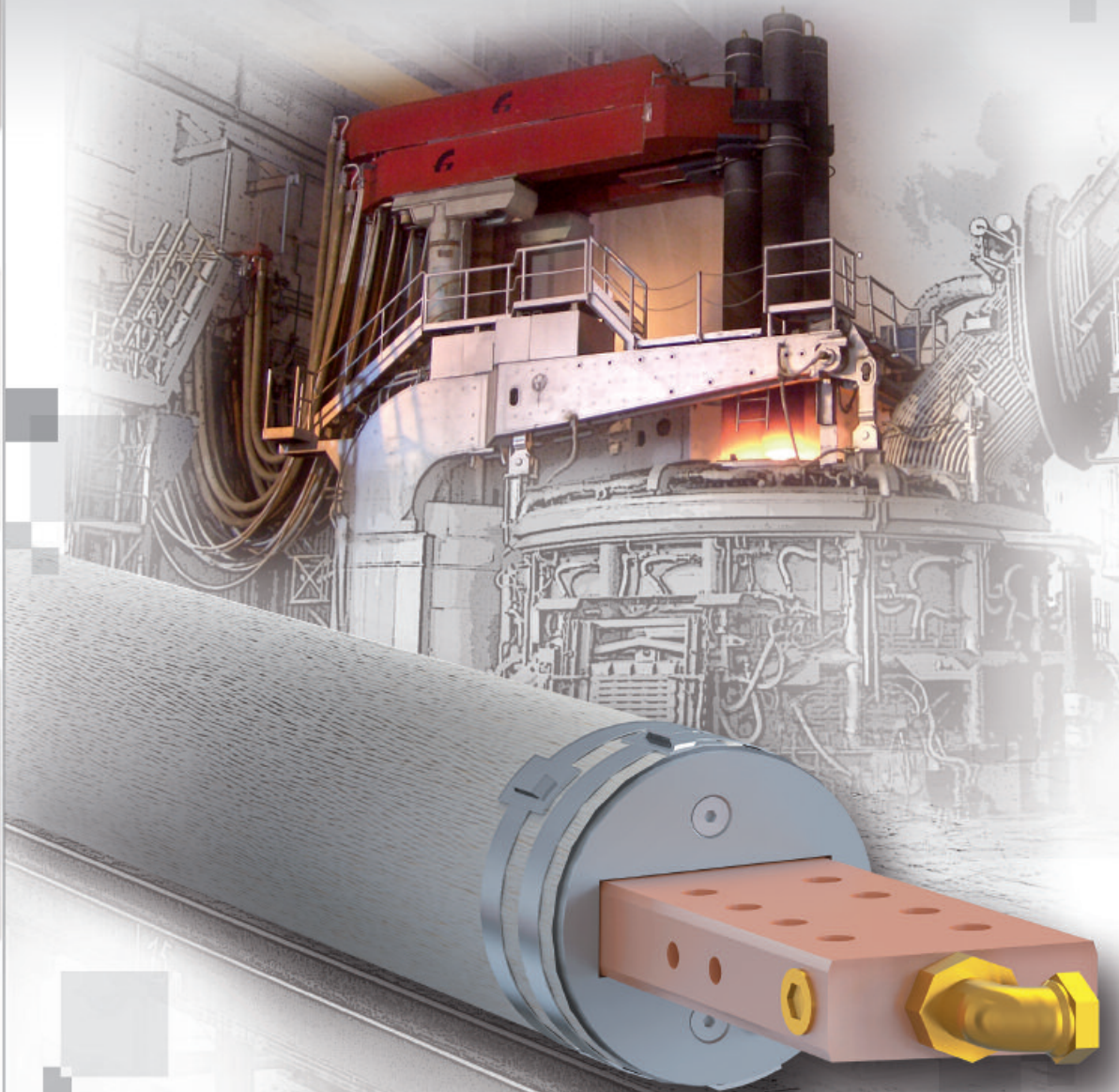




HIGH-CURRENT CABLES...

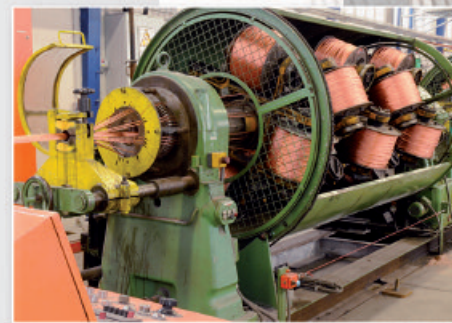


FROM THE WIRE TO THE FINISHED ROPE – FLOHE SUPPLIES THE ENTIRE RANGE

IN-HOUSE STRANDING SHOP

Minimum cross-sections from 6 mm² to maximum values of 1000 mm² individual cross-section and wire diameters from 0.25 mm to 1.0 mm are produced in our internal stranding shop.

- ▶ **LONG SERVICE LIVES, OPTIMAL GEOMETRY,
HIGH QUALITY AND CUSTOMER REQUIREMENTS
ARE THE FOCUS HERE.**

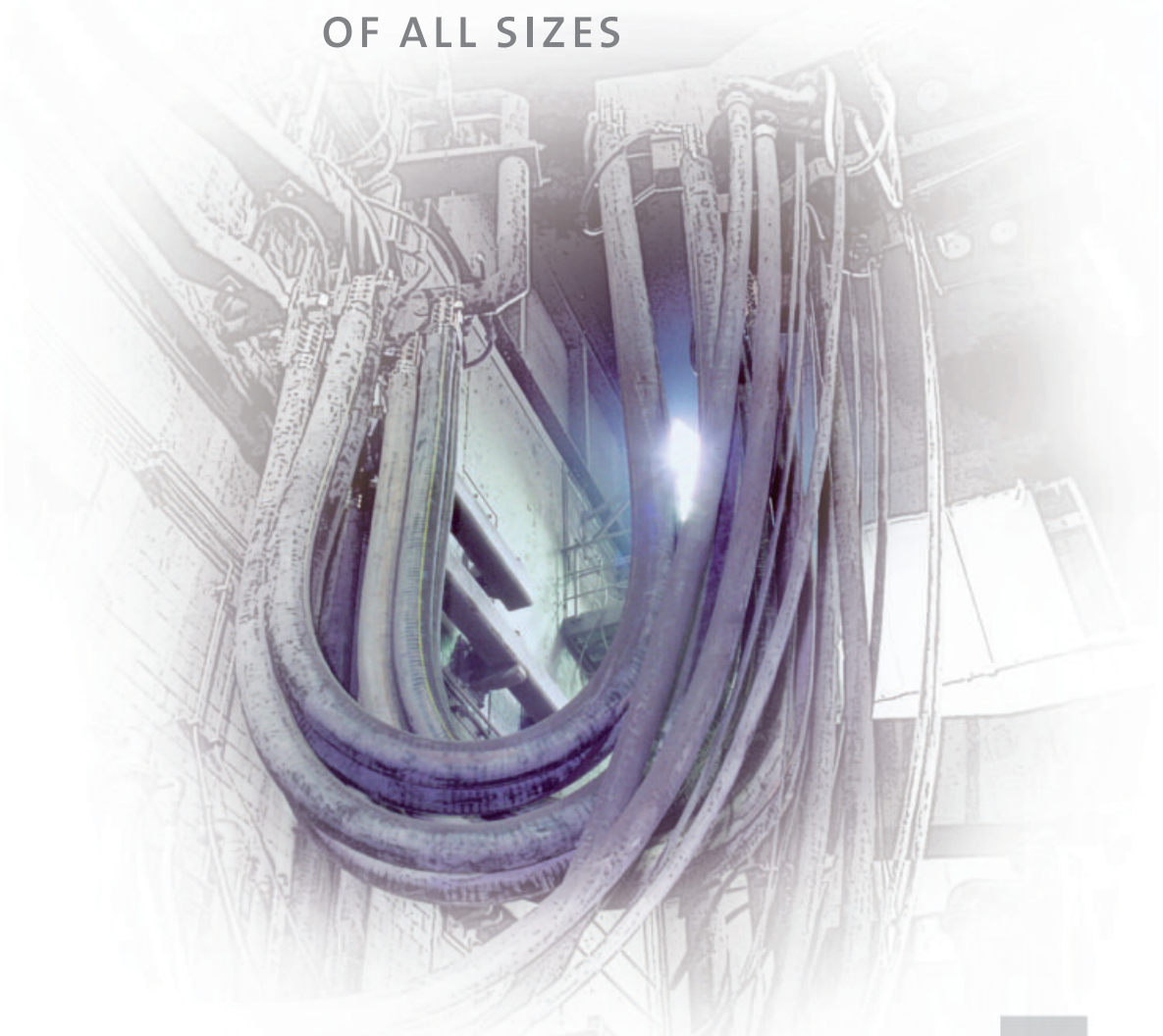


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HIGH-CURRENT CABLES OF ALL SIZES



IN THE LAST 5 DECADES, FLOHE HAS SUPPLIED HIGH-CURRENT CABLES OF ALL SIZES INLAND AND ABROAD FOR WELL OVER 1000 ARC AND LADLE-FURNACES.

The air-cooled cables originally used have been almost completely replaced by water-cooled cables, due to the high increase in electrical furnace power. Today, almost only ultra-high-power-furnaces are built the world over, for which water-cooled multiple cables are used.

FLOHE has developed a multiple cable which meets the special requirements of modern high-power furnaces.

WE HAVE MAINLY FOCUSED ON:

- Optimal power transmission
- Low electrical losses
- Long service life
- Optimal flow of cooling water
- Easy handling
- Low maintenance
- Short times for assembly and disassembly



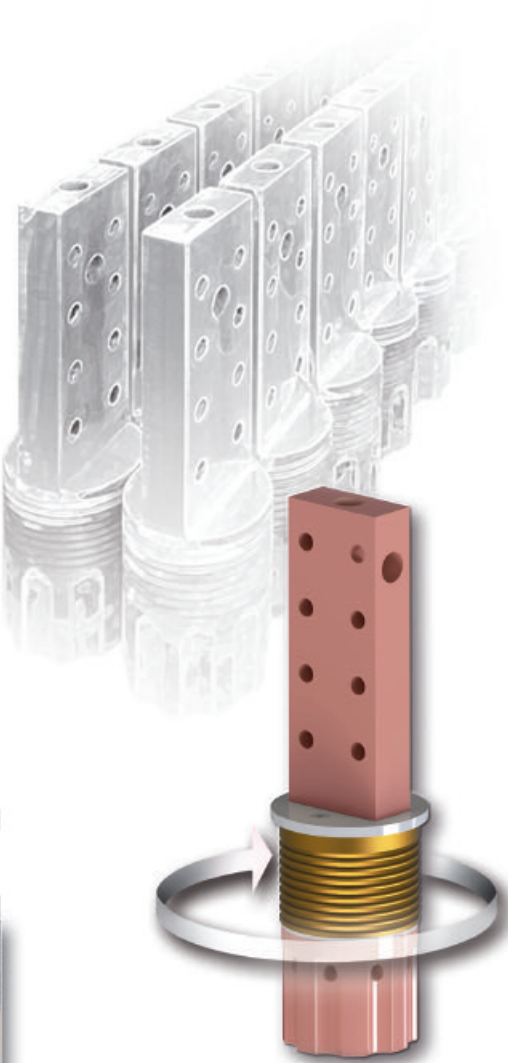
FEATURES

WATER-COOLED FLOHE CABLES are designed in accordance with the latest findings from research and practice and are fitted with the following features as standard:

- The special water control in the cable head through diagonal boring ensures an optimal water flow.
- When stranding the individual conductors, many years of experience are built on and the rope lay and individual wire diameter selected so as to keep mechanical wear low.
- FLOHE cables are fitted with an anti-twist device in order to prevent the hoses from twisting and slipping in the case of extreme torsional forces.
- Our cable heads are made of pressed and not casted copper.
- The outer hose of the cable is of proven quality and has a highly heatproof special layer vulcanized onto the outside.

