PohlCon

Wide-span systems

Technical information

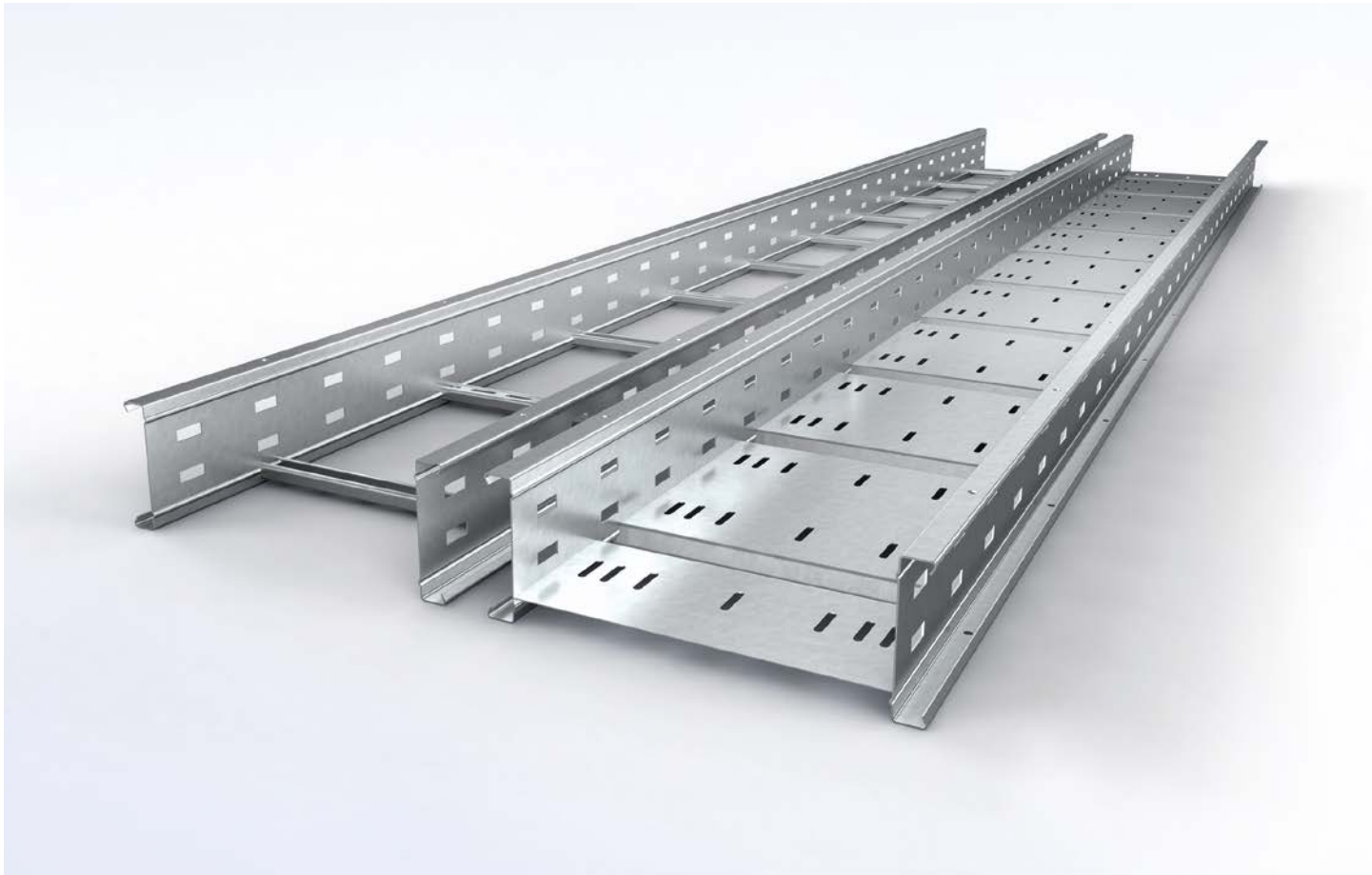


Table of contents

Wide-span cable trays

Product description
Wide-span cable trays are used in industrial halls, power stations or in plant construction projects to get control cables to where they are needed – flexibly, reliably and with maximum safety. And with the tried-and-tested support system from PUK, even large distances can be spanned effortlessly.

Thanks to the rail supports, our wide-span cable trays can handle high load values even when the material is relatively thin. Featuring perforations all the way along and edges that bend outwards, the side rail does not just provide reinforcement but simultaneously protects the cables inside. In addition, the transverse rigidity is increased by welded-in and crimped insert sheets.

When it comes to the most commonplace applications, the PUK standard range has got it all covered. Our wide-span cable trays are available in heights of 100, 120, 150 and 200 mm, and in widths of 200, 300, 400, 500 and 600 mm. You can also choose between various high-quality materials and surface finishes. In this way, we are able to provide a product that meets the corrosion protection requirements for all sorts of application areas.

Benefits

- A secure and sturdy system
- Suitable for large support distances
- Designed for high loads

Special solution
Our wide-span cable trays have a standard length of 6,000 mm. However, a special solution is also available should you need it. On request, the WPR 100/120/150 and WLR 200 products can each be supplied in a length of 3,000 mm.

Support systems
Whenever you install a system for getting cables from A to B, you will need a suitable support system. No cable management system is complete without the appropriate fastening elements. We offer solutions for various application areas, whether you intend to hang the cable trays on walls or ceilings, or need them to support light or heavy loads.

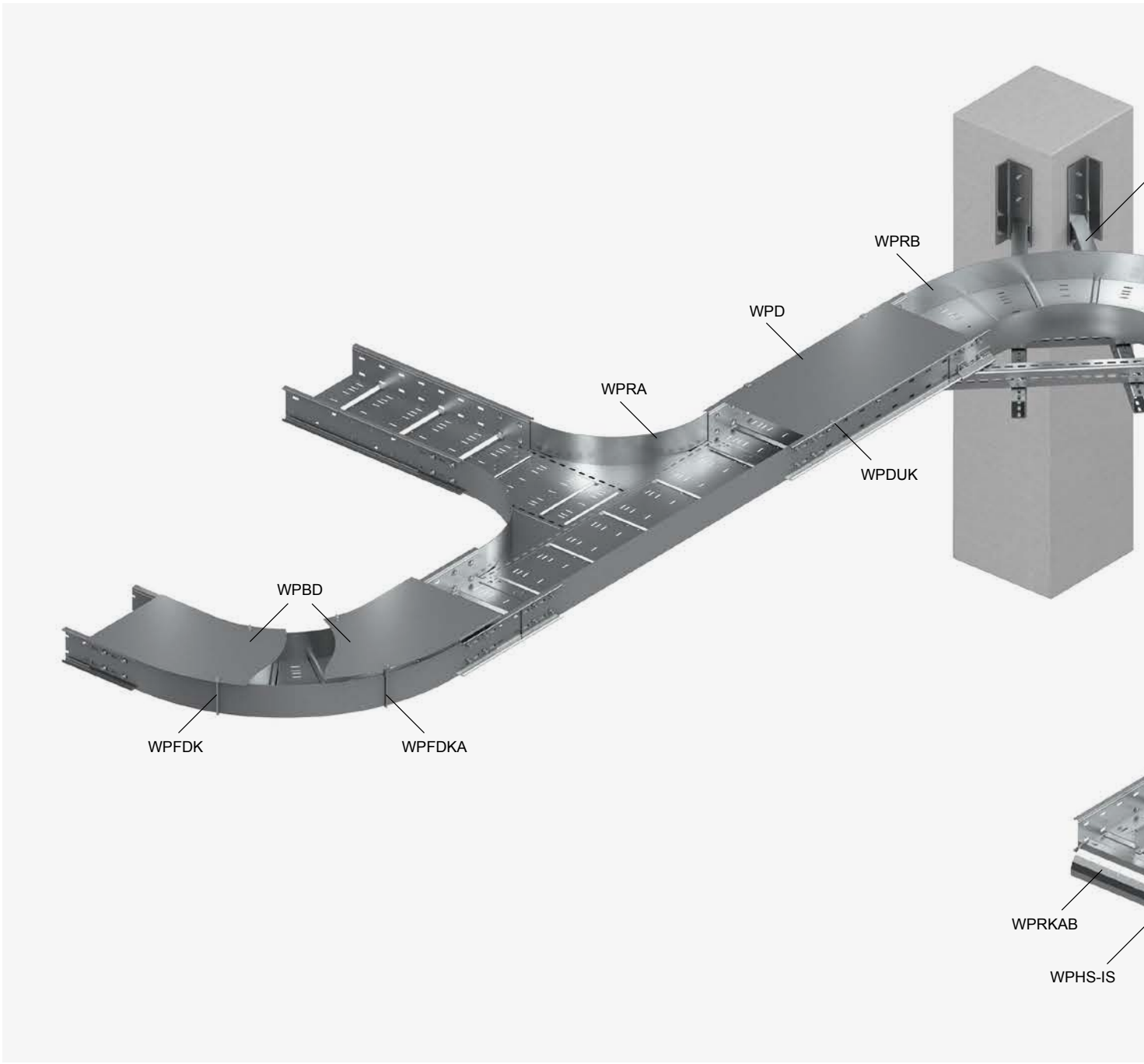
Areas of application

Industrial halls and production facilities

Plant construction

Power plant construction

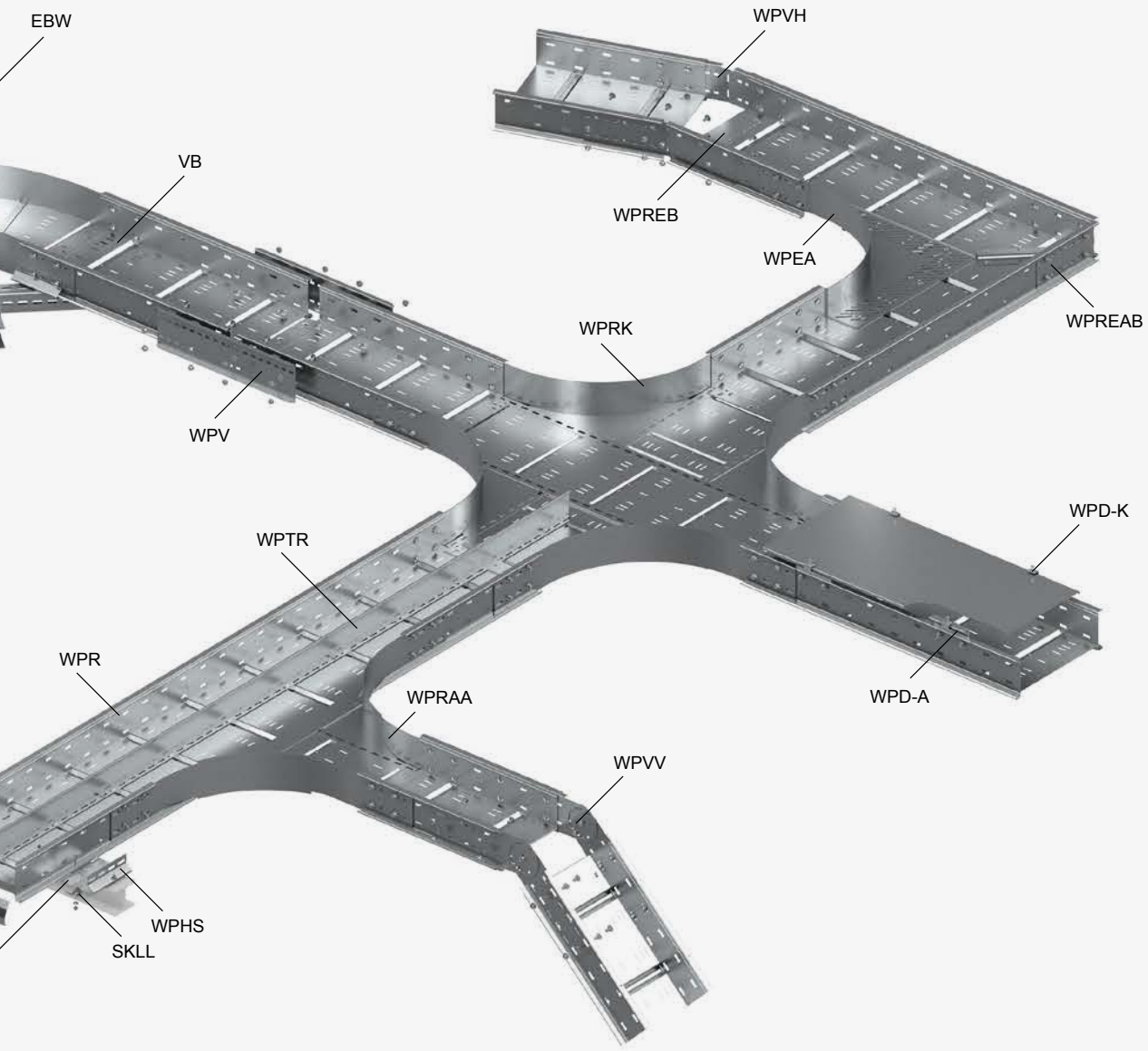
Production halls with non-load-bearing walls and ceilings


WPRB
WPD
WPRA
WPDUK
WPBD
WPFDK
WPFDKA
WPRKAB
WPHS-IS

System overview

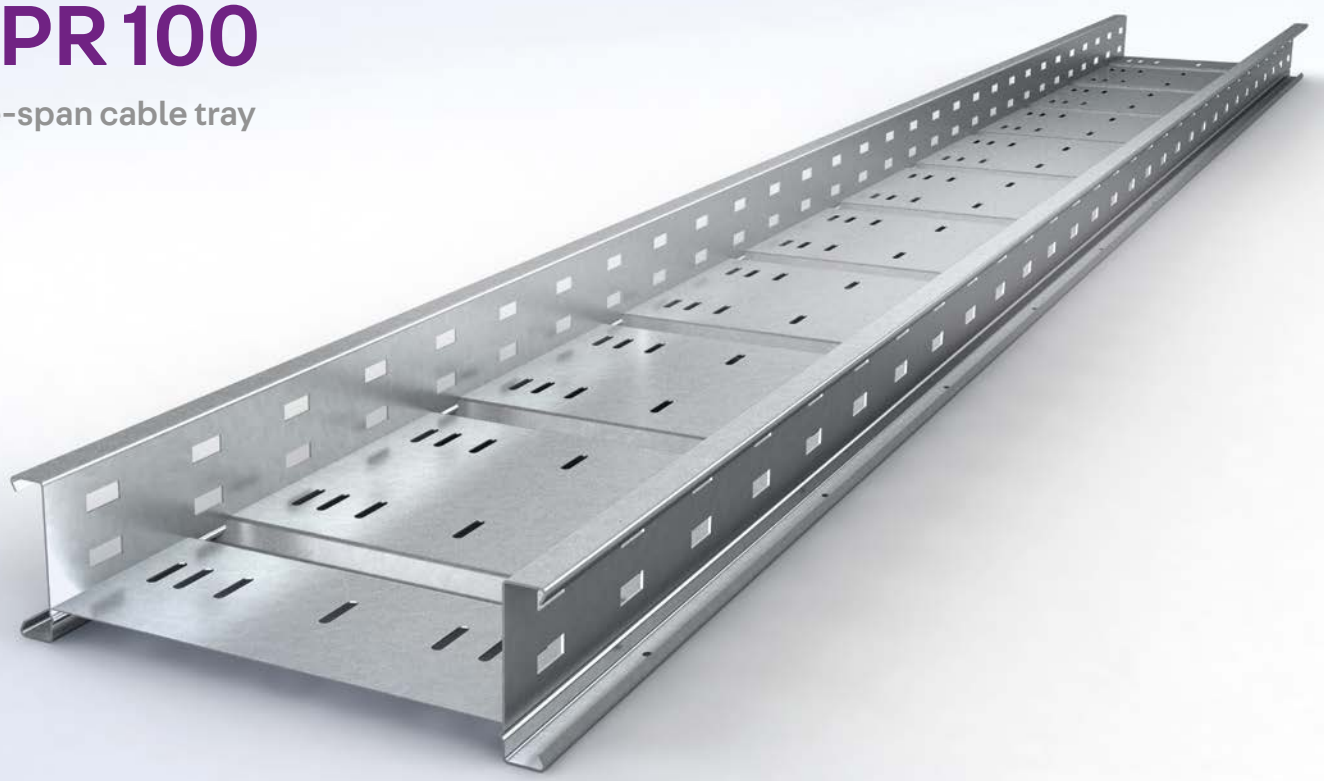
WPR 100, WPR 120, WPR 150

Wide-span cable trays allow cables to be routed safely and securely even when large support distances are involved. When combined with the appropriate support systems, formed parts, covers and suitable accessories, they form a complete cable management system with a high level of flexibility. The wide-span cable trays can be assembled quickly and easily using the wide-span connectors and rail supports. Corners, bends and horizontal changes of direction can likewise be configured in no time at all with the standard range. Matching covers can be purchased for extra protection against contact, dirt, moisture and UV radiation. The WPD-A cover elevator can be used to raise the wide-span tray covers for improved cable ventilation while simultaneously providing UV protection.



