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Industrial Excellence.
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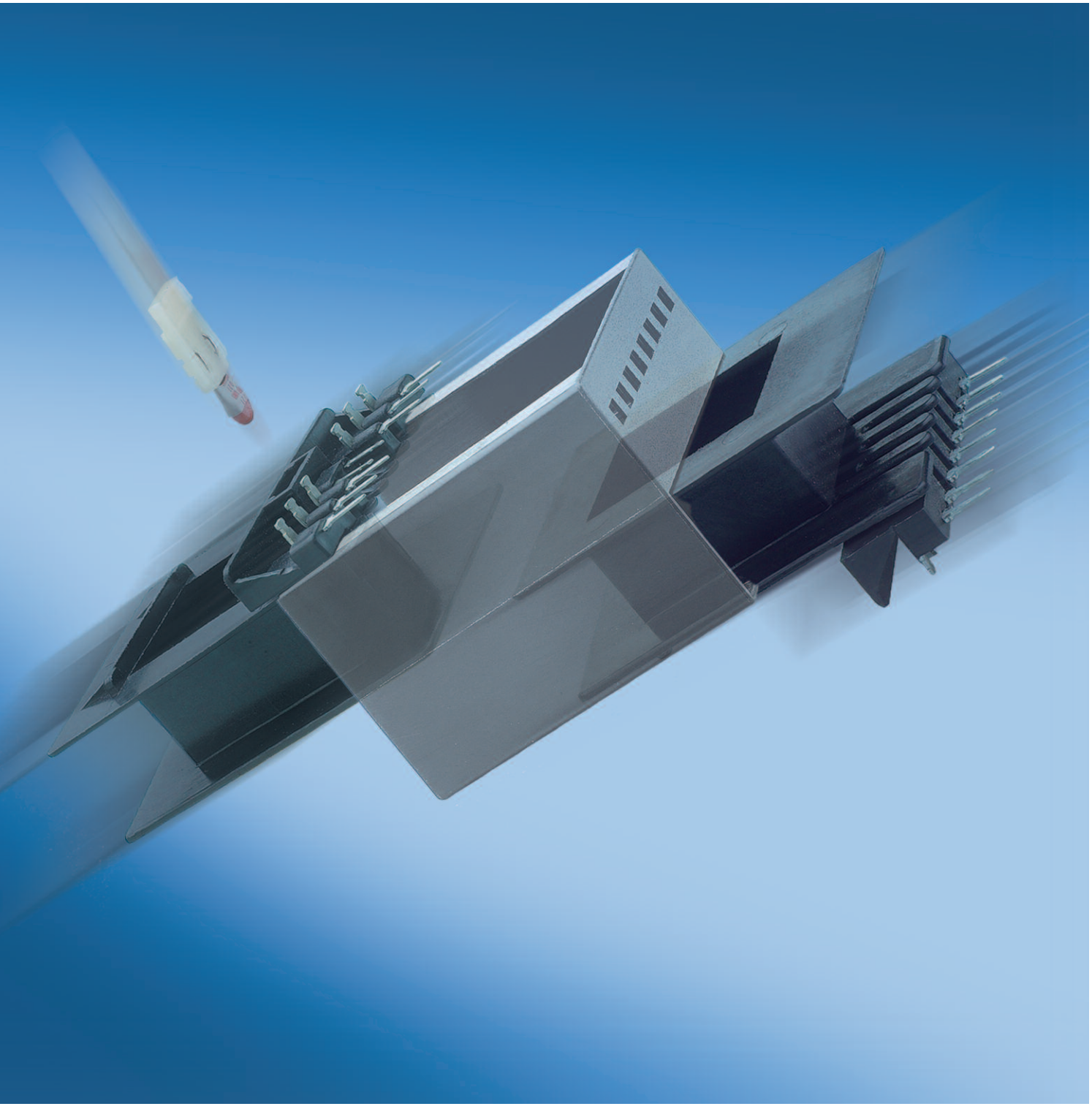
NORWE®

Components for power transformers of the Safety Class Series M-EI-UI

Product-details already now available on our website



This catalogue contains information on our product range of the M-EI-UI-Series (safety class coilformers for laminations)

The safety class coilformer series is characterized by extreme flexibility in the individual grouping of the components. Individual standard components can be combined with each other as required to give your own special customized model.