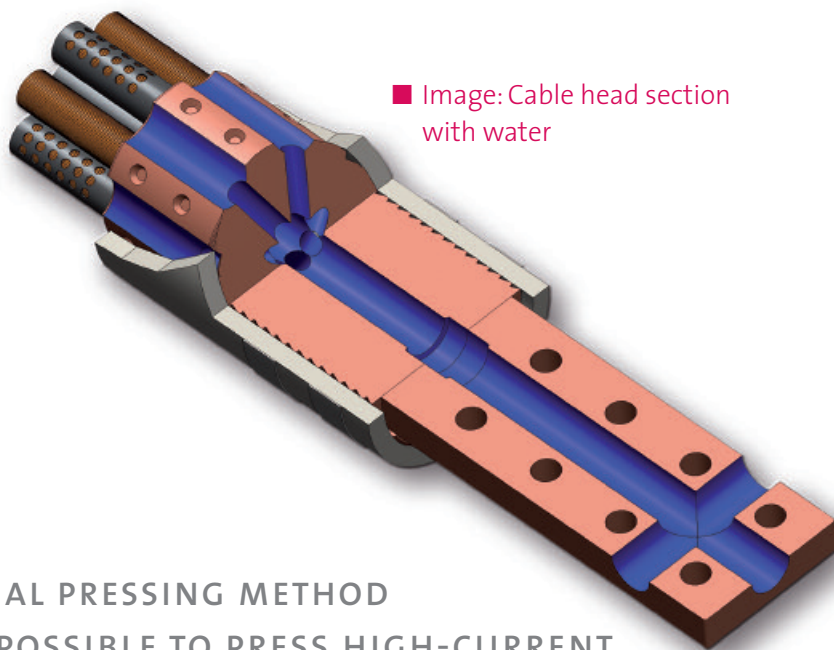
We also offer **DETAILED SOLUTIONS**, which have come from practical application and have now been used over and over for many years:

- Swiveling device for outer hoses
- Additional heat-protection hoses
- Friction wear protection layer
- Quick coupling cable and adapter



THE FLOHE PRODUCTION PROGRAM GOES FROM THE PRODUCTION OF THE STRAND TO THE ROPE AND THE MULTIPLE CABLE.

Alongside service life optimisation, the cable stands out for its high customer-orientation. Unlike all conventional methods, our individual conductors are pressed in the cable head and not soldered. The poor method of inserting individual conductors by soldering them in has been set aside since the introduction of the FLOHE pressing method. The protective hoses used on the inside are of EPDM quality and are suitable for 120°C constant temperature.



■ Image: Cable head section with water

OUR SPECIAL PRESSING METHOD MAKES IT POSSIBLE TO PRESS HIGH-CURRENT CABLES WITH A CROSS-SECTION OF UP TO 8000 MM².

THIS MEANS:

- High strength with an absolutely firm seating of the individual conductor in the cable head boreholes.
- Optimal current conduction is achieved through pressing, since no line contact is made as when soldering, but genuine surface contact and all intermediate elements are made of E-Cu only and have the same conductance.
- Low electrical losses result from the reduced resistances, meaning more power in the furnaces.
- Pressed cables are more resilient than soldered ones. The service life of the cables is increased since the copper is not softened by heat when the individual conductors are soldered in.
- No crystallisation of tin through the combination of water and electricity.
- In the case of very poor water qualities with high quantities of chlorine, we will supply the copper strands in tin-coated execution on request.
- The special water control in the cable head through diagonal boring ensures an optimal water flow.

HOSE TECHNOLOGY

FLOHE CABLES ARE FITTED WITH A HOSE QUALITY THAT HAS BEEN TRIED AND TESTED FOR MANY YEARS.

3 BASIC TYPES ARE DIFFERENTIATED BETWEEN, BUT WHICH ESSENTIALLY HAVE THE SAME BASIS.

- With the Basic Execution **3250**, the focus is on a low abrasion value which represents the market yardstick.
- Quality **2440** places higher demands on radiant heat and is fitted with a self-extinguishing outer layer.
- In addition, hose type **1912** is supplied with a vulcanized fiber glass layer for extreme heating of up to 750°C.

FLOHE cables can be supplied with several different wall thicknesses. For ladle furnace applications, wall thicknesses of 10.0 mm are sufficient. However, thicknesses of 12.5 mm or 13.5 mm are used in EAF without exception.

Alternatively, the material thickness can also be increased to 20 mm in all qualities in the case of extreme abrasion. The small bending radii and high flexibility of the hoses also ensure short distances between the wall of the transformer box and the support arm connection, meaning lower secondary resistances. In addition, the cables can be fitted with additional protective hoses in the case of extreme applications. The focus is on extreme heat radiation on the one hand, and on maximum friction protection on the other.

▶ TYPE 3250 - BASIC

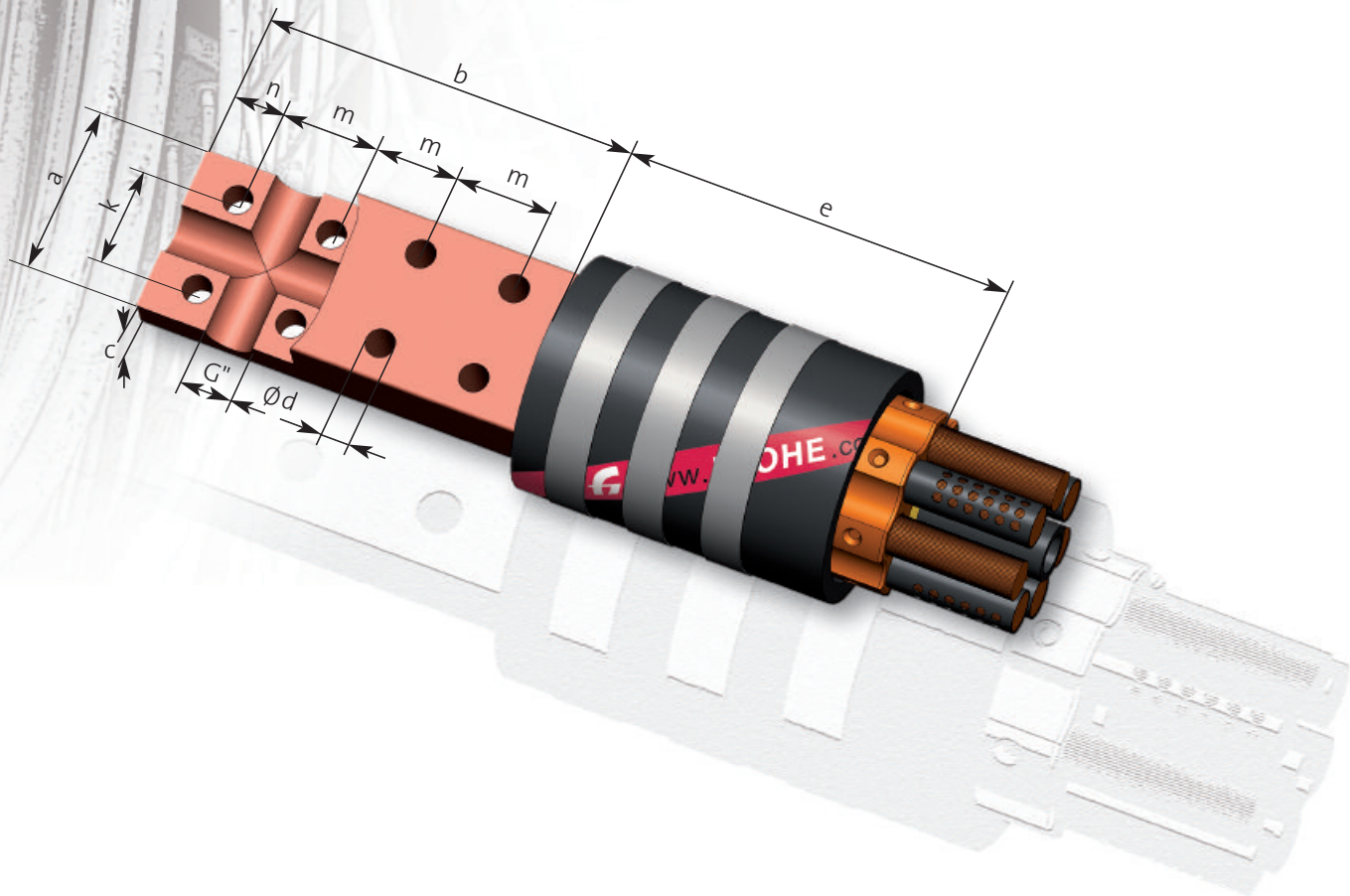


▶ TYPE 1912 - GLASFIBRE



▶ TYPE 2440 - SELF EXTINGUISHING





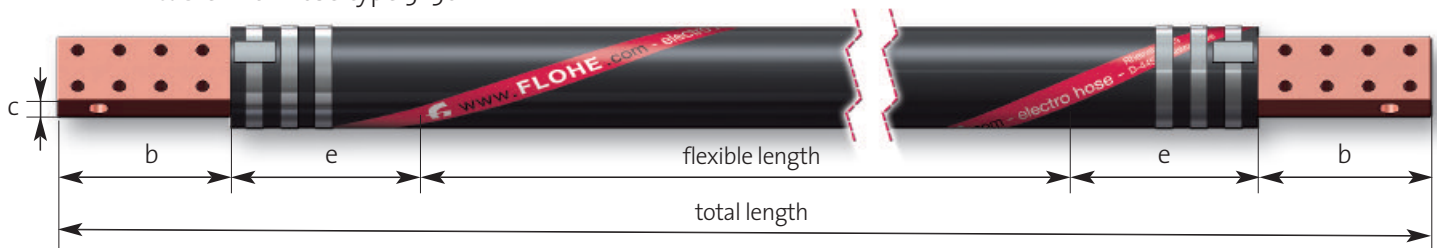
Type	Individual conductor [mm ²]	GmR [mm]	FLOHE standard dimensions [mm]									
			a	b	c	Ø d	X · Ø d	e	k	m	n	G"
FHW 1200	3 x 400	20.0	65	180	35	14	6	175	40	50.0	30	3/4"
FHW 1600	4 x 400	28.0	80	175	35	18	6	175	52	60.0	25	3/4"
FHW 2000	5 x 400	31.0	93	175	35	18	6	175	50	50.0	30	3/4"
FHW 2400	6 x 400	36.0	91	200	40	18	6	175	60	60.0	20	1"
FHW 2800	7 x 400	39.0	97	210	50	18	8	230	60	50.0	25	1"
FHW 3200	8 x 400	43.0	109	200	50	18	8	230	60	50.0	20	1"
FHW 3600	9 x 400	47.0	120	210	50	18	8	230	65	50.0	25	1"
FHW 4000	10 x 400	57.5	140	300	50	18	8	230	76	63.5	40	1"
FHW 4400	11 x 400	58.0	140	300	50	18	8	230	76	63.5	40	1"
FHW 4800	12 x 400	62.5	140	300	60	22	8	230	76	63.5	40	1"
FHW 5200	13 x 400	70.0	155	300	60	22	8	230	76	63.5	40	1"
FHW 5600	14 x 400	78.0	169	300	60	22	8	230	76	63.5	40	1"
FHW 6000	15 x 400	80.0	170	300	60	22	8	230	76	63.5	40	1"

Customer-specific dimensions of the connection available at any time.

