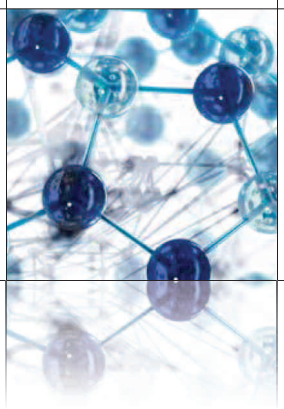
RADPOL

HEAT-SHRINKABLE TECHNOLOGY

CABLE JOINTS AND TERMINATIONS

RADPOL

RADPOL was established on the foundations of a production facility in Człuchów Poland, founded over 40 years ago.

About Company

RADPOL S.A. builds its permanent competitive edge based on the use of innovative technologies in particular segments of operations. Principal recipients for the Group's products are such sectors, as the energy, railway or motor, marine industry, gas and heat.

RADPOL S.A. is one of the most important players on the market of heat-shrinkable products which are produced based on own material blends. Thanks to the use of a unique technology of radiation crosslinking the Company rivals successfully with its competitors. The Company as the only one in Poland and one of three in Europe uses two electron accelerators on an industrial scale with the capacity of 2.5 MeV and 4.5 MeV which allow for the application of most advanced solutions.

The full production process is carried out in our factory, which guarantees the high quality of our products. The quality is of key importance to us and verified in the modern equipped laboratory.

RADPOL S.A. based on a long experience in the industry provides customers with modern solutions on the market and thanks to the development of a unique offer of infrastructural systems.

RADPOL products become a comprehensive supplier of advanced solutions for various sectors of the industry.

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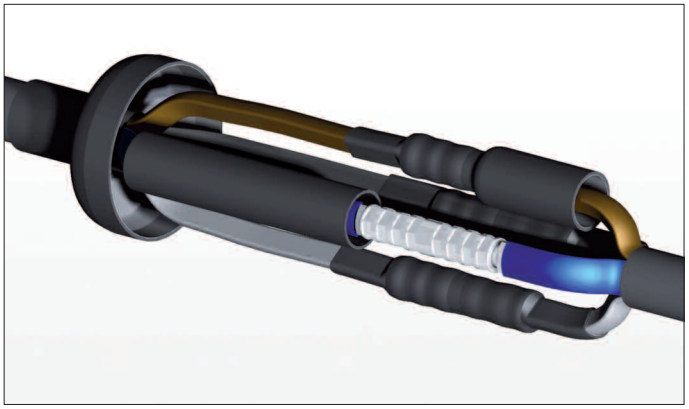


Voltage range	Cable cross-section [mm²]	Number of cores	Type of cable joint	Index
0,6/1kV	1,5-10	4	ZRM 1,5-10*	WMEJA0I050AE0001
	16-25	4	ZRM-1/JLP-CX4 16-25	WMEJA0I040FG0001
	35-70	4	ZRM-2/JLP-CX4 35-70	WMEJA0I040HJ0001
	95	4	ZRM-3/JLP-CX4 95	WMEJA0I040K00001
	120-150	4	ZRM-4/JLP-CX4 120-150	WMEJA0I040LM0001
	185-300	4	ZRM-5/JLP-CX4 185-300	WMEJA0I040NP0001

Sets without connectors. For use with crimping connectors.
* The set can be also used for 3 and 5 core cables of cross-section 1,5 -10 mm².

Straight cable joints for 0,6/1kV polymer insulated 4-core cables of type Y(A)KY, Y(A)KXS

Voltage range	Cable cross-section [mm²] for crimping connectors	Max. dimensions [mm] of screw connector Length	Diameter	Number of cores	Type of cable joint	Index
0,6/1kV	16-50	85	22	4	ZRM 16-50/JLP-CX4 16-50	WMEJA0I040FI0001
	70-120	105	28	4	ZRM 70-120/JLP-CX4 70-120	WMEJA0I040JL0001
	150-300	145	35	4	ZRM 150-300/JLP-CX4 150-300	WMEJA0I040MP0001

Sets without connectors. For use with crimping or screw connectors.

Voltage range	Cable cross-section [mm²] for crimping connectors	Max. dimensions [mm] of screw connector Length	Diameter	Number of cores	Type of cable joint	Index
0,6/1kV	16-70	105	22	4	ZRM 16-70/JLP-CX4 16-70	WMEJA0I040FJ0001
	95-300	145	35	4	ZRM 95-300/JLP-CX4 95-300	WMEJA0I040KP0001

Sets without connectors. For use with crimping or screw connectors.

Straight cable joints for 0,6/1kV polymer insulated 4-core cables of type YAKY, YAKXS

Voltage range	Cable cross-section [mm^2]	Number of cores	Type of cable joint	Index
0,6/1kV	16	4	ZRMZ-16/JLP-CX4 16 (KA,D)	WMEJA0I040F000B1
	25	4	ZRMZ-25/JLP-CX4 25 (KA,D)	WMEJA0I040G000B1
	35	4	ZRMZ-35/JLP-CX4 35 (KA,D)	WMEJA0I040H000B1
	50	4	ZRMZ-50/JLP-CX4 50 (KA,D)	WMEJA0I040I000B1
	70	4	ZRMZ-70/JLP-CX4 70 (KA,D)	WMEJA0I040J000B1
	95	4	ZRMZ-95/JLP-CX4 95 (KA,D)	WMEJA0I040K000B1
	120	4	ZRMZ-120/JLP-CX4 120 (KA,D)	WMEJA0I040L000B1
	150	4	ZRMZ-150/JLP-CX4 150 (KA,D)	WMEJA0I040M000B1
	185	4	ZRMZ-185/JLP-CX4 185 (KA,D)	WMEJA0I040N000B1
	240	4	ZRMZ-240/JLP-CX4 240 (KA,D)	WMEJA0I040O000B1

Sets are supplied with Al connectors acc. to DIN standards.

Straight cable joints for 0,6/1kV polymer insulated 1-core cables of type Y(A)KY, Y(A)KXS

Voltage range	Cable cross-section [mm²]	Number of cores	Type of cable joint	Index
0,6/1kV	16-25	1	ZRMj-1/JLP-CX1 16-25	WMEJA0I010FG0001
	35-70	1	ZRMj-2/JLP-CX1 35-70	WMEJA0I010HJ0001
	95	1	ZRMj-3/JLP-CX1 95	WMEJA0I010K00001
	120-150	1	ZRMj-4/JLP-CX1 120-150	WMEJA0I010LM0001
	185-300	1	ZRMj-5/JLP-CX1 185-300	WMEJA0I010NP0001

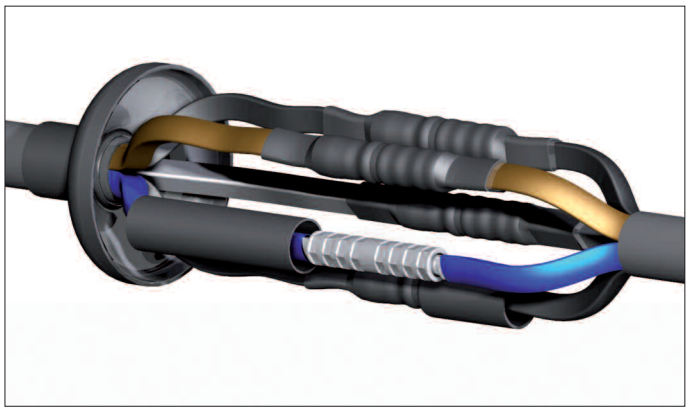
Sets without connectors, one set for four single cores. For use with crimping connectors.

