

Catalog | May 2015

Cable Accessories

$\leq 1 \text{ kV}$

Table of content

<u>Cable Accessories</u>	1
<u>Cable Accessories ≤ 1 kV – Product range</u>	2
<u>Universal cleats</u>	3
<u>List of content</u>	4
<u>Notes</u>	5





Cable Accessories factory and Technical Lead Center situated in Alingsås, Sweden.

We work to create safe electrical distribution via power cable networks. To achieve this, we develop, manufacture and market a broad range of cable accessories, for distribution and transmission.

Our main customers are utilities, EPC and OEM. Our core competencies are electrical connections in cable systems and manage electric field grading systems. Our own test laboratories are essential for our product development and quality assurance.

Catalog

This catalog covers cable accessories in the range ≤ 1.2 kV.

List of content sorted by name or product category can be found in the end of this catalog. The product catalog can also be downloaded from our website.

Other product catalogs available on request:

- Cable Accessories 7.2–42 kV, XLPE cables
- Cable Accessories 12–52 kV, PILC cables
- Cable Accessories 52–420 kV, XLPE cables

We reserve the right to alter the design and range of our products without prior notice.

Our business idea

“We provide companies that work with electric power with solutions which enable them to joint and connect cables easily and safely, and distribute electricity“.

Satisfying customer needs, Quality and Environment are our priorities.

We work continuously to improve our processes. Important foundations for this work are our quality and environment management systems.

- ISO 9001
- ISO 14001
- OHSAS 18001

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Our five core competencies

1

1. Understanding the total cost and value for cable accessories as elements in systems

We as supplier of components that are pieces in a puzzle, the cable system and the related interfaces, need to understand the demand and requirements on the single component in order to optimize the value and performance. The value offer for components is in relationship with the system, we also add value in later stages in this value chain. By knowing the actual expectations and trends we are able to meet the demand in the long term. Our expertise and extensive global footprint ensure we understand the product requirements and future trends.

2. Manufacturing and quality assurance of insulation system based on rubber

With modern manufacturing technology and quality management processes we can keep up the productivity and thereby offer competitive products. We have material expertise as well as test facilities for rubber material development and improvements, by both know-how and know-why we are able deliver insulation systems in the complete range of cable accessories.

3. Workmanship in installation of cable accessories

Joints and terminations are regarded as critical components in cable systems, and the workmanship during installation is very important when considering the risk of future failures. When preparing cable several layers need to be removed or treated without damaging other layers, this requires

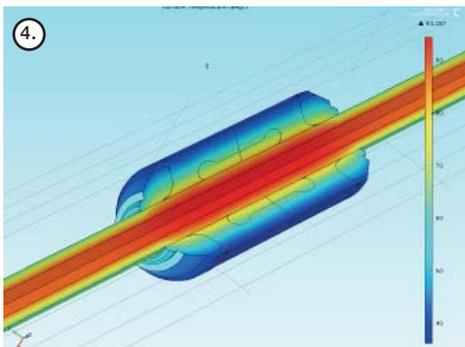
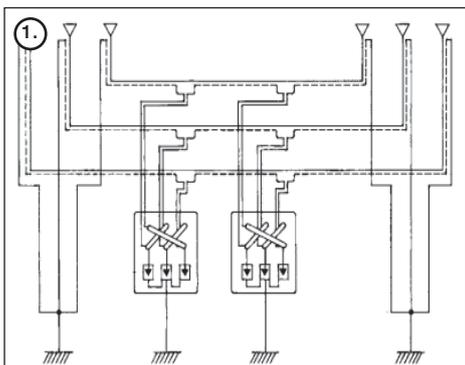
skills and knowledge how to handle tools for this application. Knowledge about what are the critical steps in accessories assembling gives the best foundation for successful and safe installation.

4. Electrical, mechanical and thermal design of insulation systems and connectors

The design of our accessories are based on expertise within electrical, mechanical and thermal performance. It is essential to understand the connection between them since all the three technologies comes down to one parameter namely coupled electrical, mechanical and thermal properties. We have long extensive experience and use modern FEM software that allows us to calculate coupled electrical and thermal fields as well as thermo-mechanical conditions. Our electrical designs involves geometrical, resistive and refractive field controlling involving advanced field grading rubber materials.