TYPE FHW

THE CLASSIC TYPE

■ FHW cable with hose type 3250

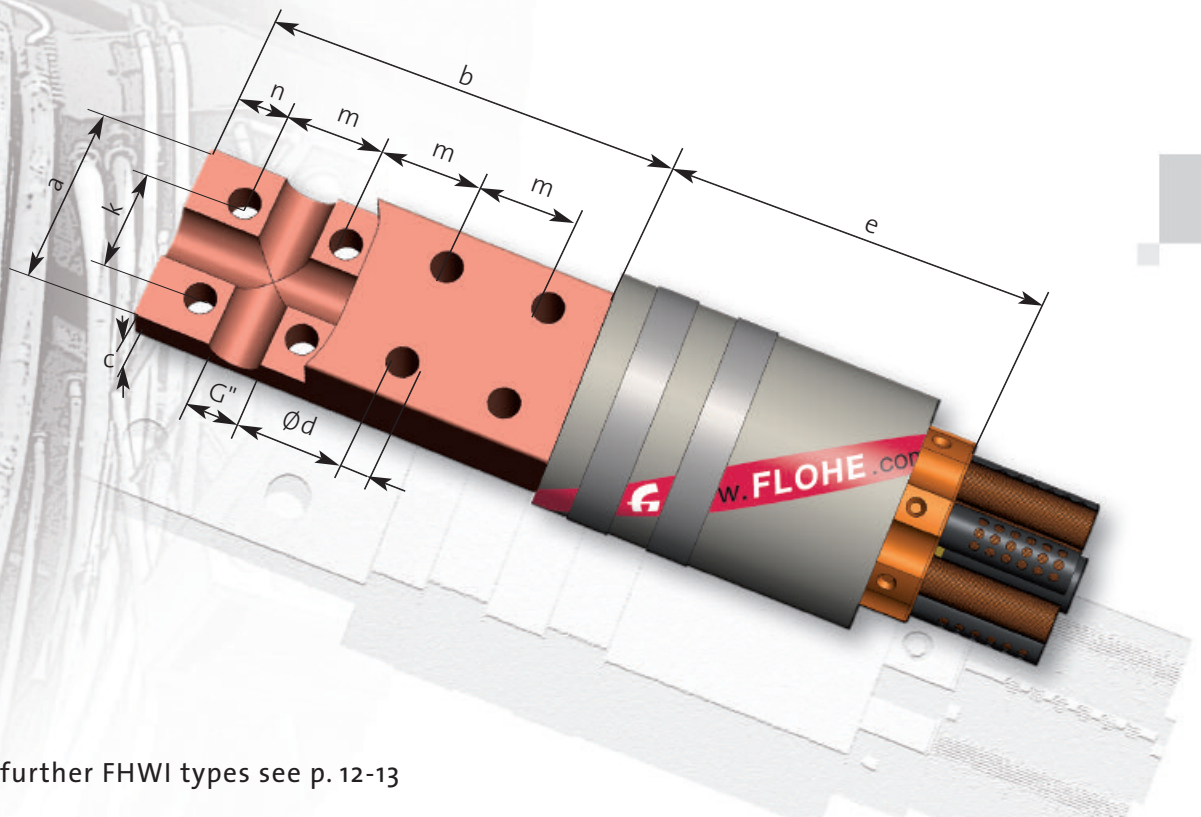


■ FHW cable with hose type 3250 and bumpers



IDa x S [mm]	IDi x S [mm]	OD [mm]	Bending radius [mm]	Resistance			Water l/min 1 m *	Type
				t=30°C DC	μ OHM / m			
				AC 50 Hz	AC 60 Hz			
75 x 10.0	–	–	350	14.12	17.97	19.77	0.84	FHW 1200
90 x 13.5	–	–	400	11.40	12.40	14.90	0.92	FHW 1600
100 x 13.5	19 x 5	177	430	9.12	10.33	10.73	1.19	FHW 2000
100 x 13.5	19 x 5	177	430	7.60	9.17	9.72	1.53	FHW 2400
110 x 13.5	30 x 6	187	480	6.52	8.42	9.10	1.92	FHW 2800
120 x 13.5	38 x 6	197	520	5.70	8.00	8.29	2.37	FHW 3200
133 x 13.5	50 x 8	213	580	5.07	7.00	7.52	2.63	FHW 3600
150 x 13.5	60 x 10	230	650	4.56	6.17	6.40	2.86	FHW 4000
150 x 13.5	70 x 8	230	650	4.15	5.87	6.08	3.30	FHW 4400
160 x 13.5	70 x 10	240	700	3.80	5.47	5.61	3.66	FHW 4800
170 x 13.5	80 x 10	250	750	3.51	5.10	5.29	4.00	FHW 5200
180 x 13.5	90 x 10	260	800	3.26	4.84	5.00	4.41	FHW 5600
190 x 13.5	100 x 10	270	860	3.04	4.35	4.65	4.55	FHW 6000

* based on a cross-section loading of 4.5 A/mm²



▶▶▶ PTO – for further FHWI types see p. 12-13

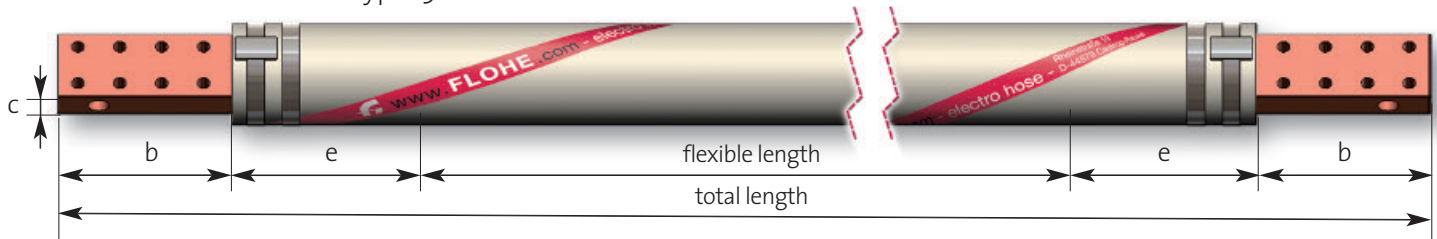
Type	Individual conductor [mm ²]	Cross-section [mm ²]	GmR [mm]	FLOHE standard dimensions [mm]									
				a	b	c	Ø d	X · Ø d	e	k	m	n	G"
FHWI 1500A	5 x 286	1430	30.0	80	175	35	18	6	175	50	50	30	3/4"
FHWI 1500B	4 x 381	1524	28.9	80	175	35	18	6	175	50	50	30	3/4"
FHWI 1500C	3 x 500	1500	28.6	80	180	35	18	6	175	50	50	30	3/4"
FHWI 2000A	7 x 286	2002	38.4	90	210	40	18	8	194	50	50	30	3/4"
FHWI 2000B	5 x 381	1905	33.8	90	210	40	18	8	194	50	50	30	3/4"
FHWI 2000C	4 x 500	2000	31.3	80	210	40	18	8	194	50	50	30	3/4"
FHWI 2500A	8 x 286	2288	42.4	95	230	50	18	8	194	60	60	20	1"
FHWI 2500B	7 x 381	2667	42.7	95	230	50	18	8	194	60	60	20	1"
FHWI 2500C	5 x 500	2500	36.3	85	230	50	18	8	194	55	60	20	1"
FHWI 2500E	4 x 600	2400	35.4	85	230	50	18	8	194	55	60	20	1"
FHWI 2500F	3 x 750	2250	33.0	85	230	50	18	8	194	55	60	20	1"
FHWI 3000A	10 x 286	2860	51.3	110	250	50	18	8	194	60	60	30	1"
FHWI 3000B	8 x 381	3048	47.6	105	250	50	18	8	194	60	60	30	1"
FHWI 3000C	6 x 500	3000	40.7	95	250	50	18	8	194	60	60	30	1"
FHWI 3000E	5 x 600	3000	40.4	95	250	50	18	8	194	60	60	30	1"
FHWI 3500A	12 x 286	3432	59.8	120	250	50	18	8	194	65	60	30	1"
FHWI 3500B	9 x 381	3429	53.6	120	250	50	18	8	194	65	60	30	1"
FHWI 3500C	7 x 500	3500	46.1	105	250	50	18	8	194	60	60	30	1"
FHWI 3500E	6 x 600	3600	45.8	105	250	50	18	8	194	60	60	30	1"
FHWI 4000A	14 x 286	4004	68.7	120	300	50	22	8	230	76	65	40	1"
FHWI 4000B	10 x 381	3810	57.5	120	300	50	22	8	194	76	65	40	1"
FHWI 4000C	8 x 500	4000	51.1	120	300	50	22	8	194	76	65	40	1"
FHWI 4000E	7 x 600	4200	48.7	120	300	50	22	8	194	76	65	40	1"
FHWI 4000F	5 x 750	3750	47.0	120	300	50	22	8	194	76	65	40	1"

Customer-specific dimensions of the connection available at any time.

