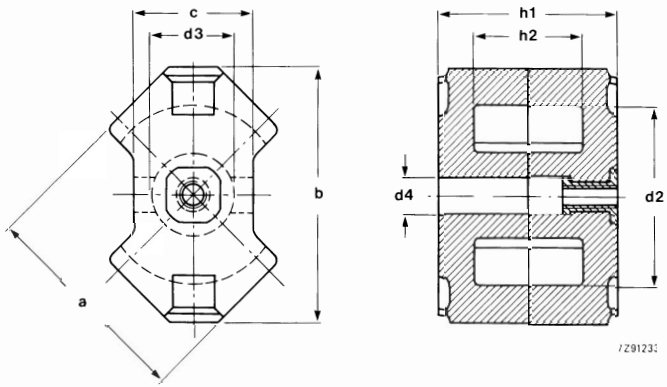
For detailed information see Data Handbook C4/C5

Section	Catalogue page number
Material grades	M48
RM – cores	M49
RM/i – cores	M51
P – cores	M55
P – cores for proximity switches	M58
E – cores	M59
EF – cores	M59
ETD – cores	M61
EC – cores	M63
U – cores	M64
I – cores	M64
Ring cores	M66
Iron powder ring cores	M67
Rods	M68
Impeder cores	M69
Tubes	M70
RFI – suppression beads	M71
RFI – suppression beads on wire	M72
Multihole tubes	M73
Wide band chokes	M74
Yoke rings	M75

For detailed information on these and other types see Data Handbook C4/C5

RM–cores (**Rectangular Module**) have been developed for use in analog, high density telecommunications. They are standardised to IEC–205.
available types:

- core halves without air gap and nut
- gapped sets of cores within a range of AL–values, with or without moulded in nuts
- inductance adjusters
- coilformers and clips



type	dimensions (mm)								Ve mm³	Ae mm³	le mm
	a	b	c	d2	d3	d4	h1	h2			
RM4	9.8	11	4.6	8	3.9	2.04	10.4	7	230	11.0	21.3
RM5	12.3	14.6	6.8	10.2	4.9	2.04	10.4	6.3	450	21.2	21.4
RM6R	14.7	17.9	6.3	12.6	6.3	3	12.4	8	810	32.0	25.6
RM6S	14.7	17.9	8.2	12.4	6.2	3	12.4	8	840	31.0	27.3
RM8	19.7	23.2	11	17	8.4	4.4	16.4	10.8	1850	52.0	35.5
RM10	24.7	28.5	13.5	21.2	10.9	5.4	18.7	12.4	3470	83.2	41.7

Ungapped cores (without nut)

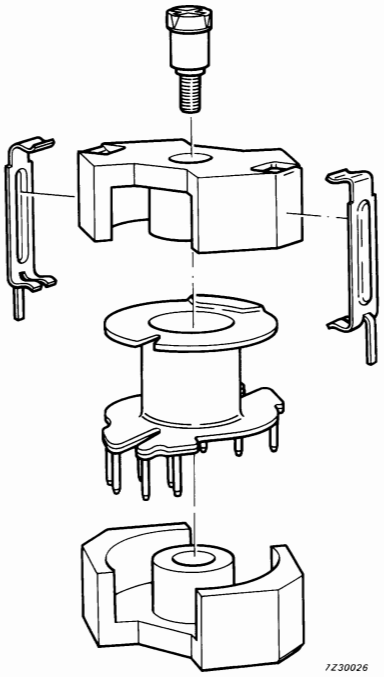
	4C6	3D3	3H3	3H1
RM4	**4322 020 26530**	**4322 020 26520**	**4322 020 26540**	**4322 020 26510**
RM5	**4322 020 26780**	**4322 020 26770**	**4322 020 26790**	**4322 020 26760**
RM65	**4322 020 25080**	**4322 020 25060**	**4322 020 2520**	**4322 020 25020**
RM6R	**4322 020 25150**	**4322 020 25140**	**4322 020 25190**	**4322 020 2513**
RM8	**4322 020 27280**	**4322 020 27270**	**4322 020 27290**	**4322 020 27260**
RM10				**4322 020 28400**

For gapped core sets and recommended adjusters see handbook C4/C5.

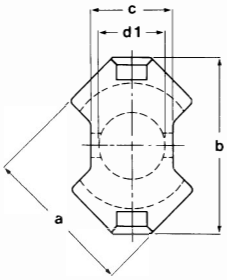
For detailed information on these and other types see Data Handbook C4/C5

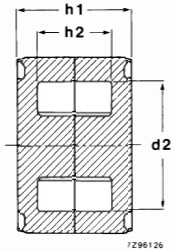
RM/i–cores have no central hole and are very suitable for use in small power transformers, general purpose transformers and chokes. The dimensions are according to IEC–205.

Types available are:
- ungapped cor halves
- gapped core sets within a standard range of AL–values
- coilformers and clips



7Z30026





7Z96126

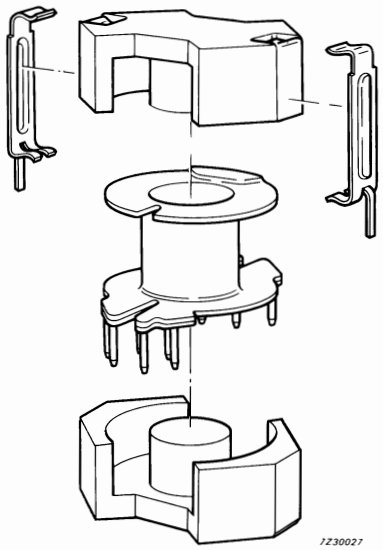
core type	dimensions (mm)							magnetic dimensions		
	a	b	c	d1	d2	h1	h2	V_e (mm^3)	A_e (mm^2)	l_e (mm)
RM4/i	9.9	11.1	4.6	3.9	8	10.4	7	322	14.4	23.3
RM5/i	12.4	14.7	6.8	4.9	10.2	10.4	6.3	574	24.8	23.2
RM6–S/i	14.8	18	8.2	6.3	12.4	12.4	8	1090	37	29.2
RM8/i	20.0	23.4	11.1	8.4	16.9	16.4	10.8	2440	63	38.4
RM10/i	24.8	28.6	13.6	11	21.1	18.6	12.3	4310	96.6	44.6
RM12/i	29.9	37.6	16.5	12.9	24.8	24.5	16.6	8340	146	56.6
RM14/i	35	42.5	19	15.1	28.9	30.1	20.6	13900	198	70

Accessories for RM/i-cores

For detailed information on these and other types see Data Handbook C4/C5

Two types of coilformers are available:
- phenolic coilformers, also used for the RM-range (UI 94-Vo)
- dual-in-line coilformers for power transformers, material: polyterephtalate (UI 94-Vo)

Two types of clips may be used:
- straight-backed types for high clamping forces
- rounded-backed types for easier assembly and lower clamping forces



Coil formers – 1 section

RM core type	cat. number 4 pins	cat. number 6 pins	cat. number 12 pins
RM4	–	**4322 021 32210**	–
RM5	**4322 021 32830**	**4322 021 32840**	–
RM6R	**4322 021 32280**	**4322 021 32290**	–
RM6S	**4312 021 29240**	**4312 021 29250**	–
RM8	–	–	**4322 021 32390**
RM10	–	–	**4322 021 32470**
RM14	–	–	**4322 021 33530**

Coil formers – 2 sections

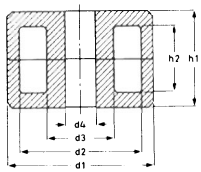
RM core type	cat. number 6 pins	cat. number 8 pins	cat. number 12 pins
RM6R	**4322 021 32310**	–	–
RM6S	**4322 021 32950**	–	–
RM8	–	**4322 021 32420**	–
RM10	–	–	**4322 021 32790**

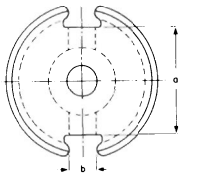
For detailed information on these and other types see Data Handbook C4/C5

P–cores are not comparable with RM–cores when dense component packing and efficient winding are required. However, they are ideal when maximum magnetic shielding is required.

