

# V00106

## TUFFlex Premium Plus Machine Film

15.2 Micron / 60 Gauge / 0.60 Mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast
Thickness (nominal)	15.2 Micron / 60 Gauge / 0.60 Mil
Color	Clear
Film Width (inches)	20"
Length (feet)	7500'
Net Weight / Roll (lb, nominal)	36 lb
Roll Diameter (O.D., inches)	9"
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Ultimate Tensile MD (PSI)	ASTM D 882	4100
Ultimate Tensile TD (PSI)	ASTM D 882	3300
Elongation MD (%)	ASTM D 882	360
Elongation TD (%)	ASTM D 882	520
Tear Resistance MD (grams)	ASTM D 1922	250
Tear Resistance TD (grams)	ASTM D 1922	430
Puncture Resistance (in-lbs.)	Internal	7.6
Ultimate Prestretch (%)	Internal	200
Cling (in to out, grams)	Mfg. method	130 to 150

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# V00107

## TUFFlex Premium Plus Machine Film

15.2 Micron / 60 Gauge / 0.60 Mi

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*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES	
Manufacturing Process	Cast	
Thickness (nominal)	15.2 Micron / 60 Gauge / 0.60 Mil	
Color	Clear	
Film Width (inches)	30"	
Length (feet)	7500'	
Net Weight / Roll (lb, nominal)	54 lb	
Roll Diameter (O.D., inches)	9"	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Ultimate Tensile MD (PSI)	ASTM D 882	4100
Ultimate Tensile TD (PSI)	ASTM D 882	3300
Elongation MD (%)	ASTM D 882	370
Elongation TD (%)	ASTM D 882	530
Tear Resistance MD (grams)	ASTM D 1922	270
Tear Resistance TD (grams)	ASTM D 1922	440
Puncture Resistance (in-lbs.)	Internal	8
Ultimate Prestretch (%)	Internal	230
Cling (in to out, grams)	Mfg. method	130 to 150

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# V00108

## TUFFlex Premium Plus Machine Film

16 Micron / 63 Gauge / 0.63 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES
Manufacturing Process	Cast
Feature	Heat Treated Pallet
Thickness (nominal)	16 Micron / 63 Gauge / 0.63 Mil
Film Width (inches)	19.7"
Length (feet)	5500'
Net Weight / Roll (lbs. – nominal)	27.3 lb
Roll Diameter (O.D., inches)	9"
Core I.D.	3"

TESTS	METHODS	VALUES
Ultimate Tensile MD (PSI)	ASTM D 882	4100
Ultimate Tensile TD (PSI)	ASTM D 882	3300
Elongation MD (%)	ASTM D 882	390
Elongation TD (%)	ASTM D 882	540
Tear Resistance MD (grams)	ASTM D 1922	285
Tear Resistance TD (grams)	ASTM D 1922	450
Puncture Resistance (in-lbs.)	Internal	8.5
Ultimate Prestretch (%)	Internal	230
Cling (in to out, grams)	Mfg. method	130 to 150

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# V00109

## TUFFlex Premium Plus Machine Film

16.5 Micron / 65 Gauge / 0.65 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES
Manufacturing Process	Cast
Thickness (nominal)	16 Micron / 63 Gauge / 0.63 Mil
Film Width (inches)	20"
Length (feet)	6500'
Net Weight / Roll (lbs. – nominal)	33.8 lb
Roll Diameter (O.D., inches)	9"
Core I.D.	3"

TESTS	METHODS	VALUES
Ultimate Tensile MD (PSI)	ASTM D 882	4100
Ultimate Tensile TD (PSI)	ASTM D 882	3300
Elongation MD (%)	ASTM D 882	390
Elongation TD (%)	ASTM D 882	540
Tear Resistance MD (grams)	ASTM D 1922	285
Tear Resistance TD (grams)	ASTM D 1922	450
Puncture Resistance (in-lbs.)	Internal	8.5
Ultimate Prestretch (%)	Internal	230
Cling (in to out, grams)	Mfg. method	130 to 150

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# V00110

## TUFFlex Premium Plus Machine Film

16.5 Micron / 65 Gauge / 0.65 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES
Manufacturing Process	Cast
Thickness (nominal)	16 Micron / 63 Gauge / 0.63 Mil
Film Width (inches)	30"
Length (feet)	6500'
Net Weight / Roll (lbs. – nominal)	50.7 lb
Roll Diameter (O.D., inches)	9"
Core I.D.	3"

TESTS	METHODS	VALUES
Ultimate Tensile MD (PSI)	ASTM D 882	4100
Ultimate Tensile TD (PSI)	ASTM D 882	3300
Elongation MD (%)	ASTM D 882	390
Elongation TD (%)	ASTM D 882	540
Tear Resistance MD (grams)	ASTM D 1922	285
Tear Resistance TD (grams)	ASTM D 1922	450
Puncture Resistance (in-lbs.)	Internal	8.5
Ultimate Prestretch (%)	Internal	230
Cling (in to out, grams)	Mfg. method	130 to 150

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# V00111

## TUFFlex Premium Plus Machine Film

17.8 Micron / 70 Gauge / 0.70 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES	
Manufacturing Process	Cast	
Thickness (nominal)	17.8 Micron / 70 Gauge / 0.70 Mil	
Film Width (inches)	20"	
Length (feet)	6000'	
Net Weight / Roll (lbs. – nominal)	33.6 lb	
Roll Diameter (O.D., inches)	9"	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Ultimate Tensile MD (PSI)	ASTM D 882	4100
Ultimate Tensile TD (PSI)	ASTM D 882	3300
Elongation MD (%)	ASTM D 882	410
Elongation TD (%)	ASTM D 882	550
Tear Resistance MD (grams)	ASTM D 1922	310
Tear Resistance TD (grams)	ASTM D 1922	460
Puncture Resistance (in-lbs.)	Internal	9.5
Ultimate Prestretch (%)	Internal	250
Cling (in to out, grams)	Mfg. method	130 to 150

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# V00112

## TUFFlex Premium Plus Machine Film

17.8 Micron / 70 Gauge / 0.70 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES	
Manufacturing Process	Cast	
Thickness (nominal)	17.8 Micron / 70 Gauge / 0.70 Mil	
Film Width (inches)	30"	
Length (feet)	6000'	
Net Weight / Roll (lbs. – nominal)	50.4 lb	
Roll Diameter (O.D., inches)	9"	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Ultimate Tensile MD (PSI)	ASTM D 882	4100
Ultimate Tensile TD (PSI)	ASTM D 882	3300
Elongation MD (%)	ASTM D 882	410
Elongation TD (%)	ASTM D 882	550
Tear Resistance MD (grams)	ASTM D 1922	310
Tear Resistance TD (grams)	ASTM D 1922	460
Puncture Resistance (in-lbs.)	Internal	9.5
Ultimate Prestretch (%)	Internal	250
Cling (in to out, grams)	Mfg. method	130 to 150

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# V00113

## TUFFlex Premium Plus Machine Film

19 Micron / 75 Gauge / 0.75 Mil

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CHARACTERISTICS	VALUES
Manufacturing Process	Cast
Thickness (nominal)	19 Micron / 75 Gauge / 0.75 Mil
Film Width (inches)	20"
Length (feet)	6000'
Net Weight / Roll (lbs. – nominal)	36 lb
Roll Diameter (O.D., inches)	9"
Core I.D.	3"

TESTS	METHODS	VALUES
Ultimate Tensile MD (PSI)	ASTM D 882	4100
Ultimate Tensile TD (PSI)	ASTM D 882	3300
Elongation MD (%)	ASTM D 882	410
Elongation TD (%)	ASTM D 882	550
Tear Resistance MD (grams)	ASTM D 1922	310
Tear Resistance TD (grams)	ASTM D 1922	460
Puncture Resistance (in-lbs.)	Internal	9.5
Ultimate Prestretch (%)	Internal	250
Cling (in to out, grams)	Mfg. method	130 to 150

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# V00114

## TUFFlex Premium Plus Machine Film

19 Micron / 75 Gauge / 0.75 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES
Manufacturing Process	Cast
Thickness (nominal)	19 Micron / 75 Gauge / 0.75 Mil
Film Width (inches)	30"
Length (feet)	6000'
Net Weight / Roll (lbs. – nominal)	54 lb
Roll Diameter (O.D., inches)	9"
Core I.D.	3"

TESTS	METHODS	VALUES
Ultimate Tensile MD (PSI)	ASTM D 882	4100
Ultimate Tensile TD (PSI)	ASTM D 882	3300
Elongation MD (%)	ASTM D 882	410
Elongation TD (%)	ASTM D 882	550
Tear Resistance MD (grams)	ASTM D 1922	310
Tear Resistance TD (grams)	ASTM D 1922	460
Puncture Resistance (in-lbs.)	Internal	9.5
Ultimate Prestretch (%)	Internal	250
Cling (in to out, grams)	Mfg. method	130 to 150

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# V00115

## TUFFlex Premium Plus 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	
Film Width (inches)	20"	
Length (feet)	5500'	
Net Weight / Roll (lbs. – nominal)	35.2 lb	
Roll Diameter (O.D., inches)	9"	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Ultimate Tensile MD (PSI)	ASTM D 882	4100
Ultimate Tensile TD (PSI)	ASTM D 882	3300
Elongation MD (%)	ASTM D 882	430
Elongation TD (%)	ASTM D 882	560
Tear Resistance MD (grams)	ASTM D 1922	330
Tear Resistance TD (grams)	ASTM D 1922	490
Puncture Resistance (in-lbs.)	Internal	11.4
Ultimate Prestretch (%)	Internal	275
Cling (in to out, grams)	Mfg. method	130 to 150

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# V00116

## TUFFlex Premium Plus 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	
Film Width (inches)	30"	
Length (feet)	5500'	
Net Weight / Roll (lbs. – nominal)	52.8 lb	
Roll Diameter (O.D., inches)	9"	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Ultimate Tensile MD (PSI)	ASTM D 882	4100
Ultimate Tensile TD (PSI)	ASTM D 882	3300
Elongation MD (%)	ASTM D 882	430
Elongation TD (%)	ASTM D 882	560
Tear Resistance MD (grams)	ASTM D 1922	330
Tear Resistance TD (grams)	ASTM D 1922	490
Puncture Resistance (in-lbs.)	Internal	11.4
Ultimate Prestretch (%)	Internal	275
Cling (in to out, grams)	Mfg. method	130 to 150

