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ELECTRICAL CONNECTION
P R O D U C E R

2012-2013 Editions

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Klaute
ELECTRICAL CONNECTION
PRODUCER

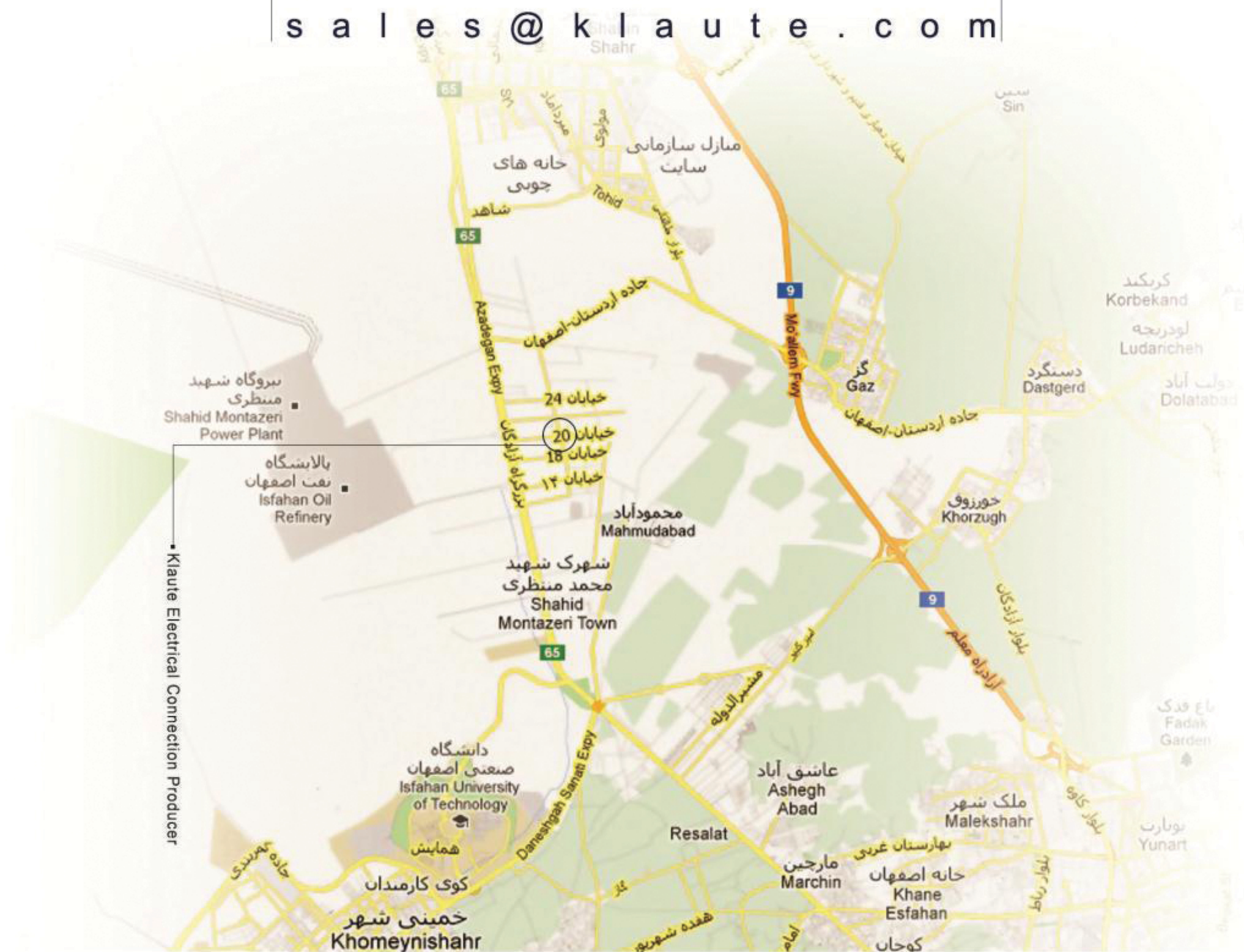


Klaute
ELECTRICAL CONNECTION
P R O D U C E R

Klaute

ELECTRICAL CONNECTION
P R O D U C E R

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مدیریت محترم عامل شرکت کلوته

باسلام،

احتراما، ضمن عرض تبریک دریافت گواهینامه سیستم مدیریت کیفیت بر مبنای استاندارد ISO 9001:2000 توسط آن شرکت محترم وظیفه خود می دانم از همکاری بی شائبه جنابعالی وسایر مدیران محترم آن شرکت در فرایند ممیزی کمال تقدیر و تشکر را به عمل آورم.

دریافت گواهینامه مذکور بی تردید حاصل عنایت جنابعالی و تلاش همکاران محترمتان درنیل به اهداف کیفی ونوید توفیقات روز افزون آن شرکت محترم می باشد. از آنکه افتخار همراهی در این راه را به ما داده اید صمیمانه سپاسگزارم.

سر بلندی و اعتلای همیشگی شما را از خداوند متعال خواستارم.

با احترام مجدد

رضا علی پورباقر
مدیر شعبه ایران



Registration No 013-A



Registration No 013-C



Registration No 013-F

Accredited by Member of the International Accreditation Forum Multilateral Recognition Arrangement for Quality Management Systems.

The use of the Accreditation Mark indicates accreditation in respect of those activities covered by the accreditation certificate number 013

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This certificate is awarded by

UNITED URS
Registrar of Systems Ltd



Registration Number 043-A
The use of the Accreditation Mark indicates
certification in respect of those activities covered
by the accreditation certificate number 043

Certificate of Registration

This certificate has been awarded to

KLAUTE Co.
2nd Alley, 20th Ave., Opposite of Refinery,
5 Km of Isfahan, Tehran Road,
Isfahan,
Iran

in recognition of the
organization's Quality System which complies with

ISO 9001:2000

The scope of activities covered by this certificate are defined below

Manufacturing of Connectors and Cable Lugs

Certificate Number: 16028 Issue No. 1
Date of Issue: 21 December 2005
Expiry Date: 31 December 2008
Issued by: *[Signature]*
On behalf of the
Schemes Manager



UNITED UNITED UNITED UNITED UNITED UNITED UNITED UNITED UNITED

Cert 1 Iss 3



Certificate

RoyalCert, certifies that the management system of the organization has been assessed and found to be in accordance with the requirements of the related standard.

ORGANIZATION

KLAUTE CO.

2nd Alley, 20th Ave., Opposite of Refinery, 5 Km of Isfahan-Tehran Road
IRAN

STANDARD

ISO 9001:2008

SCOPE

Manufacturing of Connectors and Cable Lugs

(EA: 19; Clause 7.3 is Excluded)

CERTIFICATE NO

3677/KLA09C

INITIAL CERTIFICATION DATE

21.07.2009

ISSUE DATE

21.07.2009

EXPIRATION DATE

09.07.2012

GENERAL MANAGER



TSA-ZB-04-01



Form 50 /15.04.2008/ Rev: No: a

This certificate is valid as long as the organization meets RoyalCert's requirements. The status of the certificate may be checked at www.royalcert.com

ROYALCERT INTERNATIONAL REGISTRARS
www.royalcert.com



CERTIFICATO Q21111-IR
CERTIFICATE

WE HEREBY CERTIFY THAT THE MANAGEMENT SYSTEM OPERATED BY
SI CERTIFICA CHE IL SISTEMA DI GESTIONE DELL'ORGANIZZAZIONE

KLAUTE CO.
2ND ALLEY, 20TH AVE., OPPOSITE THE REFINERY,
KM 5 ISFAHAN-TEHRAN RD., ISFAHAN, IRAN.

CONFORMS TO THE STANDARD **ISO 9001:08**

E' CONFORME ALLA NORMA **UNI EN ISO 9001:2008**

FOR THE FOLLOWING ACTIVITIES
PER LE SEGUENTI ATTIVITA'

MANUFACTURE OF CONNECTORS AND CABLE LUGS
FABBRICAZIONE DI CONNETTORI E CAPICORDA

FIRST ISSUE DATE	UPDATING DATE	RENEWAL DATE
PRIMA EMISSIONE	EMISSIONE CORRENTE	DATA RINNOVO
2011-11-02	2011-11-02	2014-11-01

THE VALIDITY OF THIS CERTIFICATE IS SUBJECT TO PERIODICAL AUDITS AT LEAST YEARLY AND THE COMPLETE RE-ASSESSMENT OF THE SYSTEM EVERY THREE YEARS.
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per **G+S S.r.l.**
for the certification body
The Legal Representative

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PRODUCTS OF KLAUTE INDEX



CHAPTER 1 - INTRODUCTION

Introduction

Today in our country electrical industry with its wide patency, we can not find a master of expert or professional consumer in electricity industry field who dose not know the name and productions of klaute company. If conj, you open each door's of your home or work panel board's or distributing boxes, probably you, can see one of this company productions such as cable lugs, connectors and etc.

Reaching to this level of publicity in production marketing to this level of publicity in production marketing and companies growth stability within less than 20 years of its life, mainly depends or different factors. The most important factor's that we can introduce here are accurate performance with qualitative standards, proficiency and personal perseverance, practical liability for regarding the customer rights, development and variety of company productions.

Years of experiences and proficiency in production of accurate and fully delicate moulds, establishing too much production systems for high pressure electrical instruments in the field of industrial electricity and exact cognition from inside needs of markets, all caused a restrict activity in production and presenting some samples of cable lugs in 1993.

Acceptable qualitative levels of productions which presents in markets, accompanied by competency of the company institutors, accomplished companies success in the short time and finally in 1993 these collection become fully formalized.

From the main special activity of this company we can indicate to high production quality, decreasing the costs, speed in service presentation, accuracy and intense control on the character of product's stuff and finally using the world standards in production process.

Nowadays, beside progressive technical development of west countries in all the fields such as electrical industry and especially between some important companies in this field over the worlds, Klaute Company does all its effort country. Preening the ISO 9001:2008,CE license is the main glory of this company.

Material of copper products of this company is TPC with 99.9 % purity, and it is tin plated, without lightening additive, for high level conductivity like a DIN & TUN.

For more information, visit our catalogue or our site: www.klaute.ir & www.klaute.com and also send your suggestions to sales@klaute.com .

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CHAPTER 2 - FACTORY

Klaute Industrial and Manufacturing Complex is comprised of the following sections:

- 1- Production engineering
- 2- Production Planning
- 3- Quality management
- 4- Financial and administrative affairs
- 5- Commerce

1- Production Engineering

This section includes Die Design Unit, Design and Production Unit, Repairs and Maintenance Unit, Production Unit and Plating Unit.

1-1- Die Design:

The various dies such as cutting , punch and ram one are used in the manufacturing process. This production line shall be supported with a full and modern technology of molding and die design and experienced and skill staff. The high quality equipment and modern technology has led to the manufacturing , repairing and maintenance of all dies and molds require for the production line. The most important affairs of this unit are as folloes:

- Manufacturing of the from block and matrix die;
- Manufacturing of cutting, bending and forming fixtures.
- Manufacturing of machinery required for the production line.

1-2- Designing and Producing

The dynamics, updating and flexibility of each production enterprise depend on the quality and efficiency of the design unit. The Designing and Producing Unit in this company is able to manufacture all various types of cutting , bending die- cast and plastic dies whit the support of the experienced and skilled experts and specialists and the modern computer- aided design softwares. In addition , this unit is responsible for designing any special production machinery for specific purposes in the production line.

1-3-Repairing and Maintenance

The Repairs and Maintenance Unit of this company has gathered experiences of the mechanical, electrical and hydraulic experts and technicians who not only have full supervision over the machinery of this production enterprise, but also render any repair and maintenance services in case of any trouble or interruption in each of the production lines.

1-4- Production Unit:

The production unit is a heart for every industrial enterprise. The products of this unit are restricted to variety of Aluminum , Copper , Bimetal Cable lugs and Connectors in the world standard sizes and according to FAC approved tables.

The raw materials used in this production unit are copper tubes with a purity of 99% , which are used in the production line after they are analyzed and approved by the Quality Control Unit.

The production line of this complex is featured with this ability that is able to meet the orders for the products with the least possible changes. The production accuracy is 0.05 mm in the production lines, which has been possible only by applying the continuous control with the modern instruments and machines.

1-5- Plating Unit:

The plating hall is an equipped and mechanized center for tin plating. The products plated in this unit are randomly tested by the experts of this unit for approval. After that the laboratory will approve the products for packaging.

2- Production Planning Section:

The production planning unit decides on the type and quantity of products with making a market analysis and the production feasibility study. This unit is also responsible for time scheduling, determining the capacity of the production stations, modifying production and re-planning for production for the months on the basis of any deviation in the production schedule and current production plans.

2-1- Warehousing:

This unit which is subsidiary to the production planning section includes three warehouses for raw materials, in-process-manufacturing materials and finished products. With its modern warehousing techniques and softwares this unit is regarded as a strong loop in this complex.

3- Quality Management section:

This section is comprised of three units: Quality Assurance, Quality Control and Documents Center. The duties of this section are as follows:

- Consulting services to the managing director,
- Preparing time scheduling for the calibration of tools and quality measuring instruments.,
- Execution of Quality system Program for the section.

3-1- Quality Assurance:

This section is responsible for the preservation and guarding of ISO:9001-2008 Quality Management system. This section supervise the good performance of the documentation in all related section through several experienced experts in this unit. This section is responsible for communication with the related-duties centers and institution and participating in the quality management system, training courses and seminars.

3-2- Quality control:

This section is responsible for doing the inspection for input materials and items, in- process-manufacturing part and the finished products on the basis of the compiled quality plans and according to the directions for inspecting, testing, recording and filling the reports as the most important duties. The reports this unit has presented to the Quality Affairs unit within the framework the framework of the parto, Ichi- Gava and other charts and diagrams, have reduced the non- conformed products to the minimum and eliminated the defect- causing factors from the production lines.

3-3-Documents center:

All ISO:9001-2008 Quality System documents are filed in this center. This center is responsible for introducing the accredited documentaion and for canceling and filing the invalid documents.

4- Financial and Administrative Affairs:

This unit is comprised of three sections: Accounting, Training and Personnel. This unit supervise all the financial and administrative departments of the complex.

4-1- Accounting:

This section is responsible for the calculation , review and analysis of the production costs, cost price of the materials, control and issuance of the relevant documents and notes for various payments and other financial activates

4-2- Training:

The training center of the complex is staffed with training experts and technical experts. In addition to determining the training needs of the personnel of the complex and communication with the technical and vocational centers for training personnel, this center has taken an important step towards the promotion of research and analysis is responsible for finding new methods for achieving modern technology, upgrading the quality of products and the scientific level of personnel and providing information and publishing modern sciences in the complex.

4-3- Personnel:

Success of each industrial and manufacturing enterprise depends on the work efficiency of the personnel and staffs of the company. For the reason, the staffs welfare and satisfaction of the industrial enterprise is very important. With establishing a personnel unit, Klaute Industrial and Manufacturing complex is making efforts to provide an appropriate condition and happy environment for all staffs and personnel.

5- Commerce:

This section is responsible for establishing relations between the complex and domestic and foreign markets. This section has managed to introduce the name of Klaute and the better equality products of the complex in the domestic markets. The better quality of Klaute products is an undeniable fact in the markets of the neighboring countries. The commerce section is comprised of two departments: Purchase Department and sales Department.

5-1- Purchase Department:

This department is responsible for identifying the best resources for supplying raw materials and equipment for the complex, carrying out for domestic and foreign purchase on the basis of short-term and long-term planning, receiving sample goods of the domestic suppliers and cooperating with the Quality Control Unit in refusing and/ or accepting the goods.

5-2- Sales Department:

The sales department is responsible for the following services:

- Marking and creating proper background for domestic and foreign sale of the products manufactured by the complex,
- Marking an analysis and comparison of the quality of the products manufactured by the complex with those of other manufacturing companies (Benchmarking),
- Marking an analysis of the market situation concerning the need for new products and identifying real needs of the customers at proper times,
- identifying real needs of the customers at proper times,
- Reviewing and recognizing proper production lines and following the cases for designing and/or purchasing proper production lines in view of the facilities and abilities of the complex.

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CABLE LUGS

CHAPTER 3 - CABLE LUGS



Safe connections To Klaute standards.

Copper tubular cable lugs and connectors for all applications.

Secure electrical connections are crucial. Power outages caused by faulty cable connections can cause severe damages. The power supply is interrupted. Production comes to a stand-still.

Tubular cable lugs and connectors from klaute meet the highest quality requirements and satisfy international standards. We also develop and produce tailor made solutions.

- Extensive product range for low and medium-voltage. ■
- Consistent precision, high safety and rating thanks to high quality pure electrolyte copper. ■
- Klaute coding system with manufacturers identification, nominal cross section and hole. ■



Klaute tubular cable lugs are suitable for practically every application with copper conductors.



Correct cable lugs for every application.

- ▶ Products to klaute standards in various designs and shapes.
- ▶ Products to international standards, including IEC and UL and DIN.
- ▶ Tailor made solutions for various applications.
- ▶ Solutions for cables with compacted round conductors,

Benefits:

Correct products for any installation scenario.

- ▶ **Highest flexibility for connecting cables.**
- ▶ Standard conformity of products allows international application.



Pure material, special processing.

- ▶ Klaute tubular cable lugs are made from quality Cu tubes with 99.9% purity. All suppliers are certified.
- ▶ Defined, **unique material properties** by annealing the cable lugs.

Benefits:

- ▶ Optimised conductivity, enhanced safety and high cable lug rating thanks to high quality material.



Hold even with strong vibrations.

- ▶ Consistent material thickness, precise diameters and accurate fit allow optimum processing and ultimate safety.

Benefits:

- ▶ With professional installation of the correct type, **optimised stability even with mechanically stressed or severely vibrating connections.**
- ▶ Less repair and maintenance.

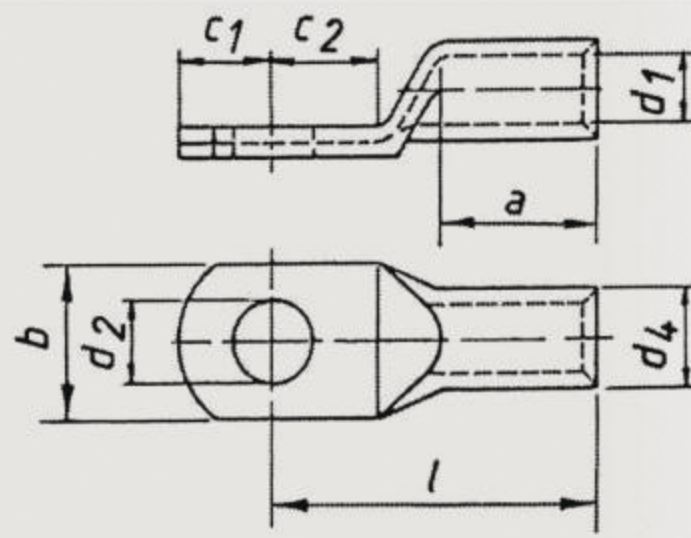
Connections with a system.

- ▶ Besides a wide choice of cable lugs and connectors, the klaute range also includes the appropriate manual and hydraulic crimping tools.