Straight cable joints for 0,6/1kV polymer insulated 1-core cables of type Y(A)KY, Y(A)KXS

Voltage range	Cable cross-section [mm²] for crimping connectors	Max. dimensions [mm] of screw connector Length	Diameter	Number of cores	Type of cable joint	Index
0,6/1kV	16-70	105	22	1	ZRMj 16-70/JLP-CX1 16-70	WMEJA0I010FJ0001
	95-300	145	35	1	ZRMj 95-300/JLP-CX1 95-300	WMEJA0I010KP0001

Sets without connectors, one set for four single cores. For use with crimping or screw connectors.

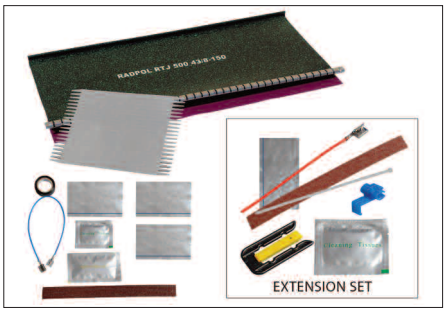
Straight cable joints for 0,6/1kV polymer insulated 5-core cables of type Y(A)KY, Y(A)KXS



Voltage range	Cable cross-section [mm²] for crimping connectors	Max. dimensions [mm] of screw connector		Number of cores	Type of cable joint	Index
		Length	Diameter			
0,6/1kV	1,5-10	-	-	5	ZRM 1,5-10*	WMEJA0I050AE0001
	16-70	105	22	5	ZRMp 16-70/JLP-CX5 16-70	WMEJA0I050FJ0001
	95-300	145	35	5	ZRMp 95-300/JLP-CX5 95-300	WMEJA0I050KP0001

Sets without connectors. For use with crimping or screw connectors.
* The set can be also used for 4 and 5 core cables of cross-section 1,5 -10 mm².

Telecommunications cable joints - type RTJ 500



Application **Cable connection system for telecommunication networks without pressure system.**

Purposed for connecting of Polymer and rubber insulated telecommunication, signal and steering cables .
Used as straight and branch cable joints with different types of connectors.
For cable types: XzTKMXpw, XzTKMXpwn, XzTKMXpwFtl(x)/(y), NTKMXFtlN, NTKMXpFtlN, XTKMXpwn, TKMXn, TKSY, YTKSY, YnTKSY.
A wide scope of use for up to 800 pairs, for overhead, buried cables and cable ducts.

Joint content: Heat-shrink casing with self-locking channel, protective insert, aluminium film, wipe, dehumidifier, insulating tape, screen connectors, abrasive paper, installation manual, **branch set** (branching clamp along with adhesive, two-sided connector, aluminium film , screen connectors, abrasive paper, cable tie).

Properties: Protected with glass fibre reinforced heat-shrink casing, restoring cable outer coating and protecting against mechanical damages. Inner coating covered with hot-melt adhesive lining that ensures tightness. Adhesive squeezout on ends and a visible white line near self-locking channel indicates proper joint temperature. Outer joint surface covered with termochromic ink indicating proper shrinking temperature. Provided with branching set.

Voltage range	Type of cable joint	Maximum diameter of middle part [mm]	The minimum diameter outer cable [mm]	Length of cable joint [mm]	Index
0,6/1kV	RTJ 500 43/8-150	43	8	150	TMTJAAII00000001
	RTJ 500 43/8-300	43	8	300	TMTJAAII00000002
	RTJ 500 55/12-150	55	12	150	TMTJAAII00000003
	RTJ 500 55/12-300	55	12	300	TMTJAAII00000004
	RTJ 500 75/15-240	75	15	240	TMTJAAII00000005
	RTJ 500 75/15-300	75	15	300	TMTJAAII00000006
	RTJ 500 75/15-400	75	15	400	TMTJAAII00000007
	RTJ 500 75/15-450	75	15	450	TMTJAAII00000008
	RTJ 500 100/25-250	100	25	250	TMTJAAII00000009
	RTJ 500 100/25-450	100	25	450	TMTJAAII00000010
	RTJ 500 100/25-600	100	25	600	TMTJAAII00000011
	RTJ 500 125/30-450	125	30	450	TMTJAAII00000012

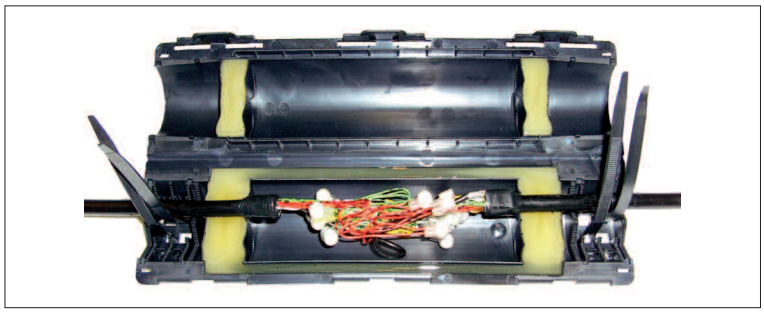
As a standard, the RTJ joint has a branching set for insertion of maximum 2 cables on one side of the coupler.
For more cables, an additional set of RZO should be used.

Type of branching set	Index	Application
RZO-S	TMTJAAII00000013	RTJ 500 43/8
RZO-M	TMTJAAII00000014	RTJ 500 55/12 RTJ 500 75/15
RZO-L	TMTJAAII00000015	RTJ 500 100/25 RTJ 500 125/30

Table with exemples of the selection of Cable Joits type RTJ 500

Quantity of pairs	Cable cross-section [mm^2]	Type of cable joint
5	od 0,4 do 0,6	RTJ 500 43/8-150
10	od 0,4 do 0,6	RTJ 500 43/8-150
20	od 0,4 do 0,6	RTJ 500 43/8-150
25	od 0,4 do 0,6	RTJ 500 43/8-150 / RTJ 500 55/12-150
30	od 0,4 do 0,6	RTJ 500 43/8-150 / RTJ 500 55/12-150
50	od 0,4 do 0,6	RTJ 500 43/8-300 / RTJ 500 55/12-300
100	od 0,4 do 0,6	RTJ 500 55/12-300 / RTJ 500 75/15-240
150	od 0,4 do 0,6	RTJ 500 75/15-300 / RTJ 500 75/15-400
200	od 0,4 do 0,6	RTJ 500 75/15-450
300	od 0,4 do 0,6	RTJ 500 100/25-450
400	od 0,4 do 0,6	RTJ 500 100/25-450
500	od 0,4 do 0,6	RTJ 500 100/25-450
600	od 0,4 do 0,6	RTJ 500 125/30-450
800	od 0,4 do 0,6	RTJ 500 125/30-450

Telecommunications cable joints - type GVAM



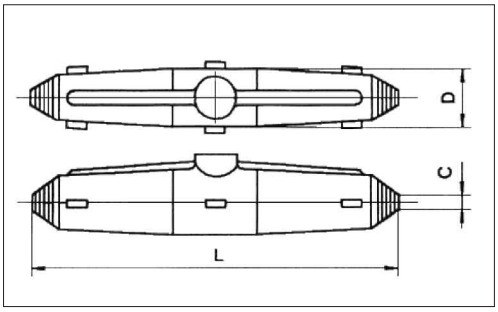
Application: **Dedicated for connecting of polymer or rubber insulated telecommunication, signal and steering cables. Used as a straight or branch joints with the use of different types of connectors.**
For cable types: XzTKMXpw, XzTKMXpwn, XzTKMXpwFtl(x)/(y), NTKMXFtlN, NTKMXpFtlN, XTKMXpwn, TKMXn, TKSY, YTKSY, YnTKSY.

