

## Timber Industry Products



Conveyor Chain  
Engineering Plastic Application



## COMPANY PROFILE

**D**otmar EPP Pty Ltd (Engineering Plastic Products) is a privately owned Australian business focused on the technical application of thermoplastic materials in engineering environments.

Dotmar was established in 1967 and with six state branches, has now become the leading manufacturer, importer and distributor of semi-finished and finished Engineering thermoplastics and components in Australia. Dotmar prides itself in its ability, through its strong network of International Engineering Partners, to stay at the 'leading edge' in relation to the latest developments in product and technology in its field.

*Dotmar comprises three focused areas of business...*

 **Distribution**

 **Application Solutions**

 **Custom Engineering**

*...each supplying high performance products to specific markets.*

Dotmar EPP Pty Ltd handles a comprehensive range of Engineering thermoplastic materials and has machining facilities, design and application skills to support OEMs and the maintenance and manufacturing sectors of industry.

Each State is autonomous in its approach to the market and its products but is supported by Central administration and Finance. Commitment across the business is to developing close and sustainable relationships with customer partners through Service, Quality Products, Quality Practice and a High Level of Technical Support.

Dotmar and its associated companies have a long-standing reputation in their chosen markets and they are proud to represent the highest quality international brand names together with proprietary products in their chosen fields of expertise.



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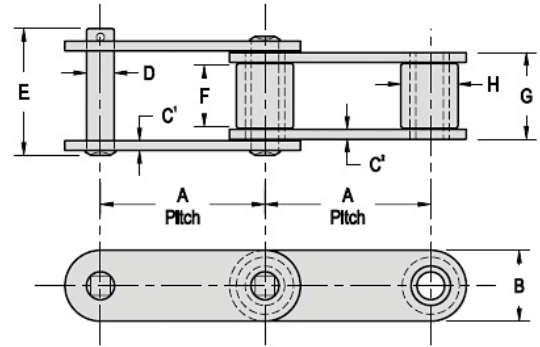
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## 81X / 81XH Lumber Conveyor Chains



### MAC 81X Series Bushed Roller Chain Features

- Fully Heat-Treated Superior Alloy Steel
- Solid Bushings and Rollers
- Quad Staked Rivet Design



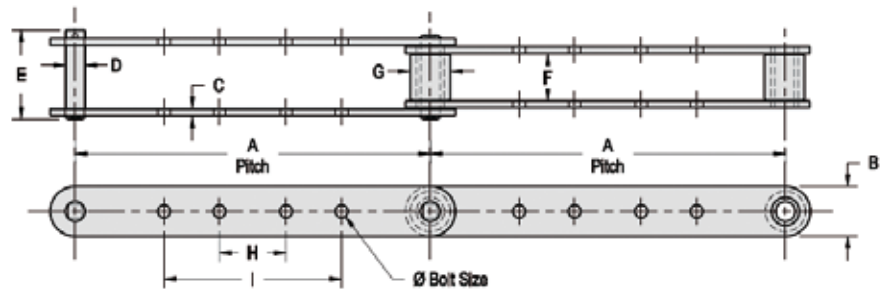
Chain Number	Dimension										Average ultimate strength	Average net weight per/m	No. of links	Item Code
	Pitch	Max. sidebar height	Bar thickness outer	Bar thickness inner	Max. pin dia.	Max. overall width	Max Spkt Thickness	Bearing length	Roller dia					
	A	B	C1	C2	D	E	F	G	H					
Imperial	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Lbs	Lbs/Ft	Ft	
Metric	Mm	Mm	Mm	Mm	Mm	Mm	Mm	Mm	Mm	Mm	Kg	Kg/m	Mt	
81X	2.609	1.13	0.156	0.156	0.437	2.13	1.0	1.38	0.906		24,000	2.6	4.6	MRC550101
	66.27	28.7	3.96	3.96	11.1	54.1	25.4	34.9	23.0		35,791	3.9	15.1	
81XH	2.609	1.25	0.156	0.312	0.437	2.75	1.0	1.66	0.906		34,000	5.1	4.6	MRC550100
	66.27	31.8	3.96	7.92	11.1	69.9	25.4	42.8	23.0		50,703	7.6	15.1	

