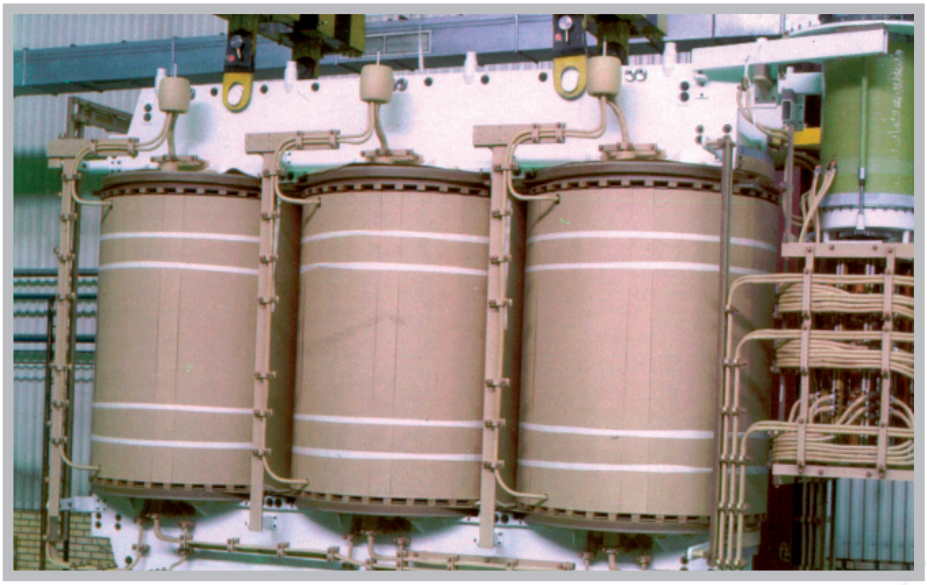
ELPRESS®



High voltage transformers

Low voltage transformers

Product catalogue

Elpress crimp system for transformer manufacturing

Certificate of Registration

ENVIRONMENTAL MANAGEMENT SYSTEM - ISO 14001:2004

This is to certify that:

Elpress AB
including business area Kablema
Industrivägen 15
SE-872 24 Kramfors
Sweden

Holds Certificate No: EMS 531083

and operates an Environmental Management System which complies with the requirements of ISO 14001:2004 for the following scope:

The design, manufacturing, marketing and sales of electrical connector systems as well as marketing and sales of complementary components.

Utveckling, tillverkning, marknadsföring och försäljning av systems för elektriska förbindningar samt marknadsföring och försäljning av kompletterade komponenter.

For and on behalf of BSI:

Managing Director, BSI EMEA

Originally registered: 21/11/2007 Latest Issue: 11/01/2010 Expiry Date: 22/03/2013

Page: 1 of 1

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The British Standards Institution is incorporated by Royal Charter. BSI (EMEA) Headquarters: 389 Chiswick High Road, London, W4 4AL, United Kingdom

Environment policy

Within ELPRESS AB we shall always work with ongoing improvements reducing our influence on the environment. This shall be achieved by using resources in an environment promoting way and by reducing the amount of emissions and waste. We shall meet the legal requirements with a good margin. Our products shall be designed to minimise environmental influence related to

- Manufacture
- Use, and
- Final disposal

All ingredients, materials and components with a negative environment influence shall gradually be exchanged. Our processes as well as our places and methods of work shall be designed and adapted in order to minimise environmental influence and to avoid injury and health hazard to persons.

Information and training shall constitute normal activities in the company to stimulate interest in environment issues with all ELPRESS' employees and to support personal development and participation in the environment work of the company.

Our suppliers and commissioned partners shall be chosen and influenced in such a way that they can add to our fulfilment of the environment policy.

Our customers shall be informed of our environment work and form co-operation partners to spread knowledge and advice to the parties of the distribution chain, all in order to safeguard the proper use, stocking and final disposal of our products.

We shall continuously evaluate the results of the environment work.

We shall demonstrate openness concerning information on our work with and influence on the environment.

Quality

Good quality forms the basis for development with high productivity and competitiveness. Our quality concept addresses our customers, our suppliers and ourselves. With quality we understand our ability to meet internal as well as external customer requirements and expectations regarding the use our products and services.

Quality declaration

Our overall quality target shall be to surpass the quality in products and services offered to the market by our competitors. Our attitude shall be characterized by ongoing improvements, with the ambition also to be regarded a natural partner in relevant quality work. Each and every employee of Elpress AB shall give priority the responsibility for quality in his/her daily work. All work regarding quality improvements is supported by the company management.

As a means to fulfil this quality declaration, the requirements of the quality standard ISO 9001-2000 shall be applied as a general standard for the quality work within Elpress AB.

Certificate of Registration

QUALITY MANAGEMENT SYSTEM - ISO 9001:2008

This is to certify that:

Elpress AB
including business area Kablema
Industrivägen 15
SE-872 24 Kramfors
Sweden

Holds Certificate No: FM 20987

and operates a Quality Management System which complies with the requirements of ISO 9001:2008 for the following scope:

The design, manufacture and sales of electrical connector systems and complementary accessories.

Utveckling, tillverkning, marknadsföring och försäljning av systems för elektriska förbindningar samt marknadsföring och försäljning av kompletterade komponenter.

