

Water cooled high current cables

Suitable for high current transmission within melting and heating plants, e.g. in

- electric arc- and ladle furnaces as well as in induction-, reduction-, vacuum- or graphitizing furnaces
- inside of the steel-, foundry-, glass melting- or non ferrous metal industry

We produce water cooled cables with conductor cross-sections up to 6000 mm² matched to their respective application, e.g. as

- single or multiple conductor cables
- hollow core cables
- with pipe connections
- high power cables with or without rotating joints for electric arc furnaces

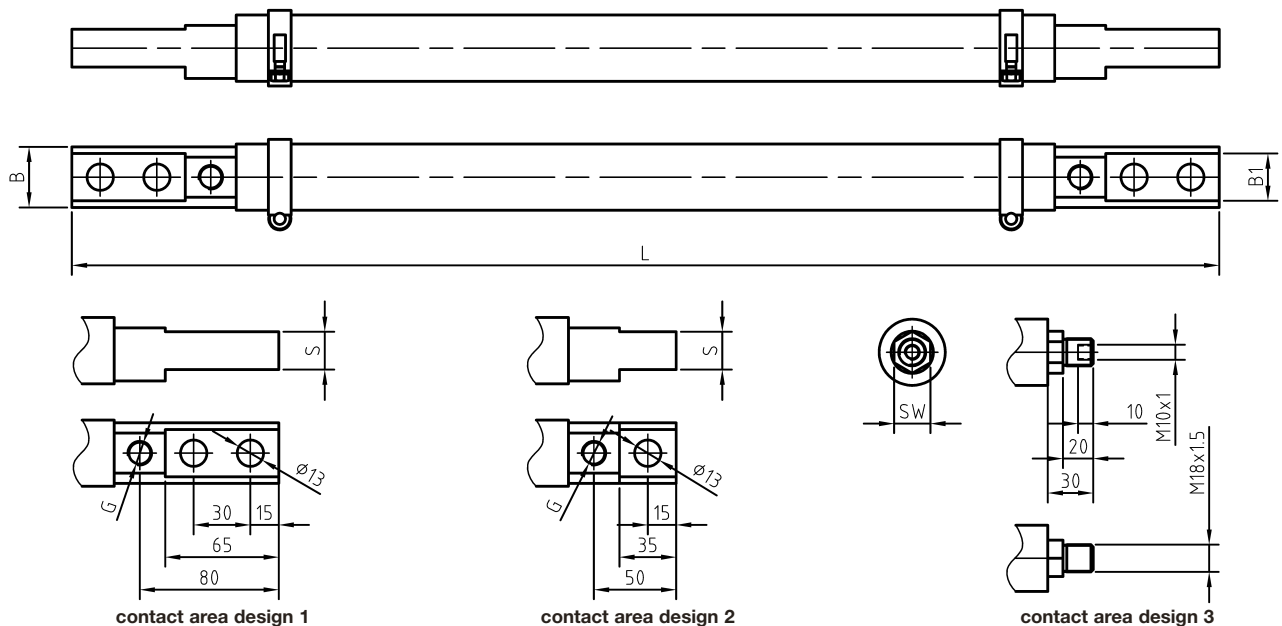
A fast repair of all common types of cables in a short time also belongs to our service and delivery program.



Water cooled cables used in welding machines



Our water cooled cables for applications inside of welding machines or welding devices are available in different designs. Type B is equipped with contact ends according to our druseidt specification and the types C and D are in accordance with DIN EN ISO 8205-2. The connection between the contact ends and the conductor rope is realized by a solderless crimp-process, so that an optimized current transfer is guaranteed. The construction of the conductor ropes as well as the high quality water hoses offer an excellent flexibility and mechanical stability. The cables can be used also for welding roboter applications. The wall thickness (circa 4,5 mm) of our standardized hoses is acc. to the description on page 51. For special applications, requiring a very high flexibility, we offer tubes with a reduced wall thickness. Additionally to our standardized designs we deliver cables according to your drawings/samples or wishes up to a cross-section of 1000 mm².