## M3939 J Bar Chains



### Hardness Specifications:

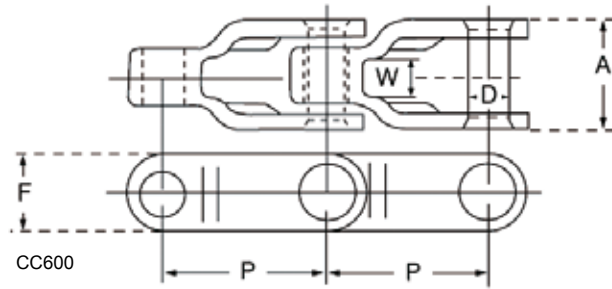
- Side Bars 37 - 40 RC
- Bushing 55 - 56 RC
- Roller (Solid) 41 - 46 RC
- Rivet 42 - 45 RC



- Fully Heat-Treated Superior Alloy Steel
- Solid Bushings and Rollers
- Quad Staked Rivet Design

Chain Number	Dimension											Average ultimate strength	Average net weight per/m
	Pitch	Max. sidebar height	Bar thickness	Max. pin dia.	Max. overall width	Max Spkt Thickness	Roller dia	Inner hole C-C	Outer holes C-C	Hole size			
	A	B	C	D	E	F	G	H	I				
Imperial	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Lbs	Lbs/Ft
Metric	Mm	Mm	Mm	Mm	Mm	Mm	Mm	Mm	Mm	Mm	Mm	Kg	Kg/m
M3939	8.00	1.13	0.156	0.44	2.13	1.0	0.906	1.5	4.0	0.28		24,000	1.5
	203.2	28.7	4.0	11.2	54.1	25.4	23.0	38.1	101.6	7.1		35,790	4.9

## CC600 & DF3500 Side Flexing Chains



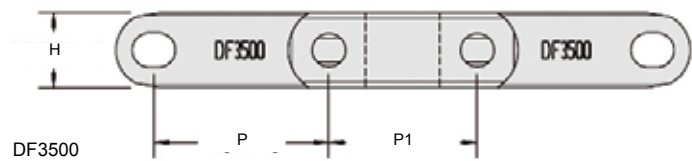
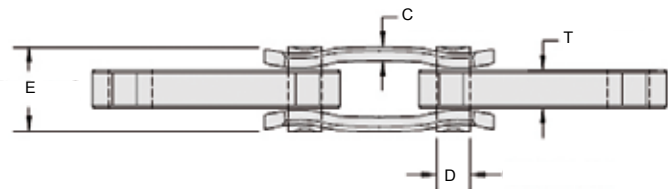
Chain Number	Chain Pitch	Dimensions				Links per	Ultimate Strength	Weight Per	Item Code
		Overall width	Rivet $\varnothing$	Height	Spkt face				
		A	D	F	W				
Imp	Inch	Inch	Inch	Inch	Inch	FT	Lb	Lb/Ft	MCC45512
Metric	Mm	Mm	Mm	Mm	Mm	Mt	N	Kg/Mt	
CC600	2.50	1.187	0.44	1.19	0.52	4.8	12,000	3.3	
	63.50	30.15	11.18	30.23	13.11	15.7	53	4.92	

There are a variety of conveyor systems employed for conveying packaged materials such as packaged bottles and canned milk along the transfer line in processing plants, and the most simple and durable of them is the swivel chain conveyor. In this type of conveyor, the chain runs inside the channel-shared trough, and the trough can be assembled along small curves with a 3 feet radius at the minimum. As it is made of malleable material, this chain is safe from corrosion even when it is installed in places where water spray is unavoidable.

The chain has a wide rectangular contact face, and so the chain itself causes little friction and are not liable to wear.