5. Performance of rubber and metal materials in outdoor conditions

Cable accessories are exposed to harsh outdoor climate conditions. Insulators are exposed to UV radiation and pollution, joints are operating underground in wet conditions, and they shall perform for many years without breakdown. It is essential for us to keep up the expertise within outdoor insulation performance and corrosion protection, with expertise and our test facilities, e.g. Weather-O-Meter test, we can ensure the product deliver what we promise.



Introduction

Cable accessories ≤ 1.2 kV

The most important tasks of the cable accessories are to create a safe electrical connection, insulation and provide mechanical protection.

The product range includes accessories following various principles and properties.

Accessories which utilize tape technology are simple to use, flexible and unaffected by the dimensions of the cable. Cable accessories which utilize heat-shrink technology offer a simple alternative.

Cast resin products are the obvious choice in slightly more challenging environments. The robust joint is able to cope with a water depth of 10 metres, and can be used for both power and control cables.





Table of content

Cable accessories ≤ 1.2 kV

Product range

Cable joint, cast resin for plastic and paper-insulated cables, and control cables, SMARTA	2/3
Cable joint, branch for plastic-insulated cables, SAGA 11 Y	2/4
Cable joint, heat-shrink for plastic-insulated cables, SMKC	2/5
Cable joint, tape for plastic-insulated cables, SMILA and SMULA	2/6
Protective hood for plastic-insulated cables, LPH	2/7
Protective hood for plastic-insulated cables, LXAC	2/8
Connection protection for plastic-insulated cables, KAL	2/9
Cable connection , prefabricated, AK-ADAS	2/10

Cable joint with cast resin for plastic and paper-insulated cables, and control cables

SMARTA

Use

For jointing 1.2 kV plastic and paper-insulated 3–5 core cables as communication cables and the transition between plastic and paper-insulated cables.



Standards

Meets the requirements of:

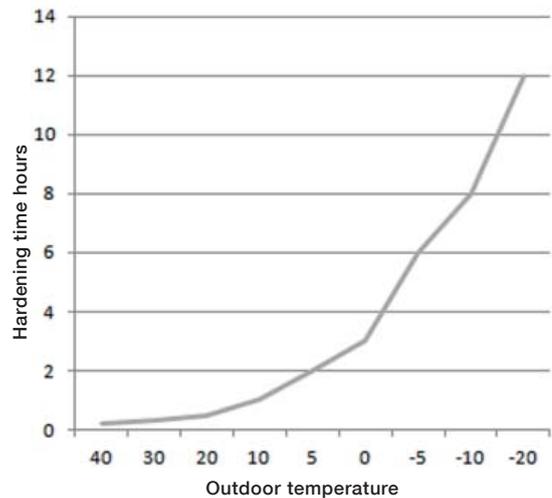
- SS 424 14 44 Edition 1
- EBR KJ 41:09

Design

The joint consists of a transparent casting mold with flexible sealing rings between the casting mold and the cable. Compounding cast resin and hardener are mixed in a sealed bag. After hardening the joint becomes resistant. Please note, the lower the temperature is, the longer the hardening time will be. Hardening time is reduced if cast resin is stored warm until use. SMARTA should not be installed if temperature is below -10°C .

When jointing paper-insulated cable, and at the transition between paper and plastic cables, accessory kit PPC must be used for screen contacting. Note that, when jointing plastic-insulated to paper-insulated cables, connectors with a partition must be used.

The joint is also excellent to use when jointing cables with an integrated tube for opto fiber, which must be jointed without heating. The material for jointing the opto tube is not included. Can be used in down to 10 metres water depth.



