



# POLYURETHANE

**Also Known As (common industry trade names):**

## Material Information:

Polyurethanes are versatile engineering materials designed to provide properties not available in conventional rubbers, metals and plastics. Typically they have higher oil and solvent resistance, along with greater abrasion and tear resistance. Impact strength, low compression set and superior load bearing capacity are also important engineering characteristics.

Urethane is available in several different forms such as thermoplastic, thermoset, coatings and foams (flexible, semirigid, rigid and integral skin). A variety of processes are used to produce parts, including injection molding, extrusion, RIM, spray and casting. Most can be supplied in polyether or polyester base formulations. The ethers are generally better for use in contact with water and have higher heat resistance. The esters have higher abrasion and oil resistance.

Thermoset and some foam types are supplied in standard shapes (sheet, rod, bar and tube) as well as custom molded parts. Advantages of the cast types are low cost tooling and short production runs. Injection and extrusion will generally result in lower piece prices, but tooling can be quite expensive.

## Applications:

Seals . Printing Rolls  
Die Pads . Gaskets  
Idle Rollers . Wear Pads  
Machinery Pads  
Wear Strips  
Chute Liners  
Hopper Liners  
Silk Screen Wiper Blades

## Characteristics/Enhancements/Varieties/Fills:

**Varieties:** Thermoplastic, thermoset, coatings and foams (flexible, semirigid, rigid and integral skin).

Most can be supplied in a polyether or a polyester base formulations.

**Processes:** Injection molding, extrusion, RIM, spray and casting.

## Standard Shapes and Sizes (please call for custom sizes not listed):

Sheet Sizes: 24" x 36", 48 x 96", 48" x 120"

Sheet Thicknesses: 1/16" to 4" thick

Rod Diameters: 1/4" - 12" OD

Rod Lengths: 12" - 36" lengths are standard

Tube: Some sizes are available - Please call for more details

Dallas, Texas (Corporate Offices)  
Houston, Texas  
Brandon, Mississippi

phone 800-782-1836 / 214-239-3870  
phone 800-282-4388 / 713-979-0660  
phone 800-457-8623 / 601-825-7919

fax 214-239-3871  
fax 713-979-0664  
fax 601-825-7109



## Technical Data Sheet

### Harkness Industries MP 160

#### Polyurethane Composition

MP 160 is a 60 Shore D high performance polyether based urethane designed to give elastomeric performance in the hardness range of engineering plastics. Exceptionally high tensile and tear strength coupled with outstanding impact strength make MP 160 an excellent choice in a variety of applications including bearing pads, material handling equipment, rolls, wheels, hammer heads, and many more.

#### Physical Properties

Shore D Hardness .....	60 +/- 5
100% Modulus, psi (Mpa) .....	3000 (20.7)
300% Modulus, psi (Mpa) .....	6500 (44.9)
Tensile, psi (Mpa) .....	6500 (44.9)
Elongation, % .....	300%
Tear Strength, Split (ASTM D-470) pli, (kN/m) .....	120 (20.9)
Tear Strength, Die C (ASTM D-624) pli, (kN/m) .....	700 (122)
Brittleness, °F (°C), (ASTM D-1044).....	- 85 (-65)
Abrasion Resistance, NBS Index .....	350
Tabor Abrasion, H-18 100 gm Load Average Loss / 1000 cycles, grams .....	0.040
Specific Gravity .....	1.20



50 Grandview Court  
Cheshire, CT. 06410

Phone: 203-272-3219  
Fax: 203-272-0428  
Website: www.harknessindustries.com



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## Technical Data Sheet

### Harkness Industries MP 750

#### Polyurethane Composition

MP 750 is a high performance polyester based urethane. This polyurethane is formulated to give an excellent balance of properties for a wide variety of applications including springs, scraper blades, die cutting pads, bumpers, chute liners, wheels, tires, and many more.

#### Physical Properties

Shore A Hardness .....	75 +/- 5
100% Modulus, psi (Mpa) .....	350 (2.4)
300% Modulus, psi (Mpa) .....	1000 (6.8)
Tensile, psi (Mpa) .....	5500 (37.6)
Elongation, % .....	500%
Tear Strength, Split (ASTM D-470) pli, (kN/m) .....	66 (11.4)
Tear Strength, Die C (ASTM D-624) pli, (kN/m) .....	250 (43.6)
Bashore Rebound, % .....	
Compression Set % .....	15
22 hours @ 158°F (70°C), Method B	
Bell Brittle Point, °F (°C) .....	- 70 (-57)
Tabor Abrasion, H-18 100 gm Load	
Average Loss / 1000 cycles, grams .....	0.040
Specific Gravity .....	1.26



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