>- Max. rung distance = 150 mm</li> <li>- Max. 3 levels</li> <li>- Ends of the brackets are to be supported by a threaded rod</li> </ul>	<p>1. Fixing with threaded rod ; - Fixing to the ceiling (nr 11) - Fixing to the wall (nr 12 - nr 13)</p>

1. Fixing with threaded rod

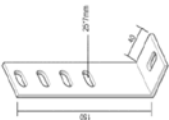




Nr 9 : Fixing to the ceiling	Code	Certificate GS 3305/9930 – 1 Mu : F = 20 kg/m, L = 1200 mm, Max. 3 levels, Variant 1, Annexes 1, 2, 6, 12	To fix with :	Amount	Remark	Class
	KLBS60.200 - 400	<p><b>Nr 10 : Fixing to the wall (45°)</b></p>	CPBSKL200 - 400	1	<p>Fixing of the cable ladder onto HDWK</p>	<p>E 30 - E 90</p>
	CPBSKL200 - 400		VMK6.10	20		
	HDHSL200 - 400		Concrete anchor M 12	2		
	HDWK200 - 400		B10.40 + CRO10 + M10	2 + 4 + 2		
	HDBSKLEM			1		
	TIM12		Concrete anchor M 12	1		
	KLBS60.200 - 400		BK	2		
	KLBS60.200 - 400	<p><b>Nr 11 : Fixing to the wall (90°)</b></p>	CPBSKL200 - 400	1	<p>Fixing of the cable ladder onto HDWK</p>	<p>E 30 - E 90</p>
	CPBSKL200 - 400		VMK6.10	20		
	HDWK200-400		Concrete anchor M 10	2		
	HDBSKLEM			1		
	TIM10		M10 + CRO10	6 + 4		
	HDVS41.45		Concrete anchor M 12	1		
	HDVS41.45		B12.20 + RO12 + M12	1 + 2 + 1		
	KLBS60.200 - 400		BK	2		

- Install with certified concrete anchors  
- The quantities of products required is based on the smallest construction (1 level + asymmetrical).

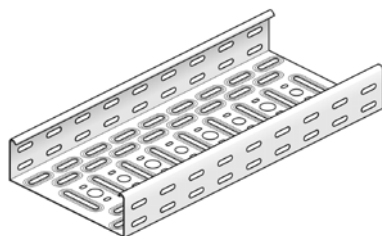
**SELECTION TABLES FOR FIRE-RESISTANT SYSTEMS**

**1. Standard supporting constructions**

applicable with all DIN 4102-12 certified cables

		Conditions	Standard supporting constructions (nr 12 - nr 14)	
<p><b>Vertical fixing with cable ladder</b> <b>KL60</b></p> 	<p><b>KL60</b></p>  <ul style="list-style-type: none"> <li>- Max. width = 400 mm</li> <li>- Max. load (F) = 20 kg/m</li> <li>- Max. height ≤ 3500 mm</li> <li>- Max. support distance (L) ≤ 1200 mm</li> <li>- Use solid supporting blocks every 3500 mm</li> </ul>	<p>Fixing to the wall (nr 12)</p>		
			<p><b>Nr 12 : Fixing to the wall</b></p>	<p><b>To fix with :</b> Certificate 24-70-10 (26-11-2015) : F = 20 kg/m, L = 1200 mm, Annexes 1/3 KL200 - 400 LVBS60 VM6.10 HDAB35.110 VM6.20 HDAB35.110 Concrete anchor M 8 Cable clamps_type H</p>
<p><b>Fixing with cable clamps</b></p>	<p><b>DR15.30</b></p>  <ul style="list-style-type: none"> <li>- Max. support distance (L) without clamp support = 300 mm</li> <li>- The distance between 2 concrete anchors is max. 250 mm.</li> </ul>	<p>Fixing to the ceiling and to the wall (nr 13) Horizontal wall fixing (nr 14)</p>		
			<p><b>Nr 13 : Fixing</b></p> 	<p><b>To fix with :</b> Certificate 24-70-10 (26-11-2015) : L = 300, Annexes 1/1 DR15.30 Concrete anchor M 6 + CRO6 Cable clamps_type H</p>
<p><b>Nr 14 : Fixing</b></p> 	<p><b>To fix with :</b> Certificate 24-70-10 (26-11-2015) : L = 300, Annexes 1/2 DR15.30 Concrete anchor M 6 + CRO6 + SYBS Cable clamps_type H</p>	<p><b>Amount</b></p> <p>2 + 2 + 1</p>	<p><b>Remark</b></p> <p>The distance between 2 concrete anchors is max. 250 mm. Max 1 cable per cable clamp</p>	<p><b>Class</b></p> <p>E 30 - E 90</p>

- Install with certified concrete anchors  
- The quantities of products required is based on the smallest construction (L level + asymmetrical).

**KBS60****Perforated cable tray**

Max. load	10 daN
Standard finish	Pre-galvanised
Optional finish HD	Hot-dip galvanised

HD	Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/m	⊞	Stock	Unit
HD	<b>KBS60.100.150</b>	60	100	1.50	3000	2.350	60	✓	m
HD	<b>KBS60.150.150</b>	60	150	1.50	3000	2.830	30	✓	m
HD	<b>KBS60.200.150</b>	60	200	1.50	3000	3.320	30	✓	m
HD	<b>KBS60.300.150</b>	60	300	1.50	3000	4.300	30	✓	m

The technical information for this product can be found at the end of this chapter.

**KPBS****Joiner for Cable tray (BS)**

For joining of KBS60.

Standard finish	Pre-galvanised
Optional finish HD	Hot-dip galvanised

HD	Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	⊞	Stock	Unit
HD	<b>KPBS100</b>	55	96		-	0.550	1	✓	piece
HD	<b>KPBS150</b>	55	146		-	0.670	1	✓	piece
HD	<b>KPBS200</b>	55	196		-	0.850	1	✓	piece
HD	<b>KPBS300</b>	55	296		-	1.100	1	✓	piece

Fix with:

HD	Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	⊞	Stock	Unit
HD	<b>VMK6.10</b>	-	-	M6	-	0.009	100	✓	piece

Use all perforations.

**KLBS60**

**Cable ladder KL (BS)**



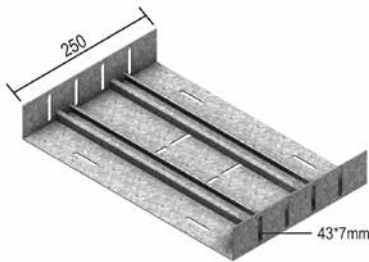
Side walls : L-profile  
C-rungs

Usable inner height	45 mm
Rung distance	100 mm
Max. load	20 daN
Standard finish	Pre-galvanised

HD	Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/m	⊞	Stock	Unit
-	KLBS60.200	60	200		3000	2.760	24		m
-	KLBS60.300	60	300		3000	3.360	24		m
-	KLBS60.400	60	400		3000	3.860	24		m

**KPBSKL**

**Joiner for cable ladder (BS)**



Standard finish	Pre-galvanised
-----------------	----------------

HD	Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	⊞	Stock	Unit
-	KPBSKL200	55	196		-	1.100	1		piece
-	KPBSKL300	55	296		-	1.450	1		piece
-	KPBSKL400	55	396		-	1.850	1		piece

Fix with:									
HD	VMK6.10	-	-	M6	-	0.009	100	✓	piece

**BK**

**Fixing clamp**



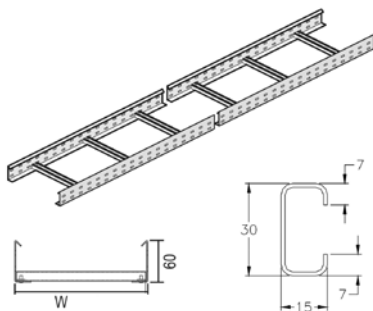
For fixing of the cable ladder KLBS on the wall bracket.  
Two pieces per bracket.

Standard finish	Pre-galvanised
Optional finish HD	Hot-dip galvanised

HD	Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	⊞	Stock	Unit
HD	BK	-			-	0.020	50	✓	piece

To order per full packaging.  
Included: Bolt B6.20, nut RM6 and VFKG30.

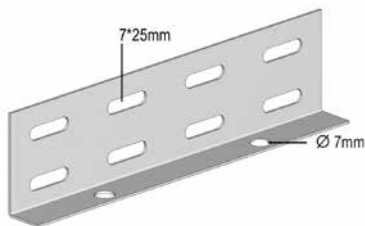


**KL60****Cable ladder**

Can only be used for vertical mounting  
Side walls : perforated L-profile  
C-rungs

Usable inner height	45 mm
Rung distance	300 mm
Standard finish	Pre-galvanised
Optional finish HD	Hot-dip galvanised

HD	Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/m	⊞	Stock	Unit
HD	KL60.200	60	200		3000	2.370	24	✓	m
HD	KL60.300	60	300		3000	2.570	24	✓	m
HD	KL60.400	60	400		3000	2.770	24	✓	m
Fix with:									
HD	LVBS60	51	200	-	-	0.120	12	✓	piece

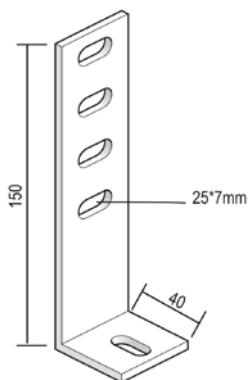
**LVBS60****Joiner for vertical cable ladder (BS)**

Only for vertical mounting  
For joining of KL60

Standard finish	Pre-galvanised
Optional finish HD	Hot-dip galvanised

HD	Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	⊞	Stock	Unit
HD	LVBS60	51	200		-	0.120	12	✓	piece
Fix with:									
HD	VMK6.10	-	-	M6	-	0.009	100	✓	piece

To order per full packaging.

**HDAB35.110****Stand-off bracket**

Used for vertical mounting of the cable ladder.

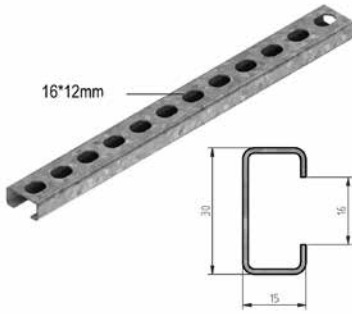
Standard finish	Hot-dip galvanised
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Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	⊞	Stock	Unit	
HDAB35.110	150	40		-	0.210	50	✓	piece	
Fix with:									
HD	VM6.20	-	-	M6	20	0.009	100	✓	piece

To order per full packaging.

**DR15.30**

**Supporting profile**



For wall and ceiling constructions

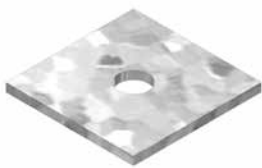
Standard finish	Pre-galvanised
Optional finish HD	Hot-dip galvanised

HD	Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	⊞	Stock	Unit
HD	DR100	15	30		100	0.060	50	✓	piece
HD	DR150	15	30		150	0.080	50	✓	piece
HD	DR200	15	30		200	0.110	50	✓	piece
HD	DR250	15	30		250	0.130	50	✓	piece
HD	DR300	15	30		300	0.160	50	✓	piece
HD	DR350	15	30		350	0.190	50	✓	piece
HD	DR15.30.2000	15	30		2000	0.600	2		m

Max. support distance = 300 mm.  
 Use of cable clamps, type H.  
 Applicable with all DIN 4102-12 certified cables.  
 Fixing to the ceiling or wall with certified concrete anchors.  
 Distance between the anchors max. 250 mm.

**SYBS**

**Stop for Y cable clamp (BS)**



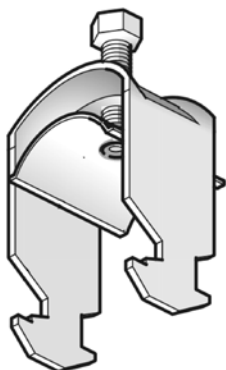
Standard finish	Pre-galvanised
Optional finish HD	Hot-dip galvanised

HD	Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	⊞	Stock	Unit
HD	SYBS	-	30	2.00	30	0.014	50	✓	piece

To order per full packaging.

## HDH1

## Cable clamp for 1 cable



Applicable in case of C-rungs 15x30.

Standard finish

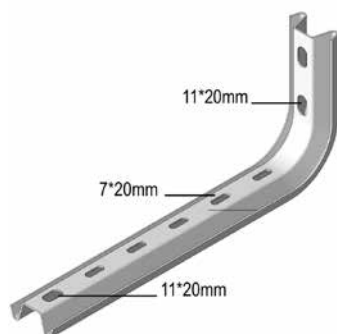
Hot-dip galvanised

Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	📦	Stock	Unit
HDY1198	-	12		-	0.030	50	✓	piece
HDY1199	-	16		-	0.030	50	✓	piece
HDY1200	-	20		-	0.040	50	✓	piece
HDY1201	-	24		-	0.040	50	✓	piece
HDY1202	-	28		-	0.040	50	✓	piece
HDY1203	-	32		-	0.060	50	✓	piece
HDY1204	-	36		-	0.070	50	✓	piece
HDY1205	-	40		-	0.080	50	✓	piece
HDY1206	-	44		-	0.090	50	✓	piece
HDY1207	-	48		-	0.100	50	✓	piece
HDY1208	-	52		-	0.100	50	✓	piece
HDY1209	-	56		-	0.110	50	✓	piece
HDY1210	-	60		-	0.140	50	✓	piece
HDY1211	-	64		-	0.160	50	✓	piece
HDY1212	-	70		-	0.160	50	✓	piece

To order per full packaging.  
Max. 1 cable per cable clamp

## LOMEGA150

## Bracket / Ceiling profile



Standard finish

Pre-galvanised

Optional finish HD

Hot-dip galvanised

HD	Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	📦	Stock	Unit
HD	LOMEGA150.100	145	145		-	0.300	12	✓	piece
HD	LOMEGA150.150	145	195		-	0.320	12	✓	piece
HD	LOMEGA150.200	145	245		-	0.340	12	✓	piece
HD	LOMEGA150.250	145	295		-	0.450	12	✓	piece
HD	LOMEGA150.300	145	345		-	0.490	12	✓	piece
HD	LOMEGA150.400	145	445		-	0.540	6	✓	piece

Fix with:

HD	B10.30	-	-	M10	30	0.027	100	✓	piece
HD	CRO10	-	-	M10	-	0.012	100	✓	piece
HD	M10	-	-	M10	-	0.010	100	✓	piece

The technical information for this product can be found at the end of this chapter.

To order per full packaging.

