



PRODUCT INFORMATION

TAROFORCE PP 60-12

Polypropylene 60% long glass fibres reinforced chemically coupled to the resin matrix, resulting in high strength and stiffness combined with high heat deflection resistance. Impact properties and creep resistance are highly increased due to the fibre skeleton structure formed in the parts.

ISO short Form ISO 1043: PP-GF60 Pellets (12 mm length)

Key Features

- Very isotropic shrinkage minimizing the warpage
- High impact strength and creep resistance
- High strength and stiffness combined with high heat deflection resistance

Availability

- L = UV stabilized grade
- HT = high heat ageing stability grade
- H = heat ageing stability grade
- E = Low emission grade
- Natural and Black colours

Process

- INJECTION MOULDING

Application

- Functional / structural parts with critical technical requirements
- Furniture
- Seat modules
- Central console carriers
- Hatchback door modules
- Lift-gate modules
- Gear shift boxes
- Battery holders
- Instrument panel carriers
- Door module carriers
- Front end carriers
- Automotive

| Property | Method | Unit | Value | Condition | State |
|-----------------|-----------------|-------------------|-------|-----------|-------|
| PHYSICAL | | | | | |
| Density (+23°C) | ISO 1183 | g/cm ³ | 1,48 | | |
| Pellet length | Internal method | mm | 12 | | |

The listed data are in the normal range of product properties, they should not be used to establish specification nor as the basis of design. Values are valid for natural coloured version only.

Unless specified to the contrary, the given values have been established on standardized test specimens at room temperature. These values are for natural colour only. The figures should be regarded as guide values only and not as binding minimum values. Please note that, under certain conditions, the properties can be affected to a considerable extent by the design of the mold/die, the processing conditions, pigments and any other additives.

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| | | | |
|--------------------------------|-----------------|---|------|
| Long Glass Fiber content | ISO 3451 | % | 60 |
| Water Absorption (24h / +23°C) | ISO 62 | % | 0,2 |
| Mould Shrinkage (Parallel) | Internal method | % | 0,2 |
| Mould Shrinkage (Normal) | Internal method | % | 0,25 |

MECHANICAL

| | | | | |
|---------------------------------|-------------|-------------------|-------|-----------------|
| Tensile Modulus | ISO 527-1,2 | MPa | 14300 | Speed 1 mm/min |
| Elongation at Break | ISO 527-1,2 | % | 1,5 | Speed 50 mm/min |
| Tensile Break Strength | ISO 527-1,2 | MPa | 140 | Speed 50 mm/min |
| Flexural Modulus | ISO 178 | MPa | 13300 | Speed 1 mm/min |
| Flexural Break Strength | ISO 178 | MPa | 200 | Speed 1 mm/min |
| IZOD Notched Impact (+23°C) | ISO 180/1A | kJ/m ² | 24 | |
| IZOD Notched Impact (+23°C) | ASTM D256 | J/m | 300 | |
| CHARPY Notched Impact (+23°C) | ISO 179/1eA | kJ/m ² | 25 | |
| CHARPY Unnotched Impact (+23°C) | ISO 179/1eU | kJ/m ² | 60 | |
| CHARPY Notched Impact (-30°C) | ISO 179/1eA | kJ/m ² | 22 | |
| CHARPY Unnotched Impact (-30°C) | ISO 179/1eU | kJ/m ² | 50 | |

THERMAL

| | | | |
|---|---------|----|-----|
| Softening Temperature - 5 kg (VST/B/50) | ISO 306 | °C | 142 |
| Deflection Temperature 1,80 MPa (HDT A) | ISO 75A | °C | 153 |

FLAMMABILITY

| | | | |
|-----------------------------|------------|--------|----------------------------|
| Flame Behaviour (1,6 mm) | UL94 | Class | HB |
| Burning Rate (US-FMVSS 302) | ISO 3795 | mm/min | < 80 Thickness > 1,5 mm |
| Oxygen index | ASTM D2863 | % | 20 |

INJECTION MOULDING

| | Value |
|--------------------------------------|-------------|
| Drying Temperature (Desiccant Dryer) | 80 - 100°C |
| Drying Time (Desiccant Dryer) | 2 - 4 hours |
| Suggested Max Moisture | 0,2% |

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| | |
|-----------------------|--------------------------------|
| Melt Temperature | 240 - 260°C |
| Feed Temperature | 50°C |
| Rear Temperature | 210°C |
| Middle Temperature | 240°C |
| Front Temperature | 250°C |
| Nozzle Temperature | 250°C |
| Mould Temperature | 40 - 80°C |
| Injection Rate | 50 - 150 mm/s |
| Injection Pressure | 60 - 120 MPa |
| Packing Pressure | 30 - 80 MPa |
| Back Pressure | As low as possible (< 0,3 MPa) |
| Screw Revolving Speed | 25 - 50 rpm |
| Screw Revolving Speed | 50 rpm @ Diameter 40 mm |
| Screw Revolving Speed | 35 rpm @ Diameter 55 mm |
| Screw Revolving Speed | 25 rpm @ Diameter 75 mm |
| Cushion | 5 - 8 mm |
| Vent Depth | 0,05 mm |

Notes It is normally not necessary to dry TAROFORCE, however should there be surface moisture (condensate) on the moulding compound as a result of incorrect storage, drying process is required. TAROFORCE can be stored in standard conditions until processed. TAROFORCE can be processed on a standard injection moulding unit. A general purpose metering screw is recommended with a zone distribution of 40% feed, 40% transition and 20% metering. A free flow check ring assembly is recommended. When a machine is being shut down from moulding TAROFORCE long glass fibres reinforced materials, the machine should be purged with PE or PP. When the heating cylinder is completely purged of Taroforce material the machine may be shut down. When using blended materials, special care should be taken to prevent segregation in the feed hopper.

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