Injection moulding

non-flame retarded

Typical values only.
Not to be used for
specification purposes.

			low heat			medium heat				
				high flow	reduced squeak plating			high flow	reduced squeak plating	low gloss
Mechanical		Unit	**C1000** *global grade*	**C1000HF** *global grade*	**C1000A**	**C1100** *global grade*	**IP1000** *global grade*	**C1100HF**	**C1100A**	**LG9000** *global grade*
Tens. stress	y (b) 50	MPa	55 (40)	55 (45)	45 (40)	55 (45)	54 (55)	55 (45)	50 (50)	50 (45)
	y (b) 5	MPa	50 (40)	50 (40)	45 (35)	45 (40)	51 (55)	55 (45)	45 (40)	50 (40)
Tens. strain	y (b) 50	%	4 (>50)	4 (25)	4 (>50)	4 (>50)	5 (>50)	4 (>50)	5 (>50)	4 (10)
	y (b) 5	%	4 (40)	4 (>50)	4 (>50)	4 (>50)	5 (>50)	5 (>50)	5 (>50)	4 (10)
Tens. modulus		MPa	2500	2400	2000	2400	2150	2400	2100	2300
Flex. stress	y	MPa	85	85	70	80	80	75	74	81
Flex. modulus		MPa	2300	2500	2000	2300	2200	2300	2100	2400
Hardness	Ball	MPa	112	105	87	100	91	98	88	93
	Rockwell	scale	R117	R117	R110	R117	R116	R117	R108	R116
Abrasion	Taber	mg/1000 cy	62	71	71	79	70	81	80	82
Impact										
Izod notch.	23° (-30°) C	kJ/m²	40 (15)	35 (14)	38 (30)	41 (17)	55 (50)	50 (28)	53 (51)	31 (13)
Charpy notch.	23° (-30°) C	kJ/m²	40 (15)	40 (14)	35 (30)	42 (20)	60 (58)	57 (51)	56 (54)	31 (13)
Thermal										
Vicat B/50		°C	113	114	109	120	126	126	117	122
B/120		°C	115	116	112	123	128	128	120	124
HDT/Ae 1.82 MPa		°C	92	95	93	100	106	100	99	97
/Be 0.45 MPa		°C	115	117	113	120	126	120	118	120
Ball Pressure		°C	110	75	75	120	120	75	75	75
RTI Electrical		°C	60	60	n.t.	60	n.t.	60	n.t.	n.t.
Mech. with Impact		°C	60	60	n.t.	60	n.t.	60	n.t.	n.t.
without Impact		°C	60	60	n.t.	60	n.t.	60	n.t.	n.t.
Thermal conductivity		W/m°C	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
CTE flow		1/°C	$8 \cdot 10^{-5}$	$8 \cdot 10^{-5}$	$8 \cdot 10^{-5}$	$8 \cdot 10^{-5}$	$8 \cdot 10^{-5}$	$8 \cdot 10^{-5}$	$8 \cdot 10^{-5}$	$8 \cdot 10^{-5}$
Flammability										
UL94		class at mm	HB/1.6-3.1	HB/1.6-3.1	n.t.	HB/1.6-3.1	n.t.	HB/1.6-3.1	n.t.	n.t
UL94 - 5VB			–	–	–	–	–	–	–	n.t.
LOI		%	<21	<21	<21	<21	<21	<21	<21	<21
Glow wire	1 mm (3.2 mm)	°C at mm	750 (–)	– (650)	– (650)	750 (–)	n.t.	– (650)	– (650)	n.t.
Needle flame		—	n.t.	n.t.	n.t.	n.t.	n.t.	n.t.	n.t.	n.t.
HWI - PLC		PLC	n.t.	n.t.	n.t.	n.t.	n.t.	n.t.	n.t.	n.t.
HAI - PLC		PLC	n.t.	n.t.	n.t.	n.t.	n.t.	n.t.	n.t.	n.t.
Electrical										
Diel. str. oil 0.8/1.6/3.2 mm		kV/mm	35/25/17	35/25/17	35/25/17	35/25/17	35/25/17	35/25/17	35/25/17	35/25/17
Surface resistivity		Ohm	$>10^{15}$	$>10^{15}$	$>10^{15}$	$>10^{15}$	$>10^{15}$	$>10^{15}$	$>10^{15}$	$>10^{15}$
Volume resistivity		Ohm·cm	$>10^{15}$	$>10^{15}$	$>10^{15}$	$>10^{15}$	$>10^{15}$	$>10^{15}$	$>10^{15}$	$>10^{15}$
Rel. permitt.	50 Hz	—	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.6
	1 MHz	—	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.6
Dissipation f.	50 Hz	—	0.002	0.002	0.002	0.002	0.003	0.002	0.002	0.001
	1 MHz	—	0.007	0.007	0.007	0.007	0.005	0.007	0.007	0.009
CTI (CTI-M) Ral4035		V	250	250	250	250	250	250	250	275
CTI		PLC	n.t.	n.t.	n.t.	n.t.	2	n.t.	n.t.	n.t.
Arc D-495		PLC	n.t.	n.t.	n.t.	n.t.	n.t.	n.t.	n.t.	n.t.
HVTR		PLC	n.t.	n.t.	n.t.	n.t.	n.t.	n.t.	n.t.	n.t.
Physical										
Density		g/cm³	1.12	1.12	1.06	1.12	1.15	1.12	1.15	1.13
Moisture abs.	23°C	%	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Water abs.	sat./23°C	%	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6
Mould shrink.	flow	%	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7	0.4-0.6
Rheological										
MVR		cm³/10 min	15 [2])	24 [2])	14 [2])	14 [2])	13 [2])	20 [2])	12 [2])	20 [2])
			C1000 *global grade*	**C1000HF** *global grade*	**C1000A**	**C1100** *global grade*	**IP1000** *global grade*	**C1100HF**	**C1100A**	**LG9000** *global grade*