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# V00117

## TUFFlex Premium Plus Machine Film

22.9 Micron / 90 Gauge / 0.90 Mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast
Thickness (nominal)	22.9 Micron / 90 Gauge / 0.90 Mil
Film Width (inches)	20"
Length (feet)	5000'
Net Weight / Roll (lbs. – nominal)	36 lb
Roll Diameter (O.D., inches)	9"
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Ultimate Tensile MD (PSI)	ASTM D 882	4100
Ultimate Tensile TD (PSI)	ASTM D 882	3300
Elongation MD (%)	ASTM D 882	450
Elongation TD (%)	ASTM D 882	570
Tear Resistance MD (grams)	ASTM D 1922	350
Tear Resistance TD (grams)	ASTM D 1922	540
Puncture Resistance (in-lbs.)	Internal	13.2
Ultimate Prestretch (%)	Internal	280
Cling (in to out, grams)	Mfg. method	130 to 150

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# V00119

## TUFFlex Premium Plus Machine Film

26.7 Micron / 105 Gauge / 1.05 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES	
Manufacturing Process	Cast	
Thickness (nominal)	26.7 Micron / 105 Gauge / 1.05 Mil	
Film Width (inches)	20"	
Length (feet)	4250'	
Net Weight / Roll (lbs. – nominal)	35.7 lb	
Roll Diameter (O.D., inches)	9"	
Core I.D.	3"	
TESTS	METHODS	VALUES
Ultimate Tensile MD (PSI)	ASTM D 882	4100
Ultimate Tensile TD (PSI)	ASTM D 882	3300
Elongation MD (%)	ASTM D 882	480
Elongation TD (%)	ASTM D 882	590
Tear Resistance MD (grams)	ASTM D 1922	375
Tear Resistance TD (grams)	ASTM D 1922	580
Puncture Resistance (in-lbs.)	Internal	14.1
Ultimate Prestretch (%)	Internal	280
Cling (in to out, grams)	Mfg. method	130 to 150

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# V00120

## TUFFlex Premium Plus Machine Film

29.2 Micron / 115 Gauge / 1.15 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES
Manufacturing Process	Cast
Thickness (nominal)	29.2 Micron / 115 Gauge / 1.15 Mil
Film Width (inches)	20"
Length (feet)	3500'
Net Weight / Roll (lbs. – nominal)	32.2 lb
Roll Diameter (O.D., inches)	9"
Core I.D.	3"

TESTS	METHODS	VALUES
Ultimate Tensile MD (PSI)	ASTM D 882	4100
Ultimate Tensile TD (PSI)	ASTM D 882	3300
Elongation MD (%)	ASTM D 882	510
Elongation TD (%)	ASTM D 882	620
Tear Resistance MD (grams)	ASTM D 1922	400
Tear Resistance TD (grams)	ASTM D 1922	630
Puncture Resistance (in-lbs.)	Internal	14.2
Ultimate Prestretch (%)	Internal	290
Cling (in to out, grams)	Mfg. method	130 to 150

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# V00121

## TUFFlex Premium Plus 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
Color	Clear
Film Width (inches)	20"
Length (feet)	10000'
Net Weight / Roll (lb, nominal)	33.6 lb
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Tensile Strength at Break (MD)	ASTM D882	4200 psi
Tensile Strength at Break (TD)	ASTM D882	2700 psi
Elongation at Break (MD)	ASTM D882	360%
Elongation at Break (TD)	ASTM D882	560%
Elmendorf Tear Strength (MD)	ASTM D1922	140 g
Elmendorf Tear Strength (TD)	ASTM D1922	440 g
Puncture, lbs	Internal	5.6
Dart Impact F50, g	ASTM D1709A	170

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# V00122

## TUFFlex Premium Plus 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	
Color	Clear	
Film Width (inches)	20"	
Length (feet)	9000'	
Net Weight / Roll (lb, nominal)	33.8 lb	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Haze	ASTM D1003	< 2 %
Gloss	ASTM D2457	75%
Tensile Strength at Break (MD)	ASTM D882	5500 psi
Tensile Strength at Break (TD)	ASTM D882	4250 psi
Elongation at Break (MD)	ASTM D882	475%
Elongation at Break (TD)	ASTM D882	650%
Elmendorf Tear Strength (MD)	ASTM D1922	145 g
Elmendorf Tear Strength (TD)	ASTM D1922	400 g

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# V00123

## TUFFlex Premium Plus Machine Film

12.7 Micron / 50 Gauge / 0.50 Mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast
Thickness (nominal)	12.7 Micron / 50 Gauge / 0.50 Mil
Color	Clear
Film Width (inches)	20"
Length (feet)	9000'
Net Weight / Roll (lb, nominal)	36 lb
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Haze	ASTM D1003	< 2 %
Gloss	ASTM D2457	75%
Tensile Strength at Break (MD)	ASTM D882	5500 psi
Tensile Strength at Break (TD)	ASTM D882	4250 psi
Elongation at Break (MD)	ASTM D882	475%
Elongation at Break (TD)	ASTM D882	650%
Elmendorf Tear Strength (MD)	ASTM D1922	145 g
Elmendorf Tear Strength (TD)	ASTM D1922	400 g

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# V00124

## TUFFlex Premium Plus Machine Film

12.7 Micron / 50 Gauge / 0.50 Mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast
Thickness (nominal)	12.7 Micron / 50 Gauge / 0.50 Mil
Color	Clear
Film Width (inches)	30"
Length (feet)	9000'
Net Weight / Roll (lb, nominal)	54 lb
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Haze	ASTM D1003	< 2 %
Gloss	ASTM D2457	75%
Tensile Strength at Break (MD)	ASTM D882	5500 psi
Tensile Strength at Break (TD)	ASTM D882	4250 psi
Elongation at Break (MD)	ASTM D882	475%
Elongation at Break (TD)	ASTM D882	660%
Elmendorf Tear Strength (MD)	ASTM D1922	145 g
Elmendorf Tear Strength (TD)	ASTM D1922	400 g

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# V00125

## TUFFlex Premium Plus Machine Film

15.2 Micron / 60 Gauge / 0.60 Mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast
Thickness (nominal)	15.2 Micron / 60 Gauge / 0.60 Mil
Color	Clear
Film Width (inches)	20"
Length (feet)	7500'
Net Weight / Roll (lb, nominal)	36 lb
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Haze	ASTM D1003	< 2 %
Gloss	ASTM D2457	75%
Tensile Strength at Break (MD)	ASTM D882	5500 psi
Tensile Strength at Break (TD)	ASTM D882	4550 psi
Elongation at Break (MD)	ASTM D882	510%
Elongation at Break (TD)	ASTM D882	700%
Elmendorf Tear Strength (MD)	ASTM D1922	175 g
Elmendorf Tear Strength (TD)	ASTM D1922	475 g

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# V00126

## TUFFlex Premium Plus Machine Film

15.2 Micron / 60 Gauge / 0.60 Mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast
Thickness (nominal)	15.2 Micron / 60 Gauge / 0.60 Mil
Color	Clear
Film Width (inches)	30"
Length (feet)	7500'
Net Weight / Roll (lb, nominal)	54 lb
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Haze	ASTM D1003	< 2 %
Gloss	ASTM D2457	75%
Tensile Strength at Break (MD)	ASTM D882	5500 psi
Tensile Strength at Break (TD)	ASTM D882	4550 psi
Elongation at Break (MD)	ASTM D882	510%
Elongation at Break (TD)	ASTM D882	700%
Elmendorf Tear Strength (MD)	ASTM D1922	175 g
Elmendorf Tear Strength (TD)	ASTM D1922	475 g

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# V00128

## TUFFlex Premium Plus Machine Film

18 Micron / 71 Gauge / 0.71 Mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast
Thickness (nominal)	18 Micron / 71 Gauge / 0.71 Mil
Color	Clear
Film Width (inches)	19.7"
Length (feet)	5500'
Net Weight / Roll (lb, nominal)	30.7 lb
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Haze	ASTM D1003	< 2 %
Gloss	ASTM D2457	75%
Tensile Strength at Break (MD)	ASTM D882	5500 psi
Tensile Strength at Break (TD)	ASTM D882	4550 psi
Elongation at Break (MD)	ASTM D882	525%
Elongation at Break (TD)	ASTM D882	720%
Elmendorf Tear Strength (MD)	ASTM D1922	180 g
Elmendorf Tear Strength (TD)	ASTM D1922	485 g

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# V00130

## TUFFlex Premium Plus Machine Film

24.9 Micron / 98 Gauge / 0.98 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES	
Manufacturing Process	Cast	
Thickness (nominal)	24.9 Micron / 98 Gauge / 0.98 Mil	
Color	Clear	
Film Width (inches)	19.7"	
Length (feet)	3750'	
Net Weight / Roll (lb, nominal)	28.9 lb	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Haze	ASTM D1003	< 3 %
Gloss	ASTM D2457	75%
Tensile Strength at Break (MD)	ASTM D882	6000 psi
Tensile Strength at Break (TD)	ASTM D882	5000 psi
Elongation at Break (MD)	ASTM D882	580%
Elongation at Break (TD)	ASTM D882	750%
Elmendorf Tear Strength (MD)	ASTM D1922	250 g
Elmendorf Tear Strength (TD)	ASTM D1922	550 g

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# V00167

## TUFFlex Premium Plus 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
Color	Clear
Film Width (inches)	20"
Length (feet)	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	2.0%
Gloss	ASTM D2457	75%
Dart Impact Strength	ASTM D1709	250 g
Tensile Strength at Break (MD)	ASTM D882	5550 psi
Tensile Strength at Break (TD)	ASTM D882	4550 psi
Tensile Strength at 200% (MD)	ASTM D882	2070 psi
Tensile Strength at 200% (TD)	ASTM D882	1370 psi
Elongation at Break (MD)	ASTM D882	475%
Elongation at Break (TD)	ASTM D882	660%
Elmendorf Tear Strength (MD)	ASTM D1922	145 g
Elmendorf Tear Strength (TD)	ASTM D1922	450 g
Cling	ASTM D5458	120 g

