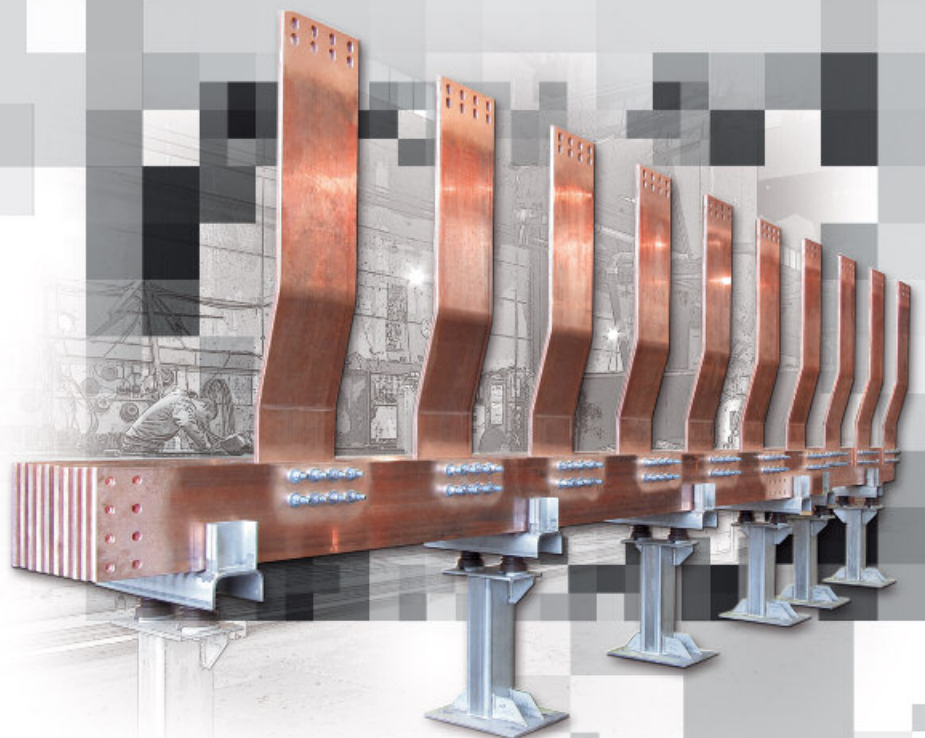


# FLEXIBLE CONNECTORS & BUS BAR SYSTEMS

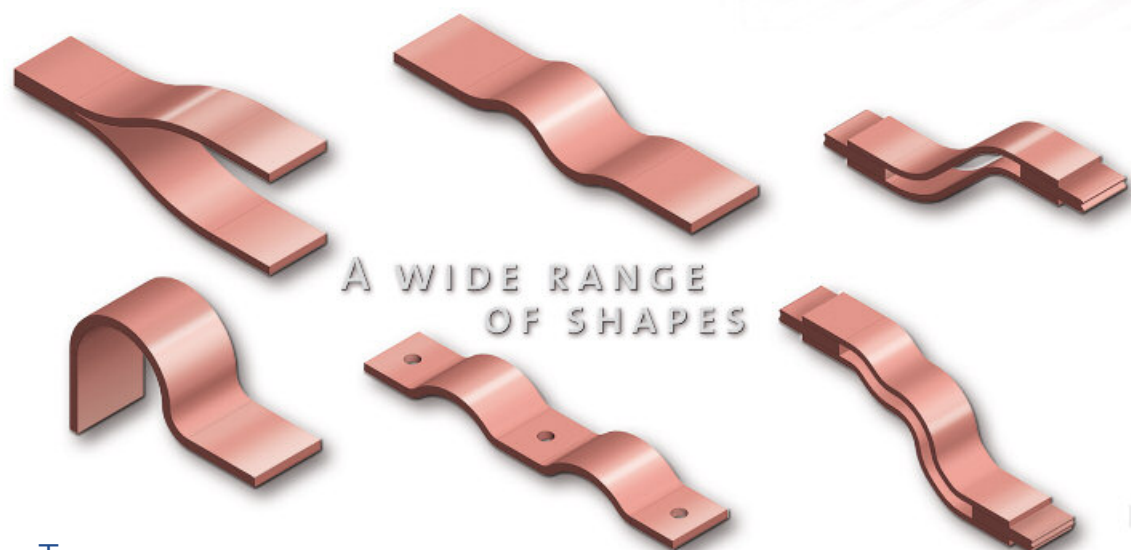


## WITH CONCURRENT MECHANICAL FLEXIBILITY, FLOHE EXPANSION CONNECTORS SERVE TO COMPENSATE VIBRATION

BETWEEN SWITCHES, TRANSFORMERS, HIGH VOLTAGE COMPONENTS AND THEIR RIGID BUS BAR

In contrast to a rigid connection, they compensate switching impulses, vibrations or, in the case of expansion as a result of current heat, mechanical changes. There are various manufacturing technologies available for each application case. At the same time, a rough distinction is made between expansion connectors made from foil and braid.

If you require a special embodiment for your constructive solutions, FLOHE's in-house designers will implement and produce the right connector for you.



A WIDE RANGE OF SHAPES

### THE MAIN POINTS...

WHEN DEVELOPING AN EXTENSION CONNECTOR ARE THE CURRENT RATING, FLOW OF THE CURRENT, THE CONNECTION MATERIAL, FLEXIBILITY AND THE INSTALLATION CONDITIONS.

The equipment to be connected determines the choice of material. A copper expansion connector is used in the case of connections between copper bus bars. Aluminium expansion connectors are used for aluminium bus bars.

If an aluminium bus bar is to be connected to a copper connection however, there are several design variants. Pressure welding, gas-shielded arc welding, explosive plating or screwing onto a Cupal bimetallic plate. Alternatively, there is surface treatment, such as silver, nickel, tin or copper plating.

Current levels have the greatest impact with respect to the cross section. In addition, voltage drops, power dissipation and operating temperatures also have an influence. 50 °C - 60 °C is an optimum operating temperature. Depending on the path ('l'), the flexibility of a connector is defined in one direction by the required force ('F').

Another defining measure of the flexibility of the connector is its torsional stiffness, i.e. the size of the torque at which a defined angle or twist is achieved.

FLOHE offers a wide and differentiated product range with flexible connections in the field of high voltage technology. We create expansion connectors using different materials and different production technologies.

Our portfolio is rounded off by our installation department. From on site welding through to the provision of a supervisor, it's all in our range of services. We are happy to manage the installation of complete systems.

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## HIGH VOLTAGE BUS BAR SYSTEMS

Over 60 years of expertise in ...