Compounding cast resin; hardening time in relation to temperature

To be ordered separately

- Connectors
- Accessory kit, PPC (see below)

Designation	Conductor cross section		Control cable max number of cores		Cable diameter	Casting mold		Weight
	Cu	Al	with	without		Length	Diameter	
	mm ²		individual screen		mm			mm
SMARTA 10-5	2.5–10	–	14	27	5–27	240	35	0.8
SMARTA 11-5	6–16	–	27	39	15–30	340	40	1.2
SMARTA 12	25–70	25–50	91	–	25–50	540	72	3.6
SMARTA 13	95–150	70–150	–	–	30–65	660	96	7.6
SMARTA 14	185–240	185–240	–	–	35–70	840	105	10.5

To be ordered separately

Accessory kit	Used for	Weight kg/item
PPC 11	SMARTA 10-5 / SMARTA 11-5	0.2
PPC 12	SMARTA 12	0.3
PPC 13	SMARTA 13	0.4
PPC 14	SMARTA 14	0.5

Cable joint, branch for plastic-insulated cables

SAGA 11 Y

Use

Branching of 1.2 kV plastic-insulated 3–4 core cables.

Standards

Meets the requirements of:

- SS 424 14 44 Edition 1
- EBR KJ 41:09

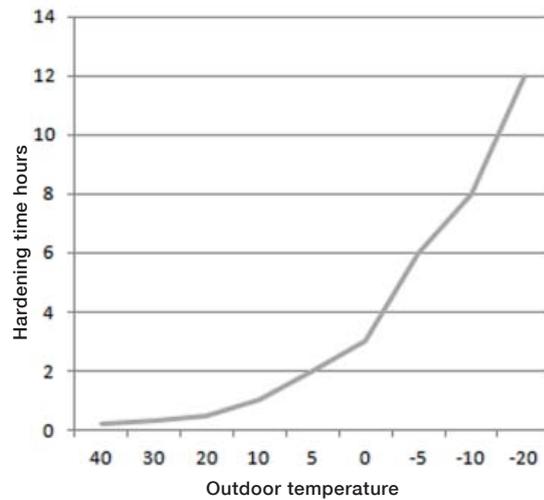
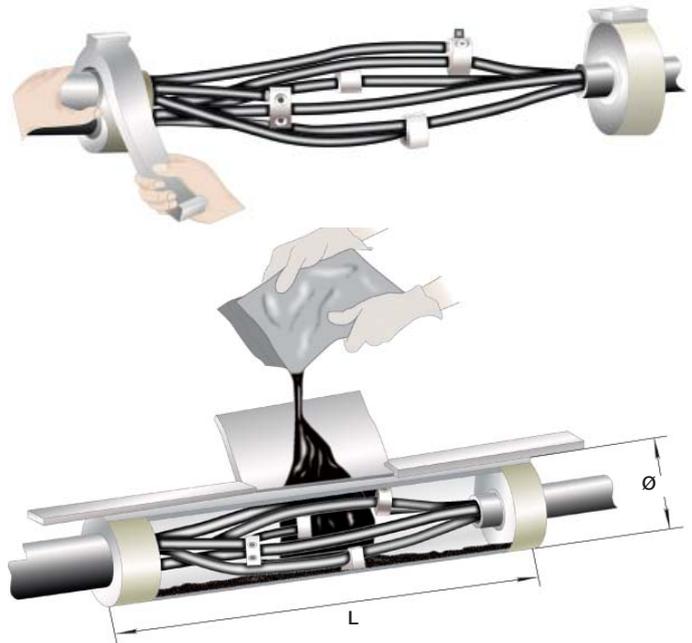
Design

The joint consists of a transparent casting mold with flexible sealing rings between the casting mold and the cable. Compounding cast resin and hardener are mixed in a sealed bag. After hardening the joint becomes resistant. Hardening time is reduced if cast resin is stored warm until use.

Please note, the lower the temperature is, the longer the hardening time will be. SAGA 11 Y should not to be installed if the temperature is below -10°C .

Branching takes place with the help of clamps which penetrate the insulation on the main cable. The clamps, which are included in the kit, are tightened with a torque wrench.

Can be used in down to 10 metres water depth.



Compounding cast resin; hardening time in relation to temperature

Designation	Conductor cross section		Diameter		Dimensions		Weight kg/item
	Main cable	Branch cable	Main cable	Branch cable	L	Ø	
	mm ²		mm		mm		
SAGA 11 Y	16–50	10–50	15–30	5–25	500	96	4.5

Cable joint, heat-shrink for plastic-insulated cables SMKC

2

Use

For jointing 1.2 kV plastic-insulated cables with 3–5 cores, with or without screen.