WPR 100

Wide-span cable tray



Product features

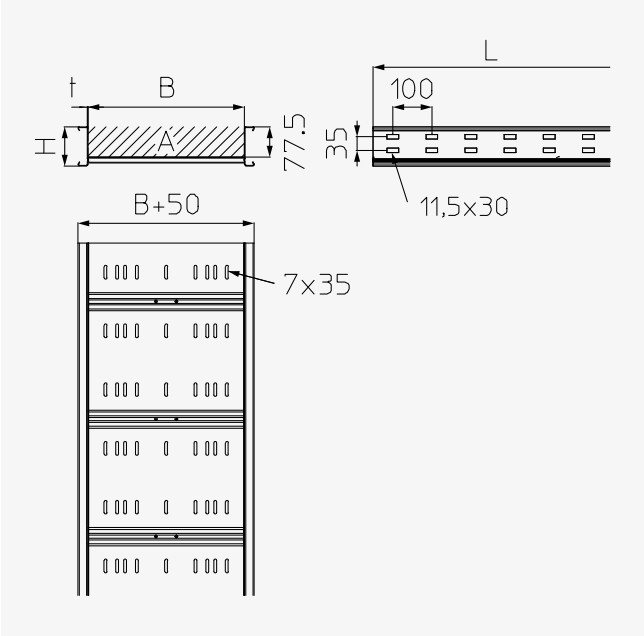
- Side rail height: 100 mm
- Available tray widths: 200 to 600 mm
- Length: 6,000 mm
- Cross-sectional areas of 156 to 468 cm²

Available surface coatings and materials

E Stainless steel, material no. 1.4301 (V2A)

E4 Stainless steel, material no. 1.4571/1.4404 (V4A) (on request)

Technical data



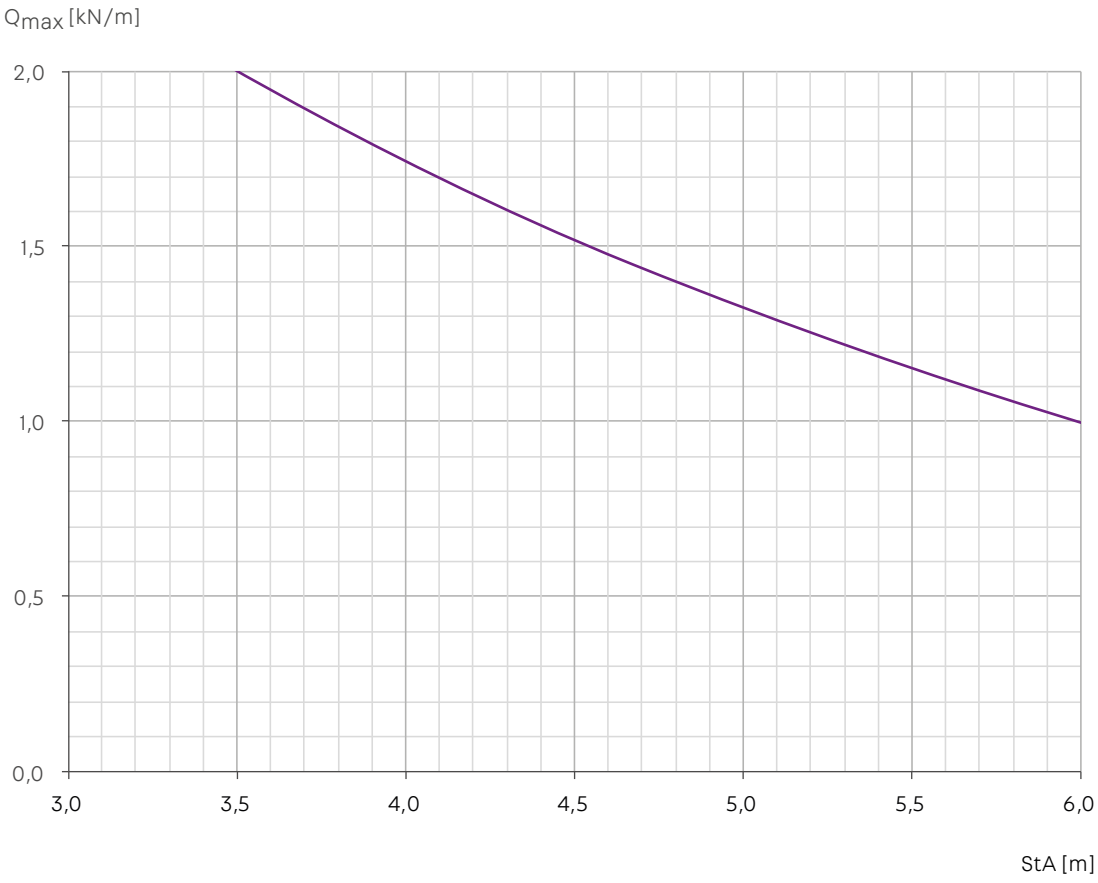
Model	H mm	B mm	L mm	t mm	A cm²	Q_{SK} kN/m	G E kg
WPR 100-20	100	200	6,000	1.50	156	0.23	36.21
WPR 100-30	100	300	6,000	1.50	234	0.35	43.34
WPR 100-40	100	400	6,000	1.50	312	0.47	50.16
WPR 100-50	100	500	6,000	1.50	390	0.59	57.24
WPR 100-60	100	600	6,000	1.50	468	0.70	64.33

H: Side rail height | B: Width | L: Length | t: Material thickness | A: Cross-sectional area | Q_{SK}: Control cable distributed load | G: Weight

Example order

Model	Surf./mat.
WPR 100-20	**E**

Load diagram
WPR 100 E



Tray width: 200 to 600 mm

Q_{max}: Max. distributed load

StA: Support distance

The maximum filling capacity of wide-span cable trays may exceed their load-bearing capacity. You must build in sufficient reserves and, where applicable, plan using a multi-layered approach.

WPR 120

Wide-span cable tray

Product features

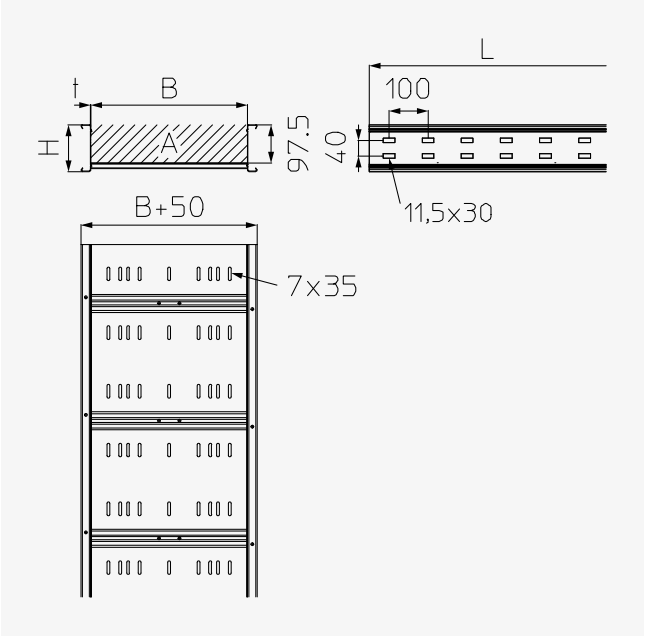
- Side rail height: 120 mm
- Available tray widths: 200 to 600 mm
- Length: 6,000 mm
- Cross-sectional areas of 196 to 588 cm²

Available surface coatings and materials

S Sendzimir hot-dip galvanised in accordance with DIN EN 10346

F Hot-dip galvanised in accordance with DIN EN ISO 1461

Technical data



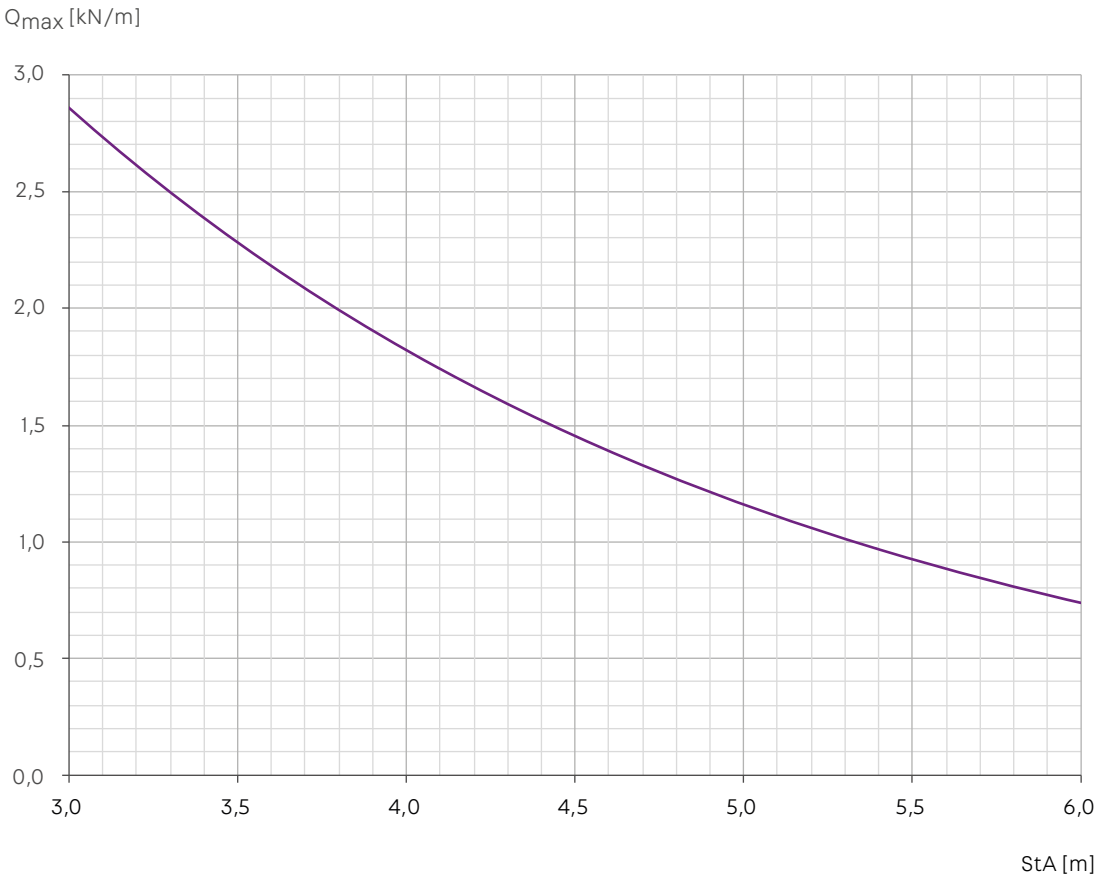
Model	H mm	B mm	L mm	t mm	A cm²	Q_{SK} kN/m	G S kg	G F kg
WPR 120-20	120	200	6,000	1.50	196	0.29	36.41	38.80
WPR 120-30	120	300	6,000	1.50	294	0.44	42.10	44.88
WPR 120-40	120	400	6,000	1.50	392	0.59	47.97	51.16
WPR 120-50	120	500	6,000	1.50	490	0.74	53.83	57.44
WPR 120-60	120	600	6,000	1.50	588	0.88	59.70	63.72

H: Side rail height | B: Width | L: Length | t: Material thickness | A: Cross-sectional area | Q_{SK}: Control cable distributed load | G: Weight

Example order

Model	Surf./mat.
WPR 120-20	**S**

Load diagram
WPR 120 S F



Tray width: 200 to 600 mm

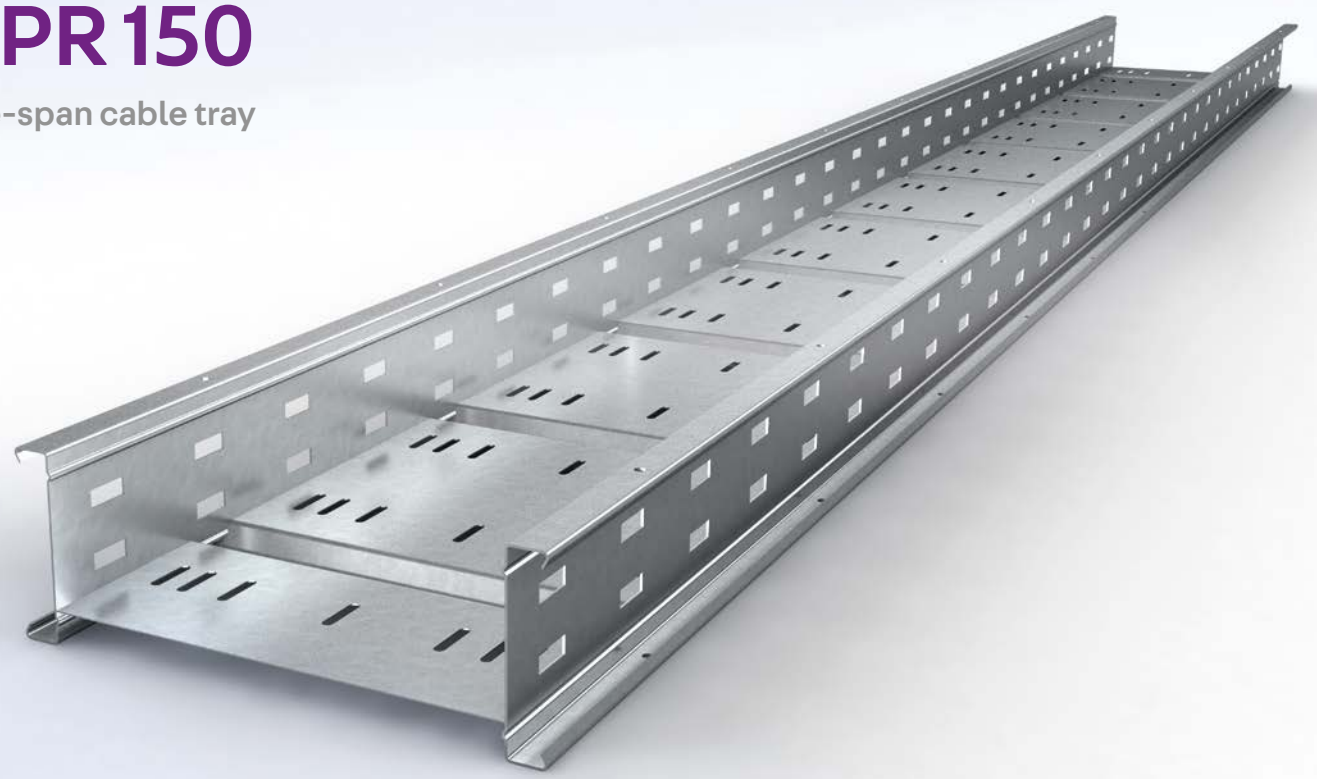
Q_{max}: Max. distributed load

StA: Support distance

The maximum filling capacity of wide-span cable trays may exceed their load-bearing capacity. You must build in sufficient reserves and, where applicable, plan using a multi-layered approach.

WPR 150

Wide-span cable tray



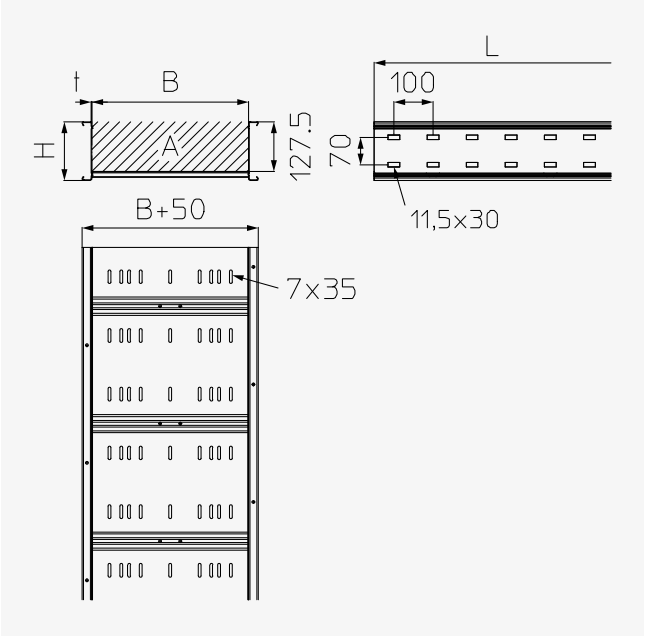
Product features

- Side rail height: 150 mm
- Available tray widths: 200 to 600 mm
- Length: 6,000 mm
- Cross-sectional areas of 256 to 768 cm²

Available surface coatings and materials

S	Sendzimir hot-dip galvanised in accordance with DIN EN 10346
F	Hot-dip galvanised in accordance with DIN EN ISO 1461
E	Stainless steel, material no. 1.4301 (V2A)
E4	Stainless steel, material no. 1.4571/1.4404 (V4A) (on request)

Technical data



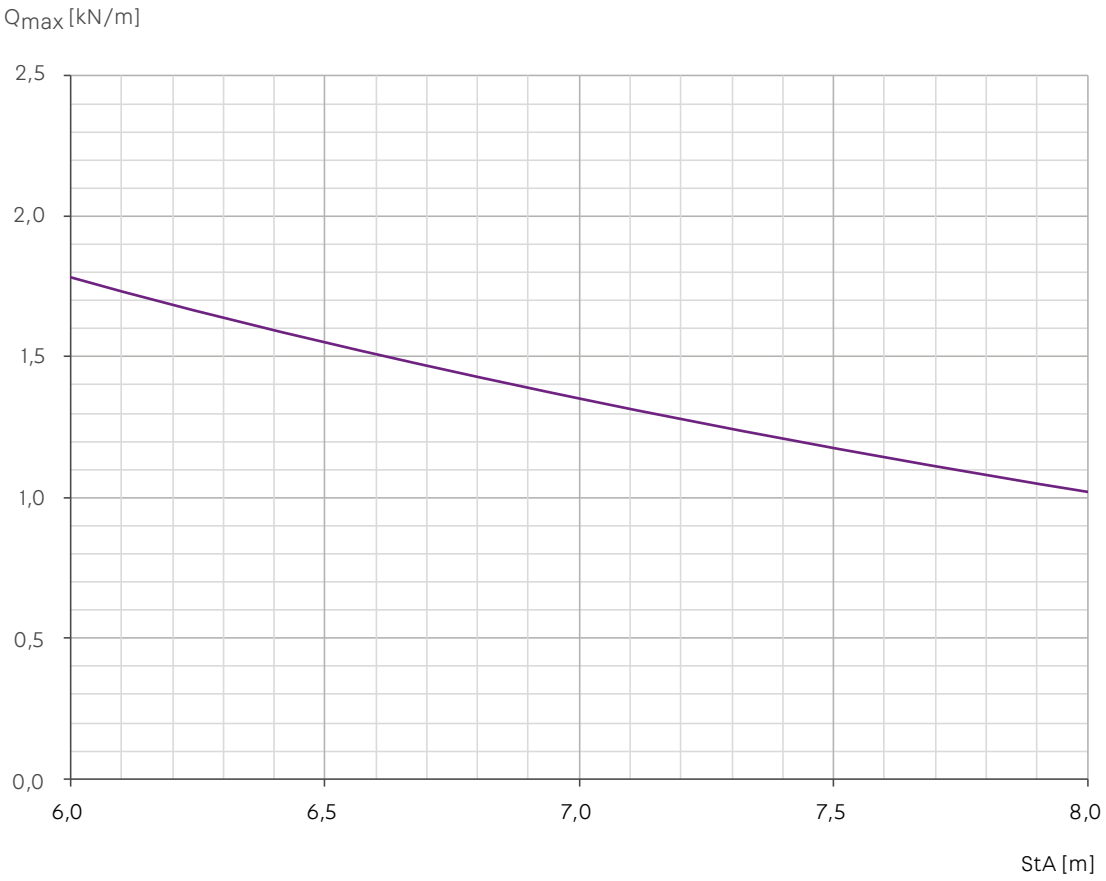
Model	H mm	B mm	L mm	t mm	A cm²	Q_{SK} kN/m	G S kg	G F kg	G E kg
WPR 150-20	150	200	6,000	1.75	256	0.38	45.13	48.28	48.75
WPR 150-30	150	300	6,000	1.75	384	0.58	50.81	54.36	55.88
WPR 150-40	150	400	6,000	1.75	512	0.77	56.68	60.64	62.70
WPR 150-50	150	500	6,000	1.75	640	0.96	62.55	66.92	69.78
WPR 150-60	150	600	6,000	1.75	768	1.15	68.41	73.20	76.87

H: Side rail height | B: Width | L: Length | t: Material thickness | A: Cross-sectional area | Q_{SK}: Control cable distributed load | G: Weight

Example order

Model	Surf./mat.
WPR 150-20	**S**

Load diagram
WPR 150 S F E



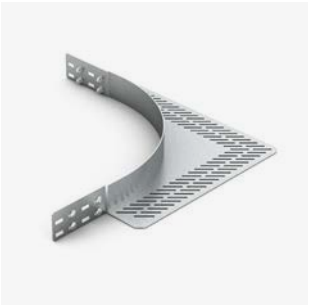
Tray width: 200 to 600 mm

Q_{max}: Max. distributed load

StA: Support distance

The maximum filling capacity of wide-span cable trays may exceed their load-bearing capacity. You must build in sufficient reserves and, where applicable, plan using a multi-layered approach.