TYPE FHWI

THE INTERNATIONAL TYPE

■ FHWI cable with hose type 1912

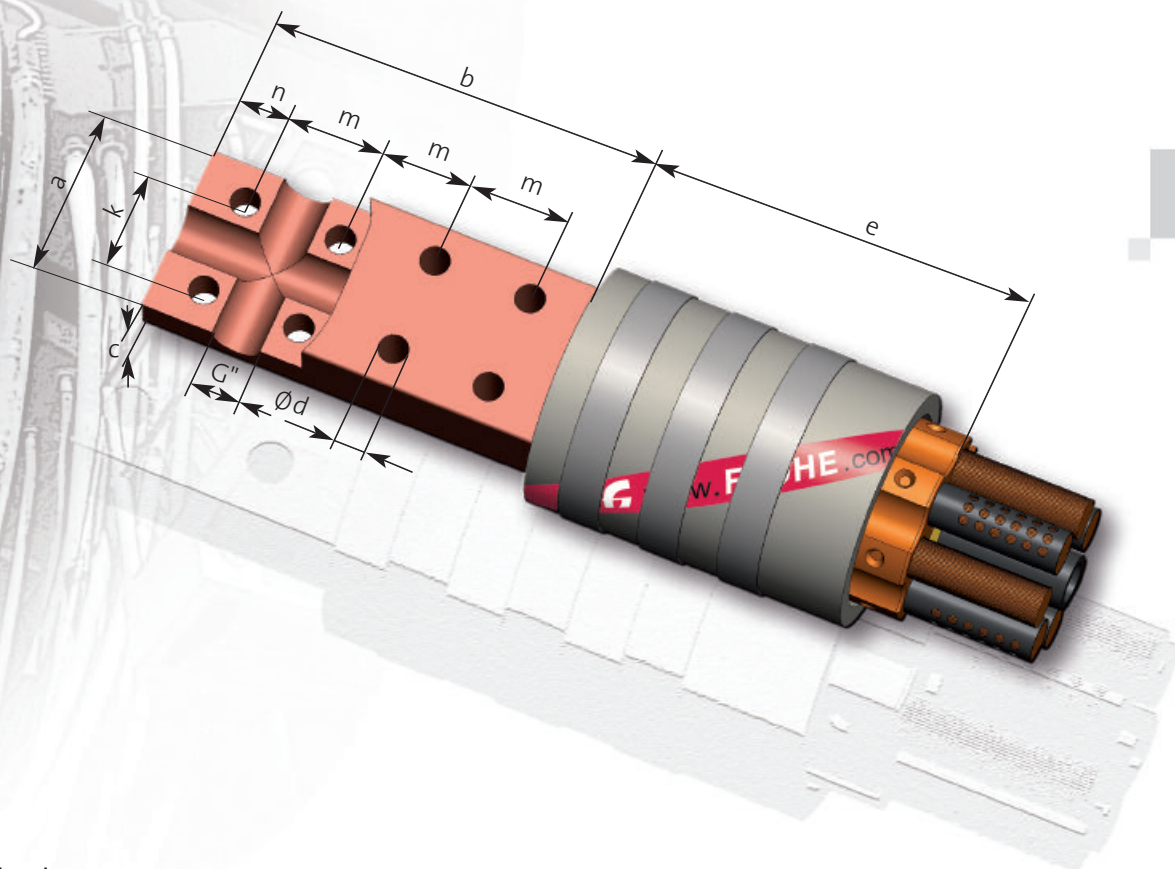


■ FHWI cable with hose type 1912 and bumpers



IDa x S [mm]	IDi x S [mm]	OD [mm]	Bending radius [mm]	Resistance			Water l/min 1 m *	Type
				t=30°C				
				DC	μ OHM / m AC 50 Hz	AC 60 Hz		
90 x 10.0	–	160	400	12.27	15.65	17.22	1.02	FHWI 1500A
90 x 10.0	–	160	400	11.51	14.65	16.12	1.06	FHWI 1500B
90 x 10.0	–	160	400	11.70	14.87	16.36	1.05	FHWI 1500C
100 x 10.0	25 x 5	170	430	8.76	11.06	12.17	1.40	FHWI 2000A
100 x 10.0	–	170	430	9.21	11.72	12.89	1.30	FHWI 2000B
90 x 10.0	–	160	400	8.77	11.15	12.27	1.40	FHWI 2000B
110 x 12.5	30 x 5.5	185	480	7.67	9.67	10.64	1.10	FHWI 2500A
110 x 12.5	25 x 7	185	480	6.58	8.37	9.21	1.90	FHWI 2500B
100 x 10.0	–	170	430	7.02	8.92	9.81	1.70	FHWI 2500C
100 x 10.0	–	170	430	7.31	9.27	10.20	1.70	FHWI 2500E
100 x 10.0	–	170	430	7.80	9.88	10.87	1.60	FHWI 2500F
133 x 12.5	50 x 5	208	580	6.13	7.72	8.49	2.00	FHWI 3000A
120 x 12.5	35 x 5	195	520	5.76	7.26	7.99	2.10	FHWI 3000B
110 x 12.5	25 x 5	185	480	5.85	7.38	8.12	2.10	FHWI 3000C
110 x 12.5	–	185	480	5.85	7.42	8.16	2.10	FHWI 3000E
150 x 12.5	60 x 7	225	650	5.11	6.43	7.07	2.40	FHWI 3500A
133 x 12.5	40 x 7	208	580	5.12	6.44	7.08	2.40	FHWI 3500B
120 x 12.5	25 x 5	195	520	5.01	6.32	6.95	2.50	FHWI 3500C
120 x 12.5	25 x 5	195	520	4.87	6.14	6.75	2.50	FHWI 3500E
170 x 13.5	80 x 7	247	750	4.38	5.51	6.06	2.80	FHWI 4000A
150 x 12.5	50 x 7	225	650	4.60	5.80	6.38	2.70	FHWI 4000B
133 x 12.5	38 x 6	208	580	4.39	5.52	6.07	2.80	FHWI 4000C
133 x 12.5	30 x 5.5	208	580	4.18	5.26	5.79	2.90	FHWI 4000E
133 x 12.5	–	208	580	4.68	5.93	6.52	2.70	FHWI 4000F

* based on a cross-section loading of 4.5 A/mm²



◀◀◀ PTO – for further FHWI types see p. 10-11

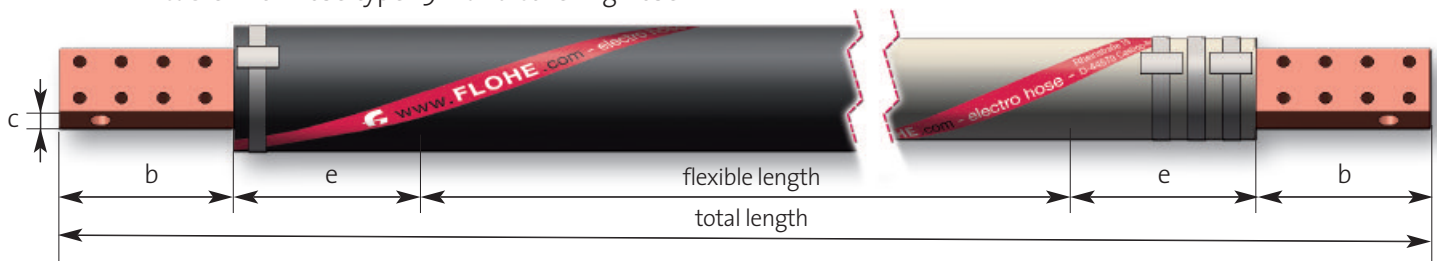
Type	Individual conductor [mm ²]	Cross-section [mm ²]	GmR [mm]	FLOHE standard dimensions [mm]									
				a	b	c	Ød	X·Ød	e	k	m	n	G''
FHWI 4500A	15 x 286	4290	74.7	130	300	50	22	8	230	76	65	40	1"
FHWI 4500B	12 x 381	4572	68.5	130	300	50	22	8	230	76	65	40	1"
FHWI 4500C	9 x 500	4500	58.0	130	300	50	22	8	194	76	65	40	1"
FHWI 4500E	8 x 600	4800	54.7	130	300	50	22	8	194	76	65	40	1"
FHWI 5000B	13 x 381	4953	72.5	140	300	50	22	8	230	76	65	40	1"
FHWI 5000C	10 x 500	5000	63.0	140	300	50	22	8	230	76	65	40	1"
FHWI 5500B	15 x 381	5715	82.9	160	300	50	22	8	230	76	65	40	1"
FHWI 5500C	11 x 500	5500	67.0	160	300	50	22	8	230	76	65	40	1"
FHWI 5500E	9 x 600	5400	65.1	150	300	50	22	8	230	76	65	40	1"
FHWI 6000B	16 x 381	6096	87.43	160	300	60	22	8	230	89	65	40	1"
FHWI 6000C	12 x 500	6000	72.95	145	300	60	22	8	230	89	65	40	1"
FHWI 6000E	10 x 600	6000	65.09	155	300	60	22	8	230	89	65	40	1"
FHWI 6000F	8 x 750	6000	57.65	145	300	60	22	8	230	89	65	40	1"
FHWI 6500C	13 x 500	6500	78.93	155	360	60	22	10	230	89	72	30	1 1/4"
FHWI 6500E	11 x 600	6600	71.05	155	360	60	22	10	230	89	72	30	1 1/4"
FHWI 7000C	14 x 500	7000	82.91	165	360	60	22	10	230	89	72	30	1 1/4"
FHWI 7000E	12 x 600	7200	71.0	165	360	60	22	10	230	89	72	30	1 1/4"
FHWI 7000F	9 x 750	6750	68.1	165	360	60	22	10	230	89	72	30	1 1/4"
FHWI 7500C	15 x 500	7500	89.9	175	360	60	22	10	230	89	72	30	1 1/4"
FHWI 7500F	10 x 750	7500	73.4	175	360	60	22	10	230	89	72	30	1 1/4"
FHWI 8000C	16 x 500	8000	93.88	185	360	60	22	10	230	89	72	30	1 1/4"

Customer-specific dimensions of the connection available at any time.