Types available are:
- core halves without airgap and nut
- gapped core sets within a standard (IEC) range of A_L–values, with or without moulded–in nut
- inductance adjusters
- core assembly hardware

The dimensions of potcores P11/7 to P42/42 are in accordance with the specifications:
IEC 133 (International)
C93–324 (France)
DIN 41294 (Germany)
BS 4061 (U.K.)





size	dimensions (mm)								core factor and effective dimensions			
	d1	d2	d3	d4	h1	h2	a	b	C_1 mm^{-1}	V_e mm^3	l_e mm	A_e mm^2
P5.8/3.3	5.8	4.5	2.5	0.95	3.3	3.2	–	1.4	1.68	37.0	7.9	4.7
P7.4/4.2	7.4	5.8	3	1.4	4.2	2.8	5.7	1.6	1.43	70.0	10.0	7.0
P9/5	9.3	7.5	3.9	2.04	5.4	3.6	6.5	2	1.24	126	12.5	10.1
P11/7	11.1	9	4.7	2.04	6.5	4.4	6.8	2.2	0.956	251	15.5	16.2
P14/8	14	11.6	6	3	8.4	5.6	9.5	3.3	0.789	495	19.8	25.1
P18/11	17.9	14.9	7.6	3	10.6	7.2	13.4	3.8	0.597	1120	25.8	43.3
P22/13	21.5	17.9	9.4	4.4	13.4	9.2	15	3.8	0.497	2000	31.5	63.4
P26/16	25.5	21.2	11.5	5.4	16	11	18	3.8	0.400	3530	37.6	93.9
P30/19	30	25	13.5	5.4	18.9	13	20.5	4.3	0.330	6190	45.2	137
P36/22	35.5	29.9	16	5.4	21.9	14.6	26.2	4.9	0.264	10700	53.2	202
P42/29	42.4	35.6	17.7	5.4	29.4	20.3	32	5.1	0.259	18200	68.6	265

Ungapped cores without nut (4322 020 .....)

core type	4C6	3D3	3H3	3H1	3B8	3C85	3F3
P5.8/3.3				**54**			
P7.4/4.2				**54600**			
P9/5	**20940**	**20900**		**20980**			
P11/7	**21140**	**21020**		**21010**	**28760**	**28840**	**28830**
P14/8	**21350**	**21270**		**21260**	**21400**	**29100**	**29090**
P18/11	**21610**	**21520**	**21650**	**21510**	**21670**	**29300**	**29290**
P22/13	**21830**	**21770**		**21760**	**21940**	**29570**	**29560**
P26/16	**22110**	**22020**		**22010**	**22220**	**29850**	**29840**
P30/19		**22270**		**22260**	**22390**	**22480**	**22470**
P36/22		**22520**		**22510**	**22610**	**22690**	**22670**
P42/29				**22760**		**22900**	**22880**

Accessories for P–cores (cont.)

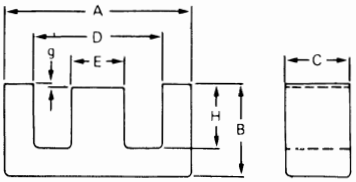
For detailed information on these and other types see Data Handbook C4/C5

Mounting parts catalogue number 4322 021 .....

	P11/7	P14/8	P18/11	P22/13	P26/16	P30/19	P36/22	P42/29
Brass container	**30510**	**30520**	**30530**	**30540**	**30550**	**30560**	**30570**	**30580**
Tag plate	**30180**	**30440**	**30450**	**30460**	**30470**	**30480**	**30490**	**30500**
Spring	**30620**	**30630**	**30640**	**30650**	**30660**	**30670**	**30680**	**30690**
nut			**30710**	**3071**	**3071**	**3071**	**3071**	**3071**
fixing back			**30720**	**3072**	**3072**	**3072**	**3072**	**3072**

For detailed information on these and other types see Data Handbook C4/C5

E–cores are standardized to DIN 41295. They are used in a multitude of applications as power transformers or chokes. EF–cores have been dimensionally optimized for the use of ferrite, where E–cores have the same dimensions as metal lamination cores. We offer an extensive range in 3C8, 3C85, 3F3 and 3C11. For gapped cores see handbook C4/C5.



type	dimensions (mm)						magnetic parameters for a set of cores		
	A max	B max	C max	D min	E min	H min	Ve mm^3	Ae mm^2	le mm
E20/10/5	20.7	10.2	5.3	12.8	4.8	6.3	1340	31.2	42.8
E25/13/7	25.8	12.8	7.5	17.5	7.2	8.7	3160	55	57.5
E30/15/7	30.8	15.2	7.3	19.5	6.7	9.7	4000	59.7	66.9
E42/21/15	43.0	21.2	15.2	29.5	11.7	14.8	17600	182	97
E42/21/20	43.0	21.2	20.0	29.5	11.7	14.8	23100	236	98
E55/28/21	56.2	27.8	21.0	37.5	16.7	18.5	43700	354	123
E65/33/27	66.5	32.8	27.4	44.2	19.3	22.2	78200	532	147
EF12.6	13.1	6.5	3.7	8.9	3.4	4.5	384	13	29.6
EF16	17.3	8.2	4.7	11.3	4.4	5.7	754	20.1	29.6
EF20	20.4	10.2	5.9	14.1	5.5	7.0	1500	33.5	44.9
EF25	25.8	12.8	7.5	17.5	7.0	8.7	3020	52.5	57.5
EF32	32.9	16.4	9.5	22.7	8.9	11.2	6180	83	74

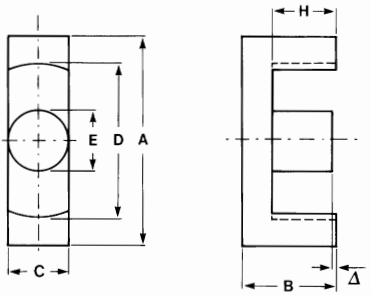
type	material grade			
	3C8	3C85	3F3	3C11
E20/10/5	**4312 020 24070**			**4312 020 35970**
E25/13/7	**4312 020 34020**			**4312 020 35620**
E30/15/7	**4312 020 34550**			**4312 020 35080**
E42/21/15	**4312 020 34110**	**4312 020 35640**		**4312 020 35980**
E42/21/20	**4312 020 34120**	**4312 020 35650**		
E55/28/21	**4312 020 34100**	**4312 020 35910**		
E65/33/27	**4312 020 34380**			
EF12.6	**4312 020 34470**			
EF16	**4312 020 35550**			
EF20	**4312 020 35040**			**4312 020 35560**
EF25	**4312 020 34020**			**4312 020 35620**
EF32	**4312 020 35400**			**4312 020 34930**

For detailed information on these and other types see Data Handbook C4/C5

The ETD–series of high frequency power cores in Ferroxcube 3C8, 3C85 and 3F3 ferrite has been optimized to meet the current requirements of switched–mode power supplies.