Three different designs, optimized to suit the fields of application, guarantee compliance with the requirements of the relevant standards by observing required insulation distances.

In principle, in all three designs the primary and secondary areas can be wound in separate working steps, an advantage as regards economic installation and planning. Different connection systems and optimized accessories such as thermoclips make for easier and more rational processing.

Our extensive range of modular tooling allows almost unlimited constructional changes to meet customers specification, often by simple changes of tool inserts. In addition the modular tooling system allows extremely short tooling times and can be very cost effective.

Fully tagged or pinned coilformers are – in small quantities – usually available from stock. We can also quote for coilformers with pins or tags fitted to your requirements. All lead-times are relatively short.

All dimensions in mm/inch. The permissible deviations according to DIN 16901 apply as tolerances. We are also available to discuss basic questions you may have concerning the use of safety class components, or answer questions related to ordering. Also, please contact us if there are questions relating to the information in this catalogue.

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All dimensions in mm/inch

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Warranties:
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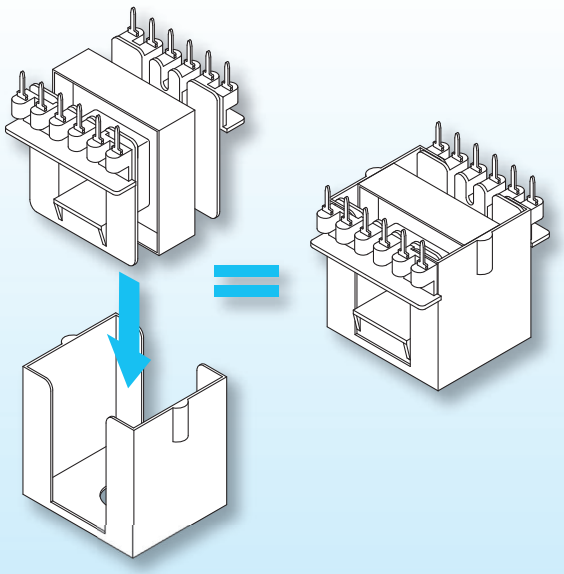
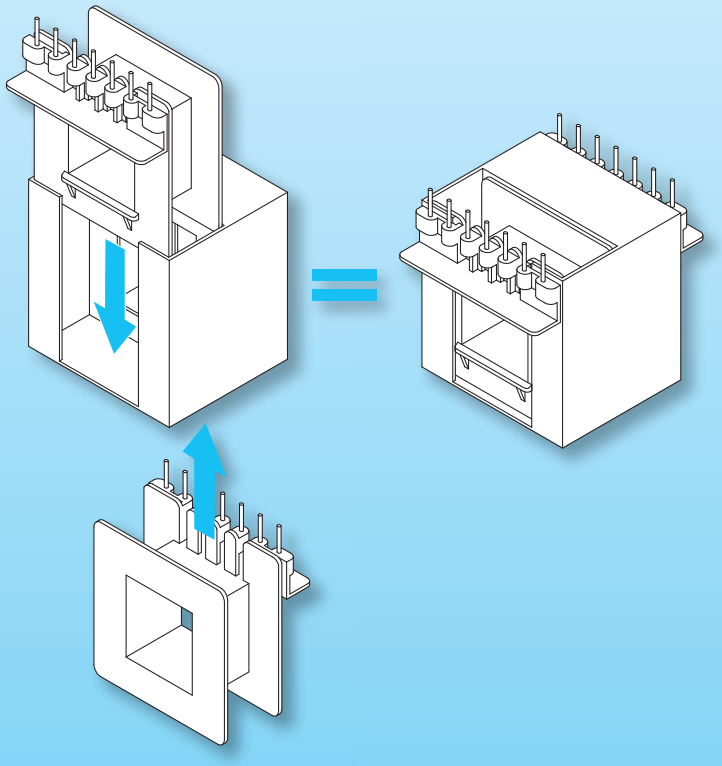


Design A (xyi)
This classical design (type xyi) features optimized coilformer halves for flexible design of the primary and secondary windings. A suitable insulating frame provides the required creepage and clearance distances between the windings. The fitting housing shields the complete coil from contact with current-carrying parts while allowing easy impregnation of the coilformer. Instead of providing the primary winding with a temperature fuse, as an alternative a thermoclip can be inserted at site later and replaced when required. Special designs (e.g. asymmetrical partitioning of winding space) can be readily implemented to meet customers´ requirements.