TYPE FHWI

THE INTERNATIONAL TYPE

■ FHWI cable with hose type 1912 and covering hose



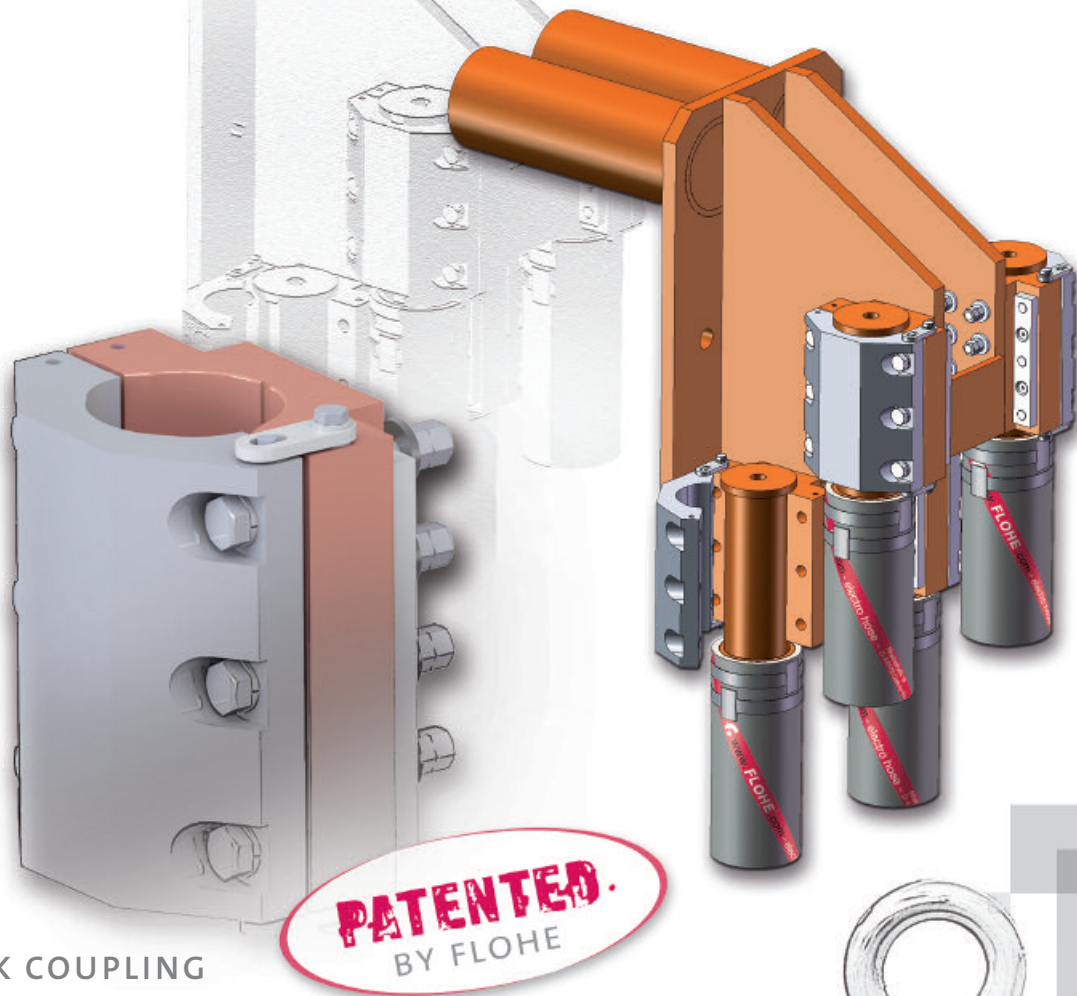
■ FHWI cable with hose type 1912 and spacers



IDa x S [mm]	IDi x S [mm]	OD [mm]	Bending radius [mm]	Resistance			Water l/min 1 m *	Type
				t=30°C DC	μ OHM / m AC 50 Hz AC 60 Hz			
180 x 13.5	90 x 10	257	800	4.09	5.14	5.65	3.00	FHWI 4500A
160 x 13.5	70 x 8	237	700	3.84	4.82	5.30	3.20	FHWI 4500B
150 x 12.5	50 x 7	225	650	3.90	4.91	5.40	3.10	FHWI 4500C
140 x 12.5	40 x 6.5	215	620	3.65	4.60	5.06	3.40	FHWI 4500E
170 x 13.5	80 x 7	247	750	3.54	4.45	4.90	3.50	FHWI 5000B
160 x 13.5	60 x 7	237	700	3.51	4.41	4.85	3.50	FHWI 5000C
190 x 15.0	90 x 10	270	860	3.07	3.86	4.25	4.00	FHWI 5500B
170 x 13.5	70 x 8	247	750	3.19	4.01	4.41	3.80	FHWI 5500C
160 x 13.5	60 x 7	237	700	3.25	4.08	4.49	3.80	FHWI 5500E
210 x 15.0	110 x 10	290	1050	2.88	3.61	3.97	4.30	FHWI 6000B
180 x 15.0	80 x 7	260	800	2.92	3.67	4.04	4.20	FHWI 6000C
170 x 13.5	60 x 7	247	750	2.92	3.68	4.05	4.20	FHWI 6000E
160 x 13.5	40 x 6.5	237	700	2.92	3.68	4.05	4.20	FHWI 6000F
190 x 15.0	90 x 10	270	860	2.70	3.39	3.73	4.50	FHWI 6500C
180 x 15.0	70 x 8	260	800	2.66	3.34	3.67	4.60	FHWI 6500E
200 x 15.0	90 x 10	280	1010	2.51	3.15	3.47	4.90	FHWI 7000C
190 x 15.0	70 x 8	270	860	2.44	3.06	3.37	5.00	FHWI 7000E
180 x 15.0	60 x 7	260	800	2.60	3.27	3.60	4.70	FHWI 7000E
210 x 15.0	102 x 10	290	1050	2.34	2.94	3.23	5.20	FHWI 7500C
200 x 15.0	70 x 8	280	1010	2.34	2.94	3.23	5.20	FHWI 7500F
220 x 15.0	110 x 10	300	1095	2.19	2.75	3.03	5.60	FHWI 8000C

* based on a cross-section loading of 4.5 A/mm²

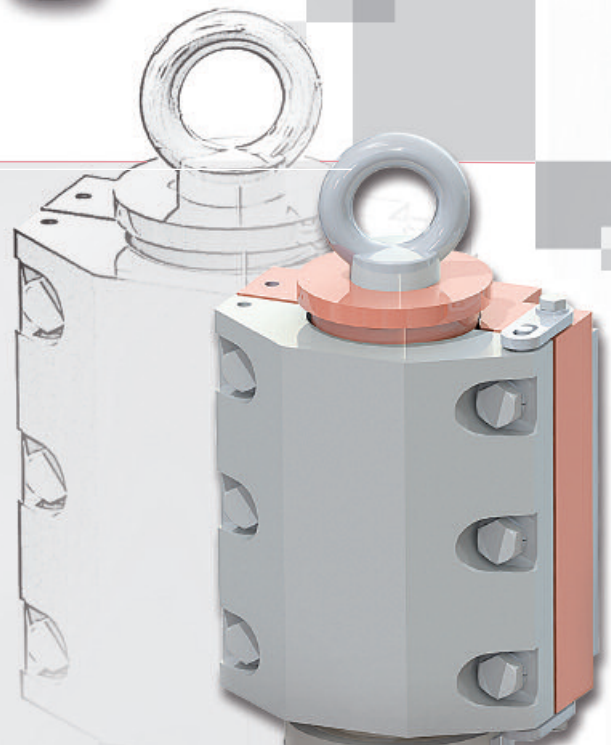
...FLOHE'S DEVELOPMENT
FOR FASTER CABLE CHANGING



QUICK COUPLING TYPE FSR

THIS SYSTEM CAN BE IMPLEMENTED
IN ALMOST ANY EXISTING ARC FURNACE.

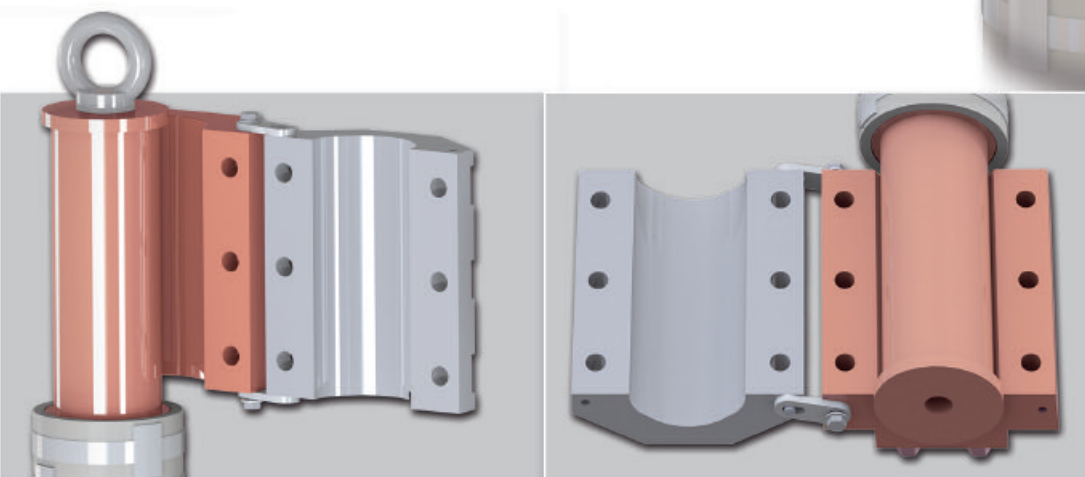
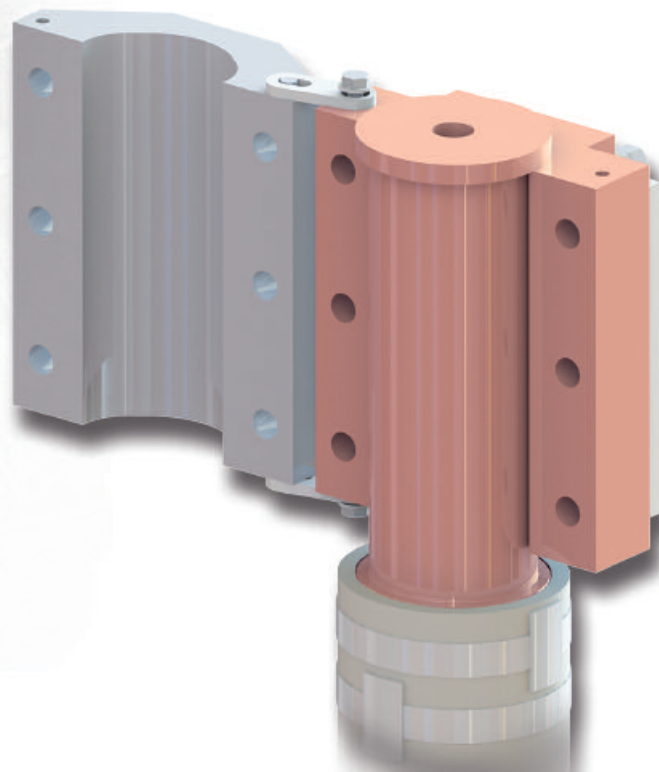
- For this purpose, adapters made of copper and high-strength high-grade steel are mounted to the support arms and the high-current line in the transformer house using screws.
- The equipment is characterised by easy and quick handling.
- The pressure plate is held in position by hinges during the cable change.



TYPE FHWNT

▶▶ THE FAST TYPE ◀◀

- The system of the FHWNT round cable and of the associated FSR quick-action coupling leads to a reduction in changing times by up to 80% during scheduled and unscheduled downtimes.
- This system is mounted onto the existing configuration once only and constantly ensures the predicted savings.



The technical data corresponds to the FHWI cable see pages 10-11 and 12-13.

FLOHE INVENTED THE FIRST CABLE WITH A SWIVEL DEVICE AS EARLY AS IN 1987 AND HAS SINCE THEN INSTALLED WELL OVER 5000 CABLES WITH THIS TECHNOLOGY.

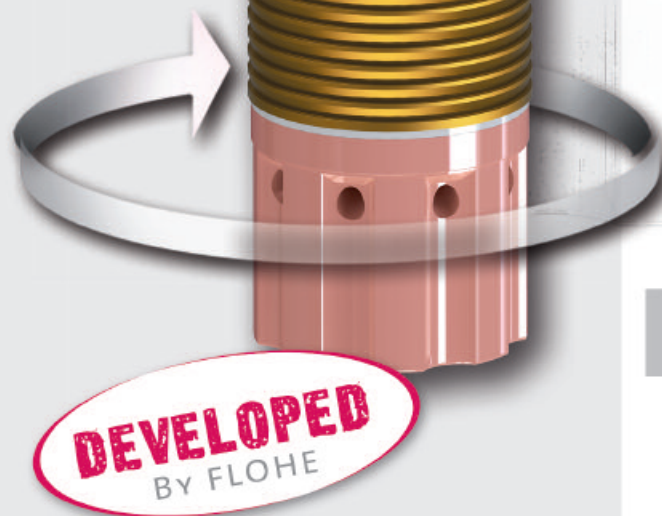
Constant torsional strains arise during POWER ON, particularly for TWIN shell furnaces of all designs (EAF and LF). In the case of standard cables, the torsion must be absorbed by the connection of the hose and cable head and fastening technology. In order to minimise the strains and extend the service life of the hose, this feature is recommended.

