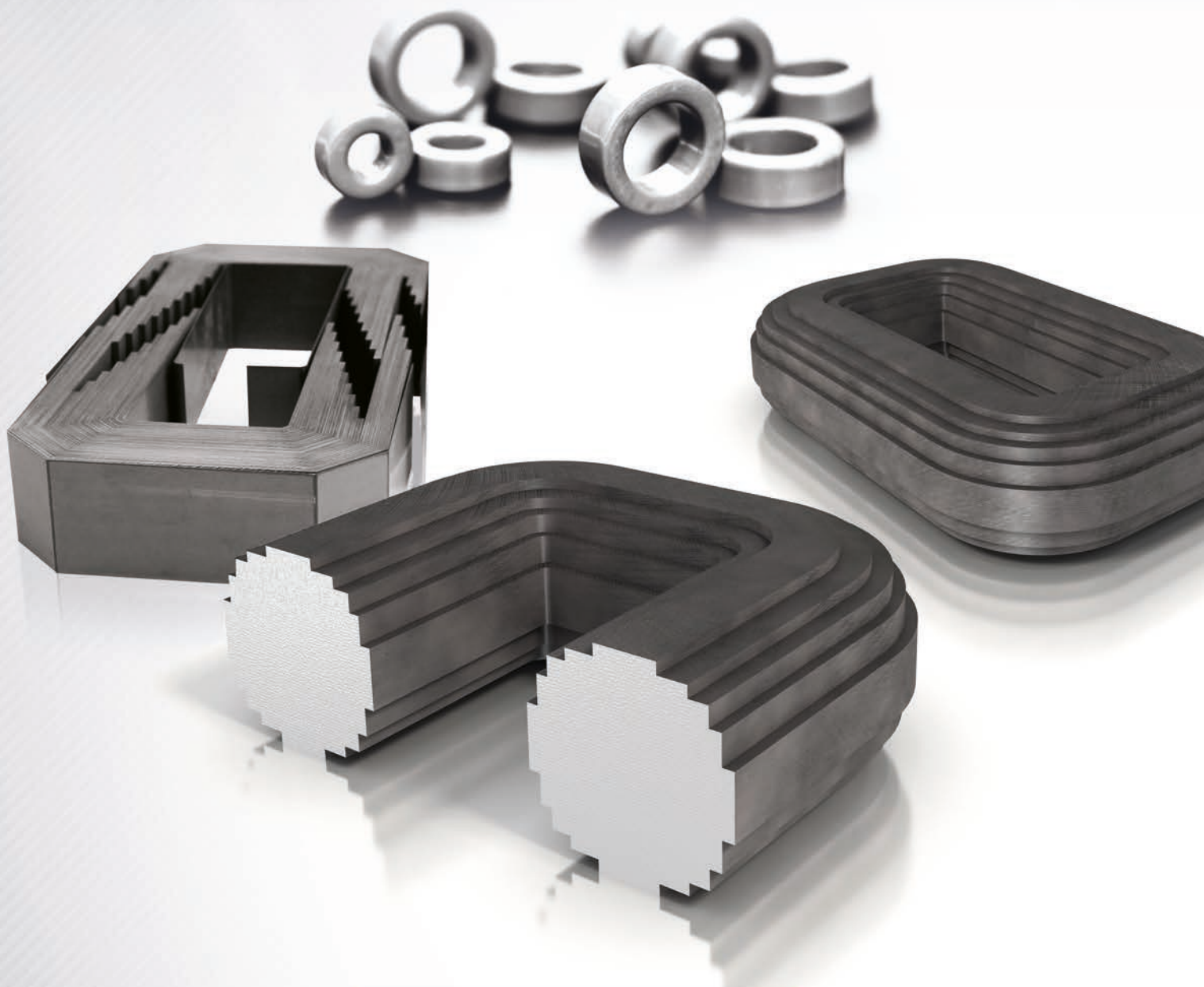


CATALOG

WOUND MAGNETIC CORES
PRODUCED BY



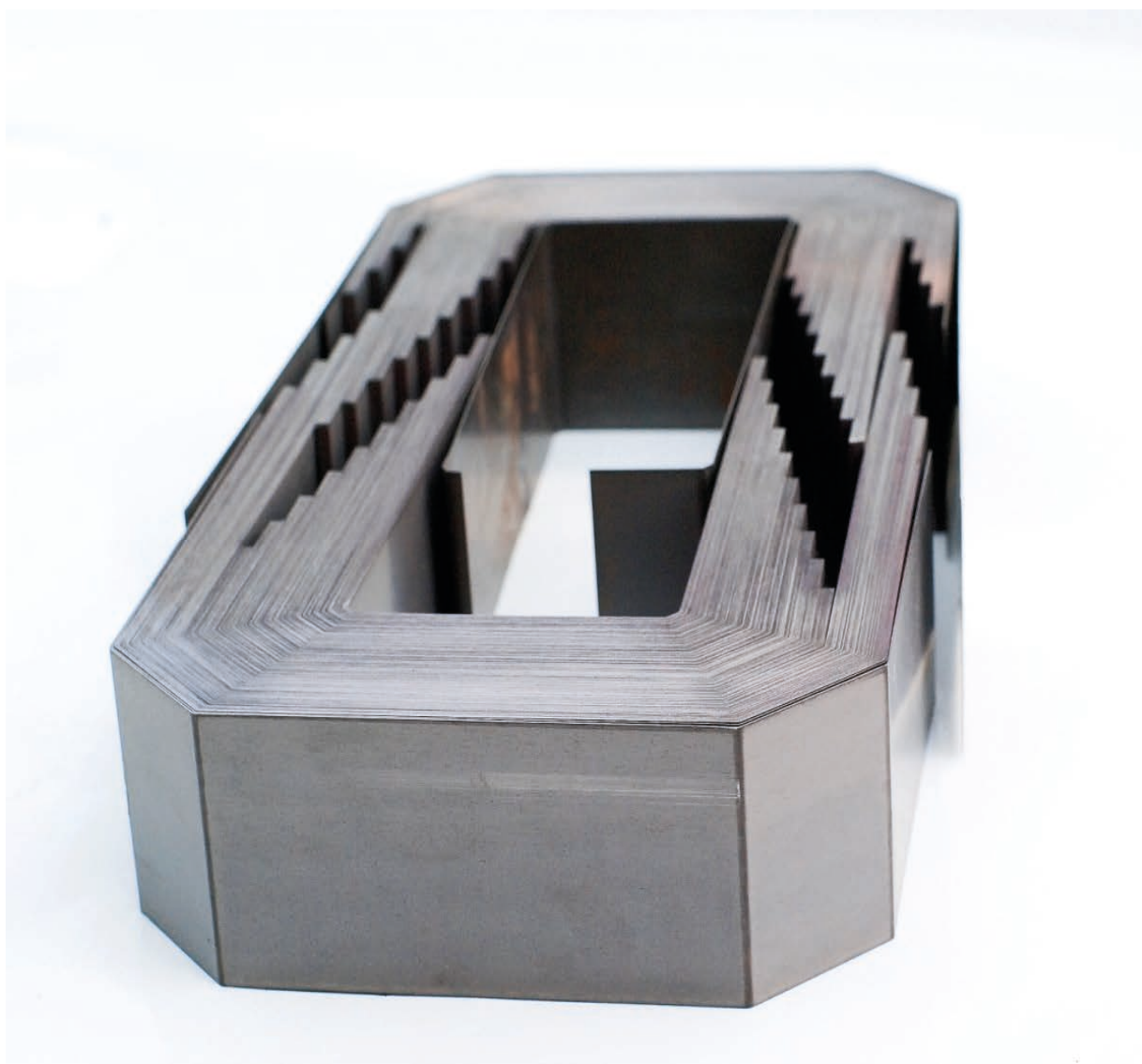
www.thermafz.cz



Dear customers,

Therma FM, Ltd. is a Czech producer of wound magnetic cores intended for construction of electrical machines.

We would like to introduce you our new catalogue, which is designed to help you use our products as effectively as possible.





C E R T I F I C A T E

I.T.I. – Integrovaná technická inspekce spol. s r.o.

Accredited Certification Body No. 3116
certifies that

THERMA FM, s.r.o.

Pržno 235, Frýdlant nad Ostravicí

has established and applies a quality system for

Manufacturing of magnetic circuits, pressing of steel
scrap, metal-working, sales (business activities).

Audit Report No. 114/15/7.2 - SJ

Proof has been furnished that the requirements according to

ISO 9001:2008

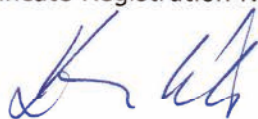
are fulfilled.



Original Approval: 31 October 2006

The certificate is valid until: 31 October 2018

Certificate Registration No. 087/06/SJ



Ing. František Kozubík
Manager of Certification Body

Prague, 30 October 2015





History of Therma FM, Ltd.

Therma FM, Ltd. was established as a production and trading company in the field of electrical steel and metallurgical material in 1998.

Our current activities:

- production of wound magnetic cores
- trading with electrical steel, CRGO and CRNGO
- slitting of electrical steel, CRGO and CRNGO
- trading with nanocrystalline wound core
- metal scrap processing, packeting, balling

In 2004 Therma FM, Ltd. moved to the production site in Pržno near Frýdlant nad Ostravicí, which provides sufficient production space capacity 4000 m² for the company's further development in all mentioned fields of our activities.

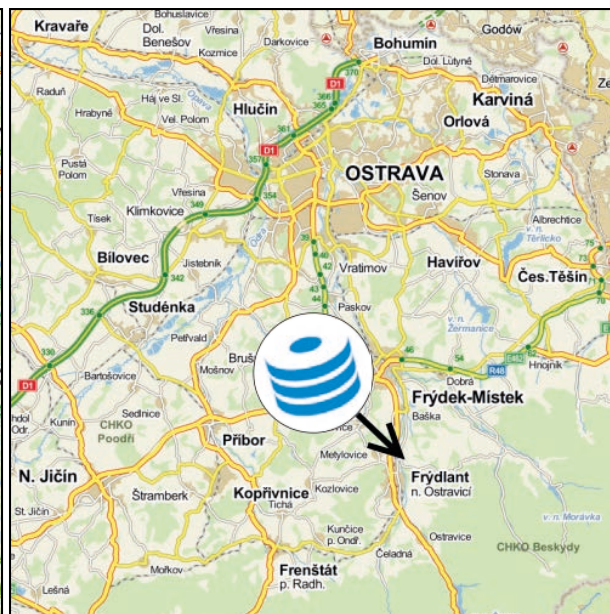
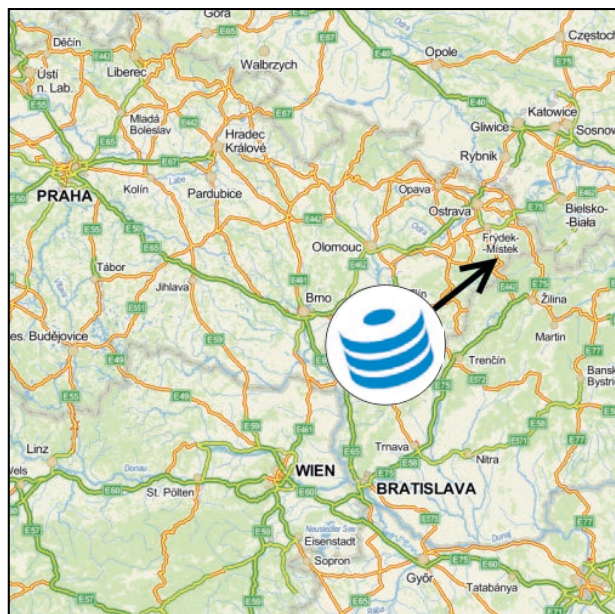


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WOUND MAGNETIC CORES

Cores of magnetic circuits are one of the most important component for the production of electric machines and their quality determines the parameters of the final product.

We offer the following types of magnetic cores

- Toroidal cores
- Wound divided cores
- Electrical steel - lamination
- Unicore
- Nanocrystalline cores

The use of magnetic circuits

Magnetic circuits produced by our company are used for construction of:

- network transformers
- measuring transformers
- safety transformers
- instrument transformers
- power transformers
- output transformers
- potential transformers
- pulse transformers
- special transformers
- single-phase and three-phase distributive transformers
- single-phase and three-phase chokes
- convertors
- inductors
- impulse transformers etc.