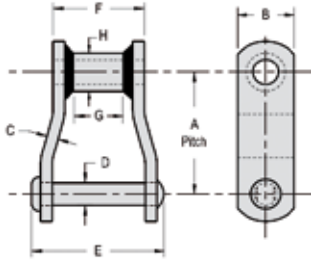


- Manufactured to Mac Chain Specifications to provide Economy, Quality and Reliability
- Meets or Exceeds Industry Standards providing a Strong, Long lasting in-floor Conveyor
- Induction Hardened Wear Surfaces for the ultimate in Wear Resistance



Chain Number	Dimension							Min. sideflex radius	Average ultimate strength	Average net weight per/m	Item Code
	Pitch		Max. pin dia.	Max. sidebar height	Max. overall width	Bar thickness	Block thickness				
	P	P1	D	H	E	C	T				
Imperial	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Lbs	Lbs/Ft	MCC 17703
Metric	Mm	Mm	Mm	Mm	Mm	Mm	Mm	Mm	Kg	Kg/m	
DF3500	2.5	3.0	0.56	1.25	1.44	0.25	0.63	20	48,000	3.3	
	63.5	76.2	14.5	31.8	36.5	6.3	15.9	510	71,521	10.8	

## WR/WH Welded Steel Mill Chain "Mac"



These heavy duty chains are recommended for most conveying and elevating applications where a high strength steel rollerless chain is required. A complete line of attachments and optional heat treatment make them easily adaptable to a wide variety of installations.

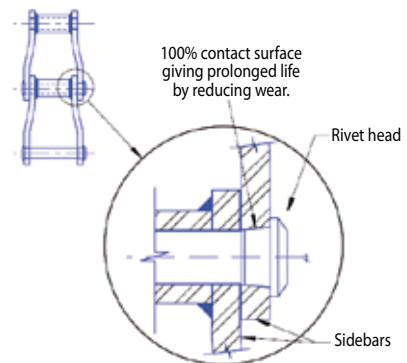
- All pins are through-hardened
- 1" & larger pins are further induction-hardened