Joint content: Joint casing, clamps, screen connectors, installation manual. Set doesn't contain connectors (available on request)

Properties: Joints find the application in ground, on masts, indoor, in cable ducts. They can work in environment temperature -30 up to +80°C. Resistant to UV radiation. The set can be used multiple times and gives an opportunity to button up other cables. Joint casing is manufactured of plastics which is very resistant to hitting. water flooding (up to 4 m) and is equipped with integrated cable fastening with the use of clamps. The joint is performed in gel technology, assembly doesn't require of using propane butane torch.

Voltage range	Type of cable joint	Max. Cable diameter [mm]	Dimensions Length / Diameter [mm]	Dimensions of middle part Length / Diameter [mm]	Index
0,6/1kV	GVAM 30	23	334/80	130/50	TME1A000I0000001
	GVAM 200	37	461/160	288/100	TME1A000W0000001

Straight cast resin joints 0,6/1kV - type JLZ



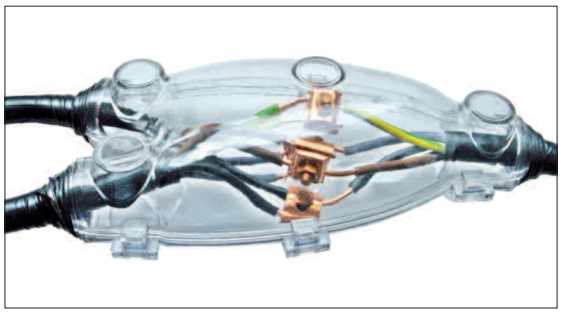
Application: **They are designed for joining cables of the same insulation, cross-section and number of cores.**
For cable types: N(A)YY, N(A)2XY, H07RN-F, Y(A)KY, Y(A)KXS, YKSY, YKSYy, YKSX, YNKSY, OGŁ, OGŁp, OW, OPd, OWY.

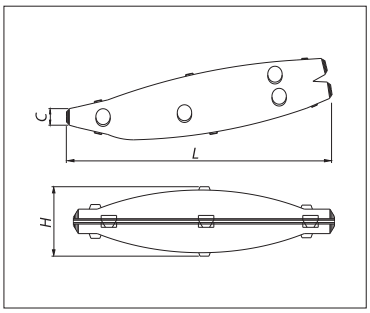
Joint content: Resin joint set consists of: two-piece mold, resin cast, polyurethane resin, insulation tape, protective gloves and connectors (on special request).

Properties: Two-piece polyurethane resin (resin and hardener) is delivered in two containers for quick and easy mixing.
The mixed components of resin fill up the resin cast making the conjunction tight and excellent insulated.
Gloves protect hands against contact with resin.
No heat needed for installation.
Installation guide supplied along with the product.

Voltage range	Type of cable joint	Dimensions [mm] L	Dimensions [mm] D	Outer cable diameter - C [mm]	Index
0,6/1kV	JLZ1	202	36	8 - 26	WMEZA0I000000001
	JLZ2	260	47	16 - 32	WMEZA0I000000002
	JLZ3	400	70	26 - 41	WMEZA0I000000003
	JLZ4	530	132	32 - 68	WMEZA0I000000004
	JLZ5	700	180	45 - 70	WMEZA0I000000005

Branch cast resin joints 0,6 / 1kV - type JLZR1; 2; 3





Application: **They are designed for joining 3, 4 and 5-core 0,6/1kV cables of main cable cores' cross-section 1 - 35 mm² and branch cable cores' cross-section 1 - 25 mm².**
Used for cables of type: Y(A)KY, Y(A)KXS, YKSY, YDY, YLY.

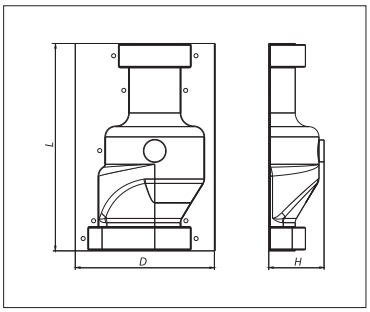
Joint content: Two-piece transparent cast, polyurethane resin, insulation mass, protective gloves, instruction manual.
The set doesn't contain branch grips (available on request).

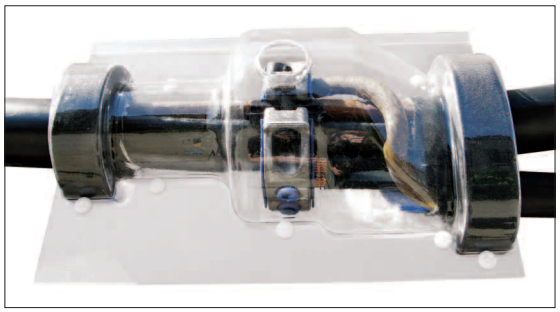
Properties Joints guarantee full tightness thanks to it they can be applied in ground and water, cable ducts and indoors. No special tools and heat sources needed during the assembling. Wide range of application along with the small size of the set are the most important advantages of new joints which are appreciated by the installers daily assembling the most popular cables and wires.
Installation guide supplied along with the product.

Voltage range	Type of cable joint	Main cable cores' cross-section [mm²]	Branch cable cores' cross-section [mm²]	Width H [mm]	Length L [mm]	Hole diameter C [mm] min.	Hole diameter C [mm] max	Index
0,6/1kV	JLZR1	3x2,5÷10 4x1,5÷6 5x1÷4	3x2,5÷4 4x1,5÷2,5 5x1÷2,5	45	150	10	19	WMEYA0I000000001
	JLZR2	3x2,5÷16 4x2,5÷10 5x1,5÷6	3x2,5÷6 4x1,5÷4 5x1,5÷4	66	175	6	21	WMEYA0I000000002
	JLZR3	3x6÷35 4x4÷25 5x2,5÷10	3x2,5÷25 4x2,5÷16 5x2,5÷10	70	225	9	24	WMEYA0I000000003

Joints hold a positive technical approving issued by Institute of Power Engineering in conformity with requirements of norm PN-EN 50393:2006.

Branch cast resin joints 0,6 / 1kV - type JLZR4; 5; 6; 7





Application

They are designed for joining 4-core 0,6/1kV cables of main cable cores' cross-section 16 - 240 mm² and branch cable cores' cross-section 6 - 70 mm².
Used for cables of type: Y(A)KY, Y(A)KXS.

Joint content:

Two-piece transparent cast, polyurethane resin, sealing sponges, branch ferrule, protective gloves, instruction manual.

Properties:

No special tools and heat sources needed during the assembling. The cast is perfectly matched to the connection. It doesn't require any additional cutting. The place of cable connection is excellently visible.
Applied branch ferrule enable cables joining without necessity of cutting them. Assembling is carried out by using of hex wrench. Polyurethane resin is supplied in two-part bag enabling quick and easy mixing.
The resin mixture fully fills up the resin cast. It is also resistant to UV radiation and chemical factors.
The joint guarantee full tightness of the connection thanks to it they can be applied in groundand water, cable ducts and indoors.

Voltage range	Type of cable joint	Main cable cores' cross-section [mm²] RM, SM/RE, SE	Branch cable cores' cross-section [mm²]	Number of cores	Dimensions [mm]			Index
					L	D	H	
0,6/1kV	JLZR4	16-25 / 25-35	6-50	4	253	165	61,5	WMEYA0I000000004
	JLZR5	35-50 / 35-70	6-50	4	303	177	63,5	WMEYA0I000000005
	JLZR6	70-120 / 95-150	6-70	4	303	200	76,5	WMEYA0I000000006
	JLZR7	185-240 / 185-240	6-70	4	303	205	81,5	WMEYA0I000000007

Joints hold a positive technical approving issued by Institute of Power Engineering in conformity with requirements of norm PN-EN 50393:2006.