Features

- Round centre pole for minimum conductor length.
- Maximum throughput power in the frequency range 20 to 500 kHz.
- Minimum core weight due to constant cross–sectional area proper choice of transition frequency.
- Winding breadth sufficient for full IEC mains isolation in specified configurations.
- Sufficient winding height for minimum loss windings.



7Z91231

	dimensions (mm)						magnetic dimensions		
type	A max	B max	C max	D min	E min	H min	Ve	Ae	le
ETD29/16/10	30.6	16	9.8	22	9.8	11.3	5470	76	72
ETD34/17/11	35	17.5	11.1	25.6	11.1	11.8	7640	97.1	78.6
ETD39/20/13	40	20	12.8	29.3	12.8	14.2	11500	125	92.2
ETD44/22/15	45	22.5	15.2	32.5	15.2	16.1	17800	173	103
ETD49/25/16	49.8	24.9	16.7	36.1	16.7	17.7	24000	211	114

Range of ungapped core halves

	material grade		
type	3C8	3C85	3F3
ETD29/16/10		**4312 020 37500**	
ETD34/17/11	**4312 020 37000**	**4312 020 37200**	
ETD39/20/13	**4312 020 37050**	**4312 020 37250**	
ETD44/22/15	**4312 020 37100**	**4312 020 37300**	
ETD49/25/16	**4312 020 37150**	**4312 020 37350**	

Ungapped core sets are also available (see handbook C4/C5).

EC–cores and accessories

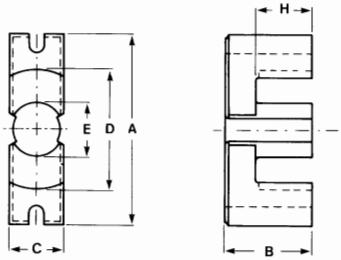
For detailed information on these and other types see Data Handbook C4/C5

EC–cores have a round centre pole to make strip winding easy, and ensuring a high copper factor and low leakage inductance; they meet the IEC65 standards for creepage distance (2 x 4 mm) and clearance between terminal pins and core.

type	dimensions (mm)						magnetic parameters		
	A max	B max	C max	D min	E min	H min	Ve mm^3	Ae mm^2	le mm
EC35/17/10	35.3	17.45	9.8	22.2	9.8	11.9	6530	84.3	77.4
EC41/19/12	41.6	19.65	11.9	26.3	11.9	13.5	10800	121	89.3
EC52/24/14	53.5	24.35	13.75	32.1	13.75	15.5	18800	180	105
EC70/34/17	71.7	34.65	16.8	43.3	16.8	22.3	40100	279	144

Range of ungapped core halves

type	material grade	
	3C8	3C85
EC35/17/10	**4322 020 52500**	
EC41/19/12	**4322 020 52510**	
EC52/24/14	**4322 020 52520**	
EC70/34/17	**4322 020 52530**	



Accessories

type	coil former				mounting parts (set)
	coil former cat.no. **4322 021**	no. of tags	mounting horizontal or vertical	cat. no. of tags **4322 021**	cat. no. of set **4312 021**
EC35/17/10	**33410**	11	H	–	**26010**
	33310	13	H		
EC41/19/12	**33010**	–	–	33060	**26020** without mounting stud
	33320	9	H		
	33350	9	V		**26030** with mounting stud
	33480	12	H		
	33490	21	H + V		
EC52/24/14	**33020**	–	–	33070	**26040** without mounting stud
	33330	11	H		
	33360	11	V		**26050** with mounting stud
	33500	14	H		
EC70/34/17	**33030**	–	–	33070	**26060** without mounting stud
	33340	15	H		
	33370	15	V		**26070** with mounting stud

Coilformer of flame retarding PBTP (UL94 – V_0, yellow card number E45 329–M).

M

For detailed information on these and other types see Data Handbook C4/C5

Ordering code for core range and accessories

type	material grade		
	3C8	3C11	coilformer
U10/8/3	**3122 134 91160**		**4322 021 35701**
U15/11/6	**3122 134 90690**		**3122 134 02540**
U20/16/7	**4312 020 33510**		**3122 137 64140**
U25/20/13	**3122 134 90460**		**3122 137 61910**
U30/25/16	**3122 134 90760**		**3122 137 55360**
U93/52/30	**4312 020 33580**		–
U93/76/30	**4312 020 33570**		–
U93/76/16	**4312 020 33550**		–
U100/57/25	**4312 020 33600**		–
I15/3/3	**3122 134 90730**		**3122 134 02590**
I20/6/5	**3122 134 90720**		**3122 134 02540**
I25/7/7	**3122 134 90620**		**3122 137 64140**
I93/28/16	**4312 020 33560**		–
I93/28/30	**4312 020 33590**		–
I100/28/25	**4312 020 33610**		–

Iron powder ring cores

For detailed information on these and other types see Data Handbook C4/C5

These ring cores are made from electrolytic iron mixed with a small amount of resin to prevent excessive eddy currents. Due to their high saturation flux density (more than 1500 mT) they are very suitable for output chokes carrying high DC currents. The cores are coated with nylon 11 (0.1 – 0.3 mm thickness to give good HV insulation between core and winding (2 kV).

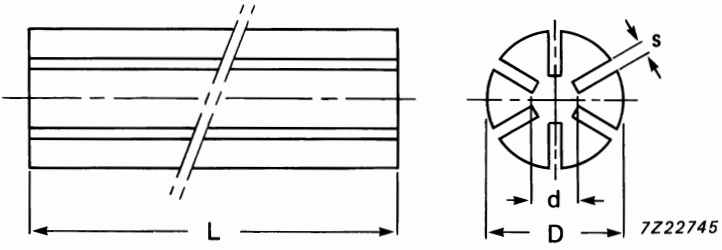
Range of cores (4330 030 .....)

size excl. coating D x d x h	grade: μi: colour code:	2P40 40 ± 10% dark yellow	2P50 50 + + 10% dark blue	2P65 65 ± 10% dark red	2P80 80 ± 10% darg green	2P90 90 ± 10% dark brown
7.5 x 4.1 x 3		**60010**	**60080**	**6150**	**60220**	**60290**
12.3 x 8 x 4.4		**60020**	**60090**	**60160**	**60230**	**60300**
17.1 x 9.8 x 4.4		**60030**	**60100**	**60170**	**60240**	**60310**
19.9 x 12.9 x 6		**60040**	**60110**	**60180**	**60250**	**60320**
23.5 x 14.6 x 7.5		**60050**	**60120**	**60190**	**60260**	**60330**
26.5 x 14.9 x 10.7		**60060**	**60130**	**60200**	**60270**	–
32.6 x 20.2 x 10.7		**60070**	**60140**	**60210**	**60280**	–

Impeder cores

For detailed information on these and other types see Data Handbook C4/C5

The features of a typical impeder core are high magnetic saturation flux density and low losses at the normal working conditions (commonly 100–500 kHz and 80–120°C). Slots in rods decrease the eddy current losses and have an additional cooling effect. Listed in the table are our preferred types.