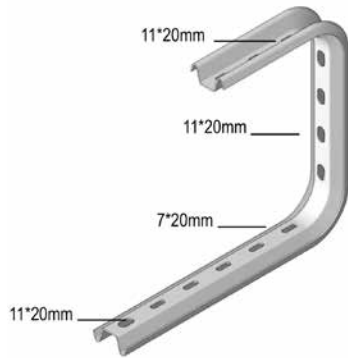
Ends held up through a threaded rod TIM.

Use the VOMEGA to avoid compression of the profile.

When ordering, add 100 mm to the width. E.g. KBS 300 mm: use LOMEGA150.400.

**COMEGA290**

**Open suspension bracket**



Standard finish

Pre-galvanised

HD	Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	⊞	Stock	Unit
-	<b>COMEGA290.150</b>	290	195		-	0.560	12	✓	piece
-	<b>COMEGA290.200</b>	290	245		-	0.620	12	✓	piece
-	<b>COMEGA290.250</b>	290	295		-	0.760	6	✓	piece
-	<b>COMEGA290.300</b>	290	345		-	0.820	6	✓	piece
-	<b>COMEGA290.400</b>	290	445		-	0.930	6	✓	piece

To order per full packaging.

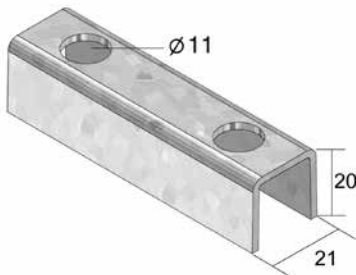
Ends held up by threaded rod TIM10.

Use the VOMEGA to avoid compression of the profile.

When ordering, add 100 mm to the width. E.g. KBS 300 mm: use COMEGA290.400.

**VOMEGA**

**Joining piece**



Standard finish

Pre-galvanised

Optional finish HD

Hot-dip galvanised

Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	⊞	Stock	Unit
<b>VOMEGA</b>	-			-	0.060	48	✓	piece
<b>HDVOMEGA</b>	-			-	0.060	48		piece

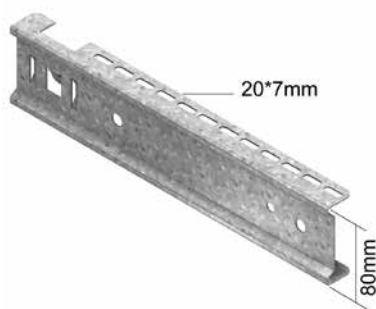
The technical information for this product can be found at the end of this chapter.

To order per full packaging.

For wall mounting 1 piece, for double mounting 2 pieces, back to back.

## KCLBS

## Click-on bracket (BS)



Standard finish

Pre-galvanised

HD	Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	⊞	Stock	Unit
-	KCLBS100	80	180		-	0.220	48		piece
-	KCLBS200	80	280		-	0.350	48		piece
-	KCLBS300	80	380		-	0.470	24		piece
-	KCLBS400	80	480		-	0.750	24		piece
Fix with:									
-	VM4.40	-	-	M4	40	0.005	100	✓	piece

The technical information for this product can be found at the end of this chapter.

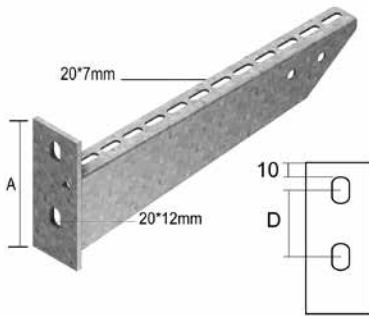
Completely clipsable, secured with VM4.40.

Use CLHS for symmetrical mounting.

Clamp for fixing of threaded rod (HDBSKLEM) to order separately.

**HDWK**

**Welded bracket**



Standard finish

Hot-dip galvanised

Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	⊞	Stock	Unit
<b>HDWK100</b>	106	117		-	0.300	24	✓	piece
<b>HDWK150</b>	112	167		-	0.360	24	✓	piece
<b>HDWK200</b>	116	217		-	0.430	24	✓	piece
<b>HDWK250</b>	120	267		-	0.530	12	✓	piece
<b>HDWK300</b>	125	317		-	0.730	12	✓	piece
<b>HDWK400</b>	134	417		-	0.880	12	✓	piece

Fix with:

HD <b>B10.40</b>	-	-	M10	40	0.033	100	✓	piece
HD <b>CRO10</b>	-	-	M10	-	0.012	100	✓	piece
HD <b>M10</b>	-	-	M10	-	0.010	100	✓	piece

The technical information for this product can be found at the end of this chapter.

To order per full packaging.

For symmetrical mounting, use HDB12.50 + HDCRO12 + HDM12.

**HDBSKLEM**

**Clamp for fixing of threaded rod (BS)**



Very fast securing of the threaded rod TIM, using a clamping bolt. Applicable on HDWK and KCLBS.

Standard finish

Hot-dip galvanised

Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	⊞	Stock	Unit
<b>HDBSKLEM</b>	25	125		-	0.120	20	✓	piece

To order per full packaging.

Ends held up through threaded rod TIM.

No additional bolts and nuts needed.

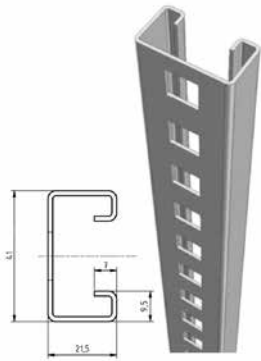
Threaded rod can be mounted in 1 continuous length.

Diameter of the threaded rod TIM not of influence.

Clamping bolt to be tightened with angular momentum of 10 Nm.

## MPCL

## Assembly profile clippable



Standard finish

Pre-galvanised

HD	Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	⊞	Stock	Unit
-	MPCL41.21.150.200	41	21	1.50	210	0.240	10	✓	piece
-	MPCL41.21.150.300	41	21	1.50	300	0.340	10	✓	piece
-	MPCL41.21.150.400	41	21	1.50	420	0.480	10	✓	piece
-	MPCL41.21.150.500	41	21	1.50	510	0.580	10	✓	piece

Fix with:

HD M8	-	-	M8	-	0.005	100	✓	piece
HD M10	-	-	M10	-	0.010	100	✓	piece
HD M12	-	-	M12	-	0.017	100	✓	piece
HD RO8	-	-	M8	-	0.002	100	✓	piece
HD RO10	-	-	M10	-	0.004	100	✓	piece
HD RO12	-	-	M12	-	0.006	100	✓	piece

To order per full packaging.

To be fixed with 2 threaded rods to the ceiling:

- TIM8 + nut M8 + CRO8
- TIM10 + nut M10 + RO10
- TIM12 + nut M12 + RO12

**HDHSLECL**

**Single ceiling profile clippable**



Ceiling profile: HDMP41.21  
Welded headplate of 120 x 120 mm

Max. load	1000 daN
Standard finish	Hot-dip galvanised

Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	⊞	Stock	Unit
HDHSLECL300	-			300	0.850	1	✓	piece
HDHSLECL400	-			420	1.010	1	✓	piece
HDHSLECL500	-			510	1.130	1	✓	piece
HDHSLECL600	-			600	1.230	1	✓	piece
HDHSLECL800	-			810	1.450	1	✓	piece
HDHSLECL1000	-			1020	1.750	1	✓	piece
HDHSLECL1200	-			1200	1.950	1	✓	piece

The technical information for this product can be found at the end of this chapter.

Also applicable for double mounting.

Fixed with 2 anchoring bolts.

For symmetrical mounting, to fix with 2 anchoring bolts M12.

**CLHS**

**Adapter for HDHSLECL**



For symmetrical mounting of KCLBS

Standard finish	Pre-galvanised
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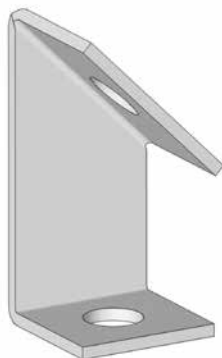
HD	Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	⊞	Stock	Unit
-	<b>CLHS</b>	-			-	0.120	24	✓	piece

To order per full packaging.



## HDVS41.45

## Assembly accessory



To be used when mounting the threaded rod to the wall.

Standard finish

Hot-dip galvanised

Reference	↑ mm	↔ mm	⊥ mm	↔ mm	kg/piece	📦	Stock	Unit
HDVS41.45	-	40	3.00	-	0.100	12	✓	piece

The technical information for this product can be found at the end of this chapter.

To order per full packaging.

## TIM

## Threaded rod (DIN 975)



Standard finish

Electro zinc-plated

Optional finish HD

Hot-dip galvanised

Reference	Max. load (in daN)
TIM8	550
TIM10	900
TIM12	1300

HD	Reference	↑ mm	↔ mm	⊥ mm	↔ mm	kg/m	📦	Stock	Unit
HD	TIM8	-	-	M8	2000	0.319	50	✓	m
HD	TIM10	-	-	M10	2000	0.500	50	✓	m
HD	TIM12	-	-	M12	2000	0.725	40	✓	m

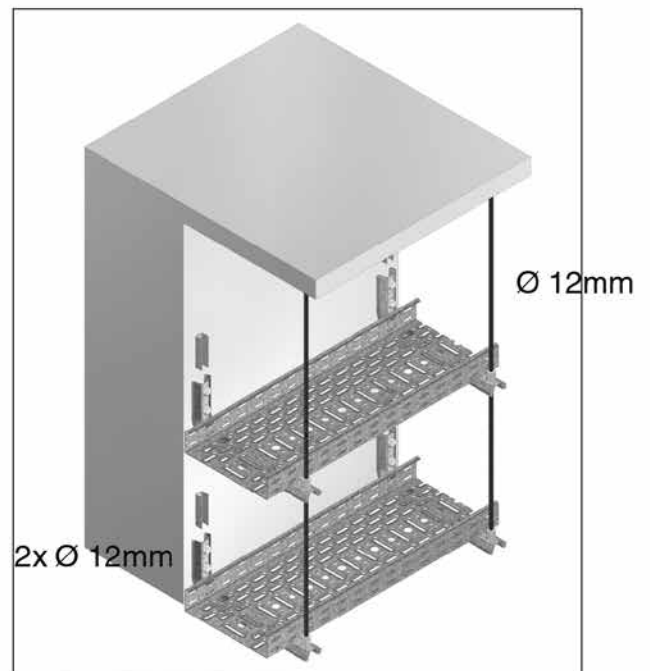
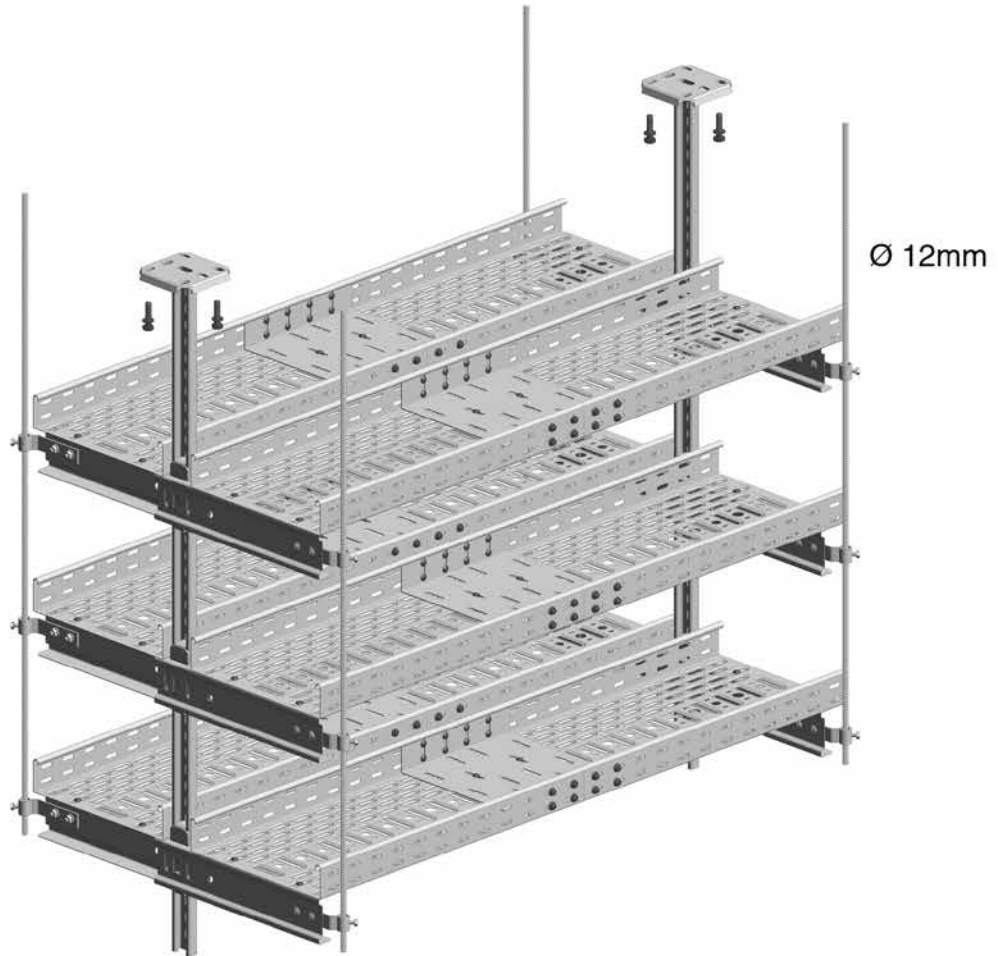
Fix with:

HD	M8	-	-	M8	-	0.005	100	✓	piece
HD	M10	-	-	M10	-	0.010	100	✓	piece
HD	M12	-	-	M12	-	0.017	100	✓	piece
HD	RO8	-	-	M8	-	0.002	100	✓	piece
HD	RO10	-	-	M10	-	0.004	100	✓	piece
HD	RO12	-	-	M12	-	0.006	100	✓	piece