- ▶ engineering
- ▶ manufacturing
- ▶ and the installation

of high voltage bus bars	10 - 13
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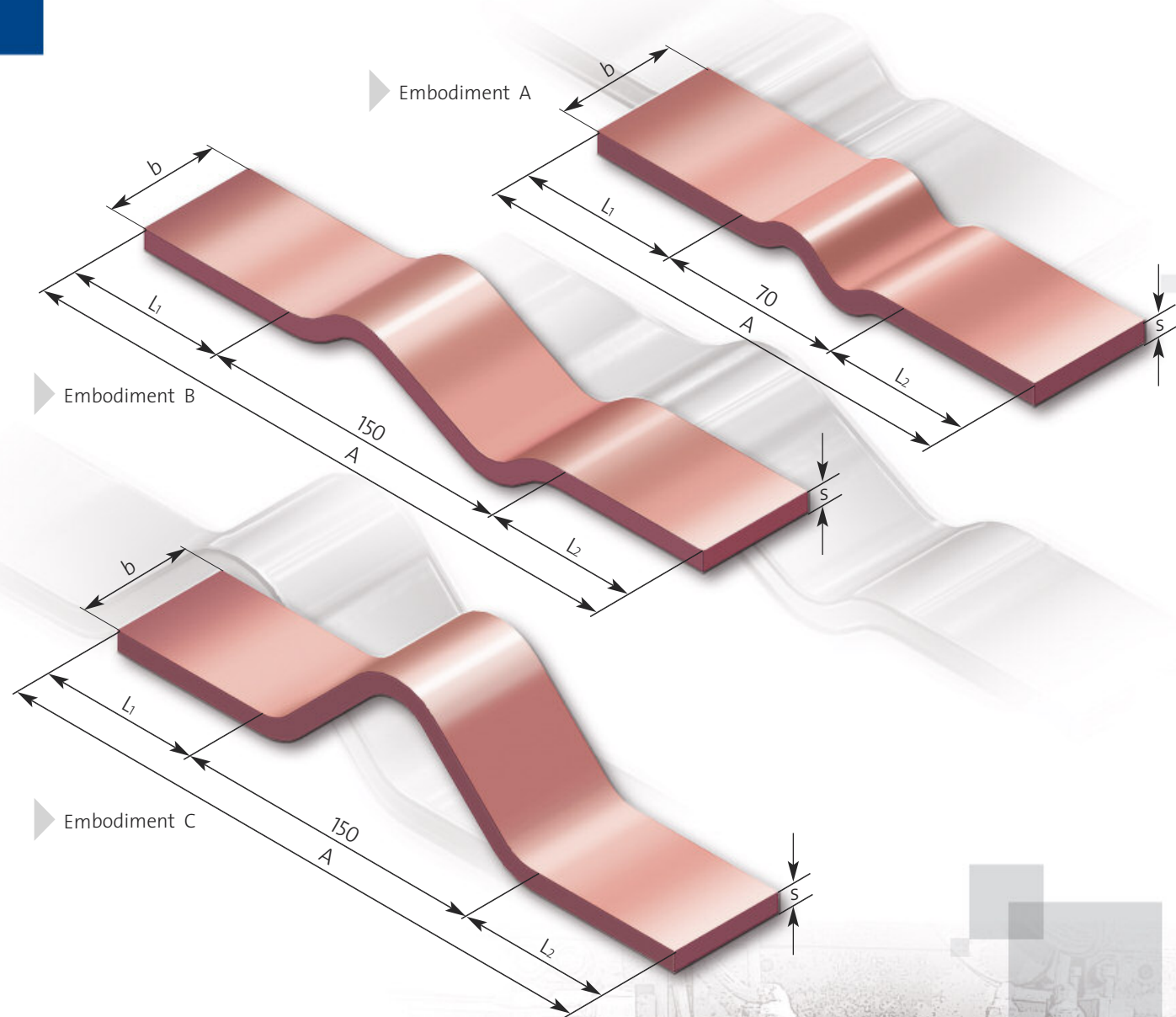
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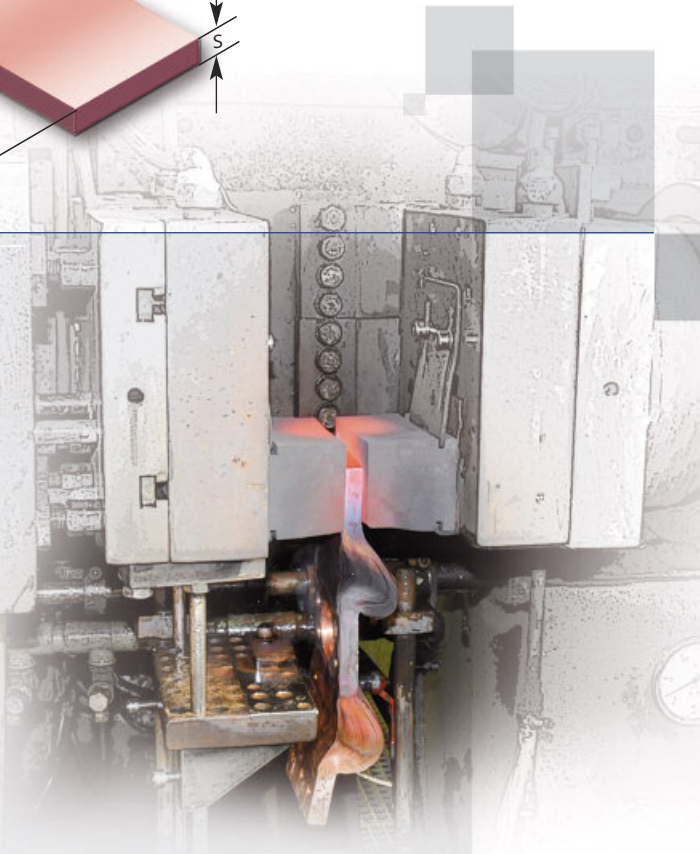


## PRESSURE WELDING...

USING THE TECHNOLOGY OF PRESSURE WELDING, COPPER FOILS OF DIFFERENT THICKNESSES ARE WELDED TOGETHER.

An electrical current (up to 65000 Ampere at approx. 15 Volt) passes through pressed on electrodes and the component. The copper foils to be welded are heated until just short of the melting point and then fused together by pressing, wherein the lattice planes of the of the materials come together as a result of the deformation (up to atomic effect displacements) and as such, generate the material bonding. Press welding has a great importance as, apart from high productivity, qualitatively-good weld connections are generated.

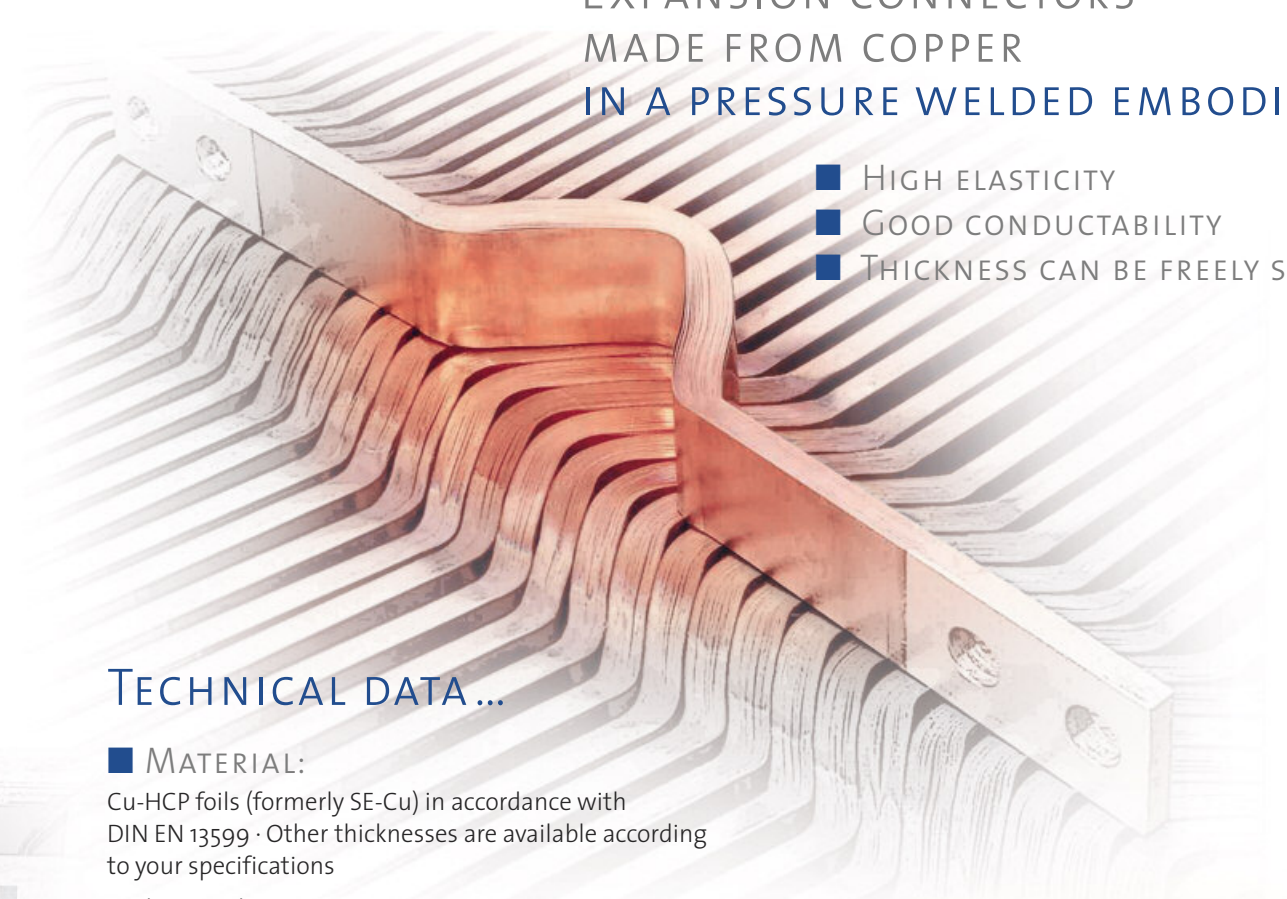
Pressure welded expansion connectors from FLOHE exhibit exceptional conductivity on account of a fully molecular composition. The contact surfaces can be drilled, milled and bent.



# TYPE FKD

EXPANSION CONNECTORS  
MADE FROM COPPER  
IN A PRESSURE WELDED EMBODIMENT

- HIGH ELASTICITY
- GOOD CONDUCTABILITY
- THICKNESS CAN BE FREELY SELECTED



## TECHNICAL DATA...

### ■ MATERIAL:

Cu-HCP foils (formerly SE-Cu) in accordance with DIN EN 13599 · Other thicknesses are available according to your specifications

With cover sheets, upon request

### ■ INSTALLATION NOTES:

If the embodiment A or B expansion connectors are installed on top of each other 5 mm thick, please make sure when installing that the small radius of one bent arc is placed into the large radius of the other bent arc.