Design B (xyd)
This design (type xyd) with its simple 3-part construction provides an ideal basis for standard built-on accessories, resulting in reduced purchasing, installation and storage costs. The housing alone provides the required creepage and clearance distances. No additional frame is needed. As an alternative to a conventional temperature fuse, a thermoclip can be inserted, even after winding and soldering of the primary winding, and replaced when required.



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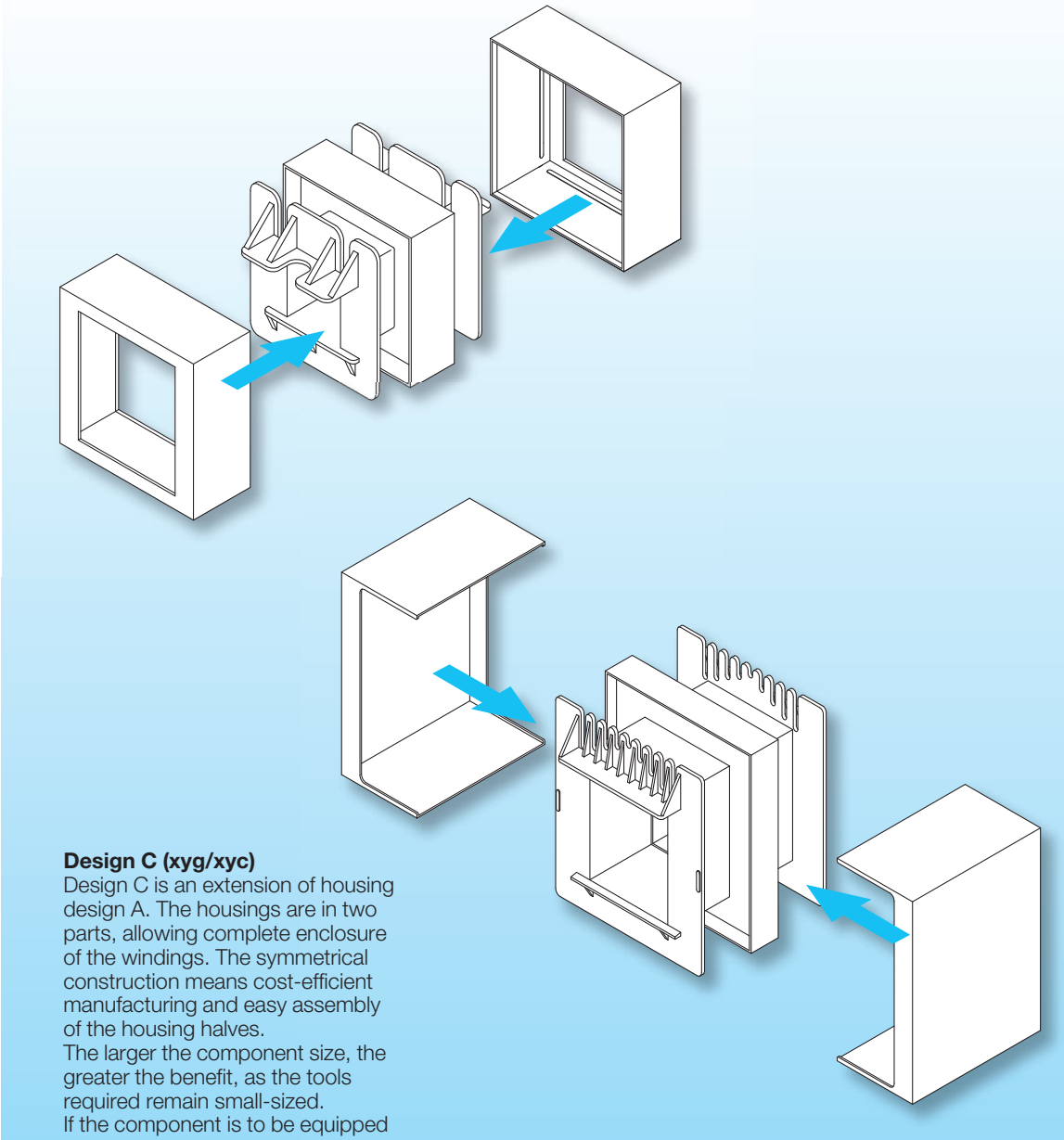

