

TPX™ mandrels provide excellent heat resistance, enabling high temperature vulcanization

TPX™ features excellent heat resistance, enabling high temperature vulcanization during hose manufacturing. TPX™ mandrels ensure a precise hose inner diameter, while TPX™ sheaths enable a mirror finish of the hose's exterior. Both mandrels and sheaths can be reused or reprocessed, lowering manufacturing costs.



Benefits of Using TPX™

Enabling Manufacturing Costs to be Lowered

TPX™ helps to reduce manufacturing costs as it can be used repeatedly, unlike other materials. (Refer to Table 1 on the reverse.)

High Precision Inner Diameter of Hose

TPX™ mandrels feature excellent releasability, ensuring high precision of the inner diameter of the hose without damaging the inner layer of products during removal. (Refer to Table 2 on the reverse.)

Improved Productivity

TPX™ mandrels feature high heat resistance, are applicable for high temperature vulcanization and are easy to release, enabling shortened production lead time. TPX™ mandrels are also the lightest among general plastics and are easy to route. (Refer to Table 3 on the reverse.)

Case Studies

TPX™ mandrels are widely used as a secondary process material for manufacturing high pressure hoses.



Power Steering Hose



Fuel Hose



Brake Hose

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Properties

Fig1. Usage Cycle Time

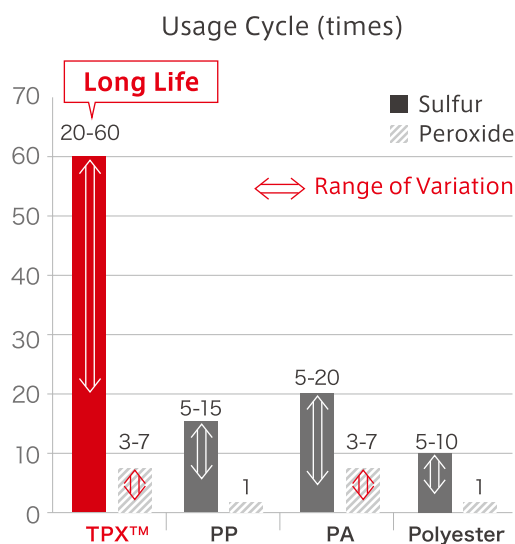
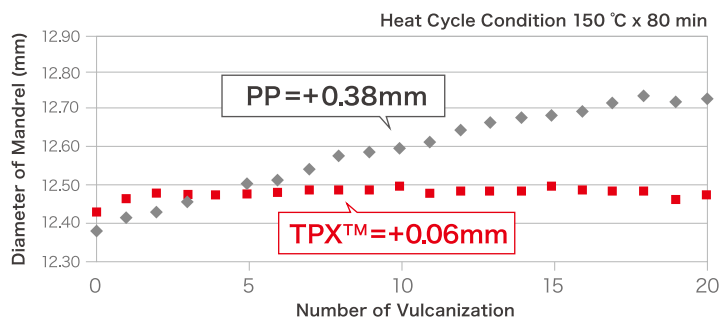
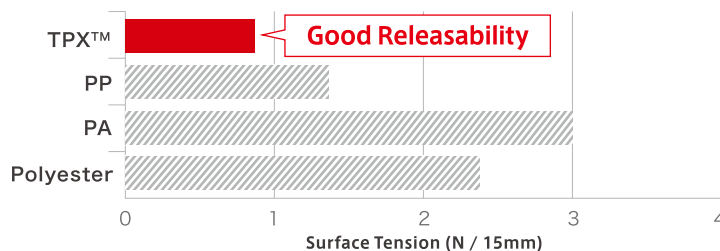


Fig2. Dimension Stability



- The choice of TPX™ Grade depends on the targeted mandrel diameter.
 - Softer TPX™ Grade is preferred for larger diameter.

Fig3. Surface Tension (dyne)



Condition Example

	Requested Characteristics	Properties	MX004	MX002	MLL411	
Grade Selection Guide	Mandrels ϕ	ϕ (mm)	5-7	6-12	9-28	
	Dimensional Precision	Dia. Range (mm)	± 0.05	± 0.1	± 0.2	
		Roundness (mm)	0.07	0.15	0.20	
	Heat Resistant	Melting Point (°C)	228	224	224	
	Flexibility	Flexural Modulus of Elasticity (MPa)	1050	660	310	
	REACH Regulation		○	○	○	
Extrusion Condition Example ($\phi=65\text{mm}$ / with Gear Pump)	Mandrel Dia. (mm)		9.1	9.4	9.4	
	Speed (m/min)		3.4	3.1	3.1	
	Temp. Profile (°C)	C1		250	255	255
		C2		250	255	255
		C3		240	250	250
		C4		240	250	250
		AD		240	245	245
Dia.			235	236	236	

The data described in this leaflet are representative examples of measurement values obtained using our test methods. The described data and evaluations are not guaranteed. Prior to application to your products, please evaluate the practicality and confirm that there are no problems.