TOROIDAL CORES

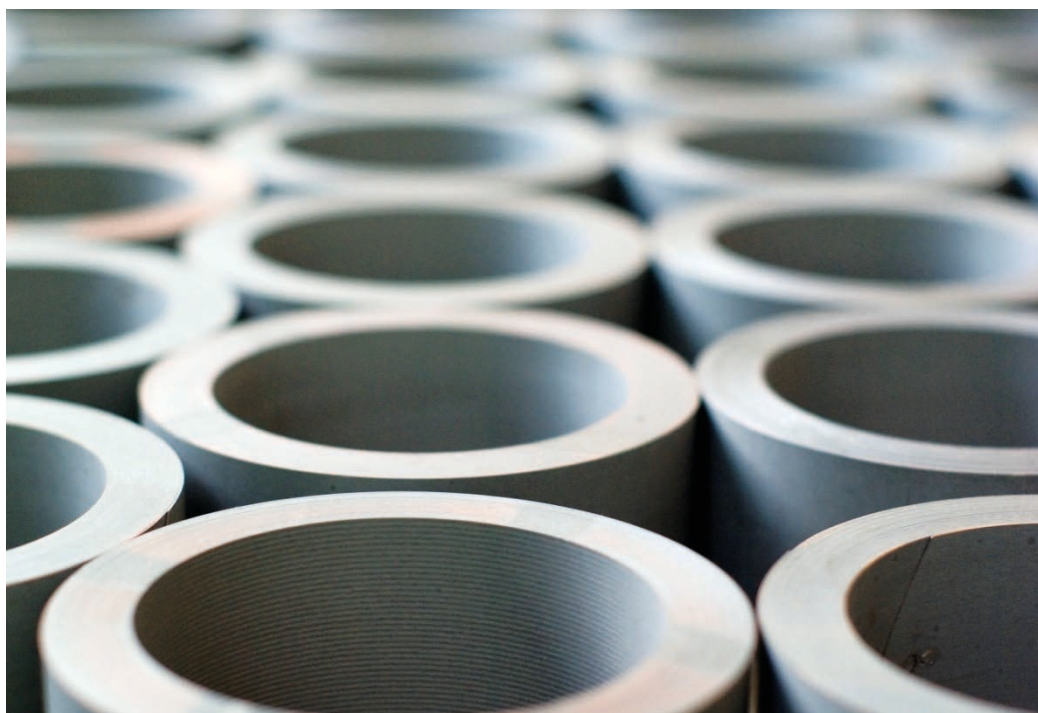
Therma FM, Ltd. manufactures wound toroidal cores in three main groups:

- Toroidal cores in miniature dimensions
- Toroidal cores in standard dimensions
- Toroidal cores in large dimensions

Toroidal cores are used for the manufacture of toroidal transformers, whose advantages in comparison with stacked cores:

- very low core losses
- smaller dimension and lower weights (approx. 35 ÷ 50 %)
- lower brum
- lower warming
- time-saving during installation

Toroidal cores made of grain-oriented electrical steel are intended primarily for power transformers, measuring current transformers chokes and other variable ratio of transformers. They are also suitable for autotransformers, translocators, filters and current sensors. Compared to transformers assembled from EI or UI laminations, toroidal cores have significantly lower losses and can be more saturated up to 1,8 T. Another advantage is a low magnetizing current – at saturation 1.5 T is 3 to 5 times lower than for EI lamination.





Higher frequency

For applications at higher frequencies 400 ÷ 20 000 Hz, we offer cores made from electrical steel with thinner thicknesses, 0,20 mm - 0,18 mm - 0,15 mm – 0,10 mm.

Design FIX

If it is required, cores are delivered in design FIX, which means that a double layer of hardened epoxy-polyester enamel is applied on the toroidal surface. This enamel creates continuous layer 0,30 – 0,40 mm on the surface.

Quality control

We provide 100% incoming quality control of electrical steel and 100% final quality control of all manufactured cores.

The control system is based on the following main points:

- Selection of electrical steel, which is based on its magnetic and mechanical quality
- Dimensional control for winding cores
- Thermal process control
- 100% final quality control ensures dimension accuracy and guarantees, that the limits of magnetic values are met
- Packaging control

Packing

For low-weight deliveries up to 30 kg, cores are packed in cardboard boxes. Larger deliveries are packed in wooden boxes fixed on EURO pallets to prevent the cores from movements or collisions. Transport is done by parcel pallet service.



Toroidal Cores in miniature dimensions



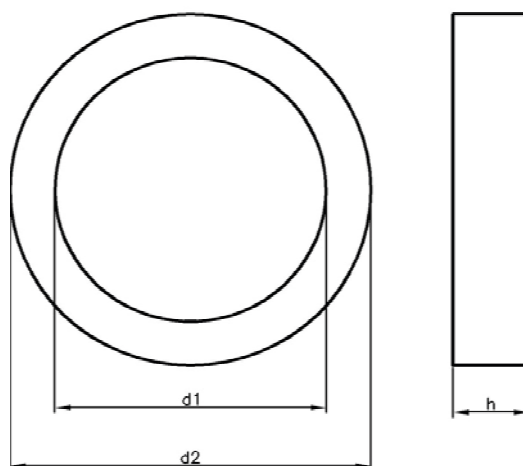
We produce toroidal cores min. height 5 mm, min. inner diameter 7 mm. For the actual production, oriented materials in the following thickness 0,30 mm – 0,27 mm – 0,23 mm – 0,15 mm – 0,10 mm, are available, which guarantee the finished cores requirements mentioned below:

- Relatively high initial permeability that allows to reach a small size of the toroidal core
- Small current losses (due to the use of low sheet thickness, high specific resistance)
- Small core losses

In the manufacturing process, such operations are included that prevent the creation of short circuits in the final core.

Samples of typical dimensions for miniature toroidal core

Dimensions in mm without Isolation				
d2	d1	h	Is (mm)	Weight (kg)
14	7	6	33,0	0,005
17	10	5	42,4	0,006
16	10	8	40,8	0,007
19	11	10	47,1	0,014
22	12	8	53,4	0,016
23	13	8	56,5	0,017
24	15	8	61,3	0,016
28	18	8	72,3	0,016
24	12	8	56,5	0,020
25	15	10	62,8	0,023



TOROIDAL CORES IN STANDARD DIMENSION

We deliver toroidal cores in various dimensions and degrees of material quality.

- The cores are made from grain-oriented steel of thickness 0,35 – 0,30 – 0,27 – 0,23 – 0,15 mm.
- According to a specially developed technology, we manufacture toroidal cores for measuring current transformers which guarantee the accuracy class in the range of 0,2 % – 1.5 % for finished transformers.
- Divided toroidal cores with precisely defined airgaps for transformers and chokes.
- Specially shaped cores for measuring current transformers.



We can produce and deliver them as:

- not impregnated
- lightly impregnated with polyurethan varnish
- fully impregnated with epoxypolyurethan enamel, Type FIX

The ratio between the height and the outer diameter of the toroidal core should not exceed 2.5 in order to reach the best possible magnetic properties in the finished core.

d1 (mm)		d2 (mm)		h
Inner Diameter	Available Deviation	Outer Diameter	Available Deviation	Available Height Deviation
to 10	$\pm 0,3$	do 10	$\pm 0,4$	+0,3
to 25	$\pm 0,5$	do 25	$\pm 0,6$	+0,4
to 50	$\pm 0,5$	do 50	$\pm 1,0$	+0,6
to 80	$\pm 0,75$	do 80	$\pm 1,25$	+0,8
to 100	$\pm 1,0$	do 100	$\pm 1,5$	+1,0
to 160	$\pm 1,3$	do 160	$\pm 2,0$	+1,5
to 200	$\pm 1,5$	do 200	$\pm 2,5$	+1,5
to 320	$\pm 2,0$	do 320	$\pm 3,0$	+2,0

Measuring of toroidal cores

To measure magnetic properties of wound cores, we are equipped with specially made instruments, so called "toroidmeter".

The following parameters are evaluated:

- | | |
|--|-----------------|
| • RMS value of non-sinusoidal exciting current | T_{μ} (A) |
| • intensity of the magnetic field | H_{eff} (A/m) |
| • magnetic induction | $B_{max.}$ (T) |
| • apparent power | S (VA) |
| • active input (losses) | P (W) |
| • amplitude permeability | μ |

These values are measured continuously in the whole range of the alternating magnetizing characteristics limited merely by the maximum power of the exciting „toroidmeter“ circuits. It is possible to process the measured values further in the form of tables and graphs directly on the computer.

Sample of typical magnetic properties of toroidal cores

Quality	Guaranteed values of the mag. induction	
	B max (T) at 3 A/m and 50Hz	B max (T) at 3 A/m and 50Hz
N (normal)	0,055	min. 1,30
S (standard.)	0,075	min. 1,40
SP (special)	0,100	min. 1,50
SU (super)	0,115	min. 1,60

Toroidal cores with cutted edges

The toroidal cores with cutted edges on the inner and outer diameter under angle of 45° or radius 2 mm are delivered. Magnetic properties of the cores produced in the described way are not affected by this process.

TOROIDAL CORES LARGE DIMENSIONS

We produce cores in dimensions outer diameter up to 1000 mm, inner diameter up to 950 mm, height up to 100 mm and core weight max 100 kg.



WOUND DIVIDED CORES

C-cores are produced by winding a strip of grain-oriented steel on a rotating mandrel. After having been wound and glued by a epoxy resin, the core is then cut on few pieces.

C-cores properties depend on the following factors:

- Geometry of magnetic cores
- Cutted surface quality
- Quality of grain oriented steel

Cores are tested individually - each core that leaves the production is measured, which guarantees 100% quality of deliveries.

C-cores can be produced in different types and shapes:

- one step (one strip width)
- cruciform (few steps/different widths)
- single-phase
- three-phase
- circular, oval or rectangular shape.

The quality of cutted surfaces is very important for function of final C-core (transformer):

- common quality of cutted surfaces up to 30 μm TYPE "A".
- grinding cutted surfaces TYPE "C", done on grinding machine

To measure magnetic properties of C-cores, we are equipped with specially instruments. We make 100% control of all our cores and the measuring process is controlled and recorded.

The following properties are evaluated:

- Intensity of the magnetic field H_{eff} (A/m)
- Magnetic induction B_{max} . (T)
- Core losses P (W)
- Amplitude permeability etc.



UNICORE

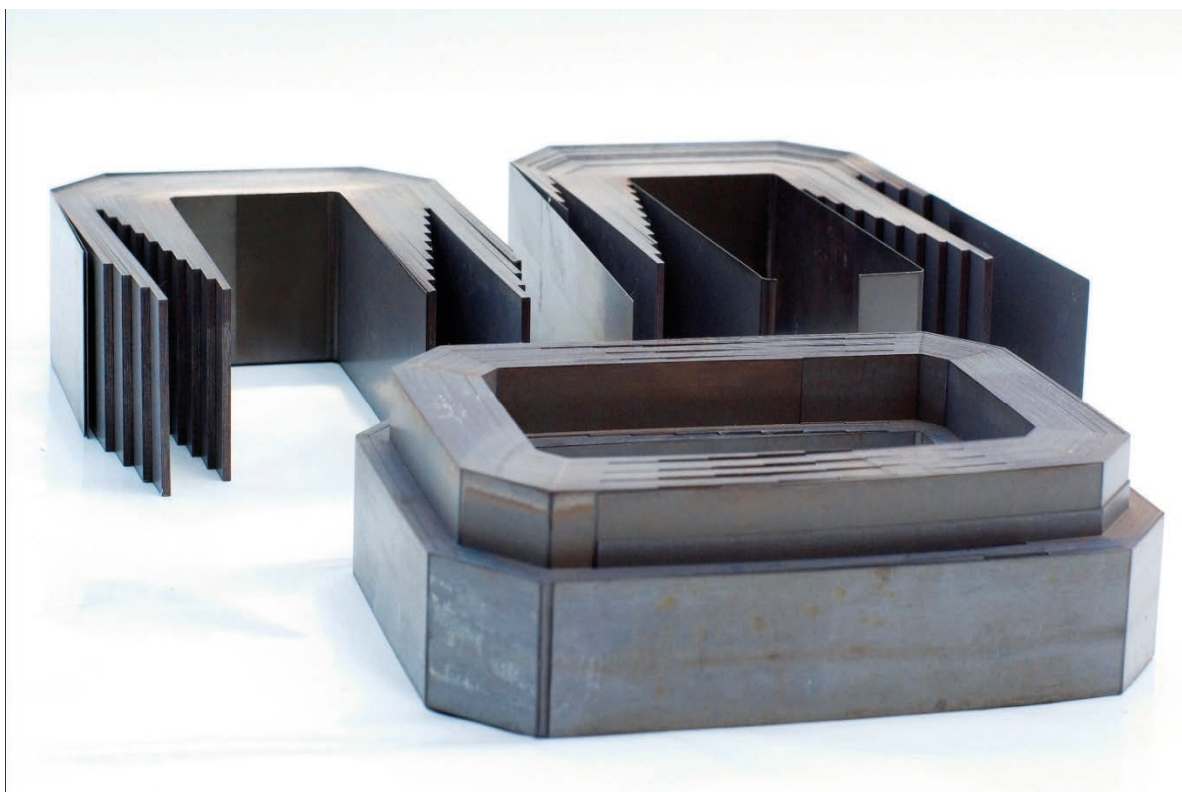
Unicore belongs to the family of magnetic cores, and there are more than 10 different types of them. UNICORE is one of the new cores for magnetic circuits, and its technology was developed only in 1997 with the aim to simplify the manufacture technology and to reach better parameters of electromagnetic machines. Thanks to their construction UNICORE are able to replace almost all classical stacked cores. Because of their simplified construction there is no need for time- and cost- consuming production process, and therefore favourable price and short delivery time are achieved. At assembly the existing types of coil forms can be used, and therefore there are no changes in transformer construction needed.