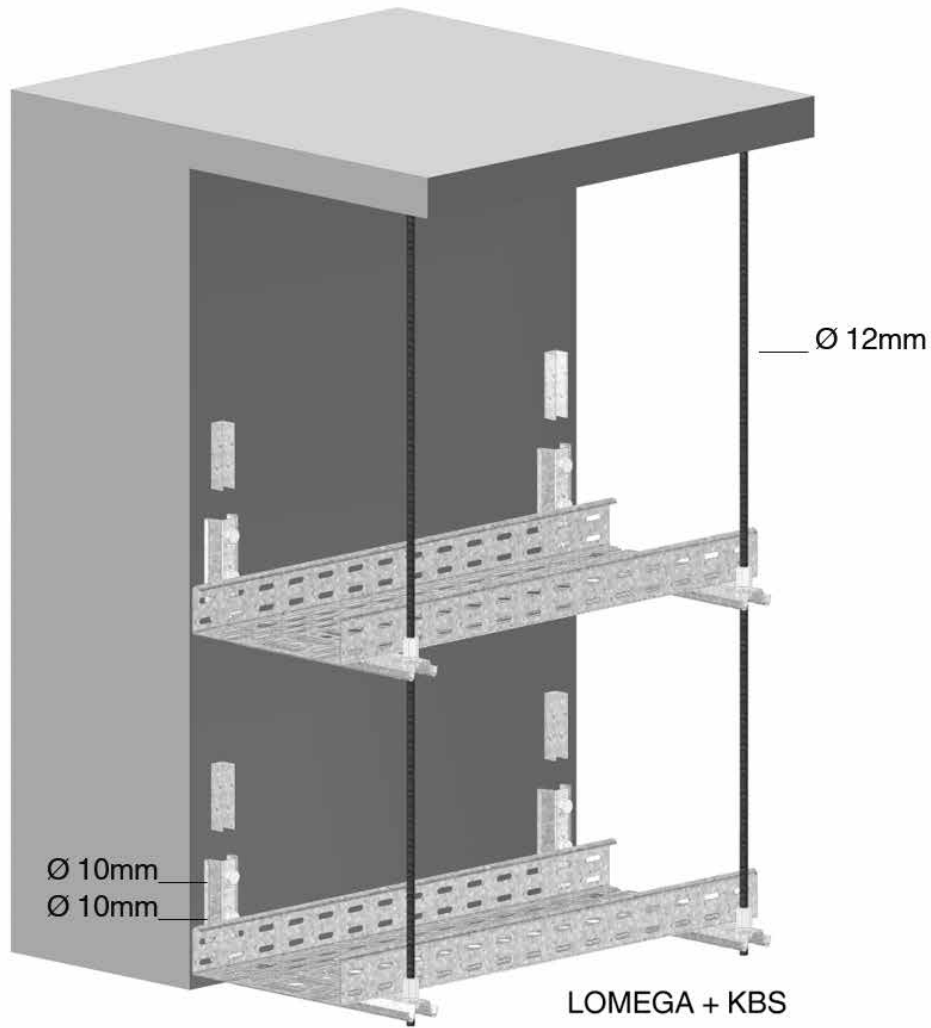
**KBS60**

Technical information



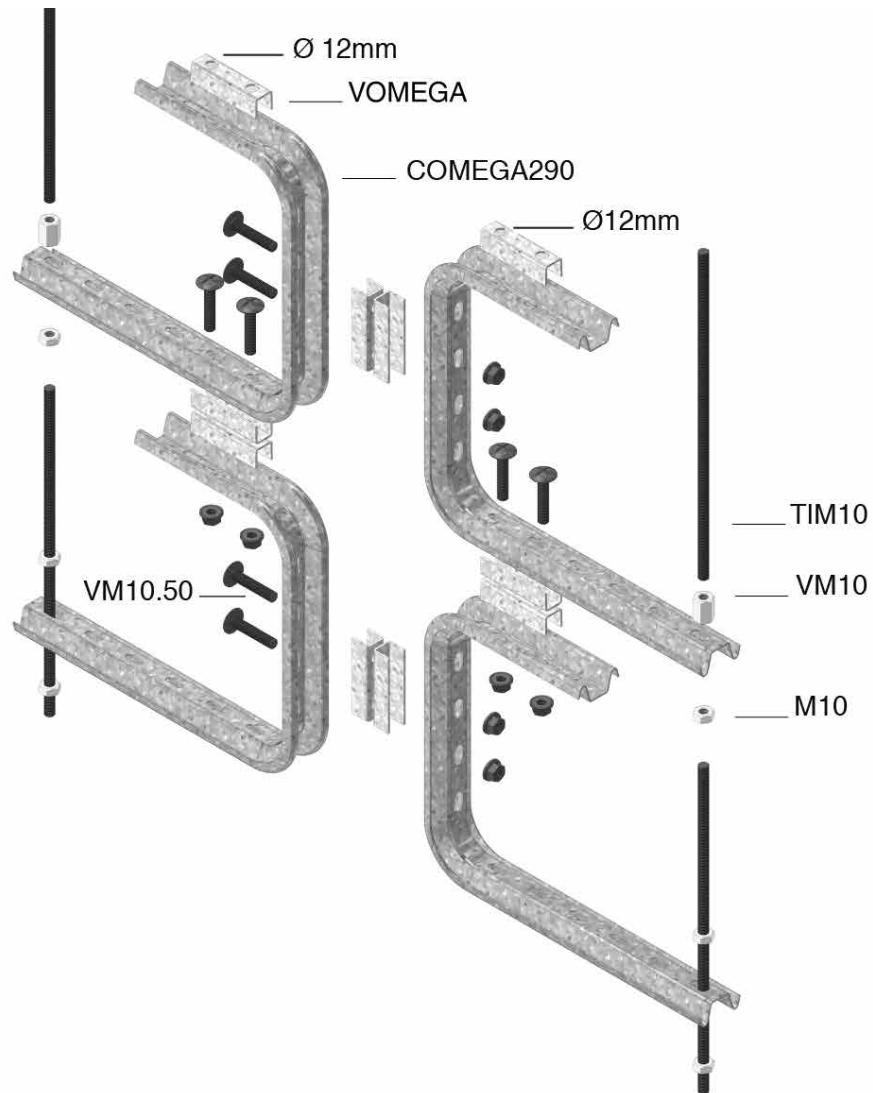
**LOMEGA150**

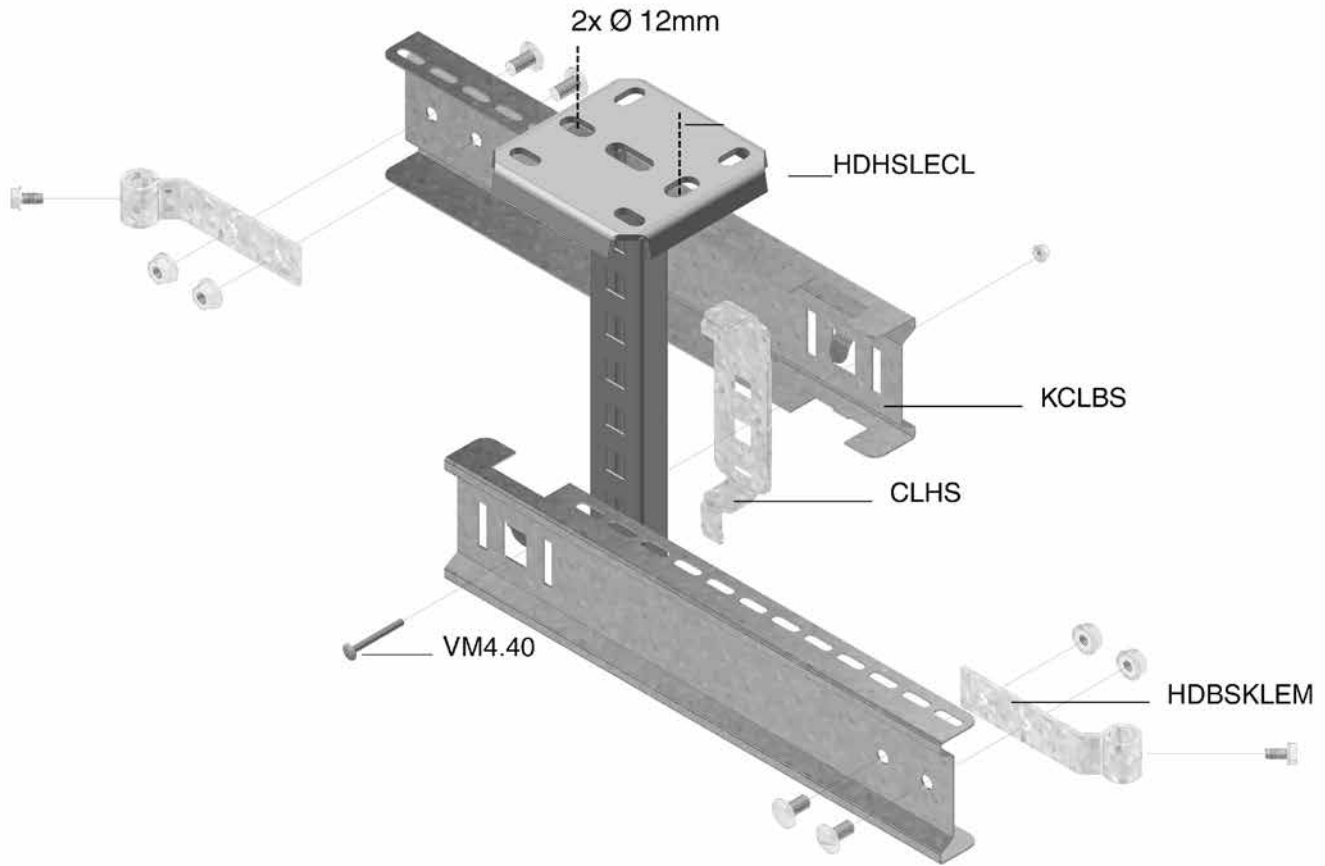
## Technical information



# VOMEGA

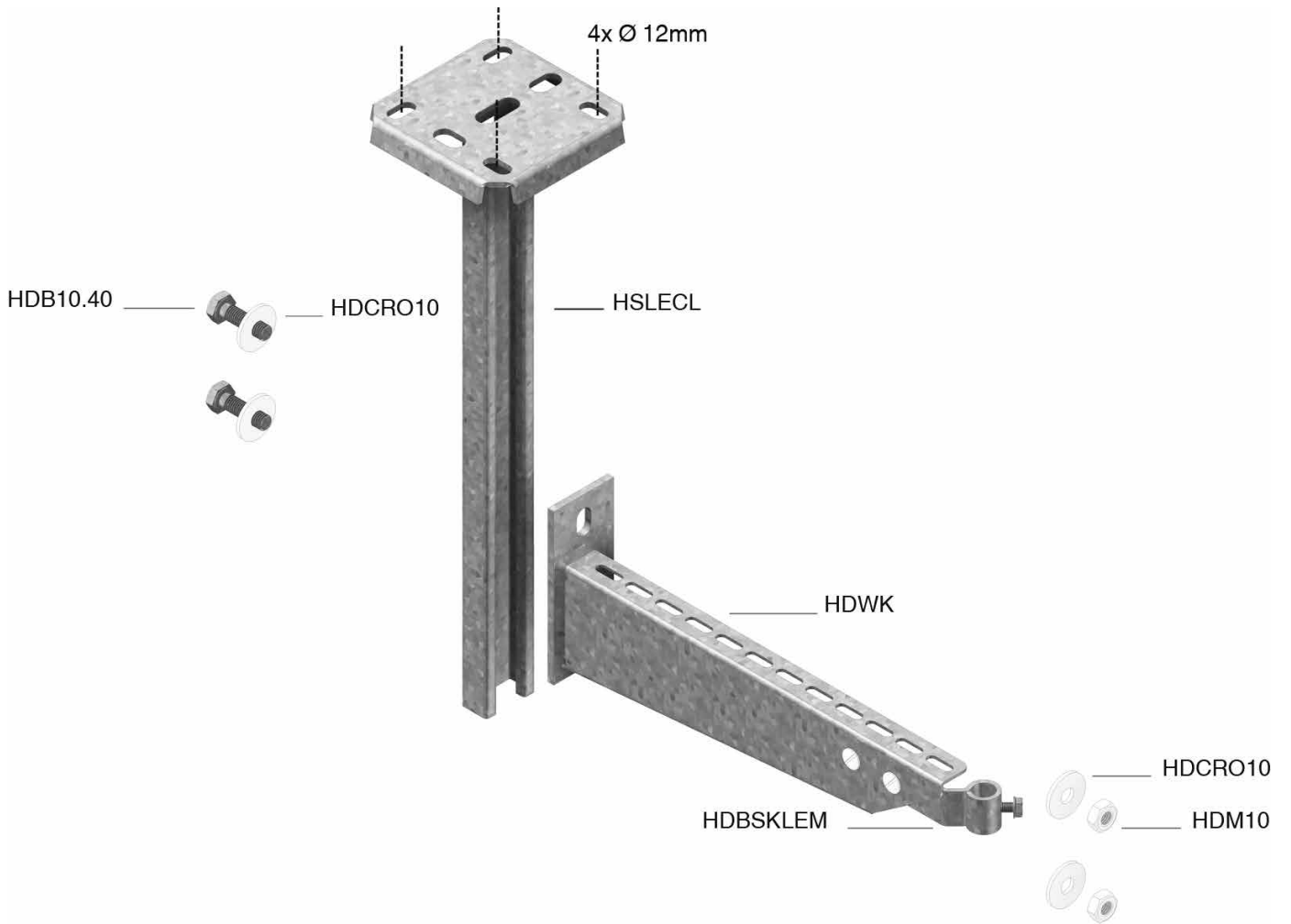
## Technical information

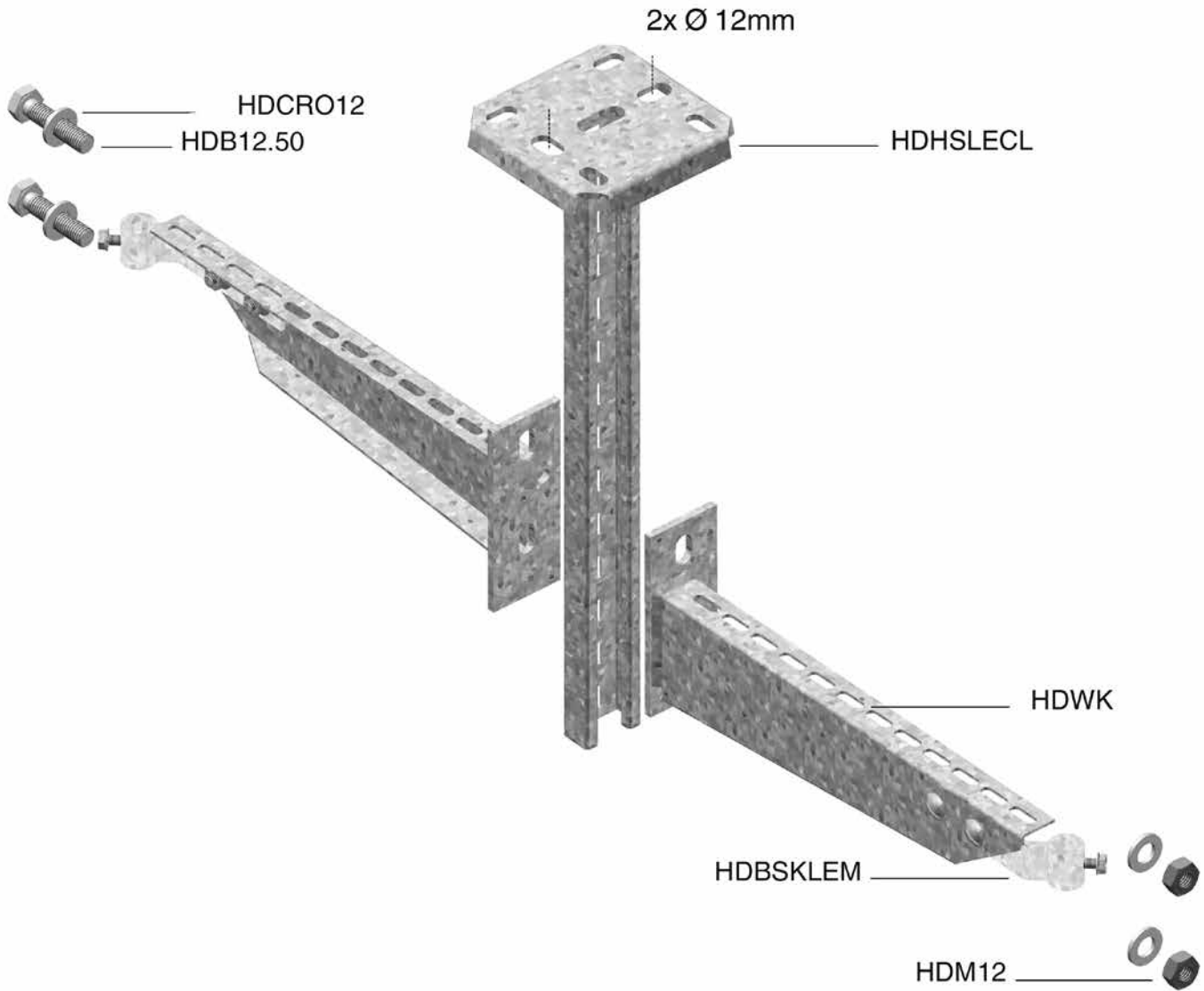


**KCLBS****Technical information**

## HDWK

### Technical information



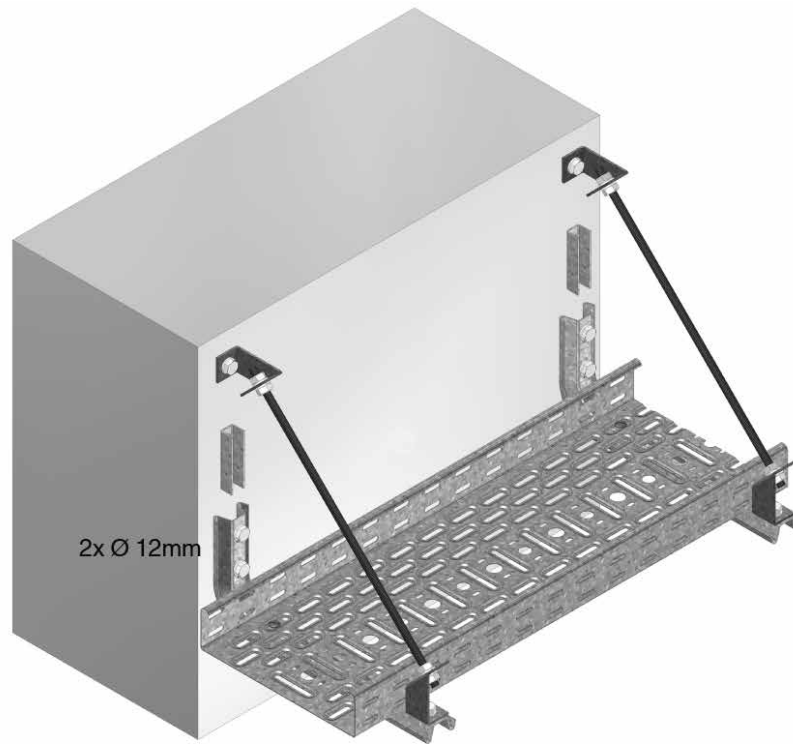
**HDHSLECL****Technical information**



## HDVS41.45

### Technical information

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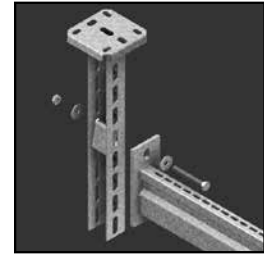




## FIRE-RESISTANT SYSTEMS



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Non-standard supporting constructions




**SELECTION TABLES FOR FIRE-RESISTANT SYSTEMS**

**2. Non-standard supporting constructions**





		Conditions	Non-standard supporting constructions (nr 1 - nr 13)
<p>Constructions with cable tray</p> 	<p><b>KBSI60</b></p>	<ul style="list-style-type: none"> <li>- Gauge = 0,75 mm - 1,00 mm</li> <li>- Max. width = 400 mm</li> <li>- Max. load (F) = 20 kg/m</li> <li>- Max. support distance (L) ≤ 1500 mm</li> <li>- Max. 3 brackets per ceiling profile in total</li> <li>- Tested with Dätwyler, Prysmian, Prakab and Faber cables</li> </ul>	<ol style="list-style-type: none"> <li>1. Fixing without threaded rod :                             <ul style="list-style-type: none"> <li>- Fixing to the ceiling (nr 1 - nr 2)</li> <li>- Fixing to the wall (nr 3 - nr 4)</li> </ul> </li> <li>2. Fixing without threaded rod :                             <ul style="list-style-type: none"> <li>- Fixing to the ceiling (nr 5 - nr 7)</li> <li>- Fixing to the wall (nr 8)</li> </ul> </li> </ol>
		<ul style="list-style-type: none"> <li>- Gauge = 0,75 mm</li> <li>- Max. width = 300 mm</li> <li>- Max. load (F) = 20 kg/m</li> <li>- Max. support distance (L) ≤ 1500 mm</li> <li>- Max. 3 brackets in total , Max. 2 superposed brackets</li> <li>- Tested with Eupen, Dätwyler and Leoni Studer cables</li> </ul>	<ol style="list-style-type: none"> <li>3. Fixing with threaded rod :                             <ul style="list-style-type: none"> <li>- Fixing to the ceiling (nr 9 )</li> <li>- Fixing to the wall (nr 10)</li> </ul> </li> <li>4. Fixing with double threaded rod (nr 11)</li> </ol>
<p>Constructions with cable ladder</p> 	<p><b>KLLIBS60</b></p>	<ul style="list-style-type: none"> <li>- Gauge = 1,00 mm - 1,25 mm</li> <li>- Max. width = 400 mm</li> <li>- Max. load (F) = 20 kg/m</li> <li>- Max. support distance (L) ≤ 1200 mm - 1500 mm</li> <li>- Max. 3 levels</li> <li>- Tested with Dätwyler cables</li> </ul>	<ol style="list-style-type: none"> <li>1. Fixing with additional support :                             <ul style="list-style-type: none"> <li>- Fixing to the ceiling (nr 12)</li> <li>- Fixing to the wall (nr 13)</li> </ul> </li> <li>2. Vertical fixing :                             <ul style="list-style-type: none"> <li>- Fixing to the wall (nr 14)</li> </ul> </li> </ol>
		<ul style="list-style-type: none"> <li>- Max. width = 400 mm</li> <li>- Max. load (F) = 30 kg/m</li> <li>- Max. support distance (L) ≤ 1500 mm</li> <li>- Max. rung distance = 150 mm</li> <li>- Max. 3 brackets per ceiling profile in total</li> <li>- Additional support at the end of the brackets</li> <li>- Max. height ≤ 3500 mm</li> <li>- Use solid supporting blocks every 3500 mm</li> <li>- Tested with Eupen cables</li> </ul>	

SELECTION TABLES FOR FIRE-RESISTANT SYSTEMS

2. Non-standard supporting constructions

	Conditions	Non-standard supporting constructions (nr 1 - nr 10)
<p><b>KBSI60</b></p>  <p><b>Constructions with cable tray KBSI60</b></p>	<ul style="list-style-type: none"> <li>- Gauge = 0,75 mm - 1,25 mm</li> <li>- Max. width = 300 mm - 400 mm</li> <li>- Max. load (F) = 20 kg/m</li> <li>- Max. support distance (L) ≤ 1200 mm - 1500 mm</li> <li>- Max. 3 brackets per ceiling profile in total</li> </ul>	<ol style="list-style-type: none"> <li>1. Fixing without threaded rod :                     <ul style="list-style-type: none"> <li>- Fixing to the ceiling (nr 1 - nr 2)</li> <li>- Fixing to the wall (nr 3 - nr 4)</li> </ul> </li> <li>2. Fixing without threaded rod :                     <ul style="list-style-type: none"> <li>- Fixing to the ceiling (nr 5 - nr 7)</li> <li>- Fixing to the wall (nr 8)</li> </ul> </li> <li>3. Fixing with threaded rod :                     <ul style="list-style-type: none"> <li>- Fixing to the ceiling (nr 9)</li> <li>- Fixing to the wall (nr 10)</li> </ul> </li> <li>4. Fixing with double threaded rod (nr 11)</li> </ol>