All dimensions shown in inches unless noted otherwise

Chain Number	Average Pitch	Ultimate Strength	Chain Number	WH* Ultimate Strength	Sidebar Height	Sidebar Thickness	Rivet Dia	Approx Overall Width	Length of Bearing	Max. Sprocket Thickness	Barrel O.D.	Links Per	Average Weight
Imperial		Ft	Imperial	Ft	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Ft	Ft/Lbs
Metric		N	Metric	N	Mm	Mm	Mm	Mm	Mm	Mm	Mm	Mt	Kg/Mt
	A				B	C	D	E	F	G	H		
WS78**	2.609	29,800	WHS78	34,000	1.25	0.25	0.50	2.44	1.63	0.75	0.84	4.6	3.9
	66.27	132		151	31.75	6.35	12.70	61.98	41.40	19.05	21.34	15.1	5.82
WR78	2.609	29,800	WH78	34,000	1.25	0.25	0.50	3.00	2.00	1.00	0.84	4.6	4.1
	66.27	132		151	31.75	6.35	12.70	76.20	50.80	25.40	21.34	15.1	6.11
WR78XHD	2.640	32,700	WH78XHD	38,500	1.25	0.38	0.56	3.28	2.00	1.00	1.05	4.5	6.3
	67.06	145		171	31.75	9.65	14.22	83.31	50.80	25.40	26.67	14.8	9.40
WR78-4	4.000	29,800	WH78-4	34,000	1.25	0.25	0.50	3.00	2.00	1.00	0.84	3	3.4
	101.60	132		151	31.75	6.35	12.70	76.20	50.80	25.40	21.34	9.8	5.07
WR82	3.075	32,750	WH82	39,000	1.25	0.25	0.56	3.31	2.25	1.38	1.05	3.9	4.7
	78.11	145		173	31.75	6.35	14.22	84.07	57.15	35.05	26.67	12.8	7.01
WR82XHD	3.075	50,400	WH82XHD	60,000	1.50	0.38	0.75	3.81	2.38	1.13	1.25	3.9	8.4
	78.11	223		266	38.10	9.65	19.05	96.77	60.45	28.70	31.75	12.8	12.53
WR124	4.000	50,400	WH124	60,000	1.50	0.38	0.75	4.25	2.81	1.50	1.25	3	8
	101.60	223		266	38.10	9.65	19.05	107.95	71.37	38.10	31.75	9.8	11.93
WR124XHD	4.050	85,500	WH124XHD	102,600	2.00	0.50	1.00	4.88	3.00	1.50	1.66	3	14.5
	102.87	379		455	50.80	12.70	25.40	123.95	76.20	38.10	42.16	9.8	21.62
WR111	4.760	50,400	WH111	60,000	1.75	0.38	0.75	4.81	3.38	2.25	1.25	2.5	8.6
	120.90	223		266	44.45	9.65	19.05	122.17	85.85	57.15	31.75	8.2	12.82
WR106	6.000	50,400	WH106	60,000	1.50	0.38	0.75	4.25	2.81	1.50	1.25	2	6.5
	152.40	223		266	38.10	9.65	19.05	107.95	71.37	38.10	31.75	6.6	9.69
WR106XHD	6.050	85,500	WH106XHD	102,600	2.00	0.50	1.00	4.87	3.00	1.50	1.66	2	11.5
	153.67	379		455	50.80	12.70	25.40	123.70	76.20	38.10	42.16	6.6	17.15
WR132	6.000	85,500	WH132	102,600	2.00	0.50	1.00	6.25	4.44	2.75	1.66	2	13.5
	152.40	379		455	50.80	12.70	25.40	158.75	112.78	69.85	42.16	6.6	20.13
WR132XHD	6.050	118,500	WH132XHD	142,000	2.00	0.63	1.00	6.75	4.69	2.75	1.66	2	15.9
	153.67	525		629	50.80	16.00	25.40	171.45	119.13	69.85	42.16	6.6	23.71
WR150	6.050	120,000	WH150	144,000	2.50	0.50	1.00	6.25	4.44	2.75	1.66	2	15.5
	153.67	532		638	63.50	12.70	25.40	158.75	112.78	69.85	42.16	6.6	23.11
WR150XHD	6.050	122,500	WH150XHD	148,000	2.50	0.63	1.00	6.75	4.69	2.75	1.66	2	18
	153.67	543		656	63.50	16.00	25.40	171.45	119.13	69.85	42.16	6.6	26.84
WR157	6.050	148,000	WH157	175,000	2.50	0.63	1.13	6.75	4.63	2.75	1.75	2	20
	153.67	656		776	63.50	16.00	28.70	171.45	117.60	69.85	44.45	6.6	29.83

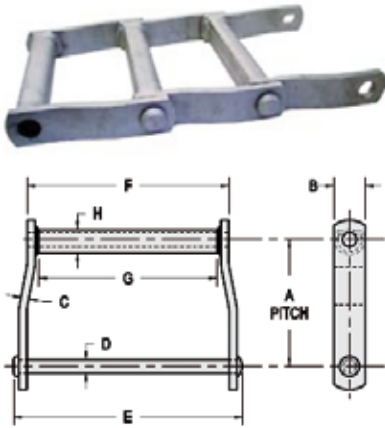
Bold denotes stock line

## The Two Strongest Reasons for Choosing Mac Welded Steel Chain.



\* WH denotes Heat Treated \*\* Interchangeable with 81X series, 88K series and C188 chain

## WD Drag Welded Steel Mill Chain "Mac"



Using select grade alloy steels these heavy duty chains are manufactured in North America to high standards. Our unique barrel forming process ensures consistent quality, reducing potential rivet wear and providing high strength and long service life. All heat treating and attachment options are available, as well as reverse barrel design.