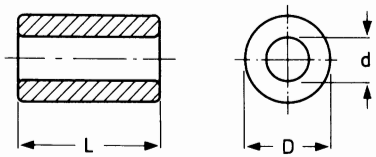
M

D	d	L	s	no. of slots	FXC grade	catalogue number
6 ±0.2	3	200 ±4	0.6	6	3D3	**4330 030 31190**
6 ±0.2	3	200 ±4	0.6	6	3C85	**4330 030 31210**
8 –0.5	3	125 ±3.75	0.6	6	3D3	**4330 030 30970**
8 ±0.5	3	200 ±4	0.6	6	3C85	**4330 030 31220**
10 –0.5	4.5	170 ±5	0.6	6	3D3	**4330 030 30990**
10 ±0.25	4.5	200 ±4	0.6	6	3C85	**4330 030 31230**
12 –0.7	5.5	170 ±5	0.7	8	3D3	**4330 030 31250**
12 ±0.35	5.5	200 ±4	0.7	8	3C85	**4330 030 31240**
14.3 –0.8	6.5	170 ±5	0.8	8	3D3	**4330 030 31200**
14.3 ±0.4	6.5	200 ±4	0.8	8	3C85	**4330 030 31260**

RFI-suppression beads

For detailed information on these and other types see Data Handbook C4/C5

Thread the beads onto leads of a domestic appliance, or even a diode in a TV power supply, and perhaps it's all you need to meet the requirements for interference suppression. Special grades of materials have been developed for this application: 3S1 and 4S2. Minimum bead impedances are guaranteed at the frequencies in the table below. Beads are listed according to their magnetic effectiveness which is calculated by the formula L. ln D/d.



	frequency (MHz)							dimensions			
	1	3	10	30	100	300					
grade	$\|Z_S\|$ min. (Ω)						cat. number	D	d	L	L. ln(D/d)
3S1	10	18	24	20	17	15	**4330 030 32180**	5	2	4	3.3
	14	29	30	24	20	18	**4330 030 32120**	3	1	4	4.2
	10	20	32	26	22	20	**4330 030 32160**	5	1.5	4	4.5
	19	38	39	31	26	23	**4330 030 32100**	3	0.75	4	5.5
	27	52	53	42	36	32	**4330 030 32140**	5	0.75	4	7.2
	29	51	61	49	42	37	**4330 030 32190**	5	2	10	8.4
	33	72	73	58	50	44	**4330 030 32130**	3	1	10	10.5
	40	72	80	64	55	48	**4330 030 32170**	5	1.5	10	11.2
	58	95	97	77	66	58	**4330 030 32110**	3	0.75	10	13.2
	70	125	128	90	70	50	**4330 030 32150**	5	0.75	10	18.0
4S2	2	8	15	20	32	36	**4330 030 33150**	5	2	4	3.3
	2	8	15	22	34	38	**4330 030 33180**	8	3	4	3.8
	3	9	18	25	38	43	**4330 030 33120**	3	1	4	4.2
	3	10	20	27	41	47	**4330 030 33140**	5	1.5	4	4.5
	4	10	20	31	49	55	**4330 030 33170**	8	2	4	5.4
	2	8	22	32	50	54	**4330 030 33110**	3	0.75	4	5.5
	4	14	27	38	57	65	**4330 030 33160**	8	1.5	4	6.5
	5	15	30	44	68	77	**4330 030 33130**	5	0.75	4	7.2
	6	15	30	51	80	89	**4330 030 33190**	5	2	10	8.4
	6	20	40	55	85	95	**4330 030 33200**	8	3	10	9.5
	7	23	43	61	95	107	**4330 030 33210**	3	1	10	10.5
	7	25	45	68	104	116	**4330 030 33220**	5	1.5	10	11.2
	9	28	55	787	121	134	**4330 030 33230**	8	2	10	13.4
	9	30	55	81	125	135	**4330 030 33240**	3	0.75	10	13.2
	10	34	70	93	145	161	**4330 030 33250**	8	1.5	10	16.3
	12	40	75	110	170	190	**4330 030 33260**	5	0.75	10	18.0

For detailed information on these and other types see Data Handbook C4/C5

Multi–hole tubes are used for small HF transformers for voltage or impedance matching in TV, communications, data transmission, instrumentation and similar applications.

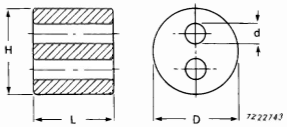


Fig. 1

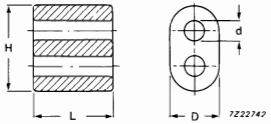


Fig. 2

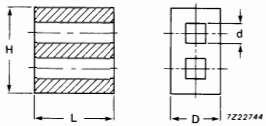


Fig. 3

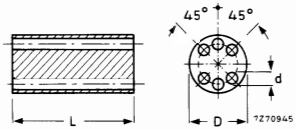


Fig. 4

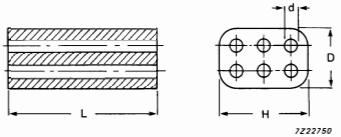


Fig. 5

fig.	D mm	d mm	L mm	H mm	grade	cat. number
1	5.6 ±0.25	0.95 ±0.15	4.5 –0.5	–	4D1	**3122 134 90800**
	5.6 ±0.15	1.5 ±0.15	12 ±0.2	–	4B1	**4330 030 32740**
	5.9 –0.6	0.75 +0.3	12.4 –0.8	–	4B1	**3122 104 90960**
	6.6 –0.6	1.05 +0.3	5 ±0.2	–	4B1	**3122 104 94840**
2	8.5 –0.5	3.5 +0.5	8 ±0.3	14 +0.5	4B1	**4312 020 31570**
	8.5 –0.5	3.5 +0.5	14 ±0.4	14 +0.5	4B1	**4312 020 31520**
2*	8 ±0.3	3 ± 0.3	6 ±0.3	13 ±0.3	4B1	**4313 020 40030**
	8 ±0.3	3 ± 0.3	6 ±0.3	13 ±0.3	3C85	**4313 020 40050**
3	5.4 ±0.3	2 ±0.3	10.9 ±0.3	10.8 ±0.3	4A11	**4313 020 20570**
	5.4 ±0.3	2 ±0.3	10.9 ±0.3	10.8 ±0.3	3C85	**4313 020 20800**

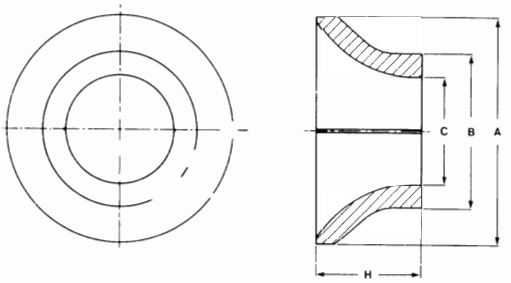
* chamfer in holes and sides

fig.	D mm	d mm	L mm	grade	cat. number
4	6 ±0.3	0.7 +0.2	10 ±0.5	3B1	**4312 020 31500**
	6 ±0.3	0.7 +0.2	10 ±0.5	4B1	**4312 020 31550**

fig.	D mm	d mm	H mm	L mm	grade	cat. number
5	4 ±0.2	0.7 ±0.3	6.1 ±0.3	10 ±0.5	3B1	**4312 020 31530**