Benefits:

- ▶ **One single source for everything** – from the cable lug to the tool.
- ▶ Guarantees the correct tools for professional electrical installations





Tubular cable lugs, copper 6 – 400 mm²

Standard type



■ For pre-rounded sector shaped conductors

Material:

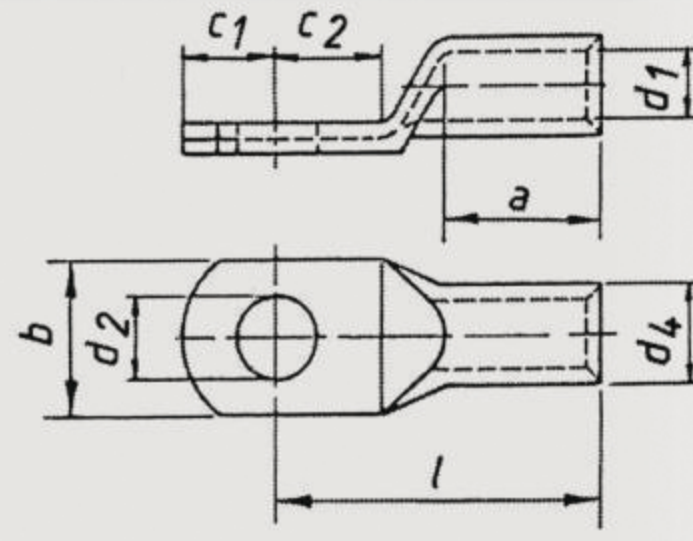
■ copper with 99/9% purity (TPC)

Surface:

■ tin plated

Cross section mm ²	Size of bolt	Dimensions mm							
		d1	a	b	d2	d4	c1	c2	l
6	M4	4.0	9	9.5	4.3	6.0	5.00	5.5	18
	M5	4.0	9	9.5	5.3	6.0	6.00	6.0	19
	M6	4.0	9	10.0	6.5	6.0	7.00	6.5	19
	M8	4.0	9	14.0	8.5	6.0	8.50	9.5	22
10	M5	4.5	10	12	5.5	7.0	7.5	7.5	22
	M6	4.5	10	12	6.5	7.0	7.5	7.5	22
	M8	4.5	10	15	8.5	7.0	10.0	10.0	25
	M10	4.5	10	17	10.5	7.0	12.0	12.0	27
	M12	4.5	10	19	13.0	7.0	13.0	13.0	29
16	M5	5.5	13	12	5.5	8.5	5.5	6.5	26
	M6	5.5	13	12	6.5	8.5	6.25	7.5	27
	M8	5.5	13	15	8.5	8.5	8.5	9.5	29
	M10	5.5	13	17	10.5	8.5	10.5	11.5	31
	M12	5.5	13	19	13.0	8.5	12.0	13.0	33
25	M5	7.0	15	14	5.5	10.0	7.5	7.5	30
	M6	7.0	15	14	6.5	10.0	7.5	7.5	30
	M8	7.0	15	16	8.5	10.0	10.0	10.0	32
	M10	7.0	15	18	10.5	10.0	12.0	12.0	34
	M12	7.0	15	19	13.0	10.0	13.0	13.0	35
	M14	7.0	15	21	15.0	10.0	14.5	14.5	38
35	M6	8.5	17	17	6.5	12.0	7.5	7.5	32
	M8	8.5	17	17	8.5	12.0	10.0	10.0	34
	M10	8.5	17	19	10.5	12.0	12.0	12.0	37
	M12	8.5	17	21	13.0	12.0	13.0	13.0	38
	M14	8.5	17	21	15.0	12.0	14.5	14.5	40
	M16	8.5	17	26	17.0	12.0	16.0	16.0	42
50	M6	10.0	19	20	6.5	14.0	10.0	10.0	37
	M8	10.0	19	20	8.5	14.0	10.0	10.0	37
	M10	10.0	19	20	10.5	14.0	12.0	12.0	39
	M12	10.0	19	23	13.0	14.0	13.0	13.0	43
	M14	10.0	19	23	15.0	14.0	14.5	14.5	45
	M16	10.0	19	28	17.0	14.0	16.0	16.0	46
	M20	10.0	19	30	21.0	14.0	19.0	19.0	48





Tubular cable lugs, copper 6 – 400 mm² CE

Cross section mm ²	Size of bolt	Dimensions mm							
		d1	a	b	d2	d4	c1	c2	l
70	M6	12.0	21	23	6.5	16.5	10.0	10.0	43
	M8	12.0	21	23	8.5	16.5	10.0	10.0	43
	M10	12.0	21	23	10.5	16.5	12.0	12.0	44
	M12	12.0	21	23	13.0	16.5	13.0	13.0	46
	M14	12.0	21	23	15.0	16.5	14.5	14.5	48
	M16	12.0	21	28	17.0	16.5	16.0	16.0	50
	M20	12.0	21	30	21.0	16.5	19.0	19.0	53
95	M8	13.5	25	26	8.5	18.0	12.0	12.0	48
	M10	13.5	25	26	10.5	18.0	12.0	12.0	48
	M12	13.5	25	26	13.0	18.0	13.0	13.0	49
	M16	13.5	25	26	15.0	18.0	14.5	14.5	51
	M18	13.5	25	28	17.0	18.0	16.0	16.0	54
	M20	13.5	25	36	21.0	18.0	22.0	22.0	60
120	M8	15.0	26	28	8.5	19.5	14.0	14.0	51
	M10	15.0	26	28	10.5	19.5	14.0	14.0	51
	M12	15.0	26	28	13.0	19.5	14.0	14.0	51
	M16	15.0	26	28	15.0	19.5	15.0	15.0	52
	M18	15.0	26	30	17.0	19.5	16.0	16.0	54
	M20	15.0	26	36	21.0	19.5	22.0	22.0	63
150	M8	16.5	30	31	8.5	21.0	14.0	14.0	56
	M10	16.5	30	31	10.5	21.0	14.0	14.0	56
	M12	16.5	30	31	13.0	21.0	15.0	15.0	57
	M16	16.5	30	31	15.0	21.0	15.0	15.0	57
	M18	16.5	30	31	17.0	21.0	16.0	16.0	58
	M20	16.5	30	36	21.0	21.0	22.0	22.0	66
185	M10	19.0	30	35	10.5	24.0	18.0	18.0	65
	M12	19.0	30	35	13.0	24.0	18.0	18.0	65
	M14	19.0	30	35	15.0	24.0	18.0	18.0	65
	M16	19.0	30	35	17.0	24.0	18.0	18.0	65
	M20	19.0	30	39	21.0	24.0	22.0	22.0	69
240	M10	21.0	35	39	10.5	26.0	21.5	19.0	72
	M12	21.0	35	39	13.0	26.0	21.5	19.0	72
	M14	21.0	35	39	15.0	26.0	21.5	19.0	72
	M16	21.0	35	39	17.0	26.0	21.5	19.0	72
	M20	21.0	35	39	21.0	26.0	21.5	19.0	72
300	M12	23.5	44	43	13.0	29.5	24.0	24.0	87
	M14	23.5	44	43	15.0	29.5	24.0	24.0	87
	M16	23.5	44	43	17.0	29.5	24.0	24.0	87
	M20	23.5	44	43	21.0	29.5	24.0	24.0	87
400	M12	27.0	44	49	13.0	34.0	24.0	24.0	90
	M14	27.0	44	49	15.0	34.0	24.0	24.0	90
	M16	27.0	44	49	17.0	34.0	24.0	24.0	90
	M20	27.0	44	49	21.0	34.0	24.0	24.0	90

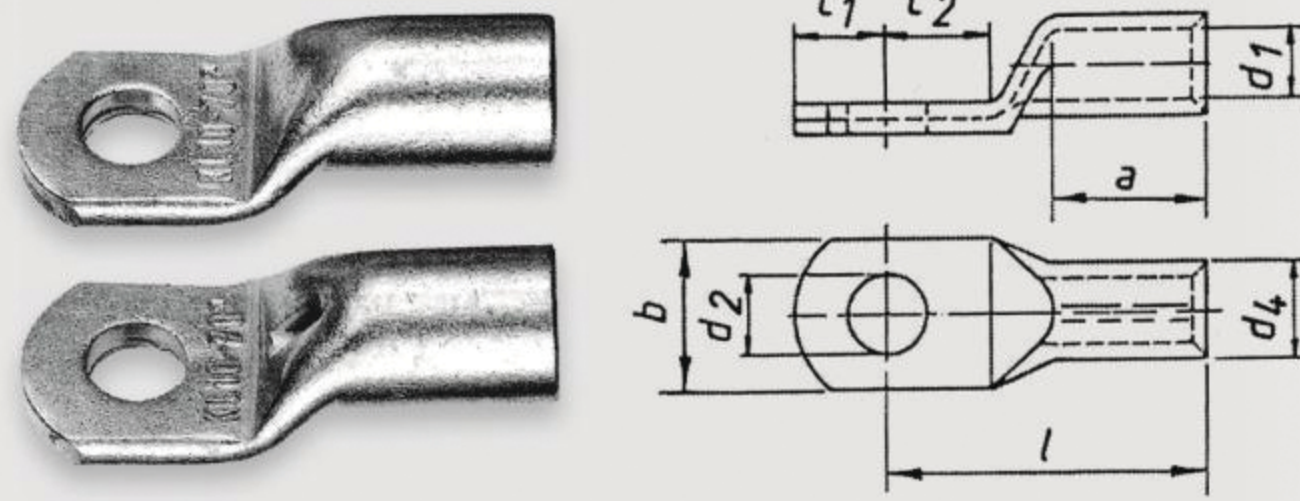
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LONG CABLE LUGS

CHAPTER 4 - LONG CABLE LUGS



Tubular long cable lugs, copper 6 – 400 mm²

Standard type



■ For pre-rounded sector shaped conductors

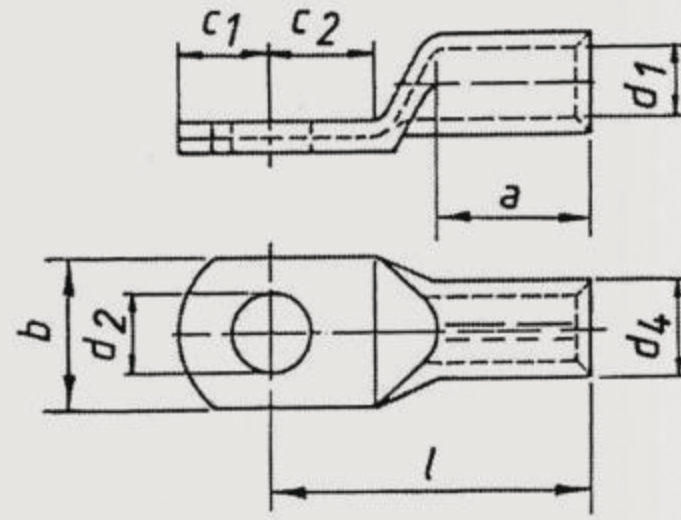
Material:

■ copper with 99/9% purity (TPC)

Surface:

■ tin plated

Cross section mm ²	Size of bolt	Dimensions mm							
		d1	a	b	d2	d4	c1	c2	l
6	M4	4.0	9	9.5	4.3	6.0	5.00	5.5	18
	M5	4.0	9	9.5	5.3	6.0	6.00	6.0	19
	M6	4.0	9	10.0	6.5	6.0	7.00	6.5	19
	M8	4.0	9	14.0	8.5	6.0	8.50	9.5	22
10	M5	4.5	10	12	5.5	7.0	6.5	7.5	27
	M6	4.5	10	12	6.5	7.0	6.5	7.5	27
	M8	4.5	10	15	8.5	7.0	10.0	10.0	27
	M10	4.5	10	17	10.5	7.0	12.0	12.0	27
	M12	4.5	10	19	13.0	7.0	13.0	13.0	27
16	M5	5.5	20	12	5.5	8.5	5.5	6.5	36
	M6	5.5	20	12	6.5	8.5	6.25	7.5	36
	M8	5.5	20	15	8.5	8.5	8.5	9.5	36
	M10	5.5	20	17	10.5	8.5	10.5	11.5	36
	M12	5.5	20	19	13.0	8.5	12.0	13.0	36
25	M5	7.0	20	14	5.5	10.0	7.5	7.5	38
	M6	7.0	20	14	6.5	10.0	7.5	7.5	38
	M8	7.0	20	16	8.5	10.0	10.0	10.0	38
	M10	7.0	20	18	10.5	10.0	12.0	12.0	38
	M12	7.0	20	19	13.0	10.0	13.0	13.0	38
	M14	7.0	20	21	15.0	10.0	14.5	14.5	38
35	M6	8.5	20	17	6.5	12.0	7.5	7.5	42
	M8	8.5	20	17	8.5	12.0	10.0	10.0	42
	M10	8.5	20	19	10.5	12.0	12.0	12.0	42
	M12	8.5	20	21	13.0	12.0	13.0	13.0	42
	M14	8.5	20	21	15.0	12.0	14.5	14.5	42
	M16	8.5	20	26	17.0	12.0	16.0	16.0	42
50	M6	10.0	28	20	6.5	14.0	10.0	10.0	52
	M8	10.0	28	20	8.5	14.0	10.0	10.0	52
	M10	10.0	28	20	10.5	14.0	12.0	12.0	52
	M12	10.0	28	23	13.0	14.0	13.0	13.0	52
	M14	10.0	28	23	15.0	14.0	14.5	14.5	52
	M16	10.0	28	28	17.0	14.0	16.0	16.0	52
	M20	10.0	28	30	21.0	14.0	19.0	19.0	52



Tubular long cable lugs, copper 6 – 400 mm²

Cross section mm ²	Size of bolt	Dimensions mm							
		d1	a	b	d2	d4	c1	c2	l
70	M6	12.0	28	23	6.5	16.5	10.0	10.0	55
	M8	12.0	28	23	8.5	16.5	10.0	10.0	55
	M10	12.0	28	23	10.5	16.5	12.0	12.0	55
	M12	12.0	28	23	13.0	16.5	13.0	13.0	55
	M14	12.0	28	23	15.0	16.5	14.5	14.5	55
	M16	12.0	28	28	17.0	16.5	16.0	16.0	55
95	M20	12.0	28	30	21.0	16.5	19.0	19.0	55
	M8	13.5	35	26	8.5	18.0	12.0	12.0	65
	M10	13.5	35	26	10.5	18.0	12.0	12.0	65
	M12	13.5	35	26	13.0	18.0	13.0	13.0	65
	M16	13.5	35	26	15.0	18.0	14.5	14.5	65
	M18	13.5	35	28	17.0	18.0	16.0	16.0	65
120	M20	13.5	35	36	21.0	18.0	22.0	22.0	65
	M8	15.0	35	28	8.5	19.5	14.0	14.0	70
	M10	15.0	35	28	10.5	19.5	14.0	14.0	70
	M12	15.0	35	28	13.0	19.5	14.0	14.0	70
	M16	15.0	35	28	15.0	19.5	15.0	15.0	70
	M18	15.0	35	30	17.0	19.5	16.0	16.0	70
150	M20	15.0	35	36	21.0	19.5	22.0	22.0	70
	M8	16.5	35	31	8.5	21.0	14.0	14.0	78
	M10	16.5	35	31	10.5	21.0	14.0	14.0	78
	M12	16.5	35	31	13.0	21.0	15.0	15.0	78
	M16	16.5	35	31	15.0	21.0	15.0	15.0	78
	M18	16.5	35	31	17.0	21.0	16.0	16.0	78
185	M20	16.5	35	36	21.0	21.0	22.0	22.0	78
	M10	19.0	40	35	10.5	24.0	18.0	18.0	82
	M12	19.0	40	35	13.0	24.0	18.0	18.0	82
	M14	19.0	40	35	15.0	24.0	18.0	18.0	82
	M16	19.0	40	35	17.0	24.0	18.0	18.0	82
	M20	19.0	40	39	21.0	24.0	22.0	22.0	82
240	M10	21.0	40	39	10.5	26.0	21.5	19.0	92
	M12	21.0	40	39	13.0	26.0	21.5	19.0	92
	M14	21.0	40	39	15.0	26.0	21.5	19.0	92
	M16	21.0	40	39	17.0	26.0	21.5	19.0	92
	M20	21.0	40	39	21.0	26.0	21.5	19.0	92
	300	M12	23.5	50	43	13.0	29.5	24.0	24.0
M14		23.5	50	43	15.0	29.5	24.0	24.0	100
M16		23.5	50	43	17.0	29.5	24.0	24.0	100
M20		23.5	50	43	21.0	29.5	24.0	24.0	100
400		M12	27.0	70	49	13.0	34.0	24.0	24.0
	M14	27.0	70	49	15.0	34.0	24.0	24.0	115
	M16	27.0	70	49	17.0	34.0	24.0	24.0	115
	M20	27.0	70	49	21.0	34.0	24.0	24.0	115

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ELECTRICAL CONNECTION PRODUCER



DIN CABLE LUGS

CHAPTER 5 - DIN CABLE LUGS

Copper compression cable lugs and connectors to DIN.

In the project business, customers often insist on the use of standardized materials. Utilities, for example, often specify that compression cable lugs and connectors comply with DIN standards. Klaute offers numerous standard-compliant solutions.



- Compression cable lugs to DIN 46235 up to 1000 mm².
- Angle Compression cable lugs to DIN dimensions.
- Compression joints for connections to DIN.

Always to **DIN** standards.

- ▶ **Nominal cross sections of up to 500 mm².**
- ▶ Conform to DIN standards, tested to IEC.
- ▶ Available tin plated or copper finish.

Benefits:

- ▶ The klaute range has DIN compression cable lugs and connectors to suit every application.
- ▶ The copper finish versions are especially suitable for installations in surge or lightning protection equipment.



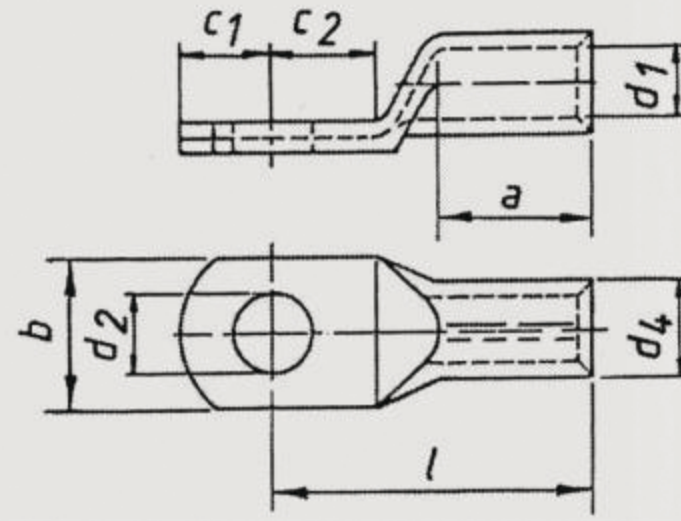
Simply **angled**, improved fit.

- ▶ Compression cable lugs angled 45 and 90.
- ▶ Nominal cross sections of up to 240mm².

Benefits:

- ▶ There is a suitable solution, even for angled and difficult installations.