	Part-No.	technical data						
		cross-section mm ²	dimensions mm					
			B	B ₁	S	G	SW	L
type B	30638 B	120	25	21	13	1/4 "	-	according to customers' wishes
	30640 B	150	28	24	15	1/4 "	-	
	30641 B	185	28	23	16	1/4 "	-	
	30644 B	240	32	26	18	1/4 "	-	
	30645 B	300	32	26	18	1/4 "	-	
	30646 B	400	38	32	21	1/4 "	-	
	30647 B	500	42	34	24	1/4 "	-	
type C	30638 C	120	25	21	13	1/4 "	-	
	30640 C	150	28	24	15	1/4 "	-	
	30641 C	185	28	23	16	1/4 "	-	
	30644 C	240	32	26	18	1/4 "	-	
	30645 C	300	32	26	18	1/4 "	-	
	30646 C	400	38	32	21	1/4 "	-	
	30647 C	500	42	34	24	1/4 "	-	
type D	30638 D	120	25	21	13	1/4 "	21	
	30640 D	150	28	24	15	1/4 "	24	
	30641 D	185	28	23	16	1/4 "	24	
	30644 D	240	32	26	18	1/4 "	24	
	30645 D	300	32	26	18	1/4 "	27	

Deliverable standard designs:

Type B = contact areas on both sides design 1
 Type C = contact areas on both sides design 2
 Type D = contact areas one side design 2
 and design 3 at the other side
 Other variations are available on request.

Remark:

Information about current-capacities for welding applications is contained in the DIN EN ISO 8205-2. Information for current capacities for other applications is available on request.

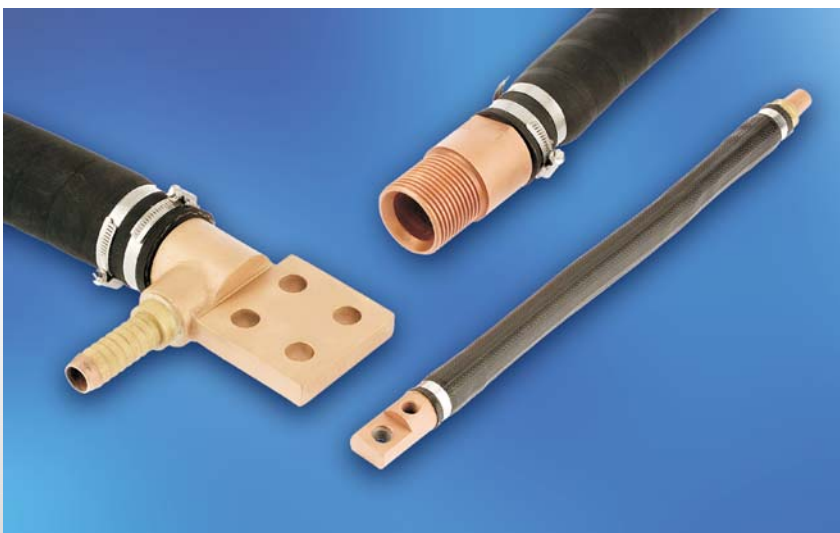
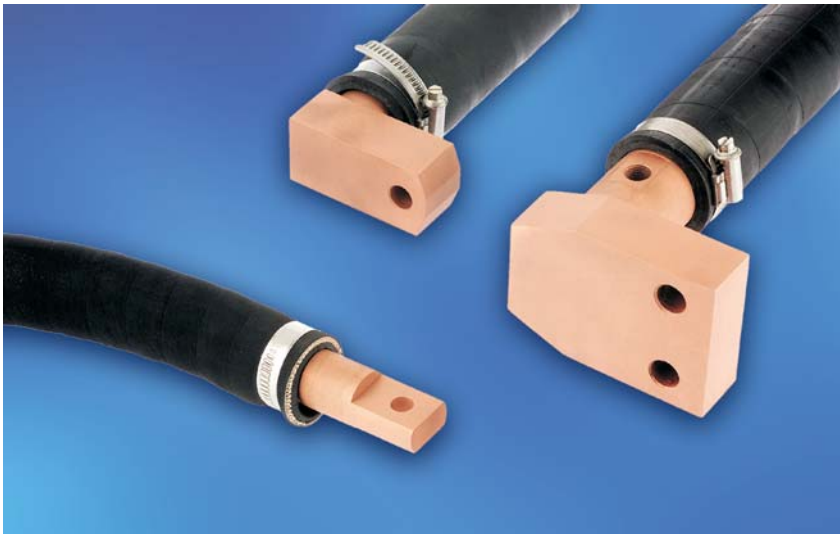
operating pressure: max. 6 bar
 testing pressure: 10 bar

Water cooled cables according to customers' wishes



We produce water cooled cables for various kinds of applications and with contact ends matched to the customers' wishes. All designs with high quality non conducting coolant water hoses.

A fast repair of all common types of cables in a short time also belongs to our service and delivery program.



Water cooled high current cables with solderless pressed cable heads preferably for mains frequency



water cooled cables in standard design



solderless pressed cable head

Construction and application

Single conductor cables manufactured in the cross-section ranges up to 1000 mm² and up to 1200 mm² as multiple conductor cables. Ideally suited for mains frequency applications, e.g. in production plants in the steel-, foundry-, non-ferrous metal- or glass melting industries, but applications are also feasible in graphitizing furnaces. Our cables are used wherever high currents are transmitted with relocatable loads or in adverse deployment conditions in heating operations. As a result of the construction selected for the inside conductor, combined with the special coolant water hoses and our manufacturing technology, we offer extremely flexible space-saving components for high current transmission.