Design C (xyg/xyc)
Design C is an extension of housing design A. The housings are in two parts, allowing complete enclosure of the windings. The symmetrical construction means cost-efficient manufacturing and easy assembly of the housing halves.
The larger the component size, the greater the benefit, as the tools required remain small-sized.
If the component is to be equipped with a temperature fuse, a thermo-clip can perform this function. Inserted later than the primary winding, it can be easily replaced at any time.
Special designs (e.g. asymmetrical partitioning of the winding space) can be readily implemented to meet customers' requirements.

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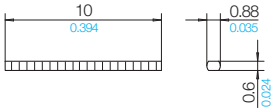
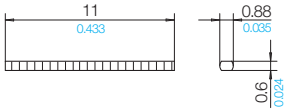
Solder-pins and Solder-tags used for M-EI-UI Coilformers

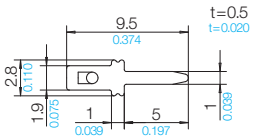
The solder-pins and solder-tags matched to the coilformers are listed below. The material used is tin bronze, tinned (solder-pins) or brass, tinned (solder-tags). Further standard types are listed in our catalogue “Stamped and Pressed Components for Electronic Applications”. (Special materials and designs on request, dimensions in mm/inch).



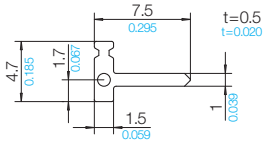
Solder-pin: z810/ua (73296-212)



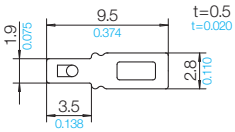
Solder-pin: z811/ua (73297-212)



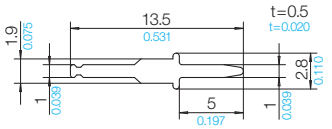
Solder-tag: g2s/wd (71040-261)



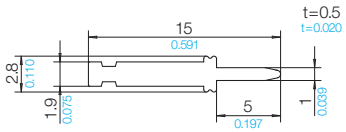
Solder-tag: wga/wd (75200-261)



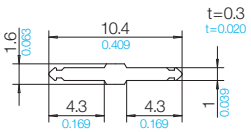
Solder-tag: g2t/wb (71010-257)



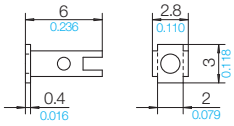
Solder-tag: g2x/wc (71210-259)



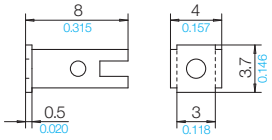
Solder-tag: g2c/wc (71070-259)



Solder-tag: s11/wc (75315-259)



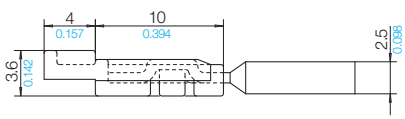
Solder-tag: k2/wb (72000-257)

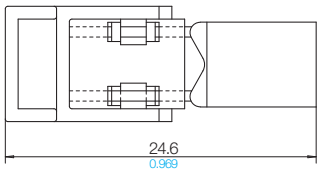


Solder-tag: k3/wb (72020-257)

NORWE thermoclip used for M-EI-UI Coilformers with plug-in thermofuses

The soldering of a temperature fuse into a wound transformer can be problematic as the generated heat can destroy the fuse. The NORWE thermoclip allows the fitting of a temperature fuse into a compartment in the coilformer, but without soldering. Plug in and ready. The safety requirement for a temperature fuse is to open the circuit only once when the running temperature of the transformer exceeds the rated level. After repairing the fault condition, a new temperature fuse must be fitted.
We deliver the NORWE thermoclip with temperature fuse matching your individual production requirements and will be quite prepared to quote on request. Please note that the minimum order quantity is 5.000 pieces.





