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# druseidt

## Elektrotechnik



Product information

Water cooled high current cables  
up to a cross-section range of 2000 mm<sup>2</sup>  
and high current pipe-systems



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## Water cooled high current cables up to a cross-section range of 2000 mm<sup>2</sup> and high current pipe-systems

The water cooled high current cables described in this product information are used to transmit high currents. The cables are preferably used in melting and heating plants inside of the foundry-, non ferrous- or glass melting industry.

There they find application as portable, space-saving power supply elements in the range of induction-, reduction-, vacuum-, graphitizing- or glass melting furnaces. Other areas of application are given in the range of production equipment for polysilicon. There they are often used in conjunction with water cooled high current pipe-systems.

The druseidt company designs and delivers therefore, in addition to the water cooled cables, also complete high current systems consisting out of water cooled high current pipes in insulated as well as non insulated design.

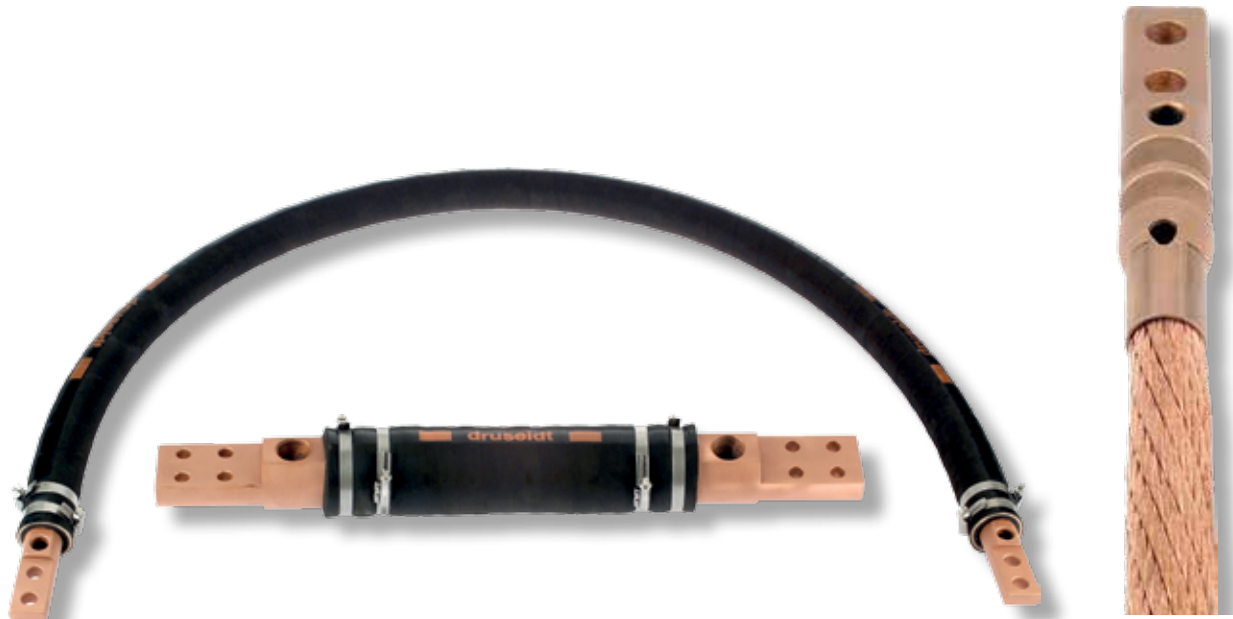
Water cooled power transmission elements made by druseidt Electro- technology:

- **Water cooled single conductor cables**
- **Water cooled multi conductor cables**
- **Water cooled hollow core cables**
- **Water cooled pipes**
- **Water cooled systems consisting out of cables and pipes**

for mains- and medium frequency up to 10 kHz.



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



Water cooled cables in standard design

Solderless pressed cable head  
in druseidt crimp-technology

### Construction and application

For mains frequency applications we deliver single- or multi-conductor cables up to a cross-section range of 2000 mm<sup>2</sup>. Single conductor cables are manufactured in the cross-section range up to 1000 mm<sup>2</sup> and from 1200 mm<sup>2</sup> multi-conductor cables. Ideally suited as space-saving flexible current leads in the field of induction plants inside of the steel melting-, foundry-, non ferrous metal- or glass melting industry or similar application.

