

Polybutylene Terephthalate (PBT)

**DURANEX®**

750LD

ED3002/EF2001

Low warpage, LD series

**POLYPLASTICS CO., LTD.**



# General Properties of 750LD

table1-1 General Properties (ISO)

Item	Unit	Test Method	Low warpage, LD series
			750LD
			GF30% reinforced
Color			ED3002/EF2001
ISO(JIS)quality-of-the-material display:		ISO11469 (JIS K6999)	>PBT+ABS- GF30FR(17)<
Density	g/cm <sup>3</sup>	ISO 1183	1.60
Water absorption (23°C,24hrs,1mmt)	%	ISO 62	0.2
Tensile strength	MPa	ISO 527-1,2	135
Strain at break	%	ISO 527-1,2	1.8
Flexural strength	MPa	ISO 178	206
Flexural modulus	MPa	ISO 178	10,100
Charpy notched impact strength (23°C)	kJ/m <sup>2</sup>	ISO 179/1eA	7.9
Temperature of deflection under load (1.8MPa)	°C	ISO 75-1,2	205
Coefficient of linear thermal expansion (23 - 55°C、 Flow direction)	x10 <sup>-5</sup> /°C	Our standard	2
Coefficient of linear thermal expansion (23 - 55°C、 Transverse direction)	x10 <sup>-5</sup> /°C	Our standard	7
Electric strength (3mmt)	kV/mm	IEC 60243-1	18
Volume resistivity	Ω·cm	IEC 60093	4 × 10 <sup>16</sup>
Tracking resistance (CTI)	V	IEC 60112	225
Rockwell hardness	M(Scale)	ISO2039-2	90
Flammability		UL94	V-0
The yellow card File No.			E213445
Appropriate List number of Ministerial Ordinance for Export Trade Control			Item 16 of Appendix -1

All figures in the table are the typical values of the material and not the minimum values of the material specifications.



## 2. Mold shrinkage ratio of DURANEX® 750LD

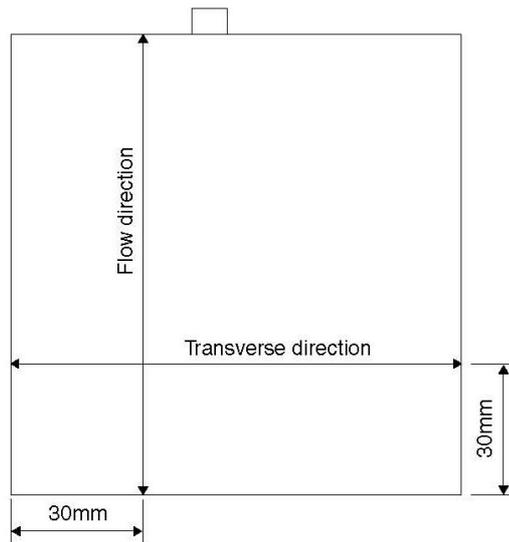
---

### Processing parameters

Injection machine: Sumitomo SG150U SYCAP-MIV  
Mold: 120° flat plate mold shrinkage mold (2 mm $\phi$ )  
Cylinder temperature: 260-260-260-260-230°C  
Mold temperature: 65°C  
Hold pressure: 49.0, 58.8, 68.6 MPa  
Injection speed: 17mm/sec  
Cycle: (inj. + hold) 25 s + cooling 10 s  
Screw rotation: 100 rpm  
Screw backpressure: 5.9 MPa  
\* Molding was carried out with position switching.

### Measurement method

Measuring apparatus: Mitutoyo three-dimensional coordinate measuring machine FN704  
Probe dia. =  $\phi$  1.0 mm  
Air conditioning: 23°C, 50% RH $\times$ 48 hrs-plus  
Measurement points: Flow direction and transverse direction



Mold flow shrinkage (%) = (Mold dimensions-part dimensions)/mold dimensions $\times$ 100