Standards

Meets the requirements of:

- SS 424 14 44 Edition 1
- EBR KJ 41:09

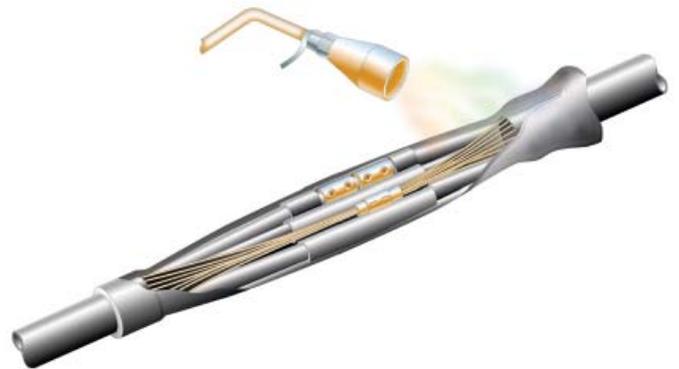
Design

SMKC 11-5 contains one outer and five inner sleeves.
SMKC 12, SMKC 13 and SMKC 14 contain one outer and four inner sleeves.

The sleeves are made of cross-linked polyethylene, coated internally with a hot-melt adhesive and are installed with heat.

To be ordered separately

- Connectors



Designation	Conductor cross section plastic cable			Length	Outer sleeve		Weight kg/item
	Al	Cu	Al/Cu		before/after heat-shrinkage		
					Ø max/min mm		
SMKC 11-5	–	2.5–16	–	380	34/14		0.2
SMKC 12	25–50	25–70	50/25	550	66/20		0.4
SMKC 13	70–150	95–150	150/70–95	790	83/26		0.5
SMKC 14	185–240	185–240	240/120–150	950	110/40		0.9

Cable joint, tape for plastic-insulated cables SMILA and SMULA

Use

For jointing 1.2 kV plastic-insulated cables with 3–5 cores, with or without screen.

SMILA is used for jointing cables with screen. Otherwise SMULA is used.

Standards

Meets the requirements of:

- SS 424 14 44 Edition 1
- EBR KJ 41:09

Design

The kit contains insulating vulcanizing tape and electrical tape. SMILA also includes a copper net. Insulating vulcanizing tape is used for insulation of the connectors. The stripped cable sheaths and electrical tape are used as outer protection.

The cable joints are packed in kits. Two SMILA 12 or SMULA 12 kits are used to joint 70–150 mm² cables, and three kits are used for 185–240 mm² cables.

To be ordered separately

- Connectors



Designation	Conductor cross section		Cable joint Length	Weight
	Al	Cu		
	mm ²		mm	kg/item
SMILA 11	–	2.5–16	420	0.2
SMILA 12	25–50	25–70	570	0.3
For larger cable cross sections, use SMILA 12 as below				
SMILA 12 (two)	70–150	95–150	770	0.6
SMILA 12 (three)	185–240	185–240	920	0.9
SMULA 11	–	2.5–16	420	0.1
SMULA 12	25–50	25–70	570	0.3
For larger cable cross sections, use SMULA 12 as below				
SMULA 12 (two)	70–150	95–150	770	0.6
SMULA 12 (three)	185–240	185–240	920	0.9

Protective hood for plastic-insulated cables

LPH

Use

Termination outdoors for 1.2 kV plastic-insulated underground cables with 3–5 cores, 2.5–95 mm².

2

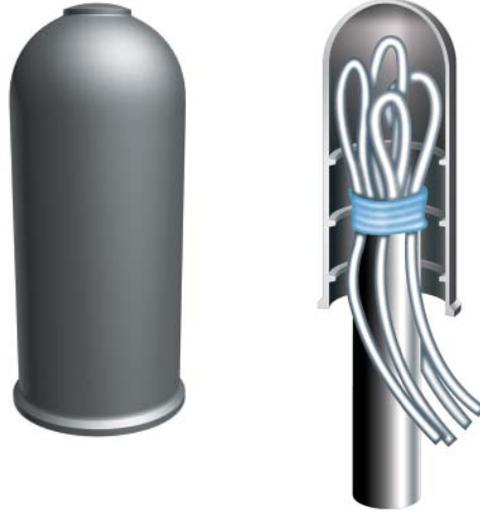
Standards

Meets the requirements of:

- SEN 24 14 34

Design

The cable termination consists of a hood made of weather-proof and oil-resistant rubber. The cable cores are bent downwards and fixed with tape before the hood is pushed on. Cable cores can be protected against UV-radiation by using IS insulating hose.