Compression cable lugs to DIN, Cu 6 – 1000 mm²

- Heavy version



Characteristics

- Manufactured according to DIN 46235

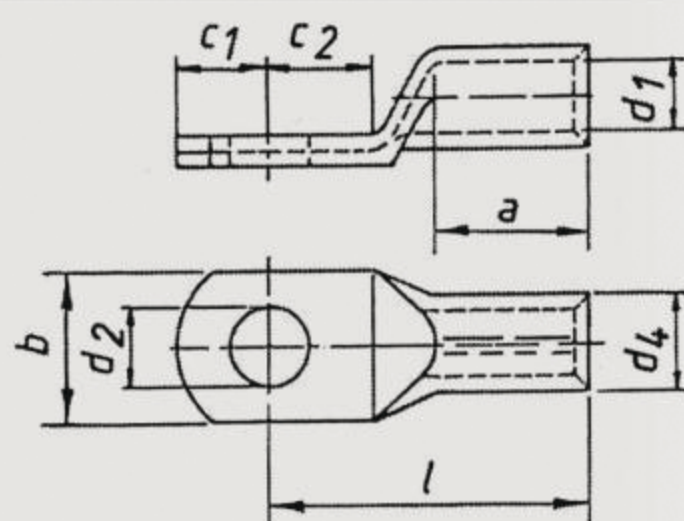
Material:

- copper with 99/9% purity (TPC)

Surface:

- tin plated

Cross section mm ²	Size of bolt	code	Dimensions mm							
			d1	a	b	d2	d4	c1	c2	l
6	M5	5	3.8	10	8.5	5.3	5.5	6.5	7.5	24
	M6	5	3.8	10	8.5	6.4	5.5	7.5	8.0	24
	M8	5	3.8	10	13.0	8.4	5.5	10.0	10.0	24
10	M5	6	4.5	10	9	5.3	6.0	7.0	8.5	27
	M6	6	4.5	10	9	6.4	6.0	7.5	8.5	27
	M8	6	4.5	10	13.0	8.4	6.0	10.0	10.0	27
16	M6	8	5.5	20	13.0	6.4	8.5	7.5	8.0	36
	M8	8	5.5	20	13.0	8.4	8.5	10.0	10.0	36
	M10	8	5.5	20	17.0	10.5	8.5	12.0	12.0	36
	M12	8	5.5	20	18.0	13.0	8.5	13.0	13.0	36
25	M6	10	7.0	20	14.0	6.4	10.0	7.5	8.0	38
	M8	10	7.0	20	16.0	8.4	10.0	10.0	10.0	38
	M10	10	7.0	20	17.0	10.5	10.0	12.0	12.0	38
	M12	10	7.0	20	19.0	13.0	10.0	13.0	13.0	38
35	M6	12	8.2	20	17.0	6.4	12.5	7.5	8.0	42
	M8	12	8.2	20	17.0	8.4	12.5	10.0	10.0	42
	M10	12	8.2	20	19.0	10.5	12.5	12.0	12.0	42
	M12	12	8.2	20	21.0	13.0	12.5	13.0	13.0	42
	M14	12	8.2	20	21.0	15.0	12.5	14.5	14.5	42
50	M8	14	10.0	28	20.0	8.4	14.5	10.0	10.0	52
	M10	14	10.0	28	22.0	10.5	14.5	12.0	12.0	52
	M12	14	10.0	28	24.0	13.0	14.5	13.0	13.0	52
	M14	14	10.0	28	24.0	15.0	14.5	14.5	14.5	52
	M16	14	10.0	28	28.0	17.0	14.5	16.0	16.0	52
70	M8	16	11.5	28	24.0	8.4	16.5	10.0	10.0	55
	M10	16	11.5	28	24.0	10.5	16.5	12.0	12.0	55
	M12	16	11.5	28	24.0	13.0	16.5	13.0	13.0	55
	M14	16	11.5	28	24.0	15.0	16.5	14.5	14.5	55
	M16	16	11.5	28	30.0	17.0	16.5	16.0	16.0	55
95	M8	18	13.5	35	28.0	8.4	19.0	12.0	12.0	65
	M10	18	13.5	35	28.0	10.5	19.0	12.0	12.0	65
	M12	18	13.5	35	28.0	13.0	19.0	13.0	13.0	65
	M14	18	13.5	35	28.0	15.0	19.0	14.5	14.5	65
	M16	18	13.5	35	32.0	17.0	19.0	16.0	16.0	65



Compression cable lugs to DIN, Cu 6 – 1000 mm² CE

Cross section mm ²	Size of bolt	code	Dimensions mm							
			d1	a	b	d2	d4	c1	c2	l
120	M10	20	15.5	35	32	10.5	21.0	15.0	16	70
	M12	20	15.5	35	32	13.0	21.0	16.0	17	70
	M14	20	15.5	35	32	15.0	21.0	18.0	19	70
	M16	20	15.5	35	32	17.0	21.0	19.0	20	70
	M20	20	15.5	35	38	21.0	21.0	21.0	22	70
150	M10	22	17.0	35	34	10.5	23.5	15.0	16	78
	M12	22	17.0	35	34	13.0	23.5	16.0	17	78
	M14	22	17.0	35	34	15.0	23.5	19.0	20	78
	M16	22	17.0	35	34	17.0	23.5	19.0	20	78
	M20	22	17.0	35	40	21.0	23.5	21.0	22	78
185	M10	25	19.0	40	37	10.5	25.5	15.0	16	82
	M12	25	19.0	40	37	13.0	25.5	16.0	17	82
	M14	25	19.0	40	37	15.0	25.5	19.0	20	82
	M16	25	19.0	40	37	17.0	25.5	19.0	20	82
	M20	25	19.0	40	40	21.0	25.5	21.0	22	82
240	M12	28	21.5	40	42	13.0	29.0	16.0	17	92
	M14	28	21.5	40	42	15.0	29.0	19.0	20	92
	M16	28	21.5	40	42	17.0	29.0	19.0	20	92
	M20	28	21.5	40	45	21.0	29.0	21.0	22	92
300	M14	32	24.5	50	46	15.0	32.0	19.0	22	100
	M16	32	24.5	50	46	17.0	32.0	19.0	22	100
	M20	32	24.5	50	46	21.0	32.0	22.0	22	100
400	M14	38	27.5	70	54	15.0	38.5	25.0	25	115
	M16	38	27.5	70	54	17.0	38.5	25.0	25	115
	M20	38	27.5	70	54	21.0	38.5	25.0	25	115

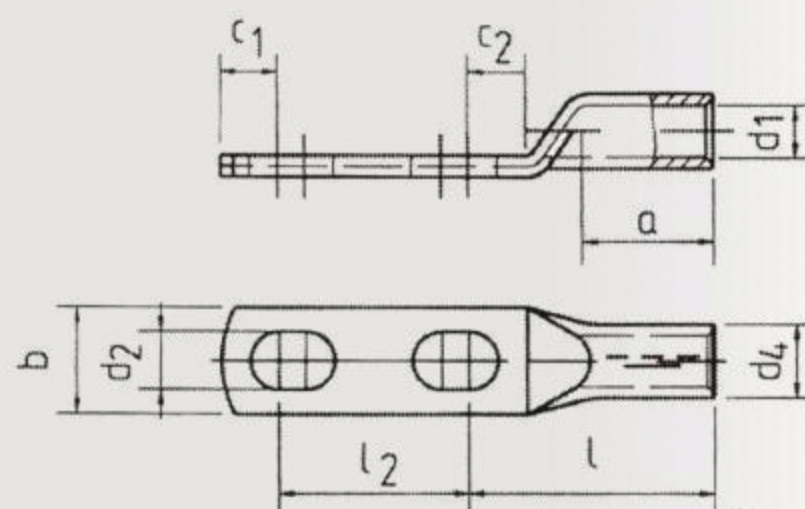
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DOUBLE CABLE LUGS

CHAPTER 6 - DOUBLE CABLE LUGS



Compression cable lugs, special type, Cu 70 – 240 mm², version with tow long holes in the palm

Material:

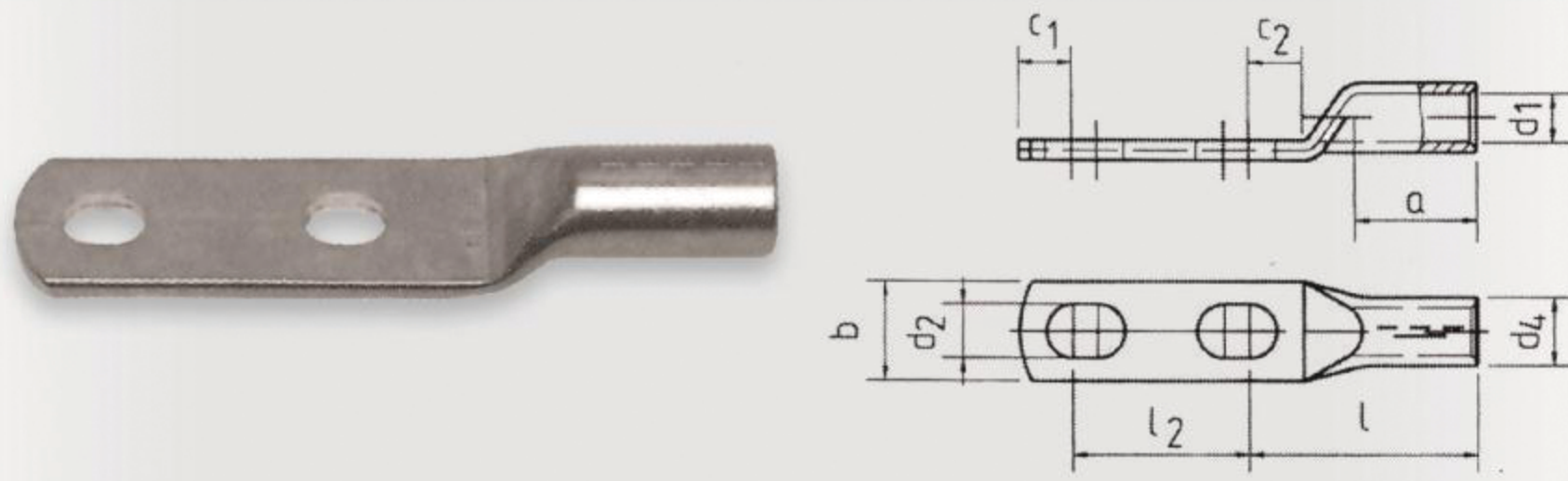
- copper with 99/9% purity (TPC)

Surface:

- tin plated



Cross section mm ²	Size of bolt	code	Dimensions mm								
			d1	a	b	d2	d4	c1	c2	l	l2
70	2xm12	16	11.5	28	24	13	16.5	13	13	55	50 – 62
95	2xm12	18	13.5	35	28	13	19.0	13	13	65	50 – 62
120	2xm12	20	15.5	35	32	13	21.0	16	17	70	50 – 62
150	2xm12	22	17.0	35	34	13	23.5	16	17	78	50 – 62
185	2xm12	25	19.0	40	37	13	25.5	16	17	82	50 – 62
240	2xm12	28	21.5	40	42	13	29.0	16	17	92	50 – 62



Compression cable lugs, special type, Cu 70 – 240 mm², version with tow long holes in the palm

- Heavyweight version
- Flat contact surface by special manufacturing processes



Characteristics

- Tube dimensions according to DIN 46235

Material:

- copper with 99/9% purity (TPC)

Surface:

- tin plated

Cross section mm ²	Size of bolt	code	Dimensions mm								
			d1	a	b	d2	d4	c1	c2	l	l2
70	2xm12	16	11.5	28	24	13	16.5	13	13	55	50 – 62
95	2xm12	18	13.5	35	28	13	19.0	13	13	65	50 – 62
120	2xm12	20	15.5	35	32	13	21.0	16	17	70	50 – 62
150	2xm12	22	17.0	35	34	13	23.5	16	17	78	50 – 62
185	2xm12	25	19.0	40	37	13	25.5	16	17	82	50 – 62
240	2xm12	28	21.5	40	42	13	29.0	16	17	92	50 – 62

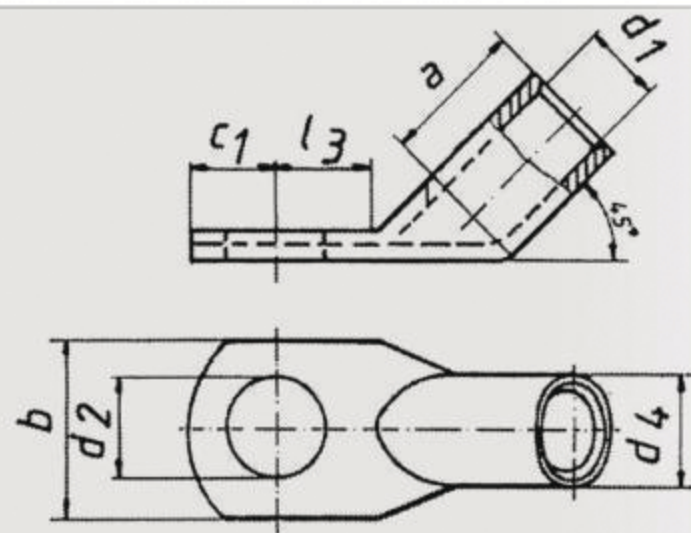
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CABLE LUGS (45)

CHAPTER 7 - CABLE LUGS & DIN CABLE LUGS (45)



Angle tubular cable lugs, copper, 6 – 400 mm² 45 angle

Standard type

- For Stranded round shaped conductors



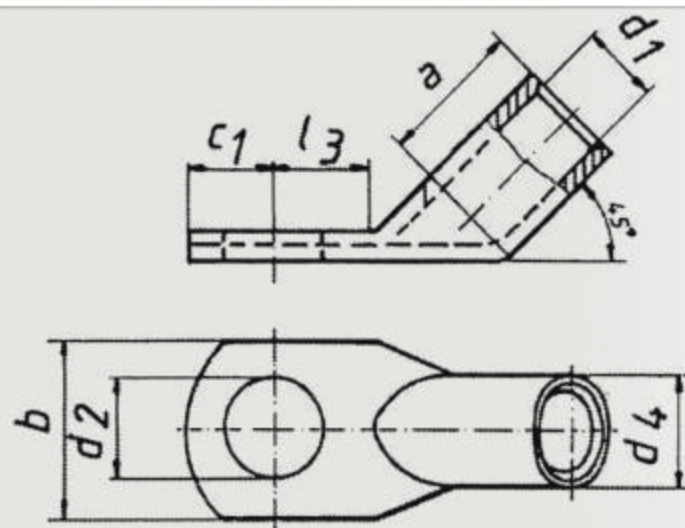
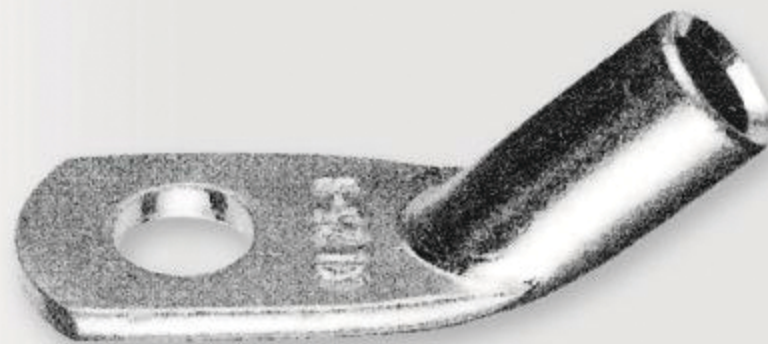
Material:

- copper with 99/9% purity (TPC)

Surface:

- tin plated

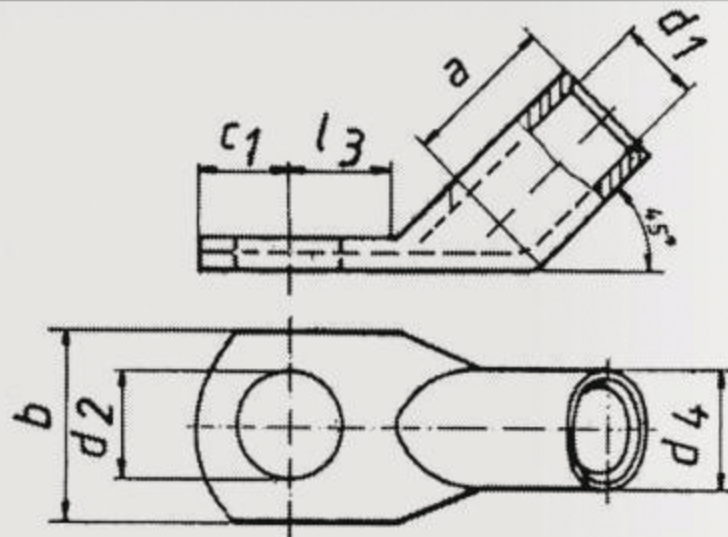
Cross section mm ²	Size of bolt	Dimensions mm						
		d1	a	b	d2	d4	c1	l3
6	M4	4.0	9	9.5	4.3	6.0	5.00	9
	M5	4.0	9	9.5	5.3	6.0	6.00	10
	M6	4.0	9	10.0	6.5	6.0	7.00	13
	M8	4.0	9	14.0	8.5	6.0	8.50	15
10	M5	4.5	10	12	5.5	7.0	6.5	10
	M6	4.5	10	12	6.5	7.0	6.5	10
	M8	4.5	10	15	8.5	7.0	10.0	13
	M10	4.5	10	17	10.5	7.0	12.0	15
	M12	4.5	10	19	13.5	7.0	13.0	18
16	M5	5.5	13	12	5.5	8.5	7.5	10
	M6	5.5	13	12	6.5	8.5	7.5	11
	M8	5.5	13	15	8.5	8.5	10.0	13
	M10	5.5	13	17	10.5	8.5	12.0	15
	M12	5.5	13	19	13.5	8.5	13.0	18
25	M5	7.0	15	14	5.5	10.0	7.5	11
	M6	7.0	15	14	6.5	10.0	7.5	11
	M8	7.0	15	16	8.5	10.0	10.0	13
	M10	7.0	15	18	10.5	10.0	12.0	15
	M12	7.0	15	19	13.5	10.0	13.0	18
	M14	7.0	15	21	15.5	10.0	14.0	20
35	M6	8.5	17	17	6.5	12.0	7.5	11
	M8	8.5	17	17	8.5	12.0	10.0	13
	M10	8.5	17	19	10.5	12.0	12.0	15
	M12	8.5	17	21	13.5	12.0	13.0	18
	M14	8.5	17	21	15.5	12.0	14.0	20
	M16	8.5	17	26	17.5	12.0	16.0	22
50	M6	10.0	19	20	6.5	14.0	10.0	13
	M8	10.0	19	20	8.5	14.0	10.0	13
	M10	10.0	19	20	10.5	14.0	12.0	16
	M12	10.0	19	23	13.0	14.0	13.0	18
	M14	10.0	19	23	15.0	14.0	14.5	20
	M16	10.0	19	28	17.0	14.0	16.0	22
	M20	10.0	19	30	21.0	14.0	19.0	24



Angle tubular cable lugs, copper, 6 – 400 mm² 45 angle



Cross sections mm ²	Size of bolt	Dimensions mm						
		d1	a	b	d2	d4	c1	l3
70	M6	12.0	21	23	6.5	16.5	10.0	13
	M8	12.0	21	23	8.5	16.5	10.0	14
	M10	12.0	21	23	10.5	16.5	12.0	16
	M12	12.0	21	23	13.0	16.5	13.0	18
	M14	12.0	21	23	15.0	16.5	14.5	20
	M16	12.0	21	28	17.0	16.5	16.0	22
95	M8	13.5	25	26	8.5	18.0	12.0	14
	M10	13.5	25	26	10.5	18.0	12.0	17
	M12	13.5	25	26	13.0	18.0	13.0	18
	M14	13.5	25	26	15.0	18.0	14.5	20
	M16	13.5	25	28	17.0	18.0	16.0	22
	M20	13.5	25	36	21.0	18.0	22.0	24
120	M8	15.0	26	28	8.5	19.5	14.0	16
	M10	15.0	26	28	10.5	19.5	14.0	17
	M12	15.0	26	28	13.0	19.5	14.0	18
	M14	15.0	26	28	15.0	19.5	15.0	20
	M16	15.0	26	30	17.0	19.5	16.0	22
	M20	15.0	26	36	21.0	19.5	22.0	24
150	M8	16.5	30	31	8.5	21.0	14.0	16
	M10	16.5	30	31	10.5	21.0	14.0	17
	M12	16.5	30	31	13.0	21.0	15.0	18
	M14	16.5	30	31	15.0	21.0	15.0	20
	M16	16.5	30	31	17.0	21.0	16.0	22
	M20	16.5	30	36	21.0	21.0	22.0	24
185	M10	19.0	30	35	10.5	24.0	18.0	22
	M12	19.0	30	35	13.0	24.0	18.0	22
	M14	19.0	30	35	15.0	24.0	18.0	22
	M16	19.0	30	35	17.0	24.0	18.0	22
	M20	19.0	30	39	21.0	24.0	22.0	24
	240	M10	21.0	35	39	10.5	26.0	21.5
M12		21.0	35	39	13.0	26.0	21.5	22
M14		21.0	35	39	15.0	26.0	21.5	22
M16		21.0	35	39	17.0	26.0	21.5	24
M20		21.0	35	39	21.0	26.0	21.5	24
300		M12	23.5	44	43	13.0	29.5	24.0
	M14	23.5	44	43	15.0	29.5	24.0	24
	M16	23.5	44	43	17.0	29.5	24.0	24
	M20	23.5	44	43	21.0	29.5	24.0	24
400	M12	27.0	44	49	13.0	34.0	24.0	24
	M14	27.0	44	49	15.0	34.0	24.0	24
	M16	27.0	44	49	17.0	34.0	24.0	24
	M20	27.0	44	49	21.0	34.0	24.0	24