Formed parts
WPR 100, WPR 120, WPR 150



WPEA 100/120/150
Wide-span attachment corner element
90-degree inside bend, corner element

H*	r	Surf./mat.
mm	mm	
100	450	E E4
120	450	F
150	450	F E E4

Example order

Model	H* (mm)	Surf./mat.
WPEA	**100**	**E**

H*: Side rail height | r: Radius
Surf./mat.: Surface/materials

WPREAB 100/120/150
Wide-span cable tray attachment corner element
90-degree inside bend with corner connector for mitre cut

H*	r	Surf./mat.
mm	mm	
100	450	E E4
120	450	F
150	450	F E E4

Example order

Model	H* (mm)	Surf./mat.
WPREAB	**100**	**E**

H*: Side rail height | r: Radius
Surf./mat.: Surface/materials

WPRB 100/120/150
Wide-span cable tray bend
90-degree bend, for a horizontal change in direction

H*	B*	r	Surf./mat.
mm	mm	mm	
100	200, 300, 400, 500, 600	450	E E4
120	200, 300, 400, 500, 600	450	F
150	200, 300, 400, 500, 600	450	F E E4

Example order

Model	H* (mm)	-	B* (cm)	Surf./mat.
WPRB	**100**	**-**	**20**	**E**

H*: Side rail height | B*: Width | r: Radius
Surf./mat.: Surface/materials

WPRA 100/120/150
Wide-span cable tray branch
T-branch, for a horizontal change in direction

H*	B*	r	Surf./mat.
mm	mm	mm	
100	200, 300, 400, 500, 600	450	E E4
120	200, 300, 400, 500, 600	450	F
150	200, 300, 400, 500, 600	450	F E E4

Example order

Model	H* (mm)	-	B* (cm)	Surf./mat.
WPRA	**100**	**-**	**20**	**E**

H*: Side rail height | B*: Width | r: Radius
Surf./mat.: Surface/materials

*The stated values represent the usable width and height of the cable tray. The actual width and height may vary according to the specific product. Details can be found in the relevant data sheets on the website.

Formed parts come with integrated connectors, including fastening screws.
Formed parts must be supported on all sides.

WPRAA 100/120/150

Wide-span cable tray attachment branch
Attachment branch, for a horizontal change in direction

H*	B*	r	Surf./mat.
mm	mm	mm	
100	200, 300, 400, 500, 600	450	E E4
120	200, 300, 400, 500, 600	450	F
150	200, 300, 400, 500, 600	450	F E E4

Example order

Model	H* (mm)	-	B* (cm)	Surf./mat.
WPRAA	**120**	**-**	**20**	**F**

H*: Side rail height | B*: Width | r: Radius
Surf./mat.: Surface/materials

WPRK 100/120/150

Wide-span cable tray crossing
Crossing, for a horizontal change in direction

H*	B*	r	Surf./mat.
mm	mm	mm	
100	200, 300, 400, 500, 600	450	E E4
120	200, 300, 400, 500, 600	450	F
150	200, 300, 400, 500, 600	450	F E E4

Example order

Model	H* (mm)	-	B* (cm)	Surf./mat.
WPRK	**120**	**-**	**20**	**F**

H*: Side rail height | B*: Width | r: Radius
Surf./mat.: Surface/materials

*The stated values represent the usable width and height of the cable tray. The actual width and height may vary according to the specific product. Details can be found in the relevant data sheets on the website.

Formed parts come with integrated connectors, including fastening screws.
Formed parts must be supported on all sides.

Covers and accessories WPR 100, WPR 120, WPR 150

WPD
Wide-span cover

B* mm	L mm	Surf./mat.
200	3,000	S F E E4
300	3,000	S F E E4
400	3,000	S F E E4
500	3,000	S F E E4
600	3,000	S F E E4

Example order

Model	B* (cm)	Surf./mat.
WPD	**20**	**F**

B*: Width | L: Length
Surf./mat.: Surface/materials

WPBD
Wide-span bend cover

B* mm	r mm	Surf./mat.
200	450	S F E E4
300	450	S F E E4
400	450	S F E E4
500	450	S F E E4
600	450	S F E E4

Example order

Model	B* (cm)	Surf./mat.
WPBD	**20**	**F**

B*: Width | r: Radius
Surf./mat.: Surface/materials

WPAD
Wide-span branch cover

B* mm	r mm	Surf./mat.
200	450	S F E E4
300	450	S F E E4
400	450	S F E E4
500	450	S F E E4
600	450	S F E E4

Example order

Model	B* (cm)	Surf./mat.
WPAD	**20**	**F**

B*: Width | r: Radius
Surf./mat.: Surface/materials

WPKD
Wide-span crossing cover

B* mm	r mm	Surf./mat.
200	450	S F E E4
300	450	S F E E4
400	450	S F E E4
500	450	S F E E4
600	450	S F E E4

Example order

Model	B* (cm)	Surf./mat.
WPKD	**20**	**F**

B*: Width | r: Radius
Surf./mat.: Surface/materials

*The stated values represent the useable width of the cable tray.
The actual width may vary according to the specific product.
Details can be found in the relevant data sheets on the website.

Wide-span covers can be raised using cover elevators. Wide-span fitting covers are raised using elevated fitting cover hook clips.

WPDUK
Cover clamp
F E E4

WPD-A
Cover elevator
S F E

WPFDK 100/120/150
Fitting cover hook clip
E E4

WPFDKA 100/120/150
Fitting cover hook clip, elevated
E

Example order for cover clamp

Model	Surf./mat.
WPDUK	**F**

Surf./mat.: Surface/materials

Covers without turning bolts must be secured to the cable trays using suitable accessories. If the covers are going to be used outdoors, additional safeguards must be installed to protect them against the effects of wind.

For information on the quantity of products required, please refer to the assembly instructions or our website.

Fastening screws included with delivery

Installation components WPR 100, WPR 120, WPR 150

WPRKAB

Wide-span cable tray drop-out plate

B* mm	Surf./mat.			
200	S	F	E	
300	S	F	E	
400	S	F	E	
500	S	F	E	
600	S	F	E	

Example order

Model	B* (cm)	Surf./mat.
WPRKAB	**20**	**F**

B*: Width | Surf./mat.: Surface/materials

WPREB

Wide-span cable tray end-plate

B* mm	Surf./mat.			
200	S	F	E	E4
300	S	F	E	E4
400	S	F	E	E4
500	S	F	E	E4
600	S	F	E	E4

Example order

Model	B* (cm)	Surf./mat.
WPREB	**20**	**F**

B*: Width | Surf./mat.: Surface/materials

Fastening screws included with delivery

*The stated values represent the useable width of the cable tray.
The actual width may vary according to the specific product.
Details can be found in the relevant data sheets on the website.

EBW
Corner fixing
F

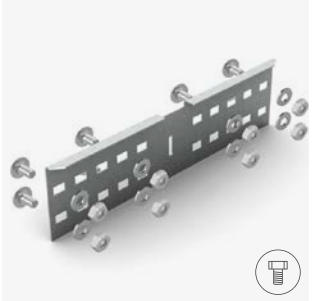
WPHS-K
Flange mounting clamp (brackets)
S F E

WPHS-A
Flange mounting clamp (C-profiles)
S F E

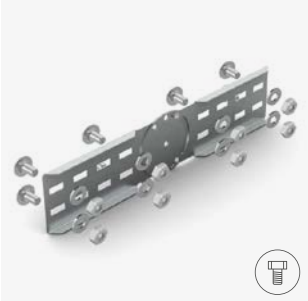
WPHS-P
Flange mounting clamp (profiles)
S F E

WPHS-IS
Isolation strip
EPDM

WPV 100/120/150
Wide-span connector
100 E
120 S F
150 S F E E4



WPVH 100/120/150
Wide-span connector, horizontal
100 E
120 S F
150 S F E E4



WPVV 100/120/150
Wide-span connector, vertical
100 E
120 S F
150 S F E E4

WPTR 100/120/150
Wide-span separating strip
100 E
120 S F
150 S F E E4

VB
Connection plate
S F E E4

KZF
Cold zinc paint
750 ml

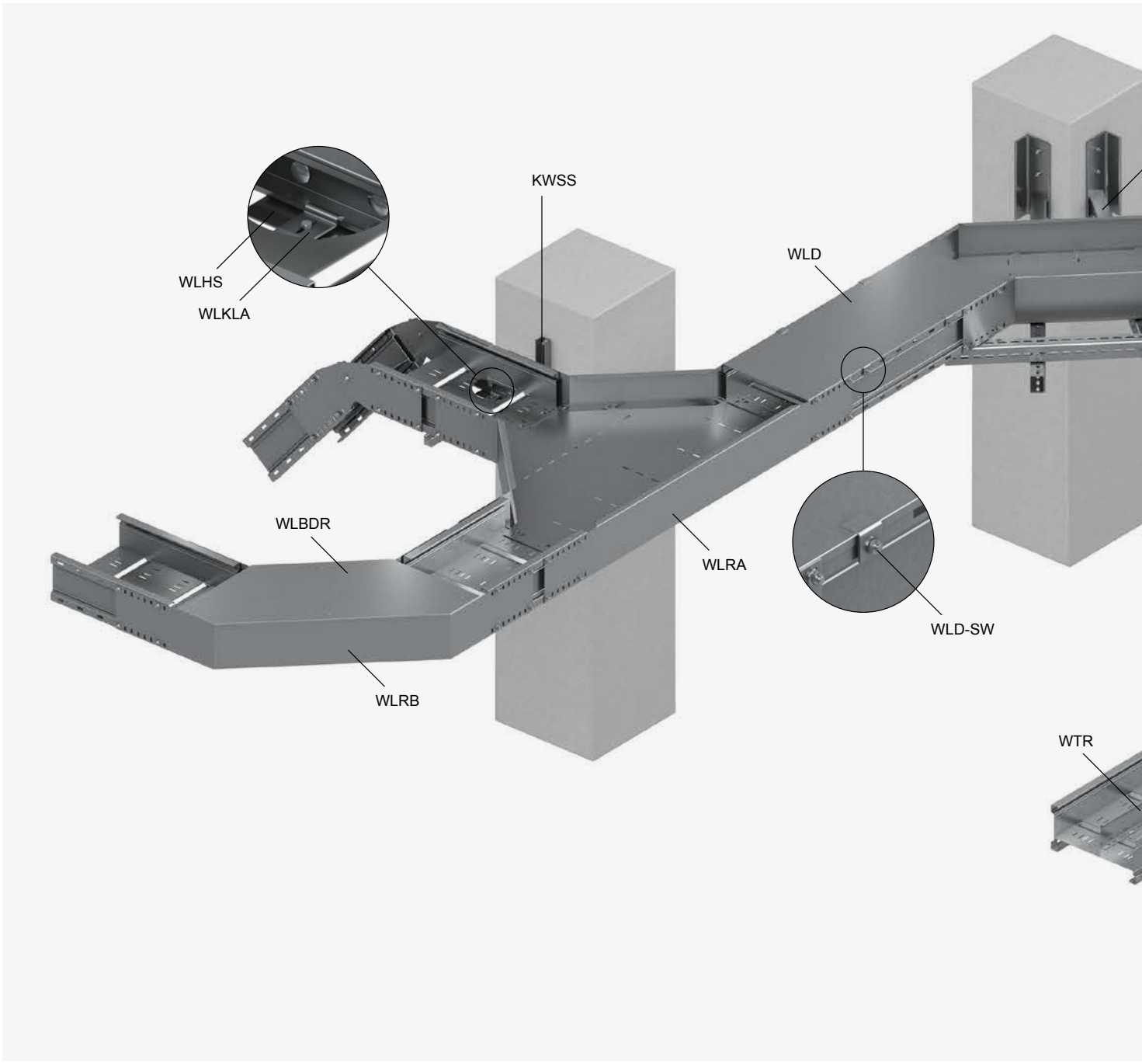
KZS
Cold zinc spray
400 ml

Example order
Wide-span connector

Model	H (mm)	Surf./mat.
WPV	**120**	**F**

Fastening screws included with delivery

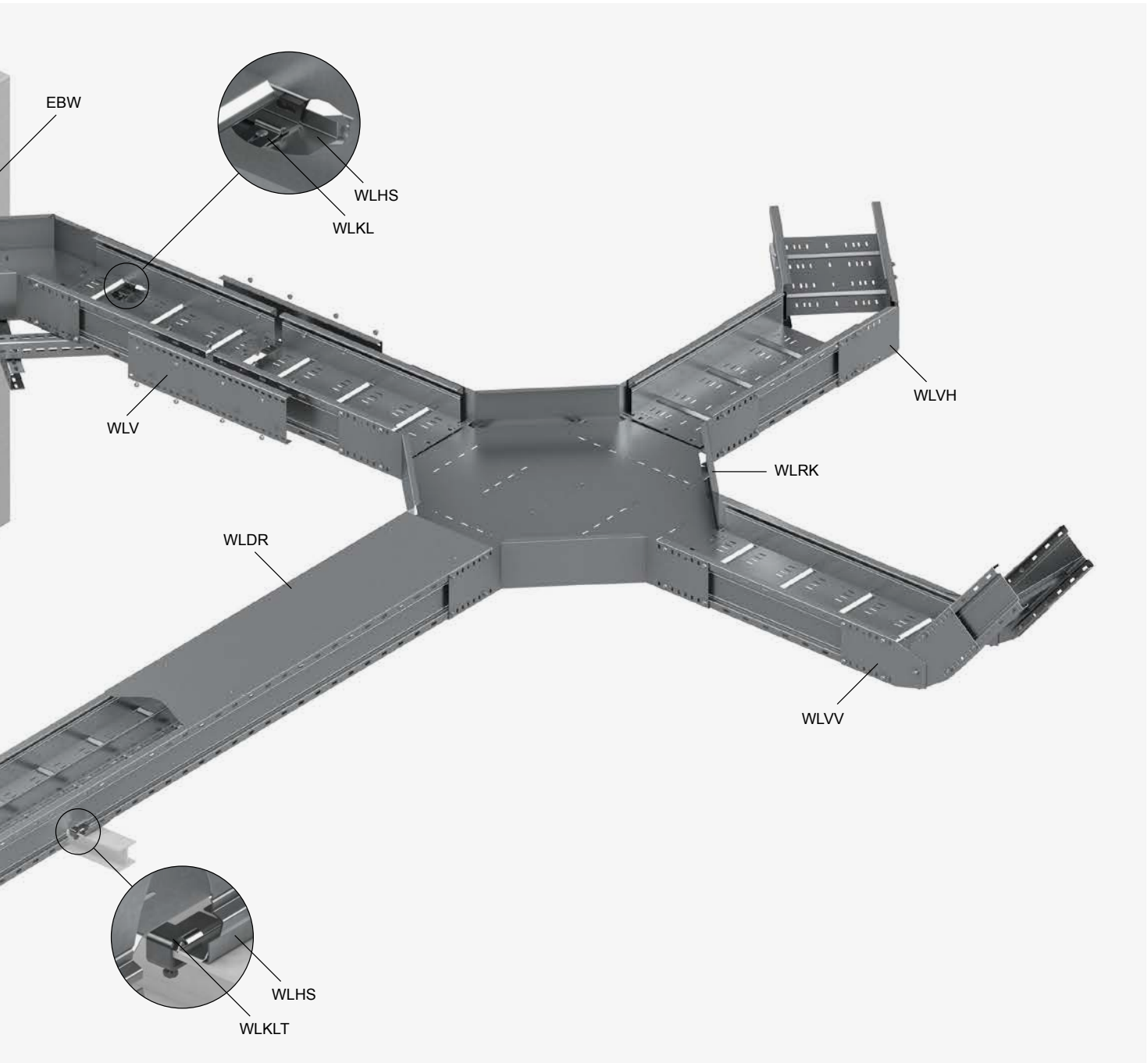
H: Height | Surf./mat.: Surface/materials
EPDM: Ethylene propylene rubber


KWSS
WLHS
WLKLA
WLD
WLBDR
WLRA
WLD-SW
WLRB
WTR

System overview

WLR 200

Wide-span cable trays with side rail heights of 200 mm allow cables to be routed safely and securely even when large support distances are involved. When combined with the appropriate support systems, formed parts, covers and suitable accessories, they form a complete cable management system with a high level of flexibility. The wide-span cable trays can be assembled quickly and easily using the wide-span connectors and rail supports. Corners, bends and horizontal changes of direction can likewise be configured in no time at all with the formed part range. Matching covers can be purchased for extra protection against contact, dirt, moisture and UV radiation.