For and on behalf of BSI:

Managing Director, BSI EMEA

Originally registered: 13/07/1992 Latest Issue: 11/01/2010 Expiry Date: 13/07/2013

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Advanced crimping makes reliability, high performance and documentation essential

When crimping in advanced applications as transformers it is essential that the crimping system is a high performance and reliable system. Elpress has developed a wide range of products specialized for these applications. Together with training of operators, certifications and the products this is a complete system concept.
Elpress Crimp System for **Transformer Connections** is:

- Terminals and connectors adapted to transformer use
- Electrically powered crimp tools with ergonomic crimp heads, rounding and crimp dies
- Test certification to international standards
- Production quality procedures
- Training and certifying of operators

Terminals and connectors

Elpress complete system consists of winding terminals and connectors from 35 to 500 mm². They have the suffix L that is the customers' guarantee that the connector is a part of the quality assured system.
Special items have been developed, like the straight and angled T-connectors. Markings on the terminals and connectors show tool identification, size, stud hole and manufacturers emblem. The markings are made for easier and correct use.

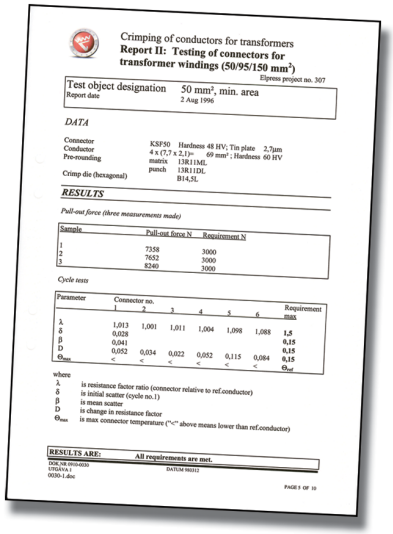
Tools

With the 13 and 25 tons crimp heads Elpress ensures easy operation both when rounding of winding bundles and when crimping. Elpress offers a mains and/or battery operated hydraulic pump that is thumb-controlled from the crimping head handle and powers the crimping head.
Rounding and crimping dies are polished for minimising the risk of sharp edges.
Winding connections are crimped within the following acceptance range for each connection.

Nom. connector area mm²	Tot. initial real winding conductor cross section	
	min mm²	max mm²
35	45	70
50	69	103
70	100	120
95	113	161
120	145	185
150	180	220
185	220	265
240	302	343
300	340	400
400	412	500
500	500	580
630	630	730

Tests

Elpress has tested the use of terminals and connectors within the specified cross section area ranges in accordance with IEC61238:1. This is the most widely accepted test standard with a qualified evaluation of performance stability. Test reports are available from Elpress and can be requested if needed.



Crimping of conductors for transformers
Report II: Testing of connectors for transformer windings (50/95/150 mm²)
Elpress project no. 307

Test object designation: 50 mm², min. area
Report date: 2 Aug 1996

DATA

Connector: K8F50 Hardness 48 HV; Tin plate 2,7µm
Conductor: 4 x (7,7 x 2,1)= 69 mm² ; Hardness 60 HV
Pre-rounding: matrix 13R11ML, punch 13R11DL
Crimp die (hexagonal): B14,5L

RESULTS

Pull-out force (three measurements made)

Sample	Pull-out force N	Requirement N
1	7358	3000
2	7652	3000
3	8240	3000

Cycle tests

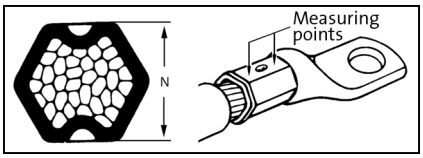
Parameter	Connector no. 1	2	3	4	5	6	Requirement max
λ	1,013	1,001	1,011	1,004	1,098	1,088	1,5
δ	0,028						0,15
β	0,041						0,15
D	0,052	0,034	0,022	0,052	0,115	0,084	0,15
Θ_{max}	<	<	<	<	<	<	Θ_{ref}

where
λ is resistance factor ratio (connector relative to ref.conductor)
δ is initial scatter (cycle no.1)
β is mean scatter
D is change in resistance factor
Θ_{max} is max connector temperature ("<" above means lower than ref.conductor)

RESULTS ARE: All requirements are met.

Production Quality Assurance

It is essential to have simple means of identifying correct crimp procedures and results while working. With the Elpress System the dies leave an imprint on the crimped barrel surface showing the die identification. This enables a direct and easy inspection if proper tools have been used. For all crimps a crimp height limit is given to make an easy check of proper tool function by means of a vernier calliper or a gauge.



Operator training

To ensure that operators have the detailed know-how that is the base for long term quality, Elpress runs theoretical and practical training sessions at each production site resulting in certification of the individual operators. These trained operators will have a qualified level in regard to practical work procedures as well as the precautions that ensure proper results.

Assured results

When you work with the Elpress Crimp System for Transformer Conductor Connections, and follow the instructions for this system, you get results which have been tested to well established standards and requirements. This is your way of getting assured results in production work.

Certificate FM20987
ISO 9001:2000

Markings on Cu-connections

Elpress marking system for Cu-connectors shows logotype, conductor area and ID-number for crimp die to be used. This system enables final inspection of proper die use as the die number is automatically imprinted by the die on the crimped barrel, see picture above.