Mold dimensions: Flow direction: 119.978 mm

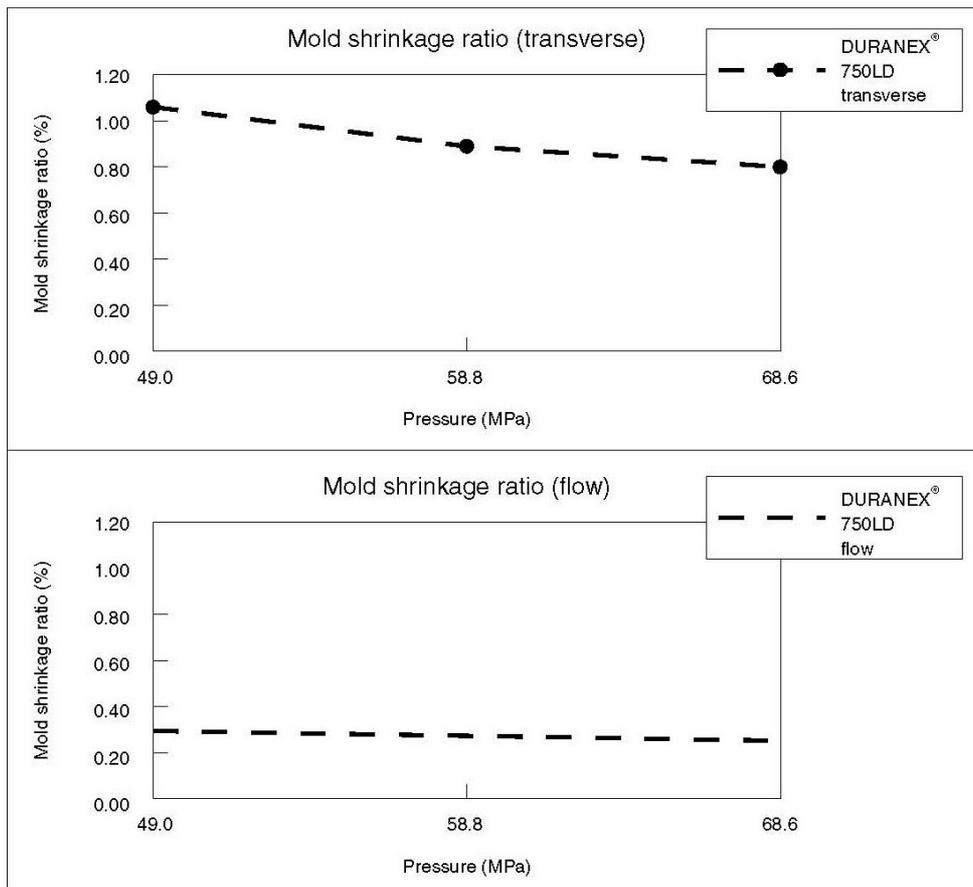
Transverse direction: 119.986 mm



120<sup>□</sup>×2 mmt flat plate (gate: 4(W)×2t) mold shrinkage ratio evaluation results. Unit: %

Material		Holding pressure (MPa)		
		49.0	58.8	68.6
DURANEX <sup>®</sup> 750LD	Transverse	1.06	0.90	0.76
	Flow	0.27	0.23	0.23
	Anisotropy	0.79	0.67	0.53

n = 5



### 3. Flow characteristics of DURANEX® 750LD

#### Processing parameters

Injection machine: Sumitomo SG150U SYCAP-MIV

Mold: Bar flow mold (2 mm $\bar{t}$ )