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# V00168

## TUFFlex Premium Plus 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
Color	Clear
Film Width (inches)	30"
Length (feet)	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	2%
Gloss	ASTM D2457	75%
Dart Impact Strength	ASTM D1709	250 g
Tensile Strength at Break (MD)	ASTM D882	5550 psi
Tensile Strength at Break (TD)	ASTM D882	4550 psi
Tensile Strength at 200% (MD)	ASTM D882	2070 psi
Tensile Strength at 200% (TD)	ASTM D882	1370 psi
Elongation at Break (MD)	ASTM D882	475%
Elongation at Break (TD)	ASTM D882	660%
Elmendorf Tear Strength (MD)	ASTM D1922	145 g
Elmendorf Tear Strength (TD)	ASTM D1922	450 g
Cling	ASTM D5458	120 g

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# V00169

## TUFFlex Premium Plus Machine Film

14.5 Micron / 57 Gauge / 0.57 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES	
Manufacturing Process	Cast	
Thickness (nominal)	14.5 Micron / 57 Gauge / 0.57 Mil	
Color	Clear	
Film Width (inches)	20"	
Length (feet)	7500'	
Net Weight / Roll (lb, nominal)	34.2 lb	
Roll Diameter (O.D., inches)	9.5"	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Haze	ASTM D1003	2%
Gloss	ASTM D2457	75%
Dart Impact Strength	ASTM D1709	255 g
Tensile Strength at Break (MD)	ASTM D882	5550 psi
Tensile Strength at Break (TD)	ASTM D882	4550 psi
Tensile Strength at 200% (MD)	ASTM D882	2070 psi
Tensile Strength at 200% (TD)	ASTM D882	1370 psi
Elongation at Break (MD)	ASTM D882	490%
Elongation at Break (TD)	ASTM D882	690%
Elmendorf Tear Strength (MD)	ASTM D1922	160 g
Elmendorf Tear Strength (TD)	ASTM D1922	465 g
Cling	ASTM D5458	120 g

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# V00170

## TUFFlex Premium Plus Machine Film

14.5 Micron / 57 Gauge / 0.57 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES	
Manufacturing Process	Cast	
Thickness (nominal)	14.5 Micron / 57 Gauge / 0.57 Mil	
Color	Clear	
Film Width (inches)	30"	
Length (feet)	7500'	
Net Weight / Roll (lb, nominal)	51.3 lb	
Roll Diameter (O.D., inches)	9.5"	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Haze	ASTM D1003	2%
Gloss	ASTM D2457	75%
Dart Impact Strength	ASTM D1709	255 g
Tensile Strength at Break (MD)	ASTM D882	5550 psi
Tensile Strength at Break (TD)	ASTM D882	4550 psi
Tensile Strength at 200% (MD)	ASTM D882	2070 psi
Tensile Strength at 200% (TD)	ASTM D882	1370 psi
Elongation at Break (MD)	ASTM D882	490%
Elongation at Break (TD)	ASTM D882	690%
Elmendorf Tear Strength (MD)	ASTM D1922	160 g
Elmendorf Tear Strength (TD)	ASTM D1922	465 g
Cling	ASTM D5458	120 g

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# V00171

## TUFFlex Premium Plus Machine Film

16 Micron / 63 Gauge / 0.63 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES
Manufacturing Process	Cast
Thickness (nominal)	16 Micron / 63 Gauge / 0.63 Mil
Color	Clear
Film Width (inches)	20"
Length (feet)	7,250'
Net Weight / Roll (lb, nominal)	36.54 lb
Roll Diameter (O.D., inches)	9.5"
Core I.D.	3"

TESTS	METHODS	VALUES
Haze	ASTM D1003	2%
Gloss	ASTM D2457	75%
Dart Impact Strength	ASTM D1709	265 g
Tensile Strength at Break (MD)	ASTM D882	5550 psi
Tensile Strength at Break (TD)	ASTM D882	4550 psi
Tensile Strength at 200% (MD)	ASTM D882	2070 psi
Tensile Strength at 200% (TD)	ASTM D882	1370 psi
Elongation at Break (MD)	ASTM D882	510%
Elongation at Break (TD)	ASTM D882	700%
Elmendorf Tear Strength (MD)	ASTM D1922	175 g
Elmendorf Tear Strength (TD)	ASTM D1922	475 g
Cling	ASTM D5458	120 g

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# V00172

## TUFFlex Premium Plus Machine Film

16 Micron / 63 Gauge / 0.63 Mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast
Thickness (nominal)	16 Micron / 63 Gauge / 0.63 Mil
Color	Clear
Film Width (inches)	20"
Length (feet)	7,250'
Net Weight / Roll (lb, nominal)	54.81 lb
Roll Diameter (O.D., inches)	9.5"
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Haze	ASTM D1003	2%
Gloss	ASTM D2457	75%
Dart Impact Strength	ASTM D1709	265 g
Tensile Strength at Break (MD)	ASTM D882	5550 psi
Tensile Strength at Break (TD)	ASTM D882	4550 psi
Tensile Strength at 200% (MD)	ASTM D882	2070 psi
Tensile Strength at 200% (TD)	ASTM D882	1370 psi
Elongation at Break (MD)	ASTM D882	510%
Elongation at Break (TD)	ASTM D882	700%
Elmendorf Tear Strength (MD)	ASTM D1922	175 g
Elmendorf Tear Strength (TD)	ASTM D1922	475 g
Cling	ASTM D5458	120 g

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# V00173

## TUFFlex Premium Plus Machine Film

18 Micron / 71 Gauge / 0.71 Mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast
Thickness (nominal)	18 Micron / 71 Gauge / 0.71 Mil
Color	Clear
Film Width (inches)	20"
Length (feet)	6500'
Net Weight / Roll (lb, nominal)	36.92 lb
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Haze	ASTM D1003	< 2 %
Gloss	ASTM D2457	75%
Tensile Strength at Break (MD)	ASTM D882	5550 psi
Tensile Strength at Break (TD)	ASTM D882	4550 psi
Elongation at Break (MD)	ASTM D882	525%
Elongation at Break (TD)	ASTM D882	720%
Elmendorf Tear Strength (MD)	ASTM D1922	180 g
Elmendorf Tear Strength (TD)	ASTM D1922	485 g

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# V00174

## TUFFlex Premium Plus Machine Film

18 Micron / 71 Gauge / 0.71 Mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast
Thickness (nominal)	18 Micron / 71 Gauge / 0.71 Mil
Color	Clear
Film Width (inches)	30"
Length (feet)	6500'
Net Weight / Roll (lb, nominal)	55.38 lb
Roll Diameter (O.D., inches)	9.5"
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Haze	ASTM D1003	2%
Gloss	ASTM D2457	75%
Dart Impact Strength	ASTM D1709	275 g
Tensile Strength at Break (MD)	ASTM D882	5550 psi
Tensile Strength at Break (TD)	ASTM D882	4550 psi
Tensile Strength at 200% (MD)	ASTM D882	2070 psi
Tensile Strength at 200% (TD)	ASTM D882	1370 psi
Elongation at Break (MD)	ASTM D882	530%
Elongation at Break (TD)	ASTM D882	710%
Elmendorf Tear Strength (MD)	ASTM D1922	180 g
Elmendorf Tear Strength (TD)	ASTM D1922	480 g
Cling	ASTM D5458	120 g

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# V00175

## TUFFlex Premium Plus 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 (lb, nominal)	35.2 lb	
Roll Diameter (O.D., inches)	9.5"	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Haze	ASTM D1003	2%
Gloss	ASTM D2457	75%
Dart Impact Strength	ASTM D1709	280 g
Tensile Strength at Break (MD)	ASTM D882	5550 psi
Tensile Strength at Break (TD)	ASTM D882	4550 psi
Tensile Strength at 200% (MD)	ASTM D882	2070 psi
Tensile Strength at 200% (TD)	ASTM D882	1370 psi
Elongation at Break (MD)	ASTM D882	540%
Elongation at Break (TD)	ASTM D882	725%
Elmendorf Tear Strength (MD)	ASTM D1922	190 g
Elmendorf Tear Strength (TD)	ASTM D1922	495 g
Cling	ASTM D5458	120 g

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# V00176

## TUFFlex Premium Plus 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 (lb, nominal)	52.8 lb
Roll Diameter (O.D., inches)	9.5"
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Haze	ASTM D1003	2%
Gloss	ASTM D2457	75%
Dart Impact Strength	ASTM D1709	280 g
Tensile Strength at Break (MD)	ASTM D882	5550 psi
Tensile Strength at Break (TD)	ASTM D882	4550 psi
Tensile Strength at 200% (MD)	ASTM D882	2070 psi
Tensile Strength at 200% (TD)	ASTM D882	1370 psi
Elongation at Break (MD)	ASTM D882	540%
Elongation at Break (TD)	ASTM D882	725%
Elmendorf Tear Strength (MD)	ASTM D1922	190 g
Elmendorf Tear Strength (TD)	ASTM D1922	495 g
Cling	ASTM D5458	120 g

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# V00177

## TUFFlex Premium Plus Machine Film

23.1 Micron / 91 Gauge / 0.91 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES	
Manufacturing Process	Cast	
Thickness (nominal)	23.1 Micron / 91 Gauge / 0.91 Mil	
Color	Clear	
Film Width (inches)	20"	
Length (feet)	5000'	
Net Weight / Roll (lb, nominal)	36.4 lb	
Roll Diameter (O.D., inches)	9.5"	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Haze	ASTM D1003	2%
Gloss	ASTM D2457	75%
Dart Impact Strength	ASTM D1709	330 g
Tensile Strength at Break (MD)	ASTM D882	5750 psi
Tensile Strength at Break (TD)	ASTM D882	4750 psi
Tensile Strength at 200% (MD)	ASTM D882	2190 psi
Tensile Strength at 200% (TD)	ASTM D882	1500 psi
Elongation at Break (MD)	ASTM D882	550%
Elongation at Break (TD)	ASTM D882	750%
Elmendorf Tear Strength (MD)	ASTM D1922	210 g
Elmendorf Tear Strength (TD)	ASTM D1922	510 g