MEDIUM VOLTAGE CABLE JOINTS

Straight cable joints for 3-core unscreened polymer insulated cables

3.6/6kV

Application: **designed for joining cables of type: YKY, YAKY.**

Technical information: Heat shrink thick wall adhesive-layered tubes used for reconstruction of cores and connectors insulation.
Additional insulation space is guaranteed by polyethylene spacer situated between the phase cores.
Drain wire is reconstructed with the use of tinned copper sleeve installed by spring clips.
Covering of the joint is formed by the heat shrink thick wall adhesive-layered tube.

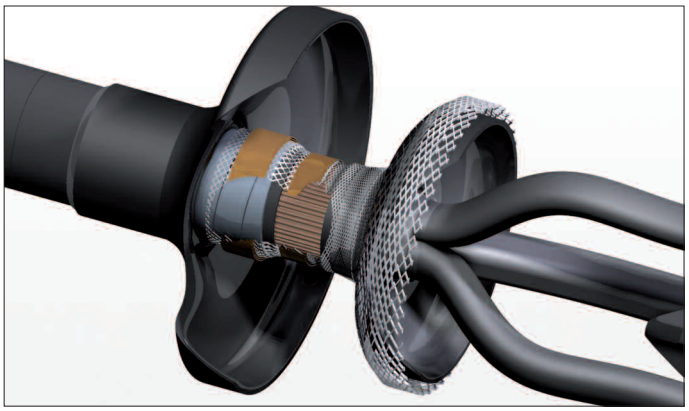
Properties of the joints:

- cover full range of cable cross-sections,
- insulation layer of very high pressing strength,
- high electrical and mechanical resistance due to heat shrink thick wall adhesive-layered tubes,
- applied heat shrink tubes protect against moisture penetration.

Voltage range	Cable cross-section [mm^2]	Type of cable joint	Index
3,6/6kV i 6/6kV	25-120	JHP-6-CX3 25-120	WMEJB0I030GL0001
	95-240	JHP-6-CX3 95-240	WMEJB0I030KO0001

Sets don't contain connectors. Joint sets are meant for joining cables with the use of compression connectors.
Joint set can be used for cables with copper wire screen or with drain tapes.

Straight cable joints for 3-core unscreened polymer insulated and armoured cables



3.6/6kV

Application:
for joining cables of type: YAKYFty, YKYFty, YAKYFpy, YKYFpy, YAKYFoy, YKYFoy.

Technical information:

heat shrink thick wall adhesive-layered tubes used for reconstruction of cores and connectors insulation.
Additional insulation space is guaranteed by polyethylene spacer situated between the phase cores.
Drain wire and metal armour are reconstructed with the use of tinned copper sleeve installed by spring clips.
Covering of the joint is formed by the heat shrink thick wall adhesive-layered tube.

Properties of the joints:

- cover full range of cable cross-sections,
- insulation layer of very high pressing strength,
- high electrical and mechanical resistance due to heat shrink thick wall adhesive-layered tubes,
- applied heat shrink tubes protect against moisture penetration.

Voltage range	Cable cross-section [mm^2]	Type of cable joint	Index
3,6/6kV i 6/6kV	25-120	JHP-6-CA3 25-120	WMEJB0A030GL0001
	95-240	JHP-6-CA3 95-240	WMEJB0A030KO0001

Sets don't contain connectors. Joint sets are meant for joining cables with the use of crimping connectors.

Cable straight joints for 1-core unscreened armoured polymer insulated traction cables

3.6/6kV
6/6kV

Application: **Designed to connect cables: Y(A)KYFty, Y(A)KYFpy, Y(A)KYFoy.**

Technical information: Isolation of the joint and wire formed by a heat shrink thick-wall adhesive-layered tube. The return wire and metal armour are reconstructed with the use of tinned copper sleeve installed using spring clips with constant contact pressure.

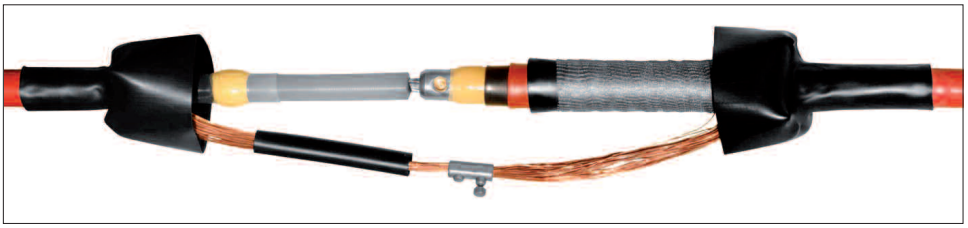
Properties of the joint: The joint is protected by a thick-wall adhesive-layered tube.
- insulating layer with a high clamping pressure.
- high electrical and mechanical strength thanks to the thick-wall adhesive-layered tubes used.
- thick-wall adhesive-layered tube protects against moisture penetration.

Voltage range	Cable cross-section [mm^2]	Type of cable joint	Index
3,6/6kV 6/6kV	150-500	JHP-6-CA1 150-500	WMEJB0A030MS0001

The set is made as a single phase. Connectors not included.
For connecting cables with the use of press connectors.

Straight-through joint for 1-core cables with screened polymeric insulation with a return wire conductor

6/10kV
8,7/15kV
12/20kV



Application: **for joining cables of type: YH(A)KXS, XUH(A)KXS, XH(A)KXS , X(RU)H(A)KXS.**

Technical information: the set contains stress control mastic which is wrapped around the screens' terminations and the connector's surface. It is used for preliminary controlling of the electrical field and filling up the space between insulation and connector's endings. The joint is supplied with stress control tubing which is shaping the electromagnetic field distribution on the whole connection length, insulation and double-layer tube with integrated layers: inner insulation, outer semiconducting. Outer semiconducting layer reconstructs the cable's screen and increases the insulation layer's pressure strength. This design guarantees the perfect adhesion of all tubes in the joint. Copper mesh applied on the whole joint length increases the mechanical resistance of the joint and improves the heat venting from the drain wire. Drain wire is being connected by screw or compression connectors additionally protected by the heat shrink tube. Reconstruction of the cable jacket is made by heat shrink thick wall adhesive-layered tube guaranteeing good adhesion of the tube to the cable's outer surface.
Plastic mass applied at the joints endings protects against moisture penetration.

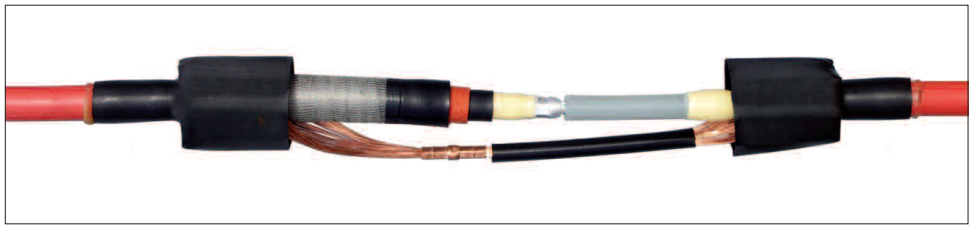
Properties of the joints:

- for cables with cross-sections up to 400 mm^2 (concerns joints with screw connectors),
- in case of joints with screw connectors they limit the number of tools necessary for the assembling,
- thermoplastic stress control mastic applied in the joint prevents from appearing of the incomplete discharges,
- high electrical and mechanical resistance,
- guarantee reliable and long-life work of the power line,
- short assembling time thanks to simple construction and attached installation guide,

Positive technical approving issued by Institute of Power Engineering in conformity with requirements of norms PN-90/E-06401 i PN-HD 629.1 S2:2006.