Cylinder temperature: 260-260-260-260-230°C

Mold temperature: 65°C

Hold pressure: 49.0, 73.5, 98.0, 122.5 MPa

Injection speed: 67mm/sec

Cycle: (inj. + hold) 25 s + cooling 10 s

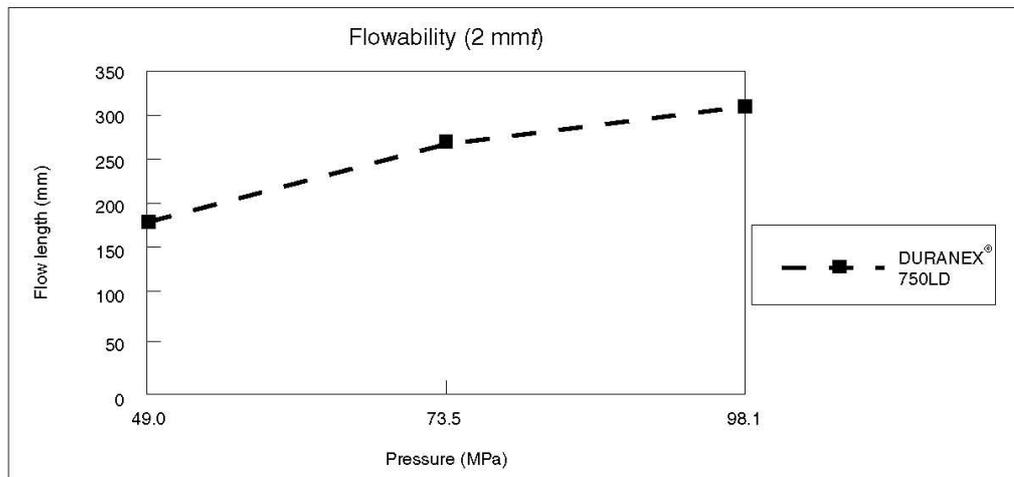
Screw rotation: 100 rpm

Screw backpressure: 5.9 MPa

Flowability 2 mmt evaluation results Unit: mm

Material	Pressure (MPa)		
	49.0	73.5	98.1
DURANEX® 750LD	179	261	325

n = 10





## 5. Connector mold deformation of DURANEX® 750LD

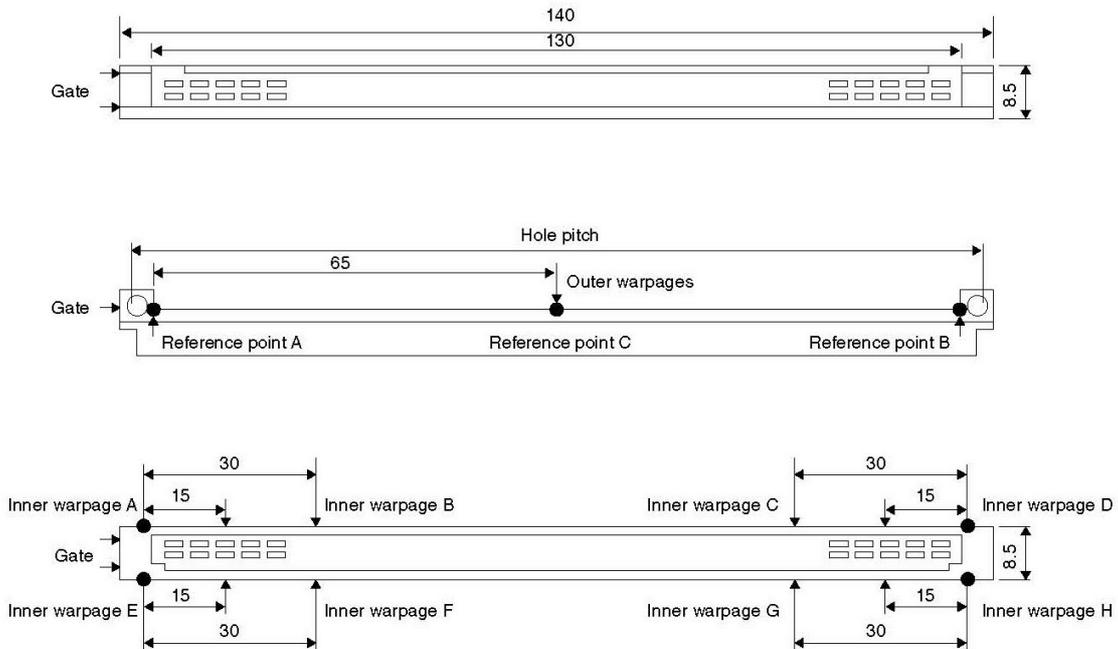
### Processing parameters

Injection machine: JSW J75ssII-A  
Mold: Connector mold  
Cylinder temperature: 250-250-230-210°C  
Mold temperature: 60°C  
Hold pressure: 58.8 MPa  
Injection speed: 67mm/sec  
Cycle: (inj. + hold) 5 s + cooling 10 s  
Screw rotation: 100 rpm  
Screw backpressure: 5%

### Measurement method

Measuring apparatus: Nikon 2.5-D coordinate measuring machine  $\mu$ -STAFF  
Air conditioning: 23°C, 50% RH×48 hrs-plus  
Measurement points: Outer warpages, inner warpage, and inter-hole pitch.

### 2.54 pitch 100 pin



Outer warpages: The distance between the straight line connecting reference points A and B and the reference point C.  
Inner warpage: The distance between the straight lines that pass through the two "\_" (A to D are on the top side of the diagram and E to H are on the bottom side) in the above diagram and the respective points.



Connector deformation evaluation results Unit mm

Evaluation parameter	Measurement point	DURANEX® 750LD
Connector Outer warpage		0.080
Connector inter-hole pitch		134.737
Connector inner warpage	A	0.120
	B	0.083
	C	0.163
	D	0.140
	E	0.080
	F	0.068
	G	0.024
	H	0.044
	C + E	0.243
	D + E	0.220

nn = 5

Measurement points C + E show the maximum inner warpage.

Measurement points D + E show the total inner warpage extent of the TCS standard measurement points.



## **NOTES TO USERS**

- All property values shown in this brochure are the typical values obtained under conditions prescribed by applicable standards and test methods.
- This brochure has been prepared based on our own experiences and laboratory test data, and therefore all data shown here are not always applicable to parts used under different conditions. We do not guarantee that these data are directly applicable to the application conditions of users and we ask each user to make his own decision on the application.
- It is the users' responsibility to investigate patent rights, service life and potentiality of applications introduced in this brochure. Materials we supply are not intended for the implant applications in the medical and dental fields, and therefore are not recommended for such uses.
- For all works done properly, it is advised to refer to appropriate technical catalogs for specific material processing.
- For safe handling of materials we supply, it is advised to refer to the Safety Data Sheet "SDS" of the proper material.
- This brochure is edited based on reference literature, information and data available to us at the time of creation. The contents of this brochure are subject to change without notice upon achievement of new data.
- Please contact our office for any questions about products we supply, descriptive literatures or any description in this brochure.

DURANEX® is a registered trademark of Polyplastics Co., Ltd. in Japan and other countries.

## **POLYPLASTICS CO., LTD.**

JR Shinagawa East Bldg.,  
18-1, Konan 2-chome, Minato-ku, Tokyo, 108-8280 Japan  
Tel: +81-3-6711-8610 Fax: +81-3-6711-8618

<http://www.polyplastics.com/en/>

( R190528-1402 )