Type of Unicore:

- DUO, DG - with a split gap,
- UNCUT - cores without a dividing gap,
- BUTT - produced as C cores.

Cores can have a corner of 30°, 45° or 90°. New Types of Unicore cores are permanently developed.

Material of any quality of grain-oriented steel of thickness from 0.10 mm – up to 35 mm is used. It is also possible to use non grain-oriented steel. Unicore can weigh up to 1500 kg with a maximum height of 300 mm.





Unicore is defined by the following parameters:

Window length (WL).....Window width (WW)

Strip width (SW).....Built up (BUP)

Strip thickness (ST).....Corner angle

ELECTRICAL STEEL - LAMINATION

Used electrical steel:

- Grain oriented electrical steel (CRGO)
 - all type of grades, see tables
 - thickness of strip 0,10 mm, 0,15 mm, 0,18 mm, 0,20 mm, 0,23 mm, 0,27 mm, 0,30 mm a 0,35 mm
 - coil widths from 5mm to 1000 mm, possible to slit on slitting machine
 - frequency from 50Hz to 20kHz
- Non-grain oriented electrical steel (CRNGO)
 - all type of grades
 - thickness of strip, 0,35 mm, 0,50 mm, 0,65 mm
 - coil widths from 5 mm to 1000 mm, possible to slit on slitting machine

Guaranteed magnetic properties CRGO – conventional grades

Norm	Thickness	Maximum specific loss at 1,5 T	Maximum specific loss at 1,7 T	Polarization J at H= 800A/m
EN 10107	mm	50 Hz W/kg	50 Hz W/kg	min T
M 110-23 S	0,23	0,73	1,10	1,78
M 120-23 S	0,23	0,77	1,20	1,78
M 127-23 S	0,23	0,80	1,27	1,75
M 120-27 S	0,27	0,80	1,20	1,78
M 130-27 S	0,27	0,85	1,30	1,78
M 140-27 S	0,27	0,89	1,40	1,75
M 130-30 S	0,30	0,85	1,30	1,78
M 140-30 S	0,30	0,92	1,40	1,78
M 150-30 S	0,30	0,97	1,50	1,75
M 140-35 S	0,35	1,00	1,40	1,78
M 150-35 S	0,35	1,05	1,50	1,78
M 165-35 S	0,35	1,11	1,65	1,75

Guaranteed magnetic properties CRGO – HIB grades

Norm	Thickness	Maximum specific loss at 1,7 T	Polarization J at H= 800A/m
EN 10107	mm	50 Hz W/kg	Min T
M 85-23 P	0,23	0,85	1,88
M 90-23 P	0,23	0,90	1,88
M 95-23 P	0,23	0,95	1,88
M 100-23P	0,23	1,00	1,85
M 90-27 P	0,27	0,90	1,88
M 95-27 P	0,27	0,95	1,88
M 103-27 P	0,27	1,03	1,88
M 100-30 P	0,30	1,00	1,88
M 105-30 P	0,30	1,05	1,88
M 111-30 P	0,30	1,11	1,88
M 125-35 P	0,35	1,25	1,88



NANOCRYSTALLINE CORES

Nanocrystalline magnetic cores are made of nanocrystalline steel with crystalline structure where size of individual grains do not exceed 70 nm. The nanocrystallization process of the FeCuNbSiB material is performed in thermal T or thermomagnetic T+H field what enable the possibility of producing cores with different magnetic properties. The nanocrystalline steel tapes are the most modern soft magnetic materials with very low magnetic loss level. The material has also very low magnetostriction level and therefore it is very useful in low noise electrical applications working in devices at high frequencies. The nanocrystalline tapes are used for the construction of the following types of magnetic cores: wound cores, wound cut cores and also stacked and block cores. The cores protection is provided by plastics, resins or pressboard covers.

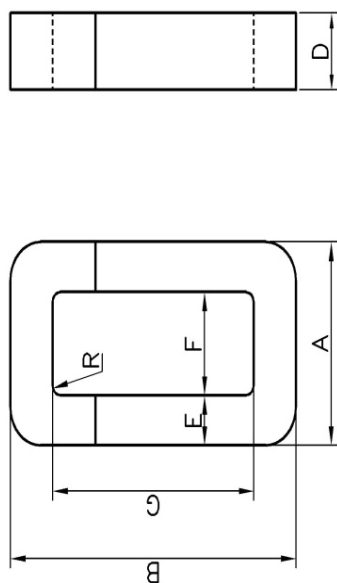


Basic properties of nanocrystalline toroidal cores

Curie Temperature	560 (°C)
Crystallization temperature	510 (°C)
Density	7.2 (g/cm ³)
Resistivity	130 (mW × cm)
Saturation induction B _s	1.25 (T)
Coercivity H _c	< 1.60 (A/m)
Losses P at 50 Hz, 0.2 T	< 0.0025 (W/kg)
Losses P at 20kHz, 0.2T	< 3.4 (W/kg)
Relative magnetic permeability at 50Hz, 0.4 A/m	> 150 000 (-)
Relative magnetic permeability at 1kHz, 0.4 A/m	> 35 000 (-)
Relative magnetic permeability at 2kHz, 0.4 A/m	> 30 000 (-)
Saturation magnetostriction	0.2 × 10 ⁻⁶ (ppm)
Stack factor	> 0.75 (-)
Outer diameter	20 – 300 (mm)
Inner diameter	15 – 290 (mm)

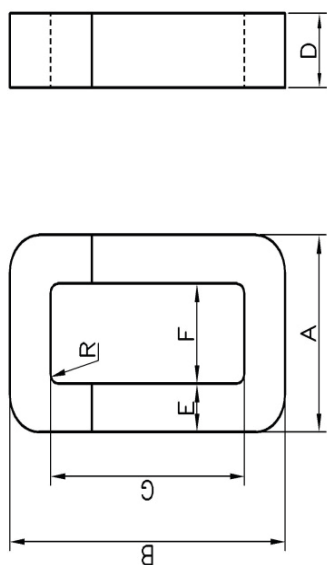
**Attachment:****TABLES OF DIMENSIONS AND PROPERTIES OF THE INDIVIDUAL TYPES OF WOUND DIVIDED CORES**

WOUND DIVIDED CORES FOR SINGLE-PHASE TRANSFORMERS OF THE TYPE C ACCORDING TO THE NORM ČSN DIMENSIONS (MECHANICAL DATA)



Type	Outer dimensions			Strip width			Built up			Window size		Radius	Tolerance	Length of central line of force	Core cross-section	Weight
	Mm			mm			Mm			mm		mm	mm	cm	cm ²	kg
	A	B	D	D	D	E	E	E	G	F	G	R	K	ls	qFe	min.
	max.	max.	min.	min.	max.	min.	max.	max.	min.	min.	min.	max.	max.		min.	min.
10000	28	48	10	10	11	7,5	8,5	8,5	30	10	30	2	0,5	11,8	0,8	0,06
10001	32	52	10	10	11	9,5	10,5	10,5	30	10	30	2	0,5	12,4	1	0,08
10002	28	48	15	15	16	7,5	8,5	8,5	30	10	30	2	0,5	11,8	1,2	0,09
10003	32	52	15	15	16	9,5	10,5	10,5	30	10	30	2	0,5	12,4	1,5	0,12
10004	42	62	15	15	16	14,5	15,5	15,5	30	10	30	2	0,5	13,9	2,2	0,21
12001	30	56	15	15	16	7,5	8,5	8,5	37	12	37	2,5	1	13,8	1,2	0,12
12003	34	60	20	20	21	9,5	10,5	10,5	37	12	37	2,5	1	14,5	2	0,2
12004	44	70	20	20	21	14,5	15,5	15,5	37	12	37	2,5	1	16	3	0,3
12005	54	80	20	20	21	19,5	20,5	20,5	37	12	37	2,5	1	17,6	4	0,5
15007	292	343	70	70	71,2	69	70	70	200	150	200	4	2	94,2	45,9	36,5

WOUND DIVIDED CORES FOR SINGLE-PHASE TRANSFORMERS OF THE TYPE C ACCORDING TO THE NORM ČSN DIMENSIONS (MECHANICAL DATA)

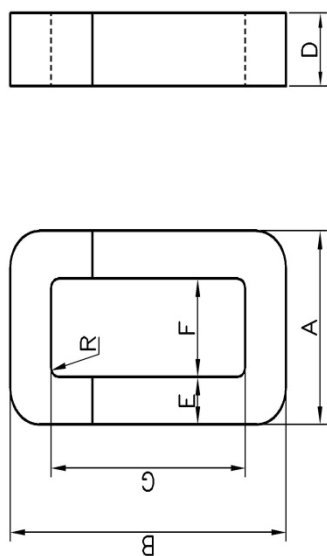


Type	Outer dimensions		Strip width		Wall thickness		Window size		Radius	Diversio n	Length of central line of force	Core cross- section	Weight
	Mm		mm		mm		mm						
	A	B	D	D	E	E	F	G	R	K	ls	cm²	kg
	max.	max.	min.	max.	min.	max.	min.	min.	max.	max.			
16003	38	71	20	21	9,5	10,5	16	48	2,5	1	17,5	2	0,23
16004	48	81	20	21	14,5	15,5	16	48	2,5	1	19	3	0,4
16005	58	91	20	21	19,5	20,5	16	48	2,5	1	20,6	4	0,55
16012	43	76	20	21	12	13	16	49,5	2,5	1	18,2	2,5	0,32
20001	43	85	20	21	9,5	10,7	20	60	3	1,5	21	2	0,3
20002	53	95	20	21	14,5	15,7	20	60	3	1,5	22,5	3	0,45

WOUND DIVIDED CORES FOR SINGLE-PHASE TRANSFORMERS OF THE TYPE C ACCORDING TO THE NORM ČSN WATTAGES AND EL. DATA

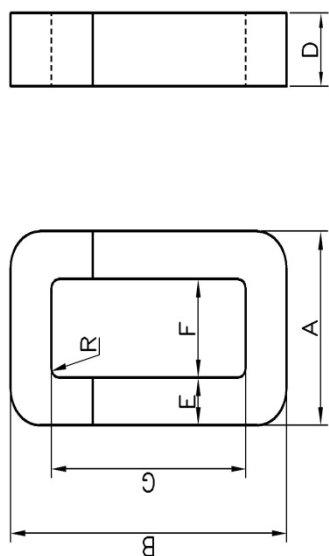
Type	E min.	D min.	Sj	P		Voltage on the thread for B = 1,5 T	Voltage on the thread for B = 1,7 T
	mm	mm	mm ²		VA		
10000	7,5	10	71,25		1,41	0,024	0,027
10001	9,5	10	90,25		2,26	0,03	0,034
10002	7,5	15	106,875		3,17	0,036	0,04
10003	9,5	15	135,375		5,09	0,045	0,051
10004	14,5	15	206,625		11,86	0,069	0,078
12001	7,5	15	106,875		3,17	0,036	0,04
12003	9,5	20	180,5		9,05	0,06	0,068
12004	14,5	20	275,5		21,09	0,092	0,104
12005	19,5	20	370,5		38,13	0,123	0,14
15007	69	70	4588,5		5848,89	1,528	1,732
16003	9,5	20	180,5		9,05	0,06	0,068
16004	14,5	20	275,5		21,09	0,092	0,104
16005	19,5	20	370,5		38,13	0,123	0,14
16012	12	20	228		14,44	0,076	0,086
20001	9,5	20	180,5		9,05	0,06	0,068
20002	14,5	20	275,5		21,09	0,092	0,104

WOUND DIVIDED CORES FOR SINGLE-PHASE TRANSFORMERS OF THE TYPE C ACCORDING TO THE NORM ČSN DIMENSIONS (MECHANICAL DATA)



Type	Outer dimensions		Strip width		Wall thickness		Window size		Radius	Diversion	Length of the central line of force	Core cross-section	Weight
	A	B	D	D	E	E	F	G	R	K	ls	cm ²	kg
	max.	max.	min.	max.	min.	max.	min.	min.	max.	max.		min.	min.
20003	63	105	20	21	19,5	20,7	20	60	3	1,5	24,1	4	0,65
20004	53	95	30	31	14,5	15,7	20	60	3	1,5	22,5	4,5	0,7
20005	63	105	30	31	19,5	20,7	20	60	3	1,5	24,1	6	1
20006	83	125	30	31	29,5	30,7	20	60	3	1,5	27,3	9	1,7
20007	50	90	40	41	14,5	15,5	20	60	3	1,5	22,5	5,5	0,92
26001	59	111	30	31	14,5	15,7	26	76	3	1,5	27	4,5	0,85
26002	69	121	30	31	19,5	20,7	26	76	3	1,5	28,5	6	1,2
26003	89	141	30	31	29,5	30,7	26	76	3	1,5	31,7	8,5	2
26004	69	121	40	41	19,5	20,7	26	76	3	1,5	28,5	7,5	1,6
26005	89	141	40	41	29,5	30,7	26	76	3	1,5	31,7	12	2,6