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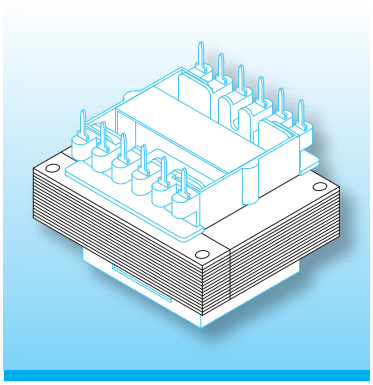
Laminations

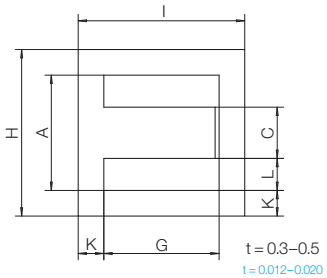
The table below shows the sizes of some more common laminations for the M, EJ and UJ-coilformer range, with dimensions in mm/inch.
The data given may assist when designing a specific transformer.



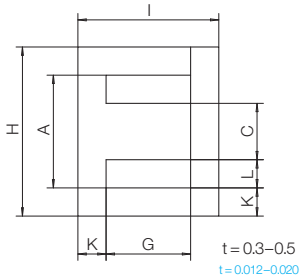
However, exact details such as dimensions and electrical data must be obtained from lamination manufacturers.

Type	A	C	G	H	I	K	L
M 42	30.0 / 1.181	12.0 / 0.472	30.0 / 1.181	42.0 / 1.654	42.0 / 1.654	6.0 / 0.236	9.0 / 0.354
M 55	38.0 / 1.496	17.0 / 0.669	38.0 / 1.496	55.0 / 2.165	55.0 / 2.165	8.5 / 0.335	10.5 / 0.413
M 65	45.0 / 1.772	20.0 / 0.787	45.0 / 1.772	65.0 / 2.559	65.0 / 2.559	10.0 / 0.394	12.5 / 0.492
M 74	51.0 / 2.008	23.0 / 0.906	51.0 / 2.008	74.0 / 2.913	74.0 / 2.913	11.5 / 0.453	14.0 / 0.551
M 85	56.0 / 2.205	29.0 / 1.142	56.0 / 2.205	85.0 / 3.346	85.0 / 3.346	14.5 / 0.571	13.5 / 0.531
M 102	68.0 / 2.677	34.0 / 1.339	68.0 / 2.677	102.0 / 4.016	102.0 / 4.016	17.0 / 0.669	17.0 / 0.669
EJ 38	25.6 / 1.008	12.8 / 0.504	19.2 / 0.756	38.4 / 1.512	32.0 / 1.260	6.4 / 0.252	6.4 / 0.252
EJ 42	28.0 / 1.102	14.0 / 0.551	21.0 / 0.827	42.0 / 1.654	35.0 / 1.378	7.0 / 0.276	7.0 / 0.276
EJ 48	32.0 / 1.260	16.0 / 0.630	24.0 / 0.945	48.0 / 1.890	40.0 / 1.575	8.0 / 0.315	8.0 / 0.315
EJ 54	36.0 / 1.417	18.0 / 0.709	27.0 / 1.063	54.0 / 2.126	45.0 / 1.772	9.0 / 0.354	9.0 / 0.354
EJ 60	40.0 / 1.575	20.0 / 0.787	30.0 / 1.181	60.0 / 2.362	50.0 / 1.969	10.0 / 0.394	10.0 / 0.394
EJ 66	44.0 / 1.732	22.0 / 0.866	33.0 / 1.299	66.0 / 2.598	55.0 / 2.165	11.0 / 0.433	11.0 / 0.433
EJ 78	52.0 / 2.047	26.0 / 1.024	39.0 / 1.535	78.0 / 3.071	65.0 / 2.559	13.0 / 0.512	13.0 / 0.512
EJ 84	56.0 / 2.205	28.0 / 1.102	42.0 / 1.654	84.0 / 3.307	70.0 / 2.756	14.0 / 0.551	14.0 / 0.551
EJ 96	64.0 / 2.520	32.0 / 1.260	48.0 / 1.890	96.0 / 3.780	80.0 / 3.150	16.0 / 0.630	16.0 / 0.630
UJ 48	16.0 / 0.630	– / –	48.0 / 1.890	85.0 / 3.346	80.0 / 3.150	16.0 / 0.630	16.0 / 0.630

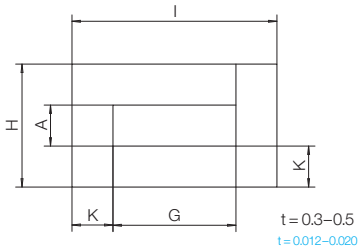
M



EI



UI



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Thermoplastic Materials

The following survey contains supplementary information on the different thermoplastic-qualities.
The material quality orientates to the conventional use of the components. For technical reasons alternative materials cannot be used for all articles.
Consult our qualified specialists regarding your individual material requests – we will be pleased to check whether your material requirements can be realized.
Further information on the materials can also be obtained from our homepage (e.g. to call up the UL cards).