### Cable heads and cooling

All druseidt heads are manufactured out of E-copper/copper-ETP with extremely high conductivity. To prevent slippage of the cooling water hoses surely they are provided with an edged surface. The location and design of the cooling bores are so selected, that an optimized flow of cooling water as possible is given. The cables are delivered without nipples as standard. These can be additionally ordered as accessories according to the table on page 10. Contrary to the standard design it is also possible to displace the cooling bores 90° or to change the thread size.

### druseidt coolant water hoses

Our coolant water hoses are of high quality and have been proven in practice for many years. They are built up in multilayer design, electrically insulated with flame retardant, self extinguishing cover. These hoses reach even under adverse operating conditions a good life time. **The maximum allowed operating pressure is 6 bar** and all cables are tested with a pressure of 10 bar before leaving our factory.

### druseidt crimp technology

The connection between the flexible copper ropes and the cable heads will be realized by a special solderless crimping process. The therefore used special druseidt crimp technology, in combination with a pressure of some hundred tons, guarantees an optimized electrical connection as well as an economical production process. The flexible conductor ropes are crimped extensively all around and optimally compressed. By using stored machine settings the druseidt crimp technology is reproducible at any time, minimizes the electrical resistances, thus reducing the electrical losses.

### Cables with additional clamps (cable design B)

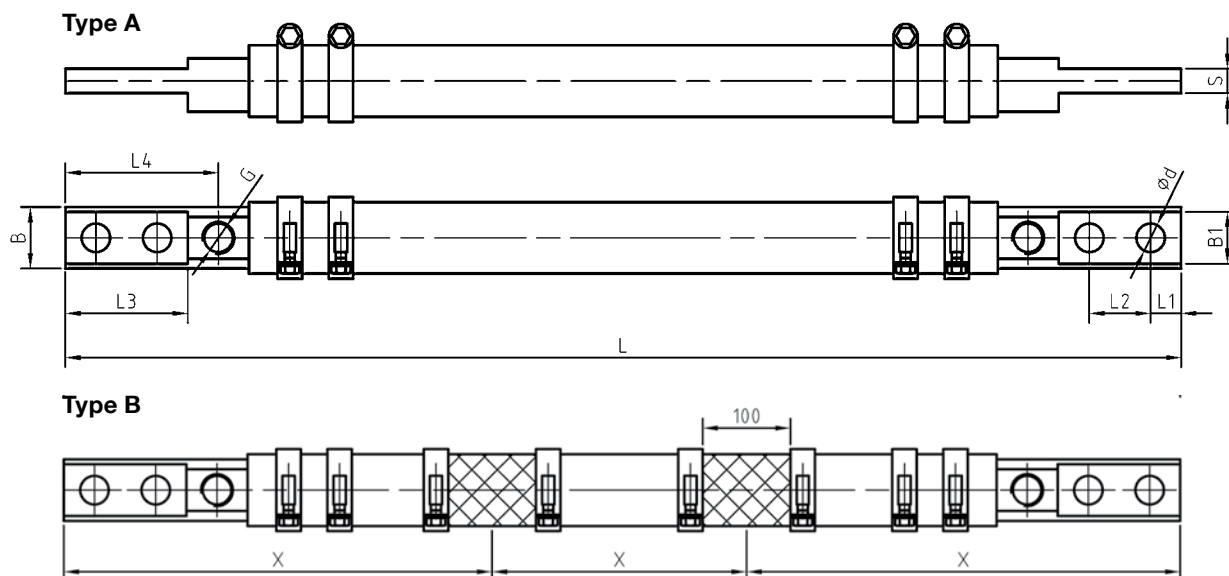
To ensure secure fixture, all single conductor cables can be equipped with additional clamping parts for easy mounting of longer cables. These additionally into the conductor introduced solid parts ensure an easy fitting to the points marked by clamping and holding devices. Squeezing the hose together and as consequence hose damages as well as a reduced water flow are thereby avoided.

### Current load

The heating losses are dependent on the specific loading per unit area and are proportional to the square of current. Our declared values about current load are only possible approximate values. We advise you with pleasure on your individual applications.