FKD	
Width	28, 38, 48, 58, 78, 98, 118 ... 200
Thickness	4 ... 65
Foil thickness	0,04 ... 0,5
L <sub>1</sub> /L <sub>2</sub>	10 ... 200
A	50 ... 2000
Drill pattern	In accordance with DIN 43673 and DIN 46276 parts 1 + 2
Drill diameter	4 ... 30
Expanded part	A, B, C
Contact surfaces	Bare, tin plated, silver plated

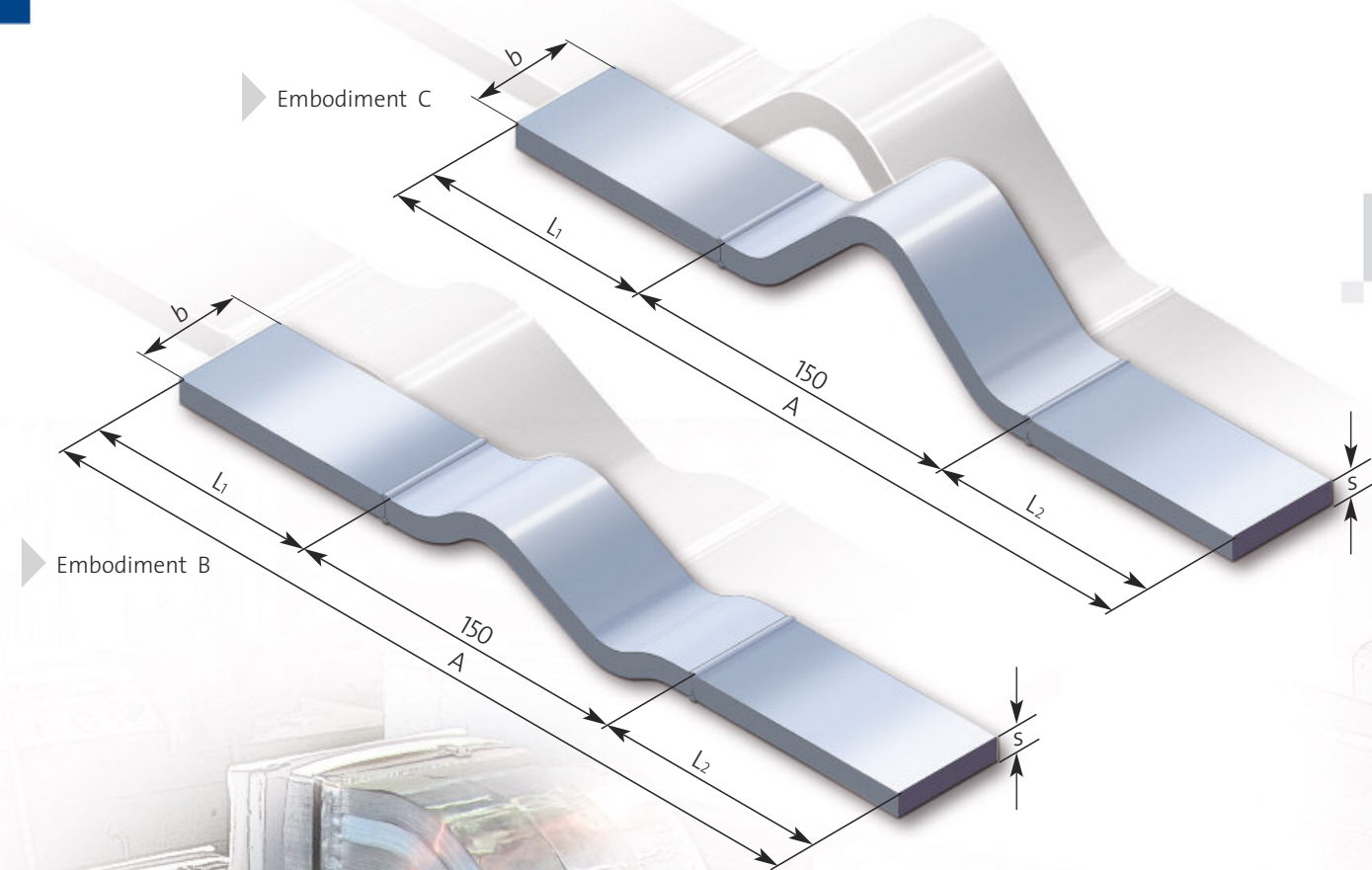
NOTE: Other dimensions and shapes are available on request.

*Over 60 years of experience  
in the manufacturing of  
pressure welded  
expansion connectors*

## ORDER EXAMPLE...

Copper expansion connector	Type FKD 58 x 15 x 310 Embodiment B
Expanded part	150 mm
Length of the connecting lug L <sub>1</sub>	80 mm
Length of the connecting lug L <sub>2</sub>	80 mm
Total length	310 mm





## TYPE FA

EXPANSION CONNECTOR  
MADE FROM ALUMINIUM  
IN A PRESSURE WELDED EMBODIMENT

■ FOR ALUMINIUM  
BUS BARS

### MATERIAL COMPARISON...

PHYSICAL PROPERTIES		COPPER E-Cu	PURE ALUMINIUM E-Al 99,7	ALUMINIUM ALLOY E-AlMgSi 0,5	STEEL
Density	kg/dm <sup>3</sup>	8,9	2,7	2,7	7,85
Electrical conductivity	at 20°C at 80°C	57 46	35 28	31 25	ca. 7 ca. 6
Specific resistance (p) at 20°C	$\frac{\Omega \cdot \text{mm}^2}{\text{m}}$	0,0175	0,0286	0,0323	app. 0,0143
Temperature coefficient $\alpha$ of the electr. resistance between 1°C and 100°C $R_T = R_{20}(1 + \alpha(T - 20))$ ; T=Operating temperature	$\frac{1}{\text{K}}$	0,0038	0,004	0,0036	0,005
Melting point	°C	1083	658	630	app. 1400
Average heat expansion coefficient $\alpha_L$ between 1°C and 100°C	$\frac{\text{mm}}{\text{m} \cdot \text{K}}$	0,017	0,024	0,023	0,012
Medium material expansion $\Delta_L$ (L = 10 m and $\Delta T = 100 \text{ K}$ ) ( $\Delta_L = \alpha_L \cdot L \cdot \Delta T$ )	mm	17	24	23	12
E-module	$\frac{\text{N}}{\text{mm}^2}$	110000	65000	70000	210000
Spec. force with a heat expansion between 1°C and 100°C	$\frac{\text{N}}{\text{K} \cdot \text{mm}^2}$	1,87	1,56	1,61	2,52
Thermal limiting current density	$\frac{\text{A}}{\text{mm}^2}$	154	102	89	-
Melting current density	$\frac{\text{A}}{\text{mm}^2}$	3060	190	1690	-

### TECHNICAL DATA...

#### ■ MATERIAL:

Aluminium foils with a 0.5 mm thickness

Solid aluminium pieces are welded at the ends

Upon request, the length, width and sheet thickness can be changed

FA	
Width	38, 48, 58, 78, 98, 118
Thickness	5 ... 50
Foil thickness	0,2 ... 1,0
L <sub>1</sub> /L <sub>2</sub>	20 ... 6000
A	50 ... 12000
Drill pattern	In accordance with DIN 43673 and DIN 46276 parts 1 + 2
Drill diameter	4 ... 30
Expanded part	B, C
Contact surfaces	Bare

NOTE: Other dimensions and shapes are available on request.

### ORDER EXAMPLE...

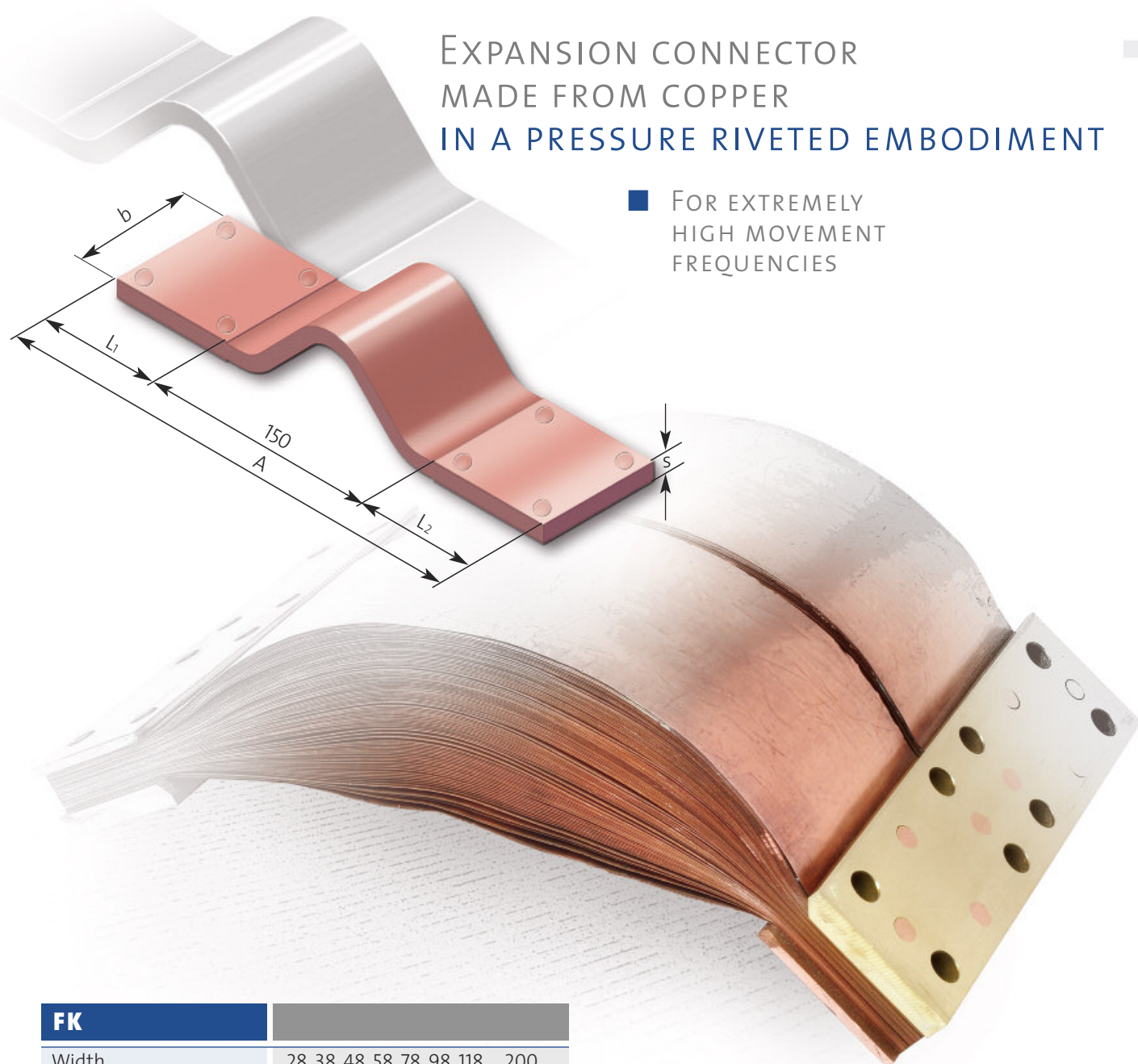
Aluminium expansion connector	Type FA 48 x 10 Embodiment B
Expanded part	150 mm
Length of the connecting lug L <sub>1</sub>	80 mm
Length of the connecting lug L <sub>2</sub>	80 mm
Total length	310 mm



## TYPE FK

EXPANSION CONNECTOR  
MADE FROM COPPER  
IN A PRESSURE RIVETED EMBODIMENT

- FOR EXTREMELY HIGH MOVEMENT FREQUENCIES



FK	
Width	28, 38, 48, 58, 78, 98, 118 ... 200
Thickness	4 ... 65
Foil thickness	0,04 ... 0,5
L <sub>1</sub> /L <sub>2</sub>	10 ... 200
A	50 ... 2000
Drill pattern	In accordance with DIN 43673 and DIN 46276 parts 1 + 2
Drill diameter	4 ... 30
Contact surfaces	Bare, tin plated, silver plated

NOTE:: Other dimensions and shapes are available on request.