Stud holes in terminal palms

Screw-dimension	Hole diameter tol. H13 (Ø mm)
M 3	3,2
M 4	4,3
M 5	5,3
M 6	6,4
M 8	8,4
M 10	10,5
M 12	13
M 16	17
M 20	21
M 24	25

Marking of tube terminals
32 (on the terminal neck)
ID-no. for the hexagonal die
(Elpress logo) 300-16F (on the palm)
300 = Cu-conductor area, mm²
16 = hole for screw M16
F = KRF

Marking of connectors
(Elpress logo) 27
ID-no. for hexagonal die
185 F
185 = Cu-conductor area, mm²
F = KSF

Tube terminals 35 - 630 mm², KRF-L

■ Data: electrolytic copper, tin plated, cable inspection hole, for flexible and stranded, round, compressed Cu-conductors and winding conductors.

Marking example KRF: 70 10F, (Elpress logotype included) 17

70 = mm² 10 = palm hole for M10 F = type KRF, for stranded and flexible conductors 17 = Die No.

Flexible stranded mm²	Winding mm²	Cat. no. mm² - bolt hole M	W	d	N	N_1	L	Pcs/pack	Die no.
35	45-70	KRF35-6L	18	9,0	10,0	11,0	47	100	13L
		KRF35-8L	18	9,0	10,0	11,0	47	100	13L
		KRF35-10L	18	9,0	10,0	11,0	47	100	13L
		KRF35-12L	22	9,0	12,0	14,0	52	100	13L
50	69-103	KRF50-8L	21	11,0	11,0	12,0	50	100	14,5L
		KRF50-10L	21	11,0	11,0	12,0	50	100	14,5L
		KRF50-12L	21	11,0	12,0	14,0	53	100	14,5L
		KRF50-16L	27	11,0	15,0	17,0	59	100	14,5L
70	100-120	KRF70-10L	25	13,0	11,0	12,0	55	50	17L
		KRF70-12L	25	13,0	12,0	14,0	58	50	17L
		KRF70-16L	28	13,0	15,0	17,0	64	50	17L
95	113-161	KRF95-8L	29	15,0	15,0	17,0	69	50	20L
		KRF95-10L	29	15,0	15,0	17,0	69	50	20L
		KRF95-12L	29	15,0	15,0	17,0	69	50	20L
		KRF95-16L	29	15,0	15,0	17,0	69	50	20L
120	145-185	KRF120-10L	32	17,0	15,0	17,0	73	25	22L
		KRF120-12L	32	17,0	15,0	17,0	73	25	22L
		KRF120-16L	32	17,0	15,0	17,0	73	25	22L
150	180-220	KRF150-00L	36	19,0	32	-	80	25	25L
		KRF150-8L	36	19,0	15,0	17,0	80	25	25L
		KRF150-10L	36	19,0	15,0	17,0	80	25	25L
		KRF150-12L	36	19,0	15,0	17,0	80	25	25L
		KRF150-16L	36	19,0	15,0	17,0	80	25	25L
185	220-265	KRF185-10L	39	21	15,0	17,0	86	20	27L
		KRF185-12L	39	21	15,0	17,0	86	20	27L
		KRF185-16L	39	21	15,0	17,0	86	20	27L
240	302-343	KRF240-00L	44	24	39	-	95	10	30L
		KRF240-8L	44	24	19	20	95	10	30L
		KRF240-10L	44	24	19	20	95	10	30L
		KRF240-12L	44	24	19	20	95	10	30L
		KRF240-16L	44	24	19	20	96	10	30L
300	340-400	KRF300A-00L	45	24,5	54		116	10	32L
		KRF300A-12L	45	24,5	22	32	116	10	32L
		KRF300A-16L	45	24,5	22	32	116	10	32L
400	412-500	KRF400-00L	56	30	55	-	125	10	38L
		KRF400-10L	56	30	22	33	125	10	38L
		KRF400-12L	56	30	22	33	125	10	38L
		KRF400-16L	56	30	22	33	125	10	38L
500	500-580	KRF500-16L	61	33	25	35	150	5	42L
		KRF500-20L	61	33	25	35	150	5	42L
630	630-730	KRF630-20L	73	39	25	25	165	5	50L

Tube terminals 45°, 50 - 150 mm², KRF-L

■ Data: electrolytic copper, tin plated, cable inspection hole, for flexible and stranded, round, compressed Cu-conductors and winding conductors.

Marking example KRF: 50 10F (Elpress logotype included) 14,5

50 = mm² 10 = palm hole for M10 F = type KRF, for stranded and flexible conductors 14,5 = Die No.

Flexible stranded mm²	Winding mm²	Cat no.	mm W	d	N	N_1	A	Pcs/pack	Die no.
50	69-103	KRF50-8L-45GR	21	11,0	8,5	17,5	31	100	14,5L
		KRF50-10L-45GR	21	11,0	11,5	18,5	31	100	14,5L
		KRF50-12L-45GR	21	11,0	12,5	19,5	31	100	14,5L
95	113-161	KRF95-10L-45GR	29	15,0	11,5	18,5	40	50	20L
		KRF95-12L-45GR	29	15,0	12,5	19,5	40	50	20L
150	180-220	KRF150-10L-45GR	36	19,0	11,5	18,5	49	25	25L
		KRF150-12L-45GR	36	19,0	12,5	19,5	49	25	25L

Tube terminals 90°, 50 - 240 mm², KRF-L

■ Data: electrolytic copper, tin plated, cable inspection hole, for flexible and stranded, round, compressed Cu-conductors and winding conductors.