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# V00179

## TUFFlex Premium Plus Machine Film

26.7 Micron / 105 Gauge / 1.05 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES
Manufacturing Process	Cast
Thickness (nominal)	26.7 Micron / 105 Gauge / 1.05 Mil
Color	Clear
Film Width (inches)	20"
Length (feet)	4250'
Net Weight / Roll (lb, nominal)	35.7 lb
Roll Diameter (O.D., inches)	9.5"
Core I.D.	3"

TESTS	METHODS	VALUES
Haze	ASTM D1003	3%
Gloss	ASTM D2457	75%
Dart Impact Strength	ASTM D1709	330 g
Tensile Strength at Break (MD)	ASTM D882	6300 psi
Tensile Strength at Break (TD)	ASTM D882	5400 psi
Tensile Strength at 200% (MD)	ASTM D882	2300 psi
Tensile Strength at 200% (TD)	ASTM D882	1600 psi
Elongation at Break (MD)	ASTM D882	590%
Elongation at Break (TD)	ASTM D882	740%
Elmendorf Tear Strength (MD)	ASTM D1922	300 g
Elmendorf Tear Strength (TD)	ASTM D1922	575 g

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# V00180

## TUFFlex Premium Plus Machine Film

11.4 Micron / 45 Gauge / 0.45 Mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast
Feature	Quiet Unwind
Thickness (nominal)	11.4 Micron / 45 Gauge / 0.45 Mill
Color	Clear
Film Width (inches)	20"
Length (feet)	7000'
Net Weight / Roll (lb, nominal)	25.2 lb
Roll Diameter (O.D., inches)	9.5"
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Haze	ASTM D1003	1.5%
Gloss	ASTM D2457	76%
Dart Impact Strength	ASTM D1709	175 g
Tensile Strength at Break (MD)	ASTM D882	5520 psi
Tensile Strength at Break (TD)	ASTM D882	4000 psi
Tensile Strength at 200% (MD)	ASTM D882	2065 psi
Tensile Strength at 200% (TD)	ASTM D882	1315 psi
Elongation at Break (MD)	ASTM D882	470%
Elongation at Break (TD)	ASTM D882	650%
Elmendorf Tear Strength (MD)	ASTM D1922	140 g
Elmendorf Tear Strength (TD)	ASTM D1922	425 g
Cling	ASTM D5458	95 g

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# V00181

## TUFFlex Premium Plus Machine Film

13 Micron / 51 Gauge / 0.51 Mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast
Feature	Quiet Unwind
Thickness (nominal)	13 Micron / 51 Gauge / 0.51 Mil
Color	Clear
Film Width (inches)	20"
Length (feet)	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	1.5%
Gloss	ASTM D2457	76%
Dart Impact Strength	ASTM D1709	220 g
Tensile Strength at Break (MD)	ASTM D882	5520 psi
Tensile Strength at Break (TD)	ASTM D882	4000 psi
Tensile Strength at 200% (MD)	ASTM D882	2065 psi
Tensile Strength at 200% (TD)	ASTM D882	1315 psi
Elongation at Break (MD)	ASTM D882	480%
Elongation at Break (TD)	ASTM D882	655%
Elmendorf Tear Strength (MD)	ASTM D1922	144 g
Elmendorf Tear Strength (TD)	ASTM D1922	445 g
Cling	ASTM D5458	95 g

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# V00182

## TUFFlex Premium Plus Machine Film

13 Micron / 51 Gauge / 0.51 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES	
Manufacturing Process	Cast	
Feature	Quiet Unwind	
Thickness (nominal)	13 Micron / 51 Gauge / 0.51 Mil	
Color	Clear	
Film Width (inches)	30"	
Length (feet)	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	1.5%
Gloss	ASTM D2457	76%
Dart Impact Strength	ASTM D1709	220 g
Tensile Strength at Break (MD)	ASTM D882	5520 psi
Tensile Strength at Break (TD)	ASTM D882	4000 psi
Tensile Strength at 200% (MD)	ASTM D882	2065 psi
Tensile Strength at 200% (TD)	ASTM D882	1315 psi
Elongation at Break (MD)	ASTM D882	480%
Elongation at Break (TD)	ASTM D882	655%
Elmendorf Tear Strength (MD)	ASTM D1922	144 g
Elmendorf Tear Strength (TD)	ASTM D1922	445 g
Cling	ASTM D5458	95 g

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# V00183

## TUFFlex Premium Plus Machine Film

14.5 Micron / 57 Gauge / 0.57 Mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast
Feature	Quiet Unwind
Thickness (nominal)	14.5 Micron / 57 Gauge / 0.57 Mil
Color	Clear
Film Width (inches)	20"
Length (feet)	7500'
Net Weight / Roll (lb, nominal)	34.2 lb
Roll Diameter (O.D., inches)	9.5"
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Haze	ASTM D1003	1.5%
Gloss	ASTM D2457	76%
Dart Impact Strength	ASTM D1709	250 g
Tensile Strength at Break (MD)	ASTM D882	5520 psi
Tensile Strength at Break (TD)	ASTM D882	4000 psi
Tensile Strength at 200% (MD)	ASTM D882	2065 psi
Tensile Strength at 200% (TD)	ASTM D882	1315 psi
Elongation at Break (MD)	ASTM D882	490%
Elongation at Break (TD)	ASTM D882	660%
Elmendorf Tear Strength (MD)	ASTM D1922	150 g
Elmendorf Tear Strength (TD)	ASTM D1922	460 g
Cling	ASTM D5458	95 g

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# V00184

## TUFFlex Premium Plus Machine Film

16 Micron / 63 Gauge / 0.63 Mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast
Feature	Quiet Unwind
Thickness (nominal)	16 Micron / 63 Gauge / 0.63 Mil
Color	Clear
Film Width (inches)	20"
Length (feet)	7250'
Net Weight / Roll (lb, nominal)	36.54 lb
Roll Diameter (O.D., inches)	9.5"
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Haze	ASTM D1003	1.5%
Gloss	ASTM D2457	76%
Dart Impact Strength	ASTM D1709	270 g
Tensile Strength at Break (MD)	ASTM D882	5520 psi
Tensile Strength at Break (TD)	ASTM D882	4000 psi
Tensile Strength at 200% (MD)	ASTM D882	2065 psi
Tensile Strength at 200% (TD)	ASTM D882	1315 psi
Elongation at Break (MD)	ASTM D882	510%
Elongation at Break (TD)	ASTM D882	670%
Elmendorf Tear Strength (MD)	ASTM D1922	170 g
Elmendorf Tear Strength (TD)	ASTM D1922	470 g
Cling	ASTM D5458	95 g

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# V00185

## TUFFlex Premium Plus Machine Film

16 Micron / 63 Gauge / 0.63 Mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast
Feature	Quiet Unwind
Thickness (nominal)	16 Micron / 63 Gauge / 0.63 Mil
Color	Clear
Film Width (inches)	30"
Length (feet)	7250'
Net Weight / Roll (lb, nominal)	54.81 lb
Roll Diameter (O.D., inches)	9.5"
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Haze	ASTM D1003	1.5%
Gloss	ASTM D2457	76%
Dart Impact Strength	ASTM D1709	270 g
Tensile Strength at Break (MD)	ASTM D882	5520 psi
Tensile Strength at Break (TD)	ASTM D882	4000 psi
Tensile Strength at 200% (MD)	ASTM D882	2065 psi
Tensile Strength at 200% (TD)	ASTM D882	1315 psi
Elongation at Break (MD)	ASTM D882	510%
Elongation at Break (TD)	ASTM D882	670%
Elmendorf Tear Strength (MD)	ASTM D1922	170 g
Elmendorf Tear Strength (TD)	ASTM D1922	470 g
Cling	ASTM D5458	95 g

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# V00186

## TUFFlex Premium Plus Machine Film

18 Micron / 71 Gauge / 0.71 Mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast
Feature	Quiet Unwind
Thickness (nominal)	18 Micron / 71 Gauge / 0.71 Mil
Color	Clear
Film Width (inches)	20"
Length (feet)	6000'
Net Weight / Roll (lb, nominal)	34.08 lb
Roll Diameter (O.D., inches)	9.5"
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Haze	ASTM D1003	1.5%
Gloss	ASTM D2457	76%
Dart Impact Strength	ASTM D1709	275 g
Tensile Strength at Break (MD)	ASTM D882	5520 psi
Tensile Strength at Break (TD)	ASTM D882	4000 psi
Tensile Strength at 200% (MD)	ASTM D882	2065 psi
Tensile Strength at 200% (TD)	ASTM D882	1315 psi
Elongation at Break (MD)	ASTM D882	535%
Elongation at Break (TD)	ASTM D882	680%
Elmendorf Tear Strength (MD)	ASTM D1922	180 g
Elmendorf Tear Strength (TD)	ASTM D1922	475 g
Cling	ASTM D5458	95 g

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# V00187

## TUFFlex Premium Plus Machine Film

20.3 Micron / 80 Gauge / 0.80 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES	
Manufacturing Process	Cast	
Feature	Quiet Unwind	
Thickness (nominal)	20.3 Micron / 80 Gauge / 0.80 Mil	
Color	Clear	
Film Width (inches)	20"	
Length (feet)	5500'	
Net Weight / Roll (lb, nominal)	35.2 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	4100 psi
Tensile Strength at Break (TD)	ASTM D882	
Tensile Strength at 200% (MD)	ASTM D882	
Tensile Strength at 200% (TD)	ASTM D882	
Elongation at Break (MD)	ASTM D882	370%
Elongation at Break (TD)	ASTM D882	
Elmendorf Tear Strength (MD)	ASTM D1922	200 g
Elmendorf Tear Strength (TD)	ASTM D1922	
Cling	ASTM D5458	95 g

