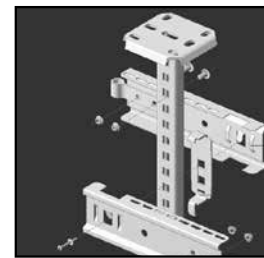


Standard supporting constructions

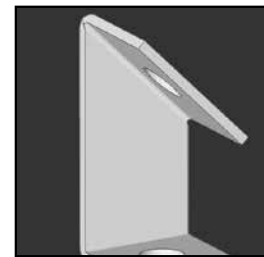


## FIRE-RESISTANT SYSTEMS

Non-standard supporting constructions



Accessories



## FIRE RESISTANCE

### STANDARD SUPPORTING CONSTRUCTION

<b>CABLE TRAYS</b>		
KBS60	Perforated cable tray	7-385
KPBS	Joiner for Cable tray (BS)	7-385
<b>CABLE LADDERS</b>		
KLBS60	Cable ladder KL (BS)	7-386
KPBSKL	Joiner for cable ladder (BS)	7-386
BK	Fixing clamp	7-386
<b>VERTICAL MOUNTING</b>		
KL60	Cable ladder	7-387
LVBS60	Joiner for vertical cable ladder (BS)	7-387
HDAB35.110	Stand-off bracket	7-387
<b>CABLE CLAMPS</b>		
DR15.30	Supporting profile	7-388
SYBS	Stop for Y cable clamp (BS)	7-388
HDH1	Cable clamp for 1 cable	7-389
<b>MOUNTING SYSTEMS</b>		
LOMEGA150	Bracket / Ceiling profile	7-389
COMEGA290	Open suspension bracket	7-390
VOMEGA	Joining piece	7-390
KCLBS	Click-on bracket (BS)	7-391
HDWK	Welded bracket	7-392
HDBSKLEM	Clamp for fixing of threaded rod (BS)	7-392
MPCL	Assembly profile clippable	7-393
HDHSLECL	Single ceiling profile clippable	7-394
CLHS	Adapter for HDHSLECL	7-394
HDVS41.45	Assembly accessory	7-395
TIM	Threaded rod (DIN 975)	7-395
	TECHNICAL INFORMATION	7-397

### NON-STANDARD SUPPORTING CONSTRUCTION

<b>CABLE TRAYS</b>		
KBS160	Cable tray with interlocking ends	7-411
<b>CABLE LADDERS</b>		
KLBS60	Cable ladder interlocking ends (BS)	7-411
LBS	Strip (BS)	7-412
QL	Quick link with screw cap	7-412
HDVS41.05	Assembly accessory	7-413
HDAB35.110	Stand-off bracket	7-413
<b>MOUNTING SYSTEMS</b>		
HDWK	Welded bracket	7-413
HDBSKLEM	Clamp for fixing of threaded rod	7-414
HDWKM	Heavy welded bracket	7-414
HDHSMU50	Ceiling profile medium heavy	7-415
HDTSU	Spacer for HDHSMU50	7-415
HSMES	Single ceiling profile	7-416
DKBS	Double bracket (BS)	7-416
MPCL	Clippable assembly profile	7-417
HDHSLECL	Single ceiling profile clips	7-417
CLHS	Snap-in adapter for HDHSLECL	7-418
HDVS41	Assembly accessory	7-418
TIM	Threaded rod (DIN 975)	7-418
	TECHNICAL INFORMATION	7-419

### ASSEMBLY ACCESSORIES

<b>ACCESSORIES</b>		
B	Bolt (DIN 933)	7-428
M	Nut (DIN 934)	7-428
VM6334	Coupling nut (DIN 6334)	7-428
VM	Nut and bolt	7-429
VMK	Toothed round head bolt/nut	7-429
GM41	Sliding nut for supporting profile	7-429

RO	Giant washer (DIN 125-1 A)	7-430
CRO	Flat giant washer (DIN 9021)	7-430

## 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.

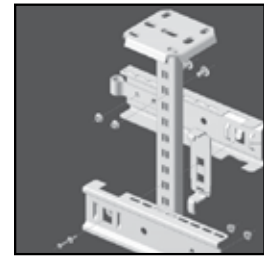
For further questions, please contact our technical advisers.



## FIRE-RESISTANT SYSTEMS

---





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>		<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>	<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 GS 3305/9930 – 2 Mu : F = 10 kg/m, L = 1200 mm, Max. 2 levels, Variant 3, Annexes 8, 9, 13</p> <p>KBS60.100 - 300.150                      KPBS100 - 300                      COMEGA290.150 - 400</p>	<p><b>To fix with :</b>                      KPBS100 - 300                      VMK6.10                      Concrete anchor M 12 + VOMEGA</p>	<p><b>Amount</b>                      12 - 18                      1 + 1</p>	<p><b>Remark</b>                      KPBS100 : 12; KPBS150 : 16; KPBS200 - 300 : 18</p>	<p><b>Class</b>                      E 30 - E 90</p>
<p><b>Nr 2 : Fixing to the ceiling</b></p>	<p><b>Code</b> Certificate GS 3305/9930 – 2 Mu : F = 10 kg/m, L = 1200 mm, Max. 3 levels, Variant 2, Annexes 4-7, 13</p> <p>KBS60.100 - 300.150                      KPBS100 - 300                      HDHSLECL300 - 1200                      KCLBS100 - 300                      HDBSKLEM</p>	<p><b>To fix with :</b>                      Concrete anchor M 10                      M10                      VMK6.10</p>	<p><b>Amount</b>                      1                      2                      2</p>	<p><b>Remark</b>                      Fixing TIM onto COMEGA                      Fixing of the cable tray onto COMEGA</p>	<p><b>Class</b>                      E 30 - E 90</p>
<p><b>Nr 3 : Fixing to the ceiling</b></p>	<p><b>Code</b> Certificate GS 3305/9930 – 2 Mu : F = 10 kg/m, L = 1200 mm, Max. 3 levels, Variant 1, Annexes 1-3, 7, 13</p> <p>KBS60.100 - 300.150                      KPBS100 - 300                      HDHSLECL300 - 1200                      HDWK100 - 300</p>	<p><b>To fix with :</b>                      Concrete anchor M 8 - 10 - 12                      VMK6.10</p>	<p><b>Amount</b>                      12 - 18                      2                      2 + 4 + 2</p>	<p><b>Remark</b>                      1 level : M 8; 2 levels : M 10; 3 levels : M 12                      For symmetrical fixing : M 12                      For symmetrical fixing :                      B12.50 + CRO12 + M12</p>	<p><b>Class</b>                      E 30 - E 90</p>
<p><b>Nr 4 : Fixing to the wall (45°)</b></p>	<p><b>Code</b> Certificate GS 3305/9930 – 2 Mu : F = 10 kg/m, L = 1200 mm, Max. 1 level, Variant 1, Annexes 11, 13</p> <p>KBS60.100 - 300.150                      KPBS100 - 300                      HDWK100-300                      HDBSKLEM</p>	<p><b>To fix with :</b>                      Concrete anchor M 8 - 10 - 12                      VMK6.10</p>	<p><b>Amount</b>                      12 - 18                      2                      6 + 4</p>	<p><b>Remark</b>                      1 level : M 8; 2 levels : M 10; 3 levels : M 12                      Fixing of the cable tray onto HDWK</p>	<p><b>Class</b>                      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).

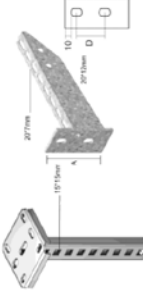
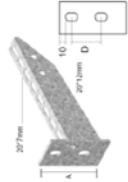
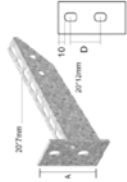
SELECTION TABLES FOR FIRE-RESISTANT SYSTEMS

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 :</p> <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>

1. Fixing with threaded rod

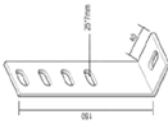





Nr 9 : Fixing to the ceiling	Code	To fix with :	Amount	Remark	Class
	<p><b>Certificate GS 3305/9930 – 1 Mu : F = 20 kg/m, L = 1200 mm, Max. 3 levels, Variant 1, Annexes 1, 2, 6, 12</b></p>				
	KLBS60 200 - 400	KPBSKL200 - 400	1		E 30 - E 90
	KPBSKL200 - 400	VMK6.10	20		
	HDHSECL300 - 1200	Concrete anchor M 12	2		
	HDWK200 - 400	B10.40 + CRO10 + M10	2 + 4 + 2		
	HDHBSKLEM		1		
	TIM12	Concrete anchor M 12	1		
KLBS60 200 - 400	BK	2	Fixing of the cable ladder onto HDWK		
<p><b>Nr 10 : Fixing to the wall (45°)</b></p> 	<p><b>Certificate GS 3305/9930 – 1 Mu : F = 20 kg/m, L = 1200 mm, Max. 1 level, Variant 1, Annexes 10, 12</b></p>				
	KLBS60 200 - 400	KPBSKL200 - 400	1		E 30 - E 90
	KPBSKL200 - 400	VMK6.10	20		
	HDWK200-400	Concrete anchor M 10	2		
	HDBSKLEM		1		
	TIM10	M10 + CRO10	6 + 4		
	HDVSA1.45	Concrete anchor M 12	1	For fixing to the wall 45°	
HDVSA1.45	B12.20 + RO12 + M12	1 + 2 + 1	Fixing HDVSA1.45 onto HDWK		
KLBS60 200 - 400	BK	2	Fixing of the cable ladder onto HDWK		
<p><b>Nr 11 : Fixing to the wall (90°)</b></p> 	<p><b>Certificate GS 3305/9930 – 1 Mu : F = 20 kg/m, L = 1200 mm, Max. 1 level, Variant 1, Annexes 10, 12</b></p>				
	KLBS60 200 - 400	KPBSKL200 - 400	1		E 30 - E 90
	KPBSKL200 - 400	VMK6.10	20		
	HDWK200-400	Concrete anchor M 10	2		
	HDBSKLEM		1		
	TIM10	Concrete anchor M 10	1		
	KLBS60 200 - 400	BK	2	Fixing of the cable ladder onto HDWK	

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

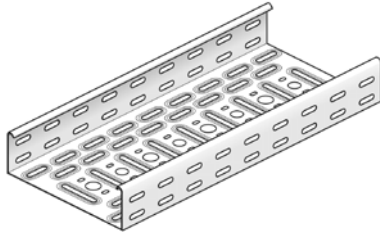
**SELECTION TABLES FOR FIRE-RESISTANT SYSTEMS**

**1. Standard supporting constructions**

applicable with all DIN 4102-12 certified cables

		Conditions		Standard supporting constructions (nr 12 - nr 14)	
<p><b>Nr 12 : Fixing to the wall</b></p> 	<p><b>KL60</b></p> <p><b>Vertical fixing with cable ladder</b></p> 	<p>- Max. width = 400 mm                      - Max. load (F) = 20 kg/m                      - Max. height ≤ 3500 mm                      - Max. support distance (L) ≤ 1200 mm                      - Use solid supporting blocks every 3500 mm</p>	<p>Fixing to the wall (nr 12)</p>	<p><b>Class</b></p>	<p>E 30 - E 90</p>
<p><b>Nr 13 : Fixing</b></p> 	<p><b>DR15.30</b></p> <p><b>Fixing with cable clamps</b></p> 	<p>- Max. support distance (L) without clamp support = 300 mm                      - The distance between 2 concrete anchors is max. 250 mm.</p>	<p>- Fixing to the ceiling and to the wall (nr 13)                      - Horizontal wall fixing (nr 14)</p>	<p><b>Class</b></p>	<p>E 30 - E 90</p>
<p><b>Nr 14 : Fixing</b></p> 	<p><b>DR15.30</b></p> <p><b>Fixing with cable clamps</b></p> 	<p>- Max. support distance (L) without clamp support = 300 mm                      - The distance between 2 concrete anchors is max. 250 mm.</p>	<p>- Fixing to the ceiling and to the wall (nr 13)                      - Horizontal wall fixing (nr 14)</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 (1 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	KBS60.100.150	60	100	1.50	3000	2.350	60	✓	m
HD	KBS60.150.150	60	150	1.50	3000	2.830	30	✓	m
HD	KBS60.200.150	60	200	1.50	3000	3.320	30	✓	m
HD	KBS60.300.150	60	300	1.50	3000	4.300	30	✓	m

The mounting principle 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	KPBS100	55	96		-	0.550	1	✓	piece
HD	KPBS150	55	146		-	0.670	1	✓	piece
HD	KPBS200	55	196		-	0.850	1	✓	piece
HD	KPBS300	55	296		-	1.100	1	✓	piece

Fix with:

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

Use all perforations.