1. Fixing without threaded rod

Nr	To fix with :	Amount	Remark	Class
<p><b>Nr 1 : Fixing to the ceiling</b></p> 	<p><b>Code</b> Certificate FIRES-JR-057-16-NURE : DIN 4102-12:1998-11, F = 20 kg/m, L = 1500 mm, Max. 3 brackets per ceiling profile in total.</p>			
	KBSI60.100 - 300.075	5		E 30 - E 90
	HDHSMU50.300 - 1500	2 + 2		
	HDWKMI100 - 300	1	HDTSU50 = Spacer HDHSMU50 (incl. bolts and nuts)	
	KBSI60.100 - 300.075	2	Fixing of the cable tray onto HDWKMI	
<p>Certificate FIRES-JR-055-16-NURE: STN 92 0205:2014, Certificate FIRES-JR-056-16-NURE: ZP-27/2008, Certificate FIRES-JR-085-16-NURE: CSN 73 0895 also available.</p>				
<p><b>Nr 2 : Fixing to the ceiling</b></p> 	<p><b>Code</b> Certificate FIRES-JR-051-16-NURE, FIRES-JR-054-16-NURE, FIRES-JR-060-16-NURE, FIRES-JR-063-16-NURE &amp; FIRES-JR-066-16-NURE : DIN 4102-12:1998-11, F = 20 kg/m, L = 1500 mm, Max. 3 brackets per ceiling profile in total</p>			
	KBSI60.100 - 400.100	5		E 30 - E 90
	HDHSMU50.300 - 1500	2 + 2		
	HDWKMI100 - 400	1	HDTSU50 = Spacer HDHSMU50 (incl. bolts and nuts)	
	KBSI60.100 - 400.100	2	Fixing of the cable tray onto HDWKMI	
<p>Certificate according STN 92 0205:2014, ZP-27/2008 &amp; CSN 73 0895 also available.</p>				
<p><b>Nr 3 : Fixing to the wall</b></p> 	<p><b>Code</b> Certificate FIRES-JR-057-16-NURE: DIN 4102-12:1998-11, F = 20 kg/m, L = 1500 mm</p>			
	KBSI60.100 - 300.075	5		E 30 - E 90
	HDWKMI100 - 300	1 + 1		
	KBSI60.100 - 300.075	2	Fixing of the cable tray onto HDWKMI	
	<p>Certificate FIRES-JR-055-16-NURE: STN 92 0205:2014, Certificate FIRES-JR-056-16-NURE: ZP-27/2008, Certificate FIRES-JR-085-16-NURE: CSN 73 0895 also available.</p>			
<p><b>Nr 4 : Fixing to the wall</b></p> 	<p><b>Code</b> Certificate FIRES-JR-051-16-NURE, FIRES-JR-054-16-NURE, FIRES-JR-060-16-NURE, FIRES-JR-063-16-NURE &amp; FIRES-JR-066-16-NURE : DIN 4102-12:1998-11, F = 20 kg/m, L = 1500 mm, Max. 3 levels</p>			
	KBSI60.100 - 400.100	5		E 30 - E 90
	HDWKMI100 - 400	1 + 1		
	KBSI60.100 - 400.100	2	Fixing of the cable tray onto HDWKMI	
	<p>Certificate according STN 92 0205:2014, ZP-27/2008 &amp; CSN 73 0895 also available.</p>			

Tested with Dätwyler, Prysman, Prakab and Faber cables

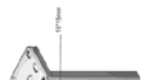

**2. Fixing without threaded rod**

Tested with Eupen, Dätwyler and Leoni Studer cables

Nr 5 : Fixing to the ceiling		To fix with :		Amount		Remark		Class	
Code		Certificate ABP MPA-E-14-007 : F = 20 kg/m, L = < 1500 mm, Max. 3 brackets in total, Max. 2 superposed brackets, Variant 3, Annexes 4/7							
	KBSI60.100 - 300.075	VMK6.10	Concrete anchor M 10 + RO10	5					
	HSMES200 - 1000			2 + 2					E 30 - E 90
	HDWK100 - 300		B10.80 + CRO10 + M10	1 + 2 + 1					
	KBSI60.100 - 300.075		VMK6.10	2		Fixing of the cable tray onto HDWK100			
Nr 6 : Fixing to the ceiling		To fix with :		Amount		Remark		Class	
Code		Certificate ABP MPA-E-14-007 : F = 20 kg/m, L = < 1500 mm, Max. 2 levels, Variant 1, Annexes 5/7							
	KBSI60.100 - 300.075	VMK6.10	Concrete anchor M 12 + RO12	5					
	HSMES200 - 1000			2 + 2					E 30 - E 90
	DKBS100 - 300		B10.80 + CRO10 + M10	1 + 2 + 1		Fixing of the cable tray onto DKBS			
	KBSI60.100 - 300.075		VMK6.10	2					
Nr 7 : Fixing to the ceiling		To fix with :		Amount		Remark		Class	
Code		Certificate ABP MPA-E-14-007 : F = 20 kg/m, L = < 1500 mm, Max. 3 brackets in total, Max. 2 superposed brackets, Variant 4, Annexes 7/7							
	KBSI60.100 - 300.075	VMK6.10	Concrete anchor M 10 + RO10	5					
	HDHSMU50.300 - 1000			2 + 2					E 30 - E 90
	HDWK100 - 300		HDTSU50	1		HDTSU50 = Spacer HDHSMU50 (incl. bolts and nuts)			
	KBSI60.100 - 300.075		VMK6.10	2		Fixing of the cable tray onto HDWK100			
Nr 8 : Fixing to the wall		To fix with :		Amount		Remark		Class	
Code		Certificate ABP MPA-E-14-007 : F = 20 kg/m, L = 1500 mm, Variant 2, Annexes 6/7							
	KBSI60.100 - 300.075	VMK6.10	Concrete anchor M 10 + CRO10	5					
	HDWK100 - 300			1 + 1					E 30 - E 90
	KBSI60.100 - 300.075		VMK6.10	2		Fixing of the cable tray onto HDWK100			