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# V00218

## TUFFlex Premium Plus Machine Film

20.3 Micron / 80 Gauge / 0.80 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES	
Manufacturing Process	Blown	
Thickness (nominal)	20.3 Micron / 80 Gauge / 0.80 Mil	
Color	Clear	
Film Width (inches)	20"	
Length (feet)	6000'	
Net Weight / Roll (lb, nominal)	38.39 lb	
Roll Diameter (O.D., inches)	9.5"	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Haze	ASTM D1003	6%
Gloss	ASTM D2457	64%
Dart Impact Strength	ASTM D1709	215 g
Tensile Strength at Break (MD)	ASTM D882	5300 psi
Tensile Strength at Break (TD)	ASTM D882	4200 psi
Tensile Strength at 200% (MD)	ASTM D882	2300 psi
Tensile Strength at 200% (TD)	ASTM D882	1350 psi
Elongation at Break (MD)	ASTM D882	480%
Elongation at Break (TD)	ASTM D882	855%
Elmendorf Tear Strength (MD)	ASTM D1922	200 g
Elmendorf Tear Strength (TD)	ASTM D1922	710 g
Cling	ASTM D5458	85 g

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# V00219

## TUFFlex Premium Plus Machine Film

25.4 Micron / 100 Gauge / 1.0 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES	
Manufacturing Process	Blown	
Thickness (nominal)	25.4 Micron / 100 Gauge / 1.0 Mil	
Color	Clear	
Film Width (inches)	20"	
Length (feet)	4750'	
Net Weight / Roll (lb, nominal)	38 lb	
Roll Diameter (O.D., inches)	9.5"	
Core I.D.	3"	
TESTS	METHODS	VALUES
Haze	ASTM D1003	5%
Gloss	ASTM D2457	64%
Dart Impact Strength	ASTM D1709	245 g
Tensile Strength at Break (MD)	ASTM D882	5300 psi
Tensile Strength at Break (TD)	ASTM D882	4200 psi
Tensile Strength at 200% (MD)	ASTM D882	2300 psi
Tensile Strength at 200% (TD)	ASTM D882	1350 psi
Elongation at Break (MD)	ASTM D882	510%
Elongation at Break (TD)	ASTM D882	865%
Elmendorf Tear Strength (MD)	ASTM D1922	255 g
Elmendorf Tear Strength (TD)	ASTM D1922	750 g

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# V00220

## TUFFlex Premium Plus Machine Film

30.5 Micron / 120 Gauge / 1.2 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES	
Manufacturing Process	Blown	
Thickness (nominal)	30.5 Micron / 120 Gauge / 1.2 Mil	
Color	Clear	
Film Width (inches)	20"	
Length (feet)	4000'	
Net Weight / Roll (lb, nominal)	38.4 lb	
Roll Diameter (O.D., inches)	9.5"	
Core I.D.	3"	
TESTS	METHODS	VALUES
Haze	ASTM D1003	6%
Gloss	ASTM D2457	64%
Dart Impact Strength	ASTM D1709	270 g
Tensile Strength at Break (MD)	ASTM D882	5300 psi
Tensile Strength at Break (TD)	ASTM D882	4200 psi
Tensile Strength at 200% (MD)	ASTM D882	2300 psi
Tensile Strength at 200% (TD)	ASTM D882	1350 psi
Elongation at Break (MD)	ASTM D882	530%
Elongation at Break (TD)	ASTM D882	870%
Elmendorf Tear Strength (MD)	ASTM D1922	330 g
Elmendorf Tear Strength (TD)	ASTM D1922	790 g
Cling	ASTM D5458	85 g

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# V00229

## TUFFlex Premium Plus Machine Film

14 Micron / 55 Gauge / 0.55 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES
Manufacturing Process	Cast
Thickness (nominal)	14 Micron / 55 Gauge / 0.55 Mil
Film Width (inches)	20"
Length (feet)	8000'
Net Weight / Roll (lbs. – nominal)	35.2 lb
Roll Diameter (O.D., inches)	9"
Core I.D.	3"

TESTS	METHODS	VALUES
Ultimate Tensile MD (PSI)	ASTM D 882	6700 psi
Ultimate Tensile TD (PSI)	ASTM D 882	4000 psi
Elongation MD (%)	ASTM D 882	470%
Elongation TD (%)	ASTM D 882	590%
Tear Resistance MD (grams)	ASTM D 1922	300 g/mil
Tear Resistance TD (grams) A	STM D 1922	600 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	17.1 in-lb
Ultimate Prestretch (%)	Mfg. / Highlight	340%
Cling (in to out, grams)	Mfg. method	150 g/in

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# V00230

## TUFFlex Premium Plus Machine Film

14 Micron / 55 Gauge / 0.55 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES
Manufacturing Process	Cast
Thickness (nominal)	14 Micron / 55 Gauge / 0.55 Mil
Film Width (inches)	30"
Length (feet)	8000'
Net Weight / Roll (lbs. – nominal)	52.8 lb
Roll Diameter (O.D., inches)	9"
Core I.D.	3"

TESTS	METHODS	VALUES
Ultimate Tensile MD (PSI)	ASTM D 882	6700 psi
Ultimate Tensile TD (PSI)	ASTM D 882	4000 psi
Elongation MD (%)	ASTM D 882	470%
Elongation TD (%)	ASTM D 882	590%
Tear Resistance MD (grams)	ASTM D 1922	300 g/mil
Tear Resistance TD (grams) A	STM D 1922	600 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	17.4 in-lb
Ultimate Prestretch (%)	Mfg. / Highlight	340%
Cling (in to out, grams)	Mfg. method	150 g/in

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# V00231

## TUFFlex Premium Plus Machine Film

14.5 Micron / 57 Gauge / 0.57 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES	
Manufacturing Process	Cast	
Thickness (nominal)	14.5 Micron / 57 Gauge / 0.57 Mil	
Film Width (inches)	20"	
Length (feet)	7500'	
Net Weight / Roll (lbs. – nominal)	34.2 lb	
Roll Diameter (O.D., inches)	8.9"	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Ultimate Tensile MD (PSI)	ASTM D 882	6700 psi
Ultimate Tensile TD (PSI)	ASTM D 882	4000 psi
Elongation MD (%)	ASTM D 882	470%
Elongation TD (%)	ASTM D 882	590%
Tear Resistance MD (grams)	ASTM D 1922	300 g/mil
Tear Resistance TD (grams) A	STM D 1922	600 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	17.4 in-lb
Ultimate Prestretch (%)	Mfg. / Highlight	340%
Cling (in to out, grams)	Mfg. method	150 g/in

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# V00232

## TUFFlex Premium Plus Machine Film

15.2 Micron / 60 Gauge / 0.60 mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES	
Manufacturing Process	Cast	
Thickness (nominal)	15.2 Micron / 60 Gauge / 0.60 mil	
Film Width (inches)	20"	
Length (feet)	6500'	
Net Weight / Roll (lbs. – nominal)	31.2 lb	
Roll Diameter (O.D., inches)	8.6"	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Ultimate Tensile MD (PSI)	ASTM D 882	6700 psi
Ultimate Tensile TD (PSI)	ASTM D 882	4000 psi
Elongation MD (%)	ASTM D 882	480%
Elongation TD (%)	ASTM D 882	600%
Tear Resistance MD (grams)	ASTM D 1922	300 g/mil
Tear Resistance TD (grams) A	STM D 1922	600 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	18.6 in-lb
Ultimate Prestretch (%)	Mfg. / Highlight	350%
Cling (in to out, grams)	Mfg. method	150 g/in

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# V00233

## TUFFlex Premium Plus Machine Film

15.2 Micron / 60 Gauge / 0.60 mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES	
Manufacturing Process	Cast	
Thickness (nominal)	15.2 Micron / 60 Gauge / 0.60 mil	
Film Width (inches)	30"	
Length (feet)	6500'	
Net Weight / Roll (lbs. – nominal)	46.8 lb	
Roll Diameter (O.D., inches)	8.6"	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Ultimate Tensile MD (PSI)	ASTM D 882	6700 psi
Ultimate Tensile TD (PSI)	ASTM D 882	4000 psi
Elongation MD (%)	ASTM D 882	480%
Elongation TD (%)	ASTM D 882	600%
Tear Resistance MD (grams)	ASTM D 1922	300 g/mil
Tear Resistance TD (grams) A	STM D 1922	600 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	18.6 in-lb
Ultimate Prestretch (%)	Mfg. / Highlight	350%
Cling (in to out, grams)	Mfg. method	150 g/in

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# V00234

## TUFFlex Premium Plus Machine Film

16 Micron / 63 Gauge / 0.63 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES
Manufacturing Process	Cast
Thickness (nominal)	16 Micron / 63 Gauge / 0.63 Mil
Film Width (inches)	20"
Length (feet)	5000'
Net Weight / Roll (lbs. – nominal)	25.2 lb
Roll Diameter (O.D., inches)	7.9"
Core I.D.	3"

TESTS	METHODS	VALUES
Ultimate Tensile MD (PSI)	ASTM D 882	6700 psi
Ultimate Tensile TD (PSI)	ASTM D 882	4000 psi
Elongation MD (%)	ASTM D 882	480%
Elongation TD (%)	ASTM D 882	590%
Tear Resistance MD (grams)	ASTM D 1922	300 g/mil
Tear Resistance TD (grams) A	STM D 1922	600 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	
Ultimate Prestretch (%)	Mfg. / Highlight	350%
Cling (in to out, grams)	Mfg. method	150 g/in

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# V00235

## TUFFlex Premium Plus Machine Film

16 Micron / 63 Gauge / 0.63 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES
Manufacturing Process	Cast
Thickness (nominal)	16 Micron / 63 Gauge / 0.63 Mil
Film Width (inches)	20"
Length (feet)	7250'
Net Weight / Roll (lbs. – nominal)	36.5 lb
Roll Diameter (O.D., inches)	9.2"
Core I.D.	3"