Angle compression cable lugs, copper, 6 – 240 mm², 45 angle

- Heavy weight version
- Flat contact surface by special manufacturing processes



Characteristics

- Tube dimensions according to DIN 46235

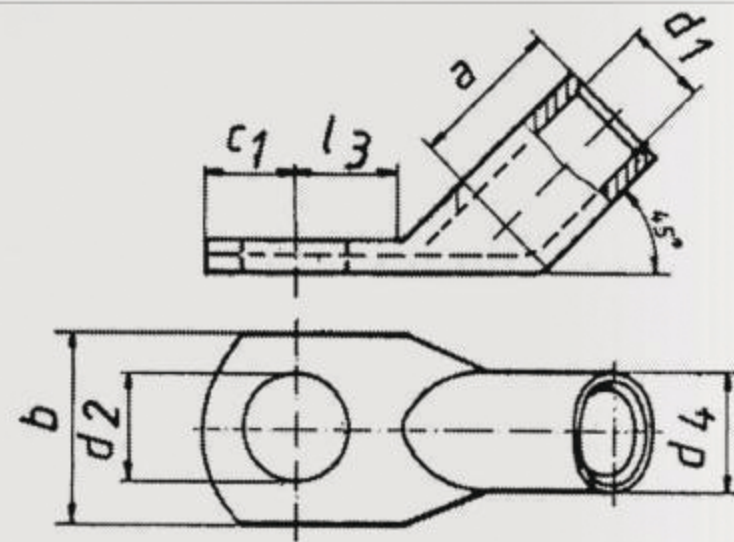
Material:

- copper with 99/9% purity (TPC)

Surface:

- tin plated

Cross section mm ²	Size of bolt	code	Dimensions mm						
			d1	a	b	d2	d4	c1	l3
6	M5	5	3.8	10	8.5	5.5	5.5	6.5	9
	M6	5	3.8	10	8.5	6.5	5.5	7.5	10
10	M5	6	4.5	10	9.0	5.5	6.0	7.0	10
	M6	6	4.5	10	9.0	6.5	6.0	7.5	10
	M8	6	4.5	10	13.0	8.5	6.0	10.0	13
16	M6	8	5.5	20	13.0	6.5	8.5	7.5	11
	M8	8	5.5	20	13.0	8.5	8.5	10.0	13
	M10	8	5.5	20	17.0	10.5	8.5	12.0	15
	M12	8	5.5	20	18.0	13.0	8.5	13.0	18
25	M6	10	7.0	20	14.0	6.5	10.0	7.5	11
	M8	10	7.0	20	16.0	8.5	10.0	10.0	13
	M10	10	7.0	20	17.0	10.5	10.0	12.0	15
	M12	10	7.0	20	19.0	13.0	10.0	13.0	18



Angle compression cable lugs, copper, 6 – 240 mm², 90 angle



Cross section mm ²	Size of bolt	code	Dimensions mm						
			d1	a	b	d2	d4	c1	l3
35	M8	12	8.2	20	17	8.5	12.5	10.0	13
	M10	12	8.2	20	19	10.5	12.5	12.0	15
	M12	12	8.2	20	21	13.0	12.5	13.0	18
	M14	12	8.2	20	21	15.0	12.5	14.5	20
50	M8	14	10.0	28	20	8.5	14.5	10.0	13
	M10	14	10.0	28	22	10.5	14.5	12.0	16
	M12	14	10.0	28	24	13.0	14.5	13.0	18
	M14	14	10.0	28	24	15.0	14.5	14.5	20
	M16	14	10.0	28	28	17.0	14.5	16.0	22
70	M8	16	11.5	28	24	8.5	16.5	10.0	14
	M10	16	11.5	28	24	10.5	16.5	12.0	16
	M12	16	11.5	28	24	13.0	16.5	13.0	18
	M14	16	11.5	28	24	15.0	16.5	14.5	20
	M16	16	11.5	28	30	17.0	16.5	16.0	22
95	M10	18	13.5	35	28	10.5	19.0	12.0	17
	M12	18	13.5	35	28	13.0	19.0	13.0	18
	M14	18	13.5	35	28	15.0	19.0	14.5	20
	M16	18	13.5	35	32	17.0	19.0	16.0	22
120	M10	20	15.5	35	32	10.5	21.0	15.0	17
	M12	20	15.5	35	32	13.0	21.0	16.0	18
	M14	20	15.5	35	32	15.0	21.0	18.0	20
	M16	20	15.5	35	32	17.0	21.0	19.0	22
	M20	20	15.5	35	38	21.0	21.0	21.0	24
150	M10	22	17.0	35	34	10.5	23.5	15.0	17
	M12	22	17.0	35	34	13.0	23.5	16.0	18
	M14	22	17.0	35	34	15.0	23.5	19.0	20
	M16	22	17.0	35	34	17.0	23.5	19.0	22
	M20	22	17.0	35	40	21.0	23.5	21.0	24
185	M10	25	19.0	40	37	10.5	25.5	15.0	22
	M12	25	19.0	40	37	13.0	25.5	16.0	22
	M14	25	19.0	40	37	15.0	25.5	19.0	22
	M16	25	19.0	40	37	17.0	25.5	19.0	22
	M20	25	19.0	40	40	21.0	25.5	21.0	24
240	M12	28	21.5	40	42	13.0	29.0	16.0	22
	M14	28	21.5	40	42	15.0	29.0	19.0	22
	M16	28	21.5	40	42	17.0	29.0	19.0	22
	m20	28	21.5	40	45	21.0	29.0	21.0	24

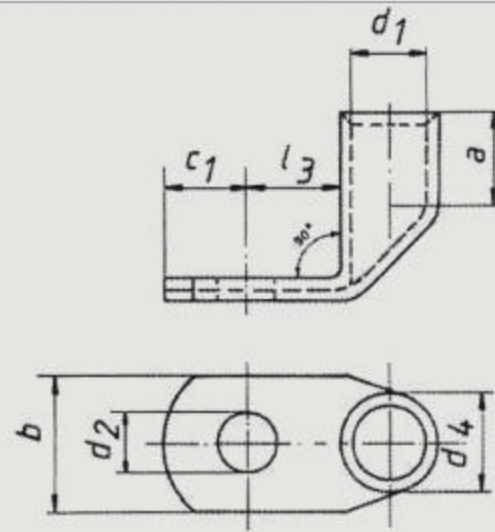
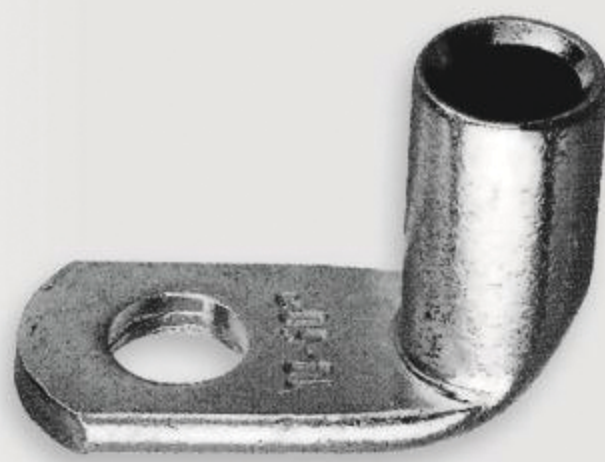
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CABLE LUGS (90°)

CHAPTER 8 - CABLE LUGS & DIN CABLE LUGS (90°)



Angle tubular cable lugs, copper, 6 – 400 mm² 90 angle

Standard type



- For stranded round shaped conductors

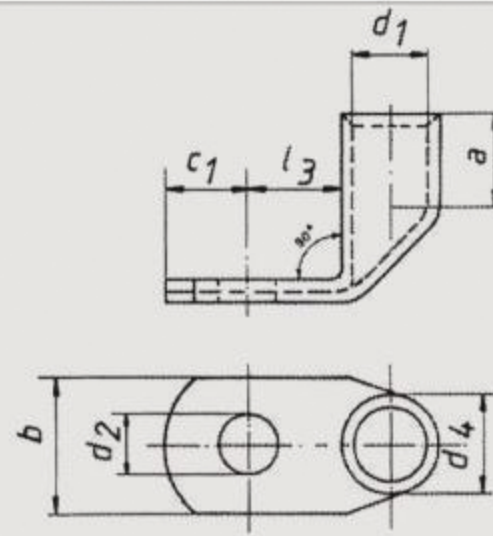
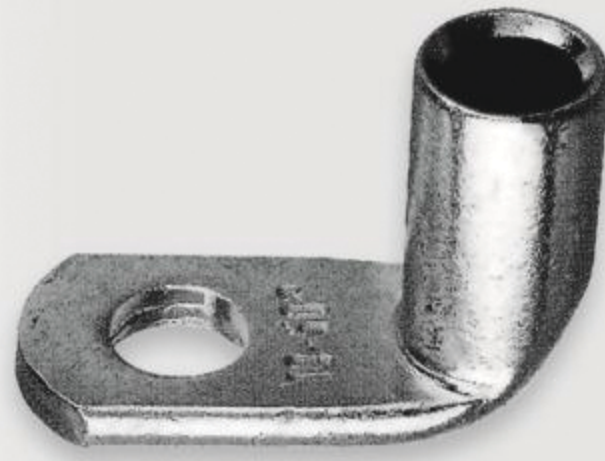
Material:

- copper with 99/9% purity (TPC)

Surface:

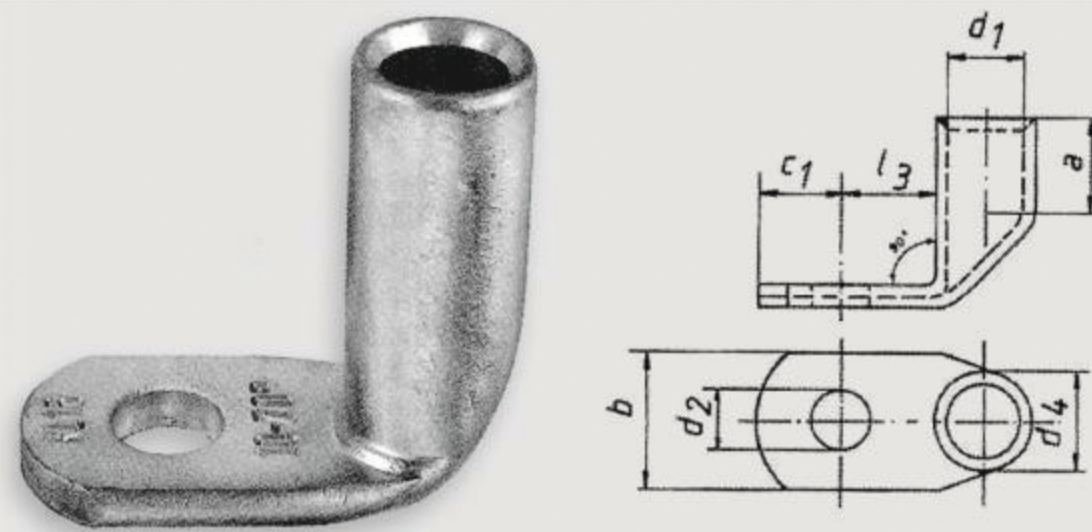
tin plated

Cross sections mm ²	Size of bolt	Dimensions mm						
		d1	a	b	d2	d4	c1	l3
6	M4	4.0	9	9.5	4.3	6.0	5.00	9
	M5	4.0	9	9.5	5.3	6.0	6.00	10
	M6	4.0	9	10.0	6.5	6.0	7.00	13
	M8	4.0	9	14.0	8.5	6.0	8.50	15
10	M5	4.5	10	12	5.5	7.0	6.5	10
	M6	4.5	10	12	6.5	7.0	6.5	10
	M8	4.5	10	15	8.5	7.0	10.0	13
	M10	4.5	10	17	10.5	7.0	12.0	15
	M12	4.5	10	19	13.0	7.0	13.0	18
16	M5	5.5	13	12	5.5	8.5	7.5	10
	M6	5.5	13	12	6.5	8.5	7.5	11
	M8	5.5	13	15	8.5	8.5	10.0	13
	M10	5.5	13	17	10.5	8.5	12.0	15
	M12	5.5	13	19	13.0	8.5	13.0	18
25	M5	7.0	15	14	5.5	10.0	7.5	11
	M6	7.0	15	14	6.5	10.0	7.5	11
	M8	7.0	15	16	8.5	10.0	10.0	13
	M10	7.0	15	18	10.5	10.0	12.0	15
	M12	7.0	15	19	13.0	10.0	13.0	18
	M14	7.0	15	21	15.0	10.0	14.5	20
35	M6	8.5	17	17	6.5	12.0	7.5	11
	M8	8.5	17	17	8.5	12.0	10.0	13
	M10	8.5	17	19	10.5	12.0	12.0	15
	M12	8.5	17	21	13.0	12.0	13.0	18
	M14	8.5	17	21	15.0	12.0	14.5	20
	M16	8.5	17	26	17.0	12.0	16.0	22
50	M6	10.0	19	20	6.5	14.0	10.0	13
	M8	10.0	19	20	8.5	14.0	10.0	13
	M10	10.0	19	20	10.5	14.0	12.0	16
	M12	10.0	19	23	13.0	14.0	13.0	18
	M14	10.0	19	23	15.0	14.0	14.5	20
	M16	10.0	19	28	17.0	14.0	16.0	22
	M20	10.0	19	30	21.0	14.0	19.0	24



Angle tubular cable lugs, copper, 6 – 400 mm² 90 angle **CE**

Cross sections mm ²	Size of bolt	Dimensions mm						
		d1	a	b	d2	d4	c1	l3
70	M6	12.0	21	23	6.5	16.5	10.0	13
	M8	12.0	21	23	8.5	16.5	10.0	14
	M10	12.0	21	23	10.5	16.5	12.0	16
	M12	12.0	21	23	13.0	16.5	13.0	18
	M14	12.0	21	23	15.0	16.5	14.5	20
	M16	12.0	21	28	17.0	16.5	16.0	22
95	M20	12.0	21	30	21.0	16.5	19.0	24
	M8	13.5	25	26	8.5	18.0	12.0	14
	M10	13.5	25	26	10.5	18.0	12.0	17
	M12	13.5	25	26	13.0	18.0	13.0	18
	M14	13.5	25	26	15.0	18.0	14.5	20
	M16	13.5	25	28	17.0	18.0	16.0	22
120	M20	13.5	25	36	21.0	18.0	22.0	24
	M8	15.0	26	28	8.5	19.5	14.0	16
	M10	15.0	26	28	10.5	19.5	14.0	17
	M12	15.0	26	28	13.0	19.5	14.0	18
	M14	15.0	26	28	15.0	19.5	15.0	20
	M16	15.0	26	30	17.0	19.5	16.0	22
150	M20	15.0	26	36	21.0	19.5	22.0	24
	M8	16.5	30	31	8.5	21.0	14.0	16
	M10	16.5	30	31	10.5	21.0	14.0	17
	M12	16.5	30	31	13.0	21.0	15.0	18
	M14	16.5	30	31	15.0	21.0	15.0	20
	M16	16.5	30	31	17.0	21.0	16.0	22
185	M20	16.5	30	36	21.0	21.0	22.0	24
	M10	19.0	30	35	10.5	24.0	18.0	22
	M12	19.0	30	35	13.0	24.0	18.0	22
	M14	19.0	30	35	15.0	24.0	18.0	22
	M16	19.0	30	35	17.0	24.0	18.0	22
	M20	19.0	30	39	21.0	24.0	22.0	24
240	M10	21.0	35	39	10.5	26.0	21.5	22
	M12	21.0	35	39	13.0	26.0	21.5	22
	M14	21.0	35	39	15.0	26.0	21.5	22
	M16	21.0	35	39	17.0	26.0	21.5	24
	M20	21.0	35	39	21.0	26.0	21.5	24
	M12	23.5	44	43	13.0	29.5	24.0	24
300	M14	23.5	44	43	15.0	29.5	24.0	24
	M16	23.5	44	43	17.0	29.5	24.0	24
	M20	23.5	44	43	21.0	29.5	24.0	24
	M12	27.0	44	49	13.0	34.0	24.0	24
400	M14	27.0	44	49	15.0	34.0	24.0	24
	M16	27.0	44	49	17.0	34.0	24.0	24
	M20	27.0	44	49	21.0	34.0	24.0	24



Angle compression cable lugs, copper, 6 – 240 mm², 90 angle

- Heavy version
- Flat contact surface by special manufacturing processes



Characteristics

- Tube dimensions according to DIN 46235

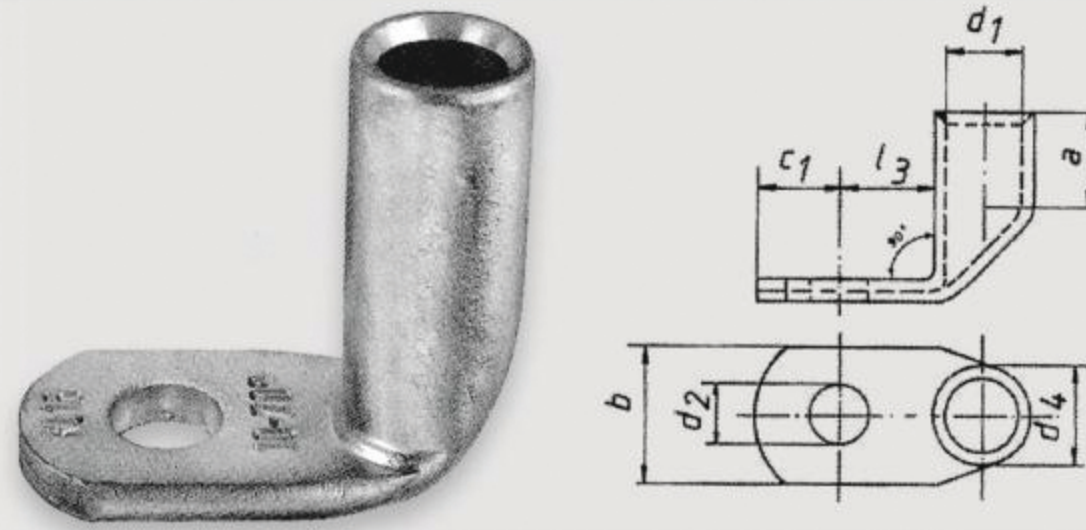
Material:

- copper with 99/9% purity (TPC)

Surface:

- tin plated

Cross section mm ²	Size of bolt	code	Dimensions mm						
			d1	a	b	d2	d4	c1	l3
6	M5	5	3.8	10	8.5	5.3	5.5	6.5	9
	M6	5	3.8	10	8.5	6.4	5.5	7.5	10
10	M5	6	4.5	10	9.5	5.3	6.0	7.0	10
	M6	6	4.5	10	9.5	6.4	6.0	7.5	10
	M8	6	4.5	10	13.0	-	6.0	10.0	13
16	m6	8	5.5	20	13.0	6.4	8.5	7.5	11
	M8	8	5.5	20	13.0	8.4	8.5	10.0	13
	M10	8	5.5	20	17.0	10.5	8.5	12.0	15
	M12	8	5.5	20	18.0	13.0	8.5	13.0	18
25	M6	10	7.0	20	14.0	6.4	10.0	7.5	11
	M8	10	7.0	20	16.0	8.4	10.0	10.0	13
	M10	10	7.0	20	17.0	10.5	10.0	12.0	15
	M12	10	7.0	20	19.0	13.0	10.0	13.0	18
35	M8	12	8.2	20	17.0	8.4	12.5	10.0	13
	M10	12	8.2	20	19.0	10.5	12.5	12.0	15
	M12	12	8.2	20	21.0	13.0	12.5	13.0	18
	M14	12	8.2	20	21.0	15.0	12.5	14.5	20
50	M8	14	10.0	28	20.0	8.4	14.5	10.0	16
	M10	14	10.0	28	22.0	10.5	14.5	12.0	16
	M12	14	10.0	28	24.0	13.0	14.5	13.0	18
	M14	14	10.0	28	24.0	15.0	14.5	14.5	20
	M16	14	10.0	28	28.0	17.0	14.5	16.0	22
70	M8	16	11.5	28	24.0	8.4	16.5	10.0	14
	M10	16	11.5	28	24.0	10.5	16.5	12.0	16
	M12	16	11.5	28	24.0	13.0	16.5	13.0	18
	M14	16	11.5	28	24.0	15.0	16.5	14.5	20
	M16	16	11.5	28	30.0	17.0	16.5	16.0	22
95	M10	18	13.5	35	28.0	10.5	19.0	12.0	17
	M12	18	13.5	35	28.0	13.0	19.0	13.0	18
	M14	18	13.5	35	28.0	15.0	19.0	14.5	20
	M16	18	13.5	35	32.0	17.0	19.0	16.0	22
120	M10	20	15.5	35	32.0	10.5	21.0	15.0	17
	M12	20	15.5	35	32.0	13.0	21.0	16.0	18
	M14	20	15.5	35	32.0	15.0	21.0	18.0	20
	M16	20	15.5	35	32.0	17.0	21.0	19.0	22
	M18	20	15.5	35	38.0	21.0	21.0	21.0	24