**3. Fixing with threaded rod**

these constructions are tested with Dätwyler cables

Nr 9 : Fixing to the ceiling		To fix with :		Amount		Remark		Class	
Code		Certificate ABP 3321/380/10 MPA BS : F = 20 kg/m, L = 1500 mm, Max. 2 levels, Nr 2.1.2.1, Annexes 2							
	KBSI60.075 - 300.125	VMK6.10	Concrete anchor M 12	6 - 8		KBSI60.075 - 200 : 6; KBSI60.300 - 400 : 8			
	HDHSLC1.300 - 1200			2					E 30 - E 90
	HDWK100 - 300		B10.40 + CRO10 + M10	1 + 2 + 1		For symmetrical fixing : B12.50 + CRO12 + M12			
	HDBSKLEM			1					
	TIM10 - 12		Concrete anchor M 10 - 12	1		1 level : M 10; 2 levels : M 12			
	KBSI60.075 - 300.125		VMK6.10	2		Fixing of the cable tray onto HDWK			
Nr 10 : Fixing to the wall (90°)		To fix with :		Amount		Remark		Class	
Code		Certificate ABP 3321/380/10 MPA BS : F = 20 kg/m, L = 1500 mm, Max. 2 levels, Nr 2.1.2.2, Annexes 10							
	KBSI60.075 - 400.100	VMK6.10	Concrete anchor M 10	6					
	HDWK100 - 400			1					E 30 - E 90
	HDBSKLEM			1					
	TIM10 - 12		Concrete anchor M 10 - 12	1		1 level : TIM10; 2 levels : TIM12			
	KBSI60.075 - 400.100		VMK6.10	2		Fixing of the cable tray onto HDWK			

**4. Fixing with double threaded rod**

these constructions are tested with Dátwyler cables

Nr 11 : Fixing to the ceiling	Code	To fix with :	Amount	Remark	Class
	Certificate ABP 3321/380/10 MPA BS : F = 20 kg/m, L = 1200 mm, Max. 3 levels, Nr 2.1.2.3, Annexes 11				
	KBSI60.075 - 400.100	VMKG.10	5		
	TIM8 - 10 - 12	Concrete anchor M 8 - 10 - 12	2	1 level : M 8; 2 levels : M 10; 3 levels : M 12	
	MPCL41.21.150	M8 - 10 - 12 + RO8 - 10 - 12	4	1 level : M 8; 2 levels : M 10; 3 levels : M 12	
	KBSI60.075 - 400.100	VMKG.10 + CRO6	2	Fixing of the cable tray onto MPCL	E 30 - E 90



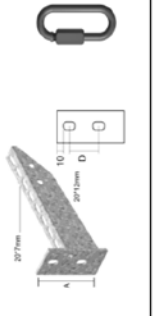
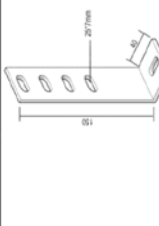
- Install with certified concrete anchors

- The quantities of products required is based on the smallest construction (1 level + asymmetrical).

**SELECTION TABLES FOR FIRE-RESISTANT SYSTEMS**

**2. Non-standard supporting constructions**

these constructions are tested with Eupen cables

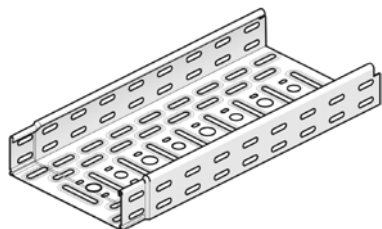
		Conditions	Standard supporting constructions (nr 11 - nr 13)		
<p><b>KLLIBS60</b></p>  <p><b>Constructions with cable ladder KLLIBS60</b></p>		<ul style="list-style-type: none"> <li>- Max. width = 400 mm</li> <li>- Max. load (F) = 30 kg/m</li> <li>- Max. support distance (L) ≤ 1500 mm</li> <li>- Max. rung distance = 150 mm</li> <li>- Max. 3 brackets per ceiling profile in total</li> <li>- Additional support at the end of the brackets</li> <li>- Max. height ≤ 3500 mm</li> <li>- Use solid supporting blocks every 3500 mm</li> <li>- Tested with Eupen cables</li> </ul>	<p>1. Fixing with additional support :</p> <ul style="list-style-type: none"> <li>- Fixing to the ceiling (nr 12)</li> <li>- Fixing to the wall (nr 13)</li> </ul> <p>2. Vertical fixing :</p> <ul style="list-style-type: none"> <li>- Fixing to the wall (nr 14)</li> </ul>		
<b>1. Fixing with additional support</b>					
<p><b>Nr 12 : Fixing to the ceiling</b></p> 	<p><b>Code</b> Certificate ABP MPA-E-14-007 : F = 30 kg/m, L = 1500 mm, Max. 3 brackets per ceiling profile in total, Variant a, Annexes 2/7</p>	<p><b>To fix with :</b></p> <ul style="list-style-type: none"> <li>VMKG.10</li> <li>Concrete anchor M 10</li> <li>B10.30 + CRO10 + GM41M10</li> <li>QL6</li> <li>LBS60.200 - 1500</li> <li>VS41.05</li> <li>Concrete anchor M 10</li> <li>KLLBK25</li> </ul>	<p><b>Amount</b></p> <ul style="list-style-type: none"> <li>4</li> <li>4</li> <li>1 + 1 + 1</li> <li>1</li> <li>1</li> <li>1</li> <li>2</li> </ul>	<p><b>Remark</b></p> <ul style="list-style-type: none"> <li>Fixing HDWK onto HSMES</li> <li>Fixing HDWK to LBS</li> <li>Fixing LBS to VS41.05</li> <li>Fixing of the cable ladder onto HDWK</li> </ul>	<p><b>Class</b></p> <p>E 30 - E 90</p>
<p><b>Nr 13 : Fixing to the wall (90°)</b></p> 	<p><b>Code</b> Certificate ABP MPA-E-14-007 : F = 30 kg/m, L = 1500 mm, Max. 3 levels, Variant a, Annexes 3/7</p>	<p><b>To fix with :</b></p> <ul style="list-style-type: none"> <li>VMKG.10</li> <li>Concrete anchor M 10 + CRO10</li> <li>QL6</li> <li>LBS60.200 - 1500</li> <li>VS41.05</li> <li>Concrete anchor M 10</li> <li>KLLBK25</li> </ul>	<p><b>Amount</b></p> <ul style="list-style-type: none"> <li>4</li> <li>1 + 1 + 1</li> <li>1</li> <li>1</li> <li>1</li> <li>2</li> </ul>	<p><b>Remark</b></p> <ul style="list-style-type: none"> <li>Fixing HDWK to LBS</li> <li>Fixing LBS to VS41.05</li> <li>Fixing of the cable ladder onto HDWK</li> </ul>	<p><b>Class</b></p> <p>E 30 - E 90</p>
<b>2. Vertical fixing</b>					
<p><b>Nr 14 : Fixing to the wall</b></p> 	<p><b>Code</b> Certificate ABP MPA-E-14-007 : F = 30 kg/m, L = 1500 mm, Variant a, Annexes 3/7</p>	<p><b>To fix with :</b></p> <ul style="list-style-type: none"> <li>VMKG.10</li> <li>VM6.20</li> <li>Concrete anchor M 8</li> <li>Cable clamps, type H</li> </ul>	<p><b>Amount</b></p> <ul style="list-style-type: none"> <li>4</li> <li>1</li> <li>4</li> <li>1</li> </ul>	<p><b>Remark</b></p> <ul style="list-style-type: none"> <li>Fixing KLLIBS to HDAB35.110</li> <li>To fix to the wall</li> <li>Per rung</li> </ul>	<p><b>Class</b></p> <p>E 30 - E 90</p>

- Install with certified concrete anchors  
 - The quantities of products required is based on the smallest construction (1 level + asymmetrical).



## KBSI60

### Cable tray with interlocking ends



Interlocking ends  
Alternative perforations  
Return flanges

Standard finish

Pre-galvanised

Optional finish HD

Hot-dip galvanised

HD	Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/m	⊞	Stock	Unit
HD	KBSI60.075.100	60	75	1.00	3000	1.400	60	✓	m
-	KBSI60.075.125	60	75	1.25	3000	1.750	60	✓	m
HD	KBSI60.100.075	60	100	0.75	3000	1.170	60	✓	m
HD	KBSI60.100.100	60	100	1.00	3000	1.560	60	✓	m
-	KBSI60.100.125	60	100	1.25	3000	1.950	60	✓	m
HD	KBSI60.150.075	60	150	0.75	3000	1.420	30	✓	m
HD	KBSI60.150.100	60	150	1.00	3000	1.890	30	✓	m
-	KBSI60.150.125	60	150	1.25	3000	2.360	30	✓	m
HD	KBSI60.200.075	60	200	0.75	3000	1.660	30	✓	m
HD	KBSI60.200.100	60	200	1.00	3000	2.220	30	✓	m
-	KBSI60.200.125	60	200	1.25	3000	2.770	30	✓	m
HD	KBSI60.250.075	60	250	0.75	3000	1.910	30	✓	m
HD	KBSI60.250.100	60	250	1.00	3000	2.540	30	✓	m
HD	KBSI60.300.075	60	300	0.75	3000	2.150	30	✓	m
HD	KBSI60.300.100	60	300	1.00	3000	2.870	30	✓	m
-	KBSI60.300.125	60	300	1.25	3000	3.580	30	✓	m
HD	KBSI60.400.100	60	400	1.00	3000	3.520	30	✓	m

Fix with:

HD	VMK6.10	-	-	M6	-	0.009	100	✓	piece
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The technical information for this product can be found at the end of this chapter.

## KLLIBS60

### Cable ladder interlocking ends (BS)



Usable inner height

44 mm

Rung distance

150 mm

Standard finish

Pre-galvanised

Optional finish HD

Hot-dip galvanised

HD	Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/m	⊞	Stock	Unit
HD	KLLIBS60.150	60	150	1.00	3000	2.166	30		m
HD	KLLIBS60.200	60	200	1.00	3000	2.286	30		m
HD	KLLIBS60.300	60	300	1.00	3000	2.516	30		m
HD	KLLIBS60.400	60	400	1.00	3000	2.752	30		m

The technical information for this product can be found at the end of this chapter.

**LBS**

**Strip (BS)**



Standard finish

Pre-galvanised

Optional finish HD

Hot-dip galvanised

HD	Reference	↑ mm	↔ mm	⊘ mm	↔ mm	kg/piece	📦	Stock	Unit
HD	<b>LBS60.200</b>	-	60		200	0.260	1	✓	piece
HD	<b>LBS60.300</b>	-	60		300	0.390	1	✓	piece
HD	<b>LBS60.400</b>	-	60		400	0.520	1	✓	piece
HD	<b>LBS60.500</b>	-	60		500	0.660	1	✓	piece
HD	<b>LBS60.600</b>	-	60		600	0.790	1	✓	piece
HD	<b>LBS60.800</b>	-	60		800	1.050	1	✓	piece
HD	<b>LBS60.1000</b>	-	60		1000	1.310	1	✓	piece
HD	<b>LBS60.1200</b>	-	60		1200	1.570	1	✓	piece
HD	<b>LBS60.1500</b>	-	60		1500	1.970	1	✓	piece

The technical information for this product can be found at the end of this chapter.

**QL**

**Quick link with screw cap**



Standard finish

Electro zinc-plated

Optional finish HD

Hot-dip galvanised

HD	Reference	↑ mm	↔ mm	⊘ mm	↔ mm	kg/piece	📦	Stock	Unit
HD	<b>QL6</b>	-		6.00	-	0.040	50	✓	piece
HD	<b>QL8</b>	-		8.00	-	0.080	50	✓	piece

To order per full packaging.  
 - QL6: for fixing console to LBS.  
 - QL8: for fixing LBS to VS41.05.

## HDVS41.05

### Assembly accessory



Standard finish

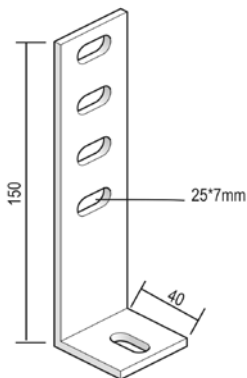
Hot-dip galvanised

Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	⊞	Stock	Unit
HDVS41.05	-	40	5.00	-	0.130	24	✓	piece

To order per full packaging.  
HDVS41.41 / HDVS41.42: Bolt B10.40 included.

## HDAB35.110

### Stand-off bracket



Used for vertical mounting of the cable ladder.

Standard finish

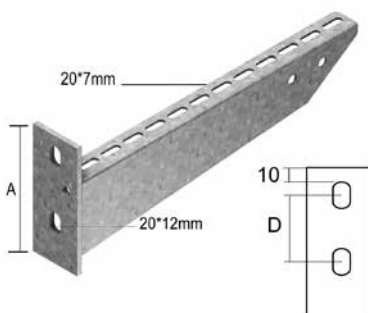
Hot-dip galvanised

Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	⊞	Stock	Unit
HDAB35.110	150	40		-	0.210	50	✓	piece
Fix with:								
HD VM6.20	-	-	M6	20	0.009	100	✓	piece

To order per full packaging.

## HDWK

### Welded bracket



Standard finish

Hot-dip galvanised

Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	⊞	Stock	Unit
HDWK100	106	117		-	0.300	24	✓	piece
HDWK150	112	167		-	0.360	24	✓	piece
HDWK200	116	217		-	0.430	24	✓	piece
HDWK250	120	267		-	0.530	12	✓	piece
HDWK300	125	317		-	0.730	12	✓	piece
HDWK400	134	417		-	0.880	12	✓	piece
Fix with:								
HD B10.40	-	-	M10	40	0.033	100	✓	piece
HD CRO10	-	-	M10	-	0.012	100	✓	piece
HD M10	-	-	M10	-	0.010	100	✓	piece

The technical information for this product can be found at the end of this chapter.

To order per full packaging.  
For symmetrical mounting, use HDB12.50 + HDCRO12 + HDM12.