Designation	Conductor cross section			Internal diameter	Internal height	Weight
	3-core	4-core	5-core			
	mm ²					
LPH 2532	16	10	–	30	83	0.1
LPH 4052	50	35	10	49	137	0.1
LPH 6070	95	70	16	67	176	0.3
LPH 70	–	95	–	68	175	0.3

To be ordered separately



IS

Insulating hose for plastic cables, overhead cables or for connection to aerial bundled cables.

Meets the requirements of SEN 24 21 11 and is UV- and cold-resistant.

Designation	Conductor cross section	Thickness	Length	Weight
	mm ²	mm	m/roll	kg/roll
IS 16	2.5–16	0.7	25	0.7
IS 50	25–50	1.0	25	1.5
IS 95	70–95	1.2	25	2.3

Protective hood for plastic-insulated cables

LXAC

Use

Outdoor termination for 1.2 kV plastic-insulated underground cables, 2–4 cores 2.5–35 mm².

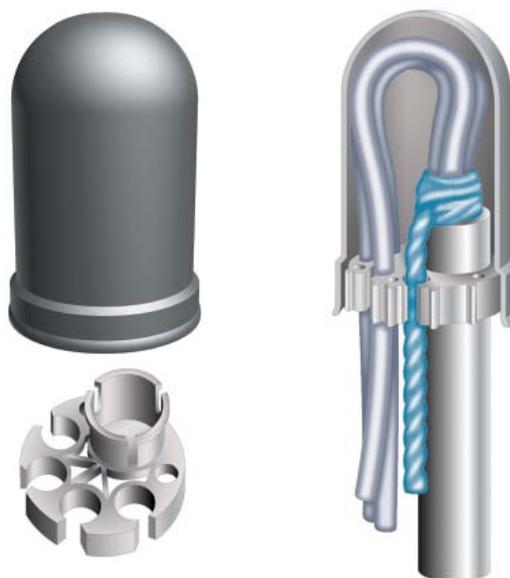
Standards

Meets the requirements of:

- SEN 24 14 34

Design

The cable termination consists of a bushing and hood made from impact-resistant black polyethylene. The cable cores are bent downwards and pushed into grooves in the bushing before the hood is pushed on. Cable cores can be protected against UV-radiation by using IS insulating hose.



Designation	Conductor cross section polymeric cable 3- and 4-core	Max cable diameter mm	External diameter Ø mm	Height mm	Weight kg/item
	mm ²				
LXAC 116	16	27	60	100	0.1
LXAC 135	35	31	75	125	0.1

To be ordered separately



IS

Insulating hose for plastic cables, overhead cables or for connection to aerial bundled cables. Meets the requirements of SEN 24 21 11 and is UV- and cold-resistant.

Designation	Conductor cross section	Thickness mm	Length m/roll	Weight kg/roll
	mm ²			
IS 16	2.5–16	0.7	25	0.7
IS 50	25–50	1.0	25	1.5

Connection protection for plastic-insulated cables

KAL

Use

Enclosed connection protection for transformer bushings
1.2 kV.

2

Standards

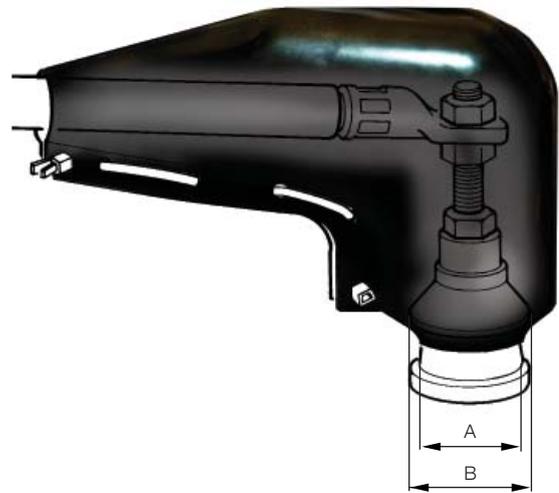
Electrical breakdown strength > 40 kV.