WOUND DIVIDED CORES FOR SINGLE-PHASE TRANSFORMERS OF THE TYPE C ACCORDING TO THE NORM ČSN DIMENSIONS (MECHANICAL DATA)

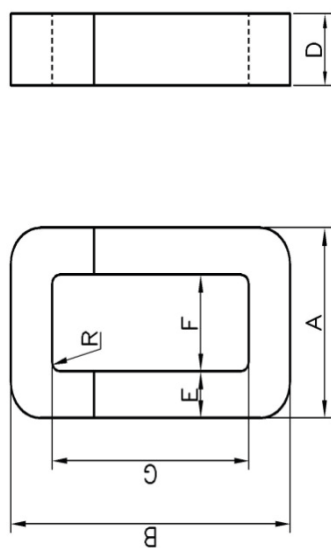


Type	Outer dimensions			Strip width		Wall thickness		Window size		Radius	Diversion	Length of the central line of force	Core cross-section	Weight
	Mm			mm		mm		mm		mm	mm	cm	cm ²	kg
	A	B	max.	D	min.	D	max.	E	min.	E	max.	G	min.	min.
26006	109	161		40	41	39,5	40,7	26	76	3	1,5	32,9	16	3,9
26100	59,5	131		30	31,5	15	16,75	26	96	2	2	30,4	4,3	1,46
30001-S	61,2	98		19	21	14	15	30	65	2	2	25	2,6	0,52
31000	84	149		40	41	24,5	25,7	31	94	3	1,5	34,7	10	2,5
31001	74	139		40	41	19,5	20,7	31	94	3	1,5	33,1	8	1,8
31002	94	159		40	41	29,5	30,7	31	94	3	1,5	36,3	12	3,1
31003	114	179		40	41	39,5	40,7	31	94	3	1,5	39,4	16	4,6
31004	84	149		50	51	24,5	25,7	31	94	3	1,5	34,7	12,5	3
31005	114	179		50	51	39,5	40,7	31	94	3	1,5	39,4	20	5,5
31006	134	199		50	51	49,5	50,7	31	94	3	1,5	42,6	25	7,3

WOUND DIVIDED CORES FOR SINGLE-PHASE TRANSFORMERS OF THE TYPE C ACCORDING TO THE NORM ČSN WATTAGES AND EL. DATA

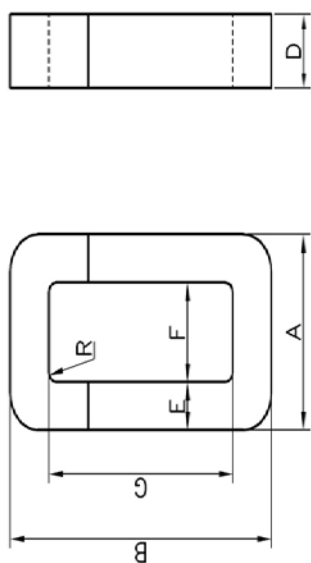
Type	E min. mm	D min. mm	Sj mm ²	P VA	Voltage on the thread pro B = 1,5 T	Voltage on the thread pro B = 1,7 T
20003	19,5	20	370,5	38,13	0,123	0,14
20004	14,5	30	413,25	47,44	0,138	0,156
20005	19,5	30	555,75	85,8	0,185	0,21
20006	29,5	30	840,75	196,37	0,28	0,317
20007	14,5	40	551	84,34	0,183	0,208
26001	14,5	30	413,25	47,44	0,138	0,156
26002	19,5	30	555,75	85,8	0,185	0,21
26003	29,5	30	840,75	196,37	0,28	0,317
26004	19,5	40	741	152,53	0,247	0,28
26005	29,5	40	1121	349,09	0,373	0,423
26006	39,5	40	1501	625,88	0,5	0,566
26100	15	30	427,5	50,77	0,142	0,161
30001-S	14	19	252,7	17,74	0,084	0,095
31000	24,5	40	931	240,79	0,31	0,351
31001	19,5	40	741	152,53	0,247	0,28
31002	29,5	40	1121	349,09	0,373	0,423
31003	39,5	40	1501	625,88	0,5	0,566
31004	24,5	50	1163,75	376,23	0,388	0,439
31005	39,5	50	1876,25	977,94	0,625	0,708
31006	49,5	50	2351,25	1535,78	0,783	0,887

WOUND DIVIDED CORES FOR SINGLE-PHASE TRANSFORMERS OF THE TYPE C ACCORDING TO THE NORM ČSN DIMENSIONS (MECHANICAL DATA)



Type	Outer dimensions		Strip width		Wall thickness		Window size		Radius	Diversion	Length of the central line of force	Core cross-section	Weight
	M/m		mm		mm		mm						
	A	B	D	D	E	E	F	G	R	K	ls	qFe	kg
	max.	max.	min.	max.	min.	max.	min.	min.	max.	max.		min.	min.
31020	74	139	20	21	19,5	20,7	31	94	3	1,5	44,1	4	0,95
31030	94	159	30	31	29,5	30,7	31	94	3	1,5	47,3	9	2,3
40001	94	196	50	51,5	24,3	26	40	140	4	2	46,3	12,5	4
40002	124	226	50	51,5	39,3	41	40	140	4	2	51	20	7
40003	144	246	50	51,5	49,3	51	40	140	4	2	54,2	25	9,5
40020	80	180	20	21	19,5	20,5	40	140	2	2	43,4	3,7	1,23
40030	104	206	30	31,5	29,3	31	40	140	3	2	47,1	8,7	3
40620	56	76	20	21	7,5	8,5	40	60	3	1	23,9	1,4	0,26

WOUND DIVIDED CORES FOR SINGLE-PHASE TRANSFORMERS OF THE TYPE C ACCORDING TO THE NORM ČSN DIMENSIONS (MECHANICAL DATA)

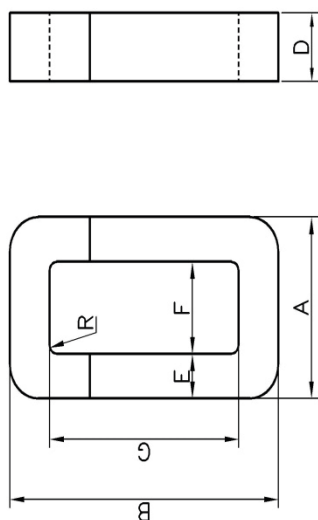


Type	Outer dimensions		Strip width		Wall thickness		Window size		Radius	Diversion	Length of the central line of force	Core cross-section	Weight
	A	B	D	D	E	E	F	G	R	mm	mm	cm ²	kg
50004	max.	max.	min.	max.	min.	max.	min.	min.	max.	max.	max.	min.	min.
50005	114	216	60	61,5	29,3	31	50	150	4	2	51,3	18	6,5
50006	154	256	60	61,5	49,3	51	50	150	4	2	58,1	30	11,7
50006-ESHF	174	276	60	61,5	59,3	61	50	150	4	2	61,4	36	15
50030	171	271	60	61,5	59,3	60	50	150	4	2	61,1	33,8	15,5
51090	110	210	30	31	29,3	31	50	150	3	2	51,1	8,4	3,26
60001	120	165	60	61,5	30,3	32	56	101	3	3	42,8	17,3	5,65
60002	190	355	30	31	55	63	60	230	3	3	77,2	15,7	9,25
70005	190	355	60	61,5	55	63	60	230	3	3	77,2	31,4	18,5
70010	171	254	60	61,5	48,3	50	70	150	3	3	61,1	27,5	13,5
70020	138	186	60	61,5	31,3	33	70	116	4	2	38,2	19,2	6,75
	162	269	60	61,5	43,3	45	70	175	4	2	55,9	26,4	12,5

WOUND DIVIDED CORES FOR SINGLE-PHASE TRANSFORMERS OF THE TYPE C ACCORDING TO THE NORM ČSN
WATTAGES AND EL. DATA

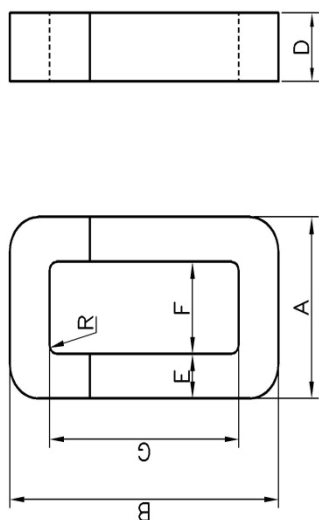
Type	E min. mm	D min. mm	Sj mm ²	P VA	Voltage on the thread pro B = 1,5 T	Voltage on the thread pro B = 1,7 T
31020	19,5	20	370,5	38,13	0,123	0,14
31030	29,5	30	840,75	196,37	0,28	0,317
40001	24,3	50	1154,25	370,11	0,348	0,436
40002	39,3	50	1866,75	968,07	0,622	0,705
40003	49,3	50	2431,75	1523,4	0,78	0,884
40020	19,5	20	370,5	38,13	0,123	0,14
40030	29,3	30	835,05	193,71	0,278	0,315
40620	7,5	20	142,5	5,64	0,047	0,054
50004	29,3	60	1670,1	774,85	0,556	0,63
50005	49,3	60	2810,1	2193,69	0,936	1,061
50006	59,3	60	3380,1	3173,89	1,126	1,276
50006-ESHF	59,3	60	3380,1	3173,89	1,126	1,276
50030	29,3	30	835,05	193,71	0,278	0,315
51090	30,3	60	1727,1	828,64	0,575	0,652
60001	55	30	1567,5	682,57	0,522	0,592
60002	55	60	3135	2730,28	1,044	1,183
70005	48,3	60	2753,1	2105,6	0,917	1,039
70010	31,3	60	1784,1	884,24	0,594	0,673
70020	43,3	60	2468,1	1692,22	0,822	0,931

WOUND DIVIDED CORES FOR SINGLE-PHASE TRANSFORMERS OF THE TYPE C ACCORDING TO THE NORM ČSN DIMENSIONS (MECHANICAL DATA)



Type	Outer dimensions		Strip width		Wall thickness		Window size		Radius	Division	Length of the central line of force	Core cross-section	Weight
	A	B	D	D	E	E	F	G	R	K	Is	cm ²	kg
	max.	max.	min.	max.	min.	max.	min.	min.	max.	max.		min.	min.
75005	171	254	60	61,5	48,3	50	70	150	4	3	61,7	27,5	12,99
75025	125	236	25	26	24,5	25,5	75	186	3	2	61,7	5,8	2,8
75040	161	274	60	61,5	40,3	42	75	186	4	2	58,6	24,6	11,8
75055	186	298	60	61,5	54,3	55	75	184	4	3	71	30,4	16,5
75058	191	306	60	61,5	56	58	75	184	4	3	71,9	31,9	17,35
80050	180	340	50	51,5	49,3	51	80	240	4	3	82	23,4	14,69
88004	188	230	60	61,5	47,3	49	88	128	4	2	63,1	26,9	13,01
90001	240	435	50	51	65	73	60	290	3	3	92,3	30,9	21,8

WOUND DIVIDED CORES FOR SINGLE-PHASE TRANSFORMERS OF THE TYPE C ACCORDING TO THE NORM ČSN DIMENSIONS (MECHANICAL DATA)



Type	Outer dimensions		Strip width		Wall thickness		Window size		Radius	Diversion	Length of the central line of force	Core cross-section	Weight
	A	B	D	D	E	E	F	G	R	K	ls	cm ²	kg
	max.	max.	min.	max.	min.	max.	min.	min.	max.	max.		min.	min.
90002	230	530	100	101	70	72,5	90	380	3	4	117,9	66,5	62
90004	230	435	100	101,5	70	72,5	90	290	3	3	101	66,5	52
90005	270	580	100	101,5	90	92,5	90	390	3	4	126,1	85,5	83,5

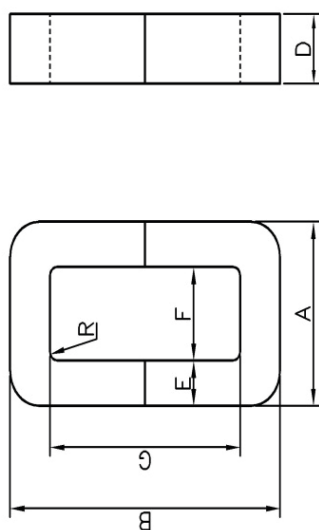
WOUND DIVIDED CORES FOR SINGLE-PHASE TRANSFORMERS OF THE TYPE C ACCORDING TO THE NORM ČSN WATTAGES AND EL. DATA

Type	E min. mm	D min. mm	Sj mm ²	P VA	Voltage on the thread pro B = 1,5 T	Voltage on the thread pro B = 1,7 T
75005	48,3	60	2753,1	2105,6	0,917	1039
75025	24,5	25	581,875	94,6	0,194	0,22
75040	40,3	60	2297,1	1465,86	0,765	0,867
75055	54,3	60	3095,1	2661,23	1,031	1,168
75058	56	60	3192	2830,47	1,063	1,205
80050	49,3	50	2341,75	1523,4	0,78	0,884
88004	47,3	60	2696,1	2019,32	0,898	1,018
90001	65	50	3087,5	2648,17	1,028	1,165
90002	70	100	6650	12285,01	2,214	2,51
90004	70	100	6650	12285,01	2,214	2,51
90005	90	100	8550	20307,87	2,847	3,227