**HDBSKLEM**

**Clamp for fixing of threaded rod**



Very fast securing of the threaded rod TIM, using a clamping bolt. Applicable on HDWK and KCLBS.

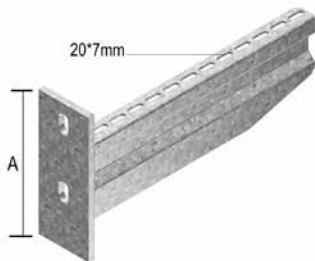
Standard finish Hot-dip galvanised

Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	📦	Stock	Unit
<b>HDBSKLEM</b>	25	125		-	0.120	20	✓	piece

To order per full packaging.  
 Ends held up through threaded rod TIM.  
 No additional bolts and nuts needed.  
 Threaded rod can be mounted in 1 continuous length.  
 Diameter of the threaded rod TIM not of influence.  
 Clamping bolt to be tightened with angular momentum of 10 Nm.

**HDWKM**

**Heavy welded bracket**



For direct fixing on the wall and also for fixing on the ceiling profile

Standard finish Hot-dip galvanised

Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	📦	Stock	Unit
<b>HDWKM100</b>	125	125		-	0.450	24	✓	piece
<b>HDWKM200</b>	134	225		-	0.650	24	✓	piece
<b>HDWKM300</b>	175	325		-	1.377	6	✓	piece
<b>HDWKM400</b>	175	425		-	1.696	6	✓	piece

The technical information for this product can be found at the end of this chapter.  
 To order per full packaging.

**HDHSMU50****Ceiling profile medium heavy**

Max. load	2100 daN
Standard finish	Hot-dip galvanised

Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	📦	Stock	Unit
HDHSMU50.200	-			200	0.940	1	✓	piece
HDHSMU50.300	-			300	1.160	1	✓	piece
HDHSMU50.400	-			400	1.380	1	✓	piece
HDHSMU50.500	-			500	1.610	1	✓	piece
HDHSMU50.600	-			600	1.830	1	✓	piece
HDHSMU50.800	-			800	2.270	1	✓	piece
HDHSMU50.1000	-			1000	2.710	1	✓	piece
HDHSMU50.1200	-			1200	3.150	1	✓	piece
HDHSMU50.1500	-			1500	3.820	1	✓	piece

The technical information for this product can be found at the end of this chapter.

**HDTSU****Spacer for HDHSMU50**

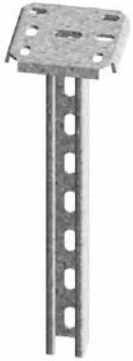
Standard finish	Hot-dip galvanised
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Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	📦	Stock	Unit
HDTSU50	-			-	0.223	12	✓	piece

To order per full packaging.  
Included: bolt HDB10.80, HDCRO10 and nuts HDM10.

**HSMES**

**Single ceiling profile**



Ceiling profile: MP41.41S  
Welded headplate: 120x120 mm

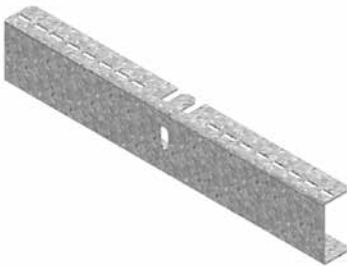
Max. load	1800 daN
Standard finish	Electro zinc-plated
Optional finish HD	Hot-dip galvanised

HD	Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	⊞	Stock	Unit
HD	HSMES200	-			200	1.020	20	✓	piece
HD	HSMES300	-			300	1.280	1	✓	piece
HD	HSMES400	-			400	1.530	1	✓	piece
HD	HSMES500	-			500	1.790	1	✓	piece
HD	HSMES600	-			600	2.050	1	✓	piece
HD	HSMES800	-			800	2.570	1	✓	piece
HD	HSMES1000	-			1000	3.090	1	✓	piece

The technical information for this product can be found at the end of this chapter.  
Also applicable for double mounting.

**DKBS**

**Double bracket (BS)**



For fixing to ceiling profile HSMES.

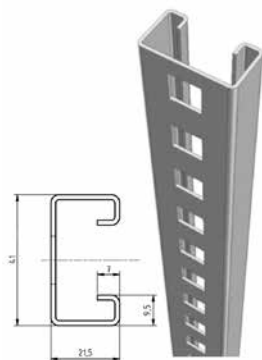
Standard finish	Pre-galvanised
Optional finish HD	Hot-dip galvanised

HD	Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	⊞	Stock	Unit
HD	DKBS100	82	291		-	0.860	12	✓	piece
HD	DKBS150	82	391		-	1.170	6	✓	piece
HD	DKBS200	82	491		-	1.470	6	✓	piece
HD	DKBS250	82	591		-	1.780	6	✓	piece
HD	DKBS300	82	691		-	2.090	6	✓	piece

The technical information for this product can be found at the end of this chapter.  
To order per full packaging.

## MPCL

### Clippable assembly profile



Standard finish

Pre-galvanised

HD	Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	⊞	Stock	Unit
-	MPCL41.21.150.200	41	21	1.50	210	0.240	10	✓	piece
-	MPCL41.21.150.300	41	21	1.50	300	0.340	10	✓	piece
-	MPCL41.21.150.400	41	21	1.50	420	0.480	10	✓	piece
-	MPCL41.21.150.500	41	21	1.50	510	0.580	10	✓	piece
-	MPCL41.21.150.600	41	21	1.50	600	0.680	10	✓	piece
-	MPCL41.21.150.800	41	21	1.50	810	0.920	10	✓	piece
-	MPCL41.21.150.3	41	21	1.50	3000	1.150	3	✓	m

Fix with:

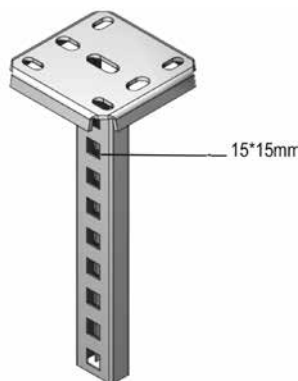
HD M8	-	-	M8	-	0.005	100	✓	piece
HD M10	-	-	M10	-	0.010	100	✓	piece
HD M12	-	-	M12	-	0.017	100	✓	piece
HD RO8	-	-	M8	-	0.002	100	✓	piece
HD RO10	-	-	M10	-	0.004	100	✓	piece
HD RO12	-	-	M12	-	0.006	100	✓	piece

The technical information for this product can be found at the end of this chapter.

To order per full packaging.

## HDHSLECL

### Single ceiling profile clips



Ceiling profile: HDMP41.21  
Welded headplate of 120 x 120 mm

Max. load

1000 daN

Standard finish

Hot-dip galvanised

Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	⊞	Stock	Unit
HDHSLECL300	-			300	0.850	1	✓	piece
HDHSLECL400	-			420	1.010	1	✓	piece
HDHSLECL500	-			510	1.130	1	✓	piece
HDHSLECL600	-			600	1.230	1	✓	piece
HDHSLECL800	-			810	1.450	1	✓	piece
HDHSLECL1000	-			1020	1.750	1	✓	piece
HDHSLECL1200	-			1200	1.950	1	✓	piece

Also applicable for double mounting.

Fixed with 2 anchoring bolts.

For symmetrical mounting, to fix with 2 anchoring bolts M12.

**CLHS**

**Snap-in adapter for HDHSLECL**



For symmetrical mounting of KCLBS

Standard finish

Pre-galvanised

HD	Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	⊞	Stock	Unit
-	<b>CLHS</b>	-				0.120	24	✓	piece

To order per full packaging.

**HDVS41**

**Assembly accessory**



To be used when mounting the threaded rod to the wall.

Standard finish

Hot-dip galvanised

Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	⊞	Stock	Unit
<b>HDVS41.45</b>	-	40	3.00	-	0.100	12	✓	piece

To order per full packaging.



## TIM

## Threaded rod (DIN 975)



Standard finish

Electro zinc-plated

Optional finish HD

Hot-dip galvanised

Reference	Max. load (in daN)
TIM8	550
TIM10	900
TIM12	1300

HD	Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/m	⊞	Stock	Unit
HD	<b>TIM8</b>	-		M8	2000	0.319	50	✓	m
HD	<b>TIM10</b>	-		M10	2000	0.500	50	✓	m
HD	<b>TIM12</b>	-		M12	2000	0.725	40	✓	m

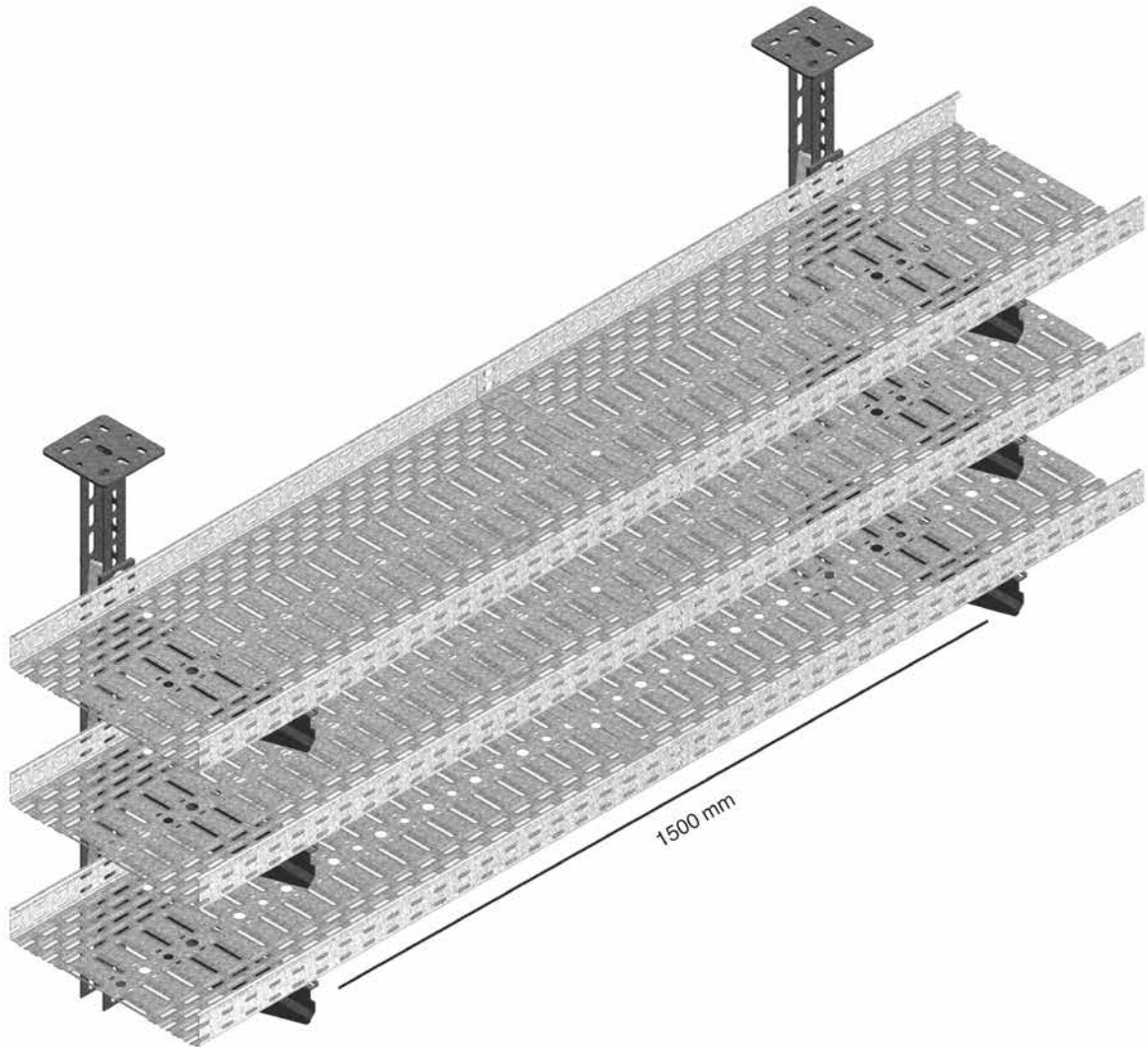
Fix with:

HD	<b>M8</b>	-	-	M8	-	0.005	100	✓	piece
HD	<b>M10</b>	-	-	M10	-	0.010	100	✓	piece
HD	<b>M12</b>	-	-	M12	-	0.017	100	✓	piece
HD	<b>RO8</b>	-	-	M8	-	0.002	100	✓	piece
HD	<b>RO10</b>	-	-	M10	-	0.004	100	✓	piece
HD	<b>RO12</b>	-	-	M12	-	0.006	100	✓	piece