Voltage range	Cable cross-section [mm^2]	Type of cable joint	Index
6/10kV	50-150	JHP-10-CX1 50-150 (S)	WMEJC0I010IM00S1
	150-240	JHP-10-CX1 150-240 (S)	WMEJC0I010MO00S1
	240-400	JHP-10-CX1 240-400 (S)	WMEJC0I010OR00S1
8,7/15kV	50-150	JHP-15-CX1 50-150 (S)	WMEJD0I010IM00S1
	120-240	JHP-15-CX1 120-240 (S)	WMEJD0I010LO00S1
	185-400	JHP-15-CX1 185-400 (S)	WMEJD0I010NR00S1
12/20kV	50-150	JHP-20-CX1 50-150 (S)	WMEJE0I010HM00S1
	95-240	JHP-20-CX1 95-240 (S)	WMEJE0I010KO00S1
	185-400	JHP-20-CX1 185-400 (S)	WMEJE0I010NR00S1

Sets made as single-phase. Complete contain screw connectors.



Voltage range	Cable cross-section [mm^2]	Type of cable joint	Index
6/10kV	50-70	JHP-10-CX1 50-70	WMEJC0I010IJ0001
	95-150	JHP-10-CX1 95-150	WMEJC0I010KM0001
	185-240	JHP-10-CX1 185-240	WMEJC0I010NO0001
8,7/15kV	35-50	JHP-15-CX1 35-50	WMEJD0I010HI0001
	50-120	JHP-15-CX1 50-120	WMEJD0I010IL0001
	150-240	JHP-15-CX1 150-240	WMEJD0I010MO0001
12/20kV	35-95	JHP-20-CX1 35-95	WMEJE0I010HK0001
	120-240	JHP-20-CX1 120-240	WMEJE0I010LO0001

Sets made as single-phase. Sets don't contain connectors. For joining cables with the use of crimping connectors.

Straight cable joints for 3-core screened saturated paper insulated and armoured cables with common metal sheath

3.6/6kV
6/10kV

Application: **for joining cables of type: AKnFtA, AKnFpA, AKnFt, AKnFp, AKnFty, AKnFpy, KnFtA, KnFpA, KnFt, KnFp.**

Technical information: insulation of the particular cable's cores isolation is made with the use of transparent tubes which are resistant to cable saturant.Heat shrink breakout boot with the filling mastic seals the cores' outlets and metal sheath termination. Heat shrink thick wall adhesive-layered tubes are applied for reconstruction of cores and connectors insulation. Additional insulation space is guaranteed by polyethylene spacer situated between the phase cores. The interior of the joint is filled with the three-cornered insulation mastic. Metal sheath and armour are reconstructed with the use of tinned copper sleeve installed by spring clips.
Covering of the joint is formed by the heat shrink thick wall adhesive-layered tube.

Properties of the joints:

- cover full range of cable cross-sections,
- high electrical and mechanical resistance due to heat shrink thick wall adhesive-layered tubes,
- made of materials resistant to cable saturant,
- guarantee reliable and long-life work of the power line.

Positive technical approving issued by Institute of Power Engineering in conformity with requirements of norm PN-90/E-06401.

Voltage range	Cable crosssection [mm^2]	Type of cable joint	Index
3,6/6kV	16-50	JHP-6-CF3 16-50	WMEJB0F030FI0001
	70-120	JHP-6-CF3 70-120	WMEJB0F030JL0001
	150-240	JHP-6-CF3 150-240	WMEJB0F030MO0001
6/10kV	16-50	JHP-10-CF3 16-50	WMEJC0F030FI0001
	70-120	JHP-10-CF3 70-120	WMEJC0F030JL0001
	150-185	JHP-10-CF3 150-185	WMEJC0F030MN0001
	240	JHP-10-CF3 240	WMEJC0F030O00001

Sets don't contain connectors. For joining cables with the use of crimping connectors.

Straight cable joints for 3-core screened saturated paper insulated and armoured cables with common metal sheath

8,7/15kV
12/20kV

Application:

for joining cables of type: H(A)KnF(t, p)A, H(A)KnF(t, p)y, H(A)Kny.

Technical information:

the set contains stress control mastic and tubing which are applied for controlling of the electrical field on connectors, individual cores' screens terminations and metal sheath. Oil-proof insulation tubes increase the electrical resistance of the connected cables. Reconstruction of the particular cores' screens is made with the use of heat shrink double-layer tubes. Copper mesh along with two earthing straps guarantee conducting of high short-circuit current and regular heat venting from the connection. Heat shrink thick wall adhesive-layered tube used for covering reconstruction and insulation mastic guarantee full protection against moisture penetration..

Properties of the joints:

- universal application for cables of two voltage levels: 8,7/15kV and 12/20kV,
- resistant to difficult environmental conditions, full protection against moisture penetration,
- in case of joints with screw connectors they limit the number of tools necessary for the assembling,
- guarantee reliable and long-life work of the power line,
- high electrical and mechanical resistance.

Positive technical approving issued by Institute of Power Engineering in conformity with requirements of norm PN-HD 629.2 S2:2006.

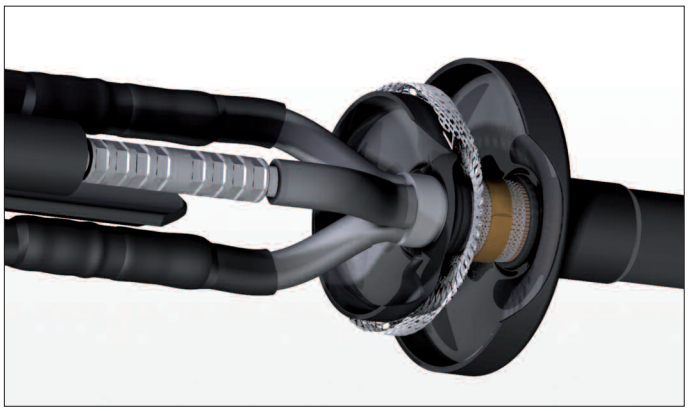
Voltage range	Cable cross-section [mm^2]	Type of cable joint	Index
8,7/15 kV and 12/20kV	35-150	JHP-20-CF3 35-150	WMEJE0F030H0M001
	95-240	JHP-20-CF3 95-240	WMEJE0F030K0O001

Sets don't contain connectors. Joint sets are meant for joining cables with the use of crimping connectors.

Voltage range	Cable cross-section [mm^2]	Type of cable joint	Index
8,7/15 kV and 12/20kV	50-150	JHP-20-CF3 50-150 (S)	WMEJE0F030H0M0S1
	95-240	JHP-20-CF3 95-240 (S)	WMEJE0F030K0O0S1

Joint sets are supplied with screw connectors.

Transition cable joints 3,6/6kV from 3-core polymer insulated cable to 3-core paper insulated cable



3,6/6kV

Application:
for joining 3-core unscreened polymer insulated cables of type YAKY with 3-core armoured, saturated paper insulated cables with common metal sheath e.g.: AKnFtA, AKnFpA, AKnFt, AKnFp, AKnFty, AKnFpy.

Voltage range	Cable cros-ssection [mm²]	Number of cores: Polymer insulated cable	Number of cores: Paper insulated cable	Type of cable joint	Index
3,6/6kV	35	3	3	JHP-6-CX/CF 3/3 35/35 (KA/KA,D)	WMETB0IF33H0H0B1
	50	3	3	JHP-6-CX/CF 3/3 50/50 (KA/KA,D)	WMETB0IF33I0I0B1
	70	3	3	JHP-6-CX/CF 3/3 70/70 (KA/KA,D)	WMETB0IF33J0J0B1
	95	3	3	JHP-6-CX/CF 3/3 95/95 (KA/KA,D)	WMETB0IF33K0K0B1
	120	3	3	JHP-6-CX/CF 3/3 120/120 (KA/KA,D)	WMETB0IF33L0L0B1
	150	3	3	JHP-6-CX/CF 3/3 150/150 (KA/KA,D)	WMETB0IF33M0M0B1
	185	3	3	JHP-6-CX/CF 3/3 185/185 (KA/KA,D)	WMETB0IF33N0N0B1
	240	3	3	JHP-6-CX/CF 3/3 240/240 (KA/KA,D)	WMETB0IF33O0O0B1

Joint sets are supplied with aluminium crimping connectors with partitions acc. to DIN standards.