**KLBS60**

**Cable ladder KL (BS)**



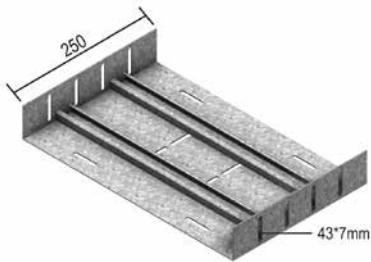
Side walls : L-profile  
C-rungs

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.

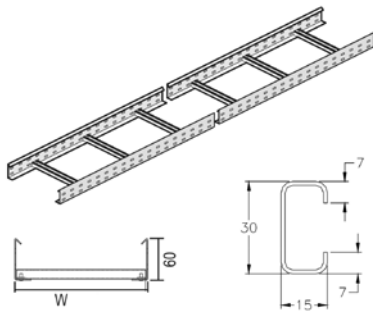
Standard finish Pre-galvanised  
Optional finish HD Hot-dip galvanised

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

Included: Bolt B6.20, nut RM6 and VFKG30.

## KL60

### Cable ladder



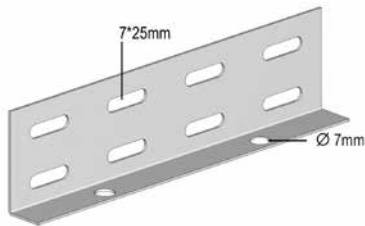
Can only be used for vertical mounting  
Side walls : perforated L-profile  
C-rungs

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	<b>KL60.200</b>	60	200		3000	2.370	24	✓	m
HD	<b>KL60.300</b>	60	300		3000	2.570	24	✓	m
HD	<b>KL60.400</b>	60	400		3000	2.770	24	✓	m
Fix with:									
HD	<b>LVBS60</b>	51	200	-	-	0.120	12	✓	piece

## LVBS60

### Joiner for vertical cable ladder (BS)



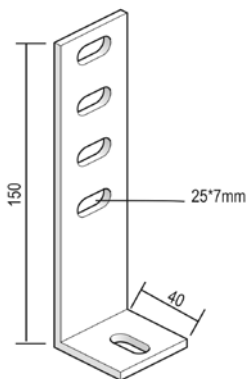
Only for vertical mounting  
For joining of KL60

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

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

## HDAB35.110

### Stand-off bracket



Used for vertical mounting of the cable ladder.

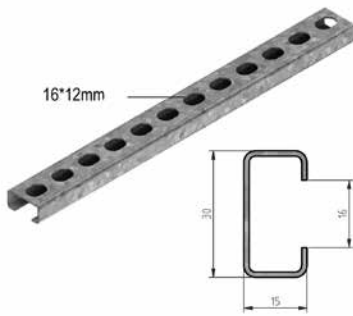
Standard finish	Hot-dip galvanised
-----------------	--------------------

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



**DR15.30**

**Supporting profile**



For wall and ceiling constructions

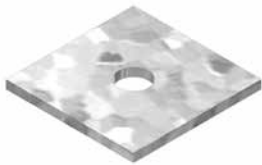
Standard finish	Pre-galvanised
Optional finish HD	Hot-dip galvanised

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)**



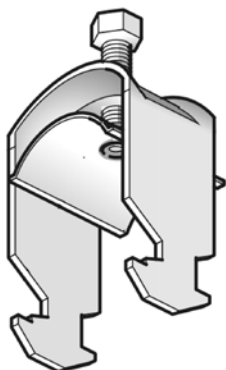
Standard finish	Pre-galvanised
Optional finish HD	Hot-dip galvanised

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



## HDH1

## Cable clamp for 1 cable



Applicable in case of C-rungs 15x30.

Standard finish

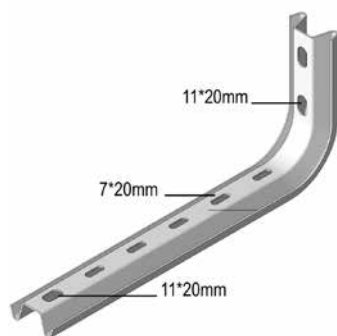
Hot-dip galvanised

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

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	0	✓	piece
HD	M10	-	-	M10	-	0.010	100	✓	piece

The mounting principle for this product can be found at the end of this chapter.

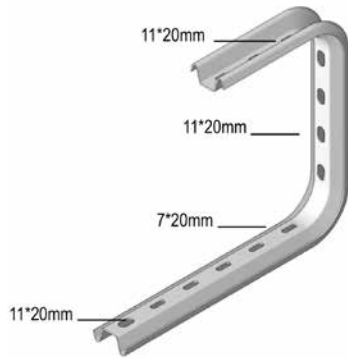
Ends held up through a threaded rod TIM.

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
-	COMEGA290.150	290	195		-	0.560	12	✓	piece
-	COMEGA290.200	290	245		-	0.620	12	✓	piece
-	COMEGA290.250	290	295		-	0.760	6	✓	piece
-	COMEGA290.300	290	345		-	0.820	6	✓	piece
-	COMEGA290.400	290	445		-	0.930	6	✓	piece

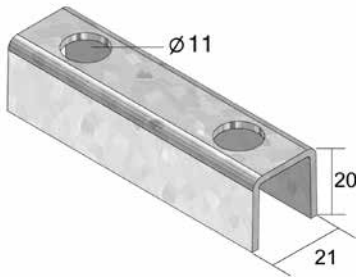
Ends held up by threaded rod TIM10.

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

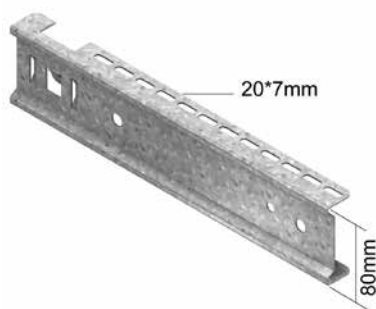
HD	Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	⊞	Stock	Unit
HD	VOMEGA	-			-	0.060	48	✓	piece

The mounting principle for this product can be found at the end of this chapter.

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 mounting principle for this product can be found at the end of this chapter.

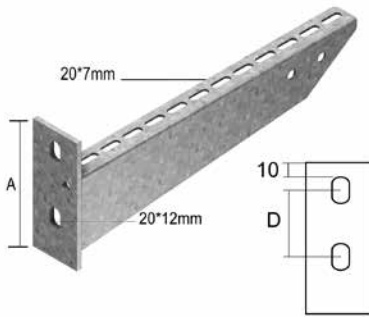
Completely clipsable, secured with VM4.40.

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 B10.40	-	-	M10	40	0.033	100	✓	piece
HD CRO10	-	-	M10	-	0.012	0	✓	piece
HD M10	-	-	M10	-	0.010	100	✓	piece

The mounting principle for this product can be found at the end of this chapter.

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	50	✓	piece

Ends held up through threaded rod TIM.

No additional bolts and nuts needed.

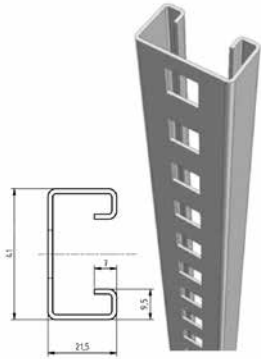
Threaded rod can be mounted in 1 continuous length.

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:

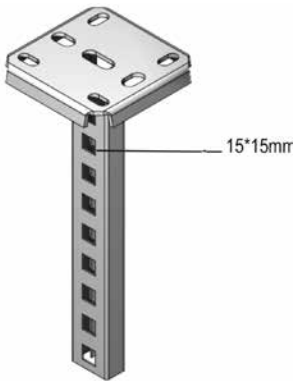
HD M8	-	-	M8	-	0.005	100	✓	piece
HD M10	-	-	M10	-	0.010	100	✓	piece
HD M12	-	-	M12	-	0.017	100	✓	piece
HD RO8	-	-	M8	-	0.002	0	✓	piece
HD RO10	-	-	M10	-	0.004	100	✓	piece
HD RO12	-	-	M12	-	0.006	0	✓	piece

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 mounting principle 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**



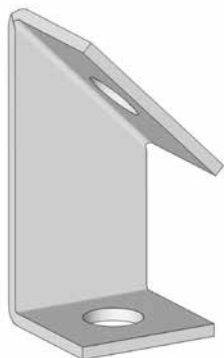
For symmetrical mounting of KCLBS

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

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

## 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 mounting principle for this product can be found at the end of this chapter.