- Standard zone induction-hardened rivets for 3/4" and 7/8" diameters
- Standard through-hardened rivets for 1" diameters

Chain Number	Average Pitch	WD Ultimate Strength	WDH Ultimate Strength	Sidebar Height	Sidebar Thickness	Rivet Diameter	Approx Overall Width	Length of Bearing	Max. Sprocket Thickness	Barrel O.D.	Links Per	Average Weight
Imperial	Inch	Lb	Lb	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Ft	Lb/Ft
Metric	Mm	Kn	Kn	Mm	Mm	Mm	Mm	Mm	Mm	Mm	Mt	Kg/Mt
	A			B	C	D	E	F	G	H		
WD102	5.000	51,000	61,000	1.50	0.38	0.75	9.25	7.75	6.38	1.46	2.4	12
	127.00	226	270	38.10	9.65	19.05	234.95	196.85	162.05	37.08	7.9	17.90
WD104	6.000	51,000	61,000	1.50	0.38	0.75	6.75	5.38	4.13	1.46	2	8.6
	152.40	226	270	38.10	9.65	19.05	171.45	136.65	104.90	37.08	6.6	12.82
WD110	6.000	51,000	61,000	1.50	0.38	0.75	11.75	10.25	9.00	1.46	2	12
	152.40	226	270	38.10	9.65	19.05	298.45	260.35	228.60	37.08	6.6	17.90
WD112	8.000	51,000	61,000	1.50	0.38	0.75	11.75	10.25	9.00	1.46	1.5	10
	203.20	226	270	38.10	9.65	19.05	298.45	260.35	228.60	37.08	4.9	14.91
WD116	8.000	55,000	69,000	1.75	0.38	0.75	15.50	14.13	13.00	1.66	1.5	12.9
	203.20	244	306	44.45	9.65	19.05	393.70	358.90	330.20	42.16	4.9	19.24
WD118	8.000	85,000	102,000	2.00	0.50	.87 or 1	16.63	14.87	13.25	1.9	1.5	18
	203.20	377	452	50.80	12.70	22 or 25.4	422.40	377.70	336.55	48.26	4.9	26.84
WD118XHD	8.000	122,000	146,000	2.00	0.63	1.00	17.38	15.13	13.25	1.9	1.5	21
	203.20	541	647	50.80	16.00	25.40	441.45	384.18	336.55	48.26	4.9	31.32
WD120	6.000	85,000	102,000	2.00	0.50	.87 or 1	12.00	10.25	8.75	1.9	2	18
	152.40	377	452	50.80	12.70	22 or 25.4	304.80	260.35	222.25	48.26	6.6	26.84
WD120XHD	6.000	122,000	146,000	2.00	0.63	1.00	12.75	10.50	8.75	1.9	2	21
	152.40	541	647	50.80	16.00	25.40	323.85	266.70	222.25	48.26	6.6	31.32
WD122	6.000	85,000	102,000	2.00	0.50	.87 or 1	12.00	10.25	8.75	1.9	1.5	15
	152.40	377	452	50.80	12.70	22 or 25.4	304.80	260.35	222.25	48.26	4.9	22.37
WD122XHD	8.000	122,000	146,000	2.00	0.63	1.00	12.75	10.50	8.75	1.9	1.5	17.6
	203.20	541	647	50.80	16.00	25.40	323.85	266.70	222.25	48.26	4.9	26.25
WD480	8.000	85,000	102,000	2.00	0.50	.87 or 1	15.00	12.75	11.00	1.9	1.5	16.9
	203.20	377	452	50.80	12.70	22 or 25.4	381.00	323.85	279.40	48.26	4.9	25.20
WD480XHD	8.000	122,000	146,000	2.00	0.63	1.00	15.25	13.00	11.00	1.9	1.5	19.5
	203.20	541	647	50.80	16.00	25.40	387.35	330.20	279.40	48.26	4.9	29.08