WOUND DIVIDED CORES FOR SINGLE-PHASE TRANSFORMERS OF THE TYPE SU ACCORDING TO THE NORM DIN 41309
THE CORES CORRESPOND TO THE DIMENSIONS OF COILED BODIES USED FOR ASSEMBLING OF CORES OF METAL SHEET

TYPE UI

DIMENSIONS (MECHANICAL DATA)

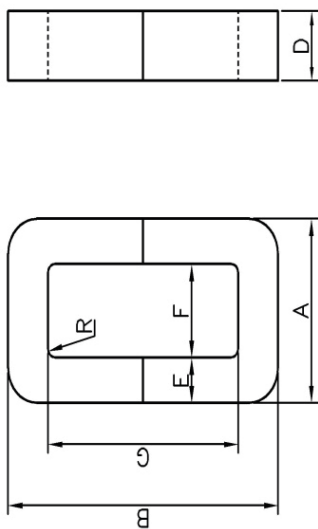


Type	Outer dimensions		Strip width		Wall thickness		Window size		Radius	Diversion	Length of the central line of force	Core cross-section	Weight
	A	B	D	D	E	E	F	G	R	K	ls	cm ²	kg
	max.	max.	min.	max.	min.	max.	min.	min.	max.	max.		min.	min.
SU 30b	30	52,7	15,5	16,1	9,1	9,9	10	32,5	1	0,2	11,4	1,34	0,117
SU 39a	39,1	67,9	12,5	13,4	12,1	12,9	13	41,5	1	0,3	14,8	1,43	0,162
SU 39b	39,1	67,9	19,5	20,4	12,1	12,9	13	41,5	1	0,3	14,8	2,24	0,253
SU 48a	48	82,9	15,5	16,5	14,9	15,8	16	50,5	1	0,3	18,1	2,19	0,303
SU 48b	48	82,9	24,5	25,5	14,9	15,8	16	50,5	1,5	0,3	18,1	3,47	0,481
SU 60a	60,1	103,6	19,5	20,6	18,9	19,8	20	63	2	0,3	22,6	3,5	0,61
SU 60b	60,1	103,6	29,5	30,6	18,9	19,8	20	63	2	1	22,6	5,3	0,92
SU 75a	75	128,6	25	26,1	23,7	24,7	25	78	1	0,3	28,2	5,6	1,21

WOUND DIVIDED CORES FOR SINGLE-PHASE TRANSFORMERS OF THE TYPE SU ACC. TO THE NORM DIN 41309
THE CORES CORRESPOND TO THE DIMENSIONS OF COILED BODIES USED FOR ASSEMBLING OF CORES OF METAL SHEET

TYPE UI

DIMENSIONS (MECHANICAL DATA)



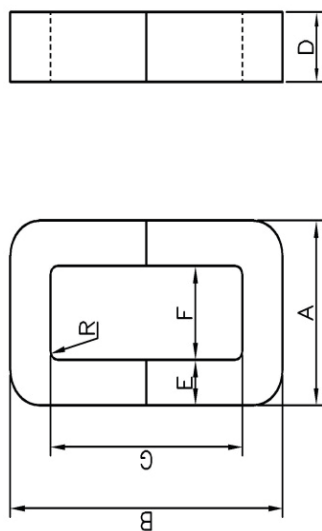
Type	Outer dimensions		Strip width		Wall thickness		Window size		Radius	Diversion	Length of the central line of force	Core cross-section	Weight
	Mm		mm		mm		mm		mm	mm	cm	cm ²	kg
	A	B	D	D	E	E	F	G	R	K	ls	qFe	
	max.	max.	min.	max.	min.	max.	min.	min.	max.	max.		min.	min.
SU 75b	75	128,6	40	41,1	23,7	24,7	25	78	1	0,3	28,2	9	1,94
SU 90a	90	155,8	29,5	30,9	28,5	29,6	30	95	2	0,5	34	8	2,08
SU 90b	90	155,8	49,5	50,9	28,5	29,6	30	95	3	0,5	34	13,4	3,49
SU 102b	102,4	175,4	55	56,4	32,5	33,7	34	106	3	0,5	38,4	17	4,99
SU 114a	114,4	195,6	37,5	39,2	36,3	37,6	38	118	3	1,5	42,8	12,9	4,23
SU 114b	114,4	195,6	61,5	63,2	36,3	37,6	38	118	2	0,6	42,8	21,2	7
SU 132a	132,1	225,4	43,5	45,2	42	43,4	44	136	2	0,6	49,5	17,4	6,6

**WOUND DIVIDED CORES FOR SINGLE-PHASE TRANSFORMERS OF THE TYPE SU ACC. TO THE NORM DIN 41309
WATTAGES AND EL. DATA**

Type	E min. mm	D min. mm	Sj mm ²	P VA	Voltage on the thread pro B = 1,5 T	Voltage on the thread pro B = 1,7 T
SU 30b	9,1	15,5	129,766	4,68	0,043	0,049
SU 39a	12,1	12,5	139,15	5,38	0,046	0,053
SU 39b	12,1	19,5	217,074	13,09	0,072	0,082
SU 48a	14,9	15,5	212,474	12,54	0,071	0,08
SU 48b	14,9	24,5	335,846	31,33	0,112	0,127
SU 60a	18,9	19,5	339,066	31,94	0,113	0,128
SU 60b	18,9	29,5	512,346	73,09	0,171	0,194
SU 75a	23,7	25	545,1	82,54	0,182	0,206
SU 75b	23,7	40	872,16	211,31	0,29	0,329
SU 90a	28,5	29,5	773,49	166,2	0,258	0,292
SU 90b	28,5	49,5	1297,89	467,96	0,432	0,49
SU 102b	32,5	55	1644,5	751,28	0,548	0,621
SU 114a	36,3	37,5	1252,35	435,7	0,417	0,473
SU 114b	36,3	61,5	2053,854	1171,85	0,684	0,775
SU 132a	42	43,5	1680,84	784,85	0,56	0,634

WOUND DIVIDED CORES FOR SINGLE-PHASE TRANSFORMERS OF THE TYPE SM ACC. TO THE NORM DIN 41309
THE CORES CORRESPOND TO THE DIMENSIONS OF COILED BODIES USED FOR ASSEMBLING OF CORES FROM METAL SHEETS
OF THE TYPE M.

2 PIECES OF CORES ARE ALWAYS USED IN THE COILED BODY
DIMENSIONS (MECHANICAL DATA)



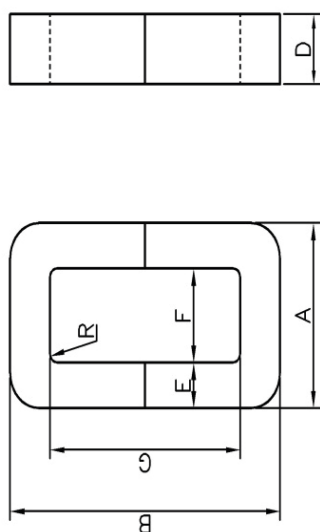
Type	Outer dimensions		Strip width		Wall thickness		Window size		Radius	Diversion	Length of the central line of force	Core cross-section	Weight
	Mm		mm		mm		mm		mm	mm	cm	cm ²	kg
	A	B	D	D	E	E	F	G	R	K	ls	qFe	min.
SM 55	max. 28,4	max. 56,3	min. 20	max. 20,8	min. 7,7	max. 8,5	min. 11	min. 38,5	max. 1,5	max. 0,4	12,4	min. 1,46	0,138
SM 65	33,2	65,6	26,2	27	9	9,9	13	45	1,5	0,6	14,6	2,24	0,25
SM 74	37,7	74,6	31,5	32,5	10,5	11,4	14,5	51	1,5	0,6	16,5	3,14	0,396
SM 85a	43,2	85,6	31,5	32,5	13,4	14,4	14	56	2	0,6	18,3	4,01	0,561
SM 85b	43,2	85,6	44,5	45,5	13,4	14,4	14	56	2	0,6	18,3	5,66	0,792
SM 102b	51,9	103	51,5	52,5	15,9	16,9	17,5	68	1	0,6	22,2	7,78	1,321

WOUND DIVIDED CORES FOR SINGLE-PHASE TRANSFORMERS OF THE TYPE SM ACC. TO THE NORM DIN 41309
WATTAGES AND EL. DATA

Type	E min. mm	D min. mm	Sj mm ²	P VA	Voltage on the thread pro B = 1,5 T	Voltage on the thread pro B = 1,7 T
SM 55	7,7	20	141,68	5,58	0,047	0,053
SM 65	9	26,2	216,936	13,07	0,072	0,082
SM 74	10,5	31,5	304,29	25,72	0,101	0,155
SM 85a	13,4	31,5	388,332	41,89	0,129	0,147
SM 85b	13,4	44,5	548,596	83,61	0,183	0,207
SM 102b	15,9	51,5	753,342	157,66	0,251	0,284

WOUND DIVIDED CORES FOR SINGLE-PHASE TRANSFORMERS OF THE TYPE SE ACC. TO THE NORM DIN 41309
THE CORES CORRESPOND TO THE DIMENSIONS OF COILED BODIES USED FOR ASSEMBLING OF CORES FROM METAL SHEETS
OF THE TYPE EI.

2 PIECES OF CORES ARE ALWAYS USED IN THE COILED BODY
DIMENSIONS (MECHANICAL DATA)

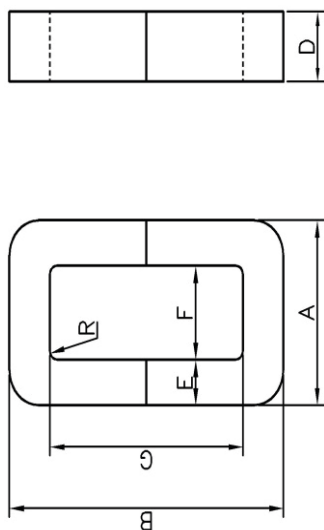


Type	Outer dimensions		Strip width		Wall thickness		Window size		Radius	Diversio n	Length of the central line of force	Core cross- section	Weight
	Mm		mm		mm		mm						
	A	B	D	D	E	E	F	G	R	K	ls	cm ²	kg
	max.	max.	min.	max.	min.	max.	min.	min.	max.	max.		min.	min.
SE 106a	53,2	88,6	32	33	13,6	14,4	24	59	2	0,6	20,9	4,13	0,662
SE 106b	53,2	88,6	45	46	13,6	14,4	24	59	2	0,6	20,9	5,81	0,93
SE 130a	65,3	1088	36	37,2	16,5	17,4	30	73	2	0,6	25,9	5,64	1,12
SE 170a	85	145,8	54,5	56	21,1	22,1	40	100	2	0,7	34,7	11	2,92
SE 195a	98,2	186,8	55,5	57	26,2	27,3	42,5	130	2	1	42,9	13,8	4,53
SE 195b	98,2	186,8	68,5	70	26,2	27,3	42,5	130	3	1	42,9	17	5,58

WOUND DIVIDED CORES FOR SINGLE-PHASE TRANSFORMERS OF THE TYPE SE ACC. TO THE NORM DIN 41309
WATTAGES AND EL. DATA

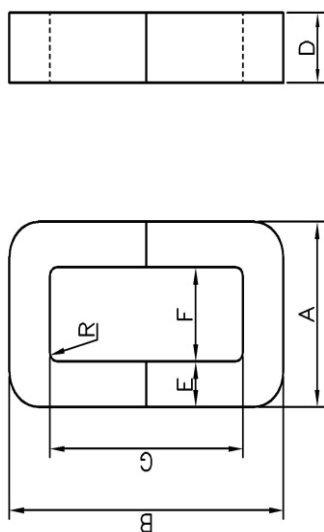
Type	E min. mm	D min. mm	Sj mm ²	P VA	Voltage on the thread pro B = 1,5 T	Voltage on the thread pro B = 1,7 T
SE 106a	13,6	32	400,384	44,53	0,133	0,151
SE 106b	13,6	45	563,04	88,07	0,187	0,212
SE 130a	16,5	36	546,48	82,96	0,182	0,206
SE 170a	21,1	54,5	1057,954	310,93	0,352	0,399
SE 195a	26,2	55,5	1337,772	497,16	0,445	0,505
SE 195b	26,2	68,5	1651,124	757,34	0,55	0,623

WOUND DIVIDED CORES FOR SINGLE-PHASE TRANSFORMERS OF THE TYPE Q ACC. TO THE NORM DIN 41309 DIMENSIONS (MECHANICAL DATA)



