PRODUCT INFORMATION

TAROFORCE PP 30-12

Polypropylene 30% long glass fibres reinforced chemically coupled to the resin matrix, resulting in high strength and stiffness combined with high heat deflection resistance. The impact properties and the creep resistance are highly increased due to the fibre skeleton structure formed in the parts.

ISO short	ISO 1043: PP-GF30
Form	Pellets (12 mm lenght)

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
- C = Concentrate 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	1,12		

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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Pellet length	Internal method	mm	12	
Long Glass Fiber content	ISO 3451	%	30	
Water Absorption (24h / +23°C)	ISO 62	%	0,2	
Mould Shrinkage (Parallel)	Internal method	%	0,14	
Mould Shrinkage (Normal)	Internal method	%	0,65	
Poisson's ratio	Internal method	-	0,42	
MECHANICAL				
Tensile Modulus	ISO 527-1,2	MPa	4400	+85°C / Speed 1 mm/min
Tensile Modulus	ISO 527-1,2	MPa	4450	+80°C / Speed 1 mm/min
Tensile Modulus	ISO 527-1,2	MPa	3500	+120°C / Speed 1 mm/min
Tensile Modulus	ISO 527-1,2	MPa	7000	+23°C / Speed 1 mm/min
Elongation at Break	ISO 527-1,2	%	2,30	+85°C / Speed 50 mm/min
Elongation at Break	ISO 527-1,2	%	2,25	+80°C / Speed 50 mm/min
Elongation at Break	ISO 527-1,2	%	2,65	+120°C / Speed 50 mm/min
Elongation at Break	ISO 527-1,2	%	2,10	+23°C / Speed 50 mm/min
Tensile Break Strength	ISO 527-1,2	MPa	72	+85°C / Speed 50 mm/min
Tensile Break Strength	ISO 527-1,2	MPa	74	+80°C / Speed 50 mm/min
Tensile Break Strength	ISO 527-1,2	MPa	52	+120°C / Speed 50 mm/min
Tensile Break Strength	ISO 527-1,2	MPa	105	+23°C / Speed 50 mm/min
Flexural Modulus	ISO 178	MPa	6700	+23°C / Speed 1 mm/min
Flexural Break Strength	ISO 178	MPa	155	+23°C / Speed 1 mm/min
IZOD Notched Impact (+23°C)	ISO 180/1A	kJ/m^2	20	
IZOD Notched Impact (+23°C)	ASTM D256	J/m	230	
CHARPY Notched Impact (+23°C)	ISO 179/1eA	kJ/m^2	18	
CHARPY Unnotched Impact (+23°C)	ISO 179/1eU	kJ/m^2	55	
CHARPY Notched Impact (-30°C)	ISO 179/1eA	kJ/m^2	16	
CHARPY Unnotched Impact (-30°C)	ISO 179/1eU	kJ/m^2	45	

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THERMAL

Softening Temperature - 5 kg (VST/B/50)	ISO 306	°C	136	
Deflection Temperature 1,80 MPa (HDT A)	ISO 75A	°C	148	
Deflection Temperature 0,45 MPa (HDT B)	ISO 75B	°C	160	
Coefficient of linear thermal expansion (parallel)	ISO 11359-1,-2	K^-1	3,9x10E(-5)	+10°C / +40°C
Coefficient of linear thermal expansion (transversal)	ISO 11359-1,-2	K^-1	6,2x10E(-5)	+10°C / +40°C
Thermal Conductivity	ISO 8302	W /(m K)	0,2	

FLAMMABILITY

Flame Behaviour (1,6 mm)	UL94	Class	HB	
Burning Rate (US-FMVSS 302)	ISO 3795	mm/min	< 80	Thickness > 1,5 mm
Oxigen 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%
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/sec
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

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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.