Marking example KRF: 70 10F (Elpress logotype included) 17

70 = mm² 10 = palm hole for M10 F = type KRF, for stranded and flexible conductors 17 = Die No.

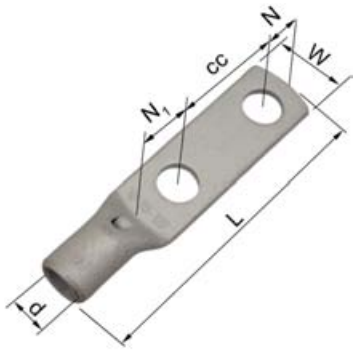
Flexible stranded mm²	Winding mm²	Cat. no. mm², Bolt	mm W	d	N	N_1	A	Pcs/pack	Die no.
50	69-103	KRF50-8L-90GR	21	11,0	8,5	17,5	30,5	100	14,5L
		KRF50-10L-90GR	21	11,0	11,5	18,5	30,5	100	14,5L
		KRF50-12L-90GR	21	11,0	12,5	19,5	30,5	100	14,5L
70	100-120	KRF70-8L-90GR	25	13,0	8,5	17,5	31,5	50	17L
		KRF70-10L-90GR	25	13,0	11,5	18,5	31,5	50	17L
		KRF70-12L-90GR	25	13,0	12,5	19,5	31,5	50	17L
95	113-161	KRF95-8L-90GR	29	15,0	8,5	17,5	32,5	50	20L
		KRF95-10L-90GR	29	15,0	11,5	18,5	32,5	50	20L
		KRF95-12L-90GR	29	15,0	12,5	19,5	32,5	50	20L
		KRF95-16L-90GR	29	15,0	15,5	20,5	32,5	50	20L
120	145-185	KRF120-10L-90GR	32	17,0	11,5	18,5	34,5	25	22L
		KRF120-12L-90GR	32	17,0	12,5	19,5	34,5	25	22L
		KRF120-16L-90GR	32	17,0	15,5	20,5	34,5	25	22L
150	180-220	KRF150-10L-90GR	36	19,0	11,5	18,5	47	25	25L
		KRF150-12L-90GR	36	19,0	12,5	19,5	47	25	25L
		KRF150-16L-90GR	36	19,0	15,5	20,5	37,5	25	25L
185	220-265	KRF185-10L-90GR	39	21	11,5	19,5	42,5	20	27L
		KRF185-12L-90GR	39	21	12,5	19,5	42,5	20	27L
240	302-343	KRF240-10L-90GR	44	24	19	19	52	15	30L
		KRF240-12L-90GR	44	24	19	24	52	15	30L

Tube terminals with two stud holes 50 - 500 mm², KRF-L

■ Data: electrolytic copper, tin plated, cable inspection hole, for flexible and stranded, round, compressed Cu-conductors and winding conductors.

Marking example KRF: 70 10F (Elpress logotype included) 17

70 = mm² 10 = palm hole for M10 F = type KRF, for flexible and stranded conductors 17 = Die No.



Flexible stranded mm²	Winding mm²	Cat. no. mm², bolt hole, cc-measure	mm W	d	N	N_1	L	Pcs/ pack	Die no.
50	69-103	KRF50-10x2-24-26L	21	11	11	22	87	10	14,5L
70	100-120	KRF70-10x2-24-26L	25	13,0	11,0	12,0	55	50	17L
		KRF70-12X2-44,5L	25	13,0	12	18	103	25	17L
95	113-161	KRF95-10x2-24-26L	29	15	11	22	95	25	20L
		KRF95-12x2-44,5	29	15	12	18,5	112	25	20L
120	145-185	KRF120-10x2-24-26L	32	17,0	15,0	17,0	73	25	22L
		KRF120-12X2-44,5L	32	17,0	12	19	113	25	22L
150	180-220	KRF150-10x2-24-26L	36	19	11	22	106	25	25L
		KRF150-12x2-44,5L	36	19	12	19,5	124	25	25L
185	220-265	KRF185-10x2-24-26L	39	21	15,0	17,0	86	20	27L
		KRF185-12X2-44,5L	39	21	12	20	130	10	27L
240	302-343	KRF240-10x2-24-26L	44	24	11	22	114	10	30L
		KRF240-12x2-44,5L	44	24	12	19,5	132	10	30L
300	340-400	KRF300A-12X2-44,5L	45	24,5	12	20,5	139	10	32L
400	412-500	KRF400-12x2-44,5L	56	30	12	20,5	147	8	38L
500	500-580	KRF500-12x2-44,5L	61	33	12	18,5	165	8	42L

Through connectors 35 - 630 mm², KSF-L

■ Data: electrolytic copper, tin plated, cable inspection hole and cable stop, for flexible and stranded, round, compressed Cu-conductors and winding conductors.