**Water cooled high current cables 120-1000 mm<sup>2</sup>**  
**with solderless pressed cable heads**  
**preferably for mains frequency**

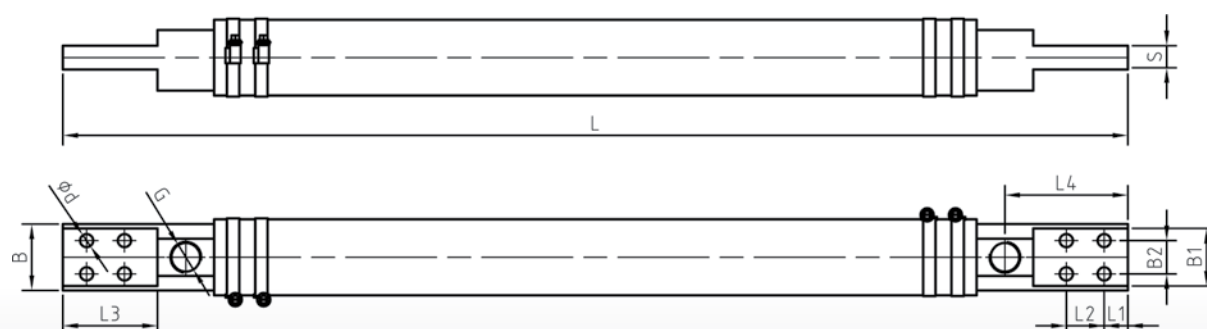


**Remark:**

Type B with additional clamping parts for easy mounting of longer cables.  
 Please specify their number and their position, when placing an order.

Part-No.		Technical data											
Type A	Type B	cross-section mm <sup>2</sup>	current load	dimensions mm									
				L1	L2	L3	L4	B	B1	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 requirements
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 mm<sup>2</sup>**  
**with solderless pressed cable heads**  
**preferably for mains frequency**



Part-No.	Technical data													
	cross-section mm <sup>2</sup>	current load	dimensions mm											
			L1	L2	L3	L4	B	B1	B2	d	G	S	L	
30615	750	7500 A	20	40	85	105	65	61	30	14	3/4"	22	according to customers requirements	
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 solderless pressed or soldered cable heads preferably for medium frequency



### Construction and application

Due to their special conductor construction and the relative large surface of the flexible inner conductors druseidt hollow core cables are especially suitable for applications in the field of medium frequency up to 10 kHz. At frequencies up to 2 kHz cables are manufactured as standard with bare or on request tinned inner conductors. For applications > 2 kHz inner conductors with double enamel-insulated wires are used. Thus the displacement current (skin-effect) by AC-current in conjunction with the higher frequency is taken into account. Because the penetration depth of the current gets smaller when the frequency increases, the current capacity of the conductor will be reduced more and more. When splitting the conductor in many isolated wires the effective electrical cross-section raise and increase the current capacity of the cable. All conductors with bigger cross-sections are wrapped around a non magnetic spring core which keeps them at a distance and allow an optimal cooling water flow. Due to the construction of hollow core cables larger quantities of cooling water can be enforced, so that an improved heat dissipation takes place.

### Cable heads and cooling

All druseidt heads are manufactured out of E-copper/copper-ETP with extremely high conductivity. To prevent slippage of the cooling water hoses surely, they are provided with an edged surface. The location and design of the cooling bores are so selected, that an optimized flow of cooling water as possible is given. The cables are delivered without nipples as standard. These can be additionally ordered as accessories according to the table on page 10. In contrary to the standard design it is also possible to displace the cooling bores 90° or to change the thread size.

### druseidt coolant water hoses

Our coolant water hoses are of high quality and have been proven in practice for many years. They are built up in multi-layer design, electrically insulated with flame retardant, self extinguishing cover. These hoses reach even under adverse operating conditions a good life time. **The maximum allowed operating pressure is 6 bar** and all cables are tested with a pressure of 10 bar before leaving our factory.

### Connection of the cable heads with the inner conductor

In case of hollow core cables for applications up to 2 kHz (Part-No. 30673-30679), the connection between the flexible copper ropes and the cable heads will be realized by a special crimping process. The therefore used special druseidt crimp technology guarantees, in combination with a pressure of some hundred tons, an optimized electrical connection. The flexible conductor ropes are crimped extensively all around and being optimally compressed. The connection with the cable heads of hollow core cables for application up to 10 kHz (Part-No. 30610-30686), with enameled wires, will be realized by a soldering process.

