

**DENKA ABS** Physical properties

Property	Test Methods	Conditions	Unit	GR-0500	GR-1000	GR-2000	GR-3000	GR-3500	GT-R-10	QF	ME	SE-10	GS-10	GT-R-61A	GR-2000LG	APG-3000
				High Rigidity	Middle Impact	High Impact	Super High Impact	Super High Impact & Good Flow	High Gloss & Good Flow	High Flow	Plating	Extrusion	Semi-Chemical Resistance	Super High Flow	Low Gloss	Lasting Antistatic

◆ISO Method

Melt Mass Flow Rate	ISO 1133	220deg.C 98N	g/10min	21	18	13	8	14	16	44	12	9	22	74	9	23	
Tensile Modulus	ISO 527-1, -2	50mm/min	1mm/min	MPa	3,050	2,750	2,600	2,200	2,200	2,700	2,400	2,500	2,400	2,450	2,700	2,000	2,200
Tensile stress at yield			MPa	61	54	50	42	41	51	45	46	49	47	47	37	40	
Tensile stress at break			MPa	44	37	35	32	32	36	34	34	34	35	35	35	29	30
Flexural Modulus	ISO 178	2mm/min	MPa	3,000	2,650	2,550	1,950	2,050	2,600	2,350	2,400	2,300	2,300	2,600	1,950	1,930	
Flexural Strength			MPa	98	85	82	65	65	83	72	75	77	74	78	61	60	
Charpy Impact Strength	ISO 179	Notched	kJ/m <sup>2</sup>	4	12	23	30	30	21	19	24	25	21	11	32	33	
Temp of deflection under load	ISO 75-1, -2	1.8MPa Flatwise	deg.C	83	81	81	77	76	81	75	79	80	79	77	77	75	
Vicat Softening Temp	ISO 306	50N	deg.C	107	104	102	100	95	101	97	100	103	101	96	97	91	
Rockwell Hardness	ISO 2039-2	R-scale	-	118	114	112	103	104	112	110	108	108	109	113	99	95	
Density	ISO 1183	23 deg.C	kg/m <sup>3</sup>	1,060	1,050	1,050	1,030	1,040	1,050	1,040	1,040	1,040	1,050	1,050	1,030	1,040	

◆ASTM Method

Tensile Modulus	ASTM D-638	5mm/min	MPa	55	50	47	40	38	48	43	44	47	45	42	35	38
Flexural Modulus	ASTM D-790	15mm/min	MPa	2,900	2,650	2,500	2,000	2,150	2,550	2,400	2,400	2,450	2,400	2,500	1,900	1,900
Flexural Strength			MPa	91	82	75	64	63	76	70	72	76	72	76	57	57
Izod Impact Strength	ASTM D-256	Notched	J/m	59	108	225	304	310	196	196	242	255	226	108	336	342
Heat Deflection Temperature	ASTM D-648	1.8MPa Edgewise	deg.C	91	89	90	85	85	90	86	88	91	89	86	86	84
Vicat Softening Temperature	ASTM D-1525	50N	deg.C	105	103	102	98	95	101	99	98	102	100	98	98	90
Rockwell Hardness	ASTM D-785	R-scale	-	121	120	117	109	109	118	113	116	116	116	113	99	95
Density	ASTM D-792	23 deg.C	-	1.05	1.05	1.04	1.03	1.03	1.04	1.04	1.04	1.04	1.04	1.04	1.03	1.04

◆Other properties

Flammability	UL94 (UL File No.E49895)			HB	HB	HB	HB	HB	HB	HB	HB	HB	HB	HB	HB	HB	-
Molding Shrinkage	DENKA Method	2mmt	%	0.4~0.6	0.4~0.6	0.4~0.6	0.4~0.6	0.4~0.6	0.4~0.6	0.4~0.6	0.4~0.6	0.4~0.6	0.4~0.6	0.4~0.6	0.4~0.6	0.5~0.7	0.5~0.7
Surface Resistivity	JIS K 6911	23 deg.C,50%RH	Ω	>10 <sup>16</sup>	>10 <sup>16</sup>	>10 <sup>16</sup>	>10 <sup>16</sup>	>10 <sup>16</sup>	>10 <sup>16</sup>	>10 <sup>16</sup>	>10 <sup>16</sup>	>10 <sup>16</sup>	>10 <sup>16</sup>	>10 <sup>16</sup>	>10 <sup>16</sup>	>10 <sup>16</sup>	1×10 <sup>10</sup>

\* The above values are typical and not guaranteed.

## *DENKA ABS*

### ◆Processing Condition

#### Pre-drying Condition

Temperature [deg.C]	Time [hr]
80~85	2~3

#### Molding Condition

Cylinder temperature setting [deg.C]				Grade
C1	C2	C3	Nozzle	
170	180	190	190	QF, GT-R-61A
∧	∧	∧	∧	
190	215	230	225	
180	190	200	200	GS-10, GR-0500, GR-1000, GT-R-10 <sup>®</sup>
∧	∧	∧	∧	
200	220	240	235	
180	200	210	210	GR-2000, GR-3000, ME, GR-3500, GR-2000LG, APG-3000
∧	∧	∧	∧	
200	230	260	255	

Mold temperature : 40~60 [deg.C] (actual temperature of mold surface)

Screw rotation speed : 80~120 [rpm]

Back pressure : 5~10 [kg/cm<sup>2</sup>·G]