## 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:

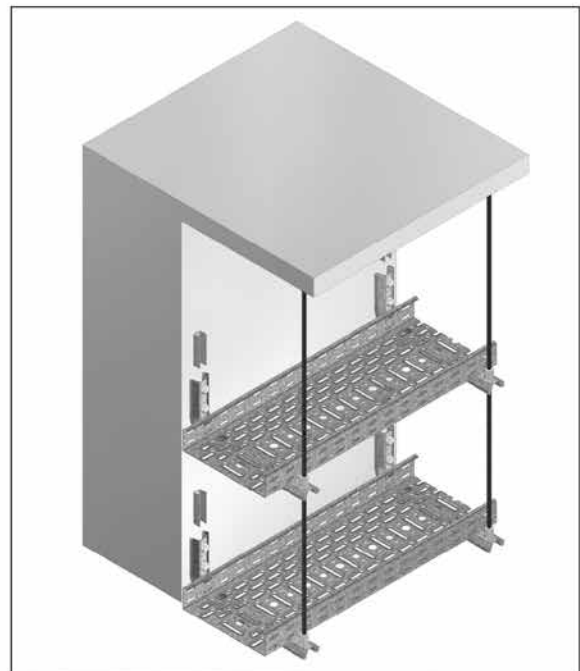
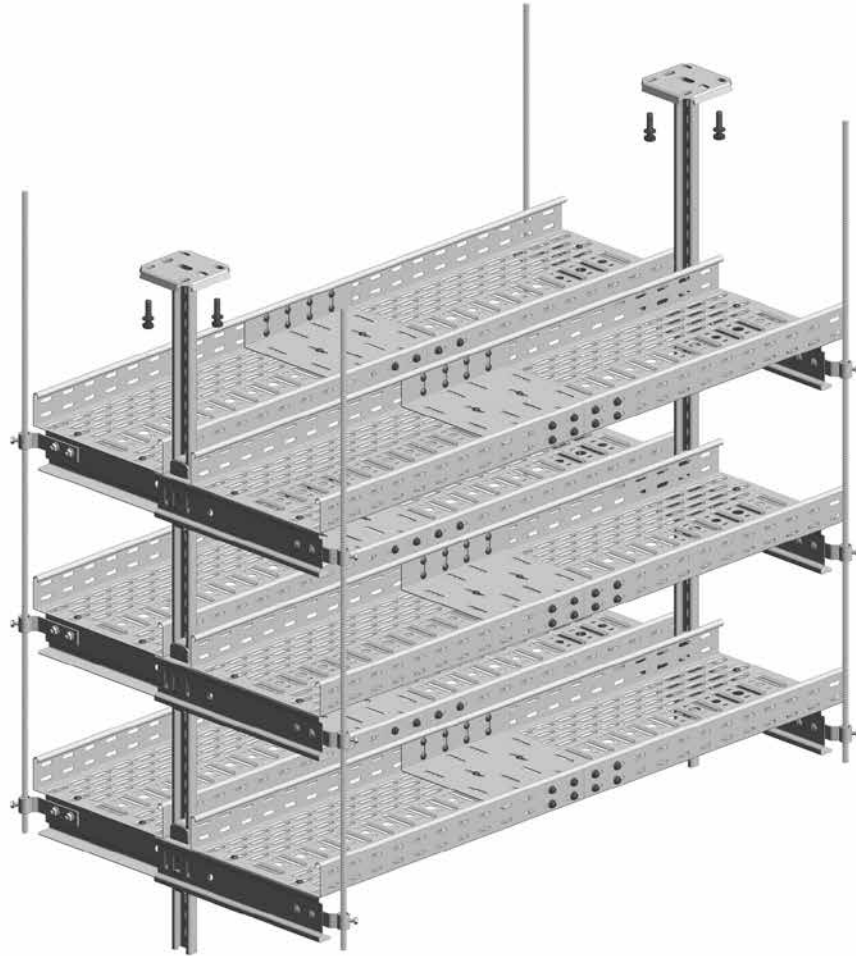
HD	M8	-	-	M8	-	0.005	100	✓	piece
HD	M10	-	-	M10	-	0.010	100	✓	piece
HD	M12	-	-	M12	-	0.017	100	✓	piece
HD	RO8	-	-	M8	-	0.002	100	✓	piece
HD	RO10	-	-	M10	-	0.004	100	✓	piece
HD	RO12	-	-	M12	-	0.006	100	✓	piece