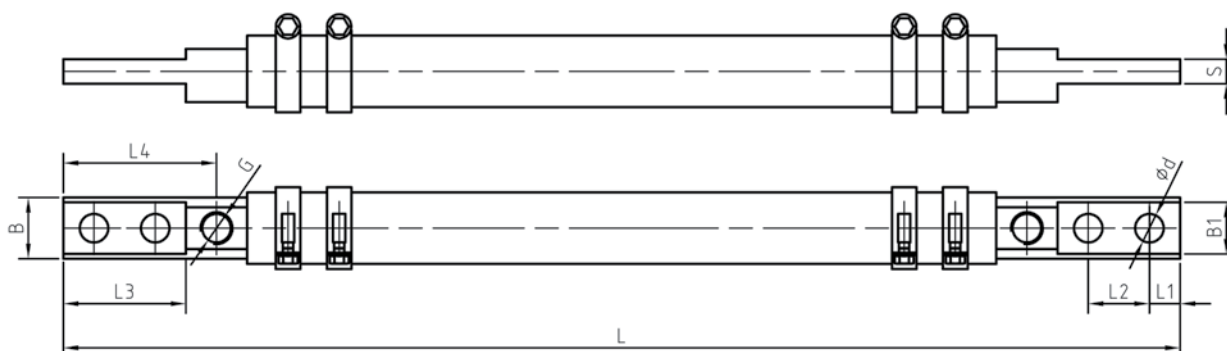
### Current load

The heating losses are dependent on the specific loading per unit area and are proportional to the square of current. Our declared values about current load are only possible approximate values. We advise you with pleasure on your individual applications.

### Cables in special design and cable repairs

Additionally to our standard designs we manufacture also cables in special design with individual cable heads or designs according to your wishes (e.g. replacement parts for all common electro-furnaces from all well known manufacturers on the market). We also undertake cable repairs in a short time for our cables as well as those of other manufacturers.

## Water cooled hollow core cables



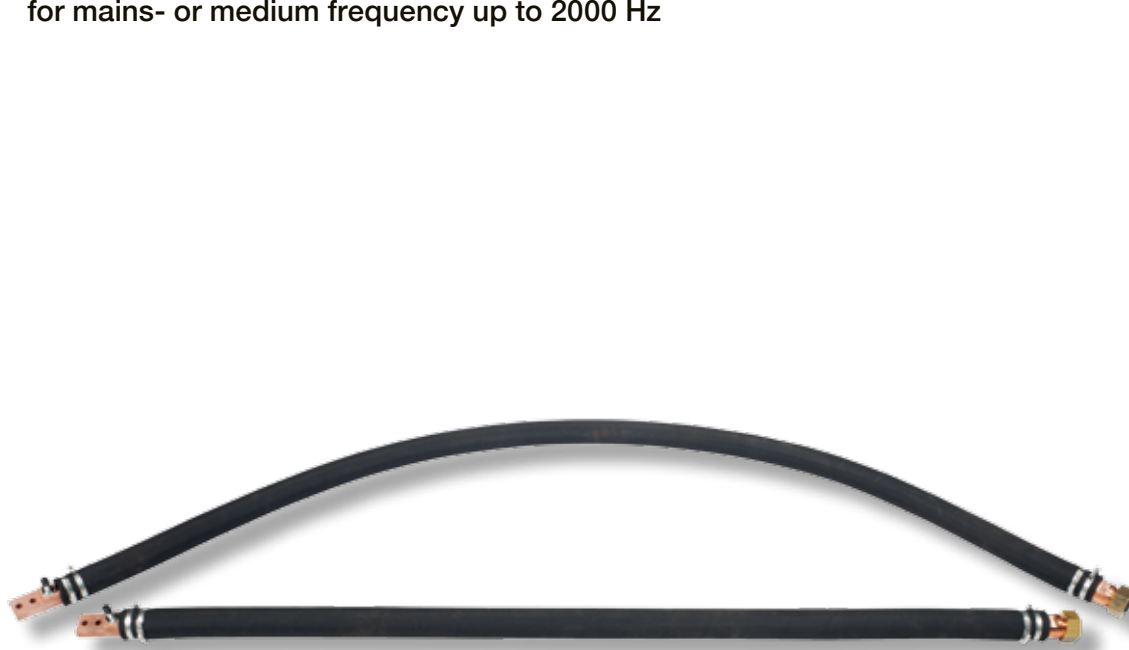
### Water cooled hollow core cables 300-1000 mm<sup>2</sup> for medium frequency up to 2000 Hz

Part-No.	Technical data														
	cross-section mm <sup>2</sup>	current load A at				dimensions mm									
		50 Hz	500 Hz	1000 Hz	2000 Hz	L1	L2	L3	L4	B	B1	d	G	S	L
30673	300	3700	3300	3100	2900	20	40	80	95	42	37	18	3/8"	20	according to customers requirements
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	6200	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 mm<sup>2</sup> for medium frequency up to 10000 Hz