Design

KAL is made from UV-resistant PVC latex and consists of an inner yellow and an outer black layer.

These layers provide double insulation, at the same time as the inner yellow layer functions as a warning signal in the event of wear or damage to the protection.

Each kit includes three hoods.



Designation	Max cable diameter	Max bushing diameter		Weight
		A	B	
	mm	mm		kg/kit
KAL 11	15	35	50	0.70
KAL 12	20	50	75	1.25

Cable connection, prefabricated AK-ADAS

Use

For the extension of Al cable, for example in conjunction with connection in cable distribution cabinets, service distribution boards and switchgears. Dimensioned in accordance with the cable loading and short-circuit data.

Standards

Meets the requirements of:

- SEN 24 50 10 Edition 1
- SEN 24 50 12 Edition 1

Design

Flexible insulated Cu conductor compressed onto a prefabricated Al/Cu cable connection. The connector is designed for crimping with the Elpress system. The length of all the connectors are 700 mm.



Designation	Fits aluminium	Conductor cross	Weight
	conductor cross section	section of connector	kg/kit
	mm ²	mm ²	
AK-ADAS 5025-7	50	25	0.2
AK-ADAS 7035-7	70	35	0.3
AK-ADAS 9550-7	95	50	0.5
AK-ADAS 12070-7	120	70	0.5
AK-ADAS 15070-7	150	70	0.6
AK-ADAS 185120-7	185	120	0.9
AK-ADAS 240120-7	240	120	1.0



Table of content

Universal clamps

Universal clamps

UKR 90, UKRA 90	3/3
UKR 200, UKRA 200	3/4
Typical applications, UKR 200,UKRA 200	3/5

Universal clamps

UKR 90, UKRA 90

UKR 90

Use

For fixing cables, tubes, hoses, etc. It will fix round profiles with \varnothing 20–90 mm or angular profiles with circumferences of 60–300 mm.

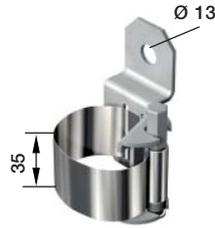
3

Design

The bracket is made of non-magnetic hot-dip galvanized steel. The band is made of stainless steel SS 2333-02 with rounded edges and has a thickness of 0.2 mm. The band can be tightened and locked in one operation. The locking bolt is made of die-cast zinc alloy.

UKRS 90

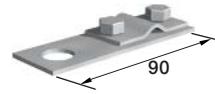
Consists of one UKR 90 and a spacer with a hexagon head wood screw for fastening on a wooden pole e.g.



UKR 90
Universal clamp.



UKRS 90
Universal clamp with spacer.



UKJ
Earthing plate.



UKS 90
Spacer.

Applications:



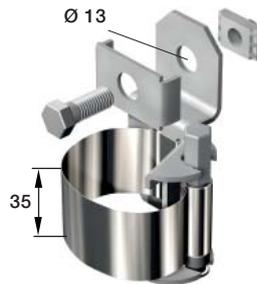
UKRA 90

Use

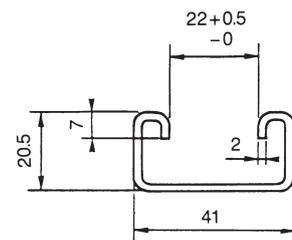
For fixing cables with \varnothing 20–90 mm to the anchor bars in a cable distribution cabinet, etc.

Design

The bracket is made of non-magnetic hot-dip galvanized steel. The band is made of stainless steel according to SS 2333-02 with rounded edges and has a thickness of 0.2 mm. The band can be tightened and locked in one operation. The locking bolt is made of die-cast zinc alloy. A spring-loaded nut with a reversible locking washer offers a choice of fixed or flexible position and direction.



UKRA 90
Universal clamp with bracket for anchor bar.



Dimensional drawing of the anchor bar.