[1]) *MVR at 260°C/2.16 kg*
[2]) *MVR at 260°C/5.00 kg*

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Injection moulding

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		non-flame retarded		flame retarded					
		high heat		low heat		medium heat			high heat
			high flow	Cl and Br-free		Cl and Br-free			brominated
Typical values only. Not to be used for specification purposes.		**C1200** *global grade*	**C1200HF** *global grade*	**CU6800** *global grade*	**C2800** *global grade*	**C2950** *global grade*	**C6600** *global grade*	**C6200** *global grade*	**C2100HF**
Mechanical	Unit								
Tens. stress y (b) 50	MPa	55 (50)	55 (45)	55 (45)	55 (40)	60 (50)	60 (50)	60 (50)	60 (50)
y (b) 5	MPa	50 (40)	55 (45)	50 (40)	50 (40)	55 (45)	55 (45)	50 (40)	55 (45)
Tens. strain y (b) 50	%	4 (>50)	4 (>50)	3 (>50)	3 (>50)	4 (>50)	4 (>50)	4 (>50)	6 (>50)
y (b) 5	%	5 (>50)	5 (>50)	3 (>50)	3 (>50)	4 (>50)	4 (>50)	4 (>50)	5 (>50)
Tens. modulus	MPa	2400	2400	2700	2700	2800	2700	2800	2400
Flex. stress y	MPa	85	80	85	90	90	90	88	91
Flex. modulus	MPa	2300	2300	2500	2600	2700	2700	2700	2400
Hardness Ball	MPa	110	106	110	113	94	110	114	104
Rockwell	scale	R120	R115	R122	R122	R123	R122	R122	R122
Abrasion Taber	mg/1000 cy	62	63	15	72	54	50	82	62
Impact									
Izod notch. 23° (-30°) C	kJ/m²	47 (19)	41 (18)	15 (7)	30 (10)	44 (14)	15 (10)	15 (10)	43 (18)
Charpy notch. 23° (-30°) C	kJ/m²	48 (20)	45 (18)	15 (7)	30 (9)	45 (15)	15 (10)	15 (8)	43 (20)
Thermal									
Vicat B/50	°C	132	132	85	92	109	95	98	142
B/120	°C	134	134	90	95	112	100	102	144
HDT/Ae 1.82 MPa	°C	110	108	72	78	90	80	84	117
/Be 0.45 MPa	°C	130	128	85	88	103	90	96	136
Ball Pressure	°C	125	125	75	85	100	75	90	125
RTI Electrical	°C	60	60	60	60	85	80	85	60
Mech. with Impact	°C	60	60	60	60	85	70	75	60
without Impact	°C	60	60	60	60	85	80	85	60
Thermal conductivity	W/m°C	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
CTE flow	1/°C	$8 \cdot 10^{-5}$	$8 \cdot 10^{-5}$	$8 \cdot 10^{-5}$	$8 \cdot 10^{-5}$	$8 \cdot 10^{-5}$	$8 \cdot 10^{-5}$	$8 \cdot 10^{-5}$	$8 \cdot 10^{-5}$
Flammability									
UL94	class at mm	HB/1.2	HB/1.2	V1/2.0	V0/1.5-V2/0.9	V0/1.5-HB/0.7	V0/1.6	V0/1.5-HB/0.7	V0/1.5
UL94 - 5VB		n.t.	n.t.	5VB/2.0	5VB/2.3	5VB/2.3	5VB/2.0	5VB/2.3	5VB/2.5
LOI	%	<21	23	29	32	32	32	32	30
Glow wire 1 mm (3.2 mm)	°C at mm	750 (–)	750 (–)	– (960)	850 (960)	960 (–)	– (960)	960 (960)	960 (–)
Needle flame	—	n.t.	n.t.	n.t.	1.6	1.6	1.6	1.6	1.6
HWI - PLC	PLC	3	3	n.t.	2	1	n.t.	2	n.t.
HAI - PLC	PLC	1	1	n.t.	0	0	n.t.	0	n.t.
Electrical									
Diel. str. oil 0.8/1.6/3.2 mm	kV/mm	35/25/17	35/25/17	35/25/17	35/25/17	35/25/17	35/25/17	35/25/17	35/25/17
Surface resistivity	Ohm	$>10^{15}$	$>10^{15}$	$>10^{15}$	$>10^{15}$	$>10^{15}$	$>10^{15}$	$>10^{15}$	$>10^{15}$
Volume resistivity	Ohm·cm	$>10^{15}$	$>10^{15}$	$>10^{15}$	$>10^{15}$	$>10^{15}$	$>10^{15}$	$>10^{15}$	$>10^{15}$
Rel. permitt. 50 Hz	—	2.8	2.8	2.8	2.8	2.8	2.7	2.8	3.0
1 MHz	—	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.6
Dissipation f. 50 Hz	—	0.002	0.002	0.004	0.004	0.004	0.004	0.004	0.005
1 MHz	—	0.007	0.007	0.006	0.006	0.006	0.006	0.008	0.008
CTI (CTI-M) Ral4035	V	250	250	600	600	600	600	600	250
CTI	PLC	2	2	n.t.	–	1	n.t.	2	n.t.
Arc D-495	PLC	n.t.	n.t.	n.t.	6	6	n.t.	6	n.t.
HVTR	PLC	n.t.	n.t.	n.t.	3	2	n.t.	3	n.t.
Physical									
Density	g/cm³	1.15	1.15	1.20	1.17	1.17	1.20	1.20	1.20
Moisture abs. 23°C	%	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Water abs. sat./23°C	%	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Mould shrink. flow	%	0.5-0.7	0.5-0.7	0.4-0.6	0.4-0.6	0.4-0.6	0.4-0.6	0.4-0.6	0.5-0.7
Rheological									
MVR	cm³/10 min	12 [2]	22 [2]	21 [1]	15 [1]	10 [1]	19 [1]	13 [1]	18 [2]
		C1200 *global grade*	**C1200HF** *global grade*	**CU6800** *global grade*	**C2800** *global grade*	**C2950** *global grade*	**C6600** *global grade*	**C6200** *global grade*	**C2100HF**