Part-No.	Technical data														
	cross-section mm <sup>2</sup>	current load A at					dimensions mm								
		50 Hz	1000 Hz	2000 Hz	4000 Hz	10000 Hz	L1	L2	L3	L4	B	B1	d	G	L
30610	70	950	920	900	800	700	12,5	25	50	65	25	22,9	11	1/4"	10
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	43,3	18	3/8"	20
30681	315	4600	4100	3850	3450	2200	20	40	80	95	50	43,3	18	3/8"	25
30682	420	5600	5000	4850	4000	2500	20	40	80	95	55	49	18	3/8"	25
30683	525	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	815	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 hollow core cables with pipe connections for mains- or medium frequency up to 2000 Hz



Water cooled hollow core cables  
with pipe connection on one side



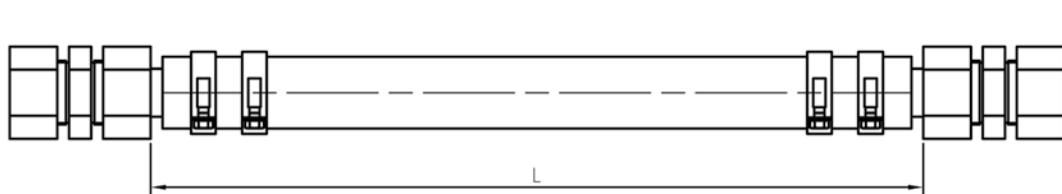
Hollow core cable  
with solderless crimped cable head

### Construction and application

We deliver water cooled hollow core cables equipped with pipe connections on one as well as on both sides. Druseidt high current pipe connections realize watertight, current leading connections between cables and high current pipes. Flexible water cooled cables can be integrated in high current pipe systems as well as pipe outlets from electro-furnaces or other units. In the standard range fittings for a pipe-Ø 28-70 mm are available. Larger sizes or customized solutions are available on request. The connection between the flexible copper ropes and the cable heads will be realized by a special solderless crimping process. The therefore used special druseidt-crimp technology enables an extensively optimized compression all around the conductor.

### druseidt coolant water hoses

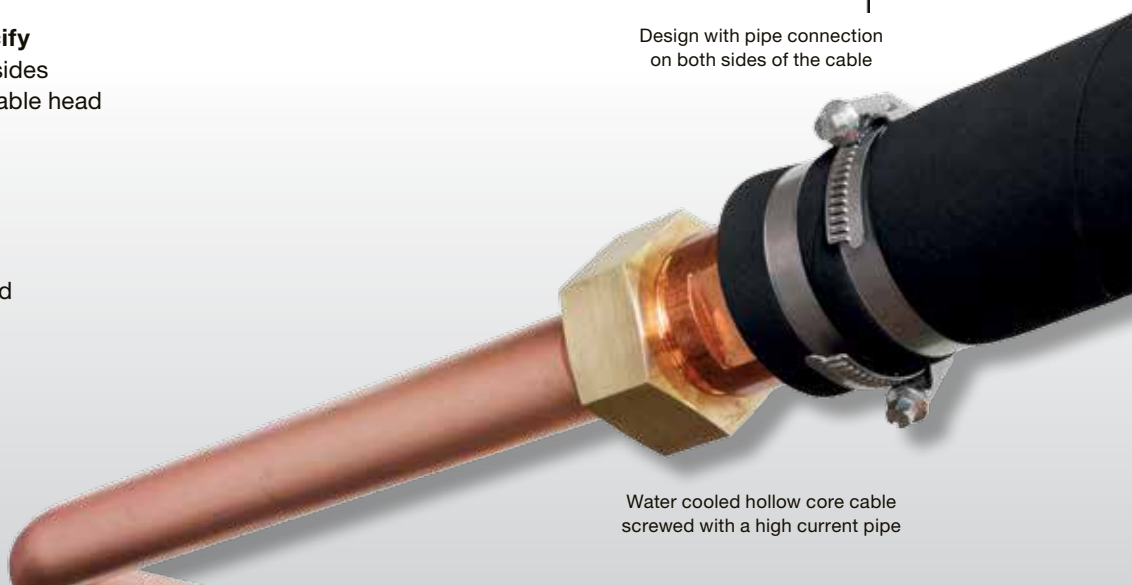
Our coolant water hoses are of high quality and have been proven in practice for many years. They are built up in multilayer design, electrically insulated with flame retardant, self extinguishing cover. These hoses reach even under adverse operating conditions a good life time. **The maximum allowed operating pressure is 6 bar** and all cables are tested with a pressure of 10 bar before leaving our factory.