Connectors and cooling

All standard connectors/cable heads are manufactured out of E-copper material and are crimped on the E-copper conductor without soldering. Using our druseidt crimping technology, only materials of the same conductance value are connected together, without the use of additional materials, such as solder or welding additives. This ensures the best possible loss-free current transmission. The geometry and positioning of crimping facilitates the best possible coolant water flow.

Coolant water connection holes / hose nipples

Thread holes of a sufficient size are made in the connectors to hold hose nipples. The cable is delivered without nipples as standard. These can be additionally ordered as accessories according to our catalogue page 50. It is also possible to set the cooling holes to other positions than the standard or to change the thread size.

Coolant water hoses

The flexible coolant water hoses we use are fitted with additional heat protection against radiated heat and liquid metal splashing. The hose casing is flame retardant and self-extinguishing. The breakdown rating is 6 kV/mm.

The maximum allowed operating pressure for the cables is 6 bar. All cables are tested with a pressure of 10 bar before leaving our factory.

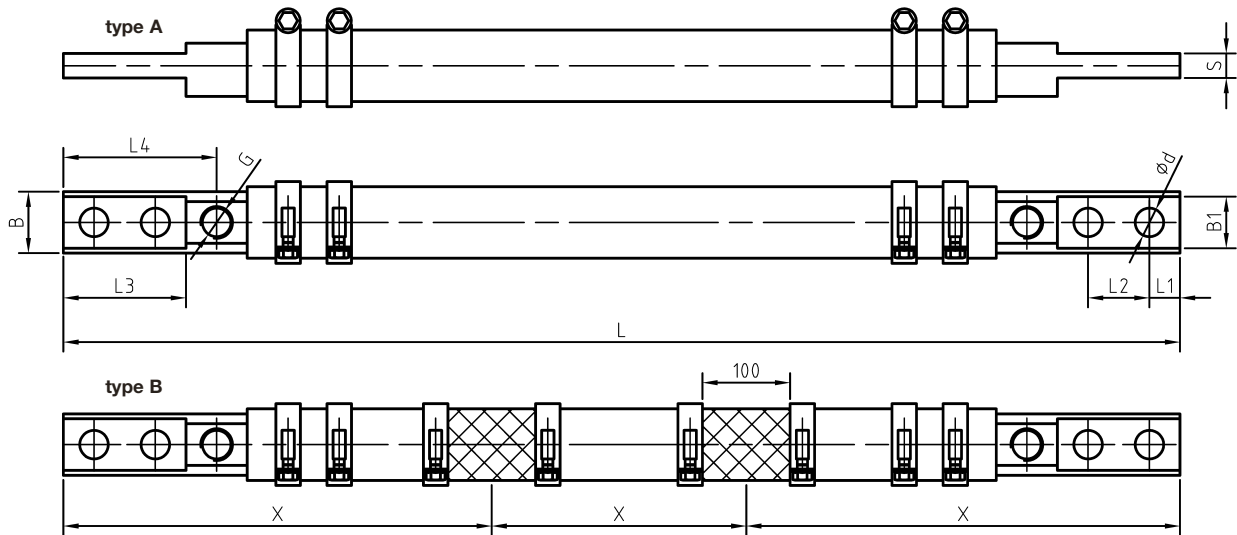
Cable with additional shims

To ensure secure fixture, especially in the case of long water cooled high-current cables, all single conductor cables can be fitted with one or more shims. These additional solid parts fitted in the conductor guarantee easy fitting at the labelled points by means of clamping or holding devices. Squeezing the hose together and the ensuing damage, as well as the reduction in water flow throughput, are thereby avoided.

Special designs and cable repairs

In addition to our standard designs, we also manufacture all cable cross-sections with connectors, as well as offering customised designs (e.g. replacement parts for all common electro-furnaces from the well-known manufacturers). We also undertake cable repairs at short notice, both for our cables and those of other manufacturers.