Marking example: 17 70F (earth-sign) Elpress logotype included

17 = die no. 70 = mm² F = type KSF, stranded and flexible conductors

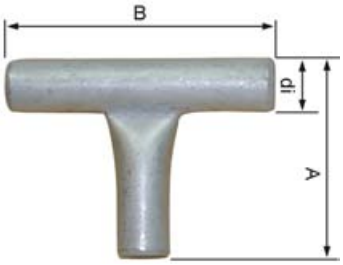
Flexible stranded mm²	Winding mm²	Cat. no. mm²	mm d	D	L	Pcs/pack	Die no.
35	45-70	KSF35L	9,0	13	35	100	13L
50	69-103	KSF50L	11	14,5	45	50	14,5L
70	100-120	KSF70L	13	17	45	50	14,5L
95	113-161	KSF95L	15	20	45	50	20L
120	145-185	KSF120L	17	22	55	50	22L
150	180-220	KSF150L	19	25	65	25	25L
185	220-265	KSF185L	21	27	70	25	27L
240	302-343	KSF240L	24	30	70	25	30L
300	340-400	KSF300A-L	24,5	31,5	75	10	32L
400	412-500	KSF400L	30	38	100	10	38L
500	500-580	KSF500L	33	42	135	5	42L
630	630-730	KSF630L	39	50	170	5	50L

T-connectors 35 - 630 mm², KTSF

■ Data: electrolytic copper, tin plated, cable inspection hole, for flexible and stranded, round, compressed Cu-conductors and winding conductors.

Marking example: 14,5 3x50F Elpress logotype included

14,5 = die no. 3x = no. of conductor entries 50 = mm² F = type KSF, stranded and flexible conductors



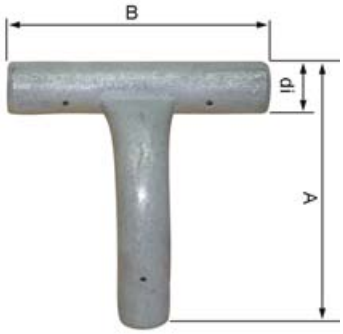
Flexibel stranded mm²	Winding mm²	Cat no.	di	A	B	Marking	Pcs/pack	Die no.
35	45-70	KTSF35	9	63	87	13 3x 35F	20	13L
50	69-103	KTSF50	11	70	96	14,5 3x 50F	20	14,5L
70	100-120	KTSF70	13	74	100	17 3x 70F	6	17L
95	113-161	KTSF95	15	77	103	20 3x 95F	6	20L
120	145-185	KTSF120	17	87,5	120	22 3x 120F	6	22L
150	180-220	KTSF150	19	92	124	25 3x 150F	6	25L
185	220-265	KTSF185	21	96	124	27 3x 185F	6	27L
240	302-343	KTSF240	24	100	129	30 3x 240F	2	30L
300	340-400	KTSF300A	24,5	101,5	130	32 3x 300F	6	32L
400	412-500	KTSF400A	30	131,5	190	38 3x 400F	2	38L
500	500-580	KTSF500	33	134,5	200	42 3x 500F	20	42L
630	630-730	KTSF630	39	168	235	50 3x 630F	6	50L

T-connectors 50 - 240 mm², 110GR, KTSF

■ Data: electrolytic copper, tin plated, cable inspection hole, for flexible and stranded, round, compressed Cu-conductors and winding conductors.

Marking example: 14,5 3x50F Elpress logotype included

14,5 = die no. 3x = no. of conductor entries 50 = mm² F = type KSF, stranded and flexible conductors



Flexible stranded mm²	Winding mm²	Cat no.	di	A	B	Marking	Pcs/pack	Die no.
50	69-103	KTSF50-110GR	11	66	96	14,5 3x 50F	20	14,5L
95	113-161	KTSF95-110GR	15	84,5	96	20 3x 95F	6	20L
150	180-220	KTSF150-110GR	19	104	124	25 3x 150F	4	25L
185	220-265	KTSF185-110GR	21	112	124	27 3x 185F	2	27L
240	412-500	KTSF240-110GR	24	116	129	30 3x 240F	2	30L

Lead through terminals 50 - 240 mm², D20 and D32

■ Data: electrolytic copper, tin plated, cable inspection hole, for flexible and stranded, round, compressed Cu-conductors and winding conductors.

Marking example: 14,5 50F Elpress logotype included

14,5 = die no. 50 = mm² F = type KSF, stranded and flexible conductors

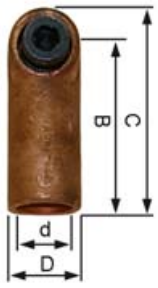
Flexible stranded mm²	Winding mm²	Cat no.	D	d	A	L	Marking	Pcs/pack	Die no.
50	69-103	KGF50-D20	14,5	11	25	120	14,5-50F	25	14,5L
		KGF50-D32	14,5	11	25	105	14,5-50F	10	14,5L
95	113-161	KGF95-D20	20	15	28	120	20-95F	20	20L
		KGF95-D32	20	15	28	105	20-95F	28	20L
150	180-220	KGF150-D32	25	19	35	105	25-150F	10	25L
240	302-343	KGF240-D32	30	24	35	105	30-240F	10	30L

Terminals for tap changers 50 - 150 mm²

■ Data: electrolytic copper, tin plated, cable inspection hole, for flexible and stranded, round, compressed Cu-conductors and winding conductors.

