Abhishek Innovative Concepts Pvt. Ltd. (AICPL)

Formerly Abhishek Enterprises | Waluj MIDC, Chhatrapati Sambhajinagar, Maharashtra, India

TECHNICAL DATA SHEET — Extruded Plastic Cores (HIPS & HDPE)

1. Product

Extruded HIPS and HDPE plastic cores (pipes) for winding high-value films and tapes. Extruded in a controlled environment for a strong, smooth, clean surface that gives wrinkle-free winding. Supplied to custom specifications.

Applications: PPF films, sun control films, safety films, BOPP films, metallized films, photo films, magnetic films, clear films, and the adhesive-tape industry.

2. Dimensional Specifications

Parameter	HIPS cores	HDPE cores
Internal diameter (ID)	2", 3" and 6"	3”
Wall thickness	1.5 mm to 8 mm	1.8 mm to 5 mm
Length	Any length, cut to order (in-house developed cutter technology)	
Surface finish	Smooth, scratch-proof, clean	
Options	Internal knurling for grip on the shaft; marking line on pipe for accurate start of film winding	
Raw material	High Impact Polystyrene — various grades blended in pre-determined proportion, with additives for strength	High Density Polyethylene

3. Material Properties (typical values)

Property	HIPS	HDPE (typical published values)
Structure	Amorphous	Semi-crystalline
Density	1.04 g/cc	0.941 – 0.965 g/cc
Water absorption	0.10 %	< 0.1 %
Elongation	55 %	≈ 9 % at yield; > 400 % at break
Tensile strength	4,000 psi (27.6 MPa)	≈ 3,600 psi (25 MPa) at yield
Compressive strength	7,500 psi (51.7 MPa)	≈ 4,600 psi (31.7 MPa)
Flexural strength	8,700 psi (60.0 MPa)	≈ 4,600 psi (31.7 MPa) at yield
Flexural modulus	2,80,000 psi (1,931 MPa)	1,000 – 1,400 MPa (1,45,000 – 2,03,000 psi)
Impact strength (Izod, notched)	2 ft·lb/in (107 J/m)	Grade-dependent — high
Hardness	Rockwell R65	Shore D 64 – 69
Heat deflection temp. @ 66 psi	195 °F (91 °C)	140 – 190 °F (60 – 88 °C)
Heat deflection temp. @ 264 psi	180 °F (82 °C)	110 – 130 °F (43 – 54 °C)
Service temperature	−22 °F to 140 °F (−30 °C to 60 °C)	Up to ≈ 180 °F (82 °C) continuous
Melting point	Not applicable — amorphous	≈ 126 – 130 °C
Coeff. of linear expansion	0.000042 per °F	6.1 – 7.2 × 10^{-5} per °F
Chemical resistance	Acids: Good | Alkalis: Excellent	Acids & alkalis: Excellent (typical)
Fabrication	Bonding: Excellent | Ultrasonic welding: Good | Machining: Good	Machining: Good | Adhesive bonding: Poor (typical of PE)

B. Indicative roll-load capacity (kg) — core supported only at its ends, 1.5 m span, no shaft through the core

Wall	HIPS — ID			HDPE — ID
	2"	3"	6"	3"
2 mm	3	10	78	5
3 mm	5	16	119	8
4 mm	7	22	162	11
5 mm	9	28	206	15
6 mm	12	35	252	
8 mm	17	51	349	

Basis: roll weight spread evenly along the core; limit = core sag not more than span/250 (6 mm on 1.5 m). At this limit, bending stress stays below one-quarter of the material's tensile strength. For a 1.0 m span, capacity is about 2.2× the values shown. When the core runs on an air/expanding shaft, the shaft carries the bending load and these limits do not apply — the core then sees mainly radial winding pressure and chuck torque, which are not covered here. Short-term values at room temperature. Plastics creep under sustained load and soften with heat; allow a larger margin for long storage or warm conditions (especially HDPE).

5. Key Features

- High-strength cores, reusable (minimum 15 uses for HIPS cores)
- No tear-out or crushing problems
- Far lighter than metal cores; no corrosion
- Far stronger and smoother than paper cores
- No dust contamination or moisture absorption, unlike paper
- Consistent ID tolerance, unlike paper cores

6. Packing & Shipping

- Each core individually packed in PE tubing; packed in corrugated boxes; palletized on standard pallets; standard seaworthy packing
- Container load depends on core size — typically about 2,000 cores of 1,535 mm length in a 20 ft ISO container

7. Manufacturing & Quality

- 3 automated core extrusion lines, with SPM lathe and in-house developed cutting technology
- In-house testing facility; in-house tool room
- ISO 9001:2015 certified Quality Management System

Disclaimer: Values are typical, for reference and comparison only, and are not specification limits. Customers should confirm suitability for their own winding process and equipment. Specifications can be customised on request.

Abhishek Innovative Concepts Pvt. Ltd.
M-107/5/1, MIDC Waluj, Chhatrapati Sambhajinagar (Aurangabad) – 431136, Maharashtra, India
+91 70289 07878 / +91 93706 71748 | marketing@abhishekgroup.net.in | www.abhishekgroup.net.in