[1]) *MVR at 260°C/2.16 kg*
[2]) *MVR at 260°C/5.00 kg*

P S C W

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Typical values only.
Not to be used for
specification purposes.

			Injection moulding	Extrusion / Blow moulding			VisualFX			
			glass reinforced	non-flame retarded	flame retarded		injection moulding			
					CI and Br-free	halogen-free	multi-purpose		flame retarded	
									CI and Br-free	
Mechanical		Unit	**C4210**	**C3100**	**C3600**	**C3650** *global grade*	**FXC810SK** *global grade*	**FXC810AR** *global grade*	**FXC830SK** *global grade*	**FXC830AR** *global grade*
Tens. stress	y (b) 50	MPa	– (–)	55 (45)	65 (50)	65 (55)	55 (45)	55 (45)	55 (40)	55 (40)
	y (b) 5	MPa	70 (60)	50 (45)	55 (45)	60 (60)	55 (45)	55 (45)	50 (40)	50 (40)
Tens. strain	y (b) 50	%	3 (>50)	5 (>50)	5 (>35)	5 (>50)	5 (15)	5 (15)	4 (>50)	4 (>50)
	y (b) 5	%	3 (5)	5 (>50)	4 (>50)	3 (>50)	5 (15)	5 (15)	4 (>50)	4 (>50)
Tens. modulus		MPa	4700	2200	2700	2600	2400	2400	2800	2800
Flex. stress	y	MPa	105	78	100	100	86	86	100	100
Flex. modulus		MPa	4500	2100	2800	2700	2400	2400	2800	2800
Hardness	Ball	MPa	116	100	104	108	112	112	116	116
	Rockwell	scale	R121	R116	R124	R124	R121	R121	R122	R122
Abrasion	Taber	mg/1000 cy	–	55	54	54	63	63	82	82
Impact										
Izod notch.	23° (-30°) C	kJ/m²	8 (6)	49 (38)	40 (14)	45 (13)	24 (12)	24 (12)	8 (5)	8 (5)
Charpy notch.	23° (-30°) C	kJ/m²	9 (6)	49 (40)	41 (14)	48 (13)	25 (13)	25 (13)	7 (5)	7 (5)
Thermal										
Vicat B/50		°C	137	133	111	108	128	128	94	94
B/120		°C	139	134	113	110	130	130	97	97
HDT/Ae 1.82 MPa		°C	126	105	92	91	108	108	80	80
/Be 0.45 MPa		°C	137	124	104	102	128	128	86	86
Ball Pressure		°C	125	130	100	75	125	125	90	90
RTI Electrical		°C	n.t.	n.t.	60	n.t.	60	60	n.t.	n.t.
Mech. with Impact		°C	n.t.	n.t.	60	n.t.	60	60	n.t.	n.t.
without Impact		°C	n.t.	n.t.	60	n.t.	60	60	n.t.	n.t.
Thermal conductivity		W/m°C	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
CTE flow		1/°C	$4 \cdot 10^{-5}$	$8 \cdot 10^{-5}$	$8 \cdot 10^{-5}$	$8 \cdot 10^{-5}$	$8 \cdot 10^{-5}$	$8 \cdot 10^{-5}$	$8 \cdot 10^{-5}$	$8 \cdot 10^{-5}$