Design with pipe connection  
on both sides of the cable

### When placing an order please specify

- Pipe connection on one or on both sides
- If applicable design of the second cable head
- Diameter of the pipe connection
- Design of the pipe connection
  - hexagonal (standard)
  - octagon
  - as groove nut
- Cable cross-section and current load
- Cable length



Water cooled hollow core cable  
screwed with a high current pipe



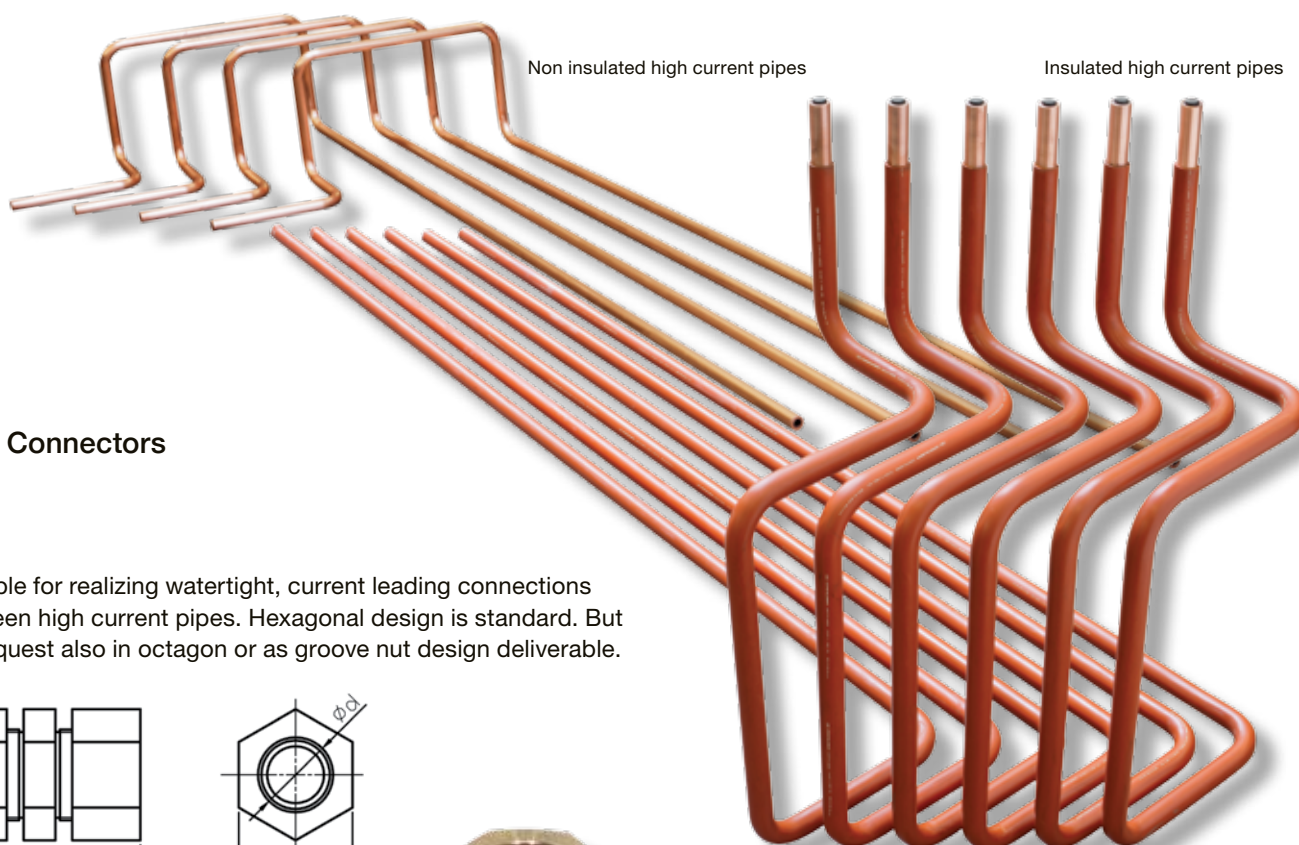
## Water cooled high current pipe-systems

We carry out the engineering and manufacture high current pipe-systems in non insulated as well as insulated design. Such systems can be supplied ready for installation with all associated components like supports, water cooled cables, water distributors, insulating materials etc. (for example for production plants of polysilicon and similar applications). On request we accompany your installation including preparation of all necessary documentation up to final acceptance. Of course, the production of bent tubular components is possible at any time according to your drawings.