Angle compression cable lugs, copper, 6 – 240 mm², 90 angle



Cross section mm ²	Size of bolt	code	Dimensions mm						
			d1	a	b	d2	d4	c1	l3
150	M10	22	17.0	35	34	10.5	23.5	15	17
	M12	22	17.0	35	34	13.0	23.5	16	18
	M14	22	17.0	35	34	15.0	23.5	19	20
	M16	22	17.0	35	34	17.0	23.5	19	22
	M20	22	17.0	35	40	21.0	23.5	21	24
185	M10	25	19.0	40	37	10.5	25.5	15	22
	M12	25	19.0	40	37	13.0	25.5	16	22
	M14	25	19.0	40	37	15.0	25.5	19	22
	M16	25	19.0	40	37	17.0	25.5	19	22
	M20	25	19.0	40	40	21.0	25.5	21	24
240	M12	28	21.5	40	42	13.0	29.0	16	22
	M14	28	21.5	40	42	15.0	29.0	19	22
	M16	28	21.5	40	42	17.0	29.0	19	22
	M20	28	21.5	40	45	21.0	29.0	21	24

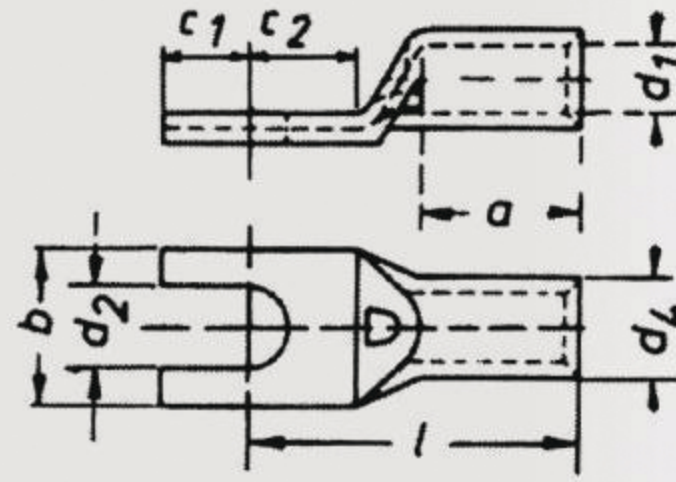
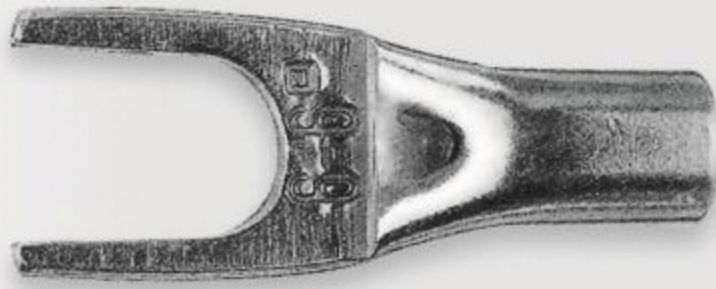
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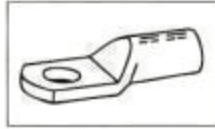
TUBULAR CABLE LUGS

CHAPTER 9 - TUBULAR CABLE LUGS



Tubular cable lugs, copper 2.5 – 16 mm²

Fork type



- For direct screw-mounting
- For fine stranded conductors

Material:

- copper with 99/9% purity (TPC)

Surface:

- tin plated

Cross section mm ²	Size of bolt	d1	a	b	d2	d4	c1	c2	l
		2.5	M3	2.3	6	7.5	3.2	4.2	3.25
	M4	2.3	6	7.5	4.3	4.2	4.00	5.0	13
	M5	2.3	6	8.5	5.3	4.2	4.75	5.5	14
	M6	2.3	6	9.5	6.5	4.2	6.50	6.5	16
4	M4	3.0	8	8.5	4.3	5.0	4.75	5.5	17
	M5	3.0	8	9.0	5.3	5.0	4.75	6.0	17
	M6	3.0	8	10.0	6.5	5.0	6.50	6.5	19
	M8	3.0	8	13.0	8.5	5.0	8.50	9.5	22
6	M4	4.0	9	9.5	4.3	6.0	5.00	5.5	18
	M5	4.0	9	9.5	5.3	6.0	6.00	6.0	19
	M6	4.0	9	10.0	6.5	6.0	7.00	6.5	19
	M8	4.0	9	14.0	8.5	6.0	8.50	9.0	22
10	M5	4.5	10	12.0	5.5	7.0	6.50	7.5	22
	M6	4.5	10	12.0	6.5	7.0	6.50	7.5	22
	M8	4.5	10	15.0	8.5	7.0	10.00	10.0	25
16	M5	5.5	13	12.0	5.5	8.5	5.50	6.5	26
	M6	5.5	13	12.0	6.5	8.5	6.25	7.5	27
	M8	5.5	13	15.0	8.5	8.5	8.50	9.5	29

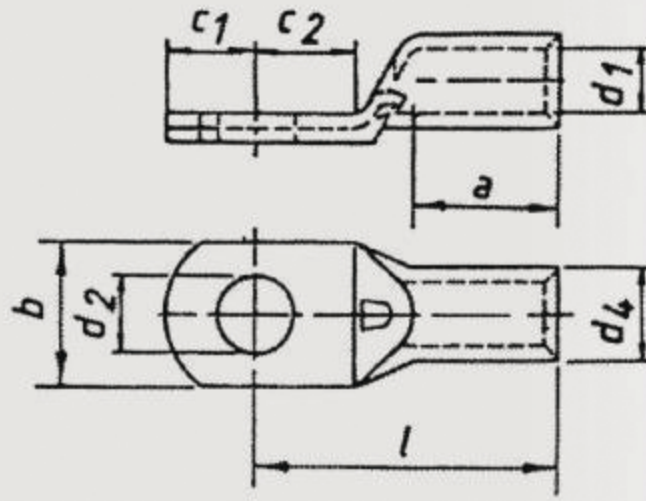
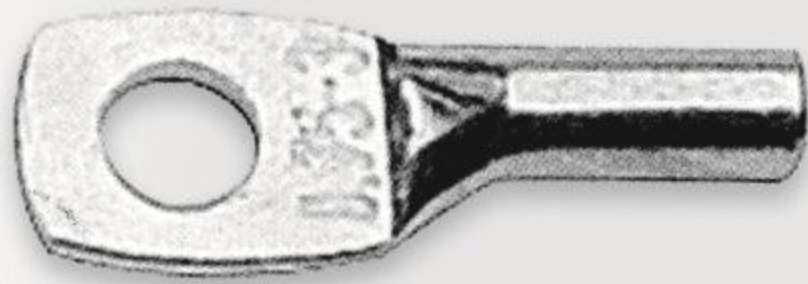
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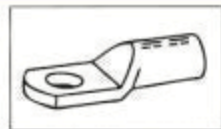
CABLE LUGS

CHAPTER 10 - CABLE LUGS , 2.5 - 6MM²



Tubular cable lugs, copper 2.5 – 6 mm²

Ring type



- Fore fine stranded conductors

Material:

- copper with 99/9% purity (TPC)

Surface:

- tin plated

Cross section mm ²	Size of bolt	d1	a	b	d2	d4	c1	c2	l
		2.5	M3	2.3	6	7.5	3.2	4.2	3.25
	M4	2.3	6	7.5	4.3	4.2	4.00	5.0	13
	M5	2.3	6	8.5	5.3	4.2	4.75	5.5	14
	M6	2.3	6	9.5	6.5	4.2	6.50	6.5	16
	M8	2.3	6	13.0	8.5	4.2	7.75	9.5	20
4	M4	3.0	8	8.5	4.3	5.0	4.75	5.5	18
	M5	3.0	8	9.0	5.3	5.0	4.75	6.0	18
	M6	3.0	8	10.0	6.5	5.0	6.50	6.5	19
	M8	3.0	8	13.0	8.5	5.0	8.50	9.5	22
6	M4	4.0	9	9.5	4.3	6.0	5.00	5.5	18
	M5	4.0	9	9.5	5.3	6.0	6.00	6.0	19
	M6	4.0	9	10.0	6.5	6.0	7.00	6.5	19
	M8	4.0	9	14.0	8.5	6.0	8.50	9.5	22

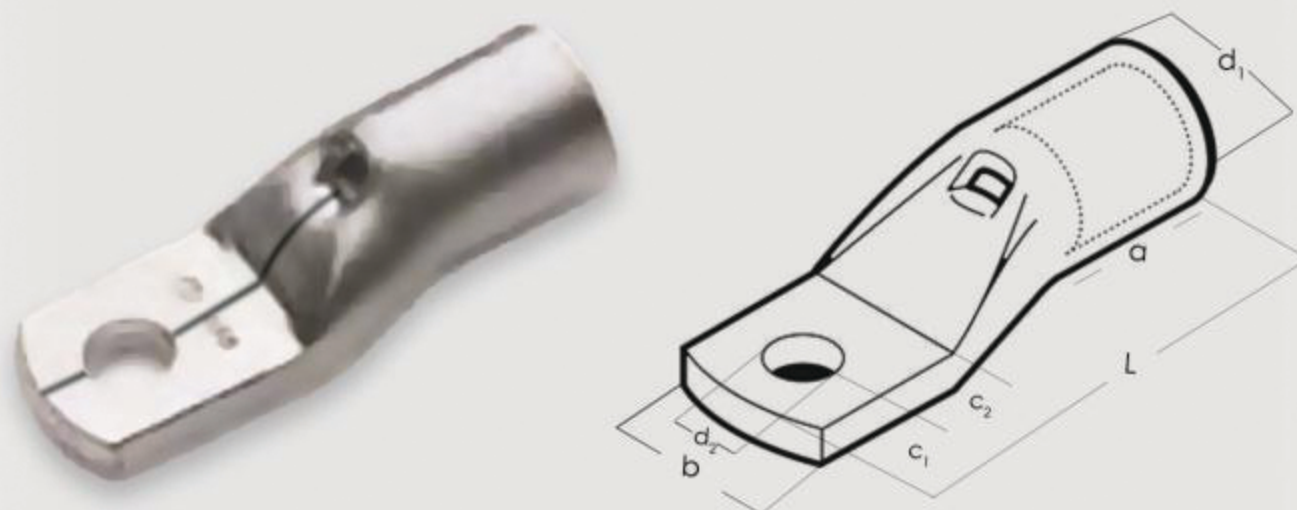
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ELECTRICAL CONNECTION PRODUCER



TERMINALS CABLE LUGS

CHAPTER 11 - TERMINALS CABLE LUGS



Terminals

- For copper conductors

Material:

- copper with 99/9% purity (TPC)

Surface:

- tin plated

Cross section mm ²	Size of bolt	Dimensions mm							
		d1	a	b	d2	d4	c1	c2	l
10	M5	4.5	10	12	5.5	7.0	7.5	7.5	22
	M6	4.5	10	12	6.5	7.0	7.5	7.5	22
	M8	4.5	10	15	8.5	7.0	10.0	10.0	25
	M10	4.5	10	17	10.5	7.0	12.0	12.0	27
	M12	4.5	10	19	13.0	7.0	13.0	13.0	29
16	M5	5.5	13	12	5.5	8.5	5.5	6.5	26
	M6	5.5	13	12	6.5	8.5	6.25	7.5	27
	M8	5.5	13	15	8.5	8.5	8.5	9.5	29
	M10	5.5	13	17	10.5	8.5	10.5	11.5	31
	M12	5.5	13	19	13.0	8.5	12.0	13.0	33
25	M5	7.0	15	14	5.5	10.0	7.5	7.5	30
	M6	7.0	15	14	6.5	10.0	7.5	7.5	30
	M8	7.0	15	16	8.5	10.0	10.0	10.0	32
	M10	7.0	15	18	10.5	10.0	12.0	12.0	34
	M12	7.0	15	19	13.0	10.0	13.0	13.0	35
	M14	7.0	15	21	15.0	10.0	14.5	14.5	38
35	M6	8.5	17	17	6.5	12.0	7.5	7.5	32
	M8	8.5	17	17	8.5	12.0	10.0	10.0	34
	M10	8.5	17	19	10.5	12.0	12.0	12.0	37
	M12	8.5	17	21	13.0	12.0	13.0	13.0	38
	M14	8.5	17	21	15.0	12.0	14.5	14.5	40
	M16	8.5	17	26	17.0	12.0	16.0	16.0	42
50	M6	10.0	19	20	6.5	14.0	10.0	10.0	37
	M8	10.0	19	20	8.5	14.0	10.0	10.0	37
	M10	10.0	19	20	10.5	14.0	12.0	12.0	39
	M12	10.0	19	23	13.0	14.0	13.0	13.0	43
	M14	10.0	19	23	15.0	14.0	14.5	14.5	45
	M16	10.0	19	28	17.0	14.0	16.0	16.0	46
	M20	10.0	19	30	21.0	14.0	19.0	19.0	48



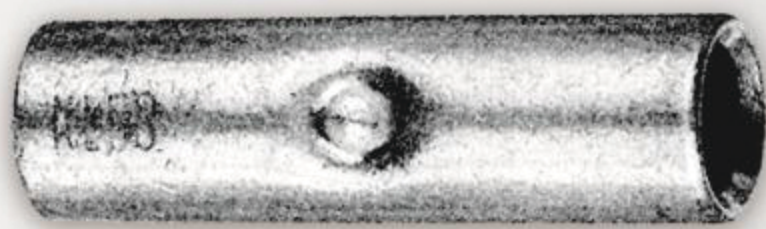
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ELECTRICAL CONNECTION PRODUCER



CONNECTORS

CHAPTER 12 - CONNECTORS



Butt-connector, copper 4 – 400 mm²

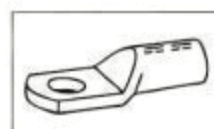
- Standard Type
- For Stranded Conductors

Material:

- copper with 99/9% purity (TPC)

Surface:

- tin plated



Cross section mm ²	Dimensions mm		
	d1	d4	l
4	3.0	5.0	25
6	4.0	6	25
10	4.5	7.0	30
16	5.5	8.5	35
25	7.0	10.0	40
35	8.5	12.0	45
50	10.0	14.0	50
70	12.0	16.5	55
95	13.5	18.0	60
120	15.0	19.5	65
150	16.5	21.0	70
185	19.0	24.0	75
240	21.0	26.0	85
300	23.5	29.5	100
400	27.0	34.0	100

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SPLICE

CHAPTER 13 - SPLICE



Compression joints , copper 16-500 mm²

■ with barrier , tube dimensions according to DIN 46267 ,
for non - tension connections

■ Leakproof againts oil

Material:

■ copper with 99/9% purity (TPC)

Surface :

■ tin platet



Cross section mm ²	Part No.	code	Dimensions mm			weight/ 100 pcs - kg	PCS.
			d1	d4	l		
16	523R	8	5.5	8.5	50	1.54	25
25	524R	10	7.0	10.0	50	1.84	25
35	525R	12	8.2	12.5	50	2.99	25
50	526R	14	10.0	14.5	56	4.46	25
70	527R	16	11.5	16.5	56	5.61	25
95	528R	18	13.5	19.0	70	8.88	25
120	529R	20	15.5	21.0	70	10.06	5
150	530R	22	17.0	23.5	80	14.89	5
185	531R	25	19.0	25.5	85	17.57	5
240	532R	28	21.5	29.0	90	24.23	5
300	533R	32	24.5	32.0	100	30.15	5
400	534R	38	27.5	38.5	150	75.60	5
500	535R	42	31	42.0	160	92.00	1

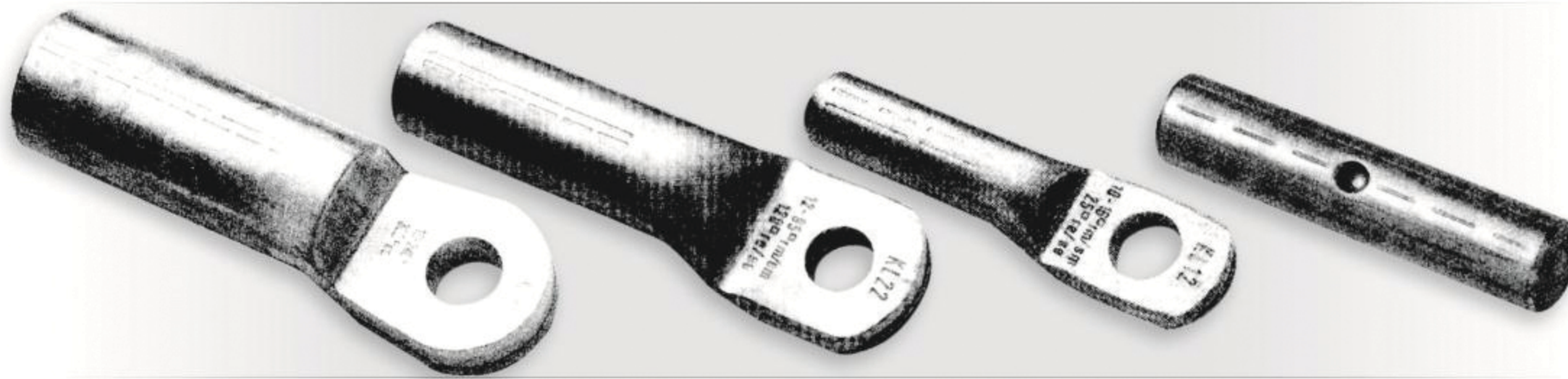
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ELECTRICAL CONNECTION PRODUCER



ALUMINUM CABLE LUGS

CHAPTER 14 - ALUMINUM CABLE LUGS



Optimized aluminium Connection.

Aluminium compression cable lugs and connectors to DIN.

Due to their significantly lower dead weight, aluminium conductors are coming increasingly to the fore in power distribution applications.

The material structure is very different to copper. That's why correct cable lugs and connectors are required. The connecting materials for aluminium are in principle coated with a special compound.

- Aluminium cable lugs with Din dimensions up to 400 mm².
- Compression joints to DIN 46267, part 2.
- Compression joints for medium-voltage applications up to 30 kV.
- Tin plated version for connecting to copper rails.



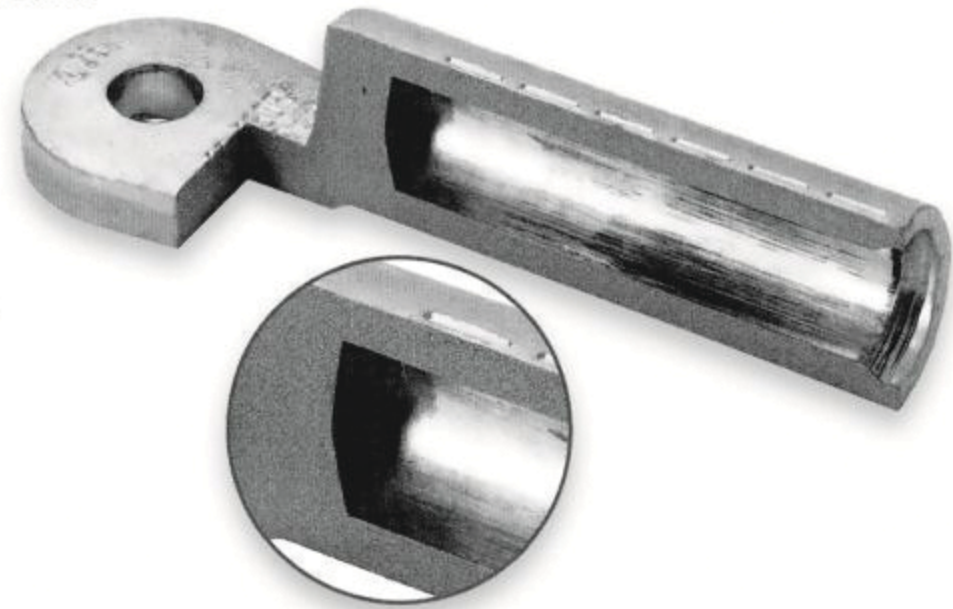
Aluminium compression cable lugs are frequently used in power distribution

The right product for every **aluminium conductor.**

- ▶ Nominal cross section of up to 400 mm².
- ▶ Tin plated designs with 20 µm layer thickness.