Yoke rings

For detailed information on these and other types see Data Handbook C5



status = C

application	grade	mass g	dimensions in mm A	B	C	H	catalogue number
B/W							
90° (tiny vision)	2A2	62	47	37	29	26	**3122 134 91680**
110°	2A2	135	56.3	58	39.5	27.5	**3122 134 91940**
110°	3C2	135	56.3	58	39.5	26	**3122 104 93840**
110°	3C2	215	79	54	–	37	**3122 134 90750**
110° (tiny vision)	3C2	90	57	–	30.6	26.5	**4313 020 35380**
	3C2	196	74	54	38	37	**4322 020 35070**
90°	3C2	112	63	50	38	32	**3122 134 90600**
Data graphic display	3C2	364	94	58	46	54	**3122 134 92030**
Colour							
90°	2A2	235	92	60	48	46.5	**3122 134 91610**
90°	2A2	153	74	52	40	37	**3122 134 92510**
90° (39SW)	2A2	228	92	60	48	42	**3122 134 92600**
90° (51FS)	2A2	235	89	60	46.5	42	**3122 134 92780**
90° (36FS)	2A2	157	76	52	40	33	**3122 134 93050**
90°	2A2	268	84	60	48	42	**3122 134 91440**
90° (39SW)	2A2	225	92	66	51	36	**3122 134 99370**
110° (30AX)	3C2	505	138	73.5	60	57.6	**3122 134 92500**
110° (45AX)	3C2	367	113	65.5	49.5	44.8	**3122 134 92750**
Data graphic display	3C2	285	92	64.2	52	48	**3122 134 92590**
Data graphic display	3C2	760	132	–	51	87	**3122 134 91850**

Wide band chokes

For detailed information on these and other types see Data Handbook C4/C5

Wide band HF chokes are used for interference suppression, e.g. in electric motors. Double chokes are used for twin leads, in which case the advantage of mutual inductance can be utilized.

The chokes can be supplied with six axial holes through which 1.5, 2.5, or 2 x 1.5 (double chokes) turns of tinned copper wire are threaded.

The solderability of the leads is determined by the test TA, method 1 and ageing time as described in IEC 68–2–28.

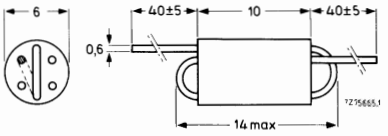


Fig. 1

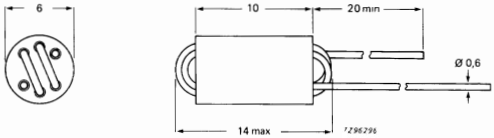


Fig. 3

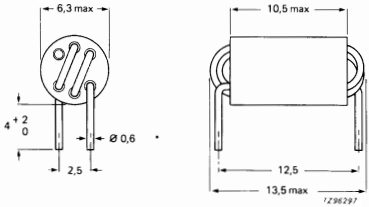


Fig. 2

number of turns	Z_{max} Ω	f at Z_{max} MHz	optimal frequency range MHz	grade	catalogue number
1.5	⩾300	120	10–300	3B1	**4312 020 36630**
1.5	⩾350	250	80–300	4B1	**4312 020 36690**
2.5	⩾600	50	10–200	3B1	**4312 020 36640**
2.5	⩾700	180	50–300	4B1	**4312 020 36700**
2 x 1.5	⩾700	50	10–220	3B1	**4312 020 36650**
2 x 1.5	⩾800	110	50–300	4B1	**4312 020 36710**

number of turns	fig.	grade	catalogue number
2.5	2	3B1	**4330 030 38080**
3	3	3B1	**4312 020 36760**
2.5	2	3B1	**4330 030 38960***
2.5	2	3B1	**4330 030 38990****

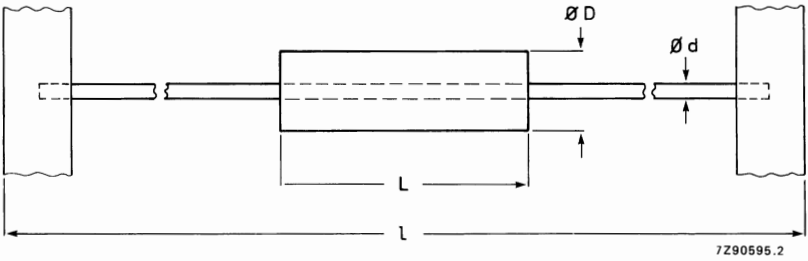
* with enamelled wire, pre–soldered

** with isolated body

RFI–suppression beads on wire

For detailed information on these and other types see Data Handbook C4/C5

Beads on wire are very suitable for suppressing unwanted signals between parts of a PC–board. They consist of a suppression bead fixed on a length of wire taped on a bandolier which will fit most commonly used automatic mounting machines.

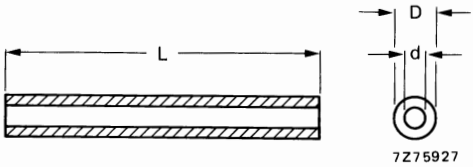


grade	frequency (MHz) 1	3	10	30	100	300	cat. number	dimensions D	d	L	l	tape standard
	|Z| min. (Ω)											
3S1	70	125	128	90	70	50	**4330 030 33330**	4.9	10	64.4	0.64	
3S2	5	18	48	70	80	65	**4330 030 38100**	3.5	6	75.0	0.60	
3D3	11	36	100	130	80	60	**4330 030 38110**	4.0	11	75.0	0.60	IEC 286 part 1
4S2	4	13	26	39	60	70	**4330 030 38730**	3.5	4.45	64.4	0.64	and
4S2	5	17	35	53	80	95	**4330 030 38740**	3.5	6.0	64.4	0.64	EIA–RS–296–D
4S2	6	20	39	59	88	105	**4330 030 38750**	3.5	6.7	64.4	0.64	
4S2	7	22	44	67	105	120	**4330 030 38760**	3.5	7.6	64.4	0.64	
4S2	8	26	52	78	117	140	**4330 030 38770**	3.5	8.9	64.4	0.64	
4S2	3	10	19	29	46	52	**4330 030 38810**	3.5	3.25	64.4	0.64	

For detailed information on these and other types see Data Handbook C4/C5

Tubes can be used in solenoid coils to increase the inductance value. The effect is almost the same as with rods. In RFI applications tubes may also be shifted over wires. Because the magnetic flux path is then closed a steep increase in impedance will result. In such cases the sensitivity for DC currents however, may be rather high.

Curvature and mechanical tolerances of the standard range fullfil the requirements of DIN 41 291 or its equivalent IEC 233–1966.