Type	Outer dimensions		Strip width		Wall thickness		Window size		Radius	Diversion	Length of the central line of force	Core cross-section	Weight
	Mm		mm		mm		mm		mm	mm	cm	cm ²	kg
	A	B	D	D	E	E	F	G	R	K	ls	qFe	min.
Q 4,1	32,1	50	9,5	10,3	9,5	10,3	11,1	28,6	1	0,5	11,13	0,862	0,073
Q 5,1	30,6	56,4	12,7	13,5	7,9	8,7	12,7	38,1	1,5	0,5	12,78	0,96	0,094
Q 5,2	30,6	56,4	19	19,8	7,9	8,7	12,7	38,1	1,5	0,5	12,78	1,44	0,141
Q 5,3	30,6	56,4	25,4	26,2	7,9	8,7	12,7	38,1	1,5	0,5	12,78	1,92	0,187
Q 5,4	30,6	56,4	38,1	38,9	7,9	8,7	12,7	38,1	1,5	0,5	12,78	2,88	0,281
Q 6,1	36,9	73	12,7	13,5	9,5	10,3	15,9	50,8	1,5	1	16,54	1,15	0,145
Q 6,2	36,9	73	19	19,8	9,5	10,3	15,9	50,8	1,5	1	16,54	1,72	0,218
Q 6,3	36,9	73	25,4	26,2	9,5	10,3	15,9	50,8	1,5	1	16,54	2,3	0,291

WOUND DIVIDED CORES FOR SINGLE-PHASE TRANSFORMERS OF THE TYPE Q ACC. TO THE NORM DIN 41309 DIMENSIONS (MECHANICAL DATA)

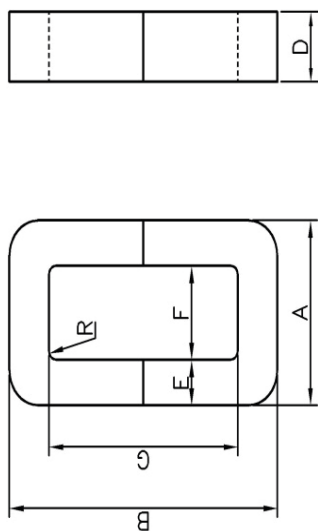


Type	Outer dimensions		Strip width		Wall thickness		Window size		Radius	Diversio n	Length of the central line of force	Core cross- section	Weight
	A	B	D	D	E	E	F	G	R	K	ls	cm ²	kg
	max.	max.	min.	max.	min.	max.	min.	min.	max.	max.		min.	min.
Q 6,4	36,9	73	31,7	32,5	9,5	10,3	15,9	50,8	1,5	1	16,54	2,87	0,363
Q 7,1	40,1	79,4	19	19,8	9,5	10,3	19	57,2	3	1	18,14	1,72	0,239
Q 7,2	40,1	79,4	25,4	26,2	9,5	10,3	19	57,2	3	1	18,14	2,3	0,319
Q 7,3	40,1	79,4	31,7	32,5	9,5	10,3	19	57,2	3	1	18,14	2,87	0,398
Q 7,4	40,1	79,4	38,1	38,9	9,5	10,3	19	57,2	3	1	18,14	3,45	0,478
Q 8,1	49,6	92,1	22,2	23	12,7	13,5	22,2	63,5	3	1,5	21,06	2,68	0,432

**WOUND DIVIDED CORES FOR SINGLE-PHASE TRANSFORMERS OF THE TYPE Q ACC. TO THE NORM DIN 41309
WATTAGES AND EL. DATA**

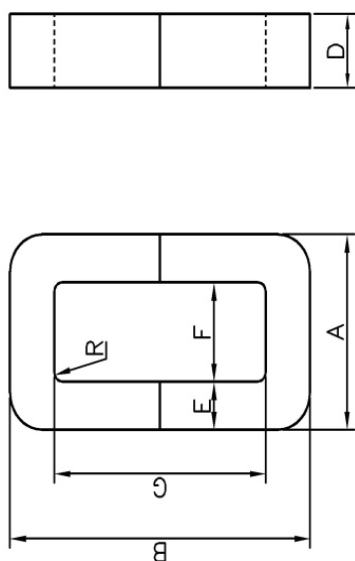
Type	E min.	D min.	Sj	P	Voltage on the thread	Voltage on the thread
	mm	mm	mm ²	VA	pro B = 1,5 T	pro B = 1,7 T
Q 4,1	9,5	9,5	83,03	1,92	0,028	0,031
Q 5,1	7,9	12,7	92,3036	2,37	0,031	0,035
Q 5,2	7,9	19	138,092	5,3	0,046	0,052
Q 5,3	7,9	25,7	186,7876	9,69	0,062	0,07
Q 5,4	7,9	38,1	276,9108	21,3	0,092	0,105
Q 6,1	9,5	12,7	110,998	3,42	0,037	0,042
Q 6,2	9,5	19	166,06	7,66	0,055	0,063
Q 6,3	9,5	25,4	221,996	13,69	0,074	0,084
Q 6,4	9,5	31,7	277,058	21,32	0,092	0,105
Q 7,1	9,5	19	166,06	7,66	0,055	0,063
Q 7,2	9,5	25,4	221,996	13,69	0,074	0,084
Q 7,3	9,5	31,7	277,058	21,32	0,092	0,105
Q 7,4	9,5	38,1	332,994	30,8	0,111	0,126
Q 8,1	12,7	22,2	259,3848	18,69	0,086	0,098

WOUND DIVIDED CORES FOR SINGLE-PHASE TRANSFORMERS OF THE TYPE Q ACC. TO THE NORM DIN 41309 DIMENSIONS (MECHANICAL DATA)



Type	Outer dimensions		Strip width		Wall thickness		Window size		Radius	Diversio n	Length of the central line of force	Core cross- section	Weight
	Mm/		mm		mm		mm						
	A	B	D	D	E	E	F	G	R	K	ls	cm ²	kg
	max.	max.	min.	max.	min.	max.	min.	min.	max.	max.		min.	min.
Q 8,2	49,6	92,1	28,6	29,4	12,7	13,5	22,2	63,5	3	1,5	21,06	3,45	0,553
Q 8,2 E	54	96,5	28,6	29,4	12,7	13,5	26,5	68	3	1,5	24,77	3,45	0,675
Q 8,3	49,6	92,1	38,1	38,9	12,7	13,5	22,2	63,5	3	1,5	21,06	4,6	0,739
Q 8,4	49,6	92,1	50,8	51,6	12,7	13,5	22,2	63,5	3	1,5	21,06	6,13	0,989
Q 9,1	62,3	111,1	19	19,8	15,9	16,7	28,6	76,2	3	1,5	25,86	2,87	0,567
Q 9,2	62,3	111,1	28,6	29,4	15,9	16,7	28,6	76,2	3	1,5	25,86	4,54	0,898
Q 9,2 E	68,8	122,8	28,6	29,4	15,9	16,7	34,9	88,9	3	1,5	31,63	4,32	1,16
Q 9,3	62,3	111,1	38,1	38,9	15,9	16,7	28,6	76,2	3	1,5	25,86	5,75	1,14

WOUND DIVIDED CORES FOR SINGLE-PHASE TRANSFORMERS OF THE TYPE Q ACC. TO THE NORM DIN 41309 DIMENSIONS (MECHANICAL DATA)

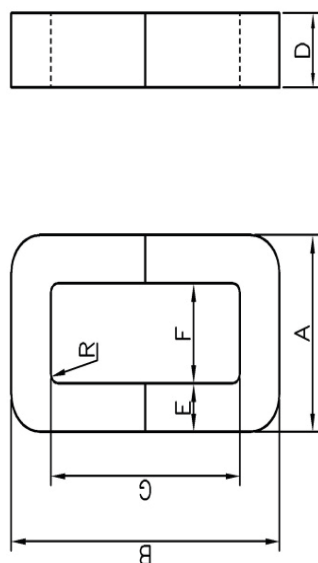


Type	Outer dimensions			Strip width			Wall thickness			Window size		Radius	Diversion	Length of the central line of force	Core cross-section	Weight
	Mm			mm			mm			mm						
	A	B		D	D		E	E		F	G	R	K	ls	cm²	kg
	max.	max.		min.	max.		min.	max.		min.	min.	max.	max.			min.
Q 9,3 E	77,7	126,5		21,6	22,4		23,6	24,4		28,6	76,2	3	1,5	30,25	4,84	1,225
Q 9,4	62,3	111,1		50,8	51,6		15,9	16,7		28,6	76,2	3	1,5	25,86	7,66	1,52
Q 10,1	75	130,2		25,4	26,2		19	19,8		34,9	88,9	3	1,5	30,68	4,6	1,08
Q 10,2	75	130,2		38,1	38,9		19	19,8		34,9	88,9	3	1,5	30,68	6,9	1,62
Q 10,3	75	130,2		50,8	51,6		19	19,8		34,9	88,9	3	1,5	30,68	9,23	2,16
Q 10,4	75	130,2		69,8	71,4		19	19,8		34,9	88,9	3	1,5	30,68	12,65	2,97
Q 11,1	97,2	169,9		31,7	32,5		25,4	26,2		44,4	114,3	3	1,5	40,23	7,68	2,36
Q 11,2	97,2	169,9		50,8	51,6		25,4	26,2		44,4	114,3	3	1,5	40,23	12,26	3,77

WOUND DIVIDED CORES FOR SINGLE-PHASE TRANSFORMERS OF THE TYPE Q ACC. TO THE NORM DIN 41309
WATTAGES AND EL. DATA

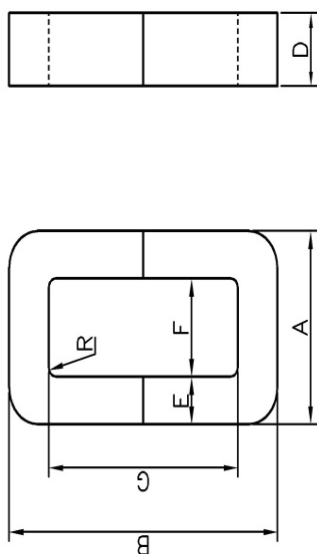
Type	E min.	D min.	Sj	P	Voltage on the thread	Voltage on the thread
	mm	mm	mm ²	VA	pro B = 1,5 T	pro B = 1,7 T
Q 8,2	12,7	28,6	334,1624	31,02	0,111	0,126
Q 8,2 E	12,7	28,6	334,1624	31,02	0,111	0,126
Q 8,3	12,7	38,1	445,1604	55,05	0,148	0,168
Q 8,4	12,7	50,8	593,5472	97,87	0,198	0,224
Q 9,1	15,9	19	277,932	21,46	0,093	0,105
Q 9,2	15,9	28,6	418,3608	48,62	0,139	0,158
Q 9,2 E	15,9	28,6	418,3608	48,62	0,139	0,158
Q 9,3	15,9	38,1	557,3268	86,29	0,186	0,21
Q 9,3 E	23,6	21,6	468,9792	61,1	0,156	0,177
Q 9,4	15,9	50,8	743,1024	153,4	0,247	0,28
Q 10,1	19	25,4	443,992	54,76	0,148	0,168
Q 10,2	19	38,1	665,988	123,22	0,222	0,251
Q 10,3	19	50,8	887,984	219,05	0,296	0,335
Q 10,4	19	69,8	1220,104	413,55	0,406	0,46
Q 11,1	25,4	31,7	740,7656	152,44	0,247	0,28
Q 11,2	25,4	50,8	1187,094	391,47	0,395	0,448

WOUND DIVIDED CORES FOR TRANSFORMER ASSEMBLING FOR SPOT AND ARCH WELDERS DIMENSIONS (MECHANICAL DATA)



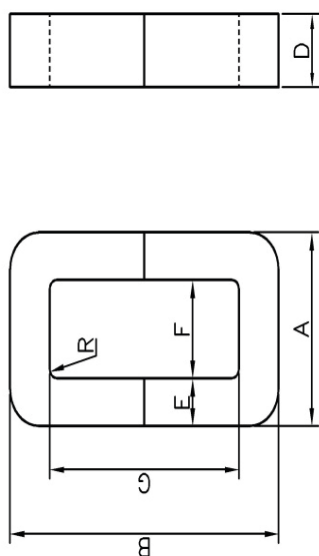
Type	Outer dimensions		Strip width		Wall thickness		Window size		Radius	Diversio n	Length of the central line of force	Core cross- section	Weight
	A	B	D	D	E	E	F	G					
	max.	max.	min.	max.	min.	max.	min.	min.	max.	max.	cm	cm ²	kg
4WT 0061	110	178	40	41	34	34,5	40	107	4	2	42,59	12,92	4,45
4WT 0153	110	178	50	51,5	32	33	44	112	4	2	43,76	15,2	5,7
4WT 0154	110	178	60	61,5	32	33	44	112	4	2	43,76	18,24	6,83
4WT 0162	116	162	50	51	31,5	33	48	90	4	2	40	14,96	5,35
4WT 0163	116	162	60	61	31,5	33	48	90	3	2	39,38	17,96	6,4
4WT 0163,5	132	172	49	50	39	40	50	90	2	2	41,5	18,15	6,7
4WT 00202	111	163	60	61	30	31	49	70	4	2	35,73	17,1	2,85
4WT 0236	110	179	50	51	36	37	36	98	3	2	39,99	17,1	5,85
4WT 0237	110	179	60	61	36	37	36	98	4	2	40,62	20,52	7,02