NORWE Mat.-Code	NORWE Mat.-Description	Chemical Symbol	Tradename, Manufacturer	UL-File-No.	Flammability Rating acc. UL 94	RTI Elec acc. UL
009	p6g nat.	PA66 Polyamide 66	AKV30H nature Durethan Lanxess AG	E 245249	HB (0.75)	+125°C
017	x2g5	PA66 Polyamide 66	A3X2G5 Ultramid BASF AG	E 41871	V-0 (0.81)	+120°C
024	p6g	PA66 Polyamide 66	PA66 30% GF black Compound	–	–	(+125°C)
039	A3X2G5 sv.	PA66 Polyamide 66	A3X2G5 cross-linked Ultramid BASF AG	–	–	(+120°C)
181	A3X2G10	PA66 Polyamide 66	A3X2G10 Ultramid BASF AG	E 41871	V-0 (1.50)	+115°C
243	Zen.6130L, black	LCP Liquid Crystal Polymer	6130L black Zenite TICONA	E 344082	V-0 (0.38)	+240°C
417	x2g5/m25	PA66 Polyamide 66	A3X2G5 Ultramid BASF AG	E 41871	V-0 (0.81)	+120°C

Explanations on the above survey of materials:

NORWE Mat.-Code . . . . . designates the number NORWE fixed for the material.

NORWE Mat.-Description . . . . . names the NORWE-abbreviation for the material.

Chemical Symbol . . . . . classifies the chemical product group of the material.

Tradename . . . . . designates the product name or trade name fixed by the manufacturer.

Manufacturer . . . . . name of manufacturer.

UL-File-No. . . . . material quality tested and certified with respect to safety and fflammability. The manufacturers of certified and approved products receive a so-called recognition card (yellow card) in which the product qualities are listed in detail. You find all relevant yellow cards – also called UL cards – for different material qualities on our website www.norwe.de or can obtain them from us. You can call up all relevant yellow cards – also called UL cards – for different material qualities just by clicking on the respective UL-file-number.

Flammability Rating acc. UL . . . . determines the flammability of plastic materials based on burning tests in accordance with UL 94 considering the wall thickness of the material.

RTI (Elec.) . . . . . Relative Temperature Index according to UL 746 B. The specified temperatures are valid vor long-range electrical load (Elec).

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Irradiation Cross-Linking of M-EI-UI Components

NORWE cannot only look back on more than 40 years of experience in the development and production of coilformers but has in the meantime also gained almost 10 years of experience in irradiation cross-linking.

All components of the M-EI-UI-series can on request be supplied in cross-linked material. A cross-linking enhancing material is added to the thermoplast granulates. After moulding the components are irradiated with Beta- or Gamma rays – depending on the penetration required.
The material loses its thermoplast characteristics (but it is not a thermoset) and withstands very high temperature peeks for short periods without any problems.

- Depending on the degree of cross-linking the coilformers and accessories withstand solder temperatures of 450–480° C for about 1–3 seconds. Irradiated cross-linked components easily tolerate the higher solder temperatures required due to the contact elements being changed to be leadfree.

- Unlike high temperature polymers – also cost-effective granulates are suitable for irradiation cross-linking. The characteristic features of the coilformers and accessories do not change due to the cross-linking.

- In contrast to high temperature polymers lower temperatures of material and mould during the production process are required and thus the tool elements are less stressed resulting in longevity.
The lower temperature profiles during the moulding process provide a lower wear and tear of the tool elements as well as a perceptible saving of energy costs.

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- material database with UL-cards

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- problem solutions orientated to industries' demands

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www.carcasses.info

Current certifications
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- UL 746 D
- EN ISO 14001:2005
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