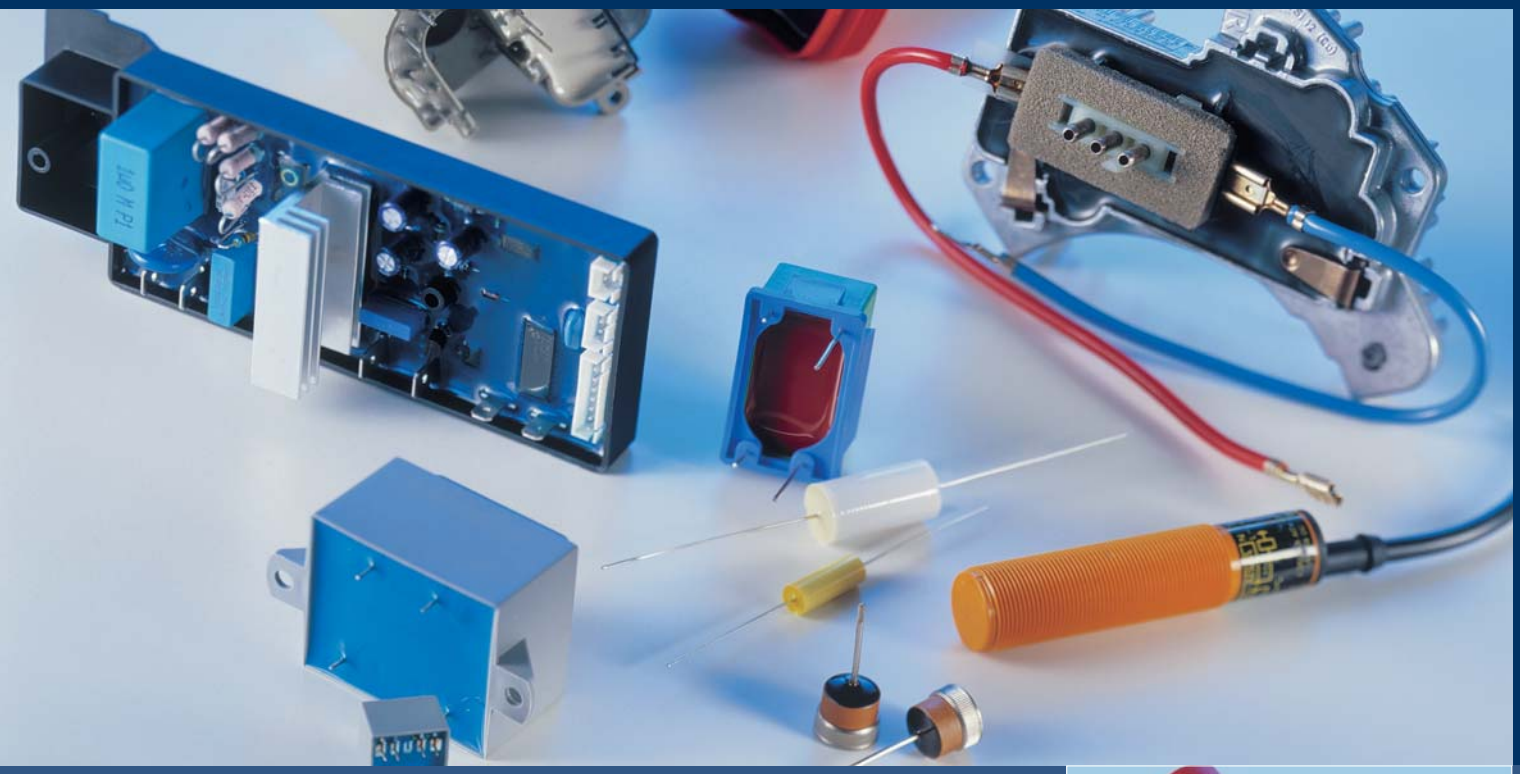
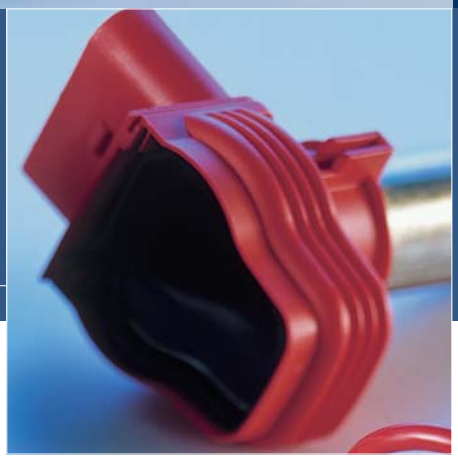
Product Selector Guide



Encapsulation and casting systems



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Encapsulation and casting systems