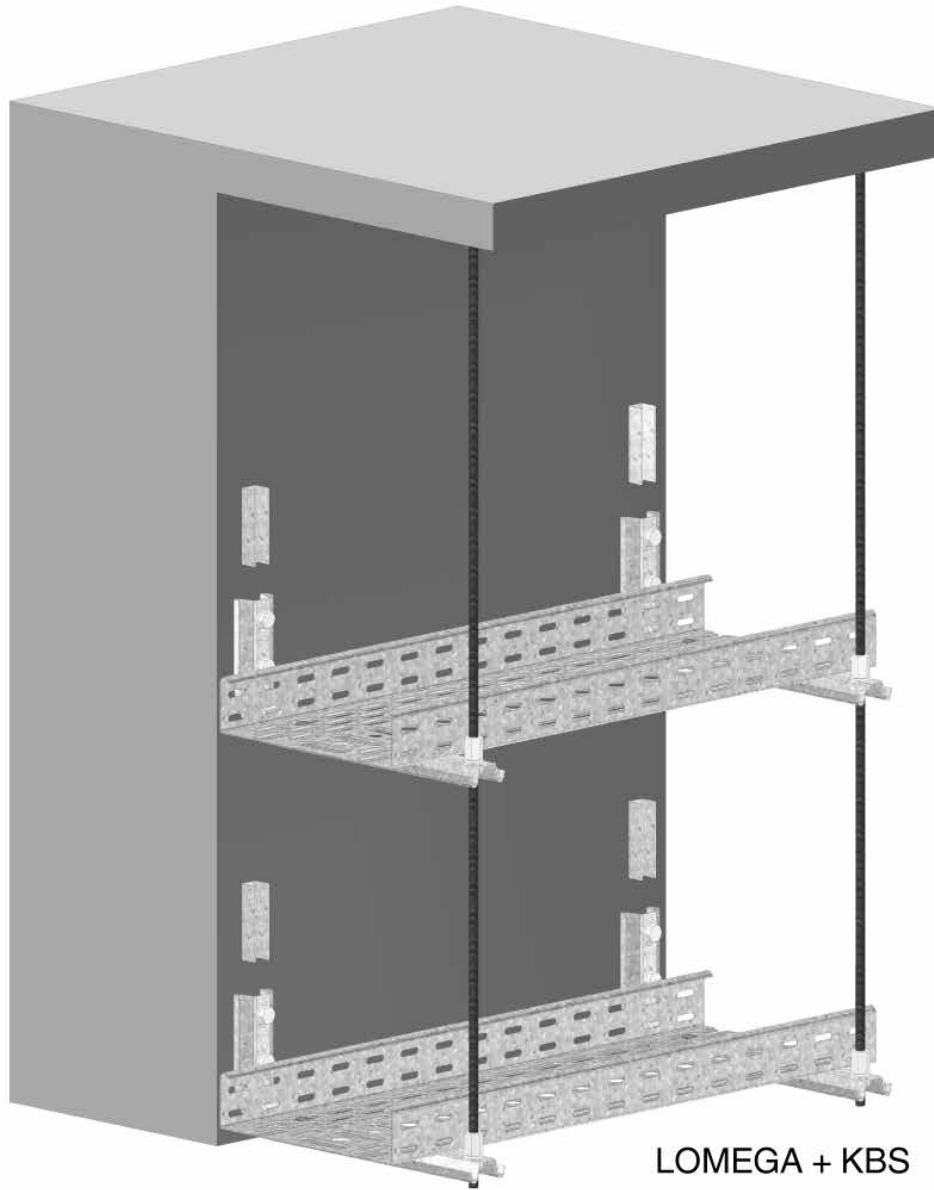




**KBS60**

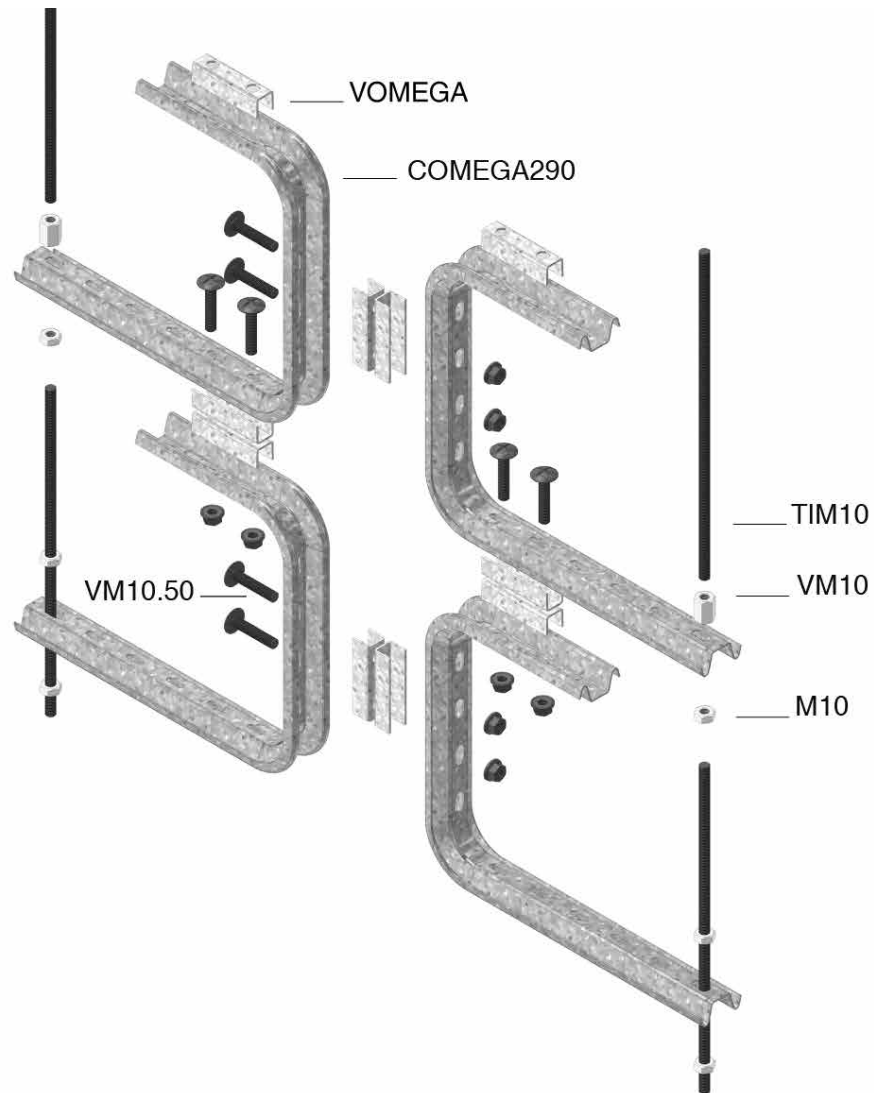
**Mounting principle**

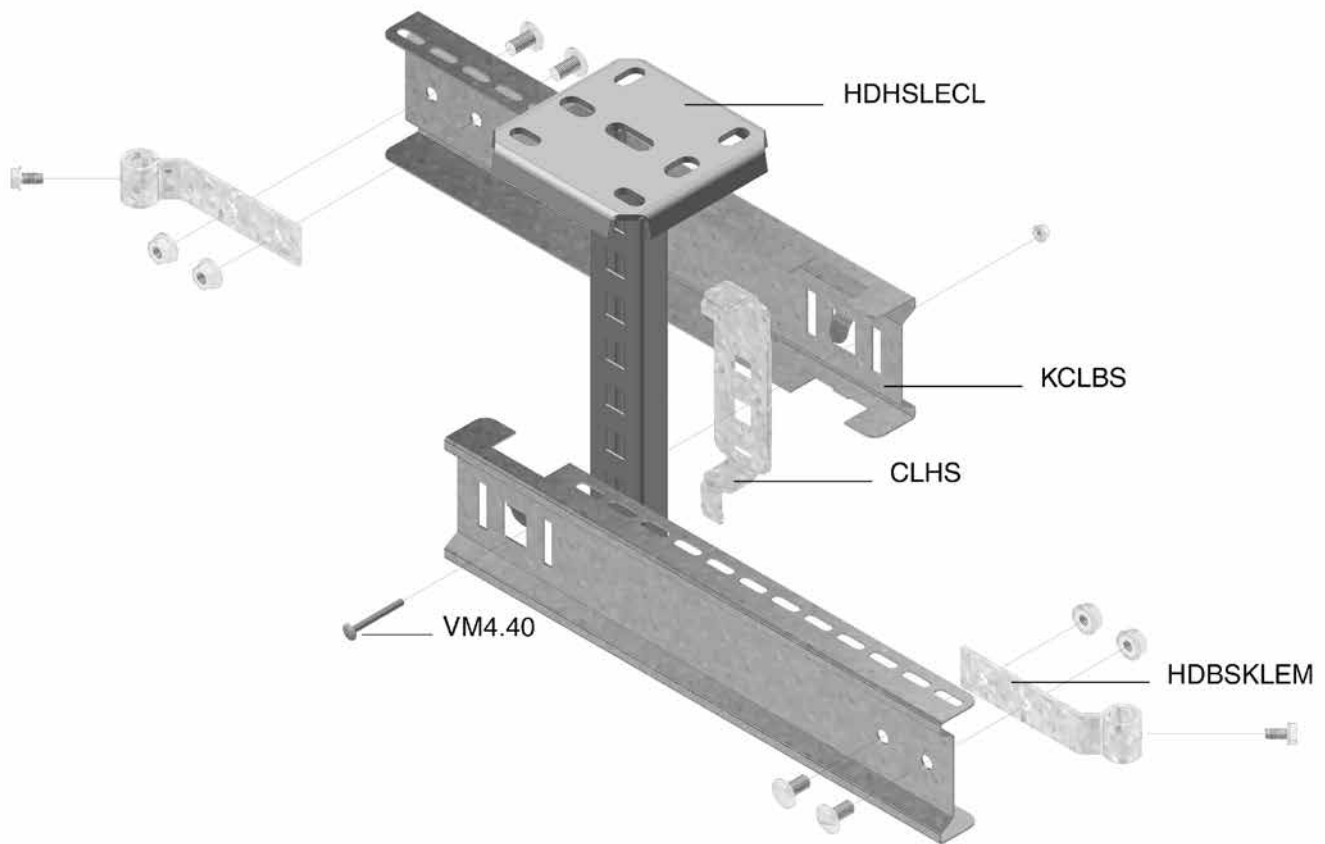


**LOMEGA150****Mounting principle****LOMEGA + KBS**

## VOMEGA

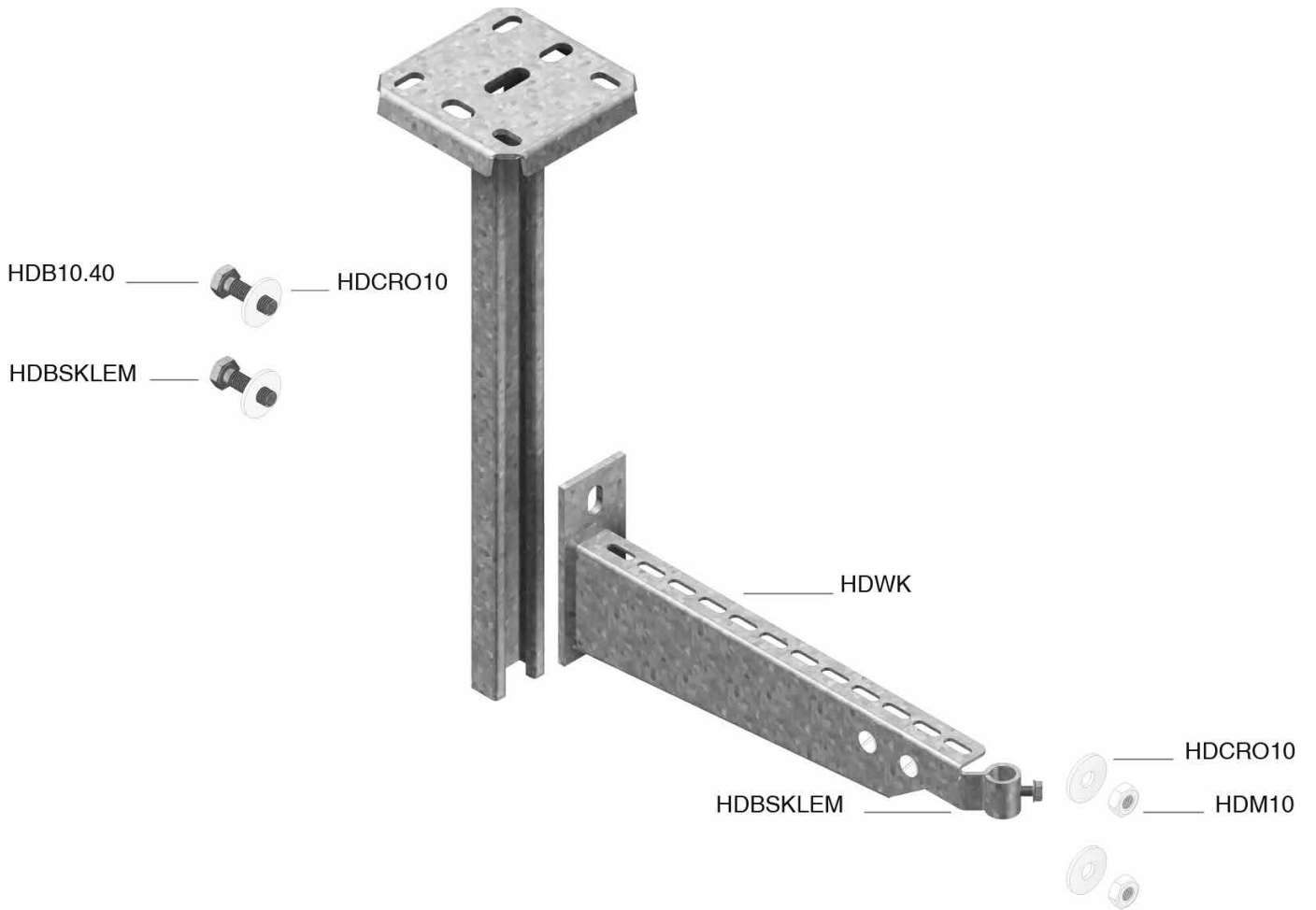
### Mounting principle

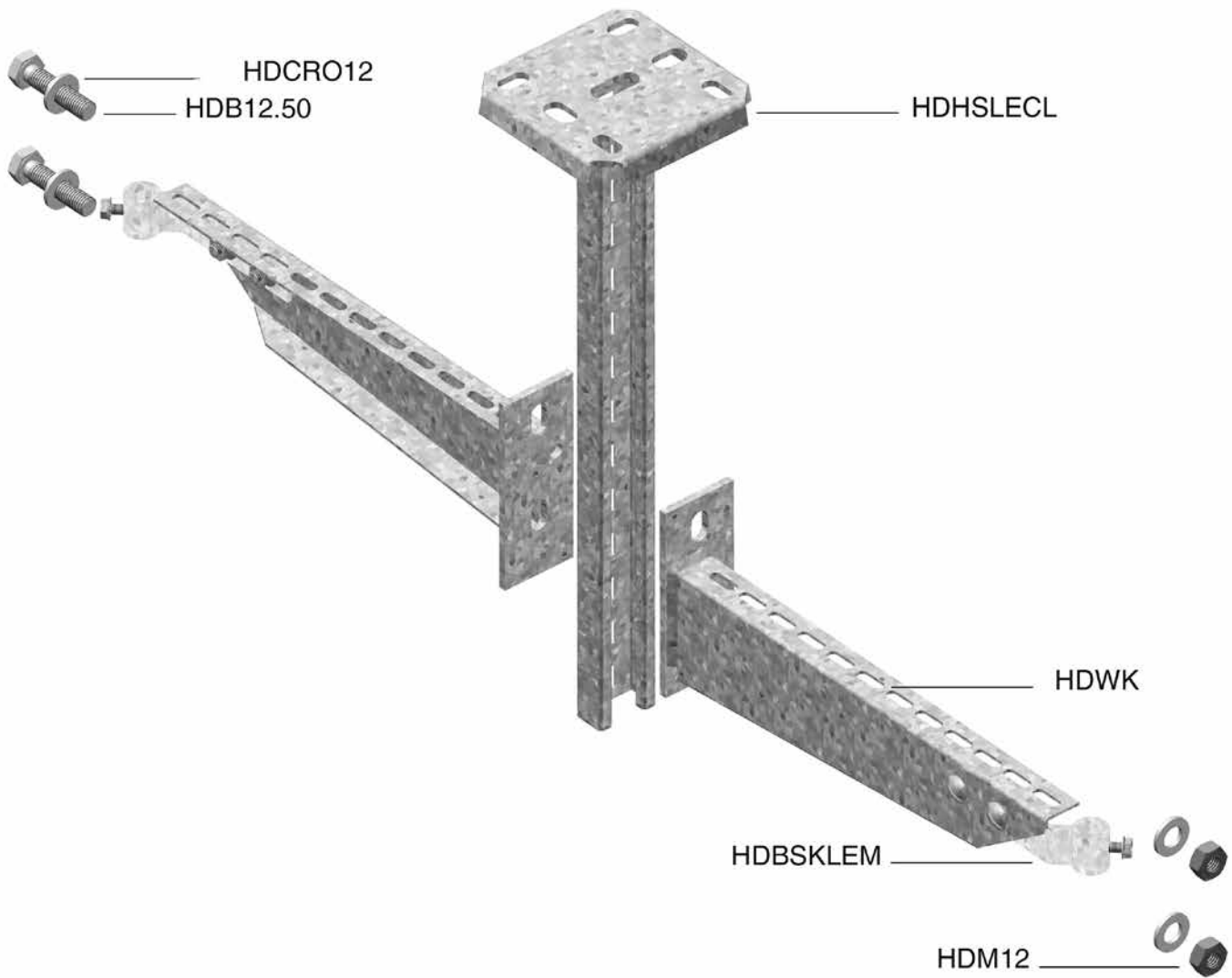


**KCLBS****Mounting principle**

## HDWK

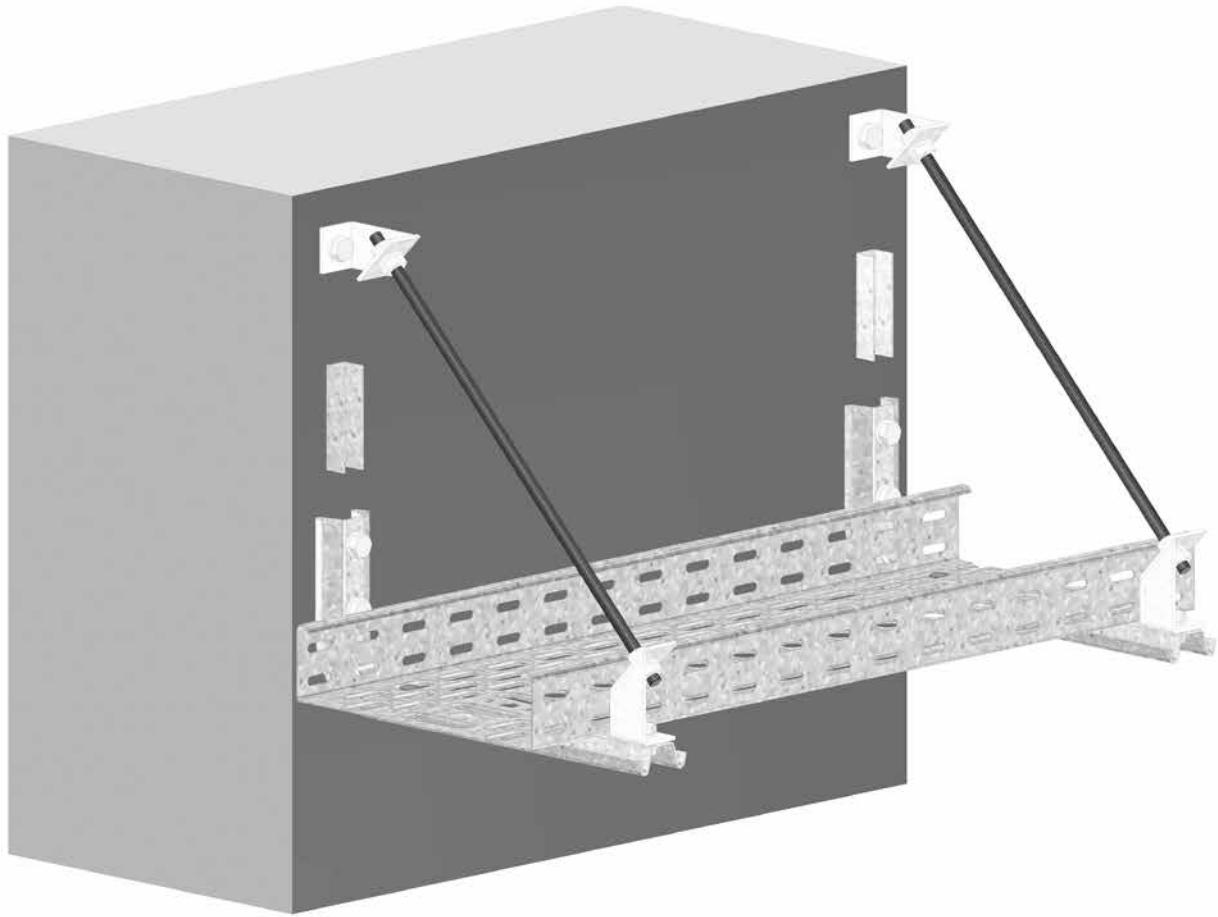
### Mounting principle



**HDHSLECL****Mounting principle**

## HDVS41.45

### Mounting principle



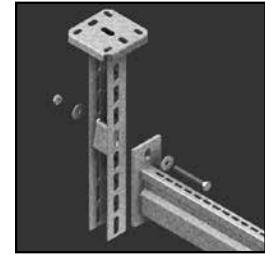




## FIRE-RESISTANT SYSTEMS



---

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> </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>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 = 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>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>- 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>	<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>