Benefits:

- ▶ The klaute range offers aluminium DIN compression cable lugs to suit every application.
- ▶ The quality tin plated enables connections to copper rails in a dry environment.



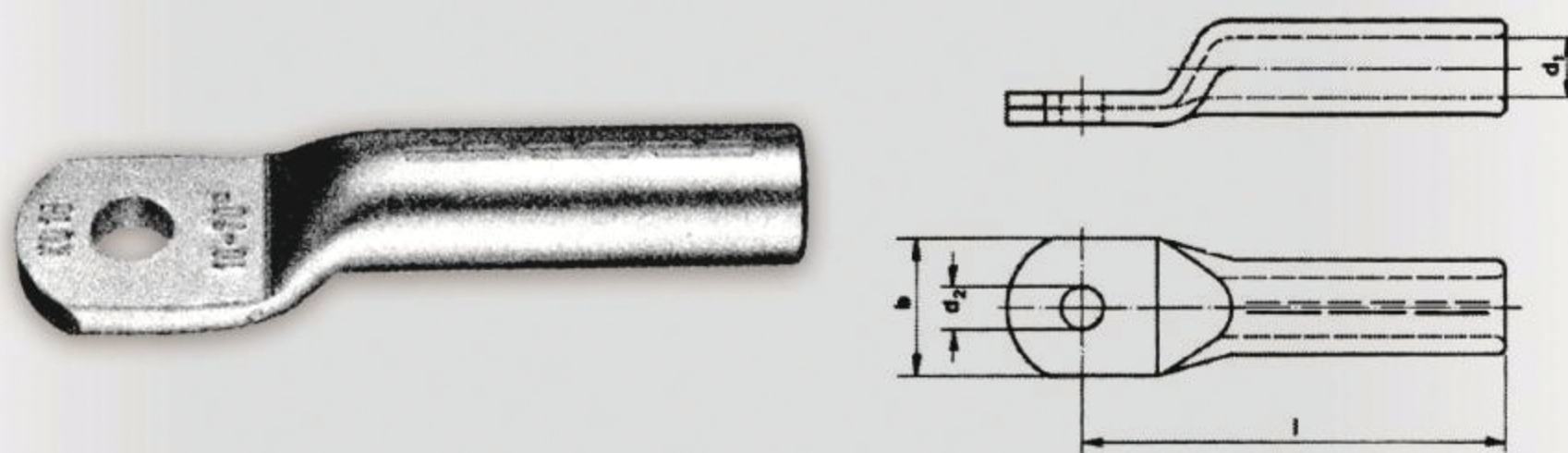
A quality **range.**

- ▶ Defined, **unique material properties** to klaute standards.
- ▶ DIN-compliant dimensions.
- ▶ Consistent material thickness, precise diameters and accurate fit allow optimum processing and ultimate safety.

Benefits:

- ▶ With professional installation, the connecting material offer optimized stability even with mechanically stressed or severely vibrating connections.
- ▶ Less repair and maintenance thanks to reliable connections.
- ▶ Expanded field of application, e.g. power distribution.





Compression cable lugs , AL 10-400 mm²

- For Pre-rounded Sector Shape Conductors.

Characteristics:

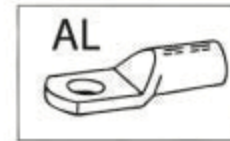
- Tube dimension to DIN 46329

Material:

- AL

Surface :

- Bright



Cross section mm ²		Size of bolt	code	Dimensions mm				Number of crimps	
rm/sm	se			d1	d2	b	l	mech.	hydr.
10	--	M6	10	5.0	6.5	16	52	4	2
	--	M8	10	5.0	8.5	18	52	4	2
16	25	M8	12	5.8	8.5	18	52	4	2
	25	M10	12	5.8	10.5	18	52	4	2
25	35	M8	12	6.8	8.5	18	60	4	2
	35	M10	12	6.8	10.5	18	60	4	2
35	50	M10	14	8.0	10.5	21	67	5	2
	50	M12	14	8.0	13.0	21	67	5	2
50	70	M10	16	9.8	10.5	25	72	5	2
	70	M12	16	9.8	13.0	25	72	5	2
70	95	M10	18	11.2	10.5	28	86	6	3
	95	M12	18	11.2	13.0	28	86	6	3
95	120	M10	22	13.2	10.5	32	90	6	3
	120	M12	22	13.2	13.0	32	90	6	3
	120	M16	22	13.2	17.0	34	90	6	3
120	150	M12	22	14.7	13.0	32	91	6	3
	150	M16	22	14.7	17.0	34	91	6	3
150	185	M12	25	16.3	13.0	35	103	6	3
	185	M16	25	16.3	17.0	35	103	6	3
	185	M20	25	16.3	21.0	41	103	6	3
185	240	M12	28	18.3	13.0	40	106	6	3
	240	M16	28	18.3	17.0	40	106	6	3
	240	M20	28	18.3	21.0	40	106	6	3
240	300	M12	32	21.0	13.0	45	116	8	3
	300	M16	32	21.0	17.0	45	116	8	3
	300	M20	32	21.0	21.0	45	116	8	3
300	--	M16	34	23.0	17.0	49	124	8	3
	--	M20	34	23.0	21.0	49	124	8	3
400	--	M16	38	26.0	17.0	58	165	--	4
	--	M20	38	26.0	21.0	58	165	--	4



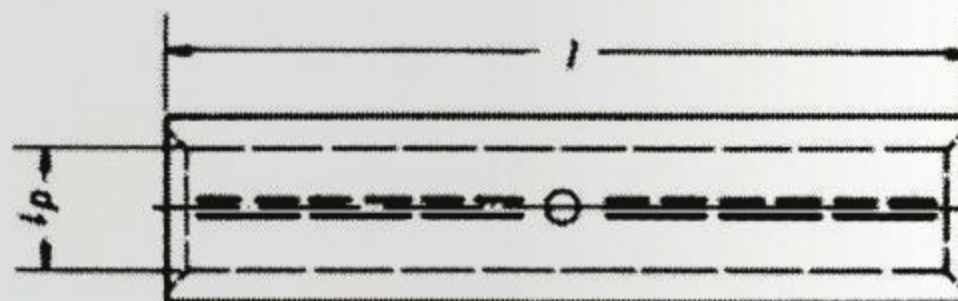
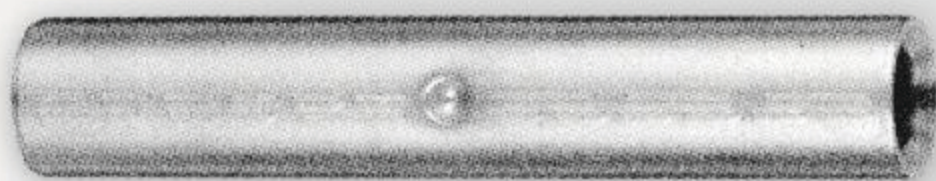
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ELECTRICAL CONNECTION PRODUCER



ALUMINUM CONNECTORS

CHAPTER 15 - ALUMINUM CONNECTORS



Compression joints to DIN , AL 10-500 mm²

- For Pre-rounded Sector Shape Conductors.

Characteristics:

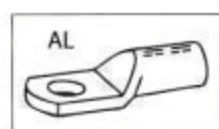
- Manufactured according to DIN 46267

Material:

- AL

Surface :

- Bright

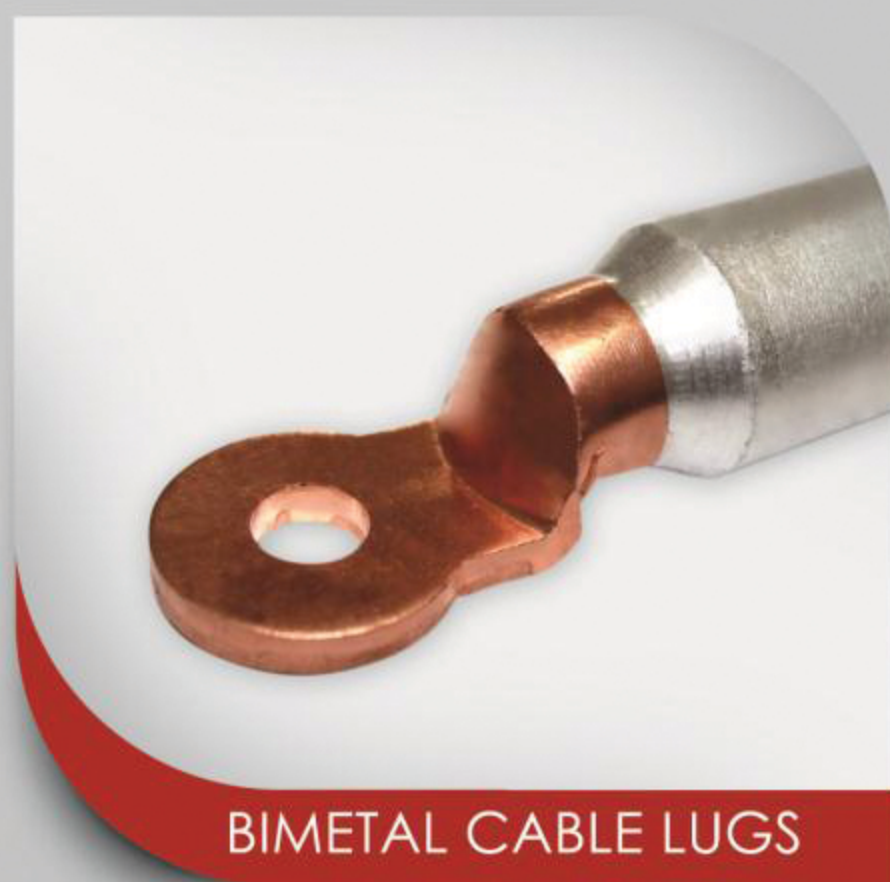


Cross section mm ²		code	Dimensions mm		Number of crimps	
rm/sm	se		d1	l	mech.	hydr.
10	--	10	5.0	55	3/3	--
16	25	12	5.8	55	3/3	--
25	35	12	6.8	70	4/4	2/2
35	50	14	8.0	85	5/5	2/2
50	70	16	9.8	85	5/5	2/2
70	95	18	11.2	105	6/6	3/3
95	120	22	13.2	105	6/6	3/3
120	150	22	14.7	105	6/6	3/3
150	185	25	16.3	125	6/6	3/3
185	240	28	18.3	125	6/6	3/3
240	300	32	21.0	145	8/8	3/3
300	--	34	23.3	145	8/8	3/3
400	--	38	26.0	210	--	5/5
500	--	44	29.0	210	--	5/5



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BIMETAL CABLE LUGS

CHAPTER 16 - BIMETAL CABLE LUGS



Simple connection of two materials

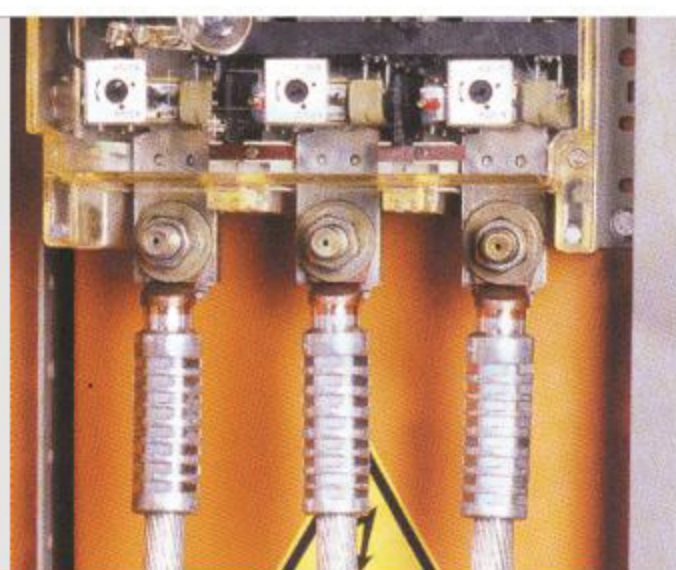


Compression for aluminium-copper connections.

Copper's electrical properties still make it the best material for conductors and electrical connections. There are, however, also good reasons for using aluminium. The need to connect these two materials together is therefore becoming more frequent.

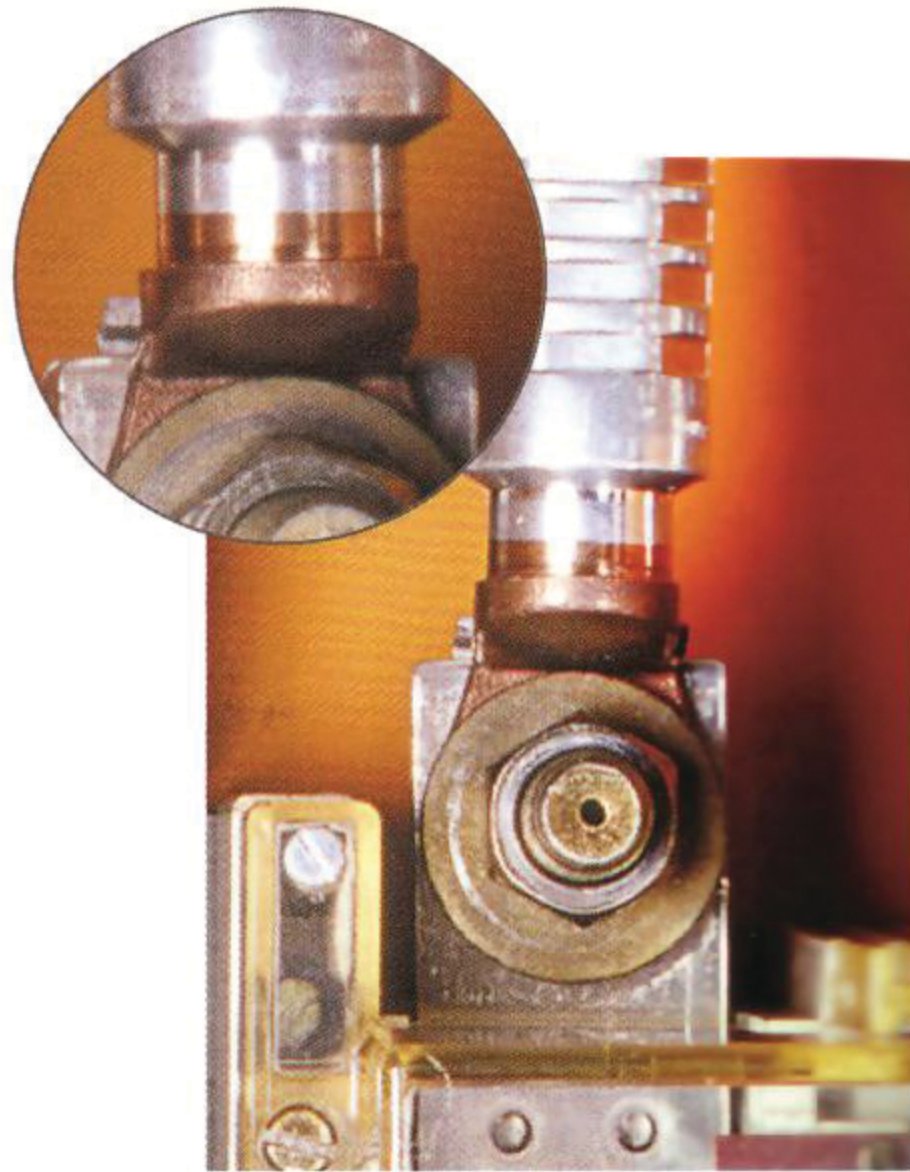
But because it's not that simple to join aluminium and copper, special aluminium/copper cable lugs and connectors are required, for example, for connecting to distributor networks or transformer stations and also for network reconstruction.

- Aluminium/copper compression cable lugs with DIN dimensions for copper palm or copper lug to 300 mm.
- connectors to DIN from 10 mm² to 300 mm².



The perfect solutions for transitions from aluminium to copper conductors and vice versa.



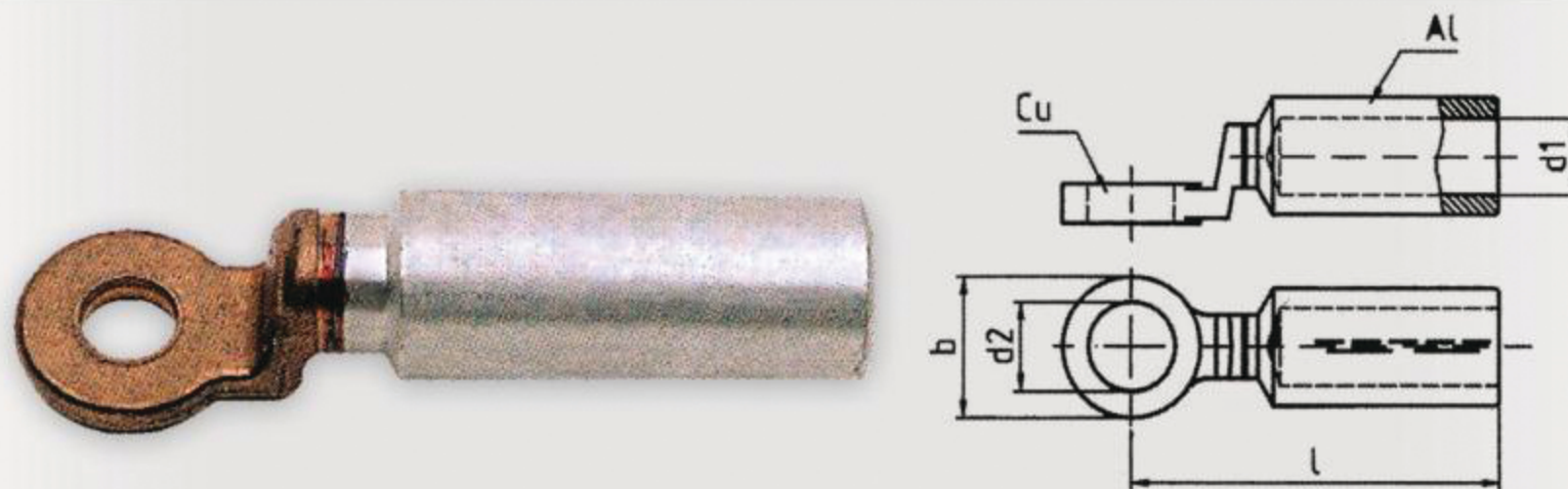


Connecting aluminium and copper correctly.

- ▶ Aluminium/copper compression cable lugs for standards aluminium conductors to DIN 48201 and pre-rounded sector shaped conductors with a nominal cross section of up to 400 mm².
- ▶ With copper palm.
- ▶ Aluminium/copper compression joints with nominal cross sections of 10 mm² to 300 mm².