ARALDITE®, ARADUR®, ARATHERM®, ARATHANE®

Innovative insulation systems backed by more than 50 years of experience

Cold Curing

Applications			① ⑤	② ③b	① ③b ④a ④b
System	resin hardener		**ARALDITE® CY 221** **ARADUR® HY 2966**	**ARALDITE® DBF** **ARADUR® HY 956 EN**	**ARATHANE® CW 5620** **ARATHANE® HY 5610**
Type of system			unfilled	unfilled	prefilled
Density of casting		g / cm³	1.10	1.10	1.44
Mixing ratio	resin / hardener	parts by weight	100 / 25	100 / 20	100 / 22
Viscosity	resin hardener mixture	mPas / °C	450 / 25 500 / 25 490 / 25	1'700 / 25 420 / 25 1'800 / 25	2'500 / 25 90 / 25 1'300 / 25
Pot life (viscosity increase up to 15'000 mPas)		min / °C	117 / 25 54 / 40	120 / 25 62 / 40	45 / 25
Gel time		min / °C	45 / 40 10 / 60 4 / 80	62 / 40 15 / 60	70 / 25
Minimum curing time		h / °C	24 / 25	24 / 25 or 4 / 25 + 6 / 60	24 / 25 or 6 / 80
Glass transition temperature		°C	25	64	20
Thermal conductivity	25°C	W / mK	0.15	0.15	0.50
Flammability UL 94			no	no	V-0; 6 mm
Thermal class			E	E	B
Shore hardness	23°C	Shore D	25	80	40
Tensile strength / flexural strength	23°C	MPa	5 / n.a.	58 / 107	7 / n.a.
Elongation at break	23°C	%	55	12	70
Modulus of elasticity	23°C	MPa	n.a.	2'900	21
Water absorption	10 d / 23°C 30 min / 100°C	%	1.80 1.20	0.63 0.65	0.50 0.33
Dielectric dissipation factor tan δ	50 Hz / 23°C	%	7.2	0.8	11.0
Relative permittivity ϵ_p	50 Hz / 23°C		6.1	4.1	6.0
Dielectric strength (2 mm plate)	23°C	kV / mm	35	24	25

① Assemblies ② Capacitors ③ Ignition coils a) car b) oil/gas c) moped ④ Inductive components a) iron core transformers b) ferri

This product selector guide provides an overview on our key products for encapsulation and potting systems, such as assemblies, capacitors, ignition coils, inductive components, modules and sensors, power semiconductors and television components. Additional systems are also available. Our sales engineers will help you to find the ideal system for your application and process.

					Hot Curing
④a	① ④a ⑤	②	② ④a	② ④a ④b	④b ⑦b
ARATHANE® CW 5631 ARATHANE® HY 5610	**ARALDITE® CW 2243-2L ARADUR® HY 842**	**ARALDITE® CW 2245 ARADUR® HY 956 EN**	**ARALDITE® CW 2250-1 ARADUR® HY 2251**	**ARALDITE® CW 1302 ARADUR® HY 1300**	**ARALDITE® CW 2122-1 ARADUR® 2901-1**
prefilled	prefilled	prefilled	prefilled	prefilled	prefilled
1.41	1.50	1.61	1.57	1.65	1.42
100 / 25	100 / 20	100 / 9	100 / 13	100 / 11	100 / 100
10'000 / 25 90 / 25 3'000 / 25	9'000 / 25 550 / 25 2'600 / 25	18'000 / 25 420 / 25 5'900 / 25	7'500 / 25 100 / 25 1'700 / 25	40'000 / 25 180 / 25 10'000 / 25	40'000 / 25 5'000 / 25 9'400 / 25
30 / 25	170 / 25 103 / 40	48 / 25 38 / 40	85 / 25 60 / 40	34 / 25 28 / 40	285 / 60
60 / 25	70 / 60	111/ 25 54 / 40 22/ 60	135 / 25 80 / 40 39 / 60	120 / 25 75 / 40 30 / 60	120 / 80
24 / 25 or 6 / 80	24 / 25 or 6 / 60	24 / 25 or 6 / 60	24 / 25 or 6 / 60	24 / 25 + 2 / 60	4 / 70 + 6 / 90
47	15	63	46	75	22
0.60	0.58	0.67	0.67	0.83	0.34
V-0; 6 mm	V-0; 6mm	V-0; 6 mm	V-0; 4 mm	V-0; 3.2 mm	V-0; 1.6 mm
F	B	E	B	H	F
80	47	89	88	80	47
30 / 53	7 / n.a.	36 / n.a.	45 / 77	30 / 63	9 / n.a.
6	30	0.8	1.4	0.5	55
2'300	30	5'500	6'700	8'400	90
0.28 0.30	n.a. 0.70	0.17 0.23	0.15 0.47	n.a. 0.22	n.a. 0.42
3.0	15.0	5.0	3.9	6.4	6.0
4.5	7.0	5.5	4.6	4.9	4.8
29	23	26	28	25	25

te core transformers ⑤ Modules and sensors ⑥ Power semiconductors ⑦ Television components a) fly back transformers b) switch modes

Please note that the values given in this selector guide are typical values determined by testing standard test specimens. They are not directly indicative of the in-service performance of a casting. Therefore, before initiating a production run, manufacturers are advised to carry out their own preliminary tests using preproduction models.