WLR 200

Wide-span cable tray

Product features

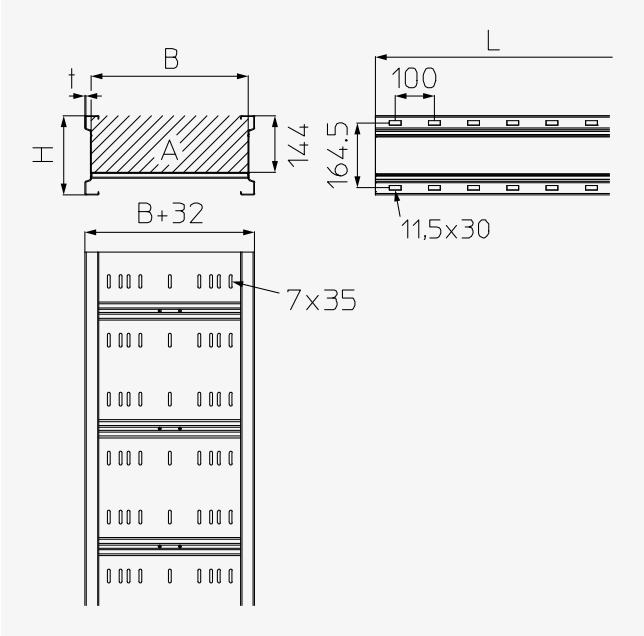
- Side rail height: 200 mm
- Available tray widths: 200 to 600 mm
- Length: 6,000 mm
- Cross-sectional areas of 284 to 860 cm²

Available surface coatings and materials

S Sendzimir hot-dip galvanised in accordance with DIN EN 10346

F Hot-dip galvanised in accordance with DIN EN ISO 1461

Technical data



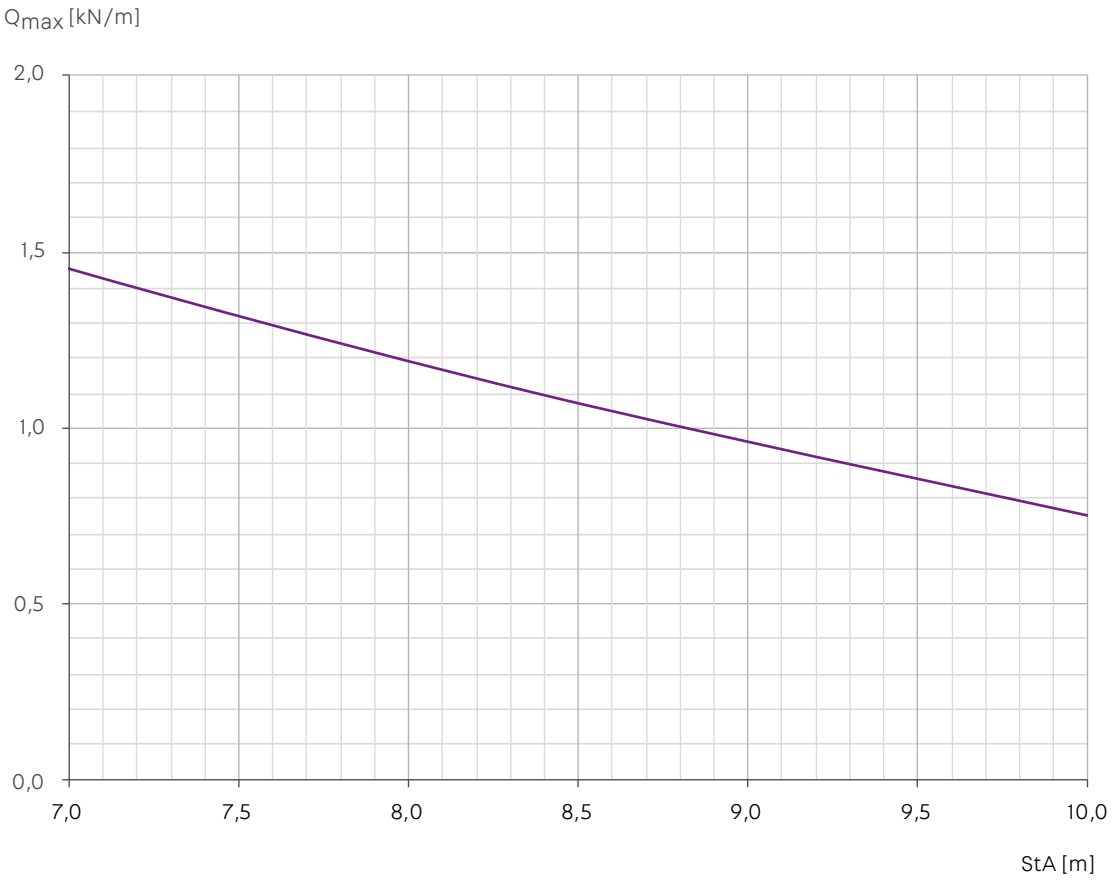
Model	H mm	B mm	L mm	t mm	A cm²	Q_{SK} kN/m	G S kg	G F kg
WLR 200-20	202	200	6,000	2.00	284	0.43	64.73	69.31
WLR 200-30	202	300	6,000	2.00	428	0.64	70.42	75.39
WLR 200-40	202	400	6,000	2.00	572	0.86	76.29	81.67
WLR 200-50	202	500	6,000	2.00	716	1.07	82.15	87.95
WLR 200-60	202	600	6,000	2.00	860	1.29	88.02	94.23

H: Side rail height | B: Width | L: Length | t: Material thickness | A: Cross-sectional area | Q_{SK}: Control cable distributed load | G: Weight

Example order

Model	Surf./mat.
WLR 200-20	**F**

Load diagram
WLR 200 S F



Tray width: 200 to 600 mm

Q_{max}: Max. distributed load

StA: Support distance

The maximum filling capacity of wide-span cable trays may exceed their load-bearing capacity. You must build in sufficient reserves and, where applicable, plan using a multi-layered approach.

Formed parts WLR 200

WLRB 200

Wide-span cable tray bend
90-degree bend, for a horizontal change in direction

H*	B*	L	Surf./mat.
mm	mm	mm	
200	200	952	S F
200	300	1052	S F
200	400	1152	S F
200	500	1252	S F
200	600	1352	S F

Example order

Model	H* (mm)	-	B* (cm)	Surf./mat.
WLRB	**200**	**-**	**20**	**F**

H*: Side rail height | B*: Width | L: Length
Surf./mat.: Surface/materials

WLRA 200

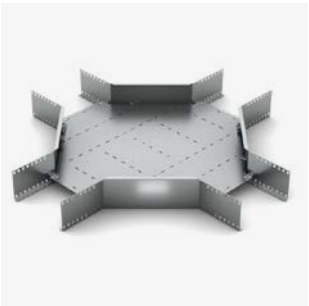
Wide-span cable tray branch
T-branch, for a horizontal change in direction

H*	B*	L	Surf./mat.
mm	mm	mm	
200	200	1667	S F
200	300	1767	S F
200	400	1867	S F
200	500	1967	S F
200	600	2067	S F

Example order

Model	H* (mm)	-	B* (cm)	Surf./mat.
WLRA	**200**	**-**	**20**	**F**

H*: Side rail height | B*: Width | L: Length
Surf./mat.: Surface/materials



WLRK 200

Wide-span cable tray crossing
Crossing, for a horizontal change in direction

H*	B*	L	Surf./mat.
mm	mm	mm	
200	200	1667	S F
200	300	1767	S F
200	400	1867	S F
200	500	1967	S F
200	600	2067	S F

Example order

Model	H* (mm)	-	B* (cm)	Surf./mat.
WLRK	**200**	**-**	**20**	**F**

H*: Side rail height | B*: Width | L: Length
Surf./mat.: Surface/materials

*The stated values represent the usable width and height of the cable tray. The actual width and height may vary according to the specific product. Details can be found in the relevant data sheets on the website.

Formed parts come with integrated connectors, including fastening screws.
Formed parts must be supported on all sides.

Covers and accessories WLR 200

WLD

Wide-span cable ladder cover

B*	L	Surf./mat.	
mm	mm		
200	3,000	S	F
300	3,000	S	F
400	3,000	S	F
500	3,000	S	F
600	3,000	S	F

Example order

Model	B* (cm)	Surf./mat.
WLD	**20**	**F**

B*: Width | L: Length
Surf./mat.: Surface/materials

WLDR

Wide-span cable ladder cover with turning bolts

B*	L	Surf./mat.	
mm	mm		
200	3,000	S	F
300	3,000	S	F
400	3,000	S	F
500	3,000	S	F
600	3,000	S	F

Example order

Model	B* (cm)	Surf./mat.
WLDR	**20**	**F**

B*: Width | L: Length
Surf./mat.: Surface/materials

WLBD

Wide-span cable ladder bend cover

B*	L	Surf./mat.	
mm	mm		
200	641	S	F
300	741	S	F
400	841	S	F
500	941	S	F
600	1041	S	F

Example order

Model	B* (cm)	Surf./mat.
WLBD	**20**	**F**

B*: Width | L: Length
Surf./mat.: Surface/materials

WLBDR

Wide-span cable ladder bend cover with turning bolts

B*	L	Surf./mat.	
mm	mm		
200	641	S	F
300	741	S	F
400	841	S	F
500	941	S	F
600	1041	S	F

Example order

Model	B* (cm)	Surf./mat.
WLBDR	**20**	**F**

B*: Width | L: Length
Surf./mat.: Surface/materials

*The stated values represent the useable width of the cable tray.
The actual width may vary according to the specific product.
Details can be found in the relevant data sheets on the website.

All the wide-span cable ladder covers listed here are equally suitable for use with the WLR 200 range of wide-span cable trays and the associated formed parts.

WLAD

Wide-span cable ladder branch cover

B*	L	Surf./mat.
mm	mm	
200	1042	S F
300	1142	S F
400	1242	S F
500	1342	S F
600	1442	S F

Example order

Model	B* (cm)	Surf./mat.
WLAD	**20**	**F**

B*: Width | L: Length
Surf./mat.: Surface/materials

WLADR

Wide-span cable ladder branch cover with turning bolts

B*	L	Surf./mat.
mm	mm	
200	1042	S F
300	1142	S F
400	1242	S F
500	1342	S F
600	1442	S F

Example order

Model	B* (cm)	Surf./mat.
WLADR	**20**	**F**

B*: Width | L: Length
Surf./mat.: Surface/materials

WLKD

Wide-span cable ladder crossing cover

B*	L	Surf./mat.
mm	mm	
200	1042	S F
300	1142	S F
400	1242	S F
500	1342	S F
600	1442	S F

Example order

Model	B* (cm)	Surf./mat.
WLKD	**20**	**F**

B*: Width | L: Length
Surf./mat.: Surface/materials

WLKDR

Wide-span cable ladder crossing cover with turning bolts

B*	L	Surf./mat.
mm	mm	
200	1042	S F
300	1142	S F
400	1242	S F
500	1342	S F
600	1442	S F

Example order

Model	B* (cm)	Surf./mat.
WLKDR	**20**	**F**

B*: Width | L: Length
Surf./mat.: Surface/materials

*The stated values represent the useable width of the cable tray.
The actual width may vary according to the specific product.
Details can be found in the relevant data sheets on the website.

All the wide-span cable ladder covers listed here are equally suitable for use with the WLR 200 range of wide-span cable trays and the associated formed parts.

WLD-SW
Storm protection angle for wide-span cable ladder cover
F

Example order

Model	Surf./mat.
WLD-SW	**F**

Surf./mat.: Surface/materials

Covers without turning bolts must be secured to the cable trays using suitable accessories. If the covers are going to be used outdoors, additional safeguards must be installed to protect them against the effects of wind. As a retaining element, turning bolts are not sufficient on their own for this scenario.

Fastening screws included with delivery

Installation components WLR 200

EBW
Corner fixing
F

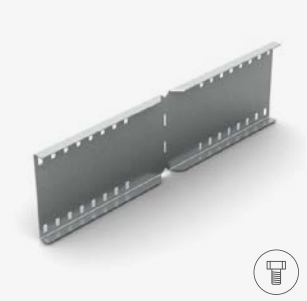
WLHS
Wide-span cable ladder rail support
S F

WLKL
Clamping assembly for wide-span cable ladder
S F

WLKLA
Clamping assembly for wide-span cable ladder
S F

WLKLT
Clamp for wide-span cable ladder
F

WLV 200
Wide-span connector
S F



WLVH 200
Wide-span connector, horizontal
S F

WLVV 200
Wide-span connector, vertical
S F

WTR 200
Wide-span separating strip
S F

VB
Connection plate
S F E E4

KZF
Cold zinc paint
750 ml

KZS
Cold zinc spray
400 ml

Example order for wide-span connector

Model	Surf./mat.
WLV 200	**F**

Fastening screws included with delivery

Wide-span cable ladders

Product description
Wide-span cable ladders are used in industrial halls, power stations or in plant construction projects to get power cables to where they are needed – flexibly, reliably and with maximum safety. And with the tried-and-tested support system from PUK, even large support distances of up to eight metres can be spanned effortlessly. The rungs are designed to prevent heat build-up by ensuring sufficient air circulation around the cables.

In combination with the appropriate support structures, our wide-span cable ladders form a high-quality and very sturdy system. The rungs – made of perforated profile rails – are welded in place for increased transverse rigidity.
The electrical conductivity has been tested in accordance with DIN EN 61537.

When it comes to the most commonplace applications, the PUK standard range has got it all covered. Our wide-span cable ladders are available in heights of 100, 120, 150 and 200 mm, and in widths of 200, 300, 400, 500 and 600 mm. Special sizes with widths of up to 1,000 mm can also be produced on request. You can also choose between various high-quality materials and surface finishes. In this way, we are able to provide a product that meets the corrosion protection requirements for all sorts of application areas.

Benefits

- A secure and sturdy system
- Suitable for medium and large support distances
- Designed for high loads
- Good cable ventilation; no heat build-up

Special solution
Our wide-span cable trays have a standard length of 6,000 mm. However, a special solution is also available should you need it. On request, the WPL 100/120/150 and WL 200 products can each be supplied in a length of 3,000 mm.

Support systems
Whenever you install a system for getting cables from A to B, you will need a suitable support system. No cable management system is complete without the appropriate fastening elements. We offer solutions for various application areas, whether you intend to hang the cable trays on walls or ceilings, or need them to support light or heavy loads.

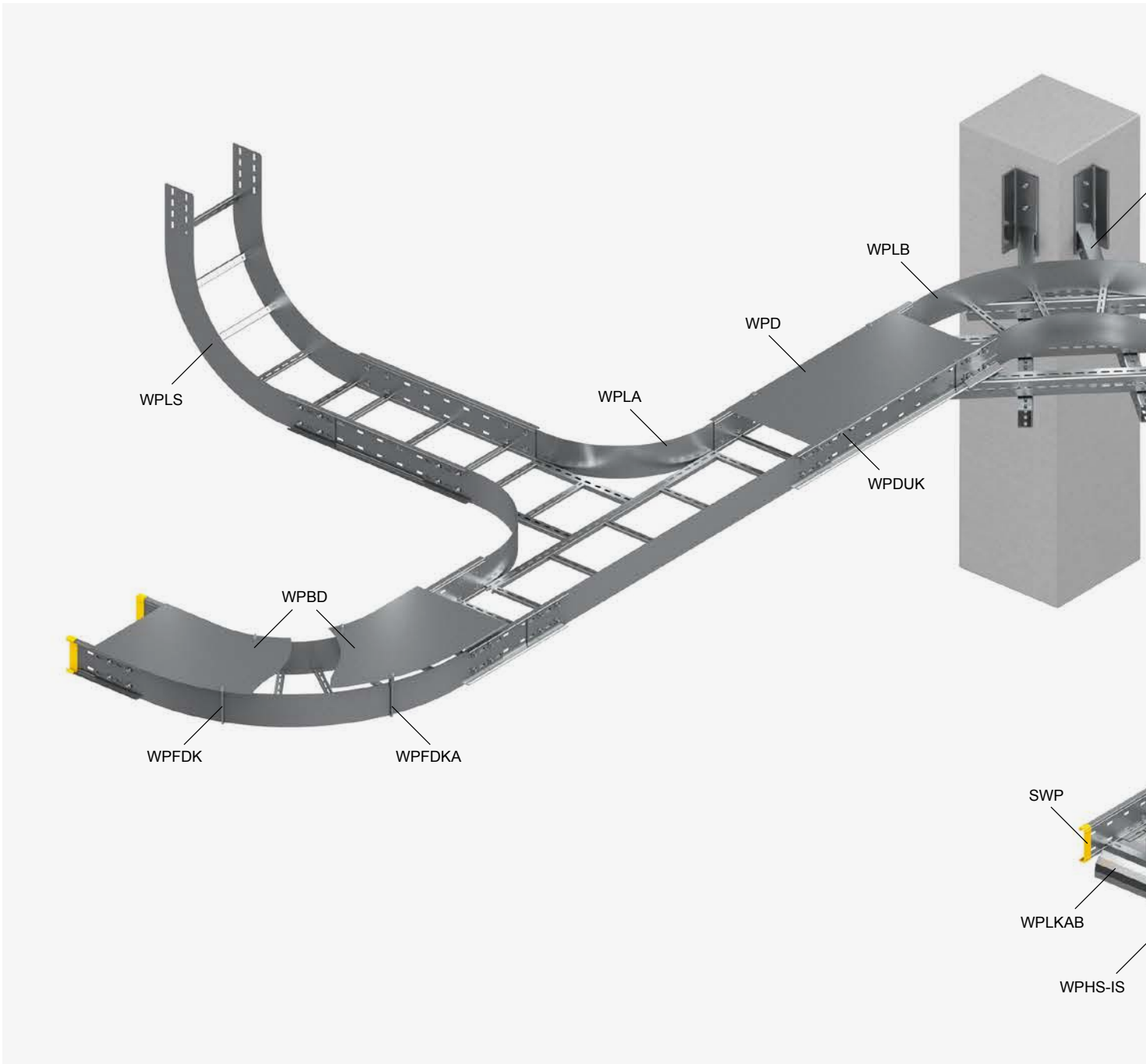
Areas of application

Industrial halls and production facilities

Plant construction

Power plant construction

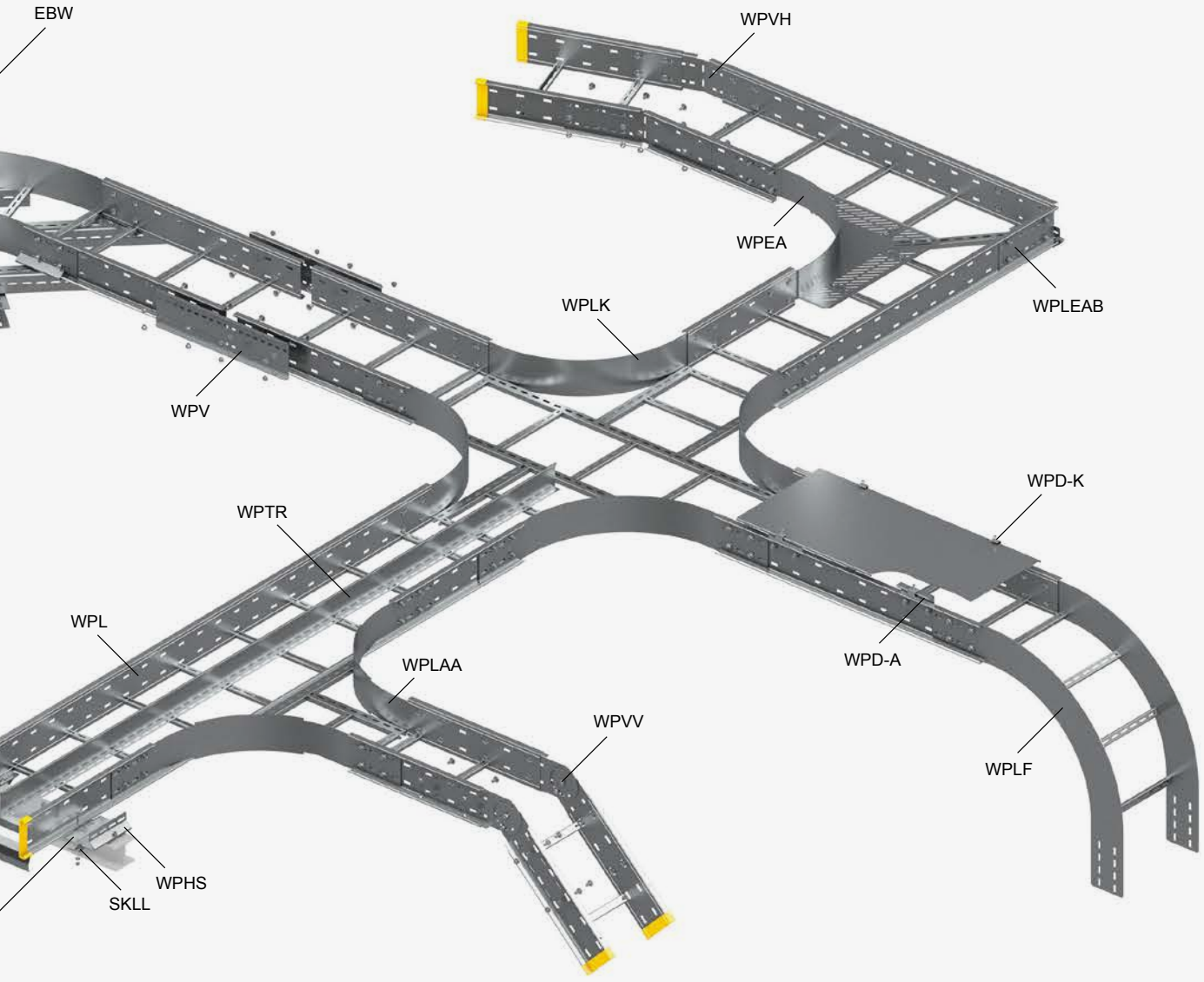
Tunnel construction


WPLB
WPD
WPLS
WPLA
WPDUK
WPBD
WPFDK
WPFDKA
SWP
WPLKAB
WPHS-IS

System overview

WPL 100, WPL 120, WPL 150

Using wide-span cable ladders, you can route your cables safely and securely even when large support distances have to be spanned. What's more, the open rung design reduces the risk of heat build-up. When combined with the appropriate support systems, formed parts, covers and suitable accessories, they form a complete cable management system with a high level of flexibility. The wide-span connectors make our wide-span cable ladders quick and easy to assemble. Horizontal and vertical changes of direction can be configured just as easily thanks to the corner elements, wide-span bends, wide-span inside risers and wide-span outside risers. Matching covers can be purchased for extra protection against contact, dirt, moisture and UV radiation.