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>- Gauge = 0,75 mm - 1,25 mm                      - Max. width = 300 mm - 400 mm                      - Max. load (F) = 20 kg/m                      - Max. support distance (L) ≤ 1200 mm - 1500 mm                      - Max. 3 brackets per ceiling profile in total</p> 	<p>1. Fixing without threaded rod :                      - Fixing to the ceiling (nr 1 - nr 2)                      - Fixing to the wall (nr 3 - nr 4)</p> <p>2. Fixing without threaded rod :                      - Fixing to the ceiling (nr 5 - nr 7)                      - Fixing to the wall (nr 8)</p> <p>3. Fixing with threaded rod :                      - Fixing to the ceiling (nr 9)                      - Fixing to the wall (nr 10)</p> <p>4. Fixing with double threaded rod (nr 11)</p>





1. Fixing without threaded rod

Nr 1 : Fixing to the ceiling	To fix with :	Amount	Remark	Class
	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.			
	KBSI60.100 - 300.075	5		E 30 - E 90
	HDHSMU50.300 - 1500	2 + 2		
	HDWKM100 - 300	1	HDTSU50 = Spacer HDHSMU50 (incl. bolts and nuts)	
	KBSI60.100 - 300.075	2	Fixing of the cable tray onto HDWKM	
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.				
	Certificate FIRES-JR-051-16-NURE, FIRES-JR-054-16-NURE, FIRES-JR-060-16-NURE, FIRES-JR-063-16-NURE & 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			
	KBSI60.100 - 400.100	5		E 30 - E 90
	HDHSMU50.300 - 1500	2 + 2		
	HDWKM100 - 400	1	HDTSU50 = Spacer HDHSMU50 (incl. bolts and nuts)	
	KBSI60.100 - 400.100	2	Fixing of the cable tray onto HDWKM	
Certificate according STN 92 0205:2014, ZP-27/2008 & CSN 73 0895 also available.				
	Certificate FIRES-JR-057-16-NURE: DIN 4102-12:1998-11, F = 20 kg/m, L = 1500 mm			
	KBSI60.100 - 300.075	5		E 30 - E 90
	HDWKM100 - 300	1 + 1		
	KBSI60.100 - 300.075	2	Fixing of the cable tray onto HDWKM	
	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.			
Certificate according STN 92 0205:2014, ZP-27/2008 & CSN 73 0895 also available.				
	Certificate FIRES-JR-051-16-NURE, FIRES-JR-054-16-NURE, FIRES-JR-060-16-NURE, FIRES-JR-063-16-NURE & FIRES-JR-066-16-NURE : DIN 4102-12:1998-11, F = 20 kg/m, L = 1500 mm, Max. 3 levels			
	KBSI60.100 - 400.100	5		E 30 - E 90
	HDWKM100 - 400	1 + 1		
	KBSI60.100 - 400.100	2	Fixing of the cable tray onto HDWKM	
	Certificate according STN 92 0205:2014, ZP-27/2008 & CSN 73 0895 also available.			
Certificate according STN 92 0205:2014, ZP-27/2008 & CSN 73 0895 also available.				

Tested with Dätwyler, Prysmian, Prakab and Faber cables

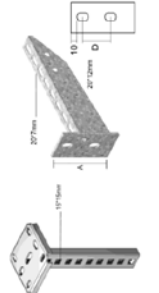
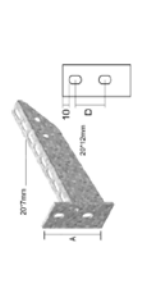
**2. Fixing without threaded rod**

Tested with Eupen, Dätwyler and Leoni Studer cables

	Code	To fix with :	Amount	Remark	Class
 <p>Nr 5 : Fixing to the ceiling</p>	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	5		E 30 - E 90
	HSMES200 - 1000	Concrete anchor M 10 + RO10	2 + 2		
	HDWK100 - 300	B10.80 + CRO10 + M10	1 + 2 + 1		
KBSI60.100 - 300.075	VMK6.10	2	Fixing of the cable tray onto HDWK100		
 <p>Nr 6 : Fixing to the ceiling</p>	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	5		E 30 - E 90
	HSMES200 - 1000	Concrete anchor M 12 + RO12	2 + 2		
	DKBS100 - 300	B10.80 + CRO10 + M10	1 + 2 + 1		
KBSI60.100 - 300.075	VMK6.10	2	Fixing of the cable tray onto DKBS		
 <p>Nr 7 : Fixing to the ceiling</p>	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	5		E 30 - E 90
	HDHSMU50.300 - 1000	Concrete anchor M 10 + RO10	2 + 2		
	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		
 <p>Nr 8 : Fixing to the wall</p>	Certificate ABP MPA-E-14-007 : F = 20 kg/m, L = 1500 mm, Variant 2, Annexes 6/7				
	KBSI60.100 - 300.075	VMK6.10	5		E 30 - E 90
	HDWK100 - 300	Concrete anchor M 10 + CRO10	1 + 1		
	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

	Code	To fix with :	Amount	Remark	Class
 <p>Nr 9 : Fixing to the ceiling</p>	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	6 - 8	KBSI60.075 - 200 : 6; KBSI60.300 - 400 : 8	E 30 - E 90
	HDHSL300 - 1200	Concrete anchor M 12	2		
	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		
 <p>Nr 10 : Fixing to the wall (90°)</p>	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	6		E 30 - E 90
	HDWK100 - 400	Concrete anchor M 10	1		
	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 Dátwyjer 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				
	KBS160.075 - 400.100	VMK6.10	5		
	TIM6 - 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	
	KBS160.075 - 400.100	VMK6.10 + 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).

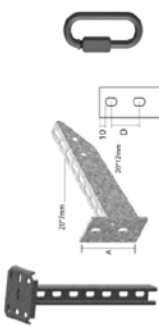
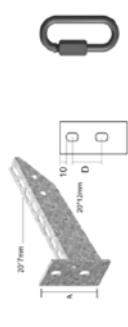
**SELECTION TABLES FOR FIRE-RESISTANT SYSTEMS**

**2. Non-standard supporting constructions**

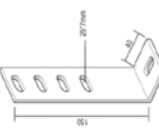
these constructions are tested with Eupen cables

		Conditions	Standard supporting constructions (nr 11 - nr 13)
<p><b>Constructions with cable ladder</b> <b>KLLIBS60</b></p> 	<p><b>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 :                      - Fixing to the ceiling (nr 12)                      - Fixing to the wall (nr 13)</p> <p>2. Vertical fixing :                      - Fixing to the wall (nr 14)</p>

**1. Fixing with additional support**

Nr 12 : Fixing to the ceiling	Code	To fix with :	Amount	Remark	Class
	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				
	KLLIBS60.150 - 400	VMK6.10	4		E 30 - E 90
	HSMES200 - 1000	Concrete anchor M 10	4		
	HDWK150 - 400	BTU.30 + CRO10 + GM41M10	1 + 1 + 1	Fixing HDWK onto HSMES	
	QL6		1	Fixing HDWK to LBS	
	LBS60.200 - 1500	QL8	1	Fixing LBS to VS41.05	
VS41.05	Concrete anchor M 10	1			
KLLIBS60.150 - 400	KLLBK25	2	Fixing of the cable ladder onto HDWK		
	Certificate ABP MPA-E-14-007 : F = 30 kg/m, L = 1500 mm, Max. 3 levels, Variant a, Annexes 3/7				
	KLLIBS60.150 - 400	VMK6.10	4		E 30 - E 90
	HDWK150 - 400	Concrete anchor M 10 + CRO10	1 + 1 + 1		
	QL6		1	Fixing HDWK to LBS	
	LBS60.200 - 1500	QL8	1	Fixing LBS to VS41.05	
	VS41.05	Concrete anchor M 10	1		
KLLIBS60.150 - 400	KLLBK25	2	Fixing of the cable ladder onto HDWK		

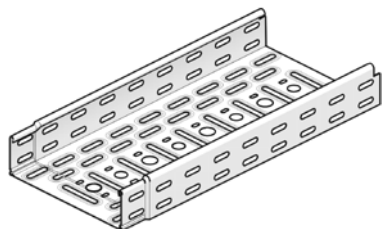
**2. Vertical fixing**

Nr 14 : Fixing to the wall	Code	To fix with :	Amount	Remark	Class
	Certificate ABP MPA-E-14-007 : F = 30 kg/m, L = 1500 mm, Variant a, Annexes 3/7				
	KLLIBS60.150 - 400	VMK6.10	4		E 30 - E 90
	HDAB35.110	VM6.20	1	Fixing KLLIBS to HDAB35.110	
	HDAB35.110	Concrete anchor M 8	4	To fix to the wall	
Cable clamps, type H		1	Per rung		

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

Fix with:

HD	<b>VMK6.10</b>	-	-	M6	-	0.009	100	✓	piece
----	----------------	---	---	----	---	-------	-----	---	-------

The mounting principle 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	<b>KLLIBS60.150</b>	60	150	1.00	3000	2.166	30		m
HD	<b>KLLIBS60.200</b>	60	200	1.00	3000	2.286	30		m
HD	<b>KLLIBS60.300</b>	60	300	1.00	3000	2.516	30		m
HD	<b>KLLIBS60.400</b>	60	400	1.00	3000	2.752	30		m

The mounting principle 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 mounting principle 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

- QL6: for fixing console to LBS.
- QL8: for fixing LBS to VS41.05.



## HDVS41.05

### Assembly accessory



Standard finish

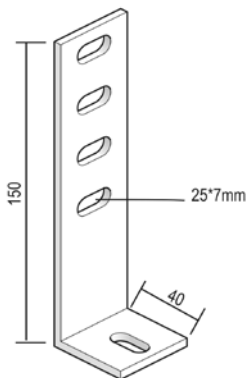
Hot-dip galvanised

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

HDVS41.41 / HDVS41.42: Bolt B10.40 included.

## HDAB35.110

### Stand-off bracket



Used for vertical mounting of the cable ladder.

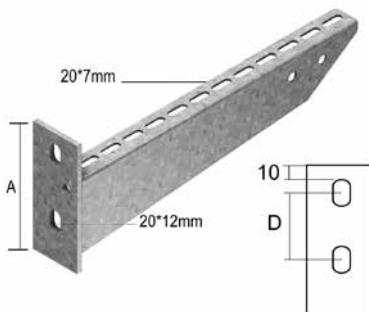
Standard finish

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

## 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	0	✓	piece
HD M10	-	-	M10	-	0.010	100	✓	piece

The mounting principle for this product can be found at the end of this chapter.

