

# V00188

## TUFFlex Ultra Machine Film

9.4 Micron / 37 Gauge / 0.37 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES	
Manufacturing Process	Cast	
Thickness (nominal)	9.4 Micron / 37 Gauge / 0.37 Mil	
Colour	Clear	
Film Width	20"	
Length	12500'	
Net Weight / Roll (lb – nominal)	37 lb	
Roll Diameter (O.D., inches)	9.5"	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Haze	ASTM D1003	3%
Gloss	ASTM D2457	75%
Tensile Strength at Break (MD)	ASTM D882	550 psi
Tensile Strength at Break (TD)	ASTM D882	4500 psi
Elongation at Break (MD)	ASTM D882	475%
Elongation at Break (TD)	ASTM D882	630%
Elmendorf Tear Strength (MD)	ASTM D1922	120 g
Elmendorf Tear Strength (TD)	ASTM D1922	325 g
Cling	ASTM D5458	180 g

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# V00189

## TUFFlex Ultra Machine Film

10.7 Micron / 42 Gauge / 0.42 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES	
Manufacturing Process	Cast	
Thickness (nominal)	10.7 Micron / 42 Gauge / 0.42 Mil	
Colour	Clear	
Film Width	20"	
Length	11000'	
Net Weight / Roll (lb – nominal)	36.96 lb	
Roll Diameter (O.D., inches)	9.5"	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Haze	ASTM D1003	3%
Gloss	ASTM D2457	69%
Dart Impact Strength	ASTM D1709	175 g
Tensile Strength at Break (MD)	ASTM D882	5500 psi
Tensile Strength at Break (TD)	ASTM D882	4500 psi
Tensile Strength at 200% (MD)	ASTM D882	1960 psi
Tensile Strength at 200% (TD)	ASTM D882	1425 psi
Elongation at Break (MD)	ASTM D882	495%
Elongation at Break (TD)	ASTM D882	645%
Elmendorf Tear Strength (MD)	ASTM D1922	135 g
Elmendorf Tear Strength (TD)	ASTM D1922	370 g
Cling	ASTM D5458	100 g

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# V00190

## TUFFlex Ultra Machine Film

10.7 Micron / 42 Gauge / 0.42 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES	
Manufacturing Process	Cast	
Thickness (nominal)	10.7 Micron / 42 Gauge / 0.42 Mil	
Colour	Clear	
Film Width	30"	
Length	11000'	
Net Weight / Roll (lb – nominal)	55.44 lb	
Roll Diameter (O.D., inches)	9.5"	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Haze	ASTM D1003	3%
Gloss	ASTM D2457	69%
Dart Impact Strength	ASTM D1709	175 g
Tensile Strength at Break (MD)	ASTM D882	5500 psi
Tensile Strength at Break (TD)	ASTM D882	4500 psi
Tensile Strength at 200% (MD)	ASTM D882	1960 psi
Tensile Strength at 200% (TD)	ASTM D882	1425 psi
Elongation at Break (MD)	ASTM D882	495%
Elongation at Break (TD)	ASTM D882	645%
Elmendorf Tear Strength (MD)	ASTM D1922	135 g
Elmendorf Tear Strength (TD)	ASTM D1922	370 g
Cling	ASTM D5458	100 g

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# V00191

## TUFFlex Ultra Machine Film

11.4 Micron / 45 Gauge / 0.45 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES	
Manufacturing Process	Cast	
Thickness (nominal)	11.4 Micron / 45 Gauge / 0.45 Mil	
Colour	Clear	
Film Width	20"	
Length	10250'	
Net Weight / Roll (lb – nominal)	36.9 lb	
Roll Diameter (O.D., inches)	9.5"	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Haze	ASTM D1003	3%
Gloss	ASTM D2457	69%
Dart Impact Strength	ASTM D1709	180 g
Tensile Strength at Break (MD)	ASTM D882	5500 psi
Tensile Strength at Break (TD)	ASTM D882	4500 psi
Tensile Strength at 200% (MD)	ASTM D882	1960 psi
Tensile Strength at 200% (TD)	ASTM D882	1425 psi
Elongation at Break (MD)	ASTM D882	500%
Elongation at Break (TD)	ASTM D882	650%
Elmendorf Tear Strength (MD)	ASTM D1922	140 g
Elmendorf Tear Strength (TD)	ASTM D1922	380 g
Cling	ASTM D5458	100 g

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# V00192

## TUFFlex Ultra Machine Film

11.4 Micron / 45 Gauge / 0.45 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES	
Manufacturing Process	Cast	
Thickness (nominal)	11.4 Micron / 45 Gauge / 0.45 Mil	
Colour	Clear	
Film Width	30"	
Length	10250'	
Net Weight / Roll (lb – nominal)	55.35 lb	
Roll Diameter (O.D., inches)	9.5"	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Haze	ASTM D1003	3.0%
Gloss	ASTM D2457	69%
Dart Impact Strength	ASTM D1709	180 g
Tensile Strength at Break (MD)	ASTM D882	5500 psi
Tensile Strength at Break (TD)	ASTM D882	4500 psi
Tensile Strength at 200% (MD)	ASTM D882	1960 psi
Tensile Strength at 200% (TD)	ASTM D882	1425 psi
Elongation at Break (MD)	ASTM D882	500%
Elongation at Break (TD)	ASTM D882	650%
Elmendorf Tear Strength (MD)	ASTM D1922	140 g
Elmendorf Tear Strength (TD)	ASTM D1922	380 g
Cling	ASTM D5458	100 g