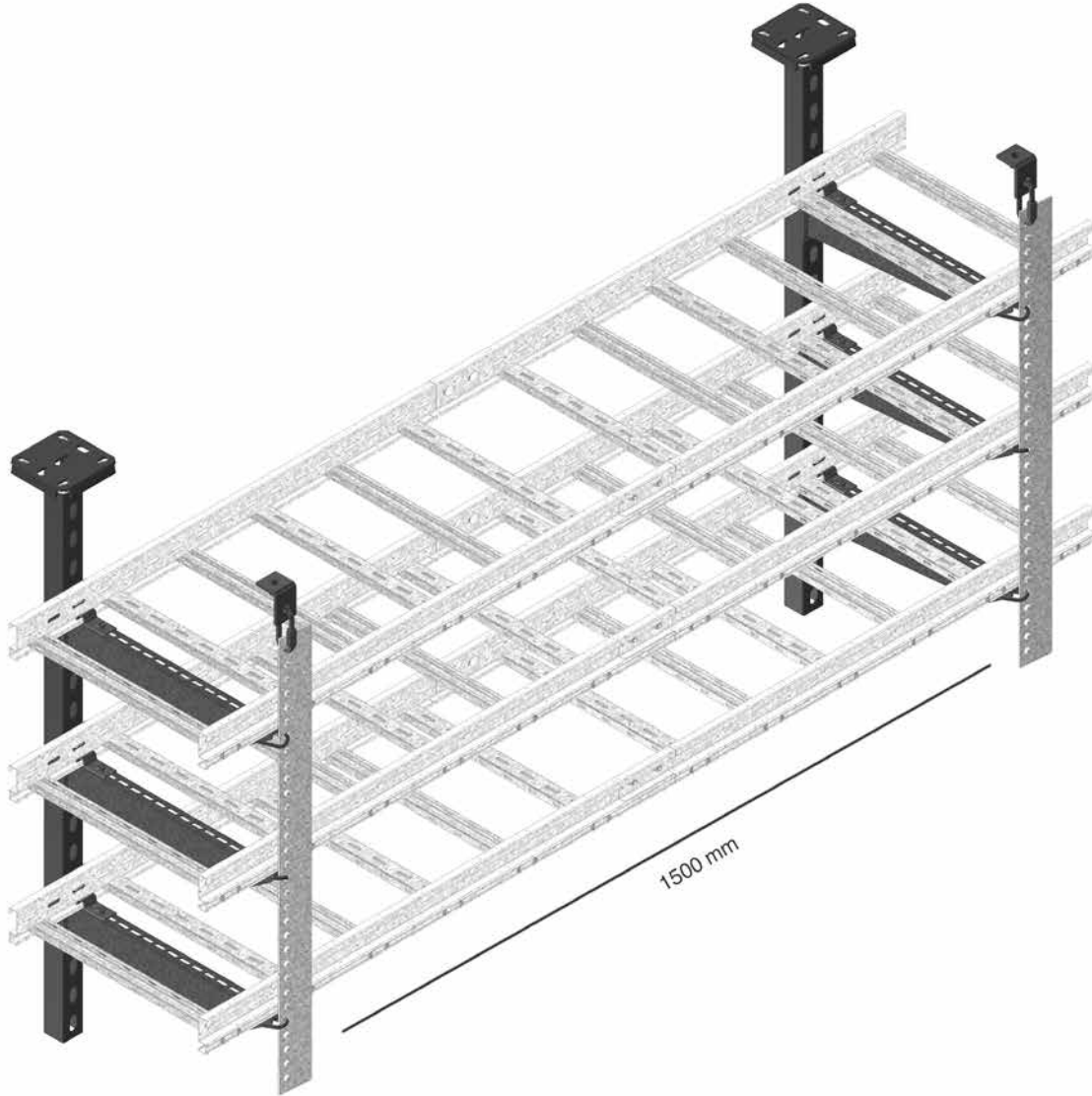
**KBSI60**

Technical information



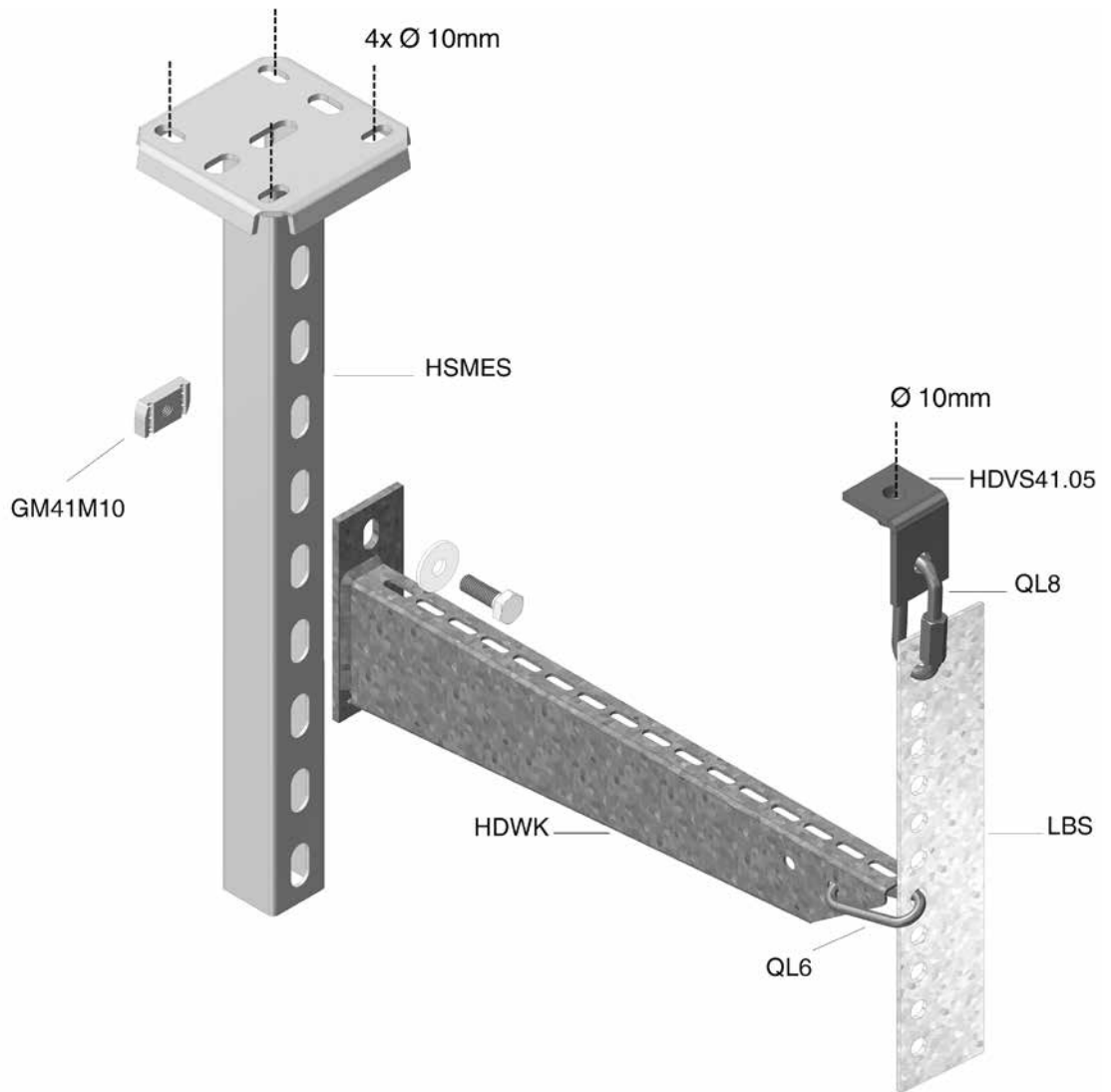
**KLLIBS60**

Technical information



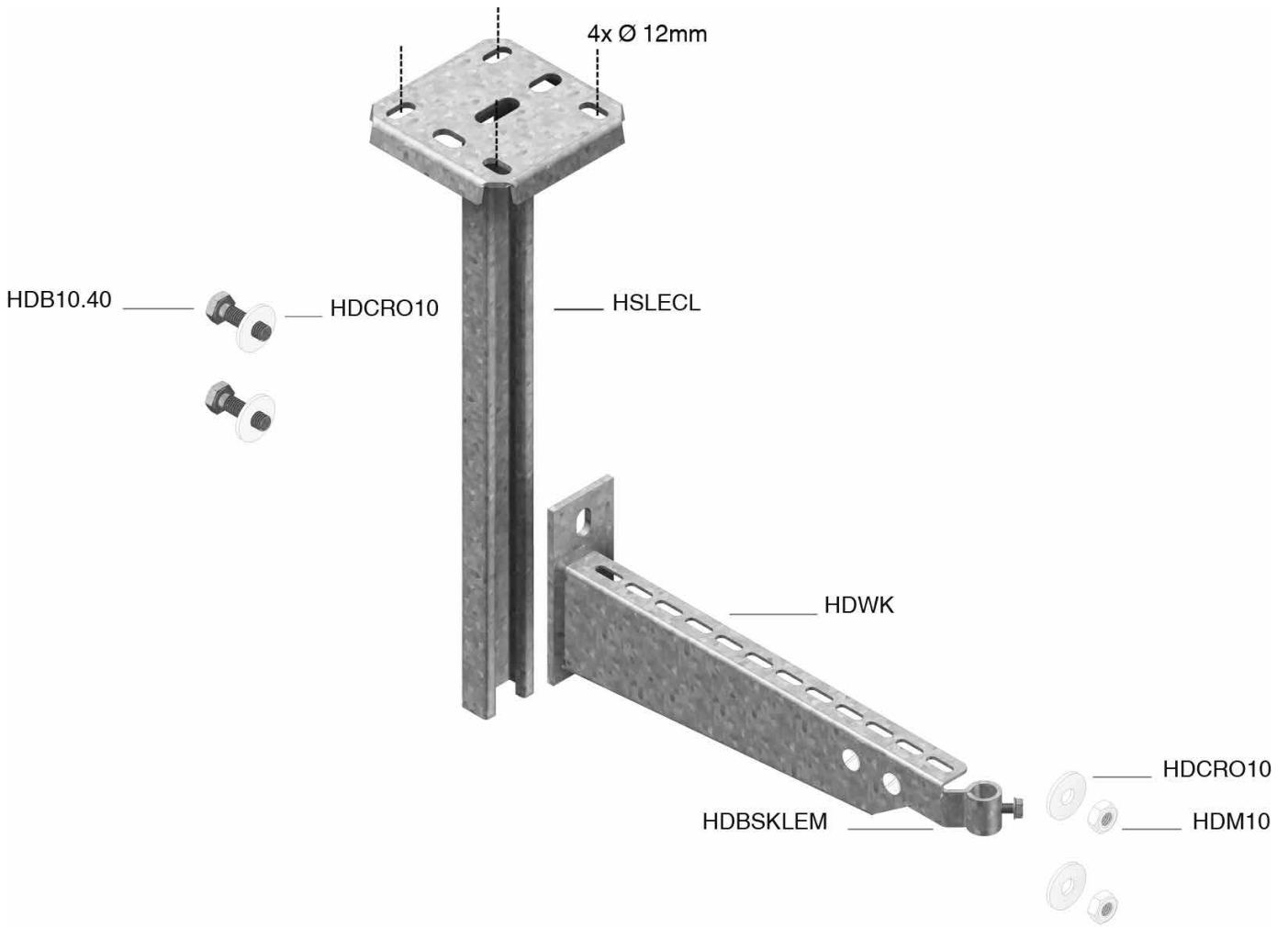
**LBS**

Technical information



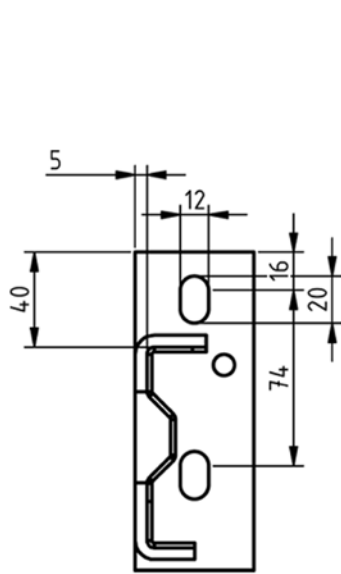
**HDWK**

**Technical information**

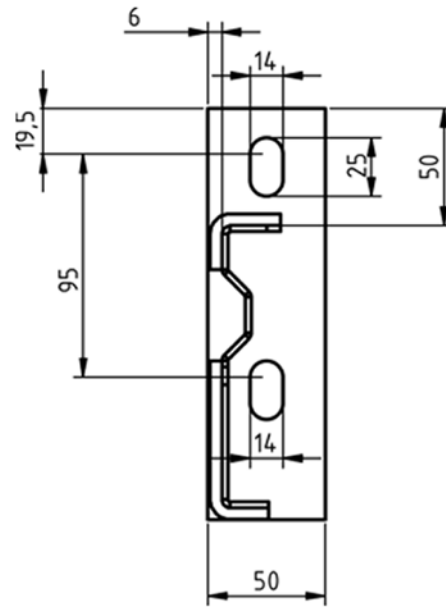


**HDWKM**

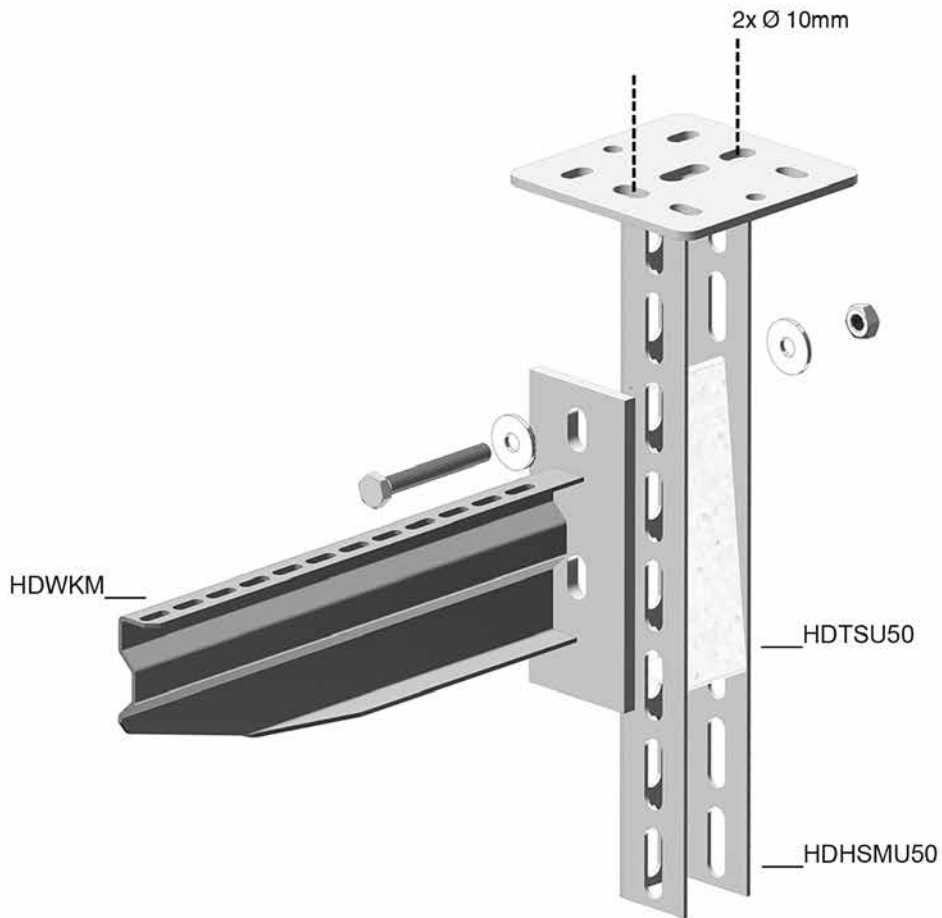
Technical information



100-150



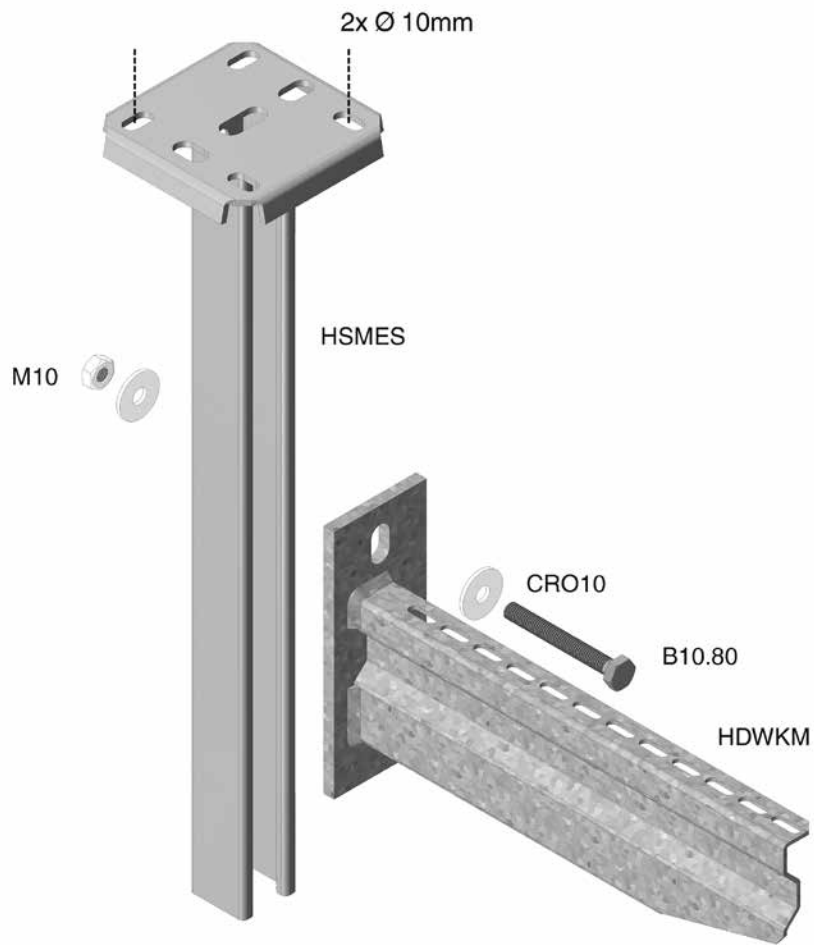
300-1000

**HDHSMU50****Technical information**



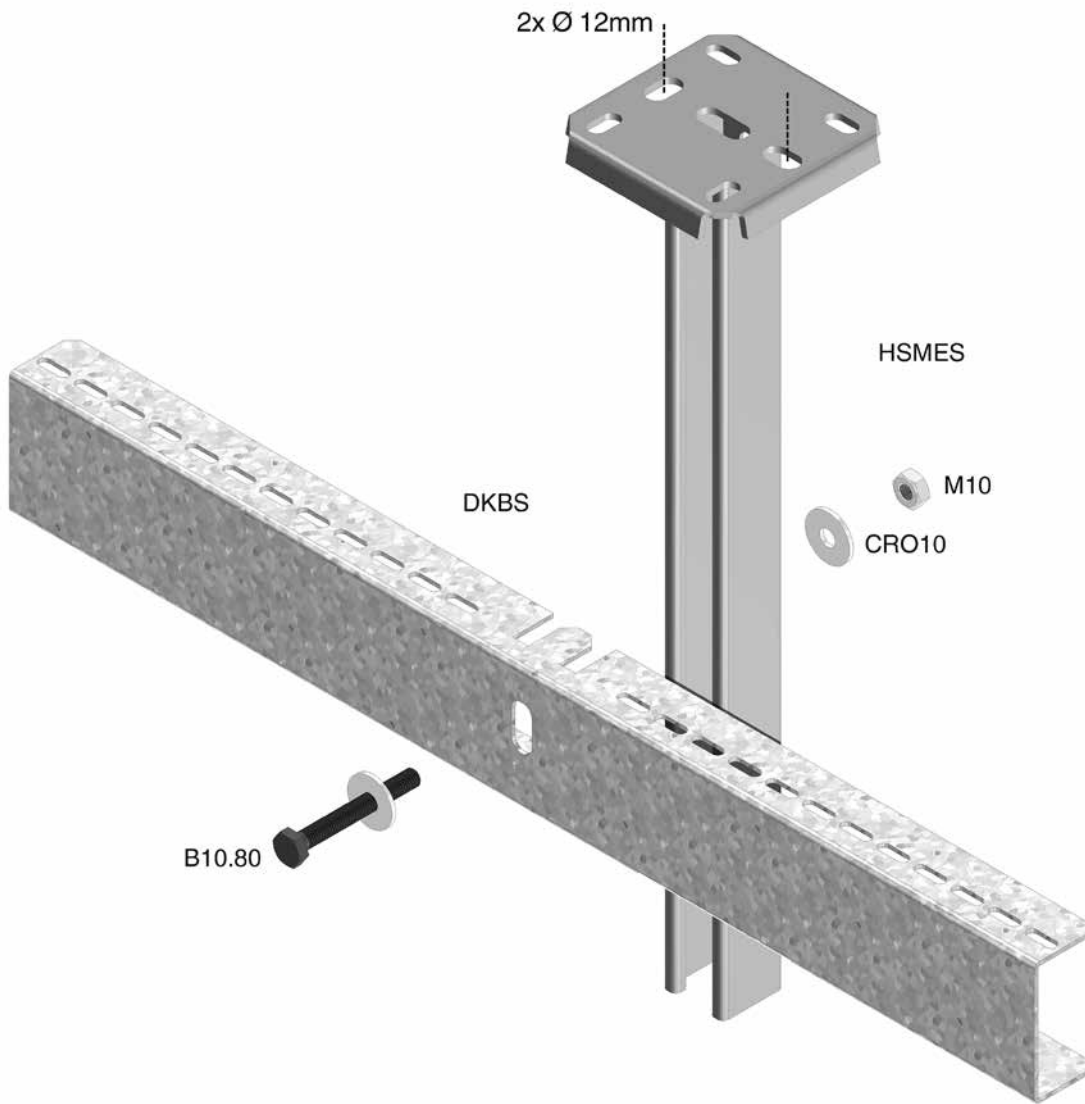
## HSMES

### Technical information



**DKBS**

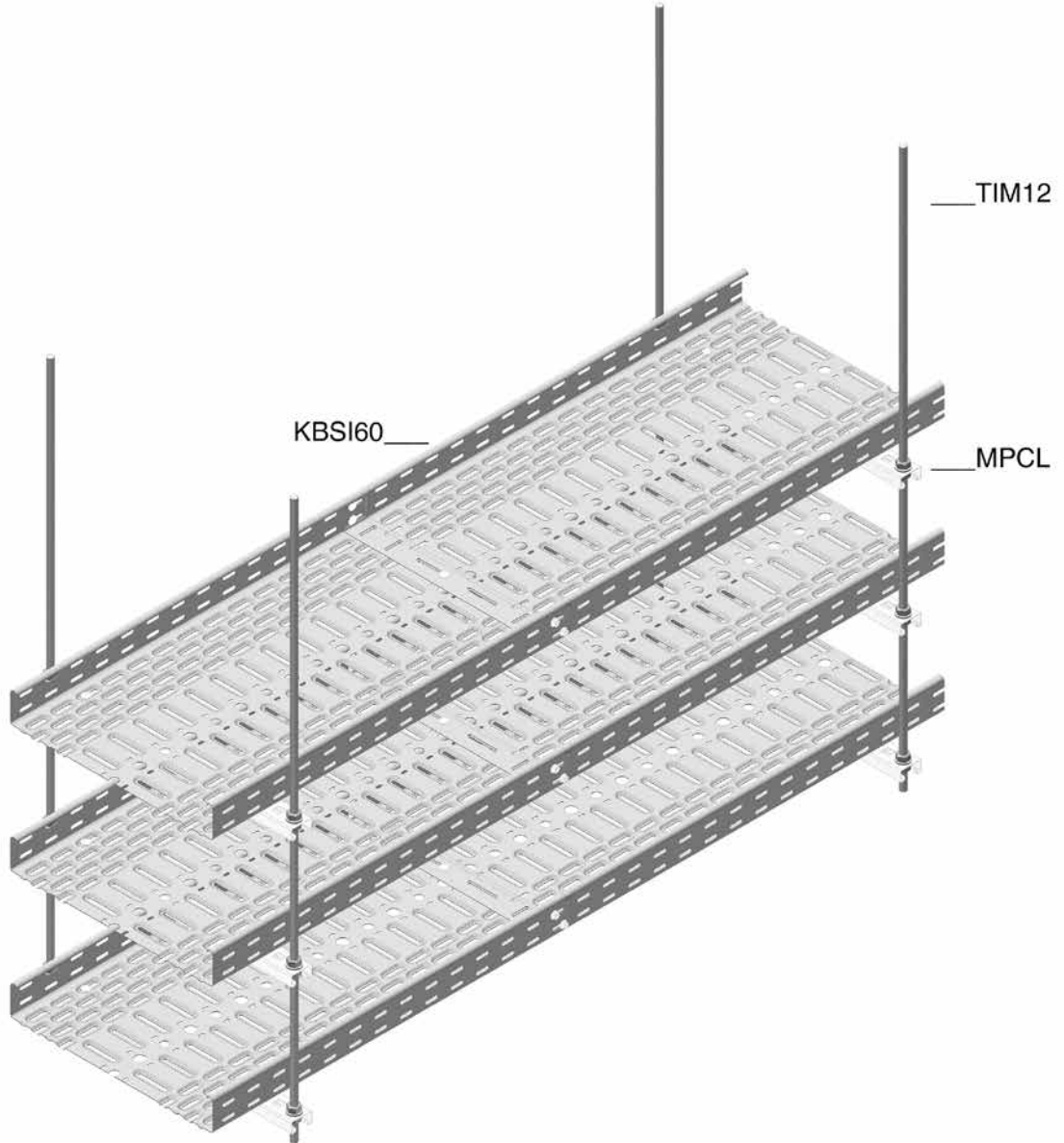
Technical information



## MPCL

### Technical information

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## FIRE-RESISTANT SYSTEMS

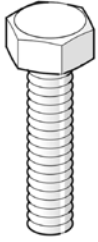
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Accessories



**B**

**Bolt (DIN 933)**



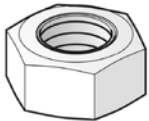
Standard finish Electro zinc-plated  
 Optional finish HD Hot-dip galvanised

HD	Reference	↑ mm	↔ mm	⊘ mm	↔ mm	kg/piece	⊠	Stock	Unit
HD	<b>B10.20</b>	-		M10	20	0.021	100	✓	piece
HD	<b>B10.30</b>	-		M10	30	0.027	100	✓	piece
HD	<b>B10.40</b>	-		M10	40	0.033	100	✓	piece
HD	<b>B10.80</b>	-		M10	80	0.053	100	✓	piece
HD	<b>B12.50</b>	-		M12	50	0.058	100	✓	piece

To order per full packaging.

**M**

**Nut (DIN 934)**



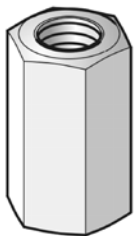
Standard finish Electro zinc-plated  
 Optional finish HD Hot-dip galvanised

HD	Reference	↑ mm	↔ mm	⊘ mm	↔ mm	kg/piece	⊠	Stock	Unit
HD	<b>M8</b>	-		M8	-	0.005	100	✓	piece
HD	<b>M10</b>	-		M10	-	0.010	100	✓	piece
HD	<b>M12</b>	-		M12	-	0.017	100	✓	piece

To order per full packaging.

**VM6334**

**Coupling nut (DIN 6334)**



Standard finish Electro zinc-plated

HD	Reference	↑ mm	↔ mm	⊘ mm	↔ mm	kg/piece	⊠	Stock	Unit
-	<b>VM8</b>	24		M8	-	0.021	50	✓	piece
-	<b>VM10</b>	30		M10	-	0.042	50	✓	piece