Benefits:

- ▶ Aluminium and copper conductors can be connected in a dry environment, **without destructive oxidation occurring between the two materials.**



Compression cable lugs , AL/CU 16-300 mm²

- For screwing aluminium connections using copper washers
- For pre-rounded sector shaped conductors



Characteristics

- Barrier with solid copper screw - on palm
- tube dimension to DIN 46329

Material

- Al
- copper with 99/9% purity (TPC)

Surface

- bright

Cross section mm ²		Size of bolt	code	Dimension mm				Number of crimps	
rm/sm	se			d1	d2	b	l	mech.	hydr.
16	25	M8	12	6.0	8.5	25	67.5	4	2
	25	M10	12	6.0	10.5	25	67.5	4	2
25	35	M8	12	6.8	8.5	25	67.5	4	2
	35	M10	12	6.8	10.5	25	67.5	4	2
	35	M12	12	6.8	13.0	25	67.5	4	2
35	50	M8	14	8.0	8.5	25	76.5	5	2
	50	M10	14	8.0	10.5	25	76.5	5	2
	50	M12	14	8.0	13.0	25	76.5	5	2
50	70	M8	16	9.8	8.5	25	76.5	5	2
	70	M10	16	9.8	10.5	25	76.5	5	2
	70	M12	16	9.8	13.0	25	76.5	5	2
70	95	M10	18	11.2	10.5	25	84.5	6	3
	95	M12	18	11.2	13.0	25	84.5	6	3
95	120	M10	22	13.2	10.5	30	90.5	6	3
	120	M12	22	13.2	13.0	30	90.5	6	3
	120	M16	22	13.2	17.0	30	90.5	6	3
120	150	M12	22	14.7	13.0	30	92.0	6	3
	150	M16	22	14.7	17.0	30	92.0	6	3
150	185	M12	25	16.3	13.0	30	104.0	6	3
	185	M16	25	16.3	17.0	30	104.0	6	3
	185	M20	25	16.3	21.0	30	107.5	6	3
185	240	M10	28	18.3	10.5	30	105.0	6	3
	240	M12	28	18.3	13.0	30	105.0	6	3
	240	M16	28	18.3	17.0	30	105.0	6	3
	240	M20	28	18.3	21.0	35	107.5	6	3
240	300	M10	32	21.0	10.5	35	118.5	6	3
	300	M12	32	21.0	13.0	35	118.5	8	3
	300	M16	32	21.0	17.0	35	118.5	8	3
	300	M20	32	21.0	21.0	35	118.5	8	3
300	--	M12	34	23.3	13.0	40	123.5	8	3
	--	M16	34	23.3	17.0	40	123.5	8	3
	--	M20	34	23.3	21.0	40	123.5	8	3



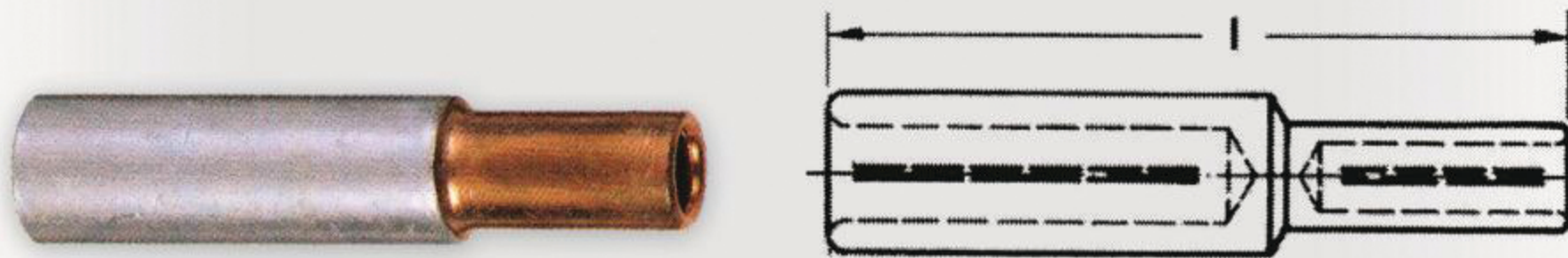
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BIMETAL CONNECTORS

CHAPTER 17 - BIMETAL CONNECTORS



Compression joints, Al/Cu 10 – 300 mm²

■ For connecting non-tension aluminium and copper connections.



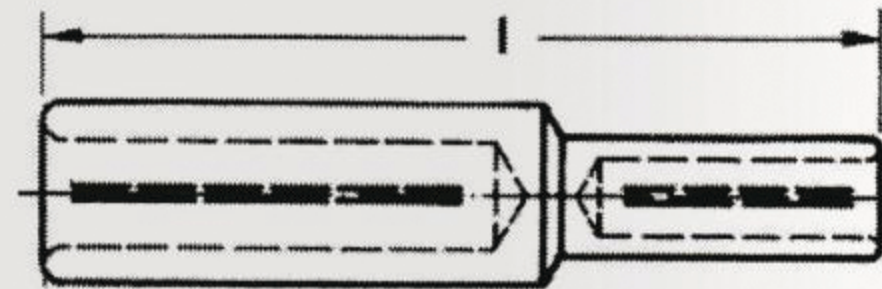
Material:

- Al
- copper with 99/9% purity (TPC)

Surface:

- bright

Nominal cross section mm ²			code		Dimensions mm		
Al		Cu	Al	Cu	Al	Cu	l
rm/sm	se	rm/sm					
10	16	10	10	6	5.0	4.5	55.0
	16	16	10	8	5.0	5.4	61.0
16	25	10	12	6	6.0	4.5	55.0
	25	16	12	8	6.0	5.4	61.0
25	35	10	12	6	6.8	4.5	55.0
	35	16	12	8	6.8	5.5	61.0
	35	25	12	10	6.8	17	61.0
	35	35	12	12	6.8	8.2	61.0
	35	50	12	14	6.8	10.0	72.0
25/4	35 re	16	12	8	7.6	5.5	61.0
	35 re	25	12	10	7.6	7.0	61.0
35	50	16	14	8	8.0	5.5	71.0
	50	25	14	10	8.0	7.0	71.0
	50	35	14	12	8.0	8.2	71.0
	50	50	14	14	8.0	10.0	77.0
35/6	50 re	16	14	8	9.0	5.5	71.0
	50 re	25	14	10	9.0	7.0	71.0
	50 re	35	14	12	9.0	8.2	71.0
50	70	16	16	8	9.8	5.5	71.5
	70	25	16	10	9.8	7.0	71.5
	70	35	16	12	9.8	8.2	71.5
	70	50	16	14	9.8	10.0	77.5
70	95	16	18	8	11.2	5.5	79.0
	95	25	18	10	11.2	7.0	79.0
	95	35	18	12	11.2	8.2	79.0
	95	50	18	14	11.2	10.0	85.0
	95	70	18	16	11.2	11.5	86.0
	95	95	18	18	11.2	13.5	95.0
	95	120	18	20	11.2	15.5	99.0



Compression joints, Al/Cu 10 – 300 mm² **CE**

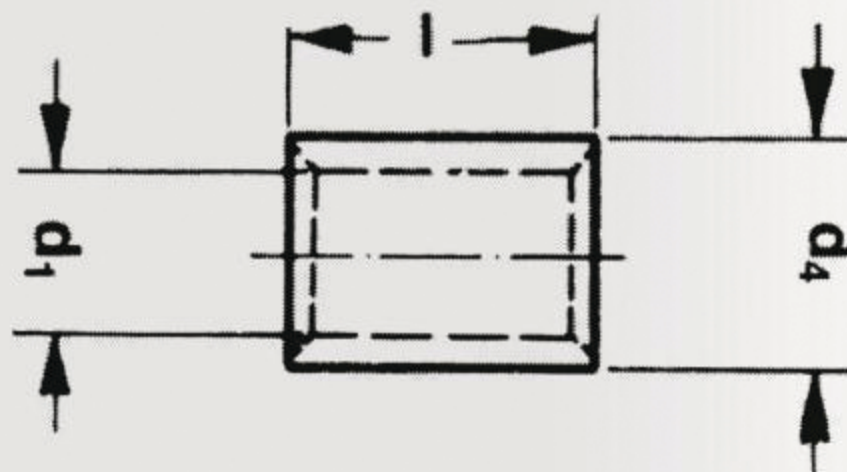
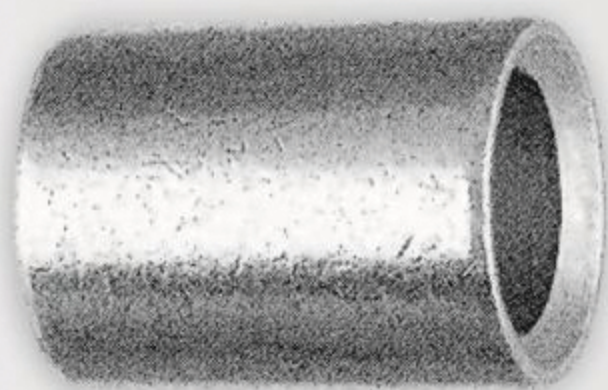
Nominal cross section mm ²			code		Dimensions mm		
Al		Cu	Al	Cu	Al	Cu	l
rm/sm	se	rm/sm					
95	120	16	22	8	13.2	5.5	79.0
	120	25	22	10	13.2	7.0	79.0
	120	35	22	12	13.2	8.2	79.0
	120	50	22	14	13.2	10.0	85.0
	120	70	22	16	13.2	11.5	87.0
	120	95	22	18	13.2	13.5	95.0
	120	120	22	20	13.2	15.5	95.0
120	150	35	22	12	14.7	8.2	81.0
	150	50	22	14	14.7	10.0	87.0
	150	70	22	16	14.7	11.5	89.0
	150	95	22	18	14.7	13.5	97.0
	150	120	22	20	14.7	15.5	97.0
150	185	16	25	8	16.3	5.4	91.5
	185	25	25	10	16.3	6.8	91.5
	185	35	25	12	16.3	8.2	91.5
	185	50	25	14	16.3	10.0	98.5
	182	70	25	16	16.3	11.5	99.5
	185	95	25	18	16.3	13.5	107.5
	185	120	25	20	16.3	15.5	107.5
	185	150	25	22	16.3	17.0	124.0
185	240	50	28	14	18.3	10.0	99.0
	240	70	28	16	18.3	11.5	100.0
	240	95	28	18	18.3	13.5	108.0
	240	120	28	20	18.3	15.5	108.0
	240	150	28	22	18.3	17.0	113.0
	240	185	28	25	18.3	19.0	116.0
240	300	50	32	14	21.0	10.0	110.0
	300	70	32	16	21.0	11.5	111.0
	300	95	32	18	21.0	13.5	119.0
	300	120	32	20	21.0	15.5	119.0
	300	150	32	22	21.0	17.0	124.0
	300	185	32	25	21.0	19.0	127.0
	300	240	32	28	21.0	21.5	128.0
300	--	120	34	20	23.5	15.5	119.0
	--	150	34	22	23.5	17.0	124.0
	--	185	34	25	23.5	19.0	127.0
	--	240	34	28	23.5	21.5	128.0
	--	300	34	32	23.5	24.5	134.0

Klaute[®]

ELECTRICAL CONNECTION PRODUCER



CHAPTER 18 - SHORT CONNECTORS



Short connector to DIN, copper, 4 – 150 mm² **CE**

- For connecting different conductor cross- sections
- Short standard type

Characteristics

- according to DIN 46341

Material

- copper with 99/9% purity (TPC)

Surface

- Tin plated

Cross section mm ²	Nominal size to DIN	Dimensions mm		
		d1	d4	l
4 – 6	6	3.6	5.6	9
10	10	4.5	6.7	10
16	16	5.8	8.2	11
25	25	7.5	10.5	14
35	35	9.0	12.2	16
50	50	11.0	14.6	19
70	70	13.0	17.0	19
95	95	15.0	20.0	20
120	120	16.5	22.5	22
150	150	19.0	25.4	26

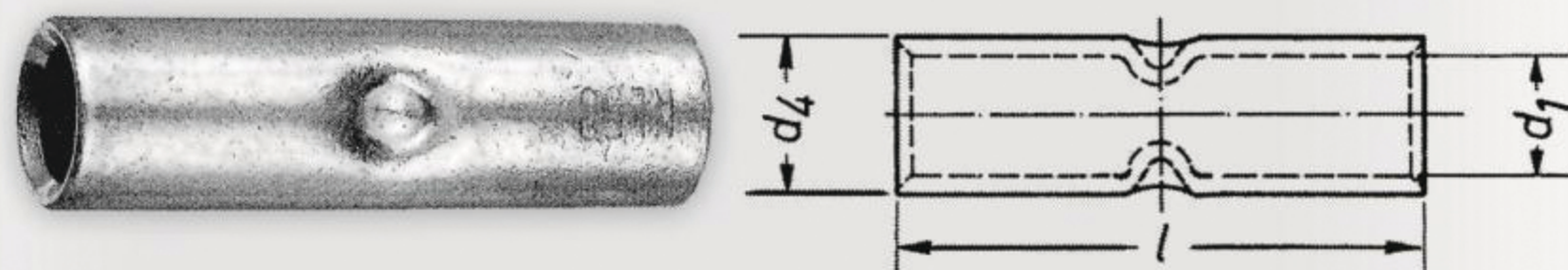
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ELECTRICAL CONNECTION PRODUCER



CONNECTOR WITH BARRIER

CHAPTER 19 - CONNECTOR WITH BARRIER



connector to DIN, copper, 4 – 150 mm² CE

- With buttmarks for precies cable insertion

Characteristics

- according to DIN 46341
- long standard type

Material

- copper with 99/9% purity (TPC)

Surface

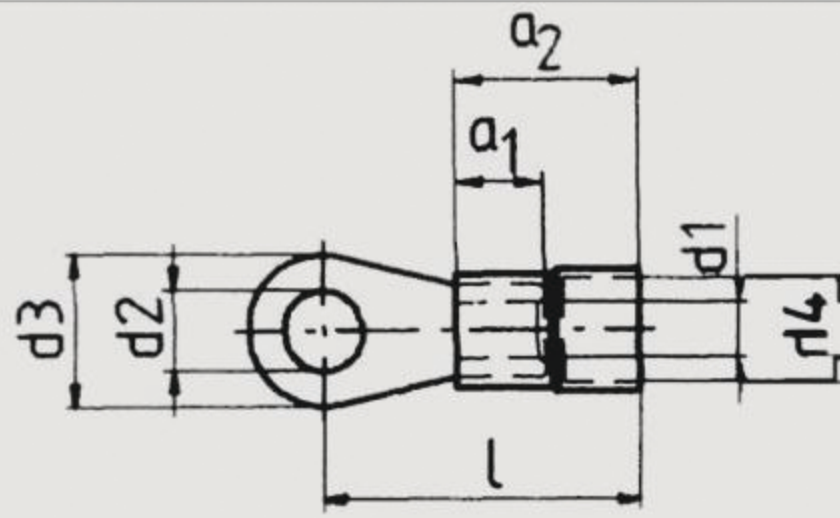
- Tin plated

Cross section mm ²	Nominal sizt to DIN	Dimensions mm		
		d1	d4	l
4 – 6	6	3.6	5.6	15
10	10	4.5	6.7	21
16	16	5.8	8.2	26
25	25	7.5	10.5	29
35	35	9.0	12.2	32
50	50	11.0	14.6	38
70	70	13.0	17.0	42
95	95	15.0	20.0	48
120	120	16.5	22.5	52
150	150	19.0	25.4	56

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CHAPTER 20 - NEXT PRODUCTS







Terminals DIN 46237

Material

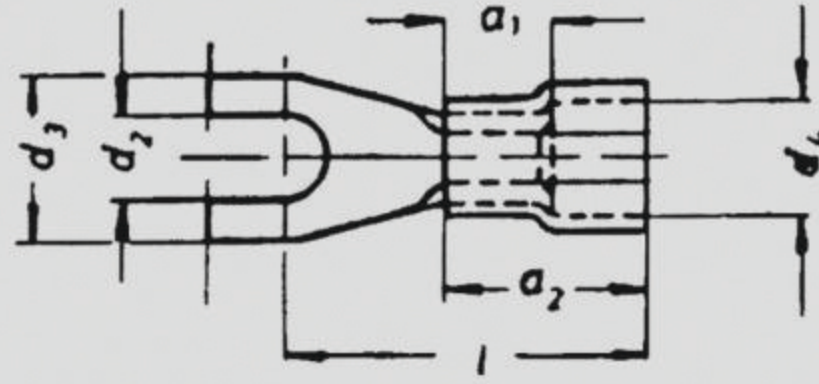
- copper with 99/9% purity (TPC)

Insulation Sleeve :

- PA , free of halide
- temperature resistant up to 105 °C

Conductor mm ²	Nominal Size DIN	Part No.	Dimensions mm								Tools	100pcs ~kg	pcs
			d ₁	d ₂	d ₃	d ₄	l	a ₁	a ₂	s			
 0.1-0.4		619/2*	1	2.3	5	2.2	14	-	-	0.5	Chart Page	0.020	100
		619/2.5*		2.6	5								
		619/3*		3.3	5								
		619/3.5*		3.8	6.5								
		619/4*		4.4	7								
		619/5*		5.4	8								
 0.5-1	2.5-1	620/2.5	1.6	2.8	6	4.5	16.5	5	10.5	0.8		0.060	100
	3.5-1	620/3		3.2	6								
	3.5-1	620/3.5		3.7	6								
	4.5-1	620/4		4.3	8								
	5-1	620/5*		5.3	10								
		620/6*		6.5	11								
		620/8*		8.4	14								
		620/10*		10.5	18								
 1.5-2.5	3.5-2.5	630/3	2.3	3.2	6	5.1	17.5	5	11.5	0.8		0.065	100
	3.5-2.5	630/3.5		3.7	6								
	4.5-2.5	630/4		4.3	8								
	5.5-2.5	630/5		5.3	10								
	6.5-2.5	630/6		6.5	11								
	8.5-2.5	630/8*		8.4	14								
		630/10*		10.5	18								
 4-6	4.5-6	650/4	3.6	4.3	8	6.4	20.5	6	12.5	1		0.140	100
	5.5-6	650/5		5.3	10								
	6.5-6	650/6		6.5	11								
	8.5-6	650/8		8.4	14								
	10.5-6	650/10		10.5	18								

* Not standardized







Terminals DIN 46237

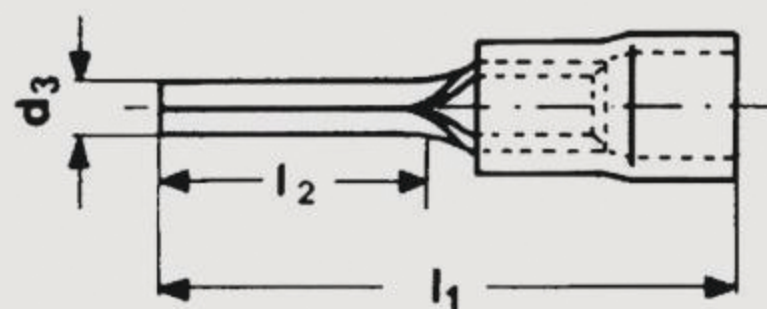
Material

- copper with 99/9% purity (TPC)

Insulation Sleeve :

- temperature resistant up to 105°C

Conductor mm ²	Nominal Size DIN	Part No.	Dimensions mm								Tools	100pcs ~kg	pcs	
			d ₁	d ₂	d ₃	d ₄	l	a ₁	a ₂	s				
0.1-0.4		619C/3*	-	3.2	5	-	14	-	-	0.5	Chart Page 7.16	0.020	100	
0.5-1	3.5-1	620C/3	1.6	3.2	6	4.5	16.5	5	10.5	0.8		0.060	100	
	3.5-1	620C/3.5		3.7	6.8		17.5					0.060		
	4.5-1	620C/4		4.3	6.8		17.5					0.070		
	5.5-1	620C/5		5.3	10		18.5				0.090			
		620/6		6.5	11		20.5				0.080			
1.5-2.5	3.5-2.5	630C/3	2.3	3.2	6	5.1	17.5	5	11.5	0.8	0.060	100		
	3.5-2.5	630C/3.5		3.7	6.8		18.5				0.065			
	4.5-2.5	630C/4		4.3	6.8		18.5				0.080			
	5.5-2.5	630C/5		5.3	10		20.5				0.090			
	6.5-2.5	630C/6		6.5	11		22.5				0.110			
4-6	4.5-6	650C/4	3.6	4.3	8	6.4	20.5	6	12.5	1	0.140	100		
	5.5-6	650C/5		5.3	10		21.5				0.160			
	6.5-6	650C/6		6.5	11		22.5				0.170			
	8.5-6	650C/8		8.4	14		25.5				0.220			
	10.5-6	650C/10		10.5	18		27.5				0.280			