Water cooled high current cables 120-1000 mm²
with heat resistant hoses and solderless pressed cable heads
preferably for mains frequency

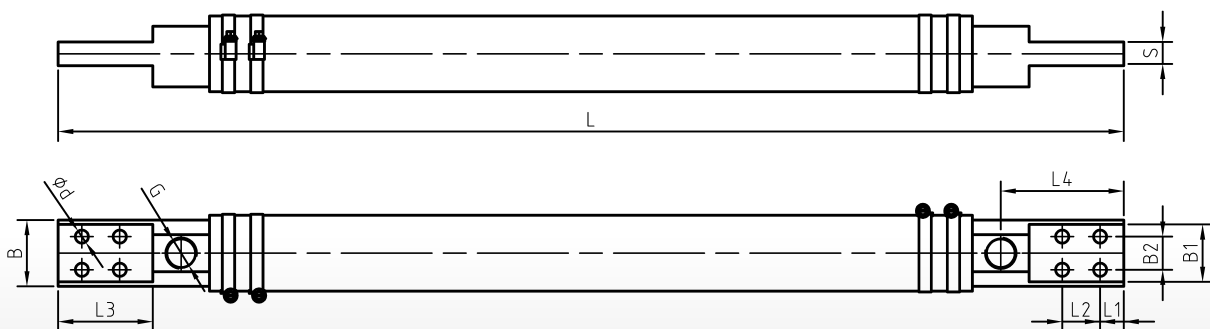


Remark:

Type B fitted with one or more shims, to secure fixture, especially when working with long cables.
When placing an order please specify the number and the position of the shims.

Part-No.		technical data											
type A	type B	cross-section mm ²	current-load	dimensions mm									
				L ₁	L ₂	L ₃	L ₄	B	B ₁	d	G	S	L
30600 A	30600 B	120	1600 A	12,5	25	50	60	25	23	11	1/4 "	10	according to customers' wishes
30601 A	30601 B	185	2500 A	15	30	60	75	30	28	14	3/8 "	12	
30602 A	30602 B	300	3700 A	15	30	60	75	35	32	14	3/8 "	15	
30603 A	30603 B	400	4500 A	20	40	80	95	42	37	18	3/8 "	20	
30604 A	30604 B	500	5500 A	20	40	80	95	55	51	18	3/8 "	20	
30605 A	30605 B	750	7500 A	20	40	80	95	55	49	18	3/8 "	25	
30606 A	30606 B	1000	10000 A	25	50	100	120	70	63	22	1/2 "	30	

Water cooled high current cables 750-2000 mm²
with heat resistant hoses and solderless pressed cable heads
preferably for mains frequency



Part-No.		technical data												
		cross-section mm ²	current-load	dimensions mm										
				L ₁	L ₂	L ₃	L ₄	B	B ₁	B ₂	d	G	S	L
30615		750	7500 A	20	40	85	105	65	61	30	14	3/4 "	22	acc.to custo- mers' wishes
30616		1000	10000 A	25	40	100	130	70	65	35	14	1 "	25	
30617		1200	12000 A	30	50	120	150	80	74	40	14	1 "	30	
30618		1600	16000 A	30	50	120	150	90	83	40	14	1 "	35	
30619		2000	20000 A	35	60	140	170	100	94	40	14	1 "	35	

**Water cooled hollow core cables
with soldered cable heads
preferably for medium frequency up to 10 kHz**



Hollow core cables in standard design



Soldered cable head with conductors wound around a spring core

Construction and application

The used conductor ropes, with their large surfaces, and the construction of our water cooled hollow core cables offer an optimized water flow and therefore an excellent cooling of the cables. Caused by their constructive characteristics they are well suited for high current transmission in the field of medium or higher frequencies. Two series are standard. For applications up to 2000 hertz with uncoated or on request also tinned standard ropes and for applications up to 10000 hertz with stranded special ropes made out of individual enamelled wires. All conductors with bigger cross-sections are wound around a non magnetic spring core. This construction allows water to flow also through the centre of the cable and enable so an optimized cooling. Such cables are mainly used in the field of induction plants or induction furnaces.

Connectors and cooling

All standard connectors/cable heads are manufactured out of E-copper material and are connected with the conductor ropes by soldering. Caused by the constructive characteristics hollow core cables offer a better cooling and water flow compared with single conductor cables.

Coolant water connection holes / hose nipples

Thread holes of a sufficient size are made in the connectors to hold hose nipples. The cable is delivered without nipples as standard. These can be additionally ordered as accessories according to our catalogue page 50. It is also possible to set the cooling holes to other positions than the standard or to change the thread size.

Coolant water hoses

The flexible coolant water hoses we use are fitted with additional heat protection against radiated heat and liquid metal splashing. The hose casing is flame retardant and self-extinguishing. The breakdown rating is 6 kV/mm. **The maximum allowed operating pressure for the cables is 6 bar.** All cables are tested with a pressure of 10 bar before leaving our factory.