This also applies for high-grade steel furnaces, which conventionally tap via a casting spout. In this case, short-term and extreme torsional loads occur which are a considerable strain for the hose.

ALL FLOHE HIGH-CURRENT CABLES ARE AVAILABLE WITH A SWIVEL DEVICE.

The swivel device is built in on one side of the cable as standard. We do not recommend device on both sides.

- At the time of the order, a "D" is to be affixed behind the type and cross-section designation for the swivel device
see example: „FHW14000CDx9000“



CABLE SWIVEL DEVICE

FLOHE OFFERS VARIOUS SYSTEMS FOR THE DETECTION OF THE DEGREE OF WEAR FOR HIGH CURRENT CABLES. BOTH SYSTEMS DETECT THE STATUS OF WEAR ON THE INSTALLED CABLE.

■ These lubricating greases are hot bearing greases that meet normal requirements in steel mills. But the conditions in the high current cable are very special. This means that after a certain period of time, the turning devices become more and more dirty due to the very fine iron dust, which ultimately leads to a functional blockage. This is where our new development comes in, which is intended to prevent fine dust from penetrating into the bearing location.

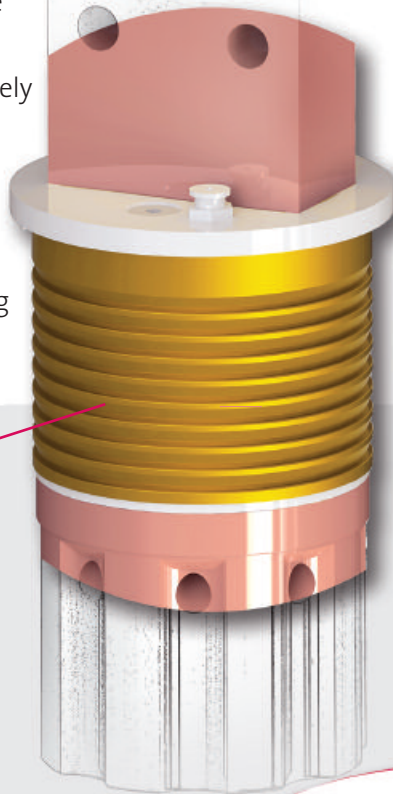
■ For this purpose we have equipped our cable with a grease nipple which is arranged at the upper end of the turning device. This makes it possible to supply the rotating device with new, additional grease at a later date.

■ Via the grease nipple, the grease is pressed up to the slide bearing points, which has the side effect that penetrated dust with excess grease is pushed out of the turning device.

■ This detail is recommended to minimize torsional stress and extend hose life.

■ FLOHE supplies this version as standard for every high current cable with rotating device.

■ Relubrication must be carried out at least every six months and at most once a year. This ensures that the rotating device functions permanently and increases the service life of the cable.



PROVEN IN PRACTICE

3-STAGE-SYSTEM

RESTORING YOUR OLD CABLES HAS NOW BEEN ONE OF OUR ROUTINE TASKS FOR OVER 40 YEARS.

We repair with state-of-the-art methods according to our tried-and-tested stage system. A cable repair report is drawn up for each cable awaiting repair after it is received. The individual repair steps can be seen from this.

1

IN BASIC REPAIR...

we change the outer hose together with bumpers or all covering hoses, polish the contact surfaces, check the flow rate and measure the electrical conductivity. As an option and depending on the equipment, we overhaul each swiveling device in this step, exchange the sealing set and measure the true running of the rotating sleeve.

2

IN THE SECOND STAGE...

a so-called inner repair is carried out according to the damage to the copper strands. If we discover damages on the rope which are greater than 5% or if the electrical conductivity deviates significantly, the entire rope strands are exchanged. The old cable heads are reused however. After repair the cable has the same electrical values as a new cable. The mechanical proportions are also equal to those of a new one. All wearing parts of the swiveling device are replaced automatically in this repair step. All in all, this restoration is in no way inferior to new production.

3

IN THE THIRD STAGE...

the entire cable is scrapped and a completely new cable is produced – in case there are damages on the cable heads as well as the rope strands.



Of course, in addition to cable repair, we also offer the **ASSEMBLY AND DISASSEMBLY SERVICE** performed by our qualified employees.

This team is available 24h a day and can be contacted on our service telephone number at any time.

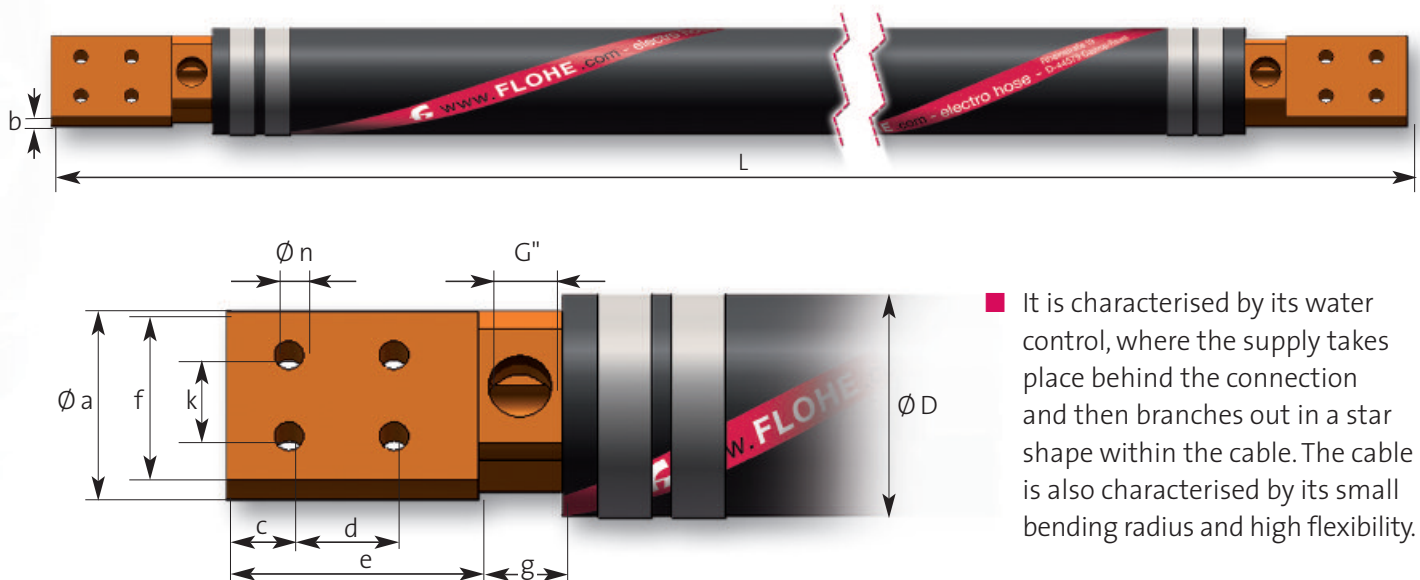
We guarantee you first-class, speedy and reliable work.

 **+49 (0) 700 - 700 300 10**

ESR / REDUCTION

▶▶ TYPE FDD ◀◀

THE FDD CABLE TYPE IS PARTICULARLY SUITABLE FOR THE CONNECTION OF MEDIUM CURRENTS WITH SMALL CROSS-SECTIONS AND STANDS OUT FOR ITS COMPACT FORM DESPITE HIGH CURRENT DENSITIES.



- It is characterised by its water control, where the supply takes place behind the connection and then branches out in a star shape within the cable. The cable is also characterised by its small bending radius and high flexibility.

Type	Measurements [mm]											Nominal cross-section [mm ²]	Nominal current at 50 Hz [A]	W/m	m ³ /h*	Bending radius [mm]
	Ø a	b	c	d	Ø D	e	f	g	k	G''	n Ø					
FDD 600	60	22	25	50	76	100	55	40	40	1/4"	14	600	6000	1290	0.44	340
FDD 700	70	22	25	50	86	100	66	40	40	1/4"	14	700	7500	1505	0.52	360
FDD 800	70	22	25	50	86	100	66	40	40	3/4"	14	800	8000	1720	0.59	360
FDD 900	70	25	25	50	86	100	65	40	40	1"	14	900	9000	1934	0.67	360
FDD 1000	70	25	25	50	86	100	65	40	40	1"	14	900	10000	2150	0.74	360
FDD 1200	70	30	30	50	86	120	63	40	40	1"	14	1200	12000	2579	0.89	360
FDD 1300	80	30	30	50	86	120	74	40	40	1"	14	1300	13000	2794	0.96	380
FDD 1600	90	35	30	50	105	120	83	40	40	1"	14	1600	16000	3439	1.18	400
FDD 1800	100	35	30	50	125	120	93	40	40	1"	14	1800	18000	3869	1.33	415
FDD 2000	100	35	30	50	125	120	93	40	40	1"	14	2000	20000	4299	1.48	415

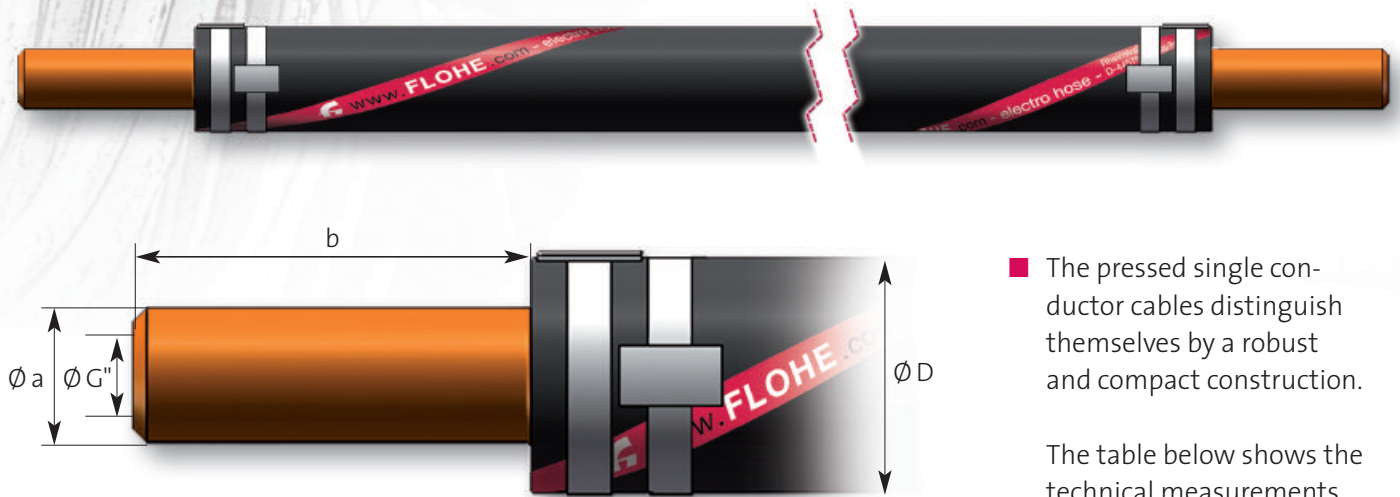
* Cooling water consumption per cable at 4000 mm overall length $\Delta t = 10$ K

Technical data:

Hose performance: see p.7 "hose technology"

▶▶▶ TYPE FHER ◀◀◀

FOR THE CONNECTION OF MEDIUM VOLTAGE CURRENT WITH SMALL CROSS SECTIONS AND SCREWED JOINTS, FLOHE TYPE FHER SUITS VERY WELL, AS THIS CABLE TYPE CAN BE ADAPTED TO EACH SCREW SIZE.