PIN Connector DIN 46231

Material

- copper with 99/9% purity (TPC)

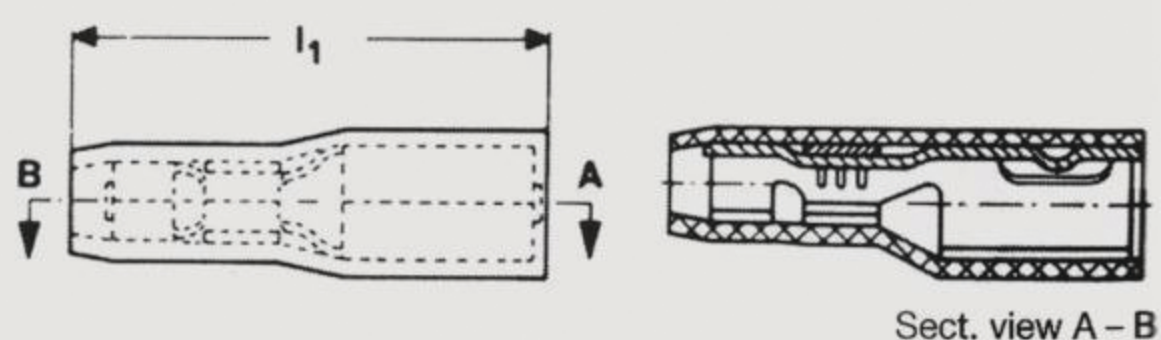
Insulation Sleeve :

- temperature resistant up to 105°C

Conductor mm ²	Nominal Size DIN	Part No.	Dimensions mm							Tools	pcs ~kg	pcs
			d ₃	d ₄	l ₁	l ₂	a ₁	a ₂	s			
0.1-0.4	0.5	704	1.4	-	18	9	-	-	0.5	Chart Page 7.16	0.020	100
0.5-1	1	705K [*] 705	1.9	3.2	18 22	6 10	5	10.5	0.8		0.060 0.065	100
1.5-2.5	2.5	710K [*] 710 710L [*]	1.9	3.9	19.5 23 27.5	6.5 10 16	5	11.5	0.8		0.060 0.065 0.100	100
4.6	6	715	2.9	5.6	26	11	6	12.5	1		0.160	100

^{*} Not standardized





PIN Connections

Material : Cu,Sn,Zn,tin plated



Conductor mm ²	Part No.	Pin Ø	Dimensions mm		Tools	100pcs ~kg	pcs
			l ₁	S			
0.5-1	920	4	22	0.35	Chart Page	0.060	100
1.5-2.5	930	5	22	0.38		0.120	100
4-6	950	5	22	0.38		0.125	100

Material : Cu,Sn,Zn,tin plated



Conductor mm ²	Part No.	Pin Ø	Dimensions mm		Tools	100pcs ~kg	pcs
			l ₁	S			
0.5-1	920V	4	24	0.38	Chart Page	0.065	100
1.5-2.5	930V	5	24	0.38		0.130	100
4-6	950V	5	27	0.40		0.150	100

Material : Cu,Sn,Zn,tin plated

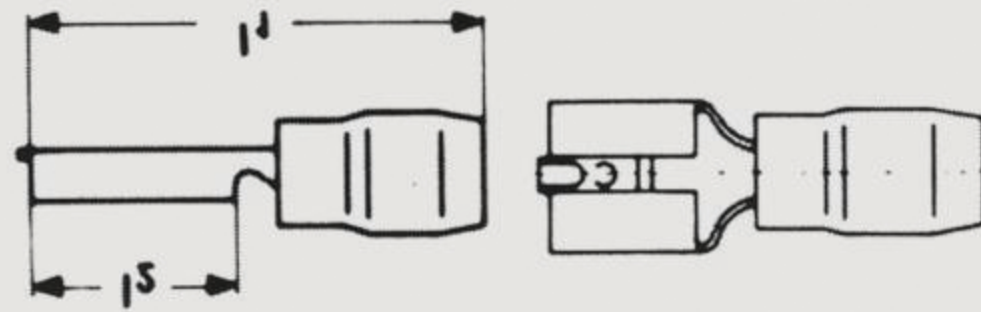


Conductor mm ²	Part No.	Pin Ø	Dimensions mm			Tools	100pcs ~kg	pcs
			l ₁		S			
0.5-1	1020	4	22	9	0.38	Chart Page	0.060	100
1.5-2.5	1030	5	22	9	0.38		0.075	100
4-6	1050	5	22	9	0.40		0.110	100

Material : Cu,Sn,Zn,tin plated



Conductor mm ²	Part No.	Pin Ø	Dimensions mm			Tools	100pcs ~kg	pcs
			l ₁		S			
0.5-1	1020V	4	25	11	0.38	Chart Page	0.065	100
1.5-2.5	1030V	5	25	11	0.38		0.080	100
4-6	1050V	5	27	13	0.40		0.120	100



Receptacles DIN 46245

Material

- Cu, Zn, tin plated

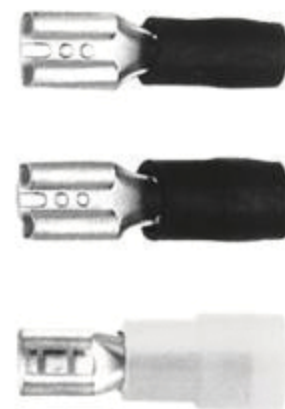
Insulation Sleeve :

- PVC/PA, free of halide

Conductor mm ²	Nominal Size DIN	Part No.	Tab Thickn.	Tab Width	Dimensions mm			Ins. Mat.	Tools	100pcs ~kg	pcs
					l ₁	l ₂	S				
0.5-1		820/1	0.5	2.8	17.5	8	0.3	PVC	Chart Page 9.01	0.035	100
		820/1 A	0.8	2.8	17.5	8	0.3	PVC		0.045	
1.5-2.5		830/1	0.5	2.8	18.0	8	0.35	PA		0.050	100
		830/1 A	0.8	2.8	18.0	8	0.35	PA		0.060	



0.5-1	4.8-1	820/2	0.5	4.8	18	6	0.35	PVC	Chart Page 9.01	0.065	100
		820/3	0.8	4.8	18	6	0.35	PVC		0.065	
1.5-2.5	4.8-2.5	830/2	0.5	4.8	18	6	0.35	PVC		0.070	100
		830/3	0.8	4.8	18	6	0.35	PVC		0.070	
4-6		850/3	0.8	4.8	23	7.5	0.45	PA		0.138	100

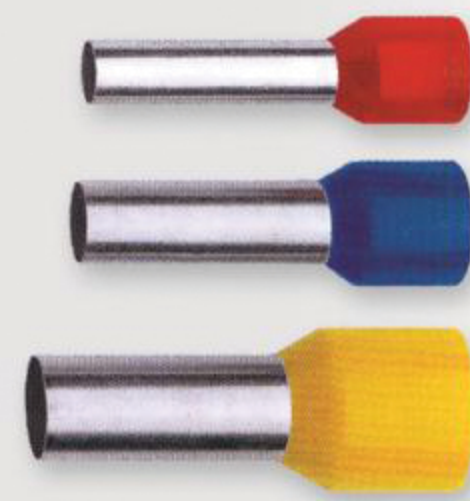
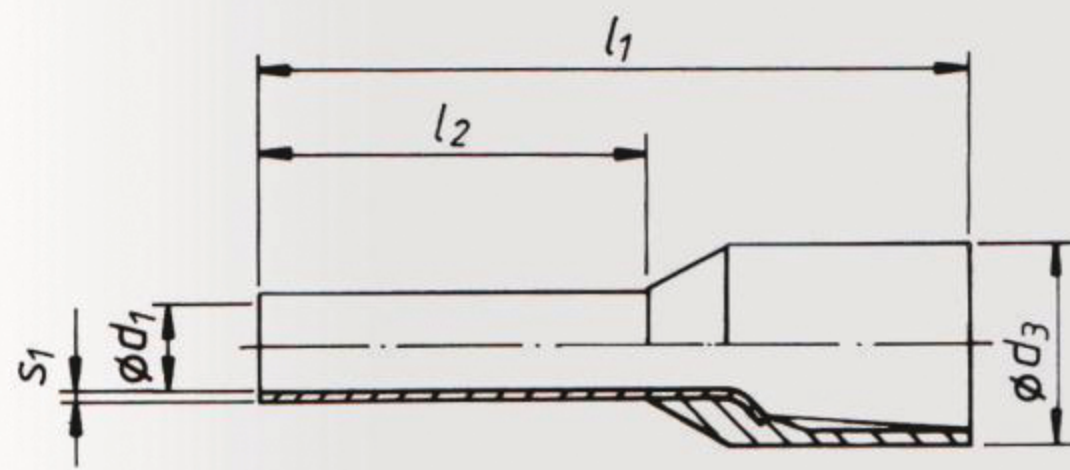


0.5-1	6.3-1	720	0.8	6.3	22	7.5	0.45	PVC	Chart Page 9.01	0.090	100
1.5-2.5	6.3-2.5	730	0.8	6.3	21	7.4	0.45	PVC		0.090	100
4-6	6.3-6	750	0.8	6.3	21	7.5	0.45	PVC		0.100	100



0.5-1		720/8	0.8	7.7	25	9.5	0.4	PVC	Chart Page 9.01	0.110	100
1.5-2.5		730/8	0.8	7.7	25	9.5	0.45	PVC		0.115	100
4-6		750/9	1.2	9.5	26.5	12	0.45	PVC		0.150	100



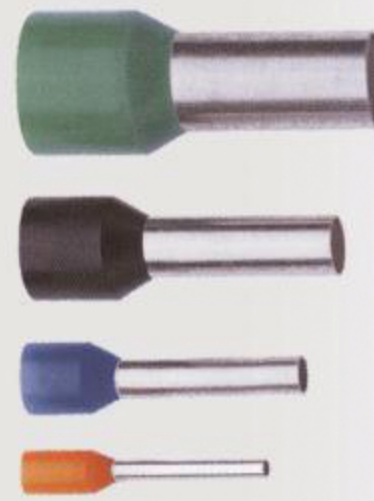
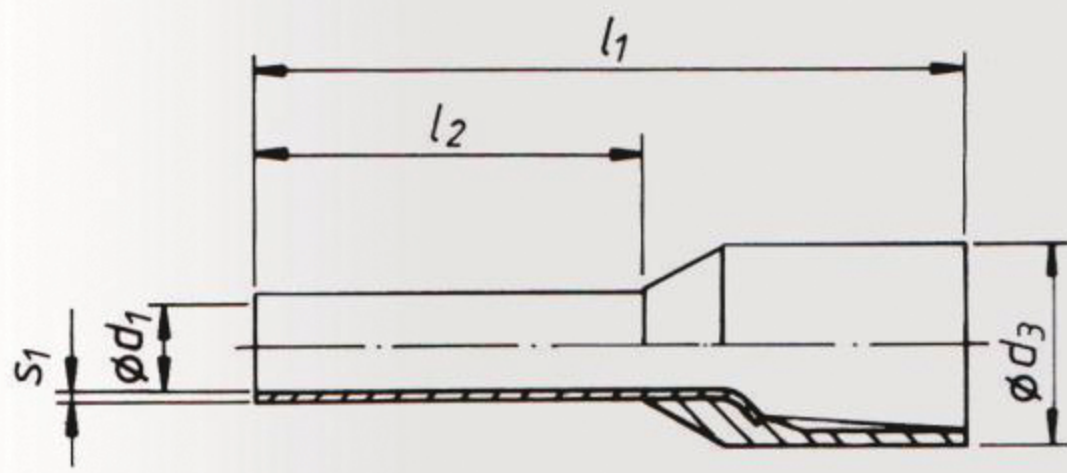


Cable end-sleeves DIN 46228, part 4

Material: copper

Surface: tin plated

Cross section mm ²	Part No.	Colour	Dimensions mm					Weight/ 1000 PCS. kg	PCS.
			d1	d2	l1	l2	S1		
0.5	*4696	□	1.0	3.1	12	6	0.15	0.070	1000
	4698	□	1.0	3.1	14	8	0.15	0.070	1000
	GR4698	□	1.0	3.1	14	8	0.15	0.070	500
	46910	□	1.0	3.1	16	10	0.15	0.085	1000
0.75	4706	■	1.2	3.3	12	6	0.15	0.080	1000
	4708	■	1.2	3.3	14	8	0.15	0.080	1000
	GR4708	■	1.2	3.3	14	8	0.15	0.080	500
	47010	■	1.2	3.3	16	10	0.15	0.100	1000
	47012	■	1.2	3.3	18	12	0.15	0.105	1000
1	4716	■	1.4	3.5	12	6	0.15	0.090	1000
	4718	■	1.4	3.5	14	8	0.15	0.100	1000
	GR4718	■	1.4	3.5	14	8	0.15	0.100	500
	47110	■	1.4	3.5	16	10	0.15	0.120	1000
	47112	■	1.4	3.5	18	12	0.15	0.125	1000
1.5	4726	■	1.7	4	12	6	0.15	0.105	1000
	4728	■	1.7	4	14	8	0.15	0.110	1000
	GR4728	■	1.7	4	14	8	0.15	0.110	500
	47210	■	1.7	4	16	10	0.15	0.130	1000
	47212	■	1.7	4	18	12	0.15	0.150	1000
	47218	■	1.7	4	24	18	0.15	0.190	1000
2.5	4738	■	2.2	4.7	14	8	0.15	0.150	1000
	GR4738	■	2.2	4.7	14	8	0.15	0.150	500
	47312	■	2.2	4.7	18	12	0.15	0.200	1000
	47318	■	2.2	4.7	24	18	0.15	0.250	1000
4	47410	■	2.8	5.4	17	10	0.20	0.210	100
	47412	■	2.8	5.4	20	12	0.20	0.250	100
	47418	■	2.8	5.4	26	18	0.20	0.320	100
6	47512	■	3.5	6.9	20	12	0.20	0.350	100
	47518	■	3.5	6.9	26	18	0.20	0.460	100
10	47612	■	4.5	8.4	22	12	0.20	0.450	100
	47618	■	4.5	8.4	28	18	0.20	0.650	100
16	47712	■	5.8	9.6	24	12	0.20	0.650	100
	47718	■	5.8	9.6	28	18	0.20	0.800	100
25	47816	■	7.3	12.0	30	16	0.20	1.600	50
	47818	■	7.3	12.0	32	18	0.20	1.700	50
	47822	■	7.3	12.0	36	22	0.20	2.000	50
35	47916	■	8.3	13.5	30	16	0.20	1.900	50
	47918	■	8.3	13.5	32	18	0.20	2.100	50
	47925	■	8.3	13.5	39	25	0.20	2.500	50
50	48020	■	10.3	16.0	36	20	0.30	3.300	50
	48025	■	10.3	16.0	40	25	0.30	3.600	50
70	*48121	■	13.5	17.2	37	21	0.40	4.620	25
95	*48225	■	14.7	19.2	44	25	0.40	6.000	25
120	*48327	■	16.7	21.4	48	27	0.45	7.850	25
150	*48432	■	19.5	25.0	58	32	0.50	12.330	25



Cable end-sleeves dimensions DIN 46228



Material: copper

Surface: tin plated

Cross section mm ²	Part No.	Colour	Dimensions mm					Weight/ 1000 PCS. kg	PCS.
			d1	d2	l1	l2	S1		
0.14	166GR	■	0.7	2.3	10.4	6	0.12	0.035	1000
	166G	■	0.7	2.3	12.4	8	0.12	0.040	1000
0.25	167H	■	0.8	2.3	10.4	6	0.15	0.045	1000
	167HL	■	0.8	2.3	12.4	8	0.15	0.050	1000
0.34	168T	■	0.8	2.5	10.4	6	0.15	0.045	1000
	168TL	■	0.8	2.5	12.4	8	0.15	0.050	1000
0.5	1690K	■	1.0	3.0	12.0	6	0.15	0.070	1000
	1690	■	1.0	3.0	14.0	8	0.15	0.070	1000
	GR1690	■	1.0	3.0	14.0	8	0.15	0.070	500
	1690H	■	1.0	3.0	16.0	10	0.15	0.085	1000
0.75	170WK	□	1.2	3.2	12.4	6	0.15	0.080	1000
	170W	□	1.2	3.2	14.6	8	0.15	0.080	1000
	GR170W	□	1.2	3.2	14.6	8	0.15	0.080	500
	170WH	□	1.2	3.2	16.4	10	0.15	0.100	1000
	170WK	□	1.2	3.2	18.4	12	0.15	0.105	1000
1	171GK	■	1.4	3.5	12.4	6	0.15	0.090	1000
	171G	■	1.4	3.5	14.6	8	0.15	0.100	1000
	GR171G	■	1.4	3.5	14.6	8	0.15	0.100	500
	171GH	■	1.4	3.5	16.4	10	0.15	0.120	1000
	171GL	■	1.4	3.5	18.4	12	0.15	0.125	1000
1.5	172RK	■	1.7	4.0	12	6	0.15	0.105	1000
	172RO	■	1.7	4.0	14.6	8	0.15	0.110	1000
	GR172RO	■	1.7	4.0	14.6	8	0.15	0.110	500
	172RH	■	1.7	4.0	16.4	10	0.15	0.130	1000
	172RM	■	1.7	4.0	18.4	12	0.15	0.140	1000
	172RL	■	1.7	4.0	24.4	18	0.15	0.190	1000
2.5	173B	■	2.3	4.9	15.2	8	0.15	0.150	1000
	GR173B	■	2.3	4.9	15.2	8	0.15	0.150	500
	173BH	■	2.3	4.9	19.0	12	0.15	0.200	1000
	173BL	■	2.3	4.9	25.0	18	0.15	0.250	1000
4	174GR	■	2.9	5.5	16.5	10	0.15	0.210	100
	174GRH	■	2.9	5.5	19.5	12	0.15	0.250	100
	174GRL	■	2.9	5.5	25.5	18	0.15	0.320	100
6	175S	■	3.5	6.3	20.0	12	0.20	0.350	100
	175SL	■	3.5	6.3	26.0	18	0.20	0.460	100
10	176E	■	4.5	8	21.5	12	0.20	0.450	100
	176EL	■	4.5	8	27.5	18	0.20	0.650	100
16	177GR	■	5.8	9.6	22.2	12	0.20	0.650	100
	177GRL	■	5.8	9.6	28.2	18	0.20	0.800	100
25	178BR	■	7.3	12.1	29.0	16	0.20	1.600	50
	178BRL	■	7.3	12.1	35.0	22	0.20	2.000	50
35	179B	■	8.3	13.6	30.0	16	0.20	1.900	50
	179BL	■	8.3	13.6	39.0	25	0.20	2.500	50
50	1800	■	10.3	16.4	36.4	20	0.35	3.300	50
	1800L	■	10.3	16.4	41.4	25	0.35	4.000	50



CHAPTER 21 - TECHNICAL APPENDIX

Selection of length and cable cross section and cable lugs

KW	A	S m/m														
		1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240
2.5	5	190	325	510	745											
3	6	166	270	420	620											
3.5	7	155	230	365	540	895										
4	8	120	200	320	476	785										
4.5	9	105	185	285	420	700										
5	10	96	165	255	375	630	970									
6	12	79	135	210	315	325	870									
7	14	68	115	190	270	455	700									
8	16	60	105	160	240	400	670	940								
9	18	51	92	145	215	355	550	850								
10	19		84	130	190	320	500	780							J M	
12	23		69	110	160	265	425	640	880							
14	27			94	140	230	355	550	760					J M		
16	31			81	120	220	315	465	655	960						
18	35				110	180	280	430	580	770			J M			
20	38				98	160	255	390	520	690						
25	48					130	205	315	420	555	760 M					
30	57						170	260	355	465 M	610	840				
35	67						145	225	300	400	550	730				
40	76							195	260 M	350	480	640	745			
45	86							175	235	310	430	565	670	770		
50	96							160	215	285	365	510	600	695		
60	114							J M	180	235	320	420	500	580	616	
70	133			حد گرما			J M			200	275	365	430	495	580	
80	152						J M				240	345	375	428	510	
90	171										215	280	335	385	445	
100	190				J M							250	300	350	405	
120	228			J M									250	250	340	



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