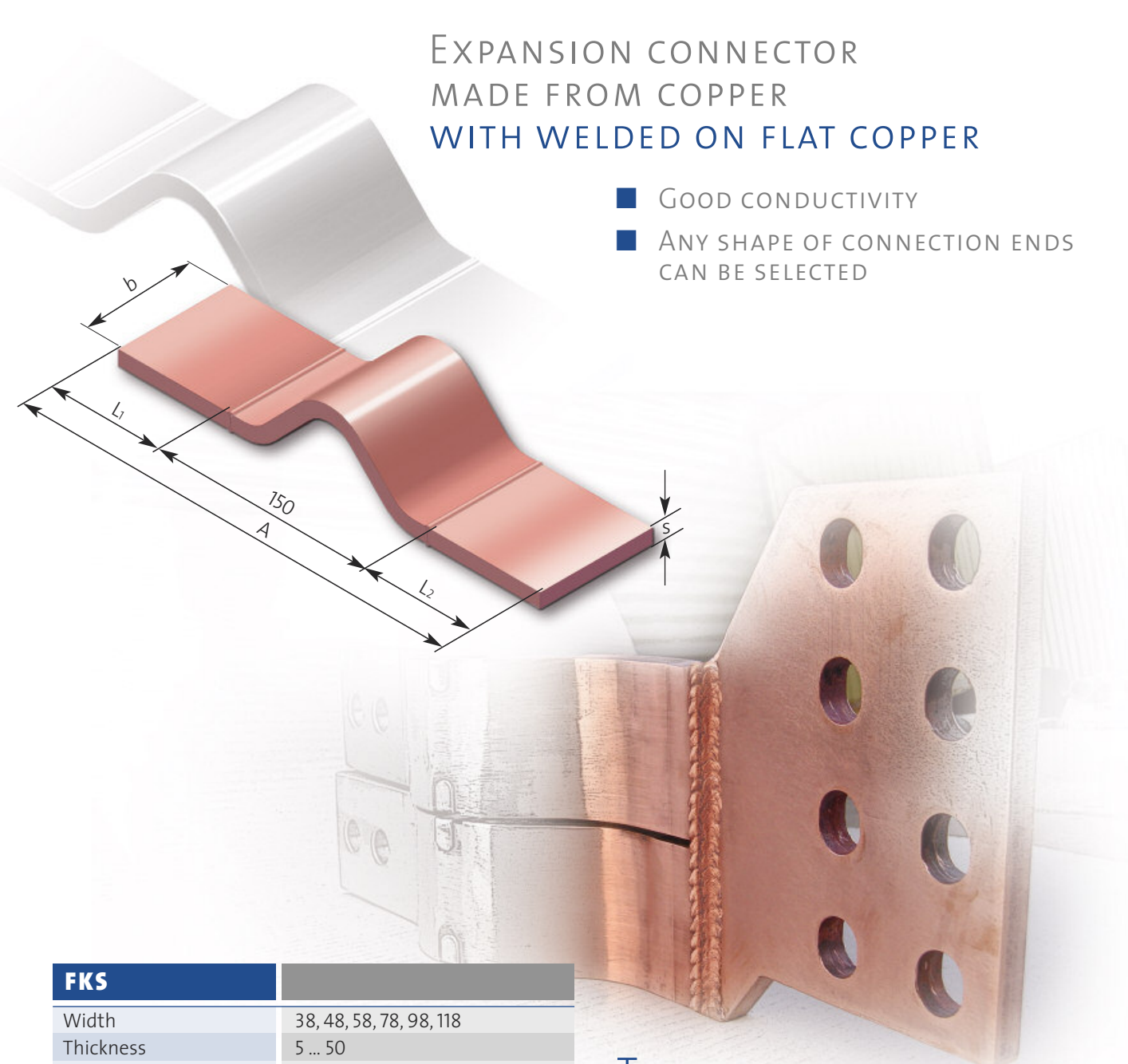
### TECHNICAL DATA...

- MATERIAL:  
Cu-HCP foils (formerly SE-Cu) in accordance with DIN EN 13599  
Upon request, the length, width and sheet thickness can be changed
- CONTACT ENDS:  
Riveted and pressed, strengthened by a 1mm Cu sheet

## TYPE FKS

EXPANSION CONNECTOR  
MADE FROM COPPER  
WITH WELDED ON FLAT COPPER

- GOOD CONDUCTIVITY
- ANY SHAPE OF CONNECTION ENDS CAN BE SELECTED



FKS	
Width	38, 48, 58, 78, 98, 118
Thickness	5 ... 50
Foil thickness	0,2 ... 1,0
L <sub>1</sub> /L <sub>2</sub>	20 ... 6000
A	50 ... 12000
Drill pattern	In accordance with DIN 43673 and DIN 46276 parts 1 + 2
Drill diameter	4 ... 30
Expanded part	B, C
Contact surfaces	Bare

NOTE: Other dimensions and shapes are available on request.

### TECHNICAL DATA...

- MATERIAL:  
Cu-HCP foils (formerly SE-Cu) in accordance with DIN EN 13599  
Upon request, the length, width and sheet thickness can be changed
- CONTACT ENDS:  
Welded on flat copper, Cu-HCP in accordance with DIN



A HIGH DEGREE OF ADAPTABILITY TO DIFFERENT INSTALLATION CONDITIONS IS ACHIEVED...

through the combination of fixed and flexible components and as such, adherence to the planned overall installation period is assured.

Neither changes to the alignment nor compensation of the set-up tolerances of the switchgear lead to significant installation delays.

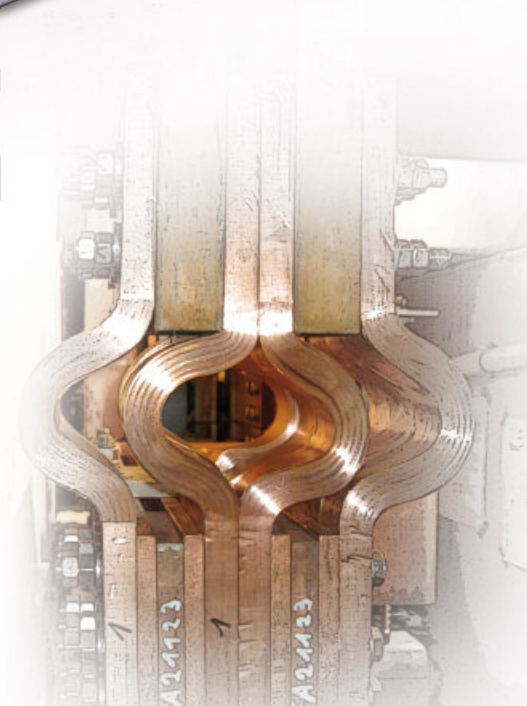
### IN THE MANUFACTURING OF OUR HIGHLY DEVELOPED BUS BAR SYSTEMS...

FLOHE HOCHSTROMTECHNIK HAS MANY YEARS OF EXPERIENCE IN THE FOLLOWING SECTORS:

- MIG and TIG welding
- Press welding
- Working with explosive-plated sheeting
- Aluminium welding
- Hard soldering
- Processing of surfaces

AT ALL STAGES IN THE ENGINEERING PHASE ...

there is a person who is both responsible for the project and on hand to offer the customer advice and guidance. Professional installation by our supervisor rounds the project off and steers the customer onto the path of successful operation

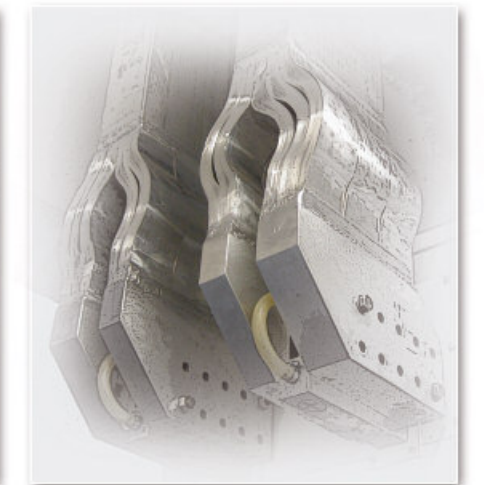
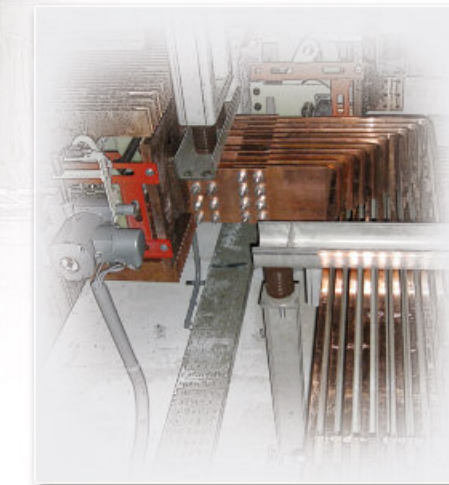


# BUS BAR SYSTEMS (UP TO 360kA)

## OVER 60 YEARS OF INNOVATIVE EXPERTISE

IN THE FIELDS OF ENGINEERING AND MANUFACTURING AS WELL AS THE INSTALLATION OF CUSTOMISED BUS BARS – NATURALLY IN ACCORDANCE WITH ISO 14001 + OHSAS 18001

The systems are either carried out in accordance with customer drawings or completed as a turnkey project and are specially designed for the connection from the power generator to the loads.