## druseidt your partner for high power transmission

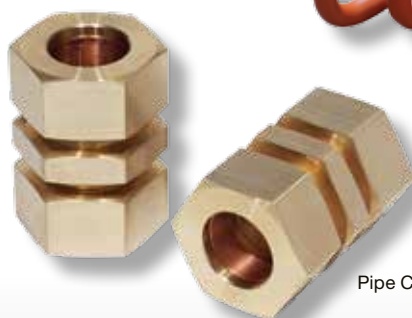
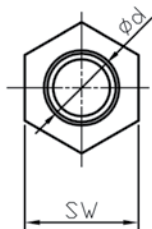
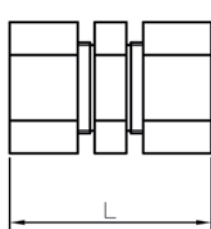
We design and deliver:

- Water cooled high current pipe-systems and tubular components
- Water cooled cables
- Bus-bar systems and bus-bar components
- Welded constructions consisting out of non ferrous metals
- Flexible connectors made out of braids or strips
- Non ferrous metal parts manufactured on milling- and turning machines as well as in punched and bended design
- Individual solutions according to your requirements



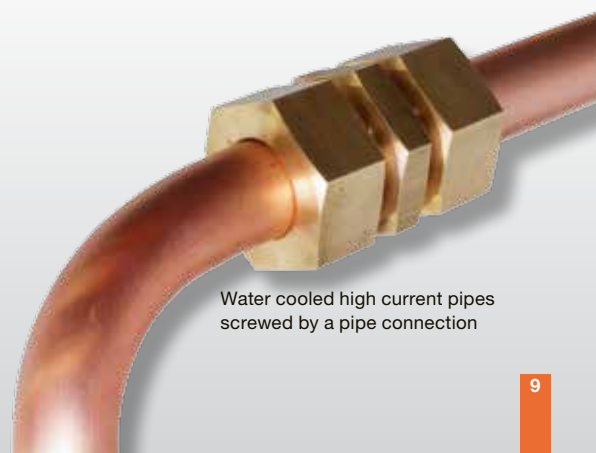
### Pipe Connectors

Suitable for realizing watertight, current leading connections between high current pipes. Hexagonal design is standard. But on request also in octagon or as groove nut design deliverable.



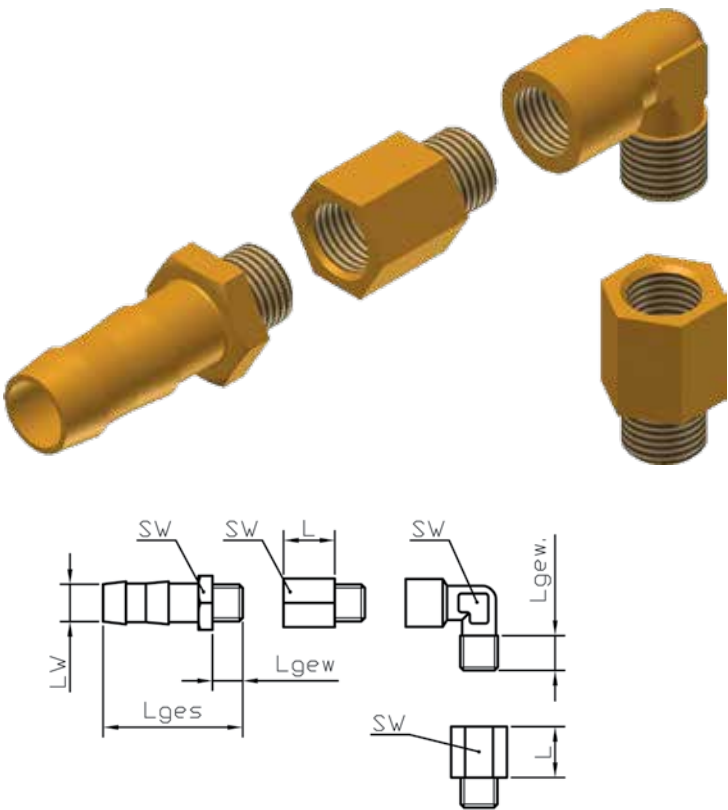
Pipe Connectors

Part-No.	Technical data			
	for current pipe Ø d	dimensions mm length of connection 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 cooled high current pipes  
screwed by a pipe connection