Marking example: 14,5 50F Elpress logotype included

14,5 = die no. 50 = mm² F = type KSF, stranded and flexible conductors



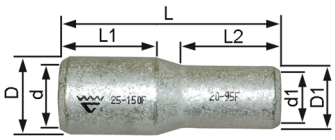
Flexible stranded mm²	Winding mm²	Cat no.	d	D	B	C	Marking	Pcs/Pack	Die no.
50	69-103	KLF50-M10	11	14,5	45	59	14,5-50F	24	14,5L
95	113-161	KLF95-M10	15	20	46	60	20-95F	24	20L
150	180-220	KLF150-M10	19	25	54	68	25-150F	24	25L

Through connectors with different area 50 - 500 mm², KSF-L

■ Data: electrolytic copper, tin plated, cable inspection hole and cable stop, for flexible and stranded, round, compressed Cu-conductors and winding conductors.

Marking example: 17-70F Elpress logotype included

17, 14,5 = Die No. 70, 50 = mm² F = type KSF, stranded and flexible conductors



Flexible stranded mm²	Winding mm²	Cat no.	D	d	L_1	D_1	d_1	L_2	L	Pcs/ pack	Die no.
50-35	69-103/45-70	KSF50-35L	14,5	11	24	13	9	25	55	18	14,5L, 13L
70-35	100-120/45-70	KSF70-35L	17	13	24	13	9	25	60	50	17L, 13L
70-50	100-120/69-103	KSF70-50L	17	13	24	14,5	11	20	50	25	17L, 14,5L
95-35	113-161/45-70	KSF95-35L	20	15	25	13	9	25	60	50	20L, 13L
95-50	113-161/69-103	KSF95-50L	20	15	25	14,5	11	20	55	25	20L, 14,5L
120-35	145-185/45-70	KSF120-35L	22	17	31	13	9	25	65	5	22L, 13L
120-50	145-185/69-103	KSF120-50L	22	17	31	14,5	11	20	60	50	22L, 14,5L
120-70	145-185/100-120	KSF120-70L	22	17	31	17	13	25	65	24	22L, 17L
150-35	180-220/45-70	KSF150-35L	25	19	31	13	9	25	65	25	25L, 13L
150-50	180-220/69-103	KSF150-50L	25	19	31	14,5	11	20	60	24	25L, 14,5L
150-95	180-220/113-161	KSF150-95L	25	19	31	20	15	31	70	25	25L, 20L
150-120	180-220/145-185	KSF150-120L	25	19	31	22	17	31	70	24	25L, 22L
185-50	220-265/69-103	KSF185-50L	27	21	31	14,5	11	25	65	25	27L, 14,5L
185-120	220-265/145-185	KSF185-120L	27	21	31	22	17	31	70	25	27L, 22L
185-150	220-265/180-220	KSF185-150L	27	21	31	25	19	31	70	24	27L, 25L
240-50	302-343/69-103	KSF240-50L	30	24	31	14,5	11	30	70	24	30L, 14,5L
240-95	302-343/113-161	KSF240-95L	30	24	31	20	15	31	70	24	30L, 20L
240-150	302-343/180-220	KSF240-150L	30	24	31	25	19	31	70	24	30L, 25L
300-70	340-400/100-120	KSF300-70L	31,5	24,5	35	17	13	24	70	25	32L, 17L
300-120	340-400/145-185	KSF300-120L	31,5	24,5	35	22	17	31	76	25	32L, 22L
300-150	340-400/180-220	KSF300-150L	31,5	24,5	35	25	19	31	76	5	32L, 25L
300-185	340-400/220-265	KSF300-185L	31,5	24,5	35	27	21	31	76	5	32L, 27L
400-95	412-500/113-161	KSF400-95L	38	30	45	20	15	31	90	10	38L, 20L
400-120	412-500/145-185	KSF400-120L	38	30	45	22	17	31	90	5	38L, 22L
400-150	412-500/180-220	KSF400-150L	38	30	45	25	19	31	90	12	38L, 25L
400-185	412-500/220-265	KSF400-185L	38	30	45	27	21	31	90	5	38L, 27L
400-240	412-500/302-343	KSF400-240L	38	30	45	30	24	31	90	10	38L, 30L
400-300	412-500/340-400	KSF400-300L	38	30	45	31,5	24,5	35	90	10	38L,32L
500-150	500-580/180-220	KSF500-150L	42	33	55	25	19	31	101	10	42L, 25L
500-185	500-580/220-265	KSF500-185L	42	33	55	27	21	31	101	5	42L, 27L
500-240	500-580/302-343	KSF500-240L	42	33	55	30	24	31	101	5	42L, 30L
500-300	500-580/340-400	KSF500-300L	42	33	55	31,5	24,5	35	105	5	42L, 32L
500-400	500-580/412-500	KSF500-400L	42	33	55	38	30	45	115	5	42L, 38L
630-400	630-730/412-500	KSF630-400L	50	39	60	38	30	45	121	5	50L, 38L

SYSTEM 1300 for crimping Cu terminals and connectors 35 - 240 (400) mm²*, and pre-rounding 35 - 150 mm²

V1300

V1300

Crimp types

Elpress crimp head, used with footpump **P4000,** battery / mains powered pump **PS700** or mains powered pump **P1000**.

Particulars:

- crimps Cu-conductors of type KRF-L up to 240 (400) mm²*
- equipped with oil spray safety protection cap
- working pressure 63 MPa (630 bar)
- weight 3,7 kg, excl. accessories
- length 270 mm, incl. quick coupling, width 82 mm
- crimp force 130 kN (13 tons)
- light and flexible steel crimp head
- special nitrogen anti-corrosion surface treatment

PVL1300

PVL1300

Crimp types

PVL1300DB, (supplied with double batteries)

Battery powered crimp tool with 13 tons force. Uses the same crimp accessories as the other products in the above V1300 System.