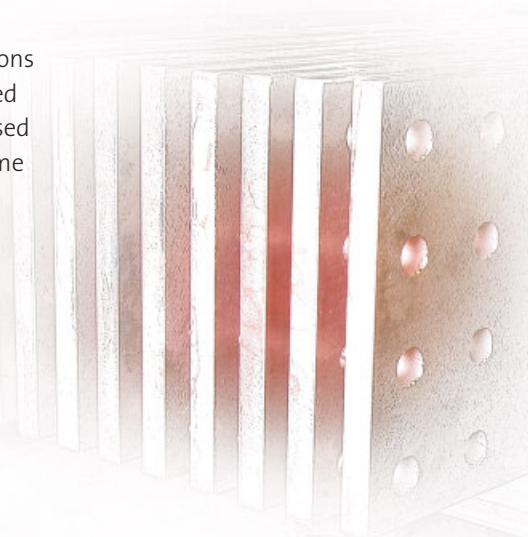


AT FLOHE HOCHSTROMTECHNIK, OPERATIONAL SAFETY TAKES CENTRE STAGE.

The conductor spacings are designed for a high short-circuit resistance and determined by the holder. Optionally, depending on the customer's wishes, the bus bar holders are made from galvanised steel or stainless steel with an insulating plate. The thickness of the insulation plate directly depends on the operating voltage. As a result of this design, there is a high thermal and mechanical reliability.

When processing customer orders, design data is transmitted directly from the CAD workstations to the respective CNC machine in the integrated production lines. As a result of the optimally used manufacturing control, the total processing time is shortened considerably.

When in-house manufacturing capacity is fully utilised, we have a network of partner companies available. Of course, all foreign manufactured components are tested by our incoming goods inspection office and quality assurance department.





# BUS BAR SYSTEMS (UP TO 360kA)

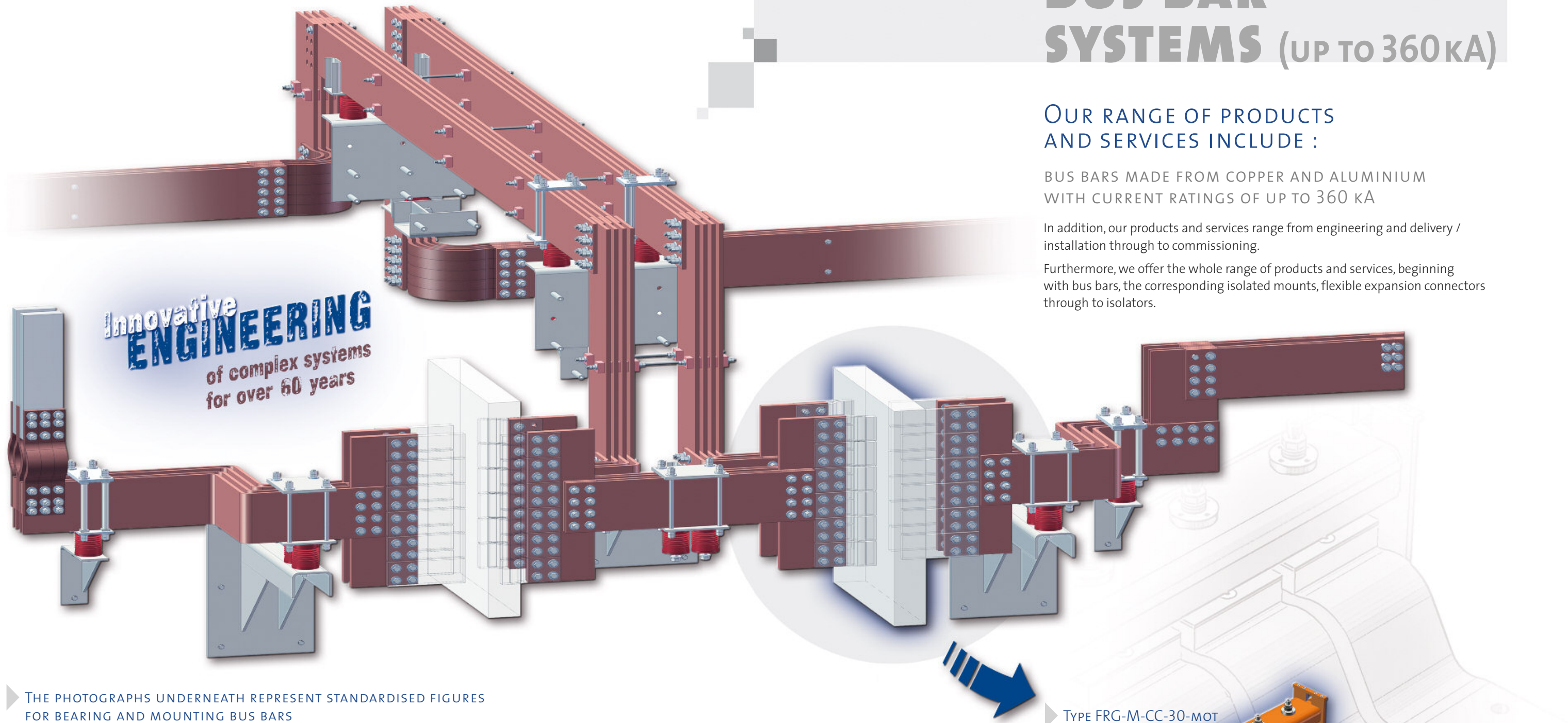
## OUR RANGE OF PRODUCTS AND SERVICES INCLUDE :

BUS BARS MADE FROM COPPER AND ALUMINIUM WITH CURRENT RATINGS OF UP TO 360 kA

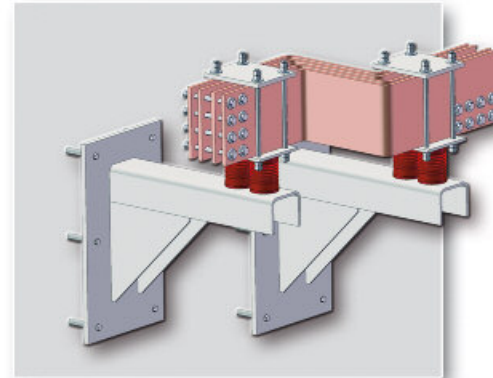
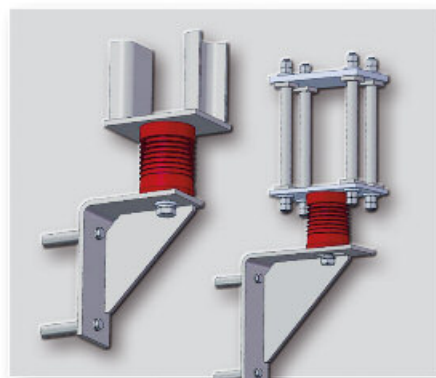
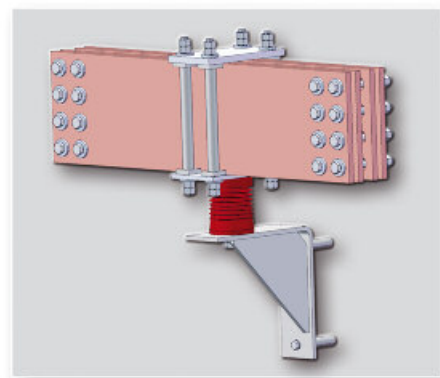
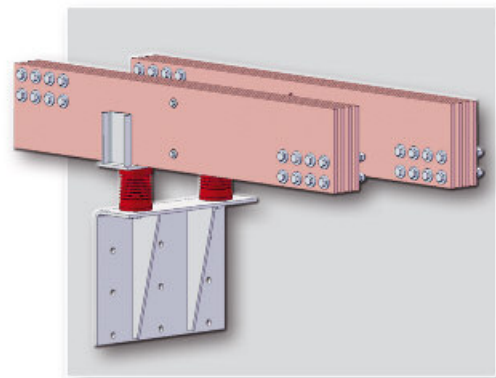
In addition, our products and services range from engineering and delivery / installation through to commissioning.

Furthermore, we offer the whole range of products and services, beginning with bus bars, the corresponding isolated mounts, flexible expansion connectors through to isolators.