Designation	Weight
	kg/item
UKR 90	0.17
UKRA 90	0.23
UKS	0.28
UKRS 90	0.45
UKJ	0.14

Universal clamps

UKR 200, UKRA 200

UKR 200

Use

For bundling cables with \varnothing 50–275 mm.

Design

The bracket is made of non-magnetic hot-dip galvanized steel. The band is made of stainless steel SS 2333-02 with rounded edges and has a thickness of 0.2 mm.

The band can be tightened and locked in one operation. The locking bolt is made of die-cast zinc alloy.

UKRF

For fixing cables, etc., to cable ladders. For use together with UKR 200. The height of the ladder profile is approx. 16 mm and will fit within the specified dimensions.

The bracket is made of hot-dip galvanized steel.

UKRS 200

Consists of one UKR 200 and a spacer with a hexagon head wood screw for fastening cables on a wall or a wooden pole.

UKRA 200

Use

For fixing cables with \varnothing of 50–275 mm to the anchor bars.

Design

The bracket is made of non-magnetic hot-dip galvanized steel. The band is made of stainless steel SS 2333-02 with rounded edges and a thickness of 0.2 mm.

The locking bolt is made of die-cast zinc alloy and can be tightened and locked in one operation.

A spring-loaded nut with a reversible locking washer offers a choice of fixed or flexible position and direction.



UKR 200
Universal clamp.



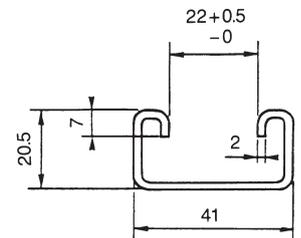
UKRS 200
Universal clamp UKR 200 with spacer.



UKRF
Fixing bracket.



UKRA 200
Universal clamp with bracket for anchor bar.



Dimensional drawing of the anchor bar.

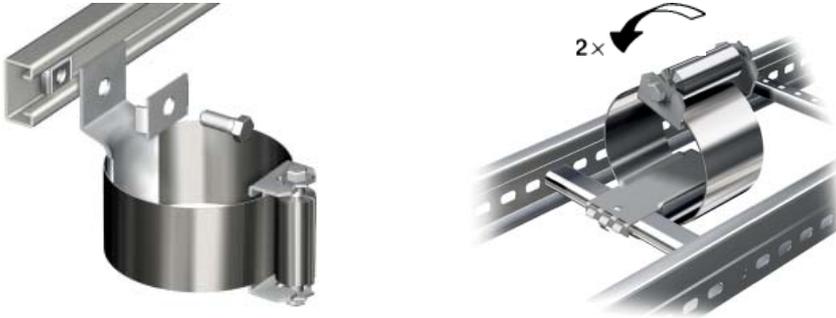
Designation	Weight
	kg/item
UKR 200	0.32
UKRA 200	0.45
UKRF	0.21
UKRS 200	0.81

Typical applications

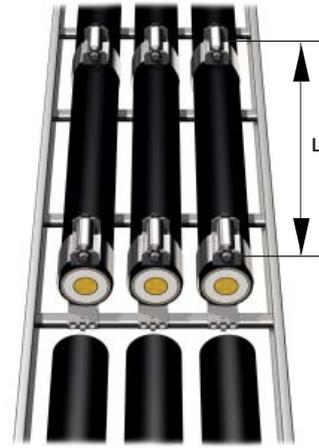
UKR 200, UKRA 200

Flat configuration

3

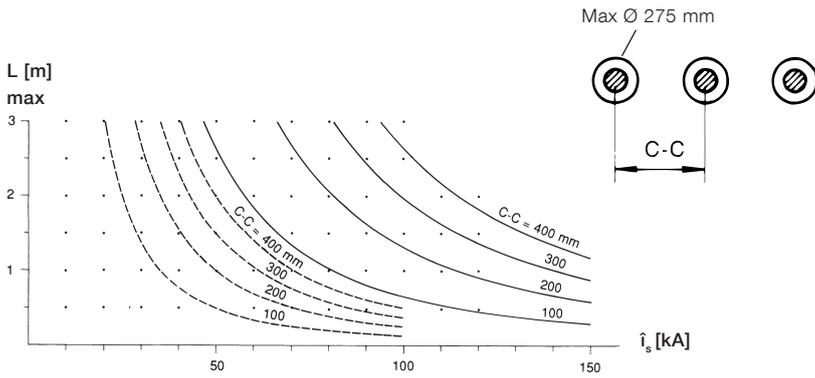


UKR 200 with fixing brackets UKRF.