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.

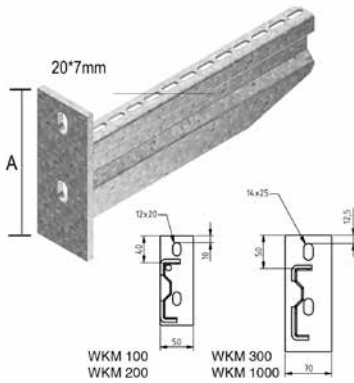
Standard finish Hot-dip galvanised

Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	📦	Stock	Unit
<b>HDBSKLEM</b>	25	125		-	0.120	50	✓	piece

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		-	1.530	12	✓	piece
<b>HDWKM400</b>	175	425		-	1.830	6	✓	piece

**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 mounting principle for this product can be found at the end of this chapter.

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

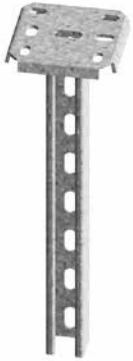
Standard finish	Hot-dip galvanised
-----------------	--------------------

Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/piece	📦	Stock	Unit
HDTSU50	-			-	0.223	12	✓	piece

Included: bolt HDB10.80, HDCRO10 and nuts HDM10.

**HSMES**

**Single ceiling profile**



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

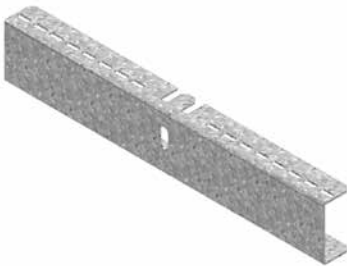
Max. load	1800 daN
Standard finish	Electro zinc-plated
Optional finish HD	Hot-dip galvanised

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 mounting principle 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.

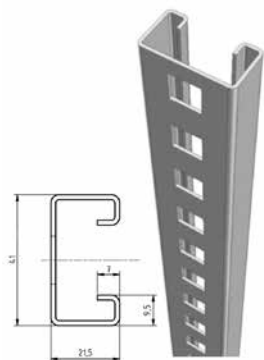
Standard finish	Pre-galvanised
Optional finish HD	Hot-dip galvanised

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 mounting principle for this product can be found at the end of this chapter.

## 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

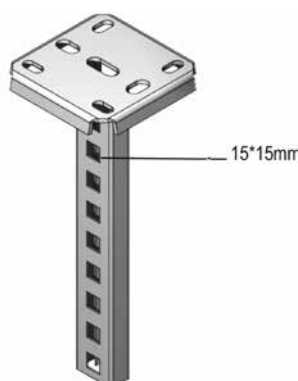
Fix with:

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 mounting principle for this product can be found at the end of this chapter.

## 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

**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	

**TIM**

**Threaded rod (DIN 975)**



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

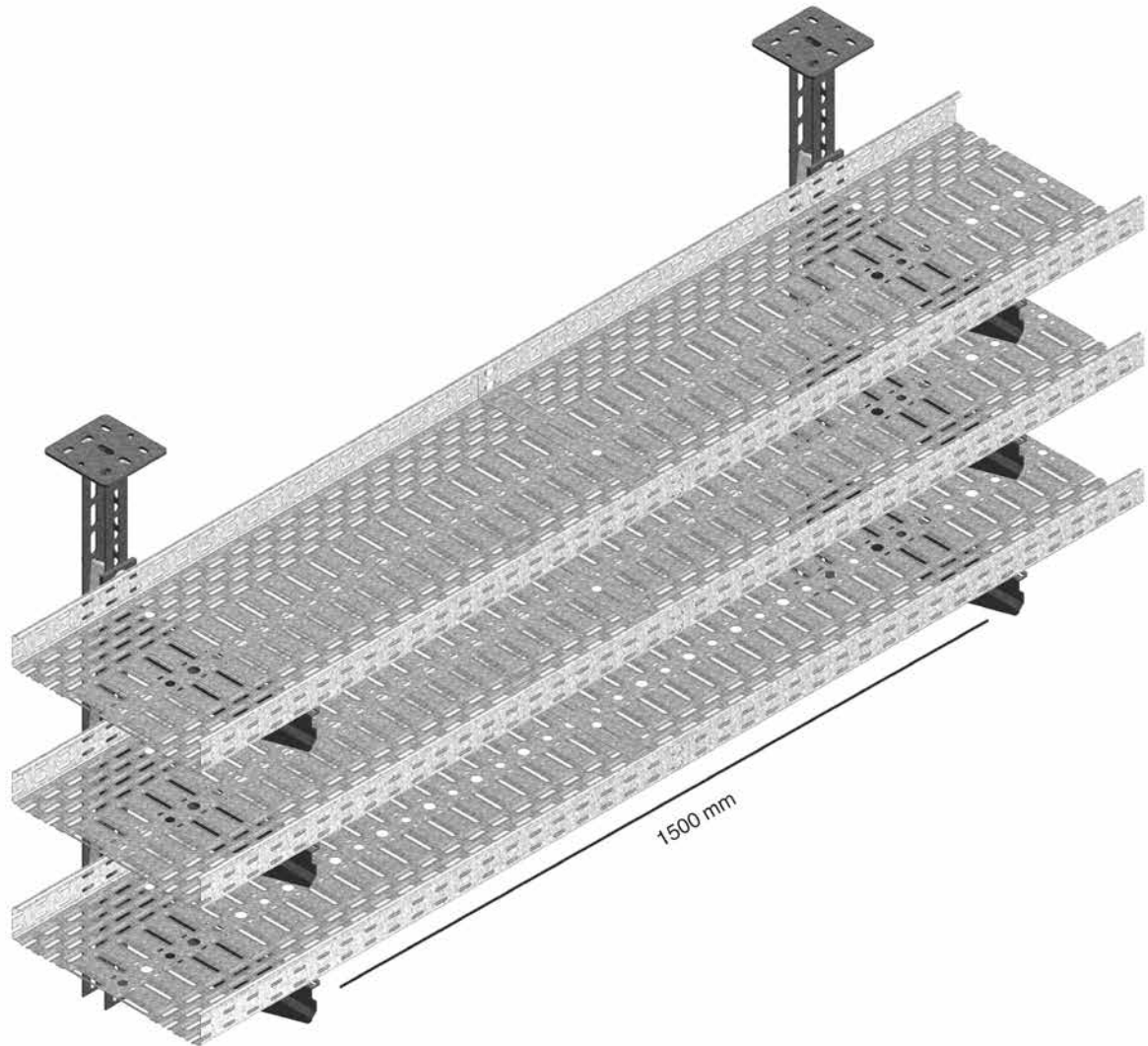
Reference	Max. load (in daN)
TIM8	550
TIM10	900
TIM12	1300

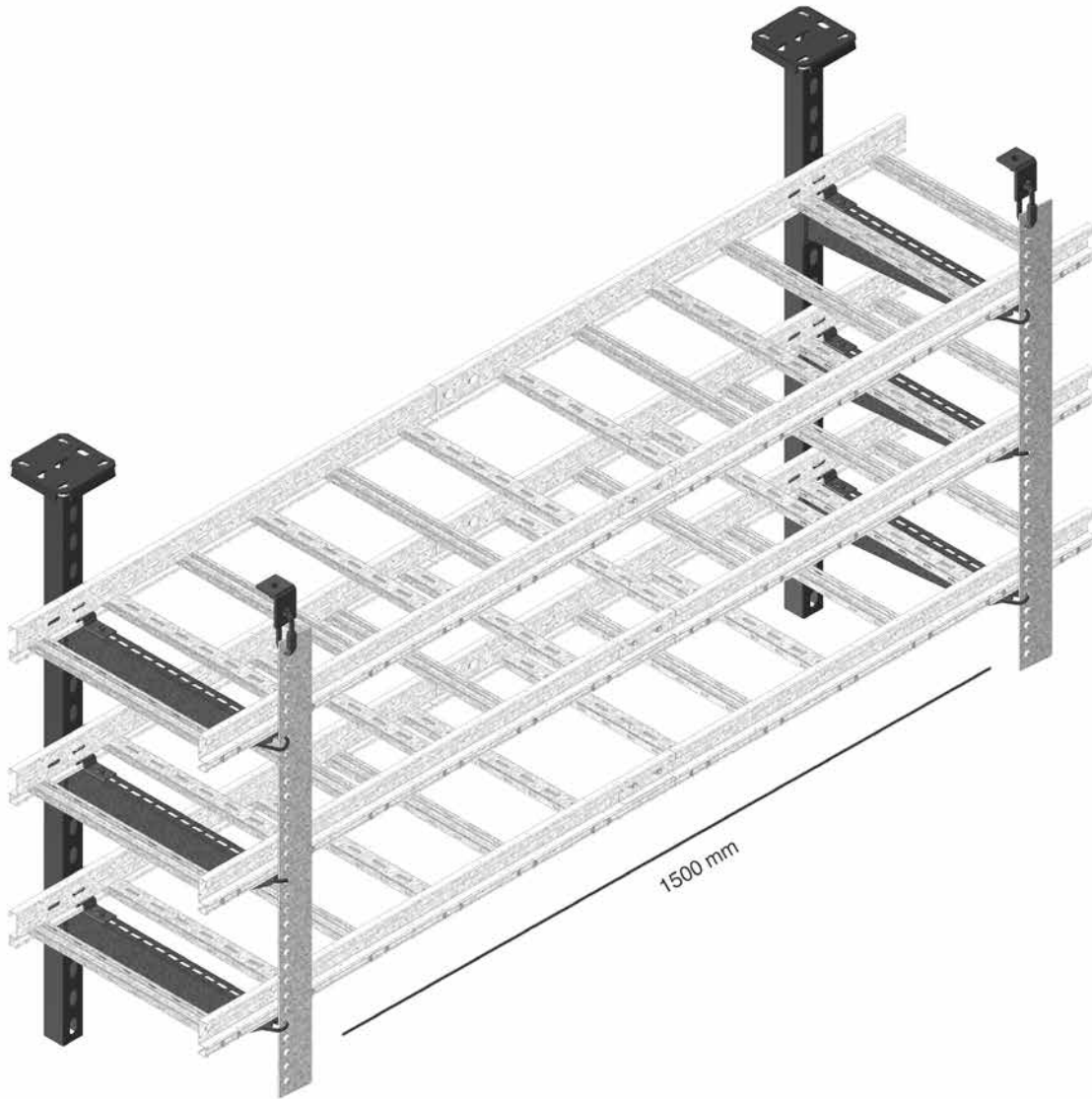
HD	Reference	↑ mm	↔ mm	↔ mm	↔ mm	kg/m	⊞	Stock	Unit
HD	<b>TIM8</b>	-		M8	2000	0.319	50	✓	m
HD	<b>TIM10</b>	-		M10	2000	0.500	50	✓	m
HD	<b>TIM12</b>	-		M12	2000	0.725	40	✓	m