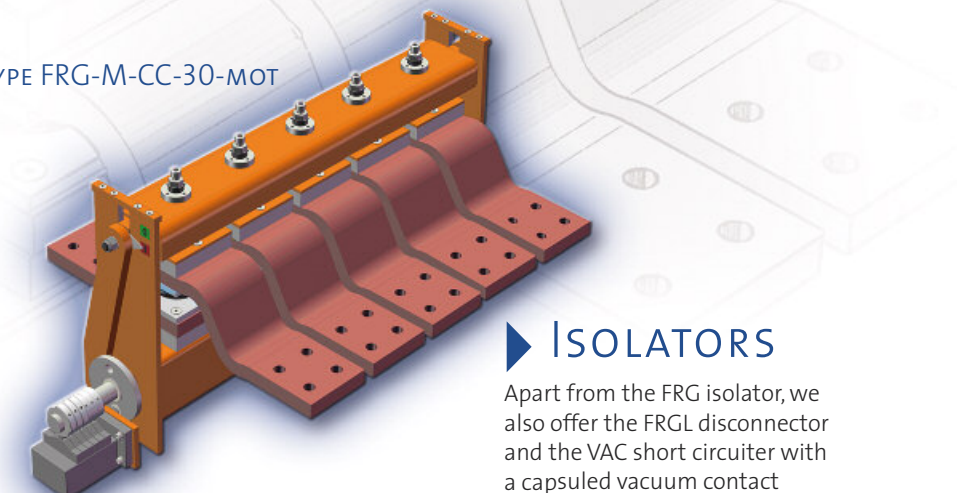
Innovative  
**ENGINEERING**  
of complex systems  
for over 60 years



▶ THE PHOTOGRAPHS UNDERNEATH REPRESENT STANDARDISED FIGURES FOR BEARING AND MOUNTING BUS BARS



▶ TYPE FRG-M-CC-30-MOT



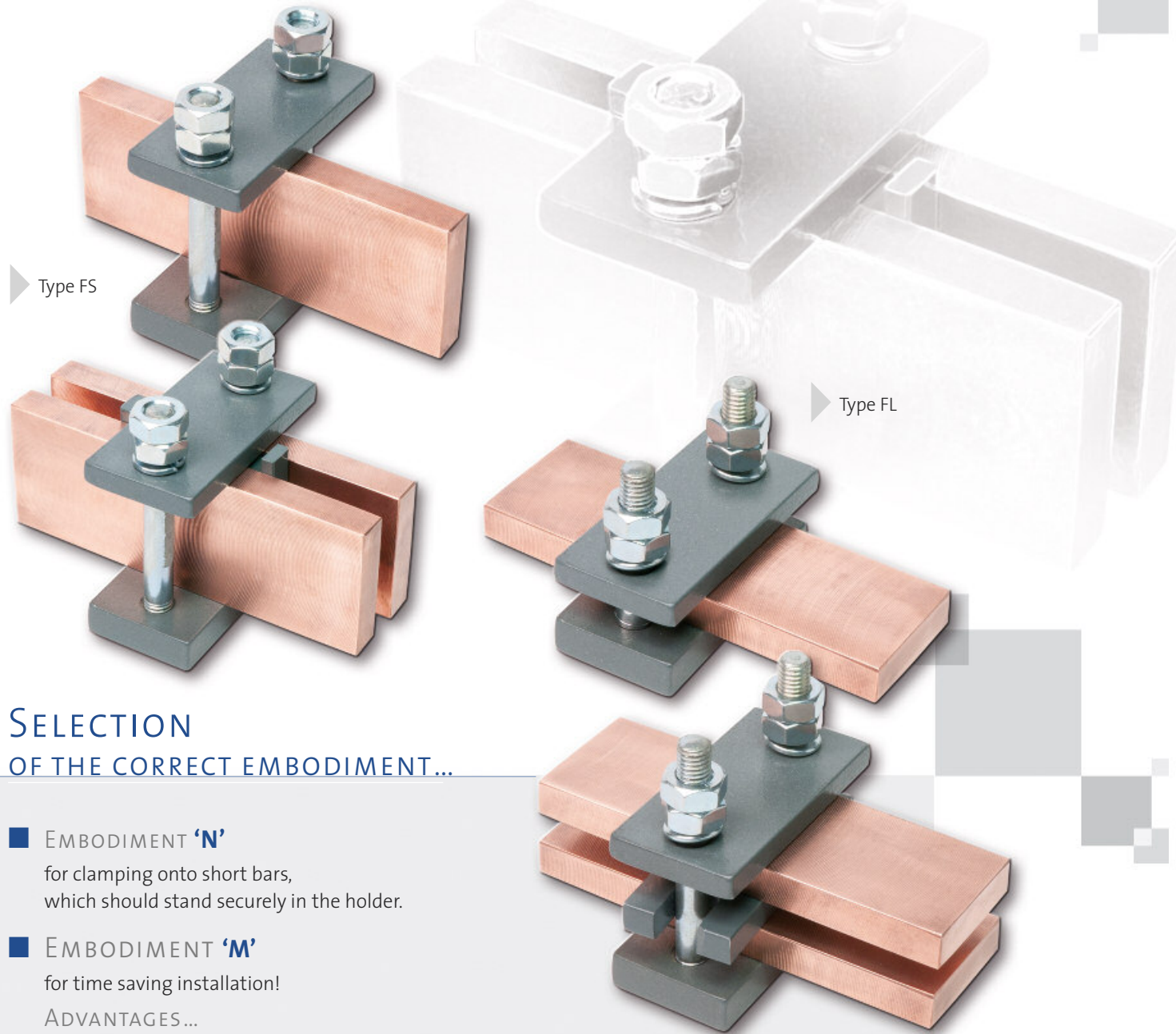
## ▶ ISOLATORS

Apart from the FRG isolator, we also offer the FRGL disconnecter and the VAC short circuiter with a capsuled vacuum contact



■ For laying copper bus bars, the holders receive a special protective covering.

Bus bars which are suitable for insulated support groups A, B and C.



▶ Type FS

▶ Type FL

**SELECTION OF THE CORRECT EMBODIMENT...**

■ EMBODIMENT 'N'

for clamping onto short bars, which should stand securely in the holder.

■ EMBODIMENT 'M'

for time saving installation!

ADVANTAGES...

1. The bottom part of the holder is fastened with the stud bolts before installation on the insulation support.
2. Simple insertion of the bars between the stud bolts when installing.
3. Application possibility for bars, which should stand securely in the holder through tightening the nuts. This also applies to long bars which, due to the heat expansion, have to stand sliding against each other in the holder by tightening the nuts..

■ EMBODIMENT 'ML'

for the sliding suspension of long bars.

Contrary to embodiment M, the clamping section (upper part of holder) does not lie on the bars but on the bolts.

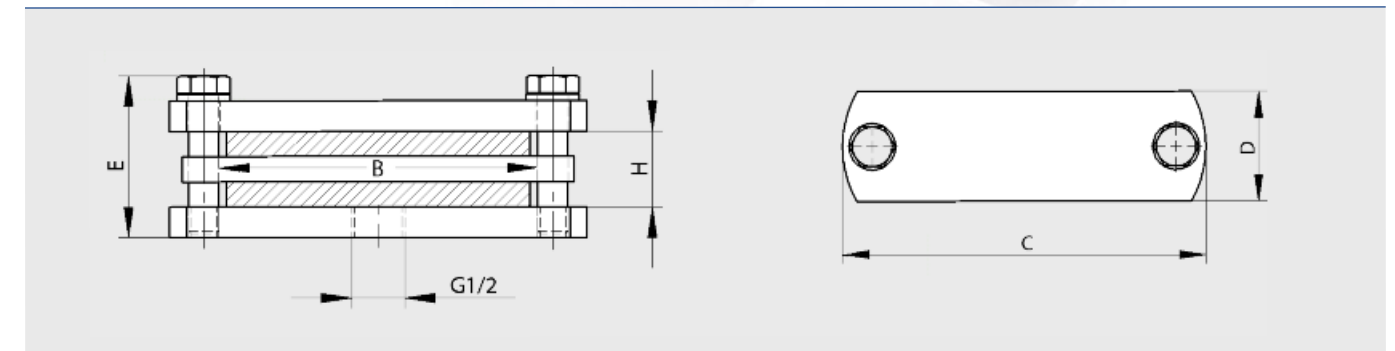
**TYPE FS**

BUS BAR SUPPORT FOR STANDING BUS BARS

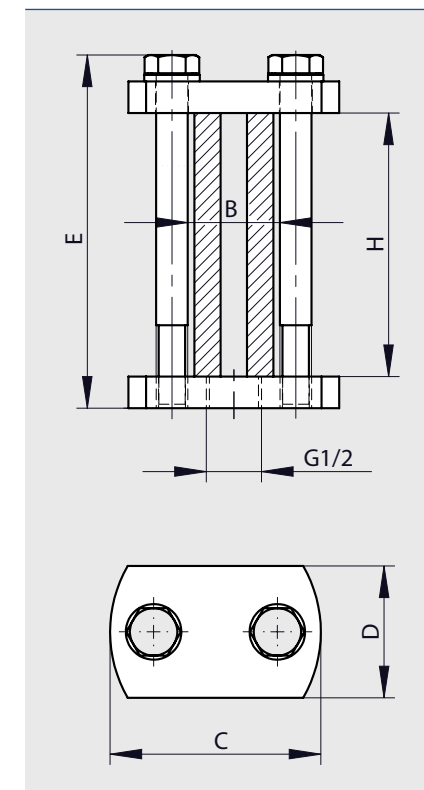
**TYPE FL**

BUS BAR SUPPORT FOR LYING BUS BARS

▶ TYPE FL



▶ TYPE FS



TYPE	for 2 rails	B	H	D	C	E
FS 40 - 5-II	40 x 5	35	40	40	70	70
FS 40 - 10-II	40 x 10	35	40	40	70	70
FS 50 - 5-II	50 x 5	35	50	40	70	80
FS 50 - 10-II	50 x 10	35	50	40	70	80
FS 60 - 5-II	60 x 5	35	60	40	70	90
FS 60 - 10-II	60 x 10	35	60	40	70	80
FS 80 - 10-II	80 x 10	35	80	40	70	110
FS 100 - 10-II	100 x 10	35	100	40	70	130
FS 120 - 10-II	120 x 10	35	120	50	80	156,5
FL 40 - 5-II	40 x 5	45	15	35	80	50
FL 40 - 10-II	40 x 10	45	30	35	80	55
FL 50 - 5-II	50 x 5	55	10	40	90	50
FL 50 - 10-II	50 x 10	55	30	40	90	60
FL 60 - 10-II	60 x 10	65	30	40	100	60
FL 80 - 10-II	80 x 10	85	30	40	120	60
FL 100 - 10-II	100 x 10	105	30	40	140	60
FL 120 - 10-II	120 x 10	125	30	50	165	68