UKR 200 with one fixing bracket, UKRF.

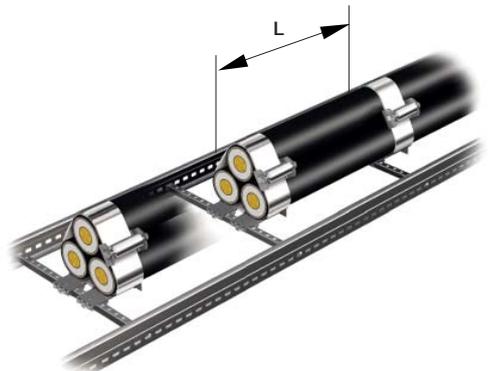
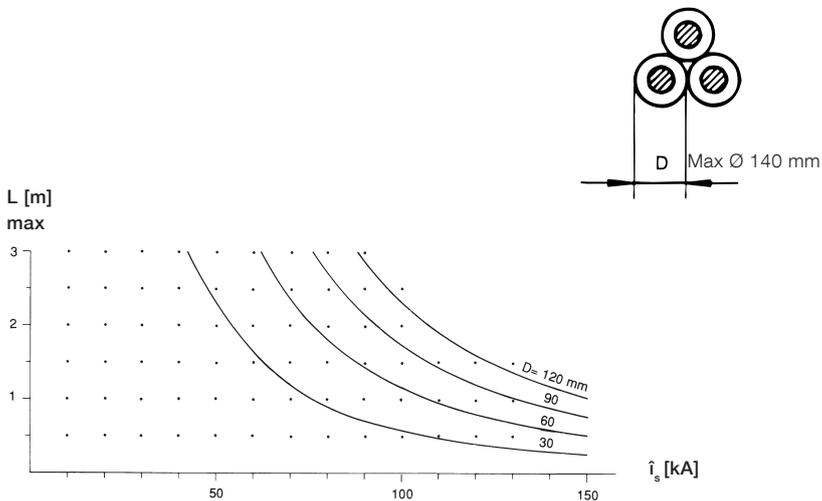
Universal clamp (results of testing with 2 turns of steel band).



\hat{i}_s = Short circuit current (peak value)
 C-C = Distance between cable centres
 L max = Distance between clamps

———— UKR 200 with fixing bracket, UKRF
 - - - - UKRA 200

Trefoil configuration



UKR 200 with two fixing brackets, UKRF.

\hat{i}_s = Short circuit current (peak value)
 D = Outer diameter of cable
 L max = Distance between clamps

———— UKR 200 with fixing bracket, UKRF

List of content

Alphabetical order and content by category

Alphabetical order

Designation	Page No.
A	
AK-ADAS	2/10
I	
IS	2/7, 2/8
K	
KAL	2/9
L	
LPH	2/7
LXAC	2/8

Designation	Page No.
P	
PPC	2/3
S	
SAGA 11 Y	2/4
SMARTA	2/3
SMILA	2/6
SMKC	2/5
SMULA	2/6

List of content by category

Cable terminations			See page
1 kV	Outdoor	LPH	2/7
	Outdoor	LXAC	2/8
Cable connectors			See page
1 kV	Enclosed connection protection	KAL	2/9
	Prefabricated cable connection for extension of Al cable	AK-ADAS	2/10
Cable Joints			See page
1 kV	Cast resin for plastic-, paper-insulated and signal cable	SMARTA	2/3
	Branch joint for plastic-insulated cable	SAGA Y	2/4
	Heat-shrink for plastic-insulated cable	SMKC	2/5
	Tape for plastic-insulated cable with screen	SMILA	2/6
	Tape for plastic-insulated cable without screen	SMULA	2/6
Accessories			See page
General accessories	Universal clamps	UKR 90	3/3
		UKRA 90	3/3
		UKR 200	3/4
		UKRA 200	3/4

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