TESTS	METHODS	VALUES
Ultimate Tensile MD (PSI)	ASTM D 882	6700 psi
Ultimate Tensile TD (PSI)	ASTM D 882	4000 psi
Elongation MD (%)	ASTM D 882	480%
Elongation TD (%)	ASTM D 882	590%
Tear Resistance MD (grams)	ASTM D 1922	300 g/mil
Tear Resistance TD (grams) A	STM D 1922	600 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	19.6 in-lb
Ultimate Prestretch (%)	Mfg. / Highlight	350%
Cling (in to out, grams)	Mfg. method	150 g/in

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# V00236

## TUFFlex Premium Plus Machine Film

16 Micron / 63 Gauge / 0.63 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES
Manufacturing Process	Cast
Thickness (nominal)	16 Micron / 63 Gauge / 0.63 Mil
Film Width (inches)	30"
Length (feet)	5000'
Net Weight / Roll (lbs. – nominal)	37.8 lb
Roll Diameter (O.D., inches)	7.9"
Core I.D.	3"

TESTS	METHODS	VALUES
Ultimate Tensile MD (PSI)	ASTM D 882	6700 psi
Ultimate Tensile TD (PSI)	ASTM D 882	4000 psi
Elongation MD (%)	ASTM D 882	480%
Elongation TD (%)	ASTM D 882	590%
Tear Resistance MD (grams)	ASTM D 1922	300 g/mil
Tear Resistance TD (grams) A	STM D 1922	600 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	19.6 in-lb
Ultimate Prestretch (%)	Mfg. / Highlight	350%
Cling (in to out, grams)	Mfg. method	150 g/in

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# V00237

## TUFFlex Premium Plus Machine Film

16.5 Micron / 65 Gauge / 0.65 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES	
Manufacturing Process	Cast	
Thickness (nominal)	16.5 Micron / 65 Gauge / 0.65 Mil	
Film Width (inches)	20"	
Length (feet)	6500'	
Net Weight / Roll (lbs. – nominal)	33.8 lb	
Roll Diameter (O.D., inches)	8.9"	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Ultimate Tensile MD (PSI)	ASTM D 882	6700 psi
Ultimate Tensile TD (PSI)	ASTM D 882	4000 psi
Elongation MD (%)	ASTM D 882	490%
Elongation TD (%)	ASTM D 882	610%
Tear Resistance MD (grams)	ASTM D 1922	300 g/mil
Tear Resistance TD (grams) A	STM D 1922	600 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	20.2 in-lb
Ultimate Prestretch (%)	Mfg. / Highlight	350%
Cling (in to out, grams)	Mfg. method	150 g/in

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# V00238

## TUFFlex Premium Plus Machine Film

16.5 Micron / 65 Gauge / 0.65 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES	
Manufacturing Process	Cast	
Thickness (nominal)	16.5 Micron / 65 Gauge / 0.65 Mil	
Film Width (inches)	30"	
Length (feet)	6500'	
Net Weight / Roll (lbs. – nominal)	50.7 lb	
Roll Diameter (O.D., inches)	8.9"	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Ultimate Tensile MD (PSI)	ASTM D 882	6700 psi
Ultimate Tensile TD (PSI)	ASTM D 882	4000 psi
Elongation MD (%)	ASTM D 882	490%
Elongation TD (%)	ASTM D 882	610%
Tear Resistance MD (grams)	ASTM D 1922	300 g/mil
Tear Resistance TD (grams) A	STM D 1922	600 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	20.2 in-lb
Ultimate Prestretch (%)	Mfg. / Highlight	350%
Cling (in to out, grams)	Mfg. method	150 g/in

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# V00239

## TUFFlex Premium Plus Machine Film

17.8 Micron / 70 Gauge / 0.70 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES	
Manufacturing Process	Cast	
Thickness (nominal)	17.8 Micron / 70 Gauge / 0.70 Mil	
Film Width (inches)	20"	
Length (feet)	6000'	
Net Weight / Roll (lbs. – nominal)	33.6 lb	
Roll Diameter (O.D., inches)	8.9"	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Ultimate Tensile MD (PSI)	ASTM D 882	6700 psi
Ultimate Tensile TD (PSI)	ASTM D 882	4000 psi
Elongation MD (%)	ASTM D 882	500%
Elongation TD (%)	ASTM D 882	620%
Tear Resistance MD (grams)	ASTM D 1922	300 g/mil
Tear Resistance TD (grams) A	STM D 1922	600 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	21.5 in-lb
Ultimate Prestretch (%)	Mfg. / Highlight	360%
Cling (in to out, grams)	Mfg. method	150 g/in

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# V00240

## TUFFlex Premium Plus Machine Film

17.8 Micron / 70 Gauge / 0.70 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES	
Manufacturing Process	Cast	
Thickness (nominal)	17.8 Micron / 70 Gauge / 0.70 Mil	
Film Width (inches)	30"	
Length (feet)	6000'	
Net Weight / Roll (lbs. – nominal)	50.4 lb	
Roll Diameter (O.D., inches)	8.9"	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Ultimate Tensile MD (PSI)	ASTM D 882	6700 psi
Ultimate Tensile TD (PSI)	ASTM D 882	4000 psi
Elongation MD (%)	ASTM D 882	500%
Elongation TD (%)	ASTM D 882	620%
Tear Resistance MD (grams)	ASTM D 1922	300 g/mil
Tear Resistance TD (grams) A	STM D 1922	600 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	21.5 in-lb
Ultimate Prestretch (%)	Mfg. / Highlight	360%
Cling (in to out, grams)	Mfg. method	150 g/in

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# V00241

## TUFFlex Premium Plus Machine Film

19 Micron / 75 Gauge / 0.75 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES
Manufacturing Process	Cast
Thickness (nominal)	19 Micron / 75 Gauge / 0.75 Mil
Film Width (inches)	20"
Length (feet)	6000'
Net Weight / Roll (lbs. – nominal)	36 lb
Roll Diameter (O.D., inches)	9.1"
Core I.D.	3"

TESTS	METHODS	VALUES
Ultimate Tensile MD (PSI)	ASTM D 882	6700 psi
Ultimate Tensile TD (PSI)	ASTM D 882	4000 psi
Elongation MD (%)	ASTM D 882	500%
Elongation TD (%)	ASTM D 882	620%
Tear Resistance MD (grams)	ASTM D 1922	300 g/mil
Tear Resistance TD (grams) A	STM D 1922	600 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	23 in-lb
Ultimate Prestretch (%)	Mfg. / Highlight	360%
Cling (in to out, grams)	Mfg. method	150 g/in

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# V00242

## TUFFlex Premium Plus 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	
Film Width (inches)	20"	
Length (feet)	5000'	
Net Weight / Roll (lbs. – nominal)	32 lb	
Roll Diameter (O.D., inches)	8.7"	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Ultimate Tensile MD (PSI)	ASTM D 882	6600 psi
Ultimate Tensile TD (PSI)	ASTM D 882	3900 psi
Elongation MD (%)	ASTM D 882	510%
Elongation TD (%)	ASTM D 882	630%
Tear Resistance MD (grams)	ASTM D 1922	300 g/mil
Tear Resistance TD (grams) A	STM D 1922	600 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	24.6 in-lb
Ultimate Prestretch (%)	Mfg. / Highlight	370%
Cling (in to out, grams)	Mfg. method	150 g/in

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# V00243

## TUFFlex Premium Plus 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	
Film Width (inches)	20"	
Length (feet)	6000'	
Net Weight / Roll (lbs. – nominal)	38.4 lb	
Roll Diameter (O.D., inches)	9.4"	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Ultimate Tensile MD (PSI)	ASTM D 882	6600 psi
Ultimate Tensile TD (PSI)	ASTM D 882	3900 psi
Elongation MD (%)	ASTM D 882	510%
Elongation TD (%)	ASTM D 882	630%
Tear Resistance MD (grams)	ASTM D 1922	300 g/mil
Tear Resistance TD (grams) A	STM D 1922	600 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	24.6 in-lb
Ultimate Prestretch (%)	Mfg. / Highlight	370%
Cling (in to out, grams)	Mfg. method	150 g/in

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# V00244

## TUFFlex Premium Plus 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	
Film Width (inches)	30"	
Length (feet)	5500'	
Net Weight / Roll (lbs. – nominal)	52.8 lb	
Roll Diameter (O.D., inches)	9"	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Ultimate Tensile MD (PSI)	ASTM D 882	6600 psi
Ultimate Tensile TD (PSI)	ASTM D 882	3900 psi
Elongation MD (%)	ASTM D 882	510%
Elongation TD (%)	ASTM D 882	630%
Tear Resistance MD (grams)	ASTM D 1922	300 g/mil
Tear Resistance TD (grams) A	STM D 1922	600 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	24.6 in-lb
Ultimate Prestretch (%)	Mfg. / Highlight	370%
Cling (in to out, grams)	Mfg. method	150 g/in

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# V00245

## TUFFlex Premium Plus Machine Film

22.9 Micron / 90 Gauge / 0.90 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES	
Manufacturing Process	Cast	
Thickness (nominal)	22.9 Micron / 90 Gauge / 0.90 Mil	
Film Width (inches)	20"	
Length (feet)	5000'	
Net Weight / Roll (lbs. – nominal)	36 lb	
Roll Diameter (O.D., inches)	9.1"	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Ultimate Tensile MD (PSI)	ASTM D 882	6600 psi
Ultimate Tensile TD (PSI)	ASTM D 882	3900 psi
Elongation MD (%)	ASTM D 882	520%
Elongation TD (%)	ASTM D 882	650%
Tear Resistance MD (grams)	ASTM D 1922	300 g/mil
Tear Resistance TD (grams) A	STM D 1922	600 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	27.6 in-lb
Ultimate Prestretch (%)	Mfg. / Highlight	390%
Cling (in to out, grams)	Mfg. method	150 g/in

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# V00246

## TUFFlex Premium Plus Machine Film

22.9 Micron / 90 Gauge / 0.90 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES	
Manufacturing Process	Cast	
Thickness (nominal)	22.9 Micron / 90 Gauge / 0.90 Mil	
Film Width (inches)	30"	
Length (feet)	5000'	
Net Weight / Roll (lbs. – nominal)	54 lb	
Roll Diameter (O.D., inches)	9.1"	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Ultimate Tensile MD (PSI)	ASTM D 882	6600 psi
Ultimate Tensile TD (PSI)	ASTM D 882	3900 psi
Elongation MD (%)	ASTM D 882	520%
Elongation TD (%)	ASTM D 882	650%
Tear Resistance MD (grams)	ASTM D 1922	300 g/mil
Tear Resistance TD (grams) A	STM D 1922	600 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	27.6 in-lb
Ultimate Prestretch (%)	Mfg. / Highlight	390%
Cling (in to out, grams)	Mfg. method	150 g/in