WOUND DIVIDED CORES FOR TRANSFORMER ASSEMBLING FOR SPOT AND ARCH WELDERS DIMENSIONS (MECHANICAL DATA)



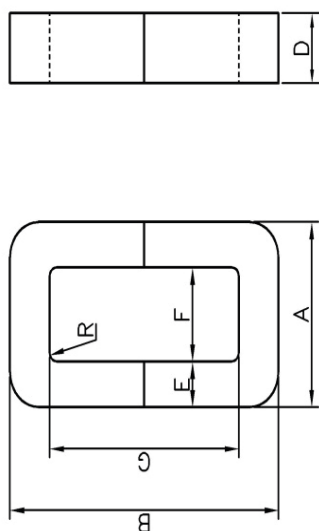
Type	Outer dimensions		Strip width		Wall thickness		Window size		Radius	Divercion	Length of the central line of force	Core cross-section	Weight
	A	B	D	D	E	E	F	G	R	K	ls	cm ²	kg
	max.	max.	min.	max.	min.	max.	min.	min.	max.	max.		min.	min.
4WT 0256	106	135	40	41	33	33,5	37	65	3	2	32,65	12,54	3,5
4WT 0281	116	130	50	51	38,5	39,5	36	49	4	2	31,6	18,29	4,22
4WT 0323	116	114	50	51	34,5	35,5	44	41	3	2	29,72	16,39	4,17
4WT 0396	157	165	50	51,5	45	46	63	71	2	1,5	42,19	21,37	12
4WT 0397	157	165	60	61,5	45	46	63	71	3	2	42,81	25,65	14,5
4WT 0407	147	232	50	51,5	44,5	45,5	55	139	3	2	54,66	21,14	9,5
4WT 0408	147	232	60	61,5	44,5	45,5	55	139	4	2	55,29	25,37	11,4
4WT 0446	112	112	60	61	29,5	30,5	50	50	3	2	31,15	16,82	4
4WT 0500	112	118	60	61	29,5	30,5	50	55	3	2	32,15	16,82	4,185
4WT 0500-C	103	108	60	61	28	28,5	45	50	4	2	30,3	15,96	3,94

WOUND DIVIDED CORES FOR TRANSFORMER ASSEMBLING FOR SPOT AND ARCH WELDERS DIMENSIONS (MECHANICAL DATA)



Type	Outer dimensions		Strip width		Wall thickness		Window size		Radius	Diversio n	Length of the central line of force	Core cross- section	Weight
	Mm		mm		mm		mm		mm	mm	cm	cm ²	kg
	A	B	D	D	E	E	F	G	R	K	Is	qFe	min.
4WT 0558	106	179	50	51	32	32,5	40	113	4	2	43,16	15,2	5,95
4WT 0670	106	174	50	51	31,5	32,5	40	107	3	2	41,18	14,96	4,85
4WT 0713	98	128	50	51	27,5	28,5	40	69	3	2	32,32	13,06	3,72
4WT 0714	98	128	60	61	27,5	28,5	40	69	3	2	32,32	15,68	4,5
4WT 0753	111	176	60	61	32	32,7	45	109	4	2	43,36	18,24	6,6
4WT 0792	103	108	59	60	28	28,5	45	50	2	2	29,05	15,69	3,94
4WT 0810	106	174	60	62	31,5	32,5	40	107	3	2	41,18	17,96	6,13
4WT 0837	162	172	60	61	49,5	50,5	60	69	3	2	43,23	28,22	7,95

WOUND DIVIDED CORES FOR TRANSFORMER ASSEMBLING FOR SPOT AND ARCH WELDERS DIMENSIONS (MECHANICAL DATA)



Type	Outer dimensions		Strip width		Wall thickness		Window size		Radius	Diversion	Length of the central line of force	Core cross-section	Weight
	Mm		mm		mm		mm		mm	mm	cm	cm ²	kg
	A	B	D	D	E	E	F	G	R	K	ls	qFe	min.
4WT 1040	max. 111	max. 176	min. 50	max. 53	min. 31,5	max. 32,5	min. 45	min. 109	max. 3	max. 2	42,37	14,97	6,0
4WT 1151	113	182	50	53	32,5	33,5	45	113	2	2	43,1	15,44	5,6
4WT 1152	113	182	60	63	32,5	33,5	45	113	2	2	43,1	18,52	6,72
4WT 1194	112	116	60	61	21,5	22,5	66	69	2	2	35	12,25	3,55

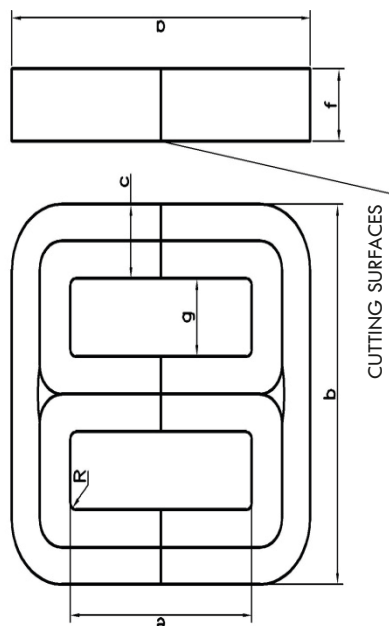
WOUND DIVIDED CORES FOR TRANSFORMER ASSEMBLING FOR SPOT AND ARCH WELDERS WATTAGES AND EL. DATA

Type	E min.	D min.	Sj	P	Voltage on the thread	Voltage on the thread
	mm	mm	mm ²	VA	pro B = 1,5 T	pro B = 1,7 T
4WT 0061	34	40	1251,2	434,9	0,417	0,472
4WT 0153	32	50	1472	601,93	0,49	0,556
4WT 0154	32	60	1766,4	866,78	0,588	0,667
4WT 0162	31,5	50	1449	583,27	0,483	0,547
4WT 0163	31,5	60	1738,8	839,91	0,579	0,656
4WT 0163,5	39	49	1758,12	858,68	0,585	0,664
4WT 00202	30	60	1656	761,82	0,551	0,625
4WT 0236	36	50	1656	761,82	0,551	0,625
4WT 0237	36	60	1987,2	1097,02	0,662	0,75
4WT 0256	33	40	1214,4	409,69	0,404	0,458
4WT 0281	38,5	50	1771	871,3	0,59	0,668
4WT 0323	34,5	50	1587	699,66	0,528	0,599
4WT 0396	45	50	2070	1190,35	0,689	0,781
4WT 0397	45	60	2484	1714,1	0,827	0,937
4WT 0407	44,5	50	2047	1164,04	0,682	0,773
4WT 0408	44,5	60	2456,4	1676,22	0,818	0,927
4WT 0446	29,5	60	1628,4	736,64	0,542	0,615
4WT 0500	29,5	60	1628,4	736,64	0,542	0,615
4WT 0500-C	28	60	1545,6	663,63	0,515	0,583

WOUND DIVIDED CORES FOR TRANSFORMER ASSEMBLING FOR SPOT AND ARCH WELDERS WATTAGES AND EL. DATA

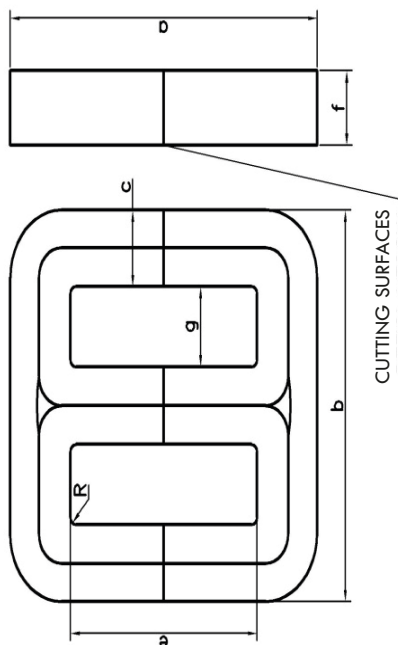
Type	E min. mm	D min. mm	Sj mm ²	P VA	Voltage on the pro B = 1,5 T	Voltage on the pro B = 1,7 T
4WT 1040	31,5	50	1449	583,27	0,483	0,547
4WT 1151	32,5	50	1495	620,89	0,498	0,458
4WT 1152	32,5	60	1794	894,08	0,597	0,668
4WT 1194	21,5	60	1186,8	391,28	0,395	0,599

WOUND DIVIDED CORES FOR THREE-PHASE TRANSFORMERS – 50 Hz DIMENSIONS (MECHANICAL DATA)



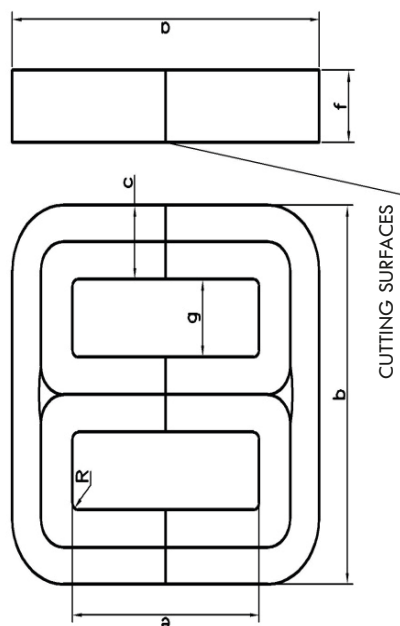
Type	a max.	b max.	c max.	e min.	f max.	g min.	s	r max.	l ₁ inner.	l ₂ outer	Q _{fe} min.	Q _{fe} min.	Transmitted output
S3U 30b	53,7	50,9	9,1-9,9	32,5	15,5-16,1	10	0,3	1,5	9,8	17,1	1,34	0,188	6,8
S3U 39a	68,9	66	12,1-12,9	41,5	12,5-13,4	13	0,3	1,5	12,7	22,2	1,43	0,261	14,2
S3U 39b	68,9	66	12,1-12,9	41,5	19,5-20,4	13	0,3	1,5	12,7	22,2	2,24	0,407	24,4
S3U 48a	83,9	80,8	14,9-15,8	50,5	15,6-16,6	16	0,4	1,5	15,5	27,2	2,2	0,491	37,8
S3U 48b	83,9	80,8	14,9-15,8	50,5	24,6-25,6	16	0,4	1,5	15,5	27,2	3,49	0,776	62
S3U 60b	104,6	100,9	18,9-19,8	63	29,5-30,6	20	0,4	2	19,4	33,9	5,3	1,47	160
S3U 75a	129,7	125,7	23,7-24,7	78	25-26,1	25	0,4	2	24,1	42,2	5,63	1,82	263
S3U 75b	129,7	125,7	23,7-24,7	78	40-41,1	25	0,4	2	24,1	42,2	9,01	2,93	416
S3U 90a	156,8	150,6	28,5-29,6	95	29,5-30,9	30	0,5	3	29,1	50,8	7,99	3,33	510

WOUND DIVIDED CORES FOR THREE-PHASE TRANSFORMERS – 50 Hz DIMENSIONS (MECHANICAL DATA)



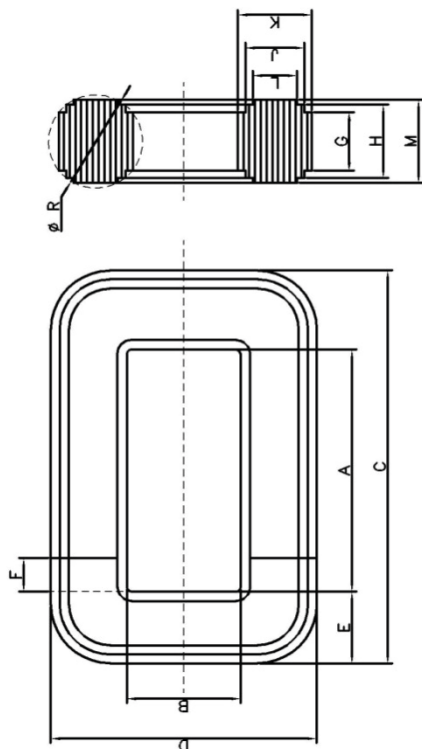
Type	a max. mm	b max. mm	c max. mm	e min. mm	f max. mm	g min. mm	s mm	r max. mm	l ₁ inner. cm	l ₂ outer cm	Q _{fe} min. cm ²	Q _{fe} min. kg	Transmitted output VA
S3U 90b	156,8	150,6	28,5-29,6	95	49,5-50,9	30	0,5	3	29,1	50,8	13,4	5,59	810
S3U 102b	176,4	171,1	32,5-33,7	106	55-56,4	34	0,5	3	32,8	57,5	17	8	1270
S3U 114a	196,2	191	36,3-33,7	118	37,5-39,2	38	0,6	3	36,6	64,2	12,9	6,79	1220
S3U 114b	196,2	191	36,3-33,7	118	61,5-63,2	38	0,6	3	36,6	64,2	21,2	11,14	1880
S3U 132a	226,4	220,5	42-43,4	136	43,5-45,2	44	0,6	3	42,3	74,2	17,4	10,54	2080
S3U 132b	226,4	220,5	42-43,4	136	69,5-71,2	44	0,6	3	42,3	74,2	27,7	16,84	3060
S3U 150a	255,6	249,6	47,9-49,4	154	49,5-51,2	50	0,6	3	48	84,3	22,5	15,53	3100
S3U 150b	255,6	249,6	47,9-49,4	154	74,5-76,2	50	0,6	3	48	84,3	33,9	23,38	4310
S3U 168a	286	279,6	53,7-55,3	172	55-57	56	0,8	3	53,8	94,4	28,1	21,68	4670