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

### Mounting principle

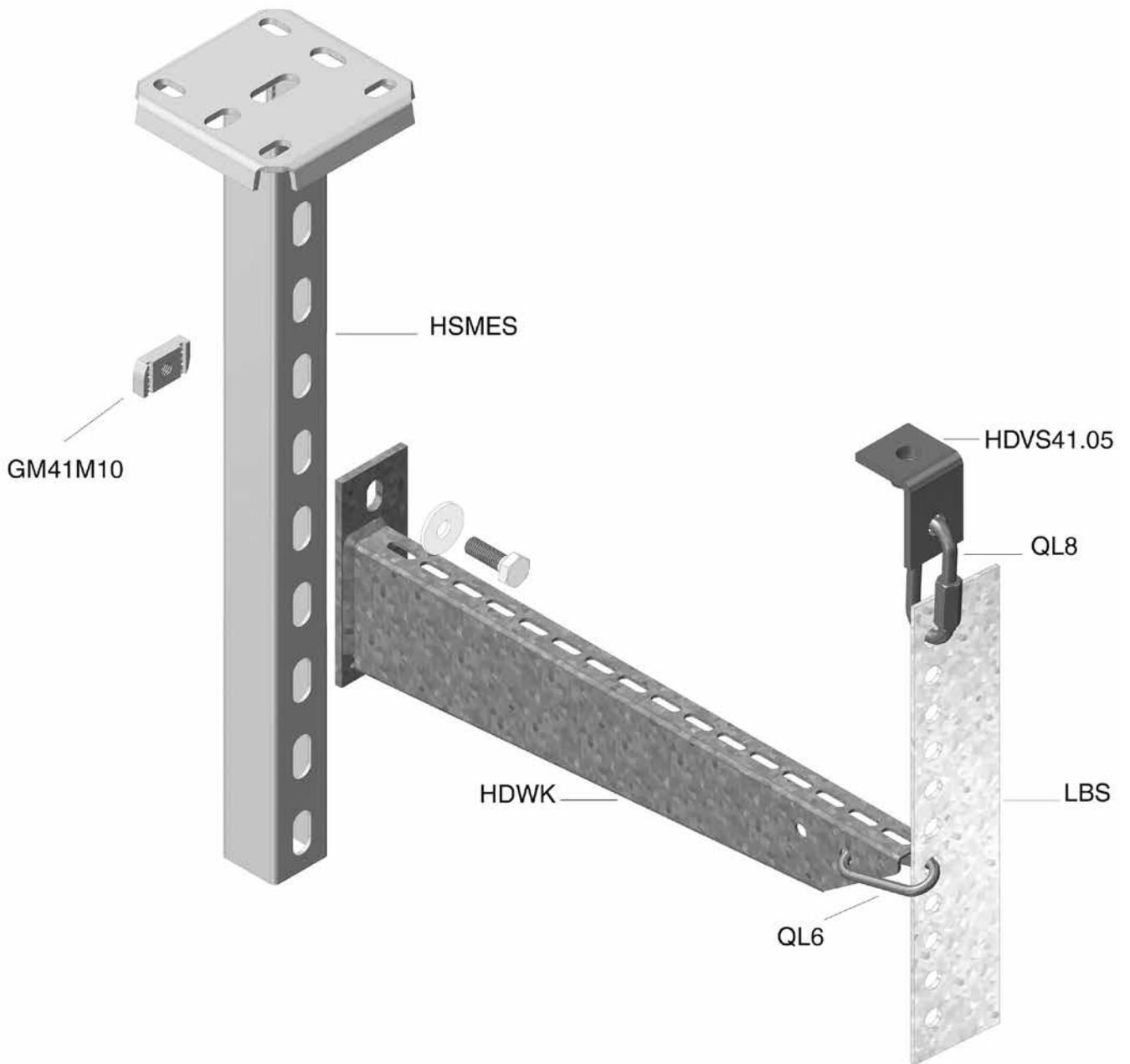


**KLLIBS60****Mounting principle**



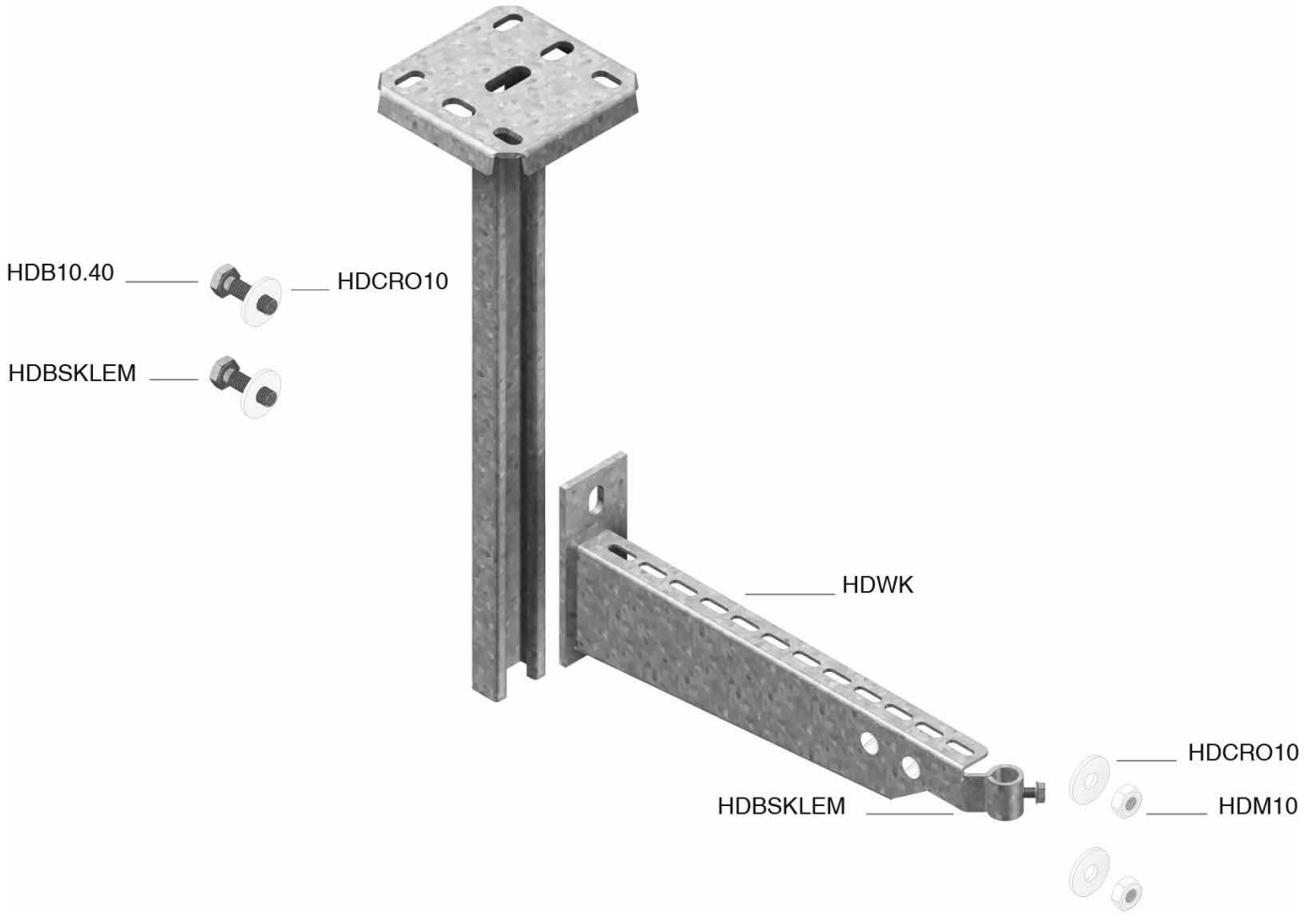
**LBS**

**Mounting principle**



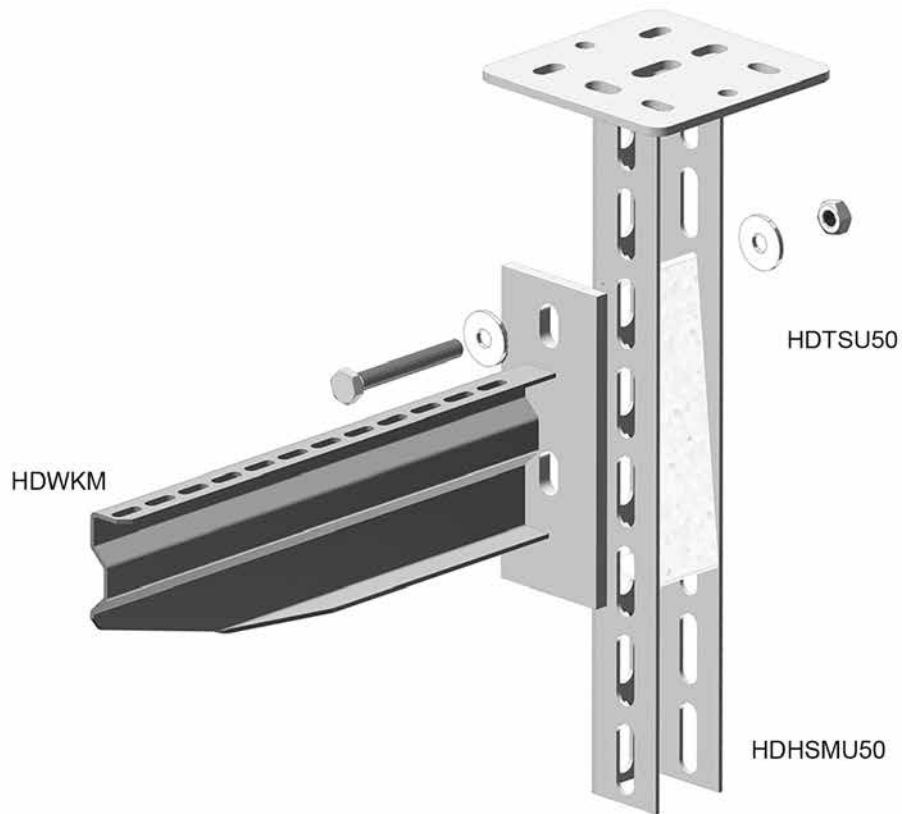
**HDWK**

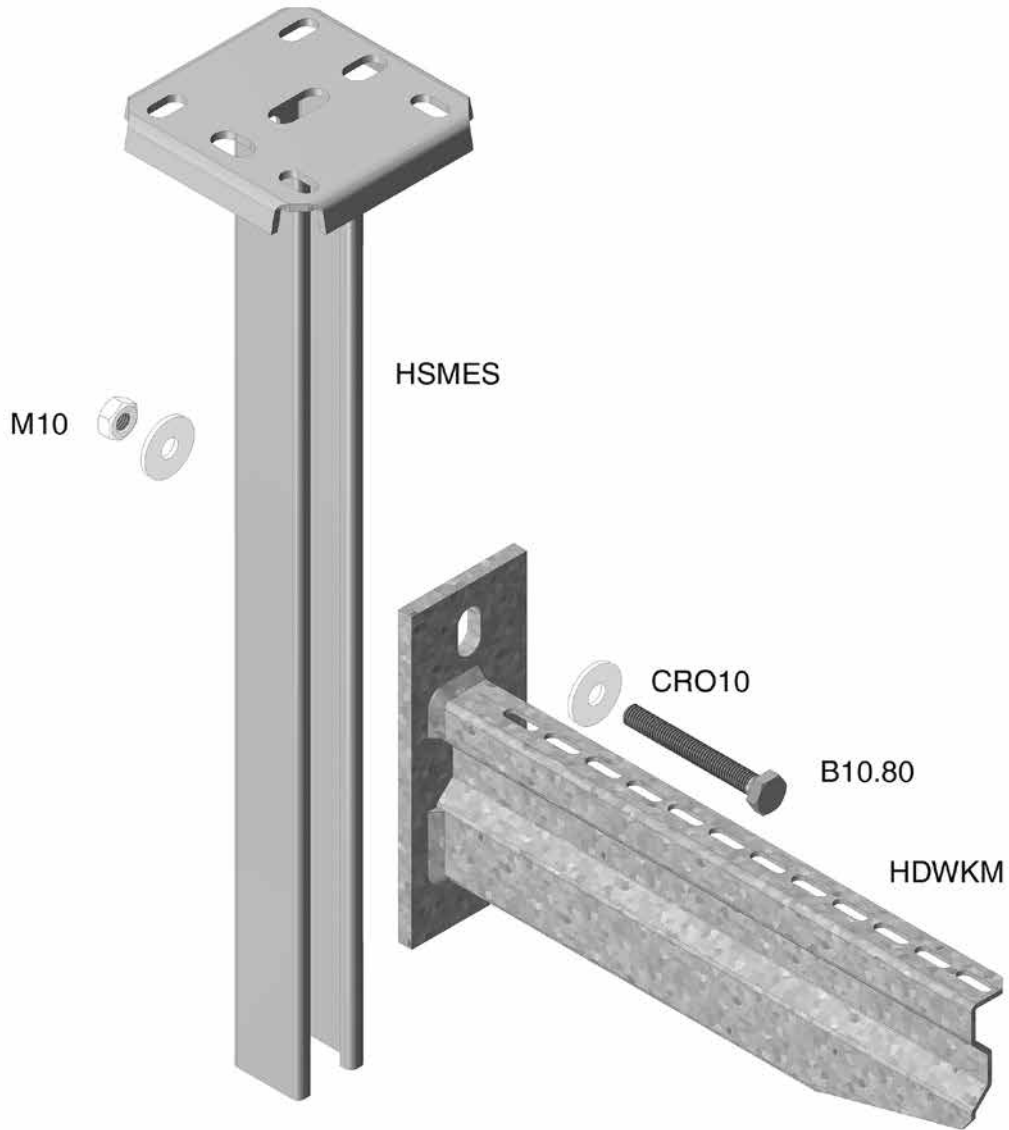
**Mounting principle**



## HDHSMU50

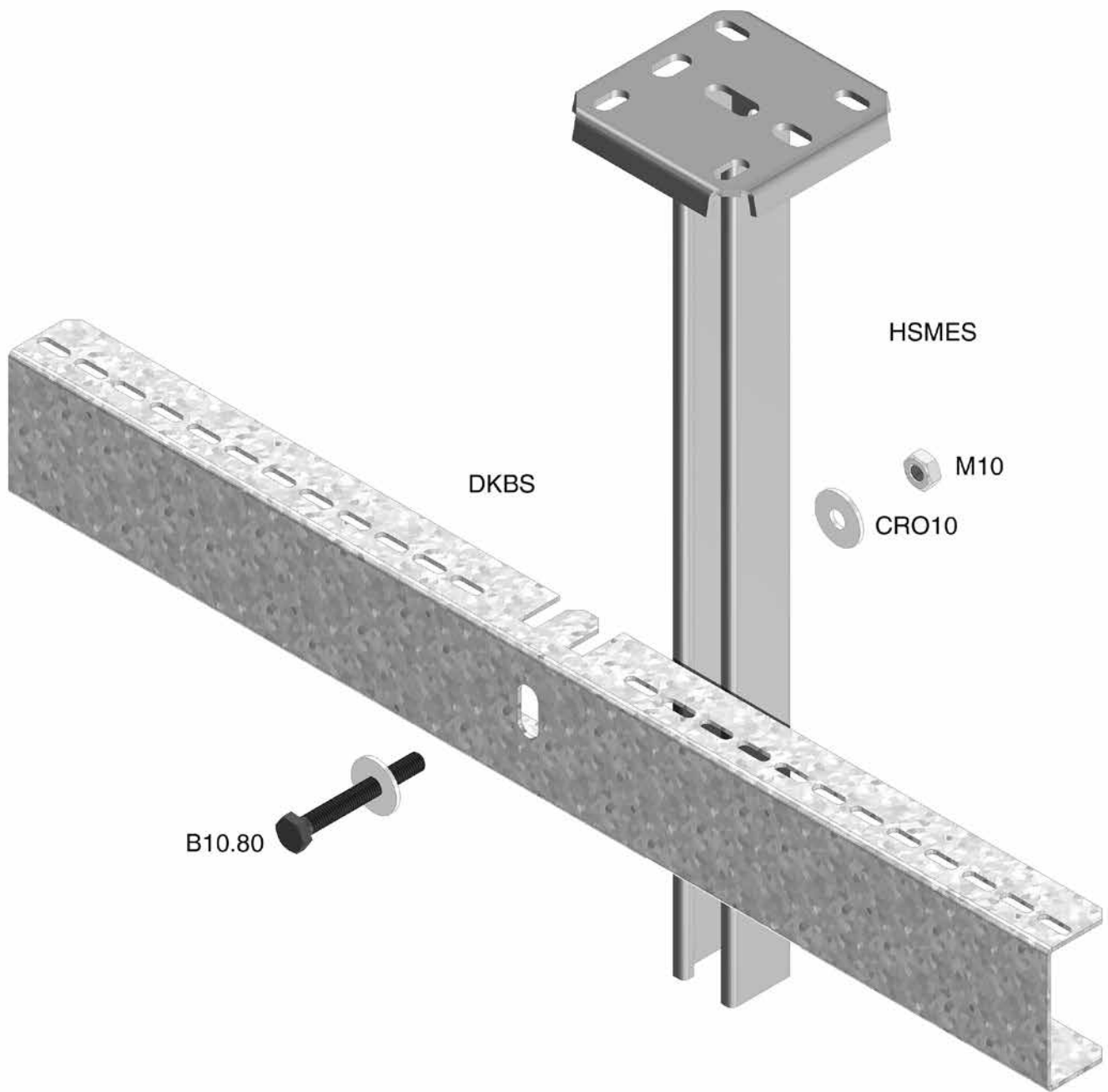
### Mounting principle

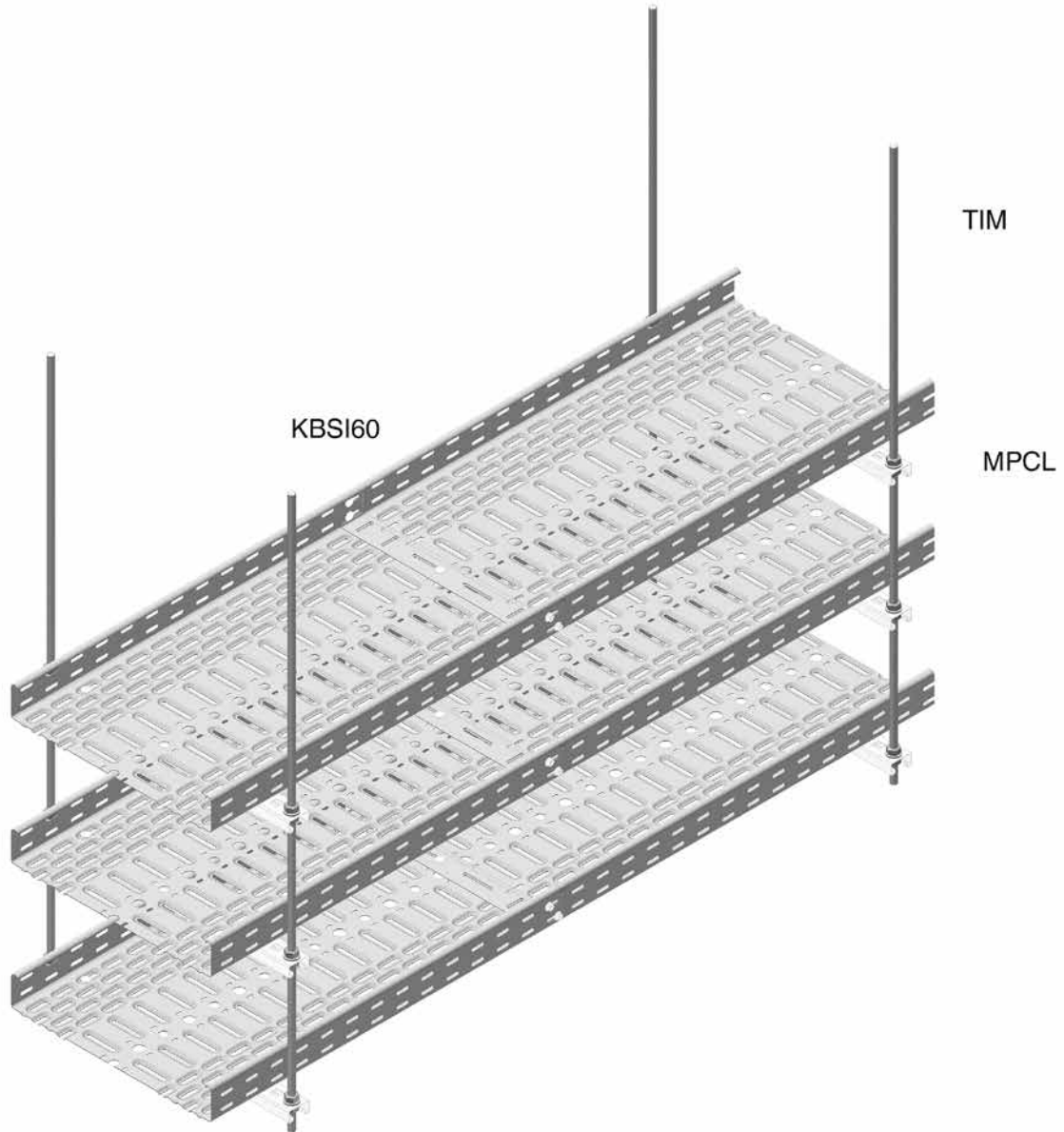


**HSMES****Mounting principle**

**DKBS**

**Mounting principle**



**MPCL****Mounting principle**

## FIRE-RESISTANT SYSTEMS

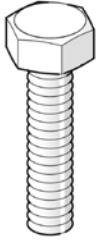
---

Accessories



**B**

**Bolt (DIN 933)**



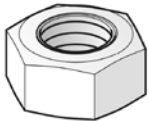
Standard finish Electro zinc-plated  
 Optional finish HD Hot-dip galvanised

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 100 pieces.

**M**

**Nut (DIN 934)**



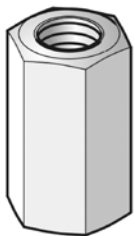
Standard finish Electro zinc-plated  
 Optional finish HD Hot-dip galvanised

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 100 pieces.