④a ⑦b	③a	⑦a	③a	③a
ARALDITE® CW 5730 N ARADUR® HY 5731	**ARALDITE® CW 1446 BDF ARADUR® HY 2919**	**ARALDITE® CW 2266 ARADUR® HY 2266**	**ARALDITE® CW 5725 ARADUR® HY 5726**	**RESIN XB 5763 ARADUR® HY 5726**
prefilled	prefilled	prefilled	prefilled	
1.59	1.66	1.60	1.71	1.80
100 / 28	100 / 24	100 / 30	100 / 28	100 / 25
90'000 / 25 800 / 25 7'000 / 25	20'000 / 25 75 / 25 3'500 / 25	75'000 / 25 70 / 25 1'500 / 25	8'000 / 60 70 / 25 420 / 60	10'000 / 60 70 / 25 700 / 60
380 / 60 115 / 80	220 / 60	130 / 60	480 / 60 130 / 80	450 / 60 120 / 80
145 / 80 36 / 100	3 / 140	100 / 80 27 / 100	160 / 80 80 / 90	300 / 70 90 / 80
3 / 80 + 6 / 100	6 / 60 + 6 / 100	1.5 / 90 + 1 / 110	2.5 / 90 + 2.5 / 140	3 / 90 + 2 / 140
25	92	118	144	130
0.61	0.67	0.62	0.65	0.60
V-0; 6 mm	V-0; 6 mm	V-0; 6 mm	no	no
F	H	H	H	H
65	90	91	90	> 90
5.6 / 6	47 / 91	55 / 83	n.a. / 90	n.a. / 114
45	1.5	0.9	1.4	1.6
50	7'600	7'100	7'800	8'100
0.43 0.27	n.a. 0.14	n.a. 0.11	0.08 0.05	0.08 0.05
5.0	4.0	1.6	0.5	0.9
4.9	1.0	4.2	4.2	3.6
28	25	21	25	40


①


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Definitions of properties

Properties	Standards	Definitions
Density	ISO 1183	Weight of a volume [V], $\rho = m / V$
Viscosity	ISO 2555	Measure of the resistance to flow of a fluid under an applied force
Gel time	ISO 9396	Time taken for a material to solidify or become extremely viscous
Glass transition temperature	ISO 11357-2	Approximate midpoint of the temperature range over which a material undergoes a phase change from a hard, glass-like state to a rubbery state or vice versa
Thermal conductivity	ISO 8894-2	Heat flow per unit area divided by the temperature gradient [W/mK]
Temperature index	IEC 60216 UL 746B	The temperature index (TI) is a measurement for the thermal stability. It provides the basis for classifying an insulating material into a thermal class. The TI allows different insulation materials to be compared, but only if the same end point criterion is applied (e.g. weight loss 10%, flexural strength 50%). The higher the TI, the better is the thermal behavior of the material.
Thermal class	IEC 60085	Thermal classes Y = 90°C, A = 105°C, E = 120°C, B = 130°C, F = 155°C, H = 180°C, 200 = 200°C, 220 = 220°C
Shore hardness	DIN 53805	Resistance against the penetration of a body of specified shape, applied under a specifie spring load
Tensile strength	ISO 527	Maximum tensile stress sustained by a material during a tensile test (stretching)
Flexural strength	ISO 178	Maximum flexural stress sustained by a material during a bending test
Elongation at break	ISO 527	Tensile strain at which the material breaks
Modulus of elasticity	ISO 527	Stress [σ] required to produce unit strain [ϵ], E = [σ/ϵ] (Young's Modulus)
Water absorption	ISO 62	Determination of weight after immersion compared with dry weight
Dielectric dissipation factor tan δ	IEC 60250	The dielectric dissipation factor tan δ of a material indicates the electrical losses of the dielectric. It is the tangent of the dielectric loss angle δ. The dielectric loss angle δ of an insulating material is the angle by which the phase difference between applied voltage and resulting current deviates from 90 degrees, when the dielectric of the capacitor consists exclusively of the dielectric material.
Relative permittivity ϵ_r	IEC 60250	The relative permittvity ϵ_r of an insulating material is the ratio of capacitance of a capacitor, in which the space between and around the electrodes is entirely and exclusively filled with the insulating material in question, to the capacitance of the same configuration of electrodes in vacuum. The permittivity ϵ of an insulating material is the product of its relative permittivity ϵ_r and the electric constant (or permittivity of vacuum) ϵ_0.
Dielectric strength	IEC 60243-1 IEC60455-2 (1998)	The dielectric strength is the quotient of the breakdown voltage and the distance between the conducting parts between which the voltage is applied under prescribed test conditions.

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