WOUND DIVIDED CORES FOR THREE-PHASE TRANSFORMERS – 50 Hz DIMENSIONS (MECHANICAL DATA)



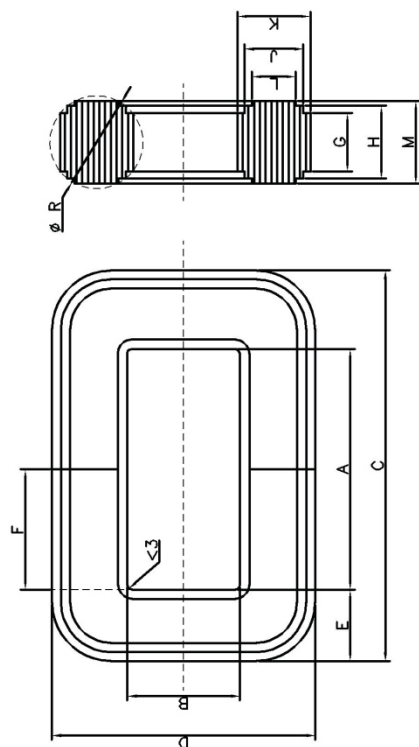
Type	a max. mm	b max. mm	c max. mm	e min. mm	f max. mm	g min. mm	s mm	r max. mm	l ₁ inner. cm	l ₂ outer cm	Q _{Fe} min. cm ²	Q _{Fe} min. kg	Transmitted output VA
S3U 180a	307,2	301	57,9-59,7	184	60-62	60	0,8	3	57,7	101,5	33	27,38	5900
S3U 180b	307,2	301	57,9-59,7	184	75-77	60	0,8	3	57,7	101,5	41,3	34,23	7090
S3U 180c	307,2	301	57,9-59,7	184	90-92	60	0,8	3	57,7	101,5	49,5	41,07	8130
S3U 210a	357,2	350,8	67,6-69,6	214	69,5-71,7	70	0,8	3	67,2	118,2	44,6	43,12	10000
S3U 210b	357,2	350,8	67,6-69,6	214	99,5-101,7	70	0,8	3	67,2	118,2	63,9	61,74	12900
SU3 240b	406,2	400,8	77,6-79,6	243	106,5-108,7	80	0,8	3	76,6	134,7	78,5	86,5	19200

WOUND CORES WITH A GRADUATED CUT OF C-SHAPE DIMENSIONS (MECHANICAL DATA)



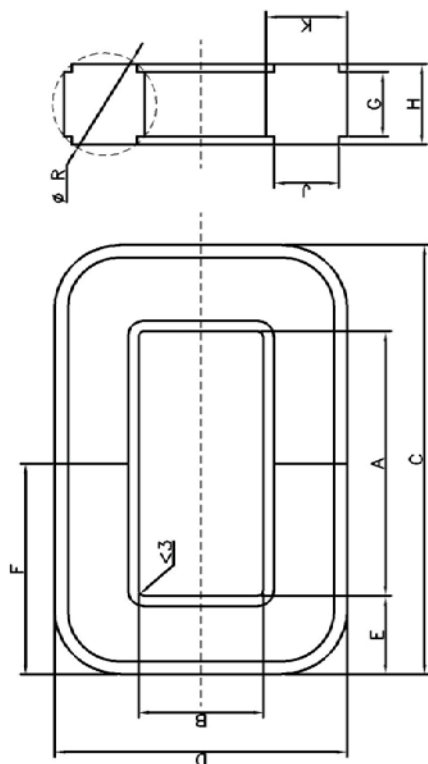
Type	Dimension in mm													S _{min} 0,95	Lmid.	Weight
	A min.	B min.	C max.	D max.	E	F	G min.	H min.	M min.	L	J	K	R			
KPB 35	170	110	269	208	48	20±5	50	60	65	20	33	48	71	26,9	0,706	15,2
KPB 40	250	105	368	222	57,5	10±5	40	50	60	31	48	57,5	71	29,35	0,910	20,85

WOUND CORES WITH A GRADUATED CUT OF C-SHAPE DIMENSIONS (MECHANICAL DATA)



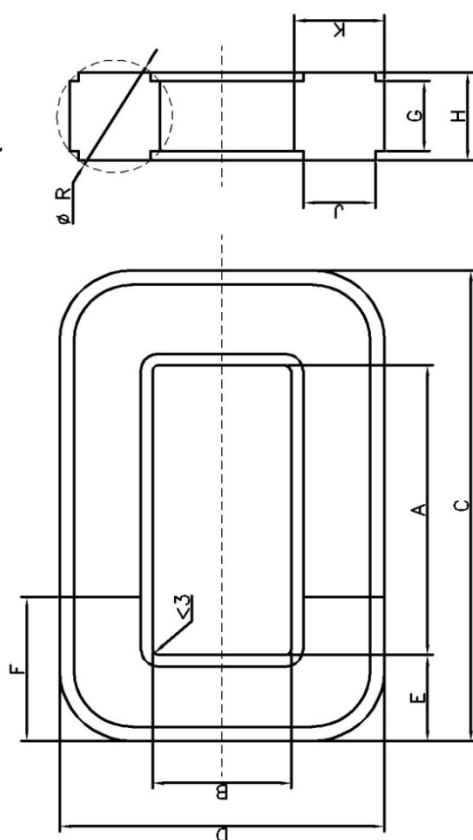
Type	Dimension in mm											S _{min} 0,95 cm ²	Lmid. m	Weight kg
	A min.	B min.	C max.	D max.	E	F	G min.	H min.	M min.	L	J	K	R	
14060	136	60	228	151	44	68±10	30	40	50	20	36	44	56	17,9
KPB12	136	60	228	152	44	68	30	40	50	20	36	44	56	17,9
13070	126	70	256	197	62	63±10	30	50	60	34	47	62	71	29,7
140110	138	110	298	269	78	70	36	60	78	36	60	78	87	47,0
14295	142	95	266	218	60	70	30	50	64	30	50	60	71	30,6
														0,67
														16,5

WOUND CORES WITH A GRADUATED CUT OF C-SHAPE DIMENSIONS (MECHANICAL DATA)



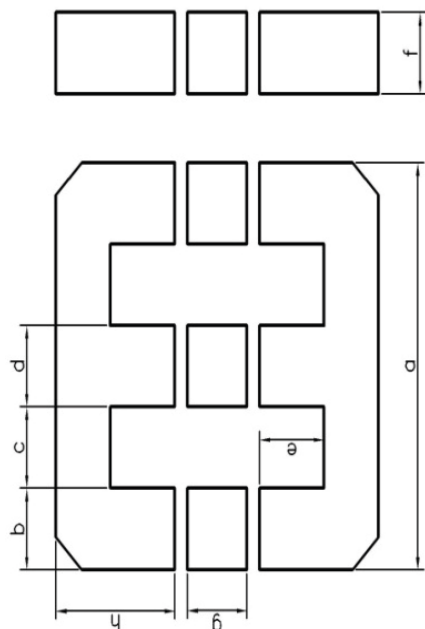
Type	Dimension in mm											Sp	Lmid.	Weight
	A min.	B min.	C max.	D max.	E	F	G	H	K	J	R			
												cm²	m	kg
JNR-PL	160	76	250	166	45	80±5	40	50	45	35	63	20,42	0,6321	9,875
55065	65	55	115	105	24	57,5±5	15	23	24	16	29,3	4,94	0,326	1,23
25473	115	60	220	165	50	110±5	40	50	50	40	64,5	22,80	0,526	10,10
25474	125	100	230	205	50	115±5	40	50	50	40	64,5	22,00	0,626	11,00
21667	115	67	220	172	50	110±5	40	50	50	40	64,5	23,00	0,370	10,40

WOUND CORES WITH A GRADUATED CUT OF C-SHAPE DIMENSIONS (MECHANICAL DATA)



Type	Dimension in mm											Sp	Lmid.	Weight
	A min./	B min.	C max.	D max.	E	F	G	H	K	J	R			
												cm ²	m	kg
30275	165	77	268	180	49	20±5	40	50	49	36	63,5	22,04	0,658	11,600
30282	115	67	218	170	49	20±5	40	50	49	36	63,5	22,04	0,537	9,050
31507	123	97	226	200	49	20±5	50	60	49	40	73	27,08	0,613	12,700
449977	140	60	243	160	49	20±5	40	50	49	36	63,5	22,04	0,596	10,050
67500	185	129	295	239	55	20±5	45	55	55	45	71,5	27,79	0,810	17,220
65220	140	125	265	250	60	20±5	55	65	60	50	83	36,10	0,737	22,700
K-30	160	70	245	155	42	20±5	30	40	42	32	52	15,01	0,628	7,100
K-301	150	60	236	145	42	20±5	30	40	42	32	52	15,01	0,598	6,450

UNICORE CORES OF THE TYPE 3UI FOR CHOKES AND TRANSFORMERS

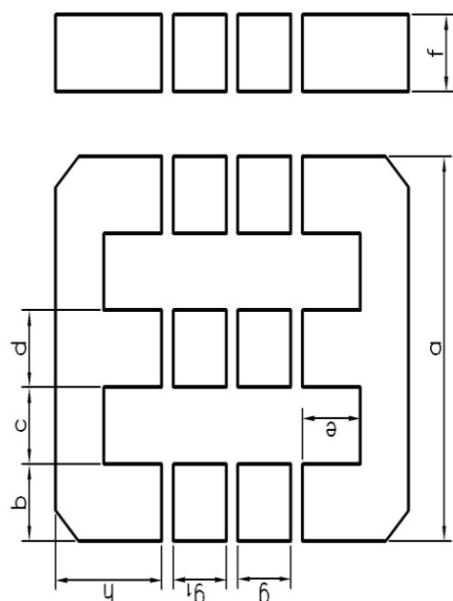


Type	a	b	c	d	e	f	g	h	Weight
	mm	mm	mm	mm	mm	mm	mm	mm	kg
3UI 75/25	125	25	25	25	25	25	23	50	2,1
3UI 75/40	125	25	25	25	25	25	25	50	3,5
3UI 102/35	170	34	34	34	25	35	50	59	5,4
3UI 102/45	170	34	34	34	25	45	50	59	7,1
3UI 120/40	200	40	40	40	25	40	65	65	8,6
3UI 132/60	220	44	44	44	25	60	75	70	15,7
3UI 120/70	200	40	40	40	25	70	65	65	15,0
3UI 150/50	250	50	50	50	30	50	85	80	16,8
3UI 150/75	250	50	50	50	30	75	85	80	25,0
3UI 150/90	250	50	50	50	30	90	85	80	30,0
3UI 168/90	280	56	56	56	30	86	105	86	38,0

UNICORE CORES OF THE TYPE 3UI FOR CHOKES AND TRANSFORMERS

Design: bonded

Cutting surface quality for transformers: ground

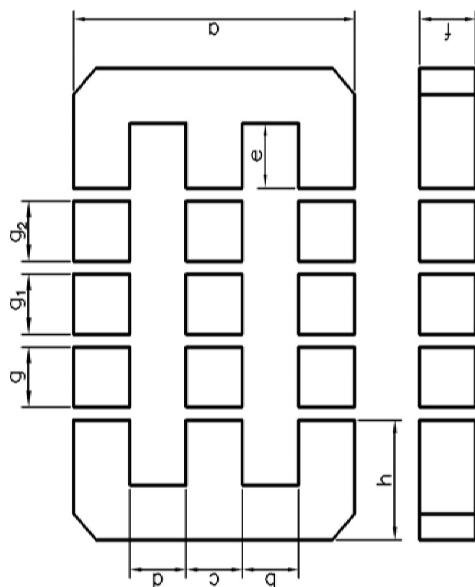


Type	A	b	c	d	e	f	g	g ₁	h	Weight
	Mm	mm	mm	mm	mm	mm	mm	mm	mm	Kg
1OF1	220	44	44	44	11	70	53	53	55	18,3
3UI 114/4	190	38	38	38	25	32	32	32	63	7,9
3UI 90/30	150	30	30	30	25	30	15	15	55	3,7
3UI 210/85	350	70	70	70	35	85	54	54	105	52,0



UNICORE CORES OF THE TYPE 3UI FOR CHOKES

Bonded



Type	a	b	c	d	e	f	g	g ₁ /g ₂	h	Weight
	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg
3UI 210/85	350	70	70	70	35	85	54	54	105	59,37
3UI 150/52	250	50	50	50	25	50	29	29	75	17,1
3UI 168/92	280	56	56	56	25	90	32	32	81	36,0
3UI 90/30	150	30	30	30	25	30	11	11	11	4,32