Water hose connectors, elbows  
and extension nipples  
Material: brass, uncoated



Part-No.	Technical data				
	connection thread	Sw	Lw	Lgew	L
Water hose connectors					
15448	1/4"	19	13	10	48
15449	3/8"	19	13	10	48
15450	3/4"	24	13	10	50
15451	1/2"	27	19	11	95
15452	1"	38	25	11	51
Elbows					
15458	1/4"	13	-	12	-
15459	3/8"	17	-	12	-
15460	3/4"	21	-	15	-
15461	1/2"	26	-	15	-
15462	1"	30	-	16	-
Extension nipples					
15468	1/4"	17	-	-	18
15469	3/8"	19	-	-	19
15470	3/4"	24	-	-	22
15471	1/2"	17	-	-	30
15472	1"	22	-	-	40

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

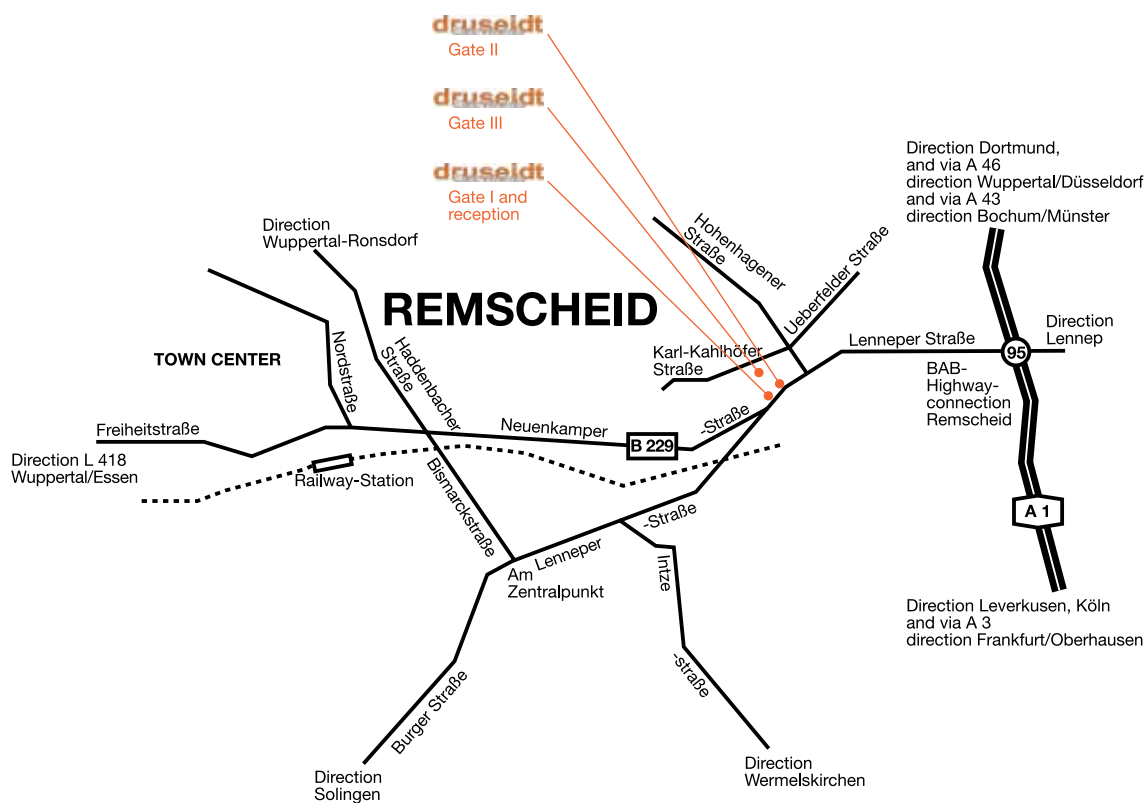
Customized designs/cable repairs

We manufacture water cooled cables with various kinds of cable heads according to your samples or drawings, coordinated with the respective application. We also undertake cable repairs in a short time and economically priced for our cables as well as those of other manufacturers.



### General advice

The measurements and technical information written in this catalogue have been determined with greatest care and are updated continuously in our documentation. We reserve us the right to alter technical information as well as changes of measurements, colours or formats after print. **Our information, especially the values for possible current-loads are not binding, they are only approximate values under optimized conditions. The relation between conductor cross-section and current-load fixed in national or international regulations are not cancelled through our information.** Only the values in our written confirmations are binding for us.



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