WPL 100

Wide-span cable ladder

Product features

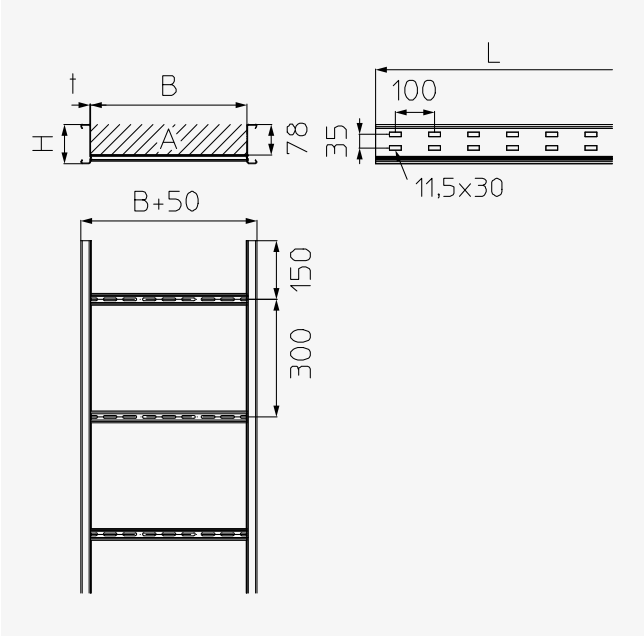
- Side rail height: 100 mm
- Available tray widths: 200 to 600 mm
- Length: 6,000 mm
- Cross-sectional areas of 156 to 468 cm²

Available surface coatings and materials

E Stainless steel, material no. 1.4301 (V2A)

E4 Stainless steel, material no. 1.4571/1.4404 (V4A) (on request)

Technical data



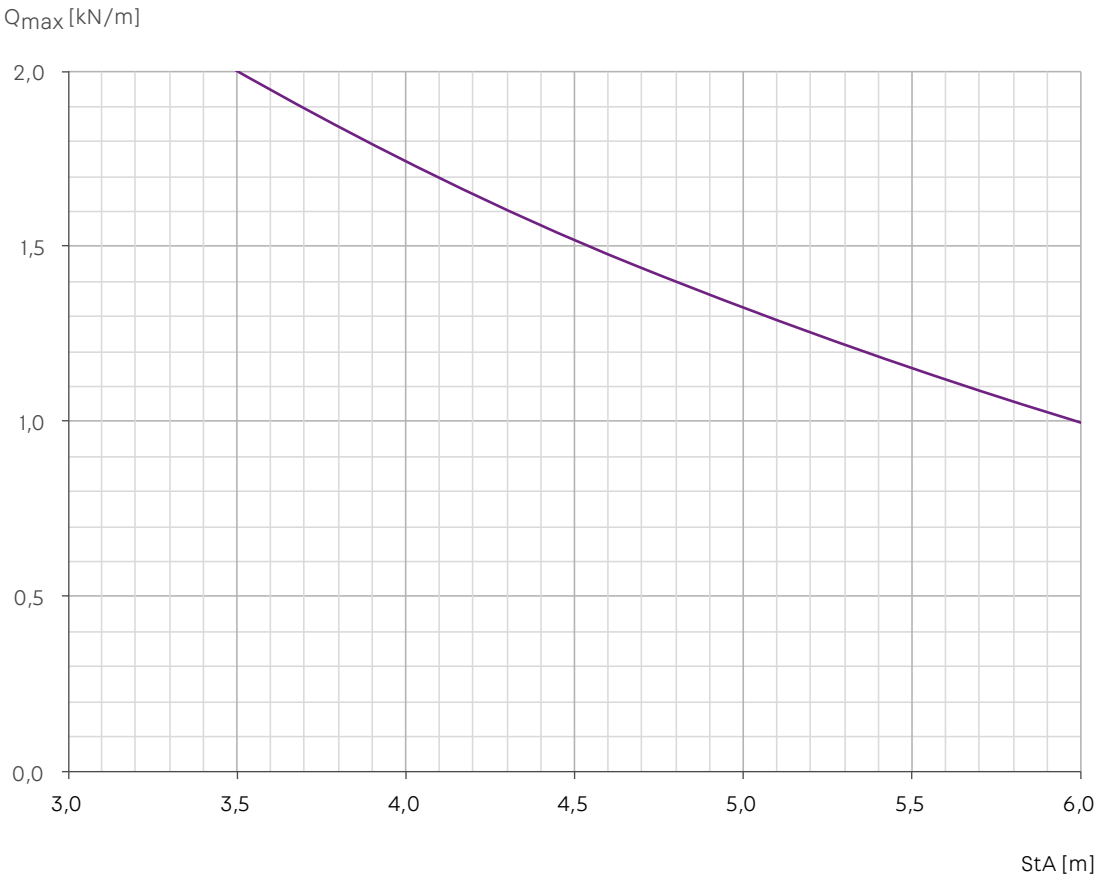
Model	H mm	B mm	L mm	t mm	A cm²	Q_{LK} kN/m	G E kg
WPL 100-20	100	200	6,000	1.50	156	0.44	24.75
WPL 100-30	100	300	6,000	1.50	234	0.66	26.13
WPL 100-40	100	400	6,000	1.50	312	0.87	27.51
WPL 100-50	100	500	6,000	1.50	390	1.09	28.89
WPL 100-60	100	600	6,000	1.50	468	1.31	30.27

H: Side rail height | B: Width | L: Length | t: Material thickness | A: Cross-sectional area | Q_{LK}: Power cable distributed load | G: Weight

Example order

Model	Surf./mat.
WPL 100-20	**E**

Load diagram
WPL 100 E



Tray width: 200 to 600 mm

Q_{max}: Max. distributed load

StA: Support distance

The maximum filling capacity of wide-span cable ladders may exceed their load-bearing capacity. You must build in sufficient reserves and, where applicable, plan using a multi-layered approach.

WPL 120

Wide-span cable ladder

Product features

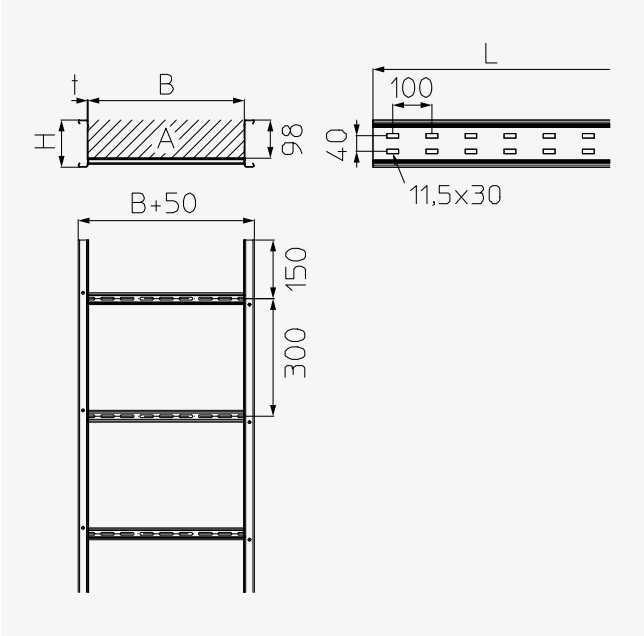
- Side rail height: 120 mm
- Available tray widths: 200 to 600 mm
- Length: 6,000 mm
- Cross-sectional areas of 196 to 588 cm²

Available surface coatings and materials

S Sendzimir hot-dip galvanised in accordance with DIN EN 10346

F Hot-dip galvanised in accordance with DIN EN ISO 1461

Technical data



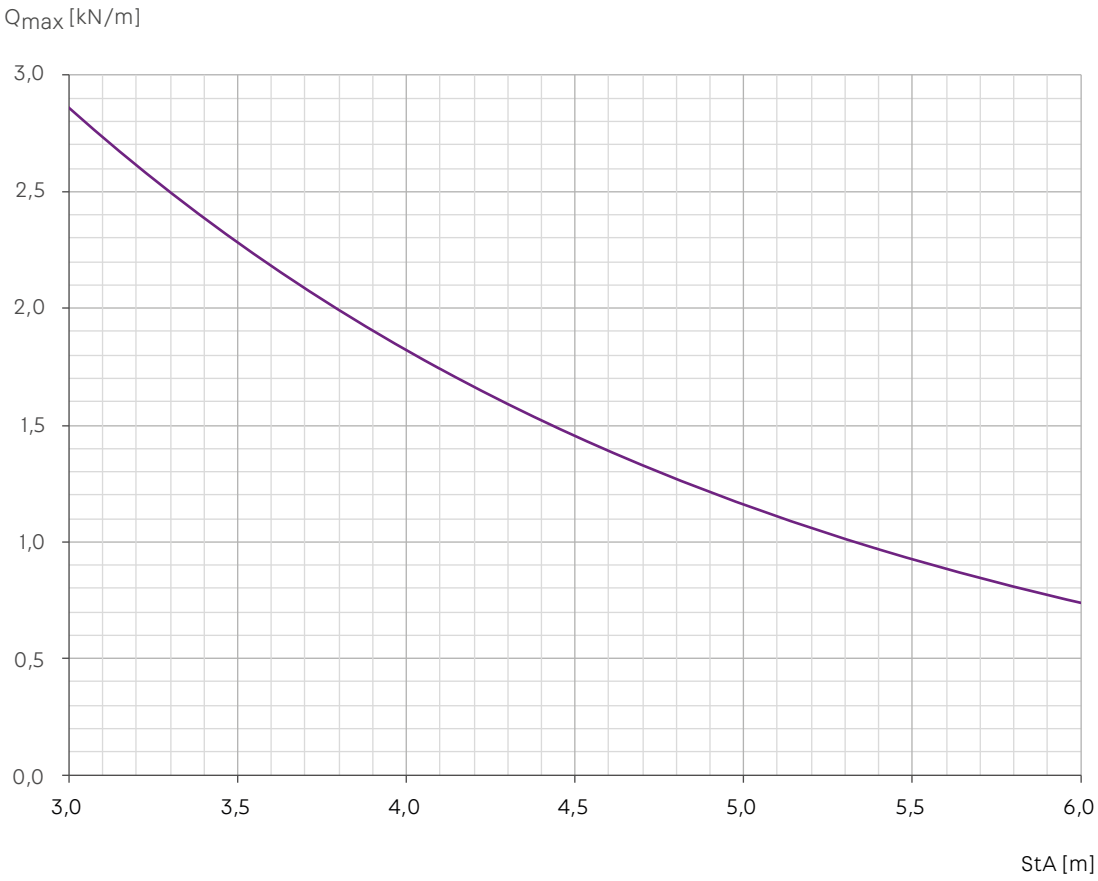
Model	H mm	B mm	L mm	t mm	A cm²	Q_{LK} kN/m	G S kg	G F kg
WPL 120-20	120	200	6,000	1.50	196	0.55	27.35	29.26
WPL 120-30	120	300	6,000	1.50	294	0.82	28.72	30.73
WPL 120-40	120	400	6,000	1.50	392	1.10	30.09	32.20
WPL 120-50	120	500	6,000	1.50	490	1.37	31.47	33.67
WPL 120-60	120	600	6,000	1.50	588	1.65	32.84	35.14

H: Side rail height | B: Width | L: Length | t: Material thickness | A: Cross-sectional area | Q_{LK}: Power cable distributed load | G: Weight (per surface)

Example order

Model	Surf./mat.
WPL 120-20	**S**

Load diagram
WPL 120 S F



Tray width: 200 to 600 mm

Q_{max}: Max. distributed load

StA: Support distance

The maximum filling capacity of wide-span cable ladders may exceed their load-bearing capacity. You must build in sufficient reserves and, where applicable, plan using a multi-layered approach.

WPL 150

Wide-span cable ladder

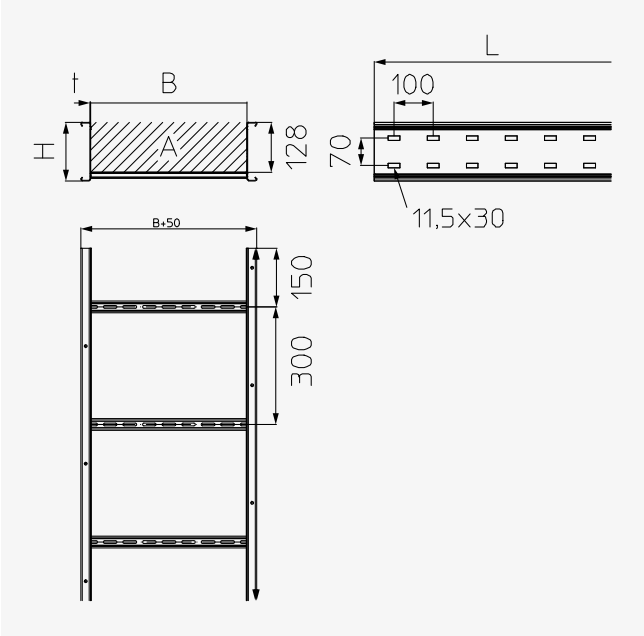
Product features

- Side rail height: 150 mm
- Available tray widths: 200 to 600 mm
- Length: 6,000 mm
- Cross-sectional areas of 256 to 768 cm²

Available surface coatings and materials

S	Sendzimir hot-dip galvanised in accordance with DIN EN 10346
F	Hot-dip galvanised in accordance with DIN EN ISO 1461
E	Stainless steel, material no. 1.4301 (V2A)
E4	Stainless steel, material no. 1.4571/1.4404 (V4A) (on request)

Technical data



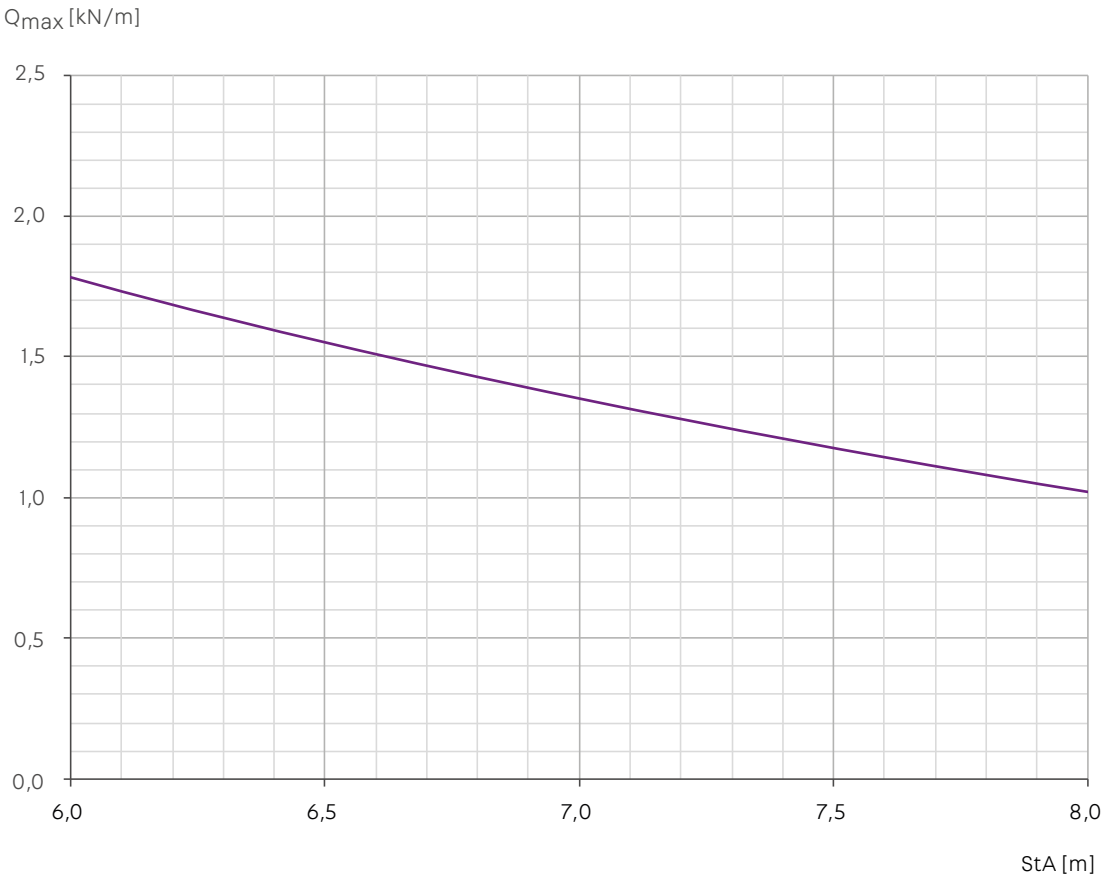
Model	H mm	B mm	L mm	t mm	A cm²	Q_{LK} kN/m	G S kg	G F kg	G E kg
WPL 150-20	150	200	6,000	1.75	256	0.72	36.06	38.58	38.05
WPL 150-30	150	300	6,000	1.75	384	1.08	37.43	40.05	39.82
WPL 150-40	150	400	6,000	1.75	512	1.43	38.81	41.52	41.60
WPL 150-50	150	500	6,000	1.75	640	1.79	40.18	42.99	43.38
WPL 150-60	150	600	6,000	1.75	768	2.15	41.55	44.46	45.16

H: Side rail height | B: Width | L: Length | t: Material thickness | A: Cross-sectional area | Q_{LK}: Power cable distributed load | G: Weight (per surface)

Example order

Model	Surf./mat.
WPL 150-20	**S**

Load diagram
WPL 150 S F E



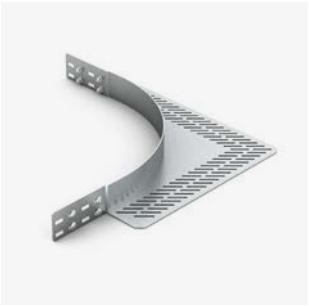
Tray width: 200 to 600 mm

Q_{max}: Max. distributed load

StA: Support distance

The maximum filling capacity of wide-span cable ladders may exceed their load-bearing capacity. You must build in sufficient reserves and, where applicable, plan using a multi-layered approach.