Particulars:

- ergonomic design that optimizes the balanace of the tool in the users hand
- buzzing signal and flashing light if right pressure is not achieved
- LED lightning for work in dark environments
- possibility to document each crimp for unique service control
- crimp force 124 kN (13 ton)
- crimps/charge: 60-120 depending on size and temperature
- crimp time: 4-12 s depending on size
- working temperature -20°C t0 +40°C
- environmental friendly battery, Li-Ion Makita, 3.0 Ah, 18V
- battery charger Li-Ion Makita, charging time 22 min
- LED indication of charge status
- supplied with robust plastic case, battery, charger and instruction
- PVL1300DB, supplied with 2 batteries
- weight 5,4 kg, (incl battery)

*windings up to 240 mm², cable conductors up to 400 mm²

Certificate FM20987
ISO 9001:2000

Accessories for crimping Cu with V1300 and PVL1300

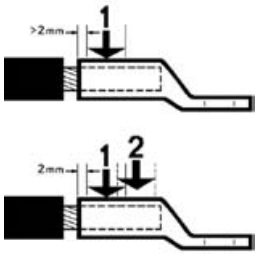
- Note that KRF terminals may be used on flexible (IEC60228, class 5) as well as stranded (class 2) conductors and for crimping of winding conductors in Transformer manufacture.
- Be sure to use dies exactly matching the terminal.

Crimp dies

Supplied as a pair. For hexagonal crimping of Cu terminals and connectors.

KRF/KSF			
Flexible, stranded, mm²	Winding, mm²	Dies	No. of crimps
35	45-70	13B13L	1
50	69-103	13B14,5L	1
70	100-120	13B17L	1
95	113-161	13B20L	1
120	145-185	13B22L	2
150	180-220	13B25L	2
185	220-265	13B27L	2
240	302-343	13B30L	2

Die 13B20L.



One and two crimps.

Pre-rounding

The package of rectangular conductors must be rounded to enter into the connector and a certain reduction of the conductor cross section area is also sometimes necessary. This work is done with the Elpress rounding punch and matrix.

Flexible, stranded, mm²	Winding, mm²	Matrix No.	Rounding punch No.
35	45-70	13R9ML	13R9DL
50	69-103	13R11ML	13R11DL
70	100-120	13R13ML	13R13DL
95	113-161	13R15ML	13R15DL
120	145-185	13R17ML	13R17DL
150	180-220	13R19ML	13R19DL

Rounding punch 13R15DL and matrix 13R15ML.

SYSTEM V250 for crimping Cu terminals and connectors 150 - 630 (800) mm²* and pre-rounding 185 - 730 mm²

V250

Crimp types

V250

Crimp head used together with footpump **P4000,** battery / mains powered pump **PS700** or mains powered pump **P1000.**

Particulars:

- equipped with oil spray safety protection cap
- working pressure 63 MPa (630 bar)
- crimp force 250 kN (25 ton)
- crimp terminals and connectors of type KRF/KSF, Cu-conductors up to 500 (800) mm²*
- tested with Elpress pumps and connectors
- weight 4.6 kg, excl. accessories
- dimensions ∅ 111 mm x 280 mm

*windings up to 630 mm², cable conductors up to 800 mm²

Accessories for crimping Cu with V250

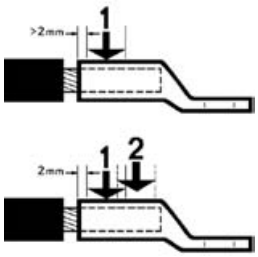
- Note that KRF terminals may be used on flexible (IEC60228, class 5) as well as stranded (class 2) conductors and for crimping of winding conductors in Transformer manufacture.
- Be sure to use dies exactly matching the terminal.

Crimp dies

Supplied in pairs.
For hexagonal crimping of Cu terminals and connectors.

Die pair B2542.

KRF/KSF			
Flexible, stranded, mm²	Winding, mm²	Dies for	No. of crimps
150	180-220	B2525L	1
185	220-265	B2527L	1
240	302-343	B2530L	1
300	340-400	B2532L	1
400	412-500	B2538L	2
500	500-580	B2542L	2
630	630-730	B2550L	3



One and two crimps.

Rounding matrix 25R21ML and rounding punch 25R21DL.

Pre-rounding

The package of rectangular conductors must be rounded to fit into the connector and a certain reduction of the conductor cross section area is also sometimes necessary. This work is done with the Elpress rounding punch and matrix.

Flexible, stranded, mm²	Winding, mm²	Matrix No.	Rounding punch No.
185	220-265	25R21ML	25R21DL
240	302-343	25R24ML	25R24DL
300	340-400	25R26ML	25R26DL
400	412-500	25R30ML	25R30DL
500	500-580	25R33ML	25R33DL
630	630-730	25R39ML	25R39DL

Battery and mains powered pump

The pump operates all Elpress crimp heads.

PS700

PS700

Battery and mains powered pump for crimping with advanced control and supervision of the crimp procedure.
A flexible system for almost all crimp applications where high performance and reliability is required. The robust design in aluminium, combined with a high total efficiency, allows intensive use in most cases and environments.
When battery powered, the upper unit is lifted off the lower mains drive unit for full flexibility.