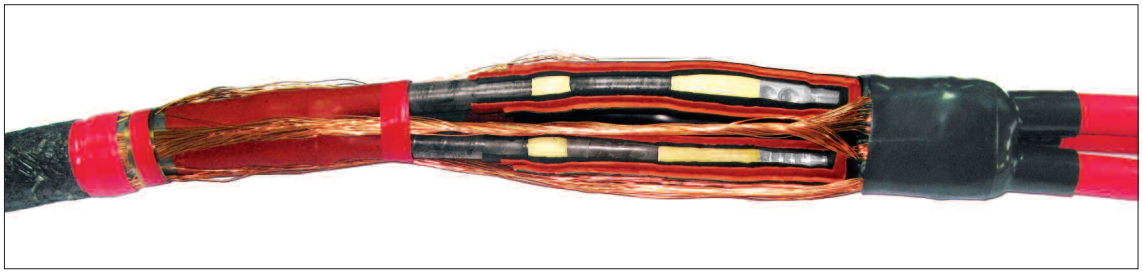
Voltage range	Cable cros-ssection [mm²]	Number of cores: Polymer insulated cable	Number of cores: Paper insulated cable	Type of cable joint	Index
3,6/6kV	35	3	3	JHP-6-CA/CF 3/3 35/35 (KA/KA,D)	WMETB0AF33H0H0B1
	50	3	3	JHP-6-CA/CF 3/3 50/50 (KA/KA,D)	WMETB0AF33I0I0B1
	70	3	3	JHP-6-CA/CF 3/3 70/70 (KA/KA,D)	WMETB0AF33J0J0B1
	95	3	3	JHP-6-CA/CF 3/3 95/95 (KA/KA,D)	WMETB0AF33K0K0B1
	120	3	3	JHP-6-CA/CF 3/3 120/120 (KA/KA,D)	WMETB0AF33L0L0B1
	150	3	3	JHP-6-CA/CF 3/3 150/150 (KA/KA,D)	WMETB0AF33M0M0B1
	185	3	3	JHP-6-CA/CF 3/3 185/185 (KA/KA,D)	WMETB0AF33N0N0B1
	240	3	3	JHP-6-CA/CF 3/3 240/240 (KA/KA,D)	WMETB0AF33O0O0B1

Joint sets are supplied with aluminium crimping connectors with partitions acc. to DIN standards.

Due to variety of cable connections requests for 3,6/6kV transition cable joints are determined individually.
Please contact our sales department.

Transition cable joints from 3-core screened saturated paper insulated and armoured cable with common metal sheath to three single core extruded and screened polymer insulated cables with copper wire screen

8,7/15kV
12/20kV



Application:

for joining cables of type: H(A)KnF(t, p)A, H(A)KnF(t, p)y, H(A)Kny z kablami YH(A)KXS, XH(A)KXS, XUH(A)KXS, XRUH(A)KXS.

Technical information:

in the initial stage of preparing for the assembling, paper insulated cable is transformed into polymer insulated cable with the use of transparent heat shrink thin wall tubes and 3-core breakout boot. Cores are being joined by leakproof connectors with partition. The joint set contains stress control mastic and tubing which are applied for controlling of the electrical field on connectors, individual cores' screens terminations and metal sheath.
Insulation tubes increase the electrical resistance of the construction, double-layer tubes reconstruct the individual cores' screens.
Spring clips guarantee the proper connection of the polymer cables' copper wire screen with the metal sheath and armour of the paper cable. Full protection against moisture penetration is ensured by heat shrink thick wall adhesive-layered tubes for the jacket reconstruction, heat shrink 3-core breakout boot closing the connection from the side of polymer cables and insulation mastic.

Properties of the joints:

- universal application for cables of two voltage levels: 8,7/15kV i 12/20kV,
- resistant to difficult environmental conditions, full protection against moisture penetration, can work under water,
- in case of joints with screw connectors they limit the number of tools necessary for the assembling,
- guarantee reliable and long-life work of the power line,
- high electrical and mechanical resistance.

Ppositive technical approving issued by Institute of Power Engineering in conformity with requirements of norm PN-HD 629.2 S2:2006.

Voltage range	Cable cross-section [mm^2]	Type of cable joint	Index
8,7/15 kV	35-150	JHP-20-CF/CXd 3/1 35-150/35-150	WMETE0FD31HMHM01
i 12/20kV	95-240	JHP-20-CF/CXd 3/1 95-240/95-240	WMETE0FD31KOKO01

Sets don't contain connectors. Joint sets are meant for joining cables with the use of compression connectors.
Should be used with MV leakproof cable connectors with partition.

Voltage range	Cable cross-section [mm^2]	Type of cable joint	Index
8,7/15 kV	50-150	JHP-20-CF/CXd 3/1 50-150/50-150 (S)	WMETE0FD31HMHMS1
i 12/20kV	95-240	JHP-20-CF/CXd 3/1 95-240/95-240 (S)	WMETE0FD31KOKOS1

Joint sets are supplied with screw connectors. It is possible to buy repair transition joints with additional tinned copper sleeve which extends length of copper wire screen of 1-core polymer insulated cables

Straight cable joints for screened rubber insulated cables with three service cores and three protection cores

3.6/6kV

Application: **for joining wires of type: OGb, OGc, OnGcekgż-G, OnGbekgż-G.**

Technical information: Tinned mining connectors are used for joining service cores and protection cores. Screens made of rubber semiconducting on service cores and their insulation, are reconstructed on protection cores with the use of semiconducting self-bond tapes. Heat shrink thick wall adhesive-layered tubes are used for reconstruction of connectors insulation. The area of connection is filled with insulation mastic. Covering is reconstructed with the use of two heat shrink thick wall self-extinguishing tubes with doublesealing (thermofusible adhesive and mastic).

Properties of the joints:

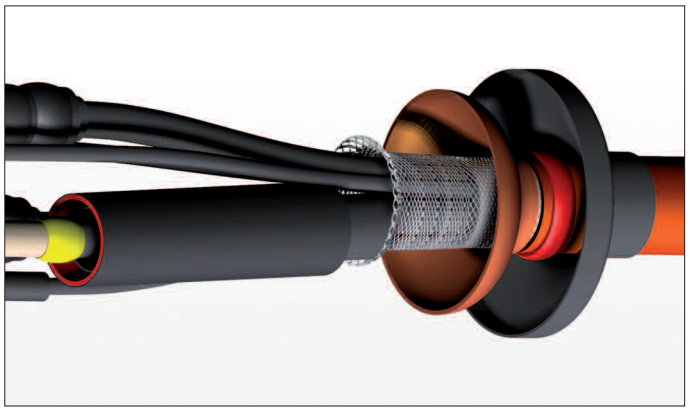
- guarantee durable cables' connection thanks to threaded mining connectors,
- flexible connection resistant to difficult working conditions such as opencast mines,
- high electrical and mechanical resistance due to heat shrink thick wall adhesive-layered tubes,
- guarantee covering reconstruction with the use of flame-retardant heat shrink thick wall adhesive-layered tube,
- anti-moisture barrier in the form of insulation and filling mastic.

Positive technical approving issued by EMAG 03/04.