Formed parts
WPL 100, WPL 120, WPL 150



WPEA 100/120/150
Wide-span attachment corner element
90-degree inside bend, corner element

H*	r	Surf./mat.
mm	mm	
100	450	E E4
120	450	F
150	450	F E E4

Example order

Model	H* (mm)	Surf./mat.
WPEA	**100**	**E**

H*: Side rail height | r: Radius
Surf./mat.: Surface/materials

WPLEAB 100/120/150
Wide-span cable ladder attachment corner element
90-degree inside bend with corner connector
for mitre cut

H*	r	Surf./mat.
mm	mm	
100	450	E E4
120	450	F
150	450	F E E4

Example order

Model	H* (mm)	Surf./mat.
WPLEAB	**100**	**E**

H*: Side rail height | r: Radius
Surf./mat.: Surface/materials

WPLB 100/120/150
Wide-span cable ladder bend
90-degree bend, for a horizontal change in direction

H*	B*	r	Surf./mat.
mm	mm	mm	
100	200, 300, 400, 500, 600	450	E E4
120	200, 300, 400, 500, 600	450	F
150	200, 300, 400, 500, 600	450	F E E4

Example order

Model	H* (mm)	-	B* (cm)	Surf./mat.
WPLB	**100**	**-**	**20**	**E**

H*: Side rail height | B*: Width | r: Radius
Surf./mat.: Surface/materials

WPLS 100/120/150
Wide-span cable ladder inside riser
90-degree inside riser bend, for a vertical change in direction

H*	B*	r	Surf./mat.
mm	mm	mm	
100	200, 300, 400, 500, 600	450	E E4
120	200, 300, 400, 500, 600	450	F
150	200, 300, 400, 500, 600	450	F E E4

Example order

Model	H* (mm)	-	B* (cm)	Surf./mat.
WPLS	**100**	**-**	**20**	**E**

H*: Side rail height | B*: Width | r: Radius
Surf./mat.: Surface/materials

*The stated values represent the usable width and height of the cable tray. The actual width and height may vary according to the specific product. Details can be found in the relevant data sheets on the website.

Formed parts come with integrated connectors, including fastening screws.
Formed parts must be supported on all sides.

WPLF 100/120/150

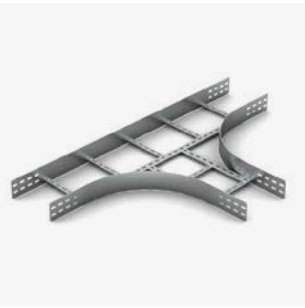
Wide-span cable ladder outside riser
90-degree outside riser bend, for a vertical change in direction

H*	B*	r	Surf./mat.
mm	mm	mm	
100	200, 300, 400, 500, 600	450	E E4
120	200, 300, 400, 500, 600	450	F
150	200, 300, 400, 500, 600	450	F E E4

Example order

Model	H* (mm)	-	B* (cm)	Surf./mat.
WPLS	**100**	**-**	**20**	**E**

H*: Side rail height | B*: Width | r: Radius
Surf./mat.: Surface/materials



WPLA 100/120/150

Wide-span cable ladder branch
T-branch, for a horizontal change in direction

H*	B*	r	Surf./mat.
mm	mm	mm	
100	200, 300, 400, 500, 600	450	E E4
120	200, 300, 400, 500, 600	450	F
150	200, 300, 400, 500, 600	450	F E E4

Example order

Model	H* (mm)	-	B* (cm)	Surf./mat.
WPRA	**100**	**-**	**20**	**E**

H*: Side rail height | B*: Width | r: Radius
Surf./mat.: Surface/materials

WPLAA 100/120/150

Wide-span cable ladder attachment branch
Attachment branch, for a horizontal change in direction

H*	B*	r	Surf./mat.
mm	mm	mm	
100	200, 300, 400, 500, 600	450	E E4
120	200, 300, 400, 500, 600	450	F
150	200, 300, 400, 500, 600	450	F E E4

Example order

Model	H* (mm)	-	B* (cm)	Surf./mat.
WPLAA	**100**	**-**	**20**	**E**

H*: Side rail height | B*: Width | r: Radius
Surf./mat.: Surface/materials

WPLK 100/120/150

Wide-span cable ladder crossing
Crossing, for a horizontal change in direction

H*	B*	r	Surf./mat.
mm	mm	mm	
100	200, 300, 400, 500, 600	450	E E4
120	200, 300, 400, 500, 600	450	F
150	200, 300, 400, 500, 600	450	F E E4

Example order

Model	H* (mm)	-	B* (cm)	Surf./mat.
WPLK	**100**	**-**	**20**	**E**

H*: Side rail height | B*: Width | r: Radius
Surf./mat.: Surface/materials

*The stated values represent the usable width and height of the cable tray. The actual width and height may vary according to the specific product. Details can be found in the relevant data sheets on the website.

Formed parts come with integrated connectors, including fastening screws.
Formed parts must be supported on all sides.

Covers and accessories WPL 100, WPL 120, WPL 150

WPD
Wide-span cover

B*	L	Surf./mat.
mm	mm	
200	3,000	S F E E4
300	3,000	S F E E4
400	3,000	S F E E4
500	3,000	S F E E4
600	3,000	S F E E4

Example order

Model	B* (cm)	Surf./mat.
WPD	**20**	**F**

B*: Width | L: Length
Surf./mat.: Surface/materials

WPBD
Wide-span bend cover

B*	r	Surf./mat.
mm	mm	
200	450	S F E E4
300	450	S F E E4
400	450	S F E E4
500	450	S F E E4
600	450	S F E E4

Example order

Model	B* (cm)	Surf./mat.
WPBD	**20**	**F**

B*: Width | r: Radius
Surf./mat.: Surface/materials

WPSD
Wide-span inside riser cover

B*	L	Surf./mat.
mm	mm	
200	3,000	S F E E4
300	3,000	S F E E4
400	3,000	S F E E4
500	3,000	S F E E4
600	3,000	S F E E4

Example order

Model	B* (cm)	Surf./mat.
WPSD	**20**	**F**

B*: Width | L: Length
Surf./mat.: Surface/materials

WPFD
Wide-span outside riser cover

B*	r	Surf./mat.
mm	mm	
200	450	S F E E4
300	450	S F E E4
400	450	S F E E4
500	450	S F E E4
600	450	S F E E4

Example order

Model	B* (cm)	Surf./mat.
WPFD	**20**	**F**

B*: Width | r: Radius
Surf./mat.: Surface/materials

*The stated values represent the useable width of the cable tray.
The actual width may vary according to the specific product.
Details can be found in the relevant data sheets on the website.

Wide-span covers can be raised using cover elevators. Wide-span fitting covers are raised using elevated fitting cover hook clips. Elevation solutions are also available for the WPSD and WPFD products on request.

WPAD

Wide-span branch cover

B*	r	Surf./mat.
mm	mm	
200	450	S F E E4
300	450	S F E E4
400	450	S F E E4
500	450	S F E E4
600	450	S F E E4

Example order

Model	B* (cm)	Surf./mat.
WPAD	**20**	**F**

B*: Width | r: Radius
Surf./mat.: Surface/materials

WPKD

Wide-span crossing cover

B*	r	Surf./mat.
mm	mm	
200	450	S F E E4
300	450	S F E E4
400	450	S F E E4
500	450	S F E E4
600	450	S F E E4

Example order

Model	B* (cm)	Surf./mat.
WPKD	**20**	**F**

B*: Width | r: Radius
Surf./mat.: Surface/materials

Wide-span covers can be raised using cover elevators. Wide-span fitting covers are raised using elevated fitting cover hook clips.

*The stated values represent the useable width of the cable tray.
The actual width may vary according to the specific product.
Details can be found in the relevant data sheets on the website.

WPDUK
Cover clamp
F E E4

WPD-A
Cover elevator
S F E

WPFDK 100/120/150
Fitting cover hook clip
E E4

WPFDKA 100/120/150
Fitting cover hook clip, elevated
E

Example order for cover clamp

Model	Surf./mat.
WPDUK	**F**

Surf./mat.: Surface/materials

Covers without turning bolts must be secured to the cable trays using suitable accessories. If the covers are going to be used outdoors, additional safeguards must be installed to protect them against the effects of wind.

For information on the quantity of products required, please refer to the assembly instructions or our website.

Fastening screws included with delivery

Installation components WPL 100, WPL 120, WPL 150

WPLKAB
Wide-span cable ladder drop-out plate

B* mm	Surf./mat.
200	S F E
300	S F E
400	S F E
500	S F E
600	S F E

Example order

Model	B* (cm)	Surf./mat.
WPLKAB	**20**	**F**

B*: Width | Surf./mat.: Surface/materials

H
Cable clamp for fastening to profile rails
F E4

Fastening screws included with delivery

*The stated values represent the useable width of the cable tray.
The actual width may vary according to the specific product.
Details can be found in the relevant data sheets on the website.

EBW
Corner fixing
F

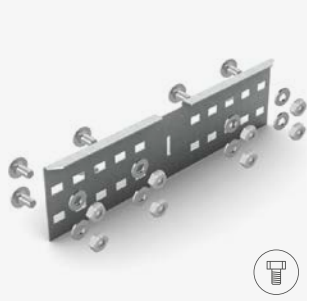
WPHS-K
Flange mounting clamp (brackets)
S F E

WPHS-A
Flange mounting clamp (C-profiles)
S F E

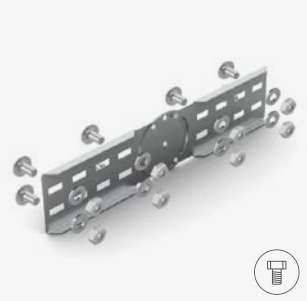
WPHS-P
Flange mounting clamp (profiles)
S F E

WPHS-IS
Isolation strip
EPDM

WPV 100/120/150
Wide-span connector
100 E
120 S F
150 S F E E4



WPVH 100/120/150
Wide-span connector, horizontal
100 E
120 S F
150 S F E E4



WPVV 100/120/150
Wide-span connector, vertical
100 E
120 S F
150 S F E E4

WPTR 100/120/150
Wide-span separating strip
100 E
120 S F
150 S F E E4

SWP 100/120/150
Protection end cap
PE

KZF
Cold zinc paint
750 ml

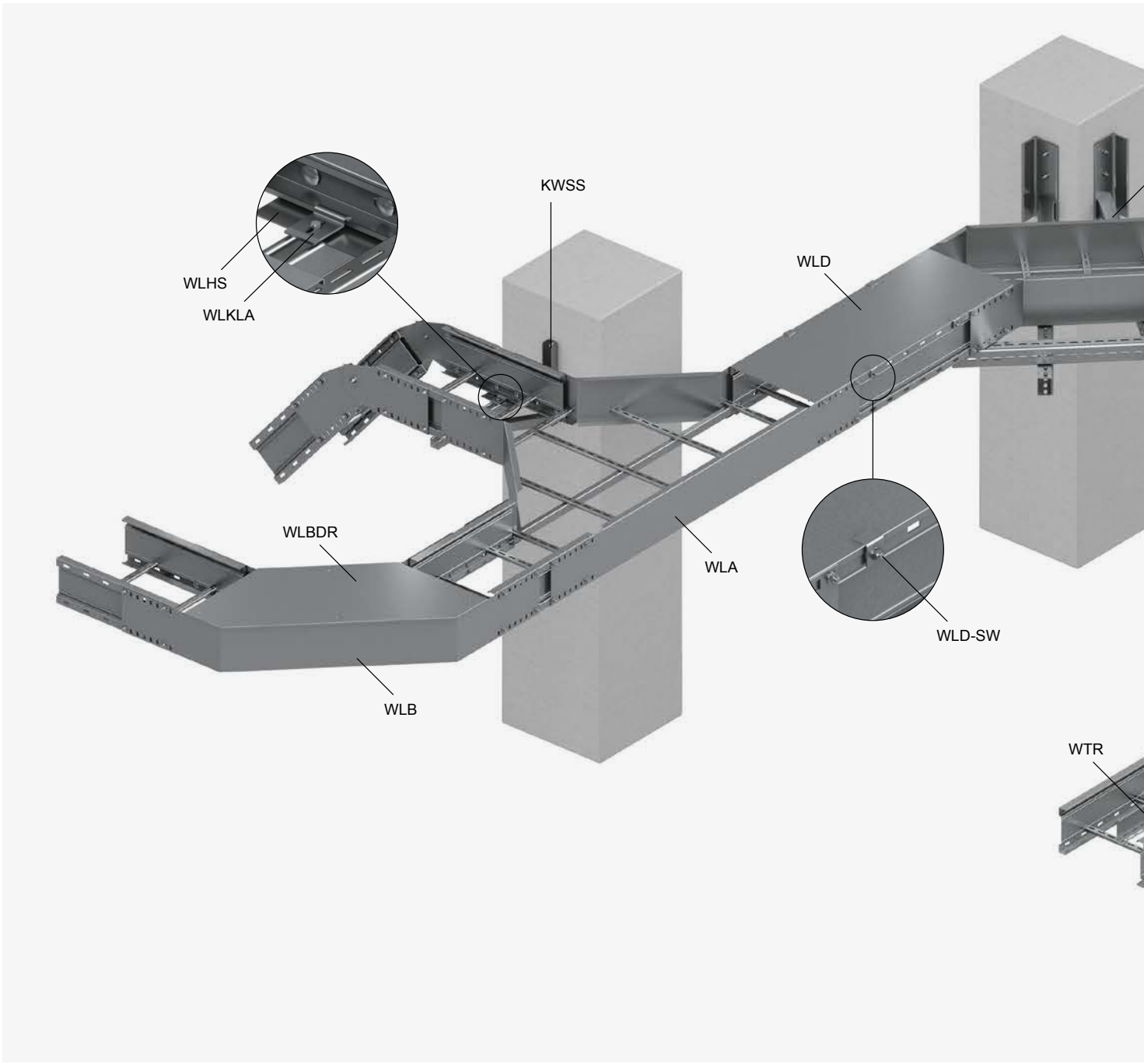
KZS
Cold zinc spray
400 ml

Fastening screws included with delivery

Example order
Wide-span connector

Model	H (mm)	Surf./mat.
WPV	**120**	**F**

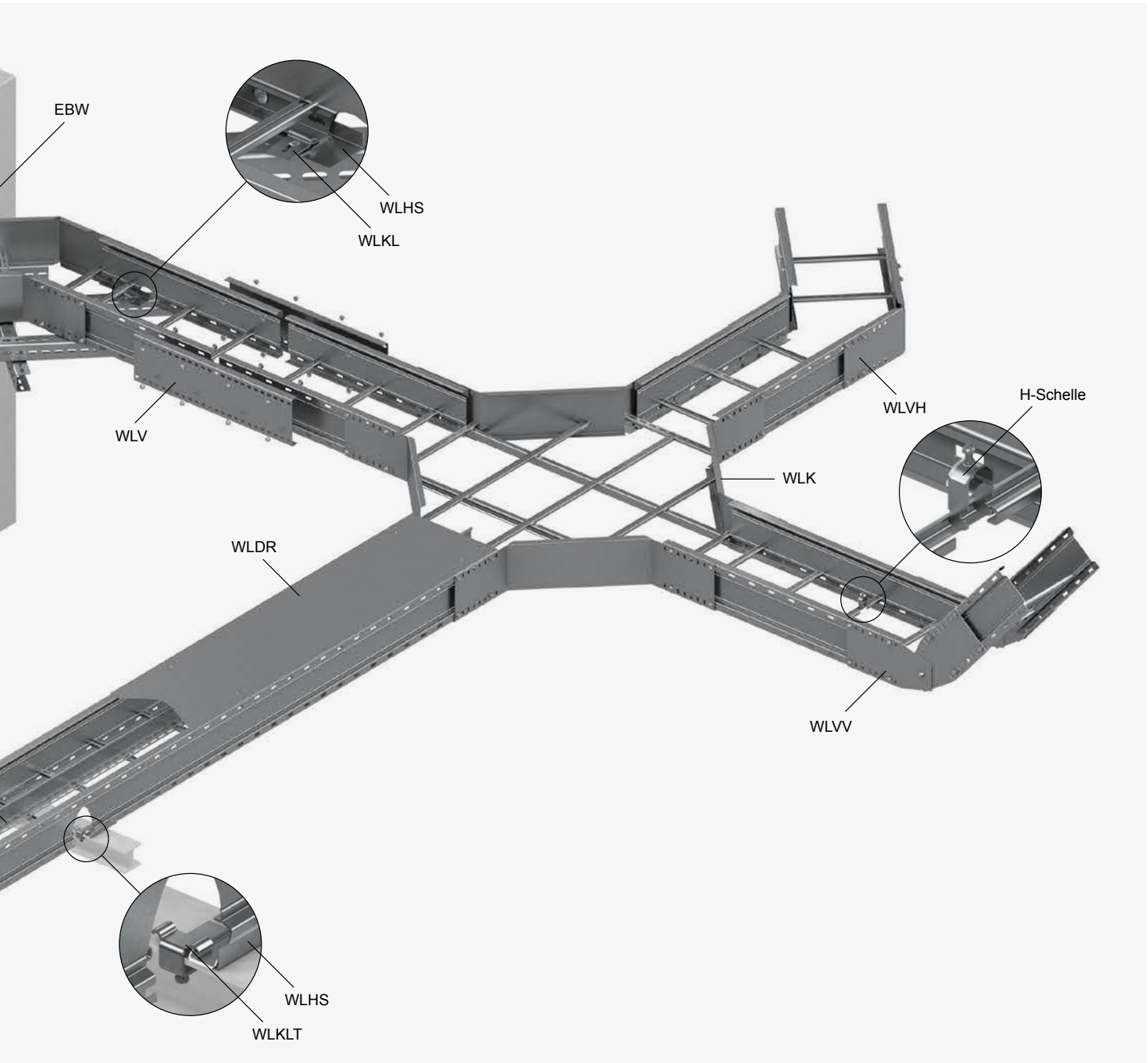
H: Height | Surf./mat.: Surface/materials
EPDM: Ethylene propylene rubber
PE: Polyethylene


KWSS
WLHS
WLKLA
WLD
WLBDR
WLA
WLD-SW
WLB
WTR

System overview

WL 200

Wide-span cable ladders with side rail heights of 200 mm allow cables to be routed safely and securely even when large support distances are involved. What's more, the open rung design reduces the risk of heat build-up. When combined with the appropriate support systems, formed parts, covers and suitable accessories, they form a complete cable management system with a high level of flexibility. The wide-span connectors make our wide-span cable ladders quick and easy to assemble. Horizontal and vertical changes of direction can be configured just as easily thanks to the corner elements, wide-span bends, wide-span inside risers and wide-span outside risers. Matching covers can be purchased for extra protection against contact, dirt, moisture and UV radiation.