Particulars:

- 24 V NiMH battery or 230 V mains power supply (110V optional)
- high efficiency = many crimps per charge
- close to continuous work when mains powered
- working pressures up to 700 bar / 70MPa / 10 000 PSI
- LCD display for versatile control and follow-up
- PC port for transferring data to PC computer where advanced analysis can be made
- hydraulic pressure work range 0-630 (700) bar
- hydraulic flow 0.6 dm^3/min
- oil volume 1.0 dm^3
- measures: pump unit, w x d x h = 390 x 225 x 225 mm
- mains unit, w x d x h = 495 x 300 x 660 (980) mm
- weight pump unit 12.3 kg (incl. battery, excl. hose)
- weight mains unit with carriage 8.6 kg
- battery fast charger 7.2-24V, charge time 45 min
- mains unit: in 230VAC, out 24-28VDC 30A; overvoltage and overcurrent protected
- control system: Elpress Advanced Crimp Analyzer incl. display and control switches. Port for PC-connection
- environment temperatures -15 °C to + 40 °C; battery to be kept >5°C for best power
- typical number of crimps per charge (50 % ED): 115 Cu-terminals 150 mm^2 flexible, 180 Cu-terminals 50 mm^2 flexible (depending on temperature)
- protection class IP 54
- CE-approved; Machine Safety 98/37/CE, LVD 72/23/EEC
- Hydraulic hose 2.4 m with quick coupling

PS700-5

Same pump as above with hydraulic hose 5.0 m and quick coupling.

Mains powered pump

P1000

P1000 is a secure, lean produced 2-step pump as an economical alternative for industrial use where simplicity and reliability is required. The pump is supplied with Elpress safety hose with quick coupling. The robust although light weighted design allows intensive use in most cases. The pump is CE-approved.

Particulars:

- Self holding pressure during crimp cycle, automatic return after completed crimp
- Hydraulic pressure: Working range 0-63 (70) MPa, adjustable
- Hydraulic flow: Low pressure (up to 1,5 MPa) approx. 0,8 l/min, high pressure (more than 1,5 MPa) 0,2 l/min
- Oil volume: 2 l (usable 1,8 l)
- Oil: hydraulic oil ISOVG32
- Measures, w x d x h: approx. 250 x 150 x 384 mm (excl. hose)
- Weight 15 kg (incl. hose)
- Mains connection 230 V AC 50/60 Hz
- Allowable voltage fluctuation: Rated voltage ± 5%
- Electric motor: 0,25 kW, Class E insulation, open type commutated motor 230 V, 50/60 Hz, single-phase, Max. currency: 2,8 A (5 min.)
- Protection class IP20
- Environment temperatures 0 - 40°C
- CE-approved: Machine safety 98/37/CE, LVD 73/23/EEC
- Hydraulic hose 2,4 m, quick coupling, manoeuvre handle 12 V AC
- Mains cord 1,5 m earth plug

P1000-5

Same pump as above with hydraulic hose 5.0 m and quick coupling.

Battery powered cable cutter

PKL54

PKL54

Electric cable cutter; easy and safe to operate.

- Electric cable cutter for copper and aluminium cable
- Not intended for cutting steel
- Max cutting diameter 54 mm, equivalent to 4 x 240 mm²
- Charger 7.2-24V, charging time for battery approx. 60 min
- Weight including battery: 3.5 kg
- Size LxWxH: 450 x 105 x 120 mm
- The tool has a scissor action when cutting, which produces a good cut
- Integrated fuse as overvoltage protection
- Protective cap for perfect safety, CE approved
- Delivered with case and double batteries, 14.4V NiMH

Hydraulic cable cutters

■ *Not for steel wires or steel wire armoured cables.*

HKL40/KL40, HKL55/KL55, HKL85/KL85

A range of cable cutters covering virtually all needs for cutting power cables and OH-line wires. The cutting heads are powered by Elpress foot pump P4000, battery and mains operated electrohydraulic pump PS700 or mains powered pump P1000.

Technical specifications

Hydraulic manual cutters	HKL40	HKL55	HKL85
dimensions, mm	645x85x165	560x55x140	745x72x190
weight, kg	5,9	3,7	7,6
Hydraulic cutting heads	**KL40**	**KL55**	**KL85**
dimensions, mm	285x85x105	300x55x110	385x75x170
weight, kg	4,3	3,0	6,2
Max. opening	Ø 40	Ø 55	Ø 85
Max. cutting force, KN	88	43	55
Max. cutting capacity, examples.			
copper cable	Ø 40	400 (500) mm²	630 mm²
Cu annealed solid conductor		Ø 20	
Cu rod	Ø 30		
Aluminium cable	Ø 40	3x240+95 mm²	3x240+95 mm² 630 (800 mm²)
Al annealed solid conductor		Ø 25	
ACSR	Ø 40		
Al bar	ca Ø 40		
Telephone cable		Ø 55	
Steel wire (<180 daN/mm²)	Ø 11		
Steel rod	Ø 18		

Do not cut steel wire armoured cables.

Note

Since 1959 Elpress develops, manufacture and market complete crimping systems for electrical conductor terminations.
Head office and factory with 120 employees are placed in Kramfors, Sweden.
We have our own sales companies in Germany, Denmark and China.
A wide network of qualified representatives support other markets.

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