ALSO SUPPLIED AS FOR 1 BUS BAR AND/OR 3 OR 5 BUS BARS

Embodiment 'N' with hexagonal head screws (normal)

Embodiment 'M' with stud bolts

Embodiment 'ML' with strengthened stud bolts

\*) upon request, for countersunk screws M10, M12 and M16



CONNECTION PIECES AND LINKS MADE FROM FLEXIBLE COPPER EXPANSION CONNECTOR

THE CONNECTION PIECES AND LINKS ARE MAINLY INSTALLED WHERE A GREAT DEGREE OF FLEXIBILITY IS NECESSARY, AND/OR WHERE THERE ARE 2 LEVELS OF MOVEMENT.

- In general, our connectors are pressed on the ends with the contact sleeves and not, as is often seen in practice, soldered.
- The press procedure has the advantage that materials with the same composition and same conductance are joined together, something that with tin, when it is also used, is not the case.
- The cross section in mm stated by us in the summary of types is the real conductor cross section (single wire – cross section times number of wires). The connection – cross section 'B x connection thickness' never corresponds to the conductor cross-section.
- Upon request, the connection pieces and links can be clad with a protective hose.
- Load table for copper strand and copper strand connectors when heated from 35 °C to 70 °C

THE FOLLOWING FIGURES ARE NON-BINDING GUIDELINE VALUES.

If several connectors in parallel are used for each phase, it is necessary to reduce the load values.

Nominal cross section mm <sup>2</sup>	Load in Ampere
10.0	85
16.0	120
25.0	150
35.0	195
50.0	250
70.0	300
95.0	360
120.0	420
150.0	480
185.0	570
240.0	670
300.0	780
400.0	950
500.0	1100
625.0	1300
800.0	1500
1000.0	1800
1500.0	2200
2000.0	2400
3000.0	3000



TYPE FR

HIGH FLEXIBLE EXPANSION CONNECTOR MADE FROM A HIGHLY FLEXIBLE COPPER STRAND WITH A PRESSED ON CABLE LUG

- HIGH LEVEL OF MOBILITY
- FOR SPECIAL APPLICATIONS



TECHNICAL DATA ...

- **MATERIAL:**  
highly flexible, bare, round copper strand  
0.1 mm single wire diameter, also available optionally in a tin plated embodiment
- **CONTACT ENDS:**  
The contact ends consist of copper sleeves which are pressed on
- **DRILL HOLES:**  
The stated drill holes in the cable lugs correspond to the normal embodiment. Upon request, we can also supply with larger drill holes

TYPE	Cross section mm <sup>2</sup>	B	d	A	Weight kg
FR 10	10	12.5	6.5	200	app. 0.04
FR 16	16	12.5	6.5	200	app. 0.06
FR 25	25	15.0	8.5	200	app. 0.10
FR 35	35	17.0	8.5	200	app. 0.14
FR 50	50	20.0	10.5	200	app. 0.20
FR 70	70	23.0	10.5	210	app. 0.28
FR 95	95	26.5	10.5	210	app. 0.36
FR 120	120	30.0	13.0	220	app. 0.50
FR 150	150	31.0	13.0	220	app. 0.65
FR 185	185	35.0	17.0	230	app. 0.85
FR 240	240	38.5	17.0	230	app. 1.10
FR 300	300	43.5	20.0	230	app. 1.50

Special embodiments are available upon request.



...MADE FROM COPPER

TYPE	Cross section	B	S	Current load as AC
FH 015 - 0012	12	15	3	100
FH 020 - 0016	16	20	3	130
FH 020 - 0025	25	20	3.5	140
FH 025 - 0025	25	25	3.5	140
FH 030 - 0025	25	30	3	270
FH 015 - 0035	35	15	3	115
FH 020 - 0035	35	20	4	200
FH 040 - 0035	35	40	3	310
FH 020 - 0050	50	20	5	240
FH 025 - 0050	50	25	5	290
FH 030 - 0050	50	30	4	295
FH 035 - 0050	50	35	4.5	330
FH 040 - 0050	50	40	4	340
FH 020 - 0070	70	20	6.5	310
FH 050 - 0070	70	50	6	630
FH 060 - 0070	70	60	6	655
FH 025 - 0075	75	25	6.5	360
FH 030 - 0075	75	30	5	390
FH 040 - 0075	75	40	4.5	420
FH 015 - 0100	100	15	7	350
FH 020 - 0100	100	20	7.2	360
FH 022 - 0100	100	22	7	380
FH 025 - 0100	100	25	7.3	420
FH 038 - 0100	100	38	6	430
FH 040 - 0100	100	40	5.5	430
FH 050 - 0100	100	50	5	590
FH 055 - 0100	100	55	5.5	620
FH 080 - 0100	100	80	6	910
FH 020 - 0120	120	20	6	360
FH 040 - 0120	120	40	6.5	450
FH 050 - 0120	120	50	7	660
FH 025 - 0125	125	25	8.8	510
FH 030 - 0125	125	30	8	540
FH 050 - 0140	140	50	7	650
FH 060 - 0140	140	60	8	850
FH 020 - 0150	150	20	9	380
FH 025 - 0150	150	25	8.8	490
FH 030 - 0150	150	30	9	550
FH 040 - 0150	150	40	7.5	480
FH 045 - 0150	150	45	7.7	490
FH 050 - 0150	150	50	7.5	740
FH 030 - 0175	175	30	10	630
FH 025 - 0200	200	25	15	580
FH 030 - 0200	200	30	11	620
FH 040 - 0200	200	40	8.7	650
FH 045 - 0200	200	45	9	660
FH 050 - 0200	200	50	8	760
FH 055 - 0200	200	55	8.2	815
FH 080 - 0200	200	80	7.5	960
FH 040 - 0210	210	40	7.8	620
FH 048 - 0210	210	48	8	760
FH 050 - 0210	210	50	8.3	770
FH 060 - 0210	210	60	9.2	860
FH 050 - 0240	240	50	10.0	900
FH 055 - 0240	240	55	9.5	910
FH 030 - 0250	250	30	12.0	640
FH 040 - 0250	250	40	11.0	790
FH 060 - 0250	250	60	10.0	980
FH 030 - 0270	270	30	10.0	600
FH 050 - 0280	280	50	10.5	905
FH 060 - 0280	280	60	10.5	1010
FH 080 - 0280	280	80	8.5	1050
FH 030 - 0300	300	30	15.5	790
FH 035 - 0300	300	35	14.5	800
FH 040 - 0300	300	40	13	850
FH 045 - 0300	300	45	13	870
FH 048 - 0300	300	48	12	970