WL 200

Wide-span cable ladder

Product features

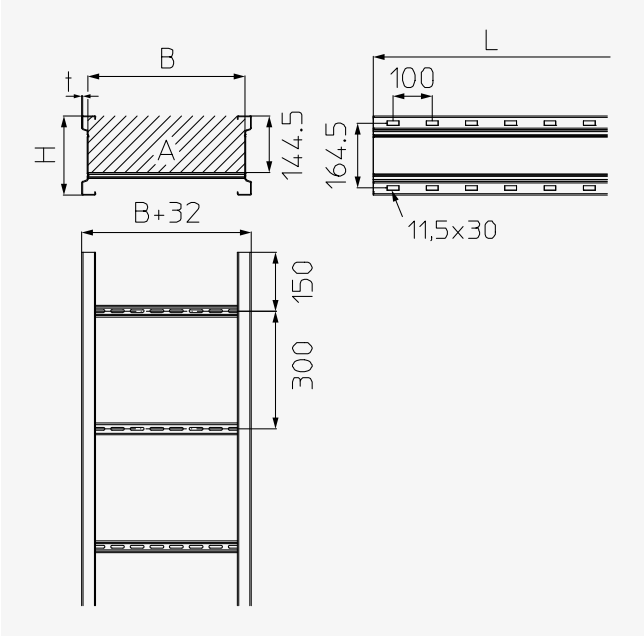
- Side rail height: 200 mm
- Available tray widths: 200 to 600 mm
- Length: 6,000 mm
- Cross-sectional areas of 285 to 863 cm²

Available surface coatings and materials

S Sendzimir hot-dip galvanised in accordance with DIN EN 10346

F Hot-dip galvanised in accordance with DIN EN ISO 1461

Technical data



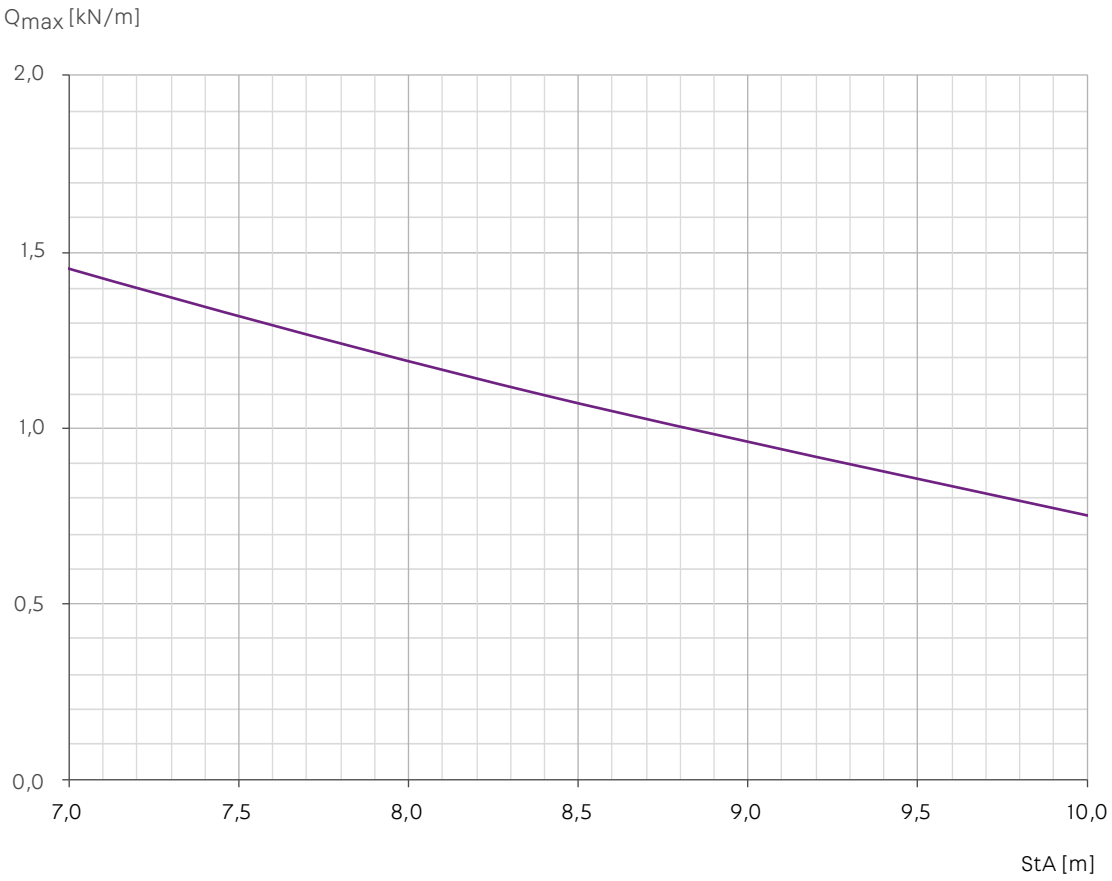
Model	H mm	B mm	L mm	t mm	A cm²	Q_{LK} kN/m	G S kg	G F kg
WL 200-20	202	200	6,000	2.00	285	0.80	56.48	60.44
WL 200-30	202	300	6,000	2.00	430	1.20	58.24	62.32
WL 200-40	202	400	6,000	2.00	574	1.61	60.00	64.20
WL 200-50	202	500	6,000	2.00	719	2.01	61.77	66.09
WL 200-60	202	600	6,000	2.00	863	2.42	63.53	67.97

H: Side rail height | B: Width | L: Length | t: Material thickness | A: Cross-sectional area | Q_{LK}: Power cable distributed load | G: Weight (per surface)

Example order

Model	Surf./mat.
WL 200-20	**S**

Load diagram
WL 200 S F



Tray width: 200 to 600 mm

Q_{max}: Max. distributed load

StA: Support distance

The maximum filling capacity of wide-span cable ladders may exceed their load-bearing capacity. You must build in sufficient reserves and, where applicable, plan using a multi-layered approach.

Formed parts WL 200

WLB 200

Wide-span cable ladder bend
90-degree bend, for a horizontal change in direction

H*	B*	L	Surf./mat.
mm	mm	mm	
200	200	952	F
200	300	1052	F
200	400	1152	F
200	500	1252	F
200	600	1352	F

Example order

Model	H* (mm)	-	B* (cm)	Surf./mat.
WLB	**200**	**-**	**20**	**F**

H*: Side rail height | B*: Width | L: Length
Surf./mat.: Surface/materials

WLA 200

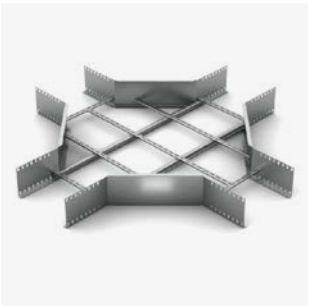
Wide-span cable ladder branch
T-branch, for a horizontal change in direction

H*	B*	L	Surf./mat.
mm	mm	mm	
200	200	1667	F
200	300	1767	F
200	400	1867	F
200	500	1967	F
200	600	2067	F

Example order

Model	H* (mm)	-	B* (cm)	Surf./mat.
WLA	**200**	**-**	**20**	**F**

H*: Side rail height | B*: Width | L: Length
Surf./mat.: Surface/materials



WLK 200

Wide-span cable ladder crossing
Crossing, for a horizontal change in direction

H*	B*	L	Surf./mat.
mm	mm	mm	
200	200	1667	F
200	300	1767	F
200	400	1867	F
200	500	1967	F
200	600	2067	F

Example order

Model	H* (mm)	-	B* (cm)	Surf./mat.
WLK	**200**	**-**	**20**	**F**

H*: Side rail height | B*: Width | L: Length
Surf./mat.: Surface/materials

*The stated values represent the usable width and height of the cable tray. The actual width and height may vary according to the specific product. Details can be found in the relevant data sheets on the website.

Formed parts come with integrated connectors, including fastening screws.
Formed parts must be supported on all sides.

Covers and accessories WL 200

WLD

Wide-span cable ladder cover

B*	L	Surf./mat.
mm	mm	
200	3,000	S F
300	3,000	S F
400	3,000	S F
500	3,000	S F
600	3,000	S F

Example order

Model	B* (cm)	Surf./mat.
WLD	**20**	**F**

B*: Width | L: Length
Surf./mat.: Surface/materials

WLDR

Wide-span cable ladder cover with turning bolts

B*	L	Surf./mat.
mm	mm	
200	3,000	S F
300	3,000	S F
400	3,000	S F
500	3,000	S F
600	3,000	S F

Example order

Model	B* (cm)	Surf./mat.
WLDR	**20**	**F**

B*: Width | L: Length
Surf./mat.: Surface/materials

WLBD

Wide-span cable ladder bend cover

B*	L	Surf./mat.
mm	mm	
200	641	S F
300	741	S F
400	841	S F
500	941	S F
600	1041	S F

Example order

Model	B* (cm)	Surf./mat.
WLBD	**20**	**F**

B*: Width | L: Length
Surf./mat.: Surface/materials

WLBDR

Wide-span cable ladder bend cover with turning bolts

B*	L	Surf./mat.
mm	mm	
200	641	S F
300	741	S F
400	841	S F
500	941	S F
600	1041	S F

Example order

Model	B* (cm)	Surf./mat.
WLBDR	**20**	**F**

B*: Width | L: Length
Surf./mat.: Surface/materials

*The stated values represent the useable width of the cable tray.
The actual width may vary according to the specific product.
Details can be found in the relevant data sheets on the website.

WLAD

Wide-span cable ladder branch cover

B*	L	Surf./mat.
mm	mm	
200	1042	S F
300	1142	S F
400	1242	S F
500	1342	S F
600	1442	S F

Example order

Model	B* (cm)	Surf./mat.
WLAD	**20**	**F**

B*: Width | L: Length
Surf./mat.: Surface/materials

WLADR

Wide-span cable ladder branch cover with turning bolts

B*	L	Surf./mat.
mm	mm	
200	1042	S F
300	1142	S F
400	1242	S F
500	1342	S F
600	1442	S F

Example order

Model	B* (cm)	Surf./mat.
WLADR	**20**	**F**

B*: Width | L: Length
Surf./mat.: Surface/materials

WLKD

Wide-span cable ladder crossing cover

B*	L	Surf./mat.
mm	mm	
200	1042	S F
300	1142	S F
400	1242	S F
500	1342	S F
600	1442	S F

Example order

Model	B* (cm)	Surf./mat.
WLKD	**20**	**F**

B*: Width | L: Length
Surf./mat.: Surface/materials

WLKDR

Wide-span cable ladder crossing cover with turning bolts

B*	L	Surf./mat.
mm	mm	
200	1042	S F
300	1142	S F
400	1242	S F
500	1342	S F
600	1442	S F

Example order

Model	B* (cm)	Surf./mat.
WLKDR	**20**	**F**

B*: Width | L: Length
Surf./mat.: Surface/materials

*The stated values represent the useable width of the cable tray.
The actual width may vary according to the specific product.
Details can be found in the relevant data sheets on the website.

WLD-SW
Storm protection angle for wide-span cable ladder cover
F

Example order

Model	Surf./mat.
WLD-SW	**F**

Surf./mat.: Surface/materials

Covers without turning bolts must be secured to the cable trays using suitable accessories. If the covers are going to be used outdoors, additional safeguards must be installed to protect them against the effects of wind. As a retaining element, turning bolts are not sufficient on their own for this scenario.

Fastening screws included with delivery

Installation components WL 200

H
Cable clamp for fastening to profile rails
F E4

EBW
Corner fixing
F

WLHS
Wide-span cable ladder rail support
S F

WLKL
Clamping assembly for wide-span cable ladder
S F

WLKLA
Clamping assembly for wide-span cable ladder
S F

WLKLT
Clamp for wide-span cable ladder
F

WLV 200
Wide-span connector
S F

WLVH 200
Wide-span connector, horizontal
S F

WLVV 200
Wide-span connector, vertical
S F

WTR 200
Wide-span separating strip
S F

KZF
Cold zinc paint
750 ml

KZS
Cold zinc spray
400 ml

Example order for wide-span connector

Model	Surf./mat.
WLV 200	**F**

Fastening screws included with delivery

Planning advices

Standards and certificates

Standards

Test standard DIN EN 61537 provides the technical basis for cable management systems.
This standard determines which test procedure is to be followed when testing the mechanical properties of the cable management elements. PohlCon constantly carries out extensive tests to ensure that the cable management systems it produces remain functional and fit for use at all times.

Certificates

As a manufacturer of cable management systems and associated components, PohlCon attaches great importance to product quality. Throughout the entire value chain, high standards of quality apply across all departments with a view to developing the best possible system for a range of complex application areas. In order for this quality standard to be achieved and monitored long term, PUK cable management systems are externally monitored and subject to in-house inspections.

On our own test benches, we test our cable management systems according to the strict specifications of DIN EN 61537, especially with regard to load-bearing capacity and functionality. This is supplemented by our quality management system, which has been established in the company since 1995.

Our quality management system is also capable of accommodating higher requirements, such as those in the petrochemical industry, and it is backed up by the SCCP certificate.

Corrosion protection

Basic information

Corrosion is the reaction of a metallic material with its environment. This leads to a change in the material and impairs the ability of a metallic component – or an entire system – to function. Corrosive media can take the form of room air, contamination in the air, water, a marine atmosphere or other chemicals. Interactions between these corrosive media cause a corrosive layer to form, leading to metal attack.

If corrosion damage does occur, very high costs can sometimes be incurred. To avoid corrosion damage, we recommend selecting a suitable material and an appropriate surface coating. The environmental conditions of the products should therefore always be taken into account during planning in addition to their intended use to ensure that the relevant corrosion protection classes are adhered to.

Table 1: Atmospheric corrosivity categories and examples of typical environments

Corrosivity category	Mass loss/thickness loss per unit surface area (after first year of exposure)				Examples of typical environments (for information purposes only)	
	Unalloyed steel		Zinc		Exterior	Interior
	Mass loss g/m²	Thickn. loss µm	Mass loss g/m²	Thickn. loss µm		
C1 Negligible	≤ 10	≤ 1.3	≤ 0.7	≤ 0.1	-	Heated buildings with neutral atmospheres, e.g. offices, shops, schools, hotels
C2 Low	> 10 to 200	> 1.3 to 25	> 0.7 to 5	> 0.1 to 0.7	Atmospheres with low level of pollution. Mostly rural areas	Unheated buildings where condensation may occur, e.g. warehouses, sports halls
C3 Medium	> 200 to 400	> 25 to 50	> 5 to 15	> 0.7 to 2.1	Urban and industrial atmospheres with moderate sulphur dioxide pollution; coastal atmospheres with low salinity	Production areas with high humidity and some air pollution, e.g. food processing plants, laundries, breweries, dairies
C4 High	> 400 to 650	> 50 to 80	> 15 to 30	> 2.1 to 4.2	Industrial atmospheres and coastal atmospheres with moderate salinity	Chemical plants, swimming pools, coastal shipyards and boat harbours
C5 Very high	> 650 to 1,500	> 80 to 200	> 30 to 60	> 4.2 to 8.4	Industrial areas with high humidity and aggressive atmospheres, and coastal atmospheres with high salinity	Buildings or areas with almost permanent condensation and with high pollution
CX Extreme	> 1,500 to 5,500	> 200 to 700	> 60 to 180	> 8.4 to 25	Offshore areas with high salinity and industrial areas with extreme humidity and aggressive atmosphere, and subtropical and tropical atmospheres	Industrial areas with extreme humidity and aggressive atmosphere

Source: DIN EN ISO 12944-2:2018-04
Note: The loss values for the corrosivity categories are identical to the values in ISO 9223.
Conversion: 10 N corresponds to approx. 1 kg.

Surface coatings and materials

Several measures can be taken to protect components against the corrosive conditions prevailing at the place of use. When deciding on a particular cable management system, care must therefore be taken to select suitable materials and a design that ensures proper corrosion protection while also paying careful attention to the protective layers and metallic coatings.

For installations in normal environments, zinc coatings have proven themselves to be an effective corrosion inhibitor for steel. However, the protective zinc layer gets worn away by various climatic influences over time.
Calculating the thickness of the zinc layer required for different environmental conditions is a question of multiplying the erosion rate by the planned service life of the system.

DIN EN ISO 12944-2:2018-04 (Table 1) provides an overview of how the corrosion categories are assigned while taking account of the environment and the associated annual thickness loss of the zinc layer.

PohlCon offers several coating systems that differ from one another in terms of layer thickness, adhesion and appearance. In addition, most of our cable management systems can be supplied as stainless steel versions.

Alternatively, the PUK brand XC Duplex Coating System can be used for highly corrosive environments (corrosion category C5). The XC coating has been successfully tested in accordance with the DIN EN ISO 12944-6 standard and offers great flexibility with regard to use. With its specially developed formula, it provides a smooth, bubble-free and even coating surface.

Zinc electroplating (DIN EN ISO 4042)

The components to be coated are placed in an electrolytic bath, where zinc ions are deposited very evenly on the material being galvanised. This results in the formation of a bright and shiny zinc layer with a thickness of approximately 5 µm. To protect this layer against abrasion, it subsequently undergoes bichromate coating process. Within our product range, the relevant bolting fasteners/bolts and nuts are identified by the code GV. These are used to connect components galvanised using the sendzimir process.

Hot galvanisation according to the Sendzimir process (DIN EN 10346, DIN EN 10244-2)

In the rolling mill itself, a wide strip (sheet thickness ≤ 2.0 mm) is coated with zinc continuously as it passes through. This results in an even and strongly adhering zinc layer with an average thickness of 19 µm. Damage to the zinc layer by cutting, piercing/perforation, drilling, etc. does not lead to any progression of the corrosion because the adjacent zinc forms into solution due to the effect of (air) humidity, causing a brownish layer of protective zinc hydroxide to form on the bare cut surfaces. The “migration” of zinc ions protects exposed surfaces up to a width of approximately 2.0 mm.
Steel wire and wire products are galvanised in accordance with DIN EN 10244-2.
Products with this type of coating are identified by the code S.

Batch galvanisation (DIN EN ISO 1461)

Hot-dip galvanisaton (DIN EN ISO 1461)
Once they have been worked, the parts that are to be coated are immersed in molten zinc (approx. 450°C). Chemical reactions create various zinc-iron alloys that have a particularly strong bond with the steel core. These alloys are usually coated with a “pure zinc” layer. However, depending on the reaction rate, composition of the steel, immersion time, cooling process, etc., the zinc-iron alloys can run right through to the surface level due to a sort of “marbling” effect. For this reason, the surface appearance can vary from bright and shiny through to matt dark grey, although nothing can be inferred about the thickness of the zinc layer or the quality of corrosion protection from this. In addition, humid environments lead to the formation of zinc hydroxide carbonate (known as white rust), particularly on new zinc surfaces. This has absolutely no impact on the corrosion protection properties. Cut surfaces have to be protected with cold zinc paint.

According to DIN EN ISO 1461, the average layer thickness is

at least the following for steel and non-centrifuged parts:
- 45 µm for material thicknesses <1.5 mm
- 55 µm for material thicknesses ≥ 1.5 mm and ≤ 3 mm
- 70 µm for material thicknesses > 3 mm and ≤ 6 mm

at least the following for centrifuged parts (incl. castings):
- 45 µm for material thicknesses <3 mm
- 55 µm for material thicknesses ≥ 3 mm

DIN EN ISO 1461 essentially corresponds to BS EN ISO 1461 in the UK, to EN ISO 1461 in France and to NEN EN 1461 in the USA. All cable tray types and all medium to heavy-duty support systems are available in a hot-dip galvanised version. Products with this type of coating are identified by the code F.