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# V00247

## TUFFlex Premium Plus Machine Film

26.7 Micron / 105 Gauge / 1.05 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES
Manufacturing Process	Cast
Thickness (nominal)	26.7 Micron / 105 Gauge / 1.05 Mil
Film Width (inches)	20"
Length (feet)	4250'
Net Weight / Roll (lbs. – nominal)	35.7 lb
Roll Diameter (O.D., inches)	9.1"
Core I.D.	3"

TESTS	METHODS	VALUES
Ultimate Tensile MD (PSI)	ASTM D 882	6500 psi
Ultimate Tensile TD (PSI)	ASTM D 882	3800 psi
Elongation MD (%)	ASTM D 882	540%
Elongation TD (%)	ASTM D 882	640%
Tear Resistance MD (grams)	ASTM D 1922	290 g/mil
Tear Resistance TD (grams) A	STM D 1922	590 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	32.6 in-lb
Ultimate Prestretch (%)	Mfg. / Highlight	400%
Cling (in to out, grams)	Mfg. method	150 g/in

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# V00248

## TUFFlex Premium Plus Machine Film

30.5 Micron / 120 Gauge / 1.20 Mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast
Thickness (nominal)	30.5 Micron / 120 Gauge / 1.20 Mil
Film Width (inches)	20"
Length (feet)	4000'
Net Weight / Roll (lbs. – nominal)	38.4 lb
Roll Diameter (O.D., inches)	9.4"
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Ultimate Tensile MD (PSI)	ASTM D 882	6500 psi
Ultimate Tensile TD (PSI)	ASTM D 882	3800 psi
Elongation MD (%)	ASTM D 882	540%
Elongation TD (%)	ASTM D 882	640%
Tear Resistance MD (grams)	ASTM D 1922	290 g/mil
Tear Resistance TD (grams) A	STM D 1922	590 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	37.3 in-lb
Ultimate Prestretch (%)	Mfg. / Highlight	420%
Cling (in to out, grams)	Mfg. method	150 g/in

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# V00249

## TUFFlex Premium Plus Machine Film

14.5 Micron / 57 Gauge / 0.57 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES	
Manufacturing Process	Cast	
Thickness (nominal)	14.5 Micron / 57 Gauge / 0.57 Mil	
Film Width (inches)	30"	
Length (feet)	7500'	
Net Weight / Roll (lbs. – nominal)	51.3 lb	
Roll Diameter (O.D., inches)	8.9"	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Ultimate Tensile MD (PSI)	ASTM D 882	6700 psi
Ultimate Tensile TD (PSI)	ASTM D 882	4000 psi
Elongation MD (%)	ASTM D 882	470%
Elongation TD (%)	ASTM D 882	590%
Tear Resistance MD (grams)	ASTM D 1922	300 g/mil
Tear Resistance TD (grams)	ASTM D 1922	600 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	17.1 in-lb
Ultimate Prestretch (%)	Mfg. / Highlight	340%
Cling (in to out, grams)	Mfg. method	150 g/in

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# V00250

## TUFFlex Premium Plus Machine Film

12.4 Micron / 49 Gauge / 0.49 Mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast
Thickness (nominal)	12.4 Micron / 49 Gauge / 0.49 Mil
Film Width (inches)	20"
Length (feet)	9000'
Net Weight / Roll (lb, nominal)	35.3 lb
Roll Diameter (O.D., inches)	9.1"
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Ultimate Tensile MD (psi)	ASTM D 882	7200 psi
Ultimate Tensile TD (psi)	ASTM D 882	4500 psi
Elongation MD (%)	ASTM D 882	380%
Elongation TD (%)	ASTM D 882	550%
Tear Resistance MD (grams)	ASTM D 1922	275 g/mil
Tear Resistance TD (grams)	ASTM D 1922	750 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	14.7 in-lbs
Ultimate Prestretch (%)	Mfg./Highlight	320%
Cling (in to out, grams)	Mfg. method	150 g/in

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# V00378

## TUFFlex Premium Plus Machine Film

16 Micron / 63 Gauge / 0.63 mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast High Quality – One Side Cling
Thickness (nominal)	16 Micron / 63 Gauge / 0.63 mil
Film Width (inches)	30"
Length (feet)	7250'
Net Weight / Roll (lb, nominal)	54.8 lb
Roll Diameter (O.D., inches)	9.4"
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Ultimate Tensile MD (psi)	ASTM D 882	6700 psi
Ultimate Tensile TD (psi)	ASTM D 882	4000 psi
Elongation MD (%)	ASTM D 882	480%
Elongation TD (%)	ASTM D 882	590%
Tear Resistance MD (grams)	ASTM D 1922	300 g/mil
Tear Resistance TD (grams)	ASTM D 1922	600 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	19.6 in-lbs
Ultimate Prestretch (%)	Mfg./Highlight	340%
Cling (in to out, grams)	Mfg. method	150 g/in

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# V00379

## TUFFlex Premium Plus Machine Film – Heat Treated Pallet

16.5 Micron / 65 Gauge / 0.65 mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES
Manufacturing Process	Cast High Quality – One Side Cling
Thickness (nominal)	16.5 Micron / 65 Gauge / 0.65 mil
Film Width (inches)	20"
Length (feet)	6500'
Net Weight / Roll (lb, nominal)	33.8 lb
Roll Diameter (O.D., inches)	8.9"
Core I.D.	3"

TESTS	METHODS	VALUES
Ultimate Tensile MD (psi)	ASTM D 882	6700 psi
Ultimate Tensile TD (psi)	ASTM D 882	4000 psi
Elongation MD (%)	ASTM D 882	480%
Elongation TD (%)	ASTM D 882	590%
Tear Resistance MD (grams)	ASTM D 1922	300 g/mil
Tear Resistance TD (grams)	ASTM D 1922	600 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	19.6 in-lbs
Ultimate Prestretch (%)	Mfg./Highlight	340%
Cling (in to out, grams)	Mfg. method	150 g/in

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# V00380

## TUFFlex Premium Plus Machine Film – Heat Treated Pallet

20.3 Micron / 80 Gauge / 0.80 mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES	
Manufacturing Process	Cast High Quality – One Side Cling	
Thickness (nominal)	20.3 Micron / 80 Gauge / 0.80 mil	
Film Width (inches)	20"	
Length (feet)	6000'	
Net Weight / Roll (lb, nominal)	38.4 lb	
Roll Diameter (O.D., inches)	9.6"	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Ultimate Tensile MD (psi)	ASTM D 882	6600 psi
Ultimate Tensile TD (psi)	ASTM D 882	3900 psi
Elongation MD (%)	ASTM D 882	510%
Elongation TD (%)	ASTM D 882	630%
Tear Resistance MD (grams)	ASTM D 1922	300 g/mil
Tear Resistance TD (grams)	ASTM D 1922	600 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	24.6 in-lbs
Ultimate Prestretch (%)	Mfg./Highlight	360%
Cling (in to out, grams)	Mfg. method	150 g/in

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# V00381

## TUFFlex Premium Plus Machine Film

12.4 Micron / 49 Gauge / 0.49 mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast High Quality – One Side Cling
Thickness (nominal)	12.4 Micron / 49 Gauge / 0.49 mil
Film Width (inches)	30"
Length (feet)	9000'
Net Weight / Roll (lb, nominal)	52.9 lb
Roll Diameter (O.D., inches)	9.3"
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Ultimate Tensile MD (psi)	ASTM D 882	7200 psi
Ultimate Tensile TD (psi)	ASTM D 882	4500 psi
Elongation MD (%)	ASTM D 882	380%
Elongation TD (%)	ASTM D 882	550%
Tear Resistance MD (grams)	ASTM D 1922	275 g/mil
Tear Resistance TD (grams)	ASTM D 1922	750 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	14.7 in-lbs
Ultimate Prestretch (%)	Mfg./Highlight	320%
Cling (in to out, grams)	Mfg. method	150 g/in

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# V01259

## TUFFlex Premium Plus Machine Film

14.5 Micron / 57 Gauge / 0.57 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES	
Manufacturing Process	Cast	
Thickness (nominal)	14.5 Micron / 57 Gauge / 0.57 Mil	
Color	Clear	
Film Width (inches)	19.68"	
Length (feet)	6500'	
Net Weight / Roll (lb, nominal)	29.2 lb	
Core I.D.	3"	

  

TESTS	METHODS	VALUES
Haze	ASTM D1003	< 1.5 %
Gloss	ASTM D2457	76%
Tensile Strength at Break (MD)	ASTM D882	5520 psi
Tensile Strength at Break (TD)	ASTM D882	4000 psi
Elongation at Break (MD)	ASTM D882	490%
Elongation at Break (TD)	ASTM D882	660%
Elmendorf Tear Strength (MD)	ASTM D1922	150 g
Elmendorf Tear Strength (TD)	ASTM D1922	460 g
Cling	ASTM D5458	95 g

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# V01498

## TUFFlex Premium Plus Machine Film

38.1 Micron / 150 Gauge / 1.50 mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast High Quality – One Side Cling
Thickness (nominal)	38.1 Micron / 150 Gauge / 1.50 mil
Film Width (inches)	20"
Length (feet)	3000'
Net Weight / Roll (lb, nominal)	36 lb
Roll Diameter (O.D., inches)	9.5"
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Ultimate Tensile MD (psi)	ASTM D 882	6500 psi
Ultimate Tensile TD (psi)	ASTM D 882	3800 psi
Elongation MD (%)	ASTM D 882	620%
Elongation TD (%)	ASTM D 882	670%
Tear Resistance MD (grams)	ASTM D 1922	290 g/mil
Tear Resistance TD (grams)	ASTM D 1922	590 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	17.0 in-lbs
Ultimate Prestretch (%)	Mfg./Highlight	410%
Cling (in to out, grams)	Mfg. method	150 g/in