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# V00193

## TUFFlex Ultra Machine Film

13 Micron / 51 Gauge / 0.51 Mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast
Thickness (nominal)	13 Micron / 51 Gauge / 0.51 Mil
Colour	Clear
Film Width	20"
Length	9000'
Net Weight / Roll (lb – nominal)	36.72 lb
Roll Diameter (O.D., inches)	9.5"
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Haze	ASTM D1003	3%
Gloss	ASTM D2457	69%
Dart Impact Strength	ASTM D1709	210 g
Tensile Strength at Break (MD)	ASTM D882	5500 psi
Tensile Strength at Break (TD)	ASTM D882	4500 psi
Tensile Strength at 200% (MD)	ASTM D882	1960 psi
Tensile Strength at 200% (TD)	ASTM D882	1425 psi
Elongation at Break (MD)	ASTM D882	510%
Elongation at Break (TD)	ASTM D882	655%
Elmendorf Tear Strength (MD)	ASTM D1922	150 g
Elmendorf Tear Strength (TD)	ASTM D1922	395 g
Cling	ASTM D5458	100 g

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# V00194

## TUFFlex Ultra Machine Film

13 Micron / 51 Gauge / 0.51 Mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast
Thickness (nominal)	13 Micron / 51 Gauge / 0.51 Mil
Colour	Clear
Film Width	30"
Length	9000'
Net Weight / Roll (lb – nominal)	55.08 lb
Roll Diameter (O.D., inches)	9.5"
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Haze	ASTM D1003	3%
Gloss	ASTM D2457	69%
Dart Impact Strength	ASTM D1709	210 g
Tensile Strength at Break (MD)	ASTM D882	5500 psi
Tensile Strength at Break (TD)	ASTM D882	4500 psi
Tensile Strength at 200% (MD)	ASTM D882	1960 psi
Tensile Strength at 200% (TD)	ASTM D882	1425 psi
Elongation at Break (MD)	ASTM D882	510%
Elongation at Break (TD)	ASTM D882	655%
Elmendorf Tear Strength (MD)	ASTM D1922	150 g
Elmendorf Tear Strength (TD)	ASTM D1922	395 g
Cling	ASTM D5458	100 g

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# V00195

## TUFFlex Ultra Machine Film

15.5 Micron / 61 Gauge / 0.61 Mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast
Thickness (nominal)	15.5 Micron / 61 Gauge / 0.61 Mil
Colour	Clear
Film Width	20"
Length	7500'
Net Weight / Roll (lb – nominal)	36.6 lb
Roll Diameter (O.D., inches)	9.5"
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Haze	ASTM D1003	3%
Gloss	ASTM D2457	69%
Dart Impact Strength	ASTM D1709	400 g
Tensile Strength at Break (MD)	ASTM D882	5500 psi
Tensile Strength at Break (TD)	ASTM D882	4500 psi
Tensile Strength at 200% (MD)	ASTM D882	1960 psi
Tensile Strength at 200% (TD)	ASTM D882	1425 psi
Elongation at Break (MD)	ASTM D882	800%
Elongation at Break (TD)	ASTM D882	1000%
Elmendorf Tear Strength (MD)	ASTM D1922	375 g
Elmendorf Tear Strength (TD)	ASTM D1922	700 g
Cling	ASTM D5458	100 g

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# V00196

## TUFFlex Ultra Machine Film

15.5 Micron / 61 Gauge / 0.61 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES	
Manufacturing Process	Cast	
Thickness (nominal)	15.5 Micron / 61 Gauge / 0.61 Mil	
Colour	Clear	
Film Width	30"	
Length	7500'	
Net Weight / Roll (lb – nominal)	54.9 lb	
Roll Diameter (O.D., inches)	9.5"	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Haze	ASTM D1003	3%
Gloss	ASTM D2457	69%
Dart Impact Strength	ASTM D1709	400 g
Tensile Strength at Break (MD)	ASTM D882	5500 psi
Tensile Strength at Break (TD)	ASTM D882	4500 psi
Tensile Strength at 200% (MD)	ASTM D882	1960 psi
Tensile Strength at 200% (TD)	ASTM D882	1425 psi
Elongation at Break (MD)	ASTM D882	800%
Elongation at Break (TD)	ASTM D882	1000%
Elmendorf Tear Strength (MD)	ASTM D1922	375 g
Elmendorf Tear Strength (TD)	ASTM D1922	700 g
Cling	ASTM D5458	100 g

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**V00197****TUFFlex Ultra Machine Film**