- The pressed single conductor cables distinguish themselves by a robust and compact construction.

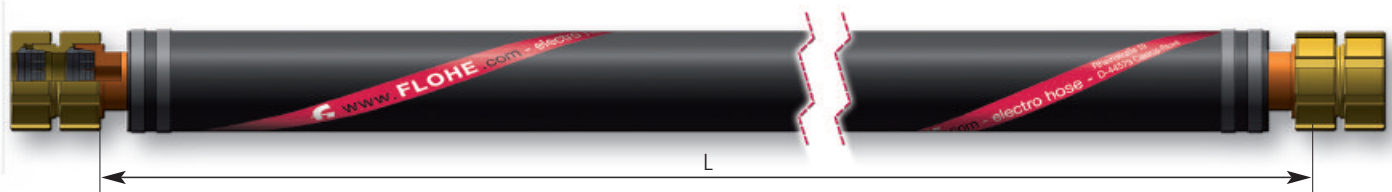
The table below shows the technical measurements

Type	Measurements [mm]				Nominal cross-section [mm ²]	Nominal current at 50 Hz [A]	Bending radius [mm]
	Ø a	b	Ø G"	Ø D			
FHER 150	38	172	3/4"	42	150	1500	170
FHER 300	38	172	3/4"	65	300	3000	260
FHER 500	48	172	1"	65	500	5000	260
FHER 700	48	172	1"	86	700	6300	360
FHER 900	48	172	1"	86	900	7200	360
FHER 1000	58	172	1"	86	1000	8000	360
FHER 1200	58	172	1"	86	1200	8400	360
FHER 1400	58	172	1"	96	1400	8700	400
FHER 1500	58	172	1"	101	1500	9000	400
FHER 1600	58	172	1"	101	1600	9600	400
FHER 1700	58	172	1"	116	1700	10200	430
FHER 1900	58	172	1"	130	1900	11400	480

ESR / REDUCTION

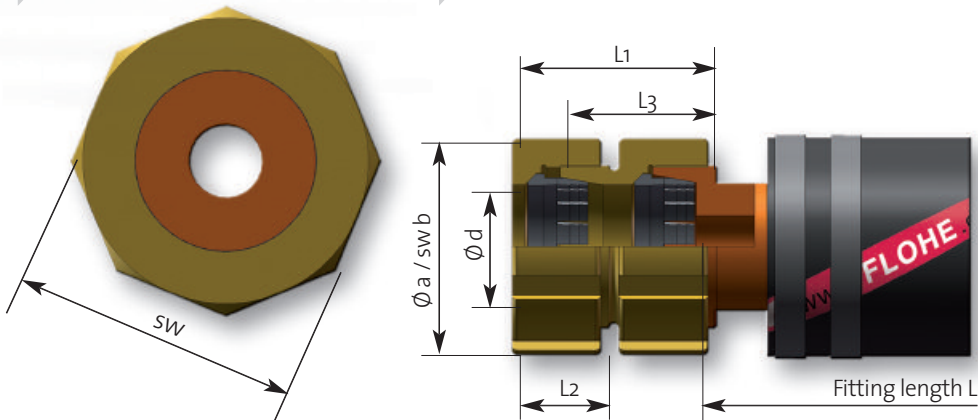
TYPE FHVV

CABLE TYPE FHVV IS ESPECIALLY DESIGNED FOR FREQUENCY PLANTS WHERE THE CABLES ARE ATTACHED TO THE EXISTING PIPELINE BY MEANS OF A PIPE CONNECTION.



FKV3 WITH OCTAGON NUT

TYPE FKV3 CONNECTION WITH GROOVE NUT



- The power transmission is implemented for each side using two silver-plated contact rings. The nuts can be supplied both as groove nuts and as hexagon/octagon nuts.

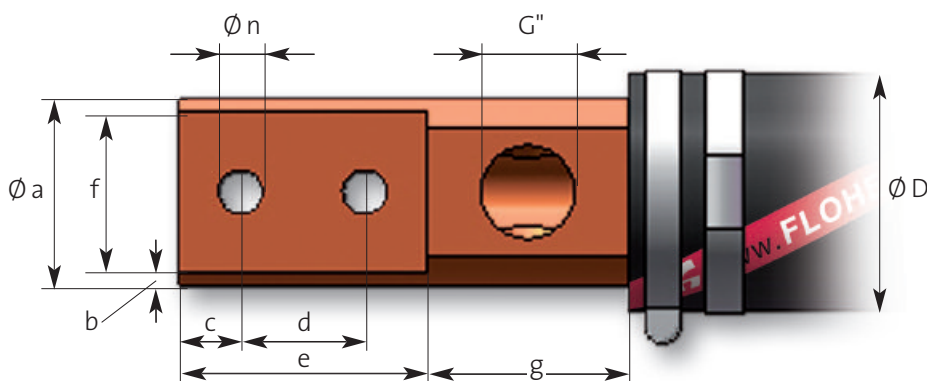
The table below shows the technical measurements

Current pipe $\varnothing d$	General dimensions [mm]				Dimensions [mm] of groove nut		Dimensions [mm] of octagon nut	
	Thread size M	Fitting length L_1	Nut groove L_2	Outer nut groove L_3	Groove nut $\varnothing a$	Groove outer nut $\varnothing a$	Octagon nut width across flats SW b	Octagon outer nut width across flats SW b
28	45 x 1.5	76	35	35	65	65	55	55
30	45 x 1.5	76	35	35	65	65	55	55
35	48 x 1.5	80	35	35	70	70	55	55
40	60 x 1.5	80	35	35	80	80	75	75
42	60 x 1.5	80	35	35	80	80	75	75
48	60 x 1.5	80	35	35	85	85	85	85
50	64 x 1.5	80	35	35	85	85	85	85
58	76 x 1.5	80	35	35	95	95	95	95
60	76 x 1.5	80	35	35	95	95	95	95
70	85 x 1.5	80	35	35	105	105	105	105

TYPE FMH

HIGH CURRENT CABLE, WATERCOOLED

FLOHE CABLE TYPE FMH IS SUITABLE ESPECIALLY FOR MEDIUM AND POWER FREQUENCY FACILITIES.



- The soldered hollow conductor cable is very flexible due to its central coil, nevertheless the cooling water flow is always warranted.

The table below shows the technical measurements

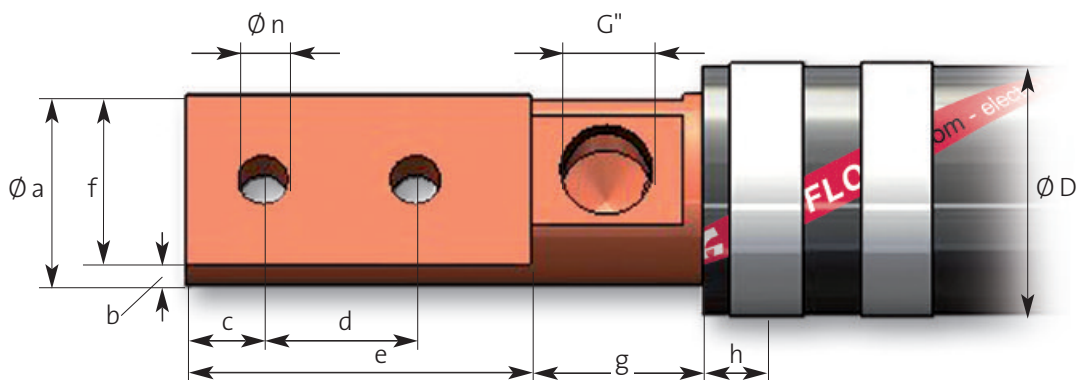
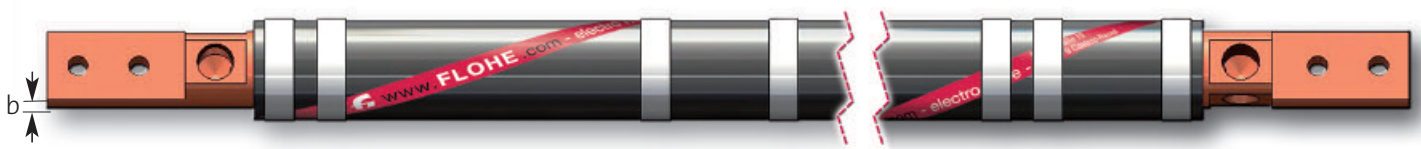
Type	Measurements [mm]											Bending radius [mm]
	ϕa	b	c	d	ϕD	e	f	g	k	G''	ϕn	
FMH 70	25	10	12	25	35	40	23	25	–	1/4"	11	130
FMH 105	25	10	12	25	35	40	23	25	–	1/4"	11	130
FMH 140	30	12	15	30	42	60	27	28	–	3/8"	14	150
FMH 175	30	12	15	30	42	60	27	28	–	3/8"	14	150
FMH 210	30	12	15	30	42	60	27	28	–	3/8"	14	150
FMH 315	35	15	15	30	47	60	30	30	–	1/2"	14	180
FMH 420	42	20	15	30	54	60	36	45	–	1/2"	14	200
FMH 525	50	25	20	40	64	80	44	50	–	3/4"	14	250
FMH 630	60	30	20	40	76	80	56	65	–	1"	14	300
FMH 700	60	30	20	40	76	80	56	65	–	1"	14	300
FMH 805	70	30	20	40	86	80	63	70	40	1"	14	400
FMH 1015	70	30	25	50	86	100	63	70	40	1"	14	400

INDUKTION

▶▶▶ TYPE FAA · TYPE FAB · TYPE FABI ·
TYPE FBB · TYPE FBBI ◀◀◀

HIGH CURRENT CABLE, WATERCOOLED

THE CABLES OF THESE FLOHE TYPES ARE USED IN
MEDIUM AND LOW FREQUENCY FACILITIES.



■ The pressed single conductor cables can be additionally equipped with an internal clamping terminal to ensure an easy assembly.