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# V01775

## TUFFlex Premium Plus Machine Film

30.5 Micron / 120 Gauge / 1.20 mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast High Quality – One Side Cling
Thickness (nominal)	30.5 Micron / 120 Gauge / 1.20 mil
Film Width (inches)	30"
Length (feet)	4000'
Net Weight / Roll (lb, nominal)	57.6 lb
Roll Diameter (O.D., inches)	9.5"
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Ultimate Tensile MD (psi)	ASTM D 882	6500 psi
Ultimate Tensile TD (psi)	ASTM D 882	3800 psi
Elongation MD (%)	ASTM D 882	540%
Elongation TD (%)	ASTM D 882	640%
Tear Resistance MD (grams)	ASTM D 1922	290 g/mil
Tear Resistance TD (grams)	ASTM D 1922	590 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	37.3 in-lbs
Ultimate Prestretch (%)	Mfg./Highlight	410%
Cling (in to out, grams)	Mfg. method	150 g/in

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# V01776

## TUFFlex Premium Plus Machine Film

19 Micron / 75 Gauge / 0.75 mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast High Quality – One Side Cling
Thickness (nominal)	19 Micron / 75 Gauge / 0.75 mil
Film Width (inches)	30"
Length (feet)	6000'
Net Weight / Roll (lb, nominal)	54 lb
Roll Diameter (O.D., inches)	9.5"
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Ultimate Tensile MD (psi)	ASTM D 882	6700 psi
Ultimate Tensile TD (psi)	ASTM D 882	4000 psi
Elongation MD (%)	ASTM D 882	500%
Elongation TD (%)	ASTM D 882	640%
Tear Resistance MD (grams)	ASTM D 1922	300 g/mil
Tear Resistance TD (grams)	ASTM D 1922	600 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	23 in-lbs
Ultimate Prestretch (%)	Mfg./Highlight	350%
Cling (in to out, grams)	Mfg. method	150 g/in

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# V01778

## TUFFlex Premium Plus Machine Film

15.2 Micron / 60 Gauge / 0.6 mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast High Quality – One Side Cling
Thickness (nominal)	15.2 Micron / 60 Gauge / 0.6 mil
Film Width (inches)	30"
Length (feet)	8000'
Net Weight / Roll (lb, nominal)	57.6 lb
Roll Diameter (O.D., inches)	9.5"
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Ultimate Tensile MD (psi)	ASTM D 882	6700 psi
Ultimate Tensile TD (psi)	ASTM D 882	4000 psi
Elongation MD (%)	ASTM D 882	480%
Elongation TD (%)	ASTM D 882	600%
Tear Resistance MD (grams)	ASTM D 1922	300 g/mil
Tear Resistance TD (grams)	ASTM D 1922	600 g/mil
Puncture Resistance (in-lbs.)	ASTM D 4649	18.6 in-lbs
Ultimate Prestretch (%)	Mfg./Highlight	340%
Cling (in to out, grams)	Mfg. method	150 g/in

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# V02010

## TUFFlex Premium Plus Machine Film

30 Micron / 115 Gauge / 1.15 Mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast
Thickness (nominal)	30 Micron / 115 Gauge / 1.15 Mil
Color	Clear
Film Width (inches)	30"
Length (feet)	3500'
Net Weight / Roll (lbs. – nominal)	48.3 lb
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Tensile Strength at Break (MD)	ASTM D882	4100 psi
Tensile Strength at Break (TD)	ASTM D882	3300 psi
Elongation at Break (MD)	ASTM D882	510%
Elongation at Break (TD)	ASTM D882	620%
Elmendorf Tear Strength (MD)	ASTM D1922	400 g
Elmendorf Tear Strength (TD)	ASTM D1922	630 g
Puncture, lbs	Internal	14
Dart Impact F50, g	ASTM D1709A	220

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# V02011

## TUFFlex Premium Plus Machine Film

16 Micron / 63 Gauge / 0.63 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES
Manufacturing Process	Cast
Thickness (nominal)	16 Micron / 63 Gauge / 0.63 Mil
Color	Clear
Film Width (inches)	19.68"
Length (feet)	6000'
Net Weight / Roll (lb, nominal)	29.8 lb
Core I.D.	3"

TESTS	METHODS	VALUES
Haze	ASTM D1003	< 2 %
Gloss	ASTM D2457	75%
Tensile Strength at Break (MD)	ASTM D882	5500 psi
Tensile Strength at Break (TD)	ASTM D882	4550 psi
Elongation at Break (MD)	ASTM D882	510%
Elongation at Break (TD)	ASTM D882	700%
Elmendorf Tear Strength (MD)	ASTM D1922	175 g
Elmendorf Tear Strength (TD)	ASTM D1922	475 g

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# V02013

## TUFFlex Premium Plus Machine Film

14 Micron / 55 Gauge / 0.55 Mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast
Thickness (nominal)	14 Micron / 55 Gauge / 0.55 Mil
Color	Clear
Film Width (inches)	30"
Length (feet)	8000'
Net Weight / Roll (lbs. – nominal)	52.8 lb
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Tensile Strength at Break (MD)	ASTM D882	4100 psi
Tensile Strength at Break (TD)	ASTM D882	3300 psi
Elongation at Break (MD)	ASTM D882	360%
Elongation at Break (TD)	ASTM D882	520%
Elmendorf Tear Strength (MD)	ASTM D1922	250 g
Elmendorf Tear Strength (TD)	ASTM D1922	430 g
Puncture, lbs	Internal	8
Dart Impact F50, g	ASTM D1709A	150

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# V02015

## TUFFlex Premium Plus Machine Film

18 Micron / 71 Gauge / 0.71 Mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES
Manufacturing Process	Cast
Thickness (nominal)	18 Micron / 71 Gauge / 0.71 Mil
Color	Clear
Film Width (inches)	29.5"
Length (feet)	5500'
Net Weight / Roll (lb, nominal)	46.1 lb
Core I.D.	3"

TESTS	METHODS	VALUES
Haze	ASTM D1003	< 2 %
Gloss	ASTM D2457	75%
Tensile Strength at Break (MD)	ASTM D882	5500 psi
Tensile Strength at Break (TD)	ASTM D882	4550 psi
Elongation at Break (MD)	ASTM D882	525%
Elongation at Break (TD)	ASTM D882	720%
Elmendorf Tear Strength (MD)	ASTM D1922	180 g
Elmendorf Tear Strength (TD)	ASTM D1922	485 g

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# V02022

## TUFFlex Premium Plus Machine Film

16 Micron / 63 Gauge / 0.63 Mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast
Thickness (nominal)	16 Micron / 63 Gauge / 0.63 Mil
Color	Clear
Film Width (inches)	19.7"
Length (feet)	5500'
Net Weight / Roll (lbs. – nominal)	27.3 lb
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Tensile Strength at Break (MD)	ASTM D882	4100 psi
Tensile Strength at Break (TD)	ASTM D882	3300 psi
Elongation at Break (MD)	ASTM D882	380%
Elongation at Break (TD)	ASTM D882	535%
Elmendorf Tear Strength (MD)	ASTM D1922	280 g
Elmendorf Tear Strength (TD)	ASTM D1922	445 g
Puncture, lbs	Internal	9
Dart Impact F50, g	ASTM D1709A	165

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# V02026

## TUFFlex Premium Plus 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)	12"
Length (feet)	5500'
Net Weight / Roll (lbs. – nominal)	21.1 lb
Core I.D.	3"

### TESTS

### METHODS

### VALUES

Tensile Strength at Break (MD)	ASTM D882	4100 psi
Tensile Strength at Break (TD)	ASTM D882	3300 psi
Elongation at Break (MD)	ASTM D882	430%
Elongation at Break (TD)	ASTM D882	560%
Elmendorf Tear Strength (MD)	ASTM D1922	330 g
Elmendorf Tear Strength (TD)	ASTM D1922	490 g
Puncture, lbs	Internal	11
Dart Impact F50, g	ASTM D1709A	190

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# V03788

## TUFFlex Premium Plus Machine Film

12.7 Micron / 50 Gauge / 0.5 mil

*Not intended as limiting specifications.*

### CHARACTERISTICS

### VALUES

Manufacturing Process	Cast
Thickness (nominal)	12.7 Micron / 50 Gauge / 0.5 mil
Film Width (inches)	20"
Length (feet)	9000'
Net Weight / Roll (lb, nominal)	36 lb
Roll Diameter (O.D., inches)	9.3"

### TESTS

### METHODS

### VALUES

Tensile Strength at Break (MD)	ASTM D882	6760 psi
Tensile Strength at Break (TD)	ASTM D882	5210 psi
Elongation at Break (MD)	ASTM D882	360%
Elongation at Break (TD)	ASTM D882	785%
Elmendorf Tear Strength (MD)	ASTM D1922	250
Elmendorf Tear Strength (TD)	ASTM D1922	450
Cling	ASTM D5458	165
Dart Drop	ASTM D1709	920g

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# V03789

## TUFFlex Premium Plus Machine Film

16 Micron / 63 Gauge / 0.63 mil

*Not intended as limiting specifications.*

CHARACTERISTICS	VALUES
Manufacturing Process	Cast
Thickness (nominal)	16 Micron / 63 Gauge / 0.63 mil
Film Width (inches)	20"
Length (feet)	7500'
Net Weight / Roll (lb, nominal)	37.8 lb
Roll Diameter (O.D., inches)	9.5"

TESTS	METHODS	VALUES
Tensile Strength at Break (MD)	ASTM D882	9820 psi
Tensile Strength at Break (TD)	ASTM D882	5750 psi
Elongation at Break (MD)	ASTM D882	570%
Elongation at Break (TD)	ASTM D882	785%
Elmendorf Tear Strength (MD)	ASTM D1922	260
Elmendorf Tear Strength (TD)	ASTM D1922	435
Cling	ASTM D5458	170
Dart Drop	ASTM D1709	920g

# TUFFlex™

[tufflexpackaging.com](http://tufflexpackaging.com)

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