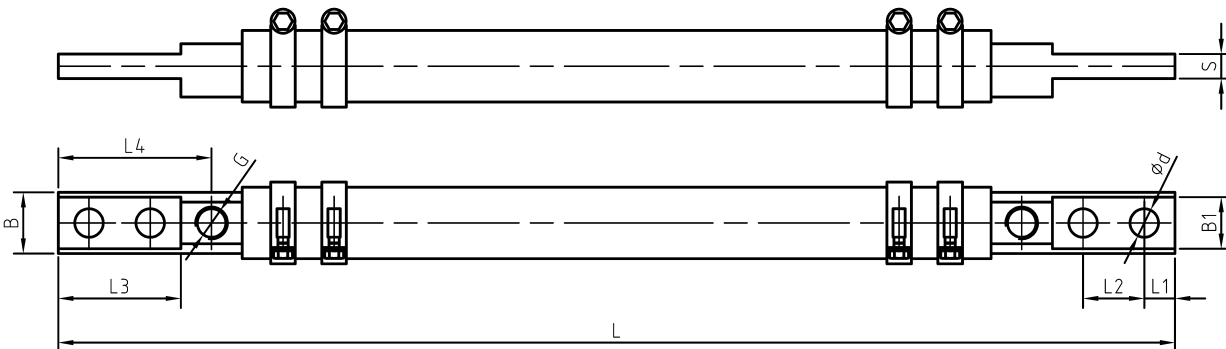
Hollow core cables for pipe connections

To connect water cooled cables with pipe systems of power leading tubes or with tubing connectors of contact plates cables with special power leading connectors are needed. We deliver such cables equipped with connectors on one or both sides for standard applications with frequencies up to 2000 hertz and for tube diameters up to 70 mm. Material of the standard connectors is brass. Other materials on request.

Special designs and cable repairs

In addition to our standard designs, we also manufacture all cable cross-sections with connectors, as well as offering customised designs (e.g. replacement parts for all common electro-furnaces from the well-known manufacturers). We also undertake cable repairs at short notice, both for our cables and those of other manufacturers.

Water cooled hollow core cables with heat resistant hoses



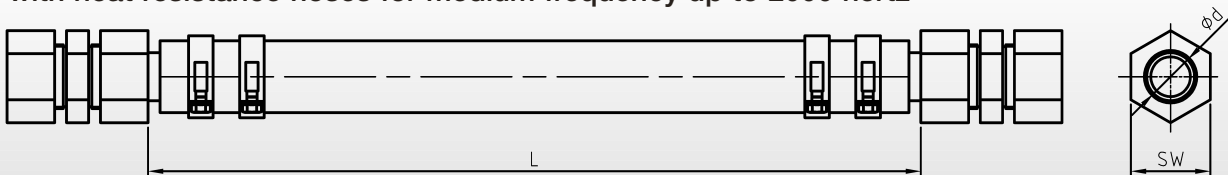
Water cooled hollow core cables 300-1000 mm² with heat resistant hoses for medium frequency up to 2000 hertz

Part-No.	technical data														
	cross-section mm ²	current-load in A by				dimensions mm									
		50 Hz	500 Hz	1000 Hz	2000 Hz	L ₁	L ₂	L ₃	L ₄	B	B ₁	d	G	S	L
30673	300	3700	3300	3100	2900	20	40	80	95	42	37	18	3/8"	20	according to customers' wishes
30674	400	4500	4100	3800	3600	20	40	80	95	50	43,3	18	3/8"	25	
30675	500	5500	5000	4800	4600	20	40	80	95	55	49	18	3/8"	25	
30676	600	6200	5600	5400	5100	20	40	80	95	60	52	18	3/8"	30	
30677	700	7100	6000	5800	5400	20	40	80	95	60	52	18	3/8"	30	
30678	800	8000	7100	6700	5900	25	50	100	115	70	63,3	22	3/8"	30	
30679	1000	10000	7500	6800	6000	25	50	100	115	70	63,3	22	3/8"	30	

Water cooled hollow core cables 70-1015 mm² with heat resistant hoses for medium frequency up to 10000 hertz

Part-No.	technical data															
	cross-section mm ²	current-load in A by					dimensions mm									
		50 Hz	1000 Hz	2000 Hz	4000 Hz	10000 Hz	L ₁	L ₂	L ₃	L ₄	B	B ₁	d	G	S	L
30610	70	950	920	900	800	700	12,5	25	50	65	25	22,9	11	1/4"	10	according to customers' wishes
30611	105	1400	1300	1200	1100	900	15	30	60	75	30	27,5	14	3/8"	12	
30612	140	1900	1700	1600	1500	1350	15	30	60	75	35	31,6	14	3/8"	15	
30613	175	2300	2000	1900	1750	1550	20	40	80	95	42	36,9	18	3/8"	20	
30614	210	2750	2400	2250	2100	1750	20	40	80	95	42	36,9	18	3/8"	20	
30680	315	3800	3250	3050	2800	1900	20	40	80	95	42	36,9	18	3/8"	20	
30681	420	4600	4100	3850	3450	2200	20	40	80	95	50	43,3	18	3/8"	25	
30682	525	5600	5000	4850	4000	2500	20	40	80	95	55	49	18	3/8"	25	
30683	630	6700	6000	5700	4800	3000	20	40	80	95	60	52	18	3/8"	30	
30684	700	7500	6300	5900	5300	3400	20	40	80	95	60	52	18	3/8"	30	
30685	805	8500	7200	6400	5700	3700	25	50	100	115	70	63,3	22	3/8"	30	
30686	1015	10000	7400	6600	-	-	25	50	100	115	70	63,3	22	3/8"	30	