Voltage range	Cable cross-section [mm^2]	Number of cores	Type of cable joint	Index
3,6/6kV	3x16 + 3x16/3	3+1/3	JHP-6-CG4 3x16 + 3x16/3 (K,D)	WMGJB0G0A0FF00D1
	3x25 + 3x16/3	3+1/3	JHP-6-CG4 3x25 + 3x16/3 (K,D)	WMGJB0G0A0GF00D1
	3x35 + 3x16/3	3+1/3	JHP-6-CG4 3x35 + 3x16/3 (K,D)	WMGJB0G0A0HF00D1
	3x50 + 3x25/3	3+1/3	JHP-6-CG4 3x50 + 3x25/3 (K,D)	WMGJB0G0A0IG00D1
	3x70 + 3x35/3	3+1/3	JHP-6-CG4 3x70 + 3x35/3 (K,D)	WMGJB0G0A0JH00D1
	3x95 + 3x50/3	3+1/3	JHP-6-CG4 3x95 + 3x50/3 (K,D)	WMGJB0G0A0KI00D1
	3x120 + 3x70/3	3+1/3	JHP-6-CG4 3x120 + 3x70/3 (K,D)	WMGJB0G0A0LJ00D1

Joint sets are supplied with mining tinned copper connectors acc. to DIN standards.

Straight cable joints for screened rubber insulated cables with three service cores and three protection cores



6/10kV

Application:
for joining mining wires of type: OnGcekgż-G (S), OnGcekgż-G (Z), OnGcrekgż-G (S), OnGcrekgż-G (Z) 6/10kV.

Technical information:

tinned mining connectors are used for joining service cores and protection cores. Stress control mastic is wrapped around the screens' terminations and the connector's surface.
They are used for preliminary controlling of the electrical field and filling up the space between insulation and connector's endings.
The joint is supplied with stress control tubing which is shaping the electromagnetic field distribution on the whole connection length, insulation and double-layer tube with integrated layers: inner insulation and outer semiconducting. Heat shrink thick wall adhesive-layered flame-retardant tube is used for reconstruction of the outer covering. Protection against moisture penetration is guaranteed by applied both thermofusible adhesive and mastic.

Properties of the joints:

- guarantee durable wires' connection thanks to threaded mining connectors,
- cover cable cross-sections up to 185 mm^2 of service core and up to 95 mm^2 of protection core,
- thermoplastic stress control mass applied in the joint set prevents from incomplete discharges occuring,
- high electrical and mechanical durability, resistance to difficult working conditions such as opencast mines,
- guarantee reliable and long-life work of the power line,
- anti-moisture barrier in the form of insulation and filling masses.

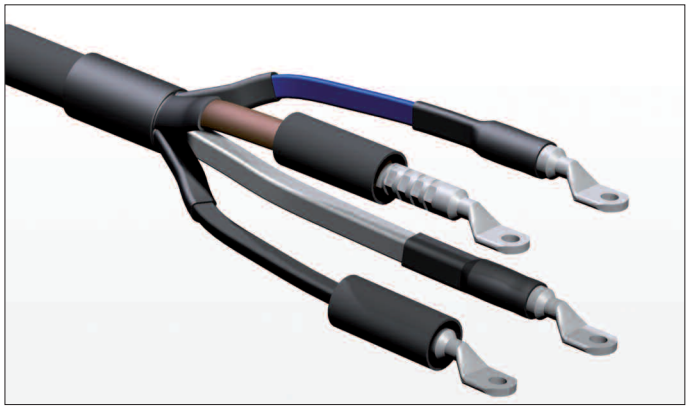
Positive technical approving issued by Institute of Power Engineering in conformity with requirements of norm PN-HD 629.1 S2:2006.

Voltage range	Cable cross-section [mm^2]	Number of cores	Type of cable joint	Index
6/10kV	3x16 + 3x16/3	3+1/3	JHP-10-CG4 3x16 + 3x16/3 (K,D)	WMGJC0G0A0FF00D1
	3x25 + 3x16/3	3+1/3	JHP-10-CG4 3x25 + 3x16/3 (K,D)	WMGJC0G0A0GF00D1
	3x35 + 3x16/3	3+1/3	JHP-10-CG4 3x35 + 3x16/3 (K,D)	WMGJC0G0A0HF00D1
	3x50 + 3x25/3	3+1/3	JHP-10-CG4 3x50 + 3x25/3 (K,D)	WMGJC0G0A0IG00D1
	3x70 + 3x35/3	3+1/3	JHP-10-CG4 3x70 + 3x35/3 (K,D)	WMGJC0G0A0JH00D1
	3x95 + 3x50/3	3+1/3	JHP-10-CG4 3x95 + 3x50/3 (K,D)	WMGJC0G0A0KI00D1
	3x120 + 3x70/3	3+1/3	JHP-10-CG4 3x120 + 3x70/3 (K,D)	WMGJC0G0A0LJ00D1
	3x150 + 3x70/3	3+1/3	JHP-10-CG4 3x150 + 3x70/3 (K,D)	WMGJC0G0A0MJ00D1
	3x185 + 3x95/3	3+1/3	JHP-10-CG4 3x185 + 3x95/3 (K,D)	WMGJC0G0A0NK00D1

Joint sets are supplied with mining tinned copper connectors acc. to DIN standards.

LOW VOLTAGE CABLE TERMINATIONS

Cable terminations 0,6/1kV for polymer insulated cables of type Y(A)KY, Y(A)KXS



Voltage range	Cable cross-section [mm²]	Number of cores	Type of cable termination	Index
0,6/1kV	16-35	3	TLP-CX3 16-35	WGE0AI3FH0001
	50-70	3	TLP-CX3 50-70	WGE0AI3IJ0001
	95-120	3	TLP-CX3 95-120	WGE0AI3KL0001
	150-240	3	TLP-CX3 150-240	WGE0AI3MO0001
	16-35	4	TLP-CX4 16-35	WGE0AI4FH0001
	50-70	4	TLP-CX4 50-70	WGE0AI4IJ0001
	95-120	4	TLP-CX4 95-120	WGE0AI4KL0001
	150-240	4	TLP-CX4 150-240	WGE0AI4MO0001
	10-16	5	TLP-CX5 10-16	WGE0AI5EF0001
	25-50	5	TLP-CX5 25-50	WGE0AI5GI0001
	70-120	5	TLP-CX5 70-120	WGE0AI5JL0001
	150-240	5	TLP-CX5 150-240	WGE0AI5MO0001

Sets don't contain cable lugs. For termination cables with the use of crimping lugs.

MEDIUM VOLTAGE TERMINATIONS

Indoor cable terminations for single-core screened polymer insulated cables with copper wire screen

Application: **designed for termination cables of type: YH(A)KXS, XUH(A)KXS, XH(A)KXS, X(RU)H(A)KXS.**

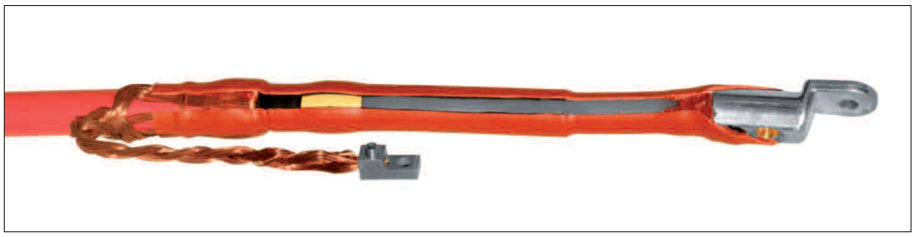
Technical information: the sets are based on heat shrink technology. They contain: phase marker resistant to creeping current, stress control mastic and tubing which are applied for controlling of the electrical field, insulation mastic preventing from moisture penetration. Terminations are additionally equipped with double-layer mastic used in drain wires' outlet and increasing termination tightness even in situations of multiple warming up and cooling processes in case of breaking work.