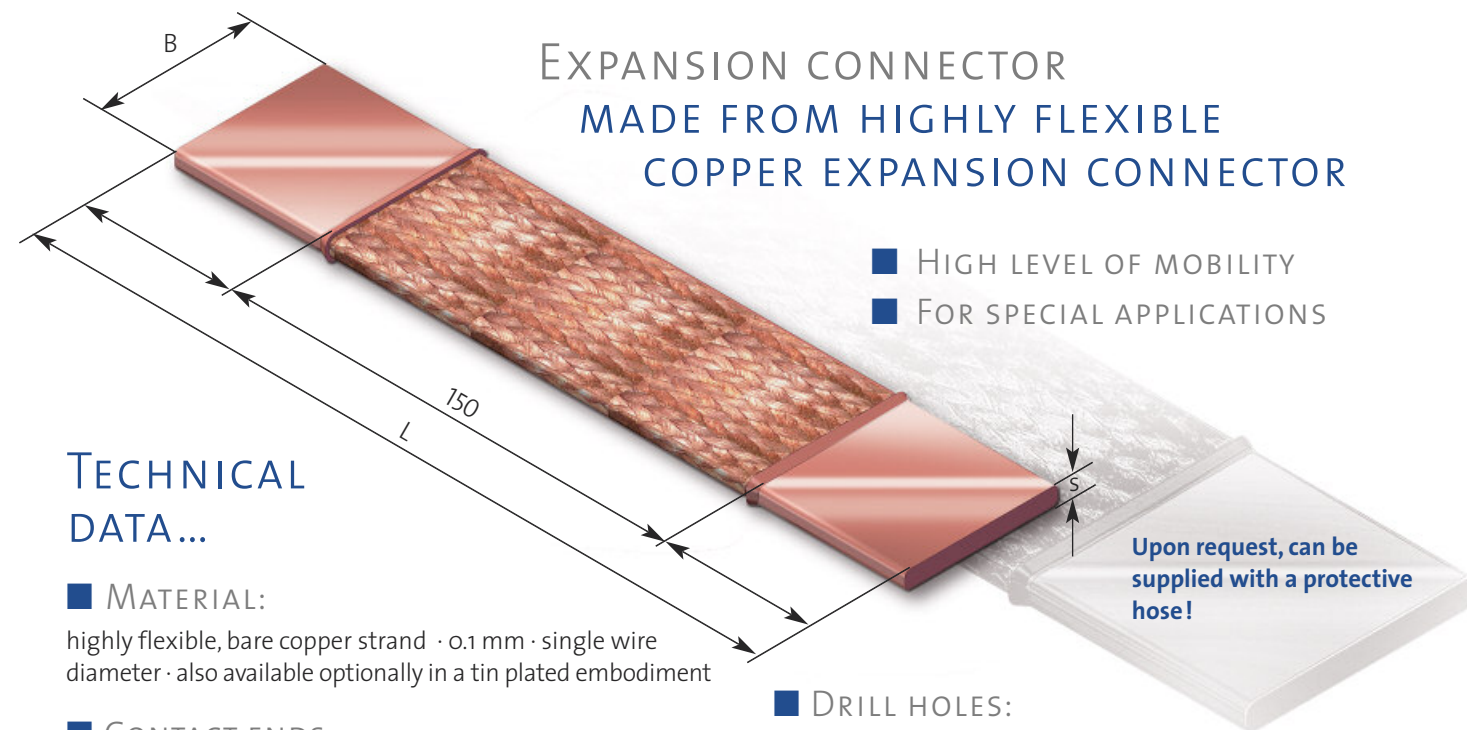
The max. current load depends on the environmental conditions - The values do not apply to non-clad connectors

TYPE	Cross section	B	S	Current load as AC
FH 055 - 0300	300	55	11	980
FH 060 - 0300	300	60	10.5	980
FH 038 - 0350	350	38	14.5	960
FH 040 - 0350	350	40	14	910
FH 050 - 0350	350	50	13	980
FH 060 - 0350	350	60	12	1120
FH 080 - 0350	350	80	10	1080
FH 100 - 0350	350	100	10	1360
FH 030 - 0400	400	30	16	820
FH 040 - 0400	400	40	15.5	990
FH 045 - 0400	400	45	15	1010
FH 048 - 0400	400	48	14	1260
FH 055 - 0400	400	55	12	1120
FH 120 - 0400	400	120	12	1560
FH 050 - 0420	420	50	13.8	1090
FH 060 - 0420	420	60	14	1370
FH 080 - 0420	420	80	11	1380
FH 100 - 0420	420	100	11	1510
FH 035 - 0450	450	35	20.5	1090
FH 080 - 0480	480	80	13	1540
FH 035 - 0490	490	35	19.5	1180
FH 040 - 0490	490	40	20	1110
FH 050 - 0490	490	50	17	1490
FH 060 - 0490	490	60	15.5	1360
FH 055 - 0500	500	55	13.2	1290
FH 070 - 0500	500	70	11	1370
FH 100 - 0500	500	100	11	1490
FH 120 - 0500	500	120	11	1490
FH 038 - 0560	560	38	21	1270
FH 050 - 0560	560	50	16	1210
FH 055 - 0560	560	55	15.2	1350
FH 060 - 0560	560	60	16.5	1420
FH 080 - 0560	560	80	14	1575
FH 100 - 0560	560	100	11.5	1520
FH 120 - 0560	560	120	11.5	1750
FH 045 - 0600	600	45	22	1210
FH 050 - 0600	600	50	18	1330
FH 055 - 0600	600	55	17	1390
FH 060 - 0600	600	60	17	1340
FH 100 - 0600	600	100	12	1730
FH 120 - 0600	600	120	12	1740
FH 080 - 0630	630	80	15	1580
FH 060 - 0650	650	60	17-18	1420
FH 045 - 0700	700	45	27	1570
FH 048 - 0700	700	48	19	1400
FH 055 - 0700	700	55	18	1630
FH 060 - 0700	700	60	20	1660
FH 080 - 0700	700	80	15.5	1780
FH 095 - 0700	700	95	13	1820
FH 100 - 0700	700	100	13.3	1880
FH 120 - 0700	700	120	12.8	1750
FH 038 - 0720	720	38	28	1790
FH 040 - 0800	800	40	28	1840
FH 048 - 0800	800	48	25	1770
FH 050 - 0800	800	50	24.8	1760
FH 055 - 0800	800	55	24.8	1810
FH 060 - 0800	800	60	22	1820
FH 080 - 0800	800	80	16	1820
FH 100 - 0800	800	100	15	1990
FH 120 - 0800	800	120	16	2410
FH 060 - 0840	840	60	16	1870
FH 080 - 0840	840	80	17.5	1950
FH 100 - 0840	840	100	15.5	2090
FH 150 - 0840	840	150	11.8	2210
FH 160 - 0840	840	160	12	2220
FH 038 - 0850	850	38	34	1980
FH 095 - 0850	850	95	14.5	2000

The max. current load depends on the environmental conditions - The values do not apply to non-clad connectors

# TYPE FH

## EXPANSION CONNECTOR MADE FROM HIGHLY FLEXIBLE COPPER EXPANSION CONNECTOR



- HIGH LEVEL OF MOBILITY
- FOR SPECIAL APPLICATIONS

### TECHNICAL DATA...

#### ■ MATERIAL:

highly flexible, bare copper strand · 0.1 mm · single wire diameter · also available optionally in a tin plated embodiment

#### ■ CONTACT ENDS:

The connection ends consist of copper sleeves which are pressed on. The copper connectors can be manufactured for any desired current rating.

#### ■ DRILL HOLES:

Supplied upon request with drilled connecting lugs.

Drill holes in accordance with DIN 43673 sheets 1 and 2 'Busbars - Drill holes and screw fittings', and/or in accordance with DIN 46206, sheet 2 'Connections for electrical operating equipment' or in accordance with drawings and data.

TYPE	Cross section	B	S	Current load as AC
FH 055 - 0900	900	55	22	2210
FH 060 - 0900	900	60	24	2280
FH 080 - 0900	900	80	20	1980
FH 120 - 0900	900	120	18	2410
FH 100 - 0980	980	100	16.5	2160
FH 055 - 1000	1000	55	18.6	2045
FH 060 - 1000	1000	60	20	2080
FH 075 - 1000	1000	75	21	2140
FH 080 - 1000	1000	80	23	2180
FH 120 - 1000	1000	120	16	2500
FH 150 - 1000	1000	150	16	2610
FH 120 - 1100	1100	120	18	2660
FH 060 - 1200	1200	60	28	2600
FH 080 - 1200	1200	80	25	2620
FH 120 - 1200	1200	120	20	2830
FH 100 - 1260	1260	100	20	2760
FH 120 - 1300	1300	120	20	2940
FH 080 - 1400	1400	80	28	3160
FH 100 - 1400	1400	100	24	3280
FH 120 - 1400	1400	120	22	3210
FH 060 - 1440	1440	60	28.6	3110
FH 080 - 1500	1500	80	29.5	3310
FH 100 - 1500	1500	100	23.5	3220
FH 120 - 1500	1500	120	24.5	3210
FH 075 - 1600	1600	75	32	3580
FH 080 - 1600	1600	80	32	3600

The max. current load depends on the environmental conditions - The values do not apply to non-clad connectors

TYPE	Cross section	B	S	Current load as AC
FH 120 - 1600	1600	120	22	3300
FH 160 - 1600	1600	160	22	3340
FH 100 - 1700	1700	100	22	3210
FH 120 - 1700	1700	120	22	3290
FH 080 - 1800	1800	80	35	3740
FH 120 - 1800	1800	120	28	3890
FH 100 - 1900	1900	100	29	3840
FH 100 - 2000	2000	100	30	3770
FH 120 - 2000	2000	120	30	3810
FH 150 - 2000	2000	150	30	3790
FH 120 - 2200	2200	120	32	3820
FH 120 - 2260	2260	120	33	3860
FH 120 - 2400	2400	120	35	3870
FH 200 - 2500	2500	200	27	3980
FH 120 - 3000	3000	120	40	4550
FH 150 - 3000	3000	150	40	4630
FH 160 - 3200	3200	160	41	4710
FH 120 - 3600	3600	120	43	4830
FH 150 - 3600	3600	150	46	4890
FH 150 - 4000	4000	150	50	5100
FH 120 - 4500	4500	120	60	5330
FH 150 - 4500	4500	150	42	5470
FH 120 - 5520	5520	120	75	5590
FH 120 - 6480	6480	120	80	5710

Special embodiments are available upon request.

The max. current load depends on the environmental conditions - The values do not apply to non-clad connectors



# PRODUCT SUMMARY...

FOR OVER 60 YEARS EXPERTISE IN:  
**ENGINEERING +  
MANUFACTURING**

...OF INDIVIDUAL COMPONENTS THROUGH  
TO THE COMPLEX HIGH CURRENT SYSTEM



▶ EAF / LF



▶ ELECTRODE ARM TECHNO-  
LOGY / HIGH CURRENT LINES



▶ HIGH CURRENT CABLES



▶ SWITCHGEAR



▶ ESR



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WE ARE HAPPY TO ADVISE...

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