

PLEXIGLAS RESIST® HP

Product Description

Technical Information

Product and Application

PLEXIGLAS RESIST® HP is a highly weather-resistant sheet material cast from **impact-modified acrylic** (polymethyl methacrylate, PMMA). The sheets offer **greater break resistance** than standard acrylic during

- transport and handling,
- the entire fabrication process,
- installation and
- subsequent use.

PLEXIGLAS RESIST® combines the positive product properties of PMMA with the toughness of other plastics such as polycarbonate (PC).

The opposite graph shows the impact resistance of PLEXIGLAS RESIST® HP sheets as compared with the cast basic grade PLEXIGLAS® GS 233/0F00 and the extruded grade PLEXIGLAS RESIST® 45, as well as cast acrylics from other manufacturers.

PLEXIGLAS RESIST® HP is highly weather-resistant, durable and requires **no additional UV protection**, unlike other plastics (e.g. PC, PET, PETG).

PLEXIGLAS RESIST® HP is therefore a highly versatile and absolutely reliable material for

- structural glazing outdoors, e.g. barrel vaults for bus stops, bicycle stands, walkways,
- protective glazing such as general access protection,
- housings for machines, equipment and workplaces,
- vehicle glazing, e.g. **windshields for motorcycles and scooters**, interior glazing in buses and trains,
- glazing of store fixtures, counters and fair booths,
- signage, e.g. **illuminated signs**, indicator panels, poster pillars,
- P.O.P. displays and sales racks, glazing of vending machines, drawing implements etc.

Subject to minimum order quantities, PLEXIGLAS RESIST® HP is available in **crystal clear grades and all PLEXIGLAS® GS colors, also with one („SC“) or two („DC“) matte surfaces.**

Chemical Resistance

The chemical resistance of PLEXIGLAS RESIST® HP is roughly the same as that of PLEXIGLAS® GS 233/0F00. **It shows greater resistance than extruded acrylic, including PLEXIGLAS RESIST® 45, -65, -75 and -100.** We will be pleased to answer specific inquiries concerning its resistance to particular substances.

Machining

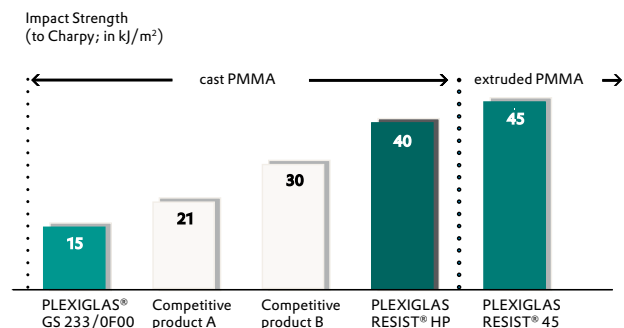
Owing to its increased toughness, PLEXIGLAS RESIST® HP lends itself perfectly to sawing, drilling, routing, sanding and polishing, provided these are performed under conditions that suit the material. Twist drills must have specially ground bits for acrylic. Only slight pressure should be applied during polishing. Please see our Guidelines for Workshop Practice for more precise recommendations.

The appropriate accident prevention regulations and statements of tool manufacturers must be observed during machining.

PLEXIGLAS RESIST® HP can be laser-cut. The lasered edges can be glossy to matte. Clear edges are obtained by wiping them with petroleum ether.

Bonding

PLEXIGLAS RESIST® HP can be bonded just as readily as the PLEXIGLAS® GS basic grades, e.g. by means of the solvent adhesive ACRIFIX® 116/1 S 0116 and the gap-filling polymerization adhesives ACRIFIX® 190/2 R 0190 and 192 /1 R 0192. With the latter, it should be borne in mind that the joints show lower impact strength than the bonded parts made of PLEXIGLAS RESIST® HP.



The sheet is completely protected against UV radiation by the "Naturally UV-Stable Technology."

Properties This table summarizes the major physical properties (typical values at 23°C / 50% R.H.):

Properties	PLEXIGLAS GS® Clear 233/0F00	PLEXIGLAS RESIST® HP Clear 0F01/0R01	PLEXIGLAS RESIST 45 Clear 03926/0RA45	Unit	Test Method
Density	1,19	1,19	1,19	g/cm³	ISO 1183
Impact strength (Charpy)	15	40	45	kJ/m²	ISO 179/1 fu
Notched impact strength (Izod)	1,6	3,2	3,5	kJ/m²	ISO 179/1 eA
Tensile strength	80	70	60	MPa	ISO 527-2/1B/5
Nominal strain at break	–	9	10	%	ISO 527-2/1B/50
Elastic modulus (short-term value)	3300	3000	2700	MPa	ISO 527-2/1B/1
Flexural strength	115	105	95	MPa	ISO 178
Cold-curving radius, min.	330 x thickness	270 x thickness	270 x thickness	–	–
Coefficient of linear thermal expansion (0 to 50 °C)	7·10 ⁻⁵ (= 0,07)	7·10 ⁻⁵ (= 0,07)	7·10 ⁻⁵ (= 0,07)	1/K (mm/m °C)	DIN 53752-A
Permanent service temp., max.	80	80	70	°C	–
Reverse forming temperature	> 80	> 80	> 80	°C	–
Vicat softening temperature	115	113	101	°C	ISO 306, Method B50
Transmittance (380...780 nm)	92	92	91	%	DIN 5036, Part 3
UV transmission	nein	nein	nein	–	–
Surface resistivity	5·10 ⁻¹³	5·10 ⁻¹³	> 10 ¹⁴	Ohm	DIN VDE 0303, Part 3
Fire rating	B2	B2	B2	–	DIN 4102
Water absorption (24 h, 23°C) from dry state; specimen 60 x 60 x 2 mm³	41	41	41	mg	ISO 62, Method 1

Forming

The forming conditions are the same as for the basic grade PLEXIGLAS® GS 233/0F00. This applies in particular to the **optical quality of the surface** after forming. **PLEXIGLAS RESIST® HP can be fabricated in many different ways.** The thermoforming temperature should be between 160 °C and 175 °C, the range in which the material is rubbery-elastic. There is no need for predrying.

The material turns slightly white during heating, but any such whitening disappears again as the material cools down.

PLEXIGLAS RESIST® HP can also be installed cold-curved, provided the minimum cold-curving radius is observed (see table).

Coating and Screen Printing

Generally speaking, the same paints and inks can be used as for the basic grade PLEXIGLAS® GS 233/0F00. However, we recommend carrying out prior tests in each case.

Cleaning and Care

PLEXIGLAS® is easy to clean. Do not rub dry. Dusty surfaces can be cleaned with warm water to which some dishwashing liquid has been added, using a soft cloth or sponge. The „Antistatische Kunststoff-Reiniger + Pfleger (AKU)“ from Burnus GmbH, Darmstadt, is most suitable for PLEXIGLAS RESIST® HP.

Physical Forms

Sheets made from PLEXIGLAS RESIST® HP are supplied with a flat glossy or matte surface and protective PE masking film on both sides

- in size **3050 mm x 2030 mm**,
- in thickness **3, 4, 5, 6, 8 and 10 mm**.

We will be pleased to inform you about colors, sizes/cut-to-size sheets, thickness up to 30 mm and other physical forms on request.

This leaflet presents the special characteristics of PLEXIGLAS RESIST® HP. Another product description leaflet is available on the general behavior of PLEXIGLAS® GS basic grades (Ref. No. 231-1).

® = registered trademark

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