Standard rod programme

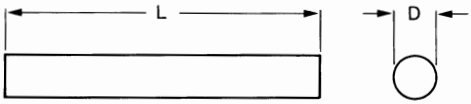
D O.D	tol. (–)	d I.D	tol. (+)	L	tol. (–)	6B1	3B1	3C85
3.5	0.25	1.2	0.15	5	0.3	**4330 030 40330**	**4330 030 33450**	**4330 030 33670**
3.5	0.25	1.2	0.15	15	0.8	**4330 030 40340**	**4330 030 33550**	**4330 030 33680**
4.0	0.25	1.6	0.15	15	0.8	**4330 030 40350**	**4330 030 33560**	**4330 030 33690**
4.0	0.25	1.6	0.15	40	1.6	**4330 030 40360**	**4330 030 33570**	**4330 030 33700**
5.0	0.30	2.0	0.20	15	0.8	**4330 030 40370**	**4330 030 33580**	**4330 030 33710**
5.0	0.30	2.0	0.20	50	±1	**4330 030 40380**	**4330 030 33590**	**4330 030 33720**
6.0	0.30	3.0	0.20	20	0.9	**4330 030 40390**	**4330 030 33600**	**4330 030 33730**
6.0	0.30	3.0	0.20	30	1.2	**4330 030 40400**	**4330 030 33610**	**4330 030 33740**
8.0	0.40	4.0	0.30	20	0.9	**4330 030 40410**	**4330 030 33620**	**4330 030 33750**
8.0	0.40	4.0	0.30	40	1.6	**4330 030 40420**	**4330 030 33630**	**4330 030 33760**
8.0	0.40	4.0	0.30	200	±4	–	–	**4330 030 33450**
10.0	0.50	4.2	0.30	20	0.9	**4330 030 40430**	**4330 030 33640**	**4330 030 33770**
10.0	0.50	4.2	0.30	45	1.8	**4330 030 40440**	**4330 030 33650**	**4330 030 33780**
10.0	0.50	5.0	0.40	200	±4	–	–	**4330 030 33460**
10.0	0.50	6.5	0.40	20	0.9	**4330 030 40450**	**4330 030 33660**	**4330 030 33791**

For detailed information on these and other types see Data Handbook C4/C5

Generally, ferrite rods are used as the core of solenoidal coils for two main applications:
- tuning: moving the core adjusts the coil to the required inductance value
- RFI–suppression: the inductance of the core is increased by the ferrite core

In cases where the RFI–suppression coil carries a high DC current the inductance will not be lowered much because the magnetic circuit is very open.

Curvature and mechanical tolerances of the standard range fullfil the requirements of DIN 41 291 or its equivalent IEC 233–1966.



7Z75926

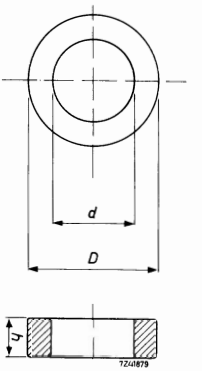
Standard rod programme

D diameter	tol. (–)	L length	tol.	6B1	3B1
2	0.05*	10	–0.6	**4330 030 40210**	**4330 030 31330**
2	0.05*	15	–0.8	**4330 030 40220**	**4330 030 31340**
2	0.05	20	–0.9	**4330 030 40540**	**4330 030 31450**
3	0.05	15	–0.8	**4330 030 40230**	**4330 030 31350**
3	0.05	20	–0.9	**4330 030 40240**	**4330 030 31360**
3	0.05	25	–1.0	**4330 030 40550**	**4330 030 31470**
4	0.05	15	–0.8	**4330 030 40250**	**4330 030 31370**
4	0.05	20	–0.9	**4330 030 40260**	**4330 030 31380**
4	0.05	25	–1.0	**4330 030 40560**	**4330 030 31490**
5	0.05	20	–0.9	**4330 030 40270**	**4330 030 31390**
5	0.05	25	–1.0	**4330 030 40280**	**4330 030 31400**
5	0.05	30	–1.2	**4330 030 40570**	**4330 030 31510**
6	0.10	30	–1.2	**4330 030 40290**	**4330 030 31410**
6	0.10	40	–1.6	**4330 030 40300**	**4330 030 31420**
6	0.10	50	±1.0	**4330 030 40580**	**4330 030 31530**
8	0.40	50	±1.0	**4330 030 40310**	**4330 030 31430**
8	0.40	150	±3.0	**4330 030 40320**	**4330 030 31440**
8	0.40	200	±4.0	**4330 030 40590**	**4330 030 31550**
10	0.50	200	±4.0	**4330 030 40600**	**4330 030 31460**

* middle class DIN 41 921

For detailed information on these and other types see Data Handbook C4/C5

Ring cores are widely used for pulse and broad band transformers. In the field of RFI–suppression an important application is as a current compensated choke.
When used as a power transformer the main advantages are the long winding length and the very weak stray field (3C85 and 3F3).
The special grade 3R1 ia a rectangular loop ferrite suitable for magnetic amplifiers and spike suppression.
Our extensive range of sizes includes types proposed in IEC 525 plus many other current sizes.
The ring cores are isolated with a coat of nylon 11 (0.1 – 0.3 mm) to give good HV – isolation between core and winding (1.5 – 2 kV).



Range of ring cores (4330 030 .....)

size of non–coated ring D x d x h	material grade and colour code						
	violet 4C65	pink 4A11	red 3C85	blue 3F3	white 3C11	orange 3E25	black 3R1
2.5 x 1.5 x 1.0*	**34680**	**34350**		**37880**		**37060**	
4 x 2.2 x 1.1	**34690**	**34360**		**37890**		**37350**	
4 x 2.2 x 1.6*	**34700**	**34370**		**34780**		**37070**	
6 x 4 x 2	**97160****	**34380**		**37900**		**37080**	
6.3 x 3.8 x 2.5*	**34790**	**34870**		**34970**			
9 x 6 x 3	**97170****	**34390**		**37910**		**37090**	**37680**
10 x 6 x 4*	**34810**	**34880**		**34980**	**34500**	**34580**	
12.5 x 7.5 x 5*		**34400**	**37790**	**37920**	**34920**	**37100**	
14 x 9 x 5	**97180****	**34410**	**37450**	**37930**	**37460**	**37110**	**37690**
14 x 9 x 9		**34420**	**37800**	**37940**		**37120**	
16 x 9.6 x 6.3*		**34430**	**37810**	**37950**	**37180**	**37130**	
19 x 10.6 x 10			**34910**		**37470**	**37340**	
19 x 10.6 x 15			**37480**		**37490**	**37140**	
20 x 10 x 7*	**34820**		**34470**		**34510**	**34950**	
23 x 14 x 7	**97190****	**34440**	**37500**	**34990**	**37510**	**37160**	**37700**
25 x 15 x 10*			**34480**	**35000**	**34520**	**34500**	
26 x 14.5 x 10			**37830**		**37520**	**37170**	
26 x 14.5 x 20			**37840**		**37530**	**37540**	
29 x 19 x 7.5			**37850**		**37580**		
31.5 x 19 x 12.5*			**34490**	**35010**	**34530**	**34510**	
36 x 23 x 10	**34710**		**37860**		**37550**		
36 x 23 x15*	**97200****	**34450**	**37870**	**35020**	**37560**	**34220**	**34310**