**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	48	✓	piece
-	<b>VM10</b>	30		M10	-	0.042	48	✓	piece
-	<b>VM12</b>	36		M12	-	0.059	48	✓	piece



**VM**

**Nut and bolt**



Standard finish

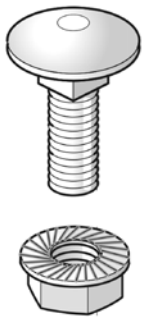
Electro zinc-plated

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 100 pieces.

**VMK**

**Toothed round head bolt/nut**



Standard finish

Electro zinc-plated

Optional finish HD

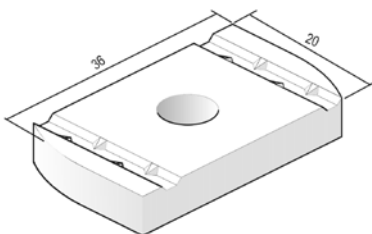
Hot-dip galvanised

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

To order per 100 pieces.

**GM41**

**Sliding nut for supporting profile**



For stepless fixing of the brackets on the ceiling profiles.

Standard finish

Electro zinc-plated

Optional finish HD

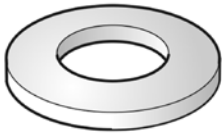
Hot-dip galvanised

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

To order per 50 pieces.

**RO**

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



Standard finish

Electro zinc-plated

Optional finish HD

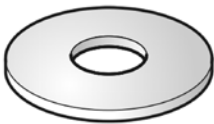
Hot-dip galvanised

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 100 pieces.

**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 100 pieces.