20.3 Micron / 80 Gauge / 0.80 Mil

*Not intended as limiting specifications.***CHARACTERISTICS****VALUES**

Manufacturing Process	Cast
Thickness (nominal)	20.3 Micron / 80 Gauge / 0.80 Mil
Color	Clear
Film Width (inches)	20"
Length (feet)	5500'
Net Weight / Roll (lbs. – nominal)	35.2 lb
Roll Diameter (O.D., inches)	9.5"
Core I.D.	3"

**TESTS****METHODS****VALUES**

Haze	ASTM D1003	3.5%
Gloss	ASTM D2457	69%
Dart Impact Strength	ASTM D1709	360 g
Tensile Strength at Break (MD)	ASTM D882	5750 psi
Tensile Strength at Break (TD)	ASTM D882	4800 psi
Tensile Strength at 200% (MD)	ASTM D882	2500 psi
Tensile Strength at 200% (TD)	ASTM D882	1750 psi
Elongation at Break (MD)	ASTM D882	570%
Elongation at Break (TD)	ASTM D882	775%
Elmendorf Tear Strength (MD)	ASTM D1922	240 g
Elmendorf Tear Strength (TD)	ASTM D1922	550 g

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# V00198

## TUFFlex Ultra Machine Film

20.3 Micron / 80 Gauge / 0.80 Mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast
Thickness (nominal)	20.3 Micron / 80 Gauge / 0.80 Mil
Color	Clear
Film Width (inches)	30"
Length (feet)	5500'
Net Weight / Roll (lbs. – nominal)	52.8 lb
Roll Diameter (O.D., inches)	9.5"
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Haze	ASTM D1003	3.5%
Gloss	ASTM D2457	69%
Dart Impact Strength	ASTM D1709	360 g
Tensile Strength at Break (MD)	ASTM D882	5750 psi
Tensile Strength at Break (TD)	ASTM D882	4800 psi
Tensile Strength at 200% (MD)	ASTM D882	2500 psi
Tensile Strength at 200% (TD)	ASTM D882	1750 psi
Elongation at Break (MD)	ASTM D882	570%
Elongation at Break (TD)	ASTM D882	775%
Elmendorf Tear Strength (MD)	ASTM D1922	240 g
Elmendorf Tear Strength (TD)	ASTM D1922	550 g

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# V04743

## TUFFlex Ultra Machine Film

10.7 Micron / 42 Gauge / 0.42 mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast
Thickness (nominal)	11.4 Micron / 42 Gauge / 0.42 mil
Film Width (inches)	19.7"
Length (feet)	10000'
Net Weight / Roll (lb, nominal)	33.1 lb
Roll Diameter (O.D., inches)	9"
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Ultimate Tensile MD (psi)	ASTM D 882	6500 psi
Ultimate Tensile TD (psi)	ASTM D 882	3900 psi
Elongation MD (%)	ASTM D 882	420%
Elongation TD (%)	ASTM D 882	580%
Tear Resistance MD (grams)	ASTM D 1922	650 g/mil
Tear Resistance TD (grams)	ASTM D 1922	970 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	18.7 in-lbs
Ultimate Prestretch (%)	Mfg./Highlight	
Cling (in to out, grams)	Mfg. method	150 g/in

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# V04744

## TUFFlex Ultra Machine Film

11.9 Micron / 47 Gauge / 0.47 Mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast
Thickness (nominal)	11.9 Micron / 47 Gauge / 0.47 Mil
Film Width (inches)	19.7"
Length (feet)	9000'
Net Weight / Roll (lb, nominal)	33.3 lb
Roll Diameter (O.D., inches)	8.6"
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Ultimate Tensile MD (psi)	ASTM D 882	4500 psi
Ultimate Tensile TD (psi)	ASTM D 882	4350 psi
Elongation MD (%)	ASTM D 882	370%
Elongation TD (%)	ASTM D 882	575%
Tear Resistance MD (grams)	ASTM D 1922	650 g/mil
Tear Resistance TD (grams)	ASTM D 1922	970 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	11.4 in-lbs
Ultimate Prestretch (%)	Mfg./Highlight	
Cling (in to out, grams)	Mfg. method	150 g/in

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# V04745

## TUFFlex Ultra Machine Film

13.7 Micron / 54 Gauge / 0.54 Mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast
Thickness (nominal)	13.7 Micron / 54 Gauge / 0.54 Mil
Film Width (inches)	19.7"
Length (feet)	8000'
Net Weight / Roll (lb, nominal)	34 lb
Roll Diameter (O.D., inches)	8.7"
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Ultimate Tensile MD (psi)	ASTM D 882	11900 psi
Ultimate Tensile TD (psi)	ASTM D 882	8500 psi
Elongation MD (%)	ASTM D 882	610%
Elongation TD (%)	ASTM D 882	690%
Tear Resistance MD (grams)	ASTM D 1922	650 g/mil
Tear Resistance TD (grams)	ASTM D 1922	970 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	16.9 in-lbs
Ultimate Prestretch (%)	Mfg./Highlight	
Cling (in to out, grams)	Mfg. method	150 g/in

# TUFFlex™

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