Water cooled cables for pipe connections with heat resistance hoses for medium frequency up to 2000 hertz



Design with pipe connections on both sides

When placing an order please specify:

Remark:

Pipe connectors without cable for the connection of two tubes are contained in this catalogue on page 50.

- conductor cross-section and current load
- diameter of the tube/clamping-Ø of the pipe connector
- length/dimension L acc. to our drawing

Water cooled high current cables with solderless pressed cable heads preferably for electric arc- and ladle furnaces



Cables in standard design up to conductor cross-section of 6000 mm²

Construction and application

Manufactured out of several flexible, stranded copper ropes with a cross-section range of 400 mm² or 500 mm² wound around a supporting tube. We use stranded ropes in special construction and every second single conductor rope is protected against abrasion with a perforated hose. The wire-Ø and the construction of the ropes are so selected that the mechanical wear is minimized. Preferably such cables are used inside of electric arc- and ladle furnaces.

Connectors and cooling

All standard connectors/cable heads are manufactured out of E-copper material and are crimped on the E-copper conductor without soldering. Using our druseidt crimping technology, only materials of the same conductance value are connected together, without the use of additional materials, such as solder or welding additives. This ensures the best possible loss-free current transmission. The geometry and positioning of crimping facilitates enable the best possible coolant water flow.

Coolant water connections holes/hose nipples

Thread holes of a sufficient size are made in front as well as at the side of the cable heads to hold hose nipples or tubing connectors. To realize an optimal cooling process we equip the cable heads with one separate borehole per single conductor rope. The position of the drilling is selected in that way, that an optimized water flow is guaranteed. The cable is delivered without nipples as standard. These can be additionally ordered as accessories e.g. according to our catalogue page 50.



Special coolant water hose with traffic light effect as early warning system

Coolant water hoses

The flexible coolant water hoses we use are fitted with additional heat protection against radiated heat and liquid metal splashing. The hose casing is non flammable and self extinguishing. In standard design we use a high quality tube, non conductive, with excellent physical properties and extremely resistance to abrasion. To control the wear and the abrasion the tube is equipped with a so called traffic-light effect, which based on the green respectively red rubber layer inside of the hose casing. So it is possible to control the tube condition optically. The latest moment for changing and repairing the cables should be given when the red rubber layer is visible.