Type	Measurements [mm]											Nominal cross-section [mm ²]	Nominal current at 50 Hz [A]	Kcal/h*	m ³ /h*	Bending radius [mm]
	$\varnothing a$	b	c	d	$\varnothing D$	e	f	g	h	G''	$\varnothing n$					
F___ 120	25	10	13	25	35	50	25	20	13	1/4"	11	120	1800	370	0.15	140
F___ 185	30	12	15	30	41	60	30	30	15	3/8"	13	185	2600	540	0.22	170
F___ 300	35	15	15	30	47	60	30	30	15	3/8"	13	300	3800	820	0.34	200
F___ 400	42	20	20	40	54	80	40	30	15	1/2"	17	400	4550	980	0.40	220
F___ 500	42	20	20	40	54	80	40	30	15	1/2"	17	500	5600	1200	0.50	220
F___ 700	50	22	25	50	64	100	45	40	15	3/4"	22	700	7500	1500	0.60	260
F___ 1000	65	25	25	50	85	100	60	40	15	1"	22	1000	10000	2150	0.86	360

▶▶▶ HOSE COUPLINGS ◀◀◀
(KAMLOCK)



Type	Size
MALE PART WITH HOSE NIPPLE SMOOTH (TYPE E)	1/2" / DN13 3/4" / DN19 1" / DN25 1 1/2" / DN38 2" / DN50 2 1/2" / DN63 3" / DN75 4" / DN100
FEMALE PART WITH HOSE NIPPLE SMOOTH (TYPE C)	1/2" / DN13 3/4" / DN19 1" / DN25 1 1/2" / DN38 2" / DN50 2 1/2" / DN63 3" / DN75 4" / DN100
MALE PART WITH INTERNAL THREAD (TYPE A)	1/2" / DN13 3/4" / DN19 1" / DN25 1 1/2" / DN38 2" / DN50 2 1/2" / DN63 3" / DN75 4" / DN100
FEMALE PART WITH INTERNAL THREAD (TYPE D)	1/2" / DN13 3/4" / DN19 1" / DN25 1 1/2" / DN38 2" / DN50 2 1/2" / DN63 3" / DN75 4" / DN100
MALE PART WITH EXTERNAL THREAD (TYPE F)	1/2" / DN13 3/4" / DN19 1" / DN25 1 1/2" / DN38 2" / DN50 2 1/2" / DN63 3" / DN75 4" / DN100
FEMALE PART WITH EXTERNAL THREAD (TYPE B)	1/2" / DN13 3/4" / DN19 1" / DN25 1 1/2" / DN38 2" / DN50 2 1/2" / DN63 3" / DN75 4" / DN100

▶▶▶ HOSE CLIPS ◀◀◀



Type	Size
IT-BAND	1" 3/4" 1/2" 3/8"
TS	10-22 14-27 27-51 40-64 46-70 59-83 71-95 84-108 127-178 165-216 242-292
GBS	125 135 145 158 160 165 173 175 187 190 197 200 207 210 217 220 230

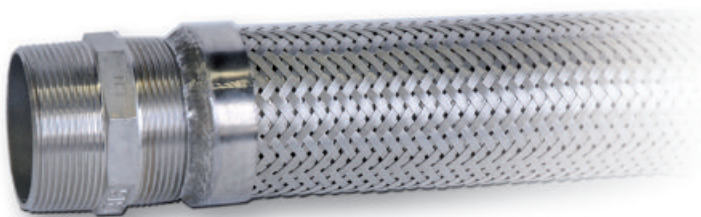
HOSES

ALONGSIDE THE PROVEN HOSE QUALITIES FOR HIGH-CURRENT CABLES, FLOHE OFFERS ALL COOLING WATER CONNECTIONS IN SPECIAL RUBBER EXECUTION WITH THE APPROPRIATE HOSE CONNECTION ELEMENTS AND FASTENING TECHNOLOGY.

▶ HOSE TYPE
2440EP



▶ HOSE TYPE
1912EP

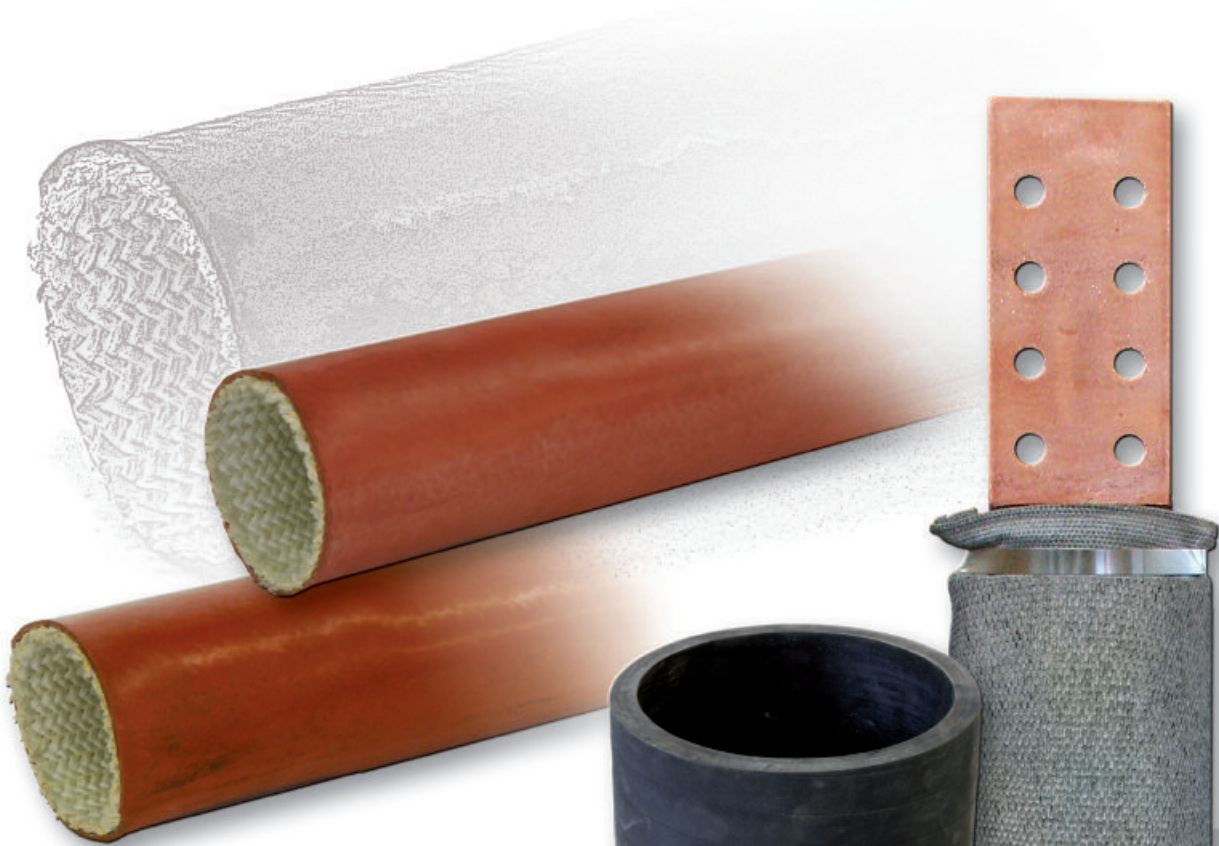


▶ METAL CORRUGATED HOSE



▶ HYDRAULIC HOSES
READY FOR USE

THE SERVICE LIFE OF THE CABLE HOSES IS SOMETIMES REDUCED ENORMOUSLY BY VARIOUS INFLUENCES IN THE FORM OF FRICTION, RADIANT HEAT AND METAL SPLASHES.



ACCORDING TO THE PROBLEM AREA, WE HAVE DEVELOPED DIVERSE SOLUTIONS FOR THIS

... which are already being used by various customers.

- Rubber auxiliary hose
- Silicone auxiliary hose
- Kevlar auxiliary hose
- Spacer

While spacers are primarily for combating friction wear, rubber, silicone and Kevlar hoses are 3 different solutions which can be used at temperatures from 100°C to 750°C. It is to be considered that as the temperature resistance increases, the abrasion resistance rises diagonally with it.

GET IN CONTACT WITH US.

PRODUCT OVERVIEW

FOR OVER 110 YEARS:

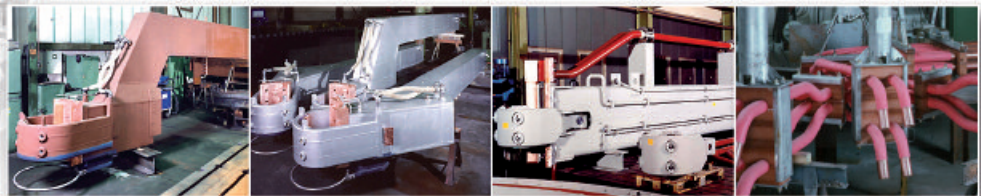
▶▶▶ **COMPETENCE IN
ENGINEERING + MANUFACTURING** ◀◀◀

...FROM THE INDIVIDUAL COMPONENT
TO THE COMPLEX HIGH-CURRENT SYSTEM

■ EAF / LF / ESR



■ SUPPORT ARM TECHNOLOGY / HIGH-CURRENT LINES



■ EXPANSION JOINTS



■ ELECTROLYSIS: BUSBARS / SWITCH GEARS



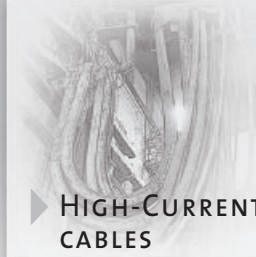
FLOHE

PRODUCT OVERVIEW

FOR MORE THAN 110 YEARS:

EXPERTISE IN ENGINEERING + PRODUCTION

...FROM INDIVIDUAL COMPONENTS THROUGH
TO COMPLEX HIGH-CURRENT SYSTEMS



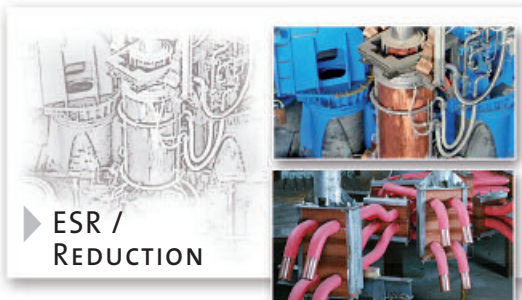
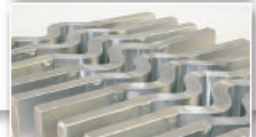
▶ HIGH-CURRENT
CABLES



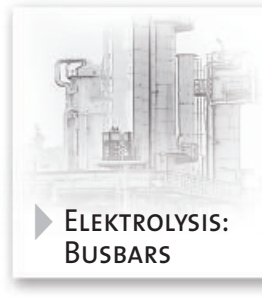
▶ EAF / LF /



▶ FLEXIBLE
CONNECTIONS



▶ ESR /
REDUCTION



▶ ELEKTROLYSIS:
BUSBARS



WE WILL GLADLY
ADVISE YOU...



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