* Proposed as European standard range
** 4322 020

Accessories for ETD–cores

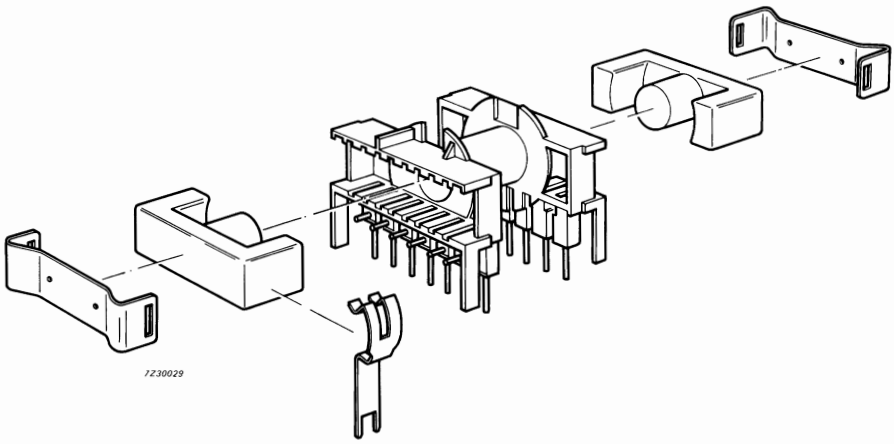
For detailed information on these and other types see Data Handbook C4/C5

Coil formers and clips

The PBTP coil former is suitable for single spindle or automatic machine winding.
It is terminated after winding, to integral pins. The two cores are assembled to the coil former in one operation, as shown in figure below.

Two stainless steel clips retain the cores in the coil former assembly, maintaining adequate pressure at the mating pole faces.

The complete assembly is suitable for mounting on a printed–wiring board.

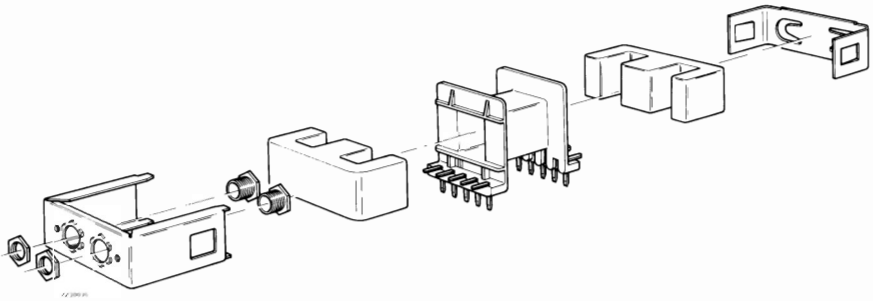


Coilformer material PBTP (UL94 – Vo, yellow card, number E45 329–M).
Clip material: stainless steel

type	coilformer		clip	earth clip
	no. of pins	cat. number	cat. number	cat. number
ETD29/16/10		**4322 021 34380**	**4322 021 34370**	
ETD34/17/11	14	**4322 021 33850**	**4322 021 33890**	**4322 021 33940**
ETD39/20/13	16	**4322 021 33860**	**4322 021 33900**	**4322 021 33950**
ETD44/22/15	18	**4322 021 33870**	**4322 021 33910**	**4322 021 33960**
ETD49/25/16	20	**4322 021 33880**	**4322 021 33920**	**4322 021 33970**

Double (coaxial) coilformers for ETD34, fulfilling mains insulation requirements in flame retarding phenolformaldehyde (UL94 – Vo, yellow card number E63312–M).
Coilformer half for primary winding: 4322 021 34230
Coilformer half for secondary winding: 4322 021 34240

For detailed information on these and other types see Data Handbook C4/C5



Coil formers and mounting parts for E–cores

E–core type	catalogue number coil formers			catalogue number mounting parts	
		with pins			
	without pins	horizontal mounting	vertical mounting	clasp	spring
E20/10/5	**4312 021 28430**	**4322 021 20240**	**4322 021 20290**	**4322 021 20160**	**4322 021 20220**
E25/13/7	–	**4312 021 28750**	**4312 021 28540**	**4312 021 26120**	**4312 021 26190**
E30/15/7	**4312 021 28550**	**4322 021 20250**	–	**4322 021 20170**	**4322 021 20230**
E42/21/15	**4312 021 28620**	**4322 021 31830**	–	**4322 021 31910**	**4322 021 31920**
E55/28/21	**4312 021 28710**	–	–	**4312 021 26090***	**4312 021 26130***
E65/32/27	**4312 021 28720**	–	–	**4312 021 26110***	**4312 021 26140***

fixing bush	4322 021 30720
nut	4322 021 30710

* Clasp and spring will be delivered as a set

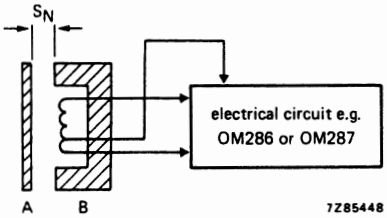
P–cores for proximity switches

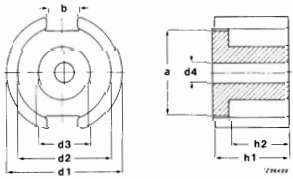
For detailed information on these and other types see Data Handbook C4/C5

An inductive proximity detector operates as follows. A metal object, A approaches– or recedes from an open potcore half with coil, B. The change in the Q of the oscillator is used to generate an electrical signal that can be used to drive an electromechanical relay, an audible alarm or similar devices.

Potcore halves with diameters up to9.4 mm are manufactured in Ferroxcube grade 3D3 and potcore halves with diameters 14 mm and larger, in Ferroxcube 3H1. This is because the operating frequency of oscillators with small potcore halves is higher than that of oscillators with large potcore halves.

Suitable coil formers are available for all potcore halves. The polycarbonate material of the coilformer limits the maximum potting temperature to 110°C. The potting material should be somewhat flexible to avoid high mechanical stress on the Ferroxcube potcore halves.



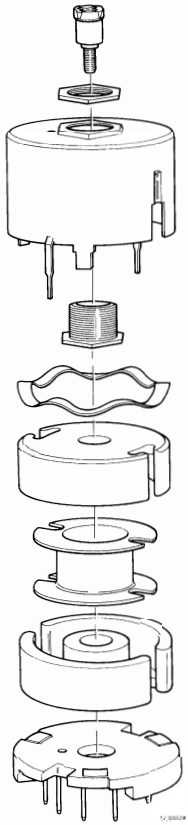


type	dimensions (mm)							
	d1	d2	d3	d4	h1	h2	a	b
PH 5.6/3.6	5.75	4.5	2.5	0.95	3.6	2.8	4	1.5
PH 7.4/3.9	7.4	5.8	3	1.38	3.95	2.8	5.7	1.6
PH 9.4/4.8	9.4	7.5	3.9	2	4.8	3.55	6.5	2
PH 14/7.5	14.4	11.6	6	3	7.5	6	9.5	3.3
PH 26/9.2	25.5	21.2	11.5	5.4	9.2	6.4	18	3.8

potcore half	mat. grade	cat. number potcore halves	cat. number coil former
PH5.6/3.6	3D3	**4322 020 54210**	**4322 021 33540**
PH7.4/3.9	3D3	**4322 020 54510**	**4322 021 32990**
PH9.4/4.8	3D3	**4322 020 54710**	**4322 021 31700**
PH14/7.5	3H1	**4322 020 54800**	**4322 021 30250**
PH26/9.2	3H1	**4322 020 54900**	**4322 021 33700**