Allowed working pressure: max. 6 bar

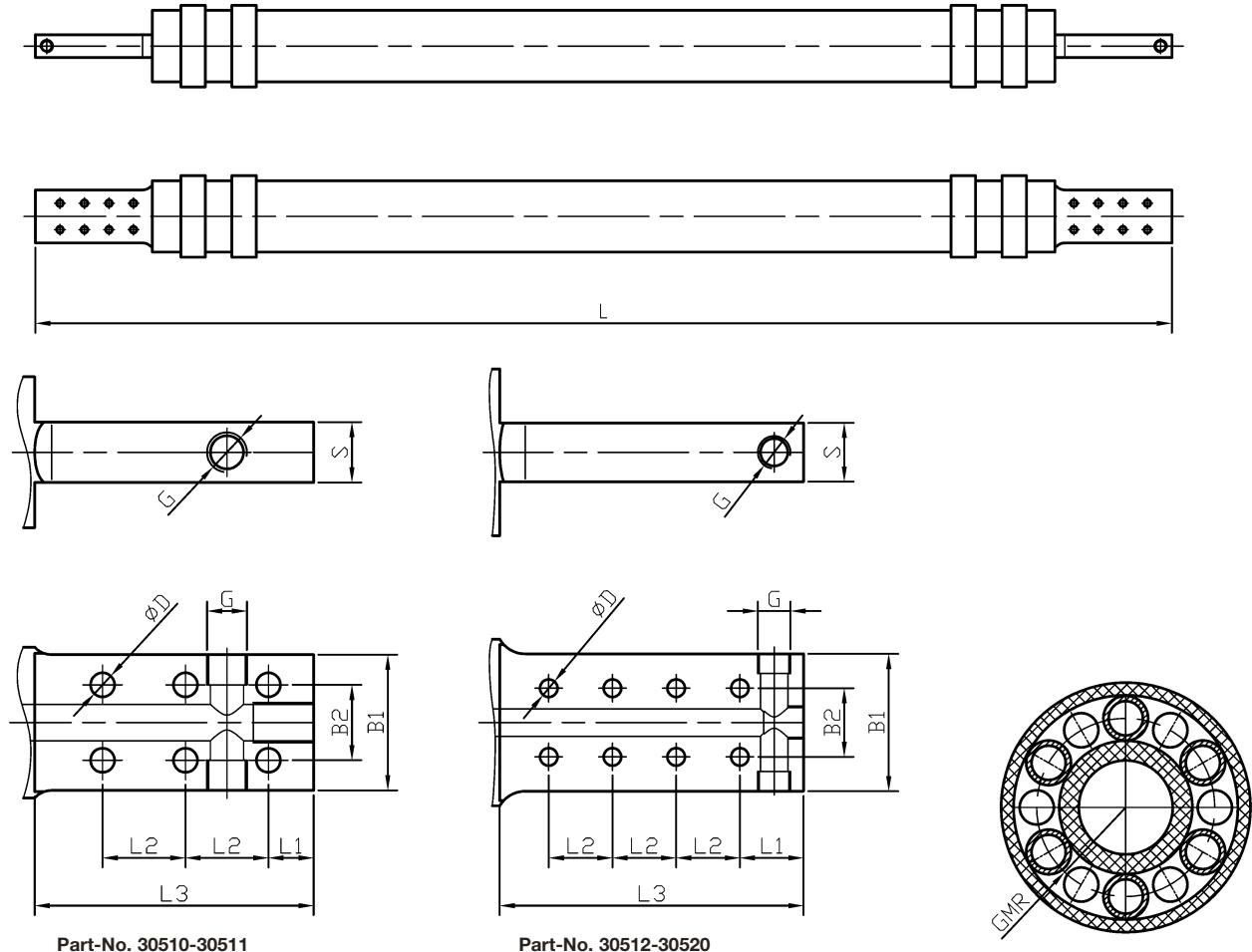
Testing pressure: 10 bar

Current load: As approximate value we recommend circa 4,5 A/mm²

Special designs and cable repairs

As desired we manufacture high current cables according to your drawings or wishes also with rotated joints or mounted bumpers. Fast repair of all common types of cables, ours as well as those of other manufacturers, belong to our service and delivery program.

Water cooled high current cables
with solderless pressed cable heads
preferably for electric arc- and ladle furnaces



Part-No. 30510-30511

Part-No. 30512-30520

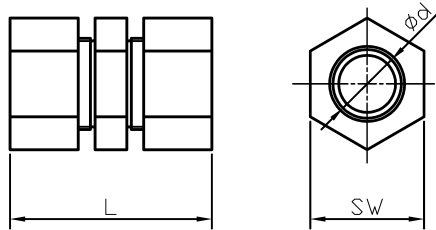
Part-No.	technical data												
	cable constr. n x mm ²	cross-section mm ²	outer hose l Ø x ca.S	dimensions mm									
				L	L ₁	L ₂	L ₃	B ₁	B ₂	d	G	S	GMR
30510	5 x 400	2000	100 x 13	according to customers' wishes	30	55	185	90	50	16	3/4"	40	34,5
30511	6 x 400	2400	100 x 13		30	55	185	90	50	16	3/4"	40	34,5
30512	7 x 400	2800	115 x 13,5		30	60	255	100	60	16	1"	50	42
30513	8 x 400	3200	125 x 13,5		30	60	255	100	60	18	1"	50	47
30514	9 x 400	3600	133 x 14		30	60	290	120	65	18	1"	50	51
30515	10 x 400	4000	150 x 14		30	60	290	130	65	18	1"	50	59,5
30516	11 x 400	4400	160 x 14		65	65	310	130	70	18	1"	50	64,5
30517	12 x 400	4800	170 x 14		65	65	310	140	70	18	1"	60	69,5
30518	13 x 400	5200	180 x 14		65	65	310	140	70	18	1"	60	74,5
30519	14 x 400	5600	180 x 14		65	65	310	140	70	18	1"	60	74,5
30520	15 x 400	6000	200 x 14	65	65	310	140	70	18	1"	60	84,5	

Remark:

Additionally to the standardized designs according to the table above we manufacture such cables in different constructions e.g. consisting out of ropes with a conductor cross-section of 500 mm² or according to your wishes or drawings.