Flammability										
UL94		class at mm	n.t.	n.t.	V0/1.5-2.5	V0/1.6	n.t.	n.t.	n.t.	n.t.
UL94 - 5VB			n.t.	n.t.	5VB/2.5	n.t.	n.t.	n.t.	n.t.	n.t.
LOI		%	24	24	32	37	23	23	32	32
Glow wire	1 mm (3.2 mm)	°C at mm	– (960)	750 (–)	850 (960)	– (850)	– (750)	– (750)	850 (960)	850 (960)
Needle flame		—	n.t.	n.t.	1.6	1.6	n.t.	n.t.	1.6	1.6
HWI - PLC		PLC	n.t.	n.t.	n.t.	n.t.	3	3	n.t.	n.t.
HAI - PLC		PLC	n.t.	n.t.	n.t.	n.t.	1	1	n.t.	n.t.
Electrical										
Diel. str. oil 0.8/1.6/3.2 mm		kV/mm	35/25/17	35/25/17	35/25/17	35/25/17	35/25/17	35/25/17	35/25/17	35/25/17
Surface resistivity		Ohm	$>10^{15}$	$>10^{15}$	$>10^{15}$	$>10^{15}$	$>10^{15}$	$>10^{15}$	$>10^{15}$	$>10^{15}$
Volume resistivity		Ohm·cm	$>10^{15}$	$>10^{15}$	$>10^{15}$	$>10^{15}$	$>10^{15}$	$>10^{15}$	$>10^{15}$	$>10^{15}$
Rel. permitt.	50 Hz	—	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
	1 MHz	—	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Dissipation f.	50 Hz	—	0.004	0.002	0.004	0.004	0.003	0.003	0.004	0.004
	1 MHz	—	0.006	0.003	0.006	0.006	0.005	0.005	0.006	0.006
CTI (CTI-M) Ral4035		V	n.t.	250	600	600	250	250	600	600
CTI		PLC	n.t.	n.t.	n.t.	n.t.	2	2	n.t.	n.t.
Arc D-495		PLC	n.t.	n.t.	n.t.	n.t.	n.t.	n.t.	n.t.	n.t.
HVTR		PLC	n.t.	n.t.	n.t.	n.t.	n.t.	n.t.	n.t.	n.t.
Physical										
Density		g/cm³	1.22	1.15	1.18	1.18	1.15	1.15	1.20	1.20
Moisture abs.	23°C	%	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Water abs.	sat./23°C	%	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Mould shrink.	flow	%	0.3-0.5	0.5-0.7	0.4-0.6	0.4-0.6	0.5-0.7	0.5-0.7	0.4-0.6	0.4-0.6
Rheological										
MVR		cm³/10 min	20[2])	2[2])	9[2])	12[2])	22[2])	22[2])	13[1])	13[1])
			C4210	**C3100**	**C3600**	**C3650** *global grade*	**FXC810SK** *global grade*	**FXC810AR** *global grade*	**FXC830SP** *global grade*	**FXC830AR** *global grade*

[1]) *MVR at 260°C/2.16 kg*
[2]) *MVR at 260°C/5.00 kg*

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