Accessories for P–cores

For detailed information on these and other types see Data Handbook C4/C5



Coil formers

potcore type	cat. number 1 section	cat. number 2 sections	cat. number 3 sections
P5.8/3.3	**4322 021 33550**	–	–
P7.4/4.2	**4322 021 32990**	–	–
P9/5	**4322 021 31700**	–	–
P11/7	**4322 021 30240**	–	–
P14/8	**4322 021 30250**	**4322 021 30260**	–
P18/11	**4322 021 30270**	**4322 021 30280**	**4322 021 30290**
P22/13	**4322 021 30300**	**4322 021 3031**	**4322 021 30320**
P26/16	**4322 021 30330**	**4322 021 30340**	**4322 021 3035**
P30/19	**4322 021 30360**	**4322 021 30370**	**4322 021 3038**
P36/22	**4322 021 30390**	**4322 021 30400**	**4322 021 3041**
P42/29	**4322 021 30420**	**4322 021 30430**	–

Accessories for RM/i–cores (cont.)

For detailed information on these and other types see Data Handbook C4/C5

Coil formers for power applications (DIL)

RM core type	number of pins	catalogue number
RM6–S/i	8	**4322 021 34040**
RM8/i	12	**4322 021 34050**
RM10/i	12	**4322 021 34060**
RM12/i	12	**4322 021 34110**
RM14/i	12	**4322 021 34070**

Clips

RM core type	catalogue number	RM/i core type	catalogue number
RM4	**4322 021 31900**	RM4/i	**4322 021 34290**
RM5	**4322 021 31900**	RM5/i	**4322 021 34290**
RM6S/R	**4322 021 31780**	RM6S/R/i	**4322 021 34300**
RM8	**4322 021 31840**	RM8/i	**4322 021 34310**
RM10	**4322 021 34320**	RM10/i	**4322 021 34320**
		RM12/i	**4322 021 34910**
		RM14/i	**4322 021 34920**

For detailed information on these and other types see Data Handbook C4/C5

Range of ungapped cores

type	grade	A_L	cat. number core halves without air gap
RM4/i	3E4	2500 + 40% – 25%	4322 020 26610
	3E5	3500 + 40% – 30%	4322 020 26620
	3F3	1000 ± 25%	4322 020 26600
RM5/i	3B8	2000 ±25%	4322 020 27080
	3C85	1800 ± 25%	4322 020 27100
	3E4	4500 + 40% – 25%	4322 020 27120
	3E5	6300 + 40% – 25%	4322 020 27130
	3F3	1800 ± 25%	4322 020 27110
RM6–S/i	3B8	2700 ±25%	4322 020 27930
	3C85	2400 ± 25%	4322 020 27950
	3E4	5800 + 40% – 25%	4322 020 55500
	3E5	8600 + 40% – 25%	4322 020 55510
	3F3	2400 ± 25%	4322 020 27970
RM8/i	3B8	3900 ±25%	4322 020 27420
	3C85	3300 ± 25%	4322 020 28170
	3E4	8000 + 40% – 25%	4322 020 28190
	3E5	13000 + 40% – 25%	4322 020 28230
	3F3	3300 ± 25%	4322 020 28220
RM10/i	3B8	5300 ±25%	4322 020 28370
	3C85	4500 ± 25%	4322 020 28430
	3E4	11000 + 40% – 25%	4322 020 28490
	3E5	18000 + 40% – 25%	4322 020 55250
	3F3	4500 ± 25%	4322 020 28450
RM12/i	3C85	5500 ± 25%	4322 020 55010
	3E4	13000 + 40% – 25%	4322 020 55030
	3F3	5500 ± 25%	4322 020 55020
RM14/i	3C85	6300 ± 25%	4322 020 24870
	3F3	6300 ± 25%	4322 020 28480

Accessories for RM–cores

For detailed information on these and other types see Data Handbook C4/C5

RM–coilformers are well adapted to automatic winding and are made of a phenolic thermosetting resin (UI 94–Vo).
The clips deliver adequate clamping force for high stability. Round back clips may also be used, however, their clamping force is lower.

Coil formers – 1 section

RM core type	cat. number 4 pins	cat. number 6 pins	cat. number 12 pins
RM4	–	**4322 021 32210**	–
RM5	**4322 021 32830**	**4322 021 32840**	–
RM6R	**4322 021 32280**	**4322 021 32290**	–
RM6S	**4312 021 29240**	**4312 021 29250**	–
RM8	–	–	**4322 021 32390**
RM10	–	–	**4322 021 32470**

Coil formers – 2 sections

RM core type	cat. number 6 pins	cat. number 8 pins	cat. number 12 pins
RM6R	**4322 021 32310**	–	–
RM6S	**4322 021 32950**	–	–
RM8	–	**4322 021 32420**	–
RM10	–	–	**4322 021 32790**

Clips

RM core type	catalogue number		
RM4	**4322 021 31900**		
RM5	**4322 021 31900**		
RM6S/R	**4322 021 31780**		
RM8	**4322 021 31840**		
RM10	**4322 021 34320**		

For detailed information on these and other types see Data Handbook C4/C5

Our soft ferrites (Ferroxcube) are available in a range of core shapes suitable for many different applications. The following table is a survey of their main properties.

Main characteristics of the different Ferroxcube grades.

grade	μ_i ±20 %	flux density B at 3000 A/m 25 °C mT	curie temp. °C	resist-ivity Ωm	ferrite type	main application area	available core shapes
4D1	50	≠ 240	⩾400	10^3	NiZn	HF-tuning	beads,rods,tubes
4C6	100	380	350	10^3	NiZn	telecom filters	P,RM
4C65	125	380	350	10^3	NiZn	HF-tuning suppression	ring cores
4B1	250	350	250	10^5	NiZn	HF-tuning suppression	beads
6B1	250	350	250	10^3	LiZn	HF-tuning suppresion	rods,tubes
2A2	350	250	135	10^6	MgZn	deflection coils	yoke rings
4A11	600	350	125	10^5	NiZn	suppression	ring cores
4S2	600	350	125	10^5	NiZn	supression	beads
3D3	750	400	200	2	MnZn	telecom filters	P,RM
3B1	900	400	150	0.2	MnZn	suppression	rods,tubes,beads
3C2	900	400	150	0.1	MnZn	deflection coils	yoke rings
3H1	2300	400	130	1	MnZn	telecom filters	P,RM
3H3	2000	450	160	2	MnZn	telecom filters	P,RM
3C8	2000	500	200	1	MnZn	LF-power	E,EF,ETD,EC,U,I
3C85	2000	500	200	1	MnZn	MF-power	E,EF,ETD,EC,rods,rings,P,RM
3F3	2000	500	200	2	MnZn	HF-power	E,EF,ETD,P,RM rings
3B8	2300	500	200	1	MnZn	MF-power	P,RM
3S1	4000	400	125	0.3	MnZn	suppression	beads
3C11	4300	400	125	0.3	MnZn	supression	rings,EF
3E4	4700	400	125	0.3	MnZn	pulse transformers	RM
3E25	6000	400	125	0.1	MnZn	suppression	rings
3E5	10000	350	120	0.01	MnZn	pulse transformers	RM