Pipe connectors

material: brass uncoated

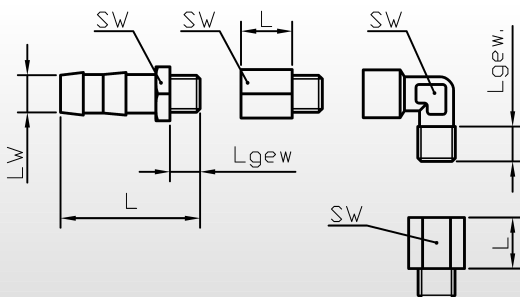
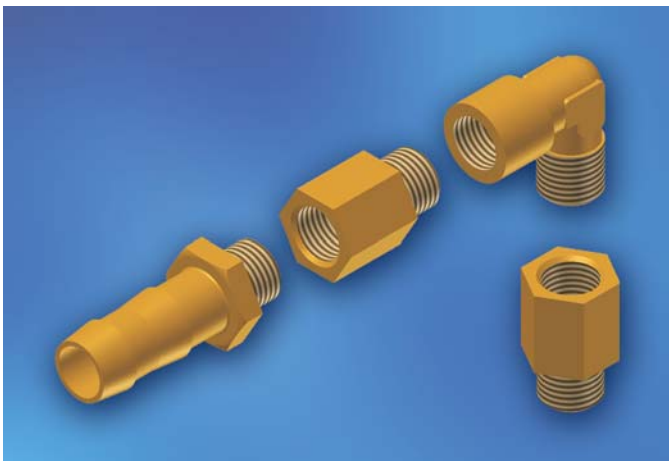


To realize current leading, watertight connections inside of pipe systems our special pipe connectors are needed. They enable a connection between two tubes as well as connections between tubes and water cooled cables or tubing connectors of contact plates. They can be delivered as simple connector as well as directly mounted on a water cooled cable according to our catalogue page 46/47. Material of the standard design is brass with uncoated copper clamping rings. Other materials like stainless steel or with silvered clamping rings are available on request.

Part-No.	technical data			
	for tubing conductor Ø d	dimensions mm connect. length min.	Sw	L
15490	28	45	50	90
15491	30	45	50	90
15492	35	45	60	90
15493	40	45	65	95
15494	42	45	65	95
15495	48	45	70	95
15496	50	50	70	105
15497	60	50	80	105
15498	70	50	90	105

Water hose connectors, elbows and extension nipples with external/internal thread

material: brass, uncoated



Part-No.	technical data				
	thread	Sw	Lw	Lgew	L
water hose connectors					
15448	1/4 "	19	13	10	48
15449	3/8 "	19	13	10	48
15450	1/2 "	24	13	10	50
15451	3/4 "	27	19	11	50
15452	1 "	38	25	11	51
elbows					
15458	1/4 "	13	-	12	-
15459	3/8 "	17	-	12	-
15460	1/2 "	21	-	15	-
15461	3/4 "	26	-	15	-
15462	1 "	30	-	16	-
extension nipples					
15468	1/4 "	17	-	-	18
15469	3/8 "	19	-	-	19
15470	1/2 "	24	-	-	22
15471	3/4 "	17	-	-	30
15472	1 "	22	-	-	40

Remark:

Part-No. 15471 and 15472 sw = hexagonal area inside of the nipples

Coolant water hoses without additional thermal protection



Part-No.	technical data		
	dimensions mm		description
	Inside-Ø	wall thickness ca.	
15473	25	4,5	stabilized, flexible rubber hose
15474	28	4,5	suitable for welding roboter applic.
15475	32	4,5	operating pressure : max. 10 bar
15476	35	4,5	burst pressure: circa 30 bar
15477	38	5,0	temperature range: up to +100° C
15478	42	5,0	dielectric strength: 5 kV/mm

Coolant water hoses with additional thermal protection



Part-No.	technical data		
	dimensions mm		description
	Inside-Ø	wall thickness ca.	
15432	25	6,0	special tube with an additional thermal protection against radiated
15433	30	6,5	heat and liquid metal splashing
15434	35	6,5	with flame retardant,
15435	42	6,5	self extinguishing cover
15435/50	50	8,0	operating pressure: max. 10 bar
15436	55	8,0	burst pressure: > 30 bar
15436/60	60	8,0	temp. range: up to +100° C
15437	70	8,0	dielectric strength: 6 kV/mm
15437/80	80	8,0	
15438	90	10,0	
15439	100	10,0	

Stainless steel clamps



Part-No.	technical data		
	dimensions mm		description
	clamping-Ø	width	
15480	16 - 25	12	stainless steel clamps used in
15481	20 - 32	12	areas where extremely high band
15482	25 - 40	12	tensile forces are required.
15483	35 - 50	12	With its tensile strength, the high
13040	40 - 60	12	fracture torque and even tension
15484	50 - 70	12	force distribution, the clamps are
13041	60 - 80	12	well suited inside of cooling water
15485	70 - 90	12	connections.
13042	80 - 100	12	
15486	90 - 110	12	
15487	110 - 130	12	