Stainless steel

In view of its high corrosion resistance, ease of surface cleaning, recyclability and reaction to fire, stainless steel is increasingly becoming the material of choice. Its use is predominantly on the rise in the chemicals, paper, textile and food industries, as well as in wastewater treatment plants, refineries, vehicle tunnels and offshore plants. Compared to various types of plastic, the advantages of stainless steel are its high strength, temperature and fire resistance, and the fact that it does not produce any emissions in the event of fire or during machining.

PohlCon offers two stainless steel versions of its cable management systems as standard.

The most commonly used type is material no. 1.4301 (V2A), which has the short designation X5CrNi 18-10 according to EN 10088-2. It is approved by the Deutsches Institut für Bautechnik (DIBt) in Berlin under general technical approval Z-30.3-6. The following standards are related:
- EN 10088-2 1.4301 X5CrNi 18-10
- AISI 304
- UNS S 30400
- BS 304 S31
- AFNOR Z7CN 18-09
- DIN 17441

PohlCon offers a complete range of stainless steel products: bracket supports, brackets, cable trays, cable ladders, vertical ladders, profile rails and cable clamps. The bolting fasteners/bolts and nuts correspond to steel group A2 (according to DIN ISO 3506). The products made from this material are identified by the code E.

On request, products from the stainless steel range are also available in versions made from the material with no. 1.4571/1.4404 (V4A), which has the short designation X6CrNiMoTi17-12-2 according to EN 10088-2. This is likewise approved by the Deutsche Institut für Bautechnik (DIBt) in Berlin. The bolting fasteners/bolts and nuts meet the requirements of steel group A4 (according to DIN ISO 3506). This material is referred to in the following standards:
- EN 10088-3 1.4404 X2CrNiMo 17-12-2
- AISI 316 L
- UN S 31603
- BS 316 S 11
- AFNOR Z3CND17-11-02/Z3CND 17-12-02
- DIN 17440 1.4404

1.4571 is available as an alternative to this material. This type of steel is identified by the code E4.

Other materials with the same corrosion class can be supplied on request. To cater for special applications (lighting and cable support systems in road tunnels according to ZTV-ING), the high-alloy stainless steel with material no. 1.4529 is available for the relevant product versions.

XC coating for highly corrosive environments

The XC Duplex Coating System enables reliable protection in highly corrosive environments. With its XC system – which has been successfully tested for corrosion category C5-M – PohlCon offers the longest lasting corrosion protection (up to 25 years) for cable management systems available on the market.

XC consists of a zinc layer and a single-layer powder coating, which together adhere extremely well to the component. With powder coating thicknesses starting from 150 µm and zinc layer thicknesses from 55 µm, XC can be used to achieve an exceptionally smooth and even surface that is free of bubbles. In the event that it should become damaged, the XC coating can be touched up in the case of (more extensive) damage.

We recommend the use of XC coatings in offshore areas with high salinity, in industrial zones with extreme air humidity and in aggressive, subtropical and tropical atmospheres.

Calculations for selecting the right system

Cable selection
To be selected on the basis of:

1. The quantity or volume of cables that a cable tray is intended to hold **(capacity or size of cable tray)**
2. The weight of the cables that a cable tray is intended to hold **(type of cable tray)**
3. The distance between the cable tray support points **(load-bearing capacity of cable tray)**

Capacity/useful cross section
If the cable volume (types, sizes and number of cables) is unknown, you can estimate it using Table 2 "Space requirements and weight of NYY-type cables".

For each size of cable, the amount of space required must be multiplied by the number of cables of that size. These values must then be added together to give the grand total. This results in the minimum cross-sectional area (A) of the cable tray you are looking for. Where necessary, we recommend working with a reserve factor. Regardless of this, the stipulations of VDE 0100 on the occupancy of cable trays must always be observed.

The usable cross-sectional area (A) of each cable tray is specified in the product tables. Depending on the application, several cable trays may be laid parallel to one another.

Cable weight
The exact details provided by the cable manufacturer can usually be used for this purpose. Relevant lists or tables can generally be requested directly from the manufacturer so that the cable weights can be calculated as accurately as possible.

If the total weight of the cables is unknown, you can estimate it using Table 2 "Space requirements and weight of NYY-type cables".

For each cable size, the cable weight must be multiplied by the number of cables. These values must then be added together to give the grand total. This results in the estimated cable load (Q).

Load-bearing capacity/support distance
All stated load-bearing capacities relate to the product concerned.

The load-bearing capacity of the installed system depends on how the system is filled/loaded and, in particular, how the load is applied to the supporting structure.

However, from a safety perspective, the maximum possible cable load is crucial. DIN VDE 0639-1 is a good source of reference if you require further design and calculation criteria. The result of the distributed load for the respective cable type (control cable Q_{SK} or power cable Q_{LK}) is specified for each cable tray in the tables.

Support distance
The recommended standard support spacing is 1.5 m. However, a greater spacing may actually be possible depending on the specified fastening options (pillars, purlins, etc.). The load diagrams must be used to determine the maximum load (Q_{max}) that the cable tray can support with the given support spacing.

Table 2: Space requirements and weight of NYY-type cables

NYY cable	Diameter mm	Space required per cable cm² (approx.)	Cable weight N/m (approx.)	Number of cables
4 x 1.5	12.5	1.5	2.3	n
4 x 2.5	14.0	1.8	3.0	n
4 x 6	16.5	3.0	5.2	n
4 x 16	22.0	5.0	11.0	n
4 x 35	31.0	12.0	22.0	n
4 x 70	41.0	16.0	41.0	n

Conversion: 10 N corresponds to approx. 1 kg.

Example

Determining the maximum load capacity using the example of the WPR 150

Diagrams are available from the planning section of the catalogue.

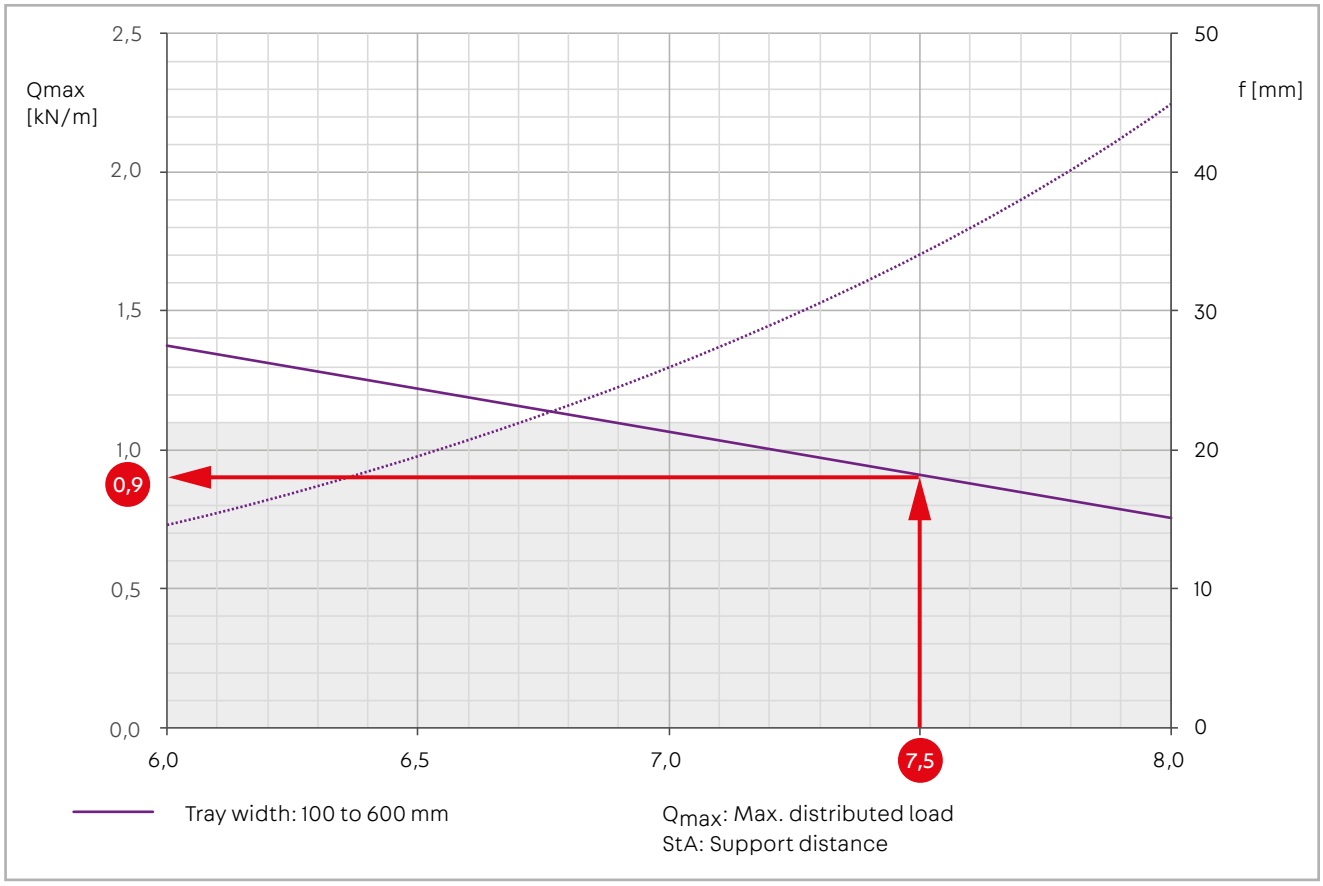


Figure 1: Load diagram WPR 150 with drawn support spacing of 7.5 m

Model	B mm	A cm²	Q_{SK} kN/m
WPR 150-60	**600**	768	1,15

Data of the WPR 150-60 from the product table of the WPR 150

From the load diagram results at StA = 7.5 m:

Q_{max} = 0,8 kN/m

From this follows: Maximum filling volume Q_{SK} exceeds maximum load capacity Q_{max}.

Wide span cable tray WPR 150-60 is to be marked with Q_{max} = 0.8 kN/m.

Conversion: 10 N correspond to approx. 1 kg.

Note
The grey area indicates the maximum filling volume for a wide span cable tray with 600 mm width.

Attention
The filling volume must be checked in relation to the maximum load capacity.

Caution
The filling volume may exceed the maximum load capacity.

Alternative cable tray types

A higher load with the same support distance

As an alternative, other cable management systems can be used for a defined support spacing. This technique enables the use of alternative systems that are capable of transmitting higher loads because of their rigidity.

The load-bearing capacities must be observed for the cable management systems selected, along with the permissible support spacings!

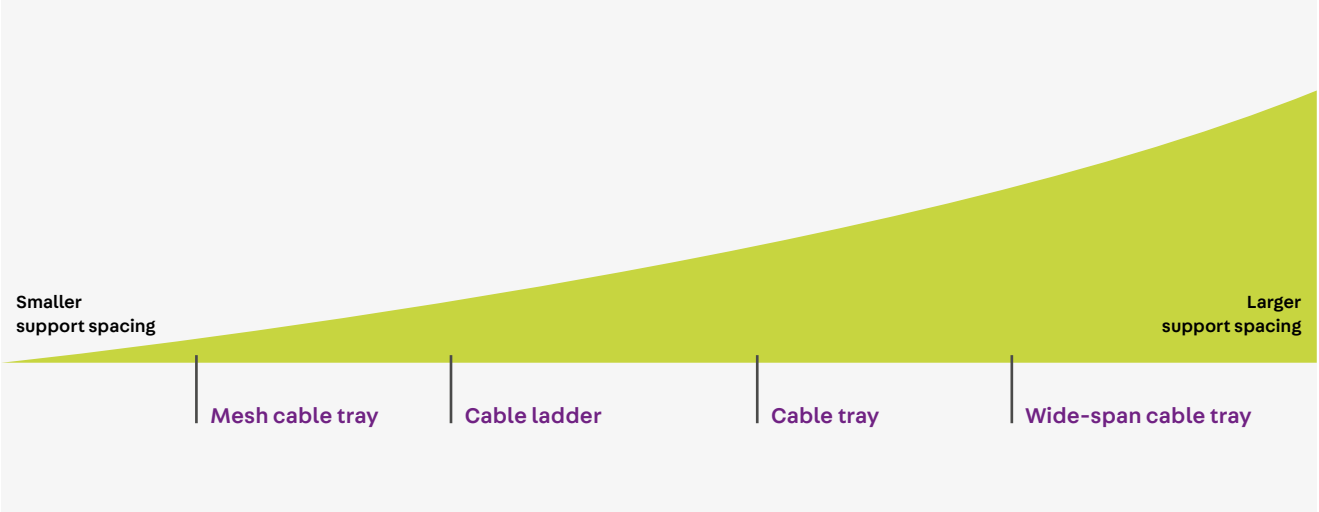


Figure 3: Alternative cable management systems according to permissible support spacings

Selecting the right support system

When routing cable trays on ceilings, the support systems usually consist of a stem supports and ceiling supports. When attaching cable trays to walls, wall brackets, profile rails and stem supports are used. To enable the selection of systems with sufficient load-bearing capacity, the first step is to calculate the load of each cable tray at the support point.

The load diagrams already have a safety concept built in. This is because the load-bearing capacities – which have been determined in accordance with test standard DIN 61537 – have appropriate safety factors applied to them. If the load levels or support distances are not sufficient for proper dimensioning of the cable management systems, the next version up (i.e. one with higher load levels) must be selected or the support distances must be reduced.

Useful information

Application of loads to the building structure

All stated load-bearing capacities relate to the product concerned. The load-bearing capacity of the installed system depends on the dimensions and materials used in each case and, in particular, on how the load is applied to the building structure. Substantial additional loads can occur when installing cables. Care must be taken to prevent these additional loads from being permanently applied to the cable management system.

Substrate

The condition and properties of the substrate and the type of wall or ceiling have a major impact on the fastening of support systems. To enable a better assessment of concealed, plastered or painted substrates, it is helpful to carry out sample drilling.

This will enable you to attach the cable trays to any of the following using the appropriate support systems: timber, mortar, sandstone, limestone, concrete, solid brick, perforated brick, aerated concrete, wallboard, gypsum board, gypsum fibreboard and insulating board. Within this context, special attention must be paid to the dowels because they transmit the loads further into the substrate.

Permissible dowel load F_{zul}

The dowel load is a superposition of vectors that represent various force components acting on the fastening point (e.g. shear force and vertical pull-out force). This must be less than or equal to the permissible dowel load specified in the approval. This generally applies to all diagonal pull directions. The permissible dowel load depends on the anchorage (concrete grade, type of masonry brick, etc.) and stress exerted on it:

- Cracked concrete tensile zone
- Verified concrete compression zone (e.g. concrete wall, concrete supports, upper half of concrete girder).

In cases of doubt, advice must be sought from the responsible structural engineer.

Reduction

The permissible dowel load F_{zul} must be reduced if:

- Several dowels are closer to each other than dimension a of the centre-to-centre distance.
- The distance between the dowel and an edge/corner of the building structure is less than edge distance dimension ar.

Whenever you are planning cable management systems, it is important to remember that the filling capacity of cable trays may exceed their load-bearing capacity. You must allow sufficient reserves and, where applicable, plan using a multi-layered approach.

For detailed information, use the online expert chat service at www.pohlcon.com (only available in German) or speak to a PohlCon consulting engineer.

Testing according to DIN EN 61537

Cable management systems

Among other things, DIN EN 61537 determines which test procedure is to be followed when testing the mechanical properties of the cable management elements.

The following undergo testing:

1. Cable trays including connectors with an appropriate design

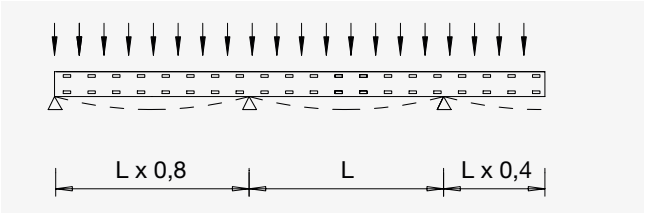


Figure 4: Load diagram for the testing of a cable tray
Q: Distributed load | L: Support distance

2. Brackets as an individual component, i.e. without the reinforcing effect provided by assembled cable trays. The stated load-bearing capacities are based on the loads measured with a level of deformation that is still permissible (f_{perm}) for the cable management elements in the respective standard version (e.g. Sendzimir/hot-dip galvanised).

Cable trays

The cable trays undergo testing on a specially developed test stand. This ensures even surface loading of the components that bend elastically under load.

f_{perm} (in longitudinal direction) = 0.01 x support distance StA

f_{perm} (in transverse direction) = 0.05 x cable tray width B

Arms/brackets

Under a vertical load, the tips of the arms are allowed to drop by:

f_{perm} = 0.05 x arm length (≤ 30 mm)

Safety

A safety factor of 1.7 must be incorporated into the tested structures, as per the safety concept required under the test standard. The failure scenario possible as a result is not tantamount to the respective structure breaking. Rather, it involves the structure becoming so heavily deformed that no further increase in load can be registered. For this reason, the elastic-plastic deformability of metal cable management systems makes them preferable to brittle plastic systems that break easily.

Whenever you are planning cable management systems, it is important to consider that the filling capacity of cable trays may exceed their load-bearing capacity. Therefore, you must factor in sufficient reserves and, where applicable, plan using a multi-layered approach.

Equipotential bonding

Equipotential bonding is implemented between electrically conductive components with different levels of electrical potential. The primary purpose of this is to provide protection against electric shock but, at the same time, it protects the electrical equipment in the event of excess voltage. Over time, the effect of equipotential bonding has become ever more important in relation to electromagnetic compatibility (EMC). When electricity flows through conductors, it generates magnetic fields. Due to the large number of wiring systems installed in buildings, these can then have a negative effect on electromagnetic compatibility. Low potential differences are extremely important for ensuring that an electrical installation is electromagnetically compatible.

In the case of PUK cable management systems that are assembled using bolted connections, the equipotential bonding has been verified in accordance with DIN EN 61537. In all other cases, the equipotential bonding must be ensured by further mechanical means.

Our synergy concept for your benefit

With us, you can take advantage of the collective experience of three established manufacturers that combine products and expertise in one comprehensive offer. That is the PohlCon synergy concept.

Full service consulting

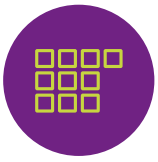
Our extensive network of consultants is available to answer all of your questions about our products on site. From planning to deployments, enjoy personal support from our qualified professionals.

Digital solutions

Our digital offerings offer targeted support in planning with our products. From tender texts through CAD details and BIM data to modern software solutions, we offer you tailored support for your planning.

7 areas of application

We think in holistic solutions, which is why we have grouped our products into seven areas of application for you where you can benefit from the synergy of the PohlCon product portfolio.



10 product categories

To help you find the right product in our extensive range even faster, the products are grouped into ten product categories so you can navigate clearly between our products.

Individual special solutions

There's no mass produced-product on the market that is suitable for your project? We master extraordinary challenges with the many years of expertise of our three manufacturing brands in the sector of individual solutions, allowing us to realize your unique construction projects together.

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