-	<b>VM12</b>	36		M12	-	0.059	50	✓	piece

To order per full packaging.

**VM**

**Toothed round head bolt / flange nut**



Standard finish

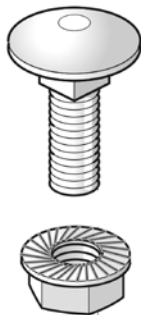
Electro zinc-plated

HD	Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	⊞	Stock	Unit
-	<b>VM4.40</b>	-		M4	40	0.005	100	✓	piece
HD	<b>VM6.10</b>	-		M6	10	0.008	100	✓	piece
HD	<b>VM6.20</b>	-		M6	20	0.009	100	✓	piece
-	<b>VM10.50</b>	-		M10	50	0.041	100	✓	piece

To order per full packaging.  
According to DIN 50 961.

**VMK**

**Round head square neck bolt / flange nut**



Standard finish

Electro zinc-plated

Optional finish HD

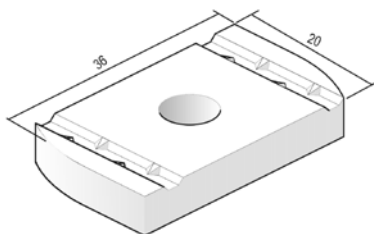
Hot-dip galvanised

HD	Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	⊞	Stock	Unit
HD	<b>VMK6.10</b>	-		M6	-	0.009	100	✓	piece

To order per full packaging.

**GM41**

**Sliding nut for supporting profile**



For stepless fixing of the brackets on the ceiling profiles.

Standard finish

Electro zinc-plated

Optional finish HD

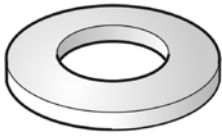
Hot-dip galvanised

HD	Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	⊞	Stock	Unit
HD	<b>GM41M10</b>	-		M10	-	0.040	50	✓	piece

To order per full packaging.

**RO**

**Giant washer (DIN 125-1 A)**



Standard finish

Electro zinc-plated

Optional finish HD

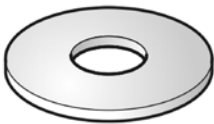
Hot-dip galvanised

HD	Reference	↑ mm	↔ mm	⊘ mm	↔ mm	kg/piece	⊞	Stock	Unit
HD	<b>RO8</b>	-		M8	-	0.002	100	✓	piece
HD	<b>RO10</b>	-		M10	-	0.004	100	✓	piece
HD	<b>RO12</b>	-		M12	-	0.006	100	✓	piece

To order per full packaging.

**CRO**

**Flat giant washer (DIN 9021)**



Standard finish

Electro zinc-plated

Optional finish HD

Hot-dip galvanised

HD	Reference	↑ mm	↔ mm	⊘ mm	↔ mm	kg/piece	⊞	Stock	Unit
HD	<b>CRO8</b>	-		M8	-	0.006	100	✓	piece
HD	<b>CRO10</b>	-		M10	-	0.012	100	✓	piece
HD	<b>CRO12</b>	-		M12	-	0.027	100	✓	piece

To order per full packaging.