Properties of the terminations:

- resistant to hard environmental conditions,
- for cables with cross-sections up to 400 mm^2 (concerns terminations with screw lugs),
- in case of terminations with screw terminals they limit the number of tools necessary for the assembling,
- heat shrink tubes applied in the termination create insulation protection against superficial discharges,
- resistant to UV radiation,
- full protection against moisture penetration,
- high electrical and mechanical resistance,
- short assembling time thanks to simple construction and attached installation guide,

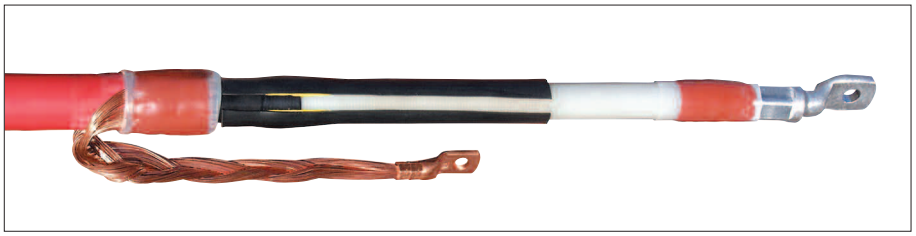
Positive technical approving issued by Institute of Power Engineering in conformity with requirements of norms PN-90/E-06401 i PN-HD 629.1 S2:2006.

6/10kV
8,7/15kV
12/20kV



Voltage range	Cable cross-section [mm^2]	Type of cable termination	Length [mm]	Index
6/10kV	50-95	THP-I-10-CXd1 50-95 (S)	450	WGEICD1IK00S1
	120-240	THP-I-10-CXd1 120-240 (S)	450	WGEICD1LO00S1
	240-400	THP-I-10-CXd1 240-400 (S)	450	WGEICD1OR00S1
8,7/15kV	35-95	THP-I-15-CXd1 35-95 (S)	450	WGEIDD1HK00S1
	95-240	THP-I-15-CXd1 95-240 (S)	450	WGEIDD1KO00S1
	185-400	THP-I-15-CXd1 185-400 (S)	450	WGEIDD1NR00S1
12/20kV	50-150	THP-I-20-CXd1 50-150 (S)	450	WGEIED1HM00S1
	95-240	THP-I-20-CXd1 95-240 (S)	450	WGEIED1JO00S1
	185-400	THP-I-20-CXd1 185-400 (S)	450	WGEIED1NR00S1

Termination sets enable making of three single-phase terminations, supplied with screw connectors.



Voltage range	Cable cross-section [mm^2]	Type of cable termination	Length [mm]	Index
6/10kV	35-95	THP-I-10-CXd1 35-95	450	WGEICD1HK0001
	95-240	THP-I-10-CXd1 95-240	450	WGEICD1KO0001
8,7/15kV	35-95	THP-I-15-CXd1 35-95	450	WGEIDD1HK0001
	95-240	THP-I-15-CXd1 95-240	450	WGEIDD1KO0001
12/20kV	35-95	THP-I-20-CXd1 35-95	450	WGEIED1HK0001
	70-240	THP-I-20-CXd1 70-240	450	WGEIED1JO0001

Termination sets enable making of three single-phase terminations. They are meant for termination cables with the use of compression terminals, sets don't contain terminals.

Outdoor cable terminations for single-core screened polymer insulated cables with copper wire screen

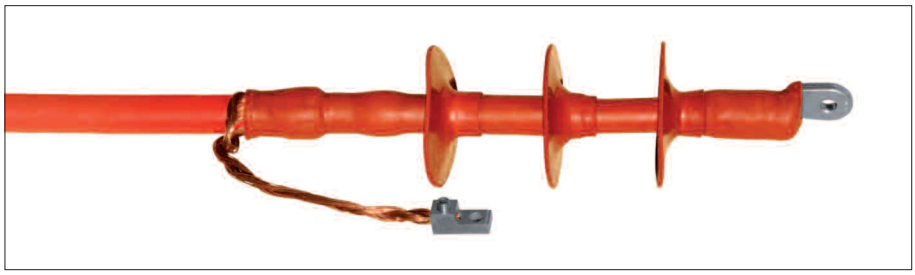
Application: **designed for termination cables of type: YH(A)KXS, XUH(A)KXS, XH(A)KXS, X(RU)H(A)KXS.**

Technical information: the construction of the outdoor termination is similar to indoor termination. Additionally depending on the voltage level heat shrink sheds are shrinked on insulation tube. They prevent from creeping current.

Properties of the terminations:

- resistant to hard environmental conditions,
- for cables with cross-sections up to 400 mm^2 (concerns terminations with screw lugs) ,
- in case of terminations with screw terminals they limit the number of tools necessary for the assembling,
- heat shrink tubes applied in the termination create insulation protection against superficial discharges,
- resistant to UV radiation,
- full protection against moisture penetration,
- high electrical and mechanical resistance,
- short assembling time thanks to simple construction and attached installation guide,

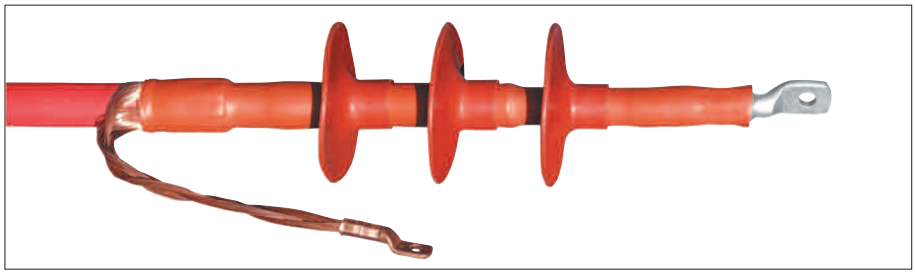
Positive technical approving issued by Institute of Power Engineering in conformity with requirements of norms PN-90/E-06401 i PN-HD 629.1 S2:2006.



6/10kV
8,7/15kV
12/20kV

Voltage range	Cable cross-section [mm^2]	Type of cable termination	Length [mm]	Index
6/10kV	50-95	THP-N-10-CXd1 50-95 (S)	450	WGENCD1IK00S1
	120-240	THP-N-10-CXd1 120-240 (S)	450	WGENCD1LO00S1
	240-400	THP-N-10-CXd1 240-400 (S)	450	WGENCD1OR00S1
8,7/15kV	35-95	THP-N-15-CXd1 35-95 (S)	450	WGENDD1HK00S1
	95-240	THP-N-15-CXd1 95-240 (S)	450	WGENDD1KO00S1
	185-400	THP-N-15-CXd1 185-400 (S)	450	WGENDD1NR00S1
12/20kV	50-150	THP-N-20-CXd1 50-150 (S)	450	WGENED1HM00S1
	95-240	THP-N-20-CXd1 95-240 (S)	450	WGENED1JO00S1
	185-400	THP-N-20-CXd1 185-400 (S)	450	WGENED1NR00S1

Termination sets enable making of three single-phase terminations, supplied with screw lugs.



Voltage range	Cable cross-section [mm^2]	Type of cable termination	Length [mm]	Index
6/10kV	35-95	THP-N-10-CXd1 35-95	450	WGENCD1HK0001
	95-240	THP-N-10-CXd1 95-240	450	WGENCD1KO0001
8,7/15kV	35-95	THP-N-15-CXd1 35-95	450	WGENDD1HK0001
	95-240	THP-N-15-CXd1 95-240	450	WGENDD1KO0001
12/20kV	35-95	THP-N-20-CXd1 35-95	450	WGENED1HK0001
	70-240	THP-N-20-CXd1 70-240	450	WGENED1JO0001

Termination sets enable making of three single-phase terminations They are meant for termination cables with the use of compression terminals, sets don't contain terminals. Meant for leakproof cable lugs.

RADPOL

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