**Bold denotes stock line**

WDH Available upon request

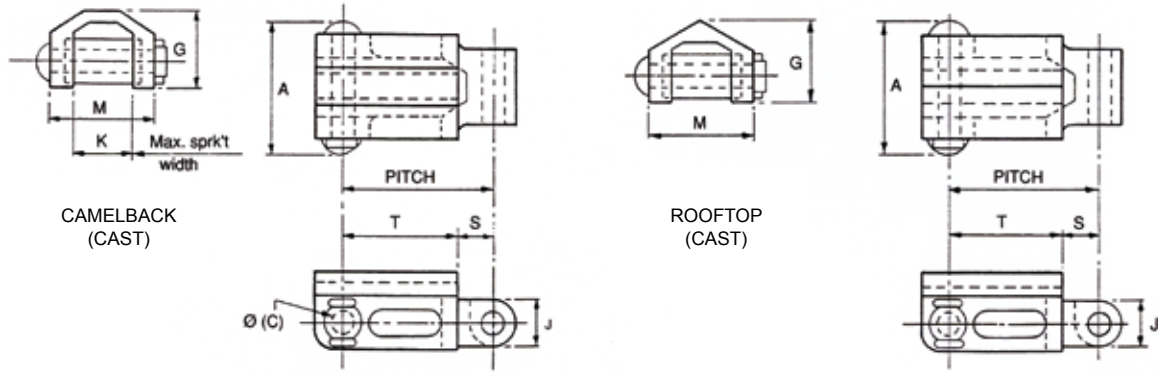
### Induction-Hardened Rivets

Continual research and field testing has proven that the single most effective way to extend the life of large mill chain is by induction-hardening the chain rivets. The advantage of this process is that the rivet will have a super-tough surface on top of our through-hardened core. This hard surface offers superior wear resistance that greatly increases chain life and reduces costly downtime. We feel this process is so beneficial that it is included standard on all our welded steel mill chain with 1" and 1 1/8" rivets.

### Precision Taper Fit Rivets

All Mac mill chain with a 1" and 1 1/8" rivet are constructed with Mac Precision Taper Fit rivets. These rivets are superior in design compared with conventional rivets. When the PTF rivet is pressed into the link, it provides 100% contact between the rivet and the sidebar, reducing wear and increasing chain life.

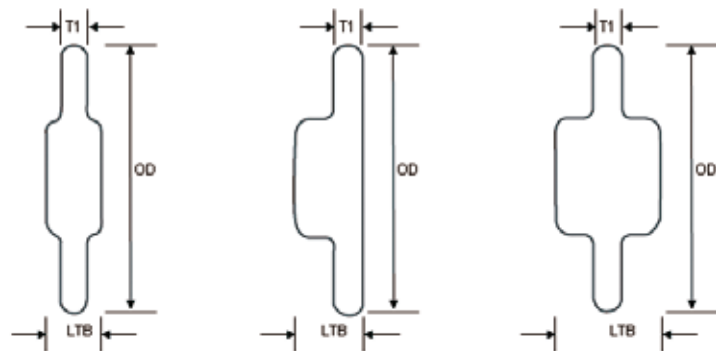
## Cast H Class Chains



Chain Number	Chain Pitch	Ultimate Strength	Links	Weight	Dimensions							
					A	C Rivet $\phi$	G	M	K	S	T	J
Imperial	Inch	Lbs	Ft	Lbs/Ft	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch
Metric	Mm	Kn	Mt	Kg/Mt	Mm	Mm	Mm	Mm	Mm	Mm	Mm	Mm
<b>H78-RT</b>	<b>2.609</b>	<b>16,100</b>	<b>4.6</b>	<b>5.7</b>	<b>3.25</b>	<b>0.50</b>	<b>1.69</b>	<b>2.75</b>	<b>1.00</b>	<b>1.69</b>	<b>2.38</b>	<b>1.00</b>
	66.27	71	15.1	8.50	82.55	12.70	42.93	69.85	25.40	42.93	60.33	25.40
<b>H78-CB</b>	<b>2.609</b>	<b>16,100</b>	<b>4.6</b>	<b>6.0</b>	<b>3.25</b>	<b>0.50</b>	<b>1.69</b>	<b>2.75</b>	<b>1.00</b>	<b>1.69</b>	<b>2.38</b>	<b>1.00</b>
	66.27	71	15.1	8.95	82.55	12.70	42.93	69.85	25.40	42.93	60.33	25.40
H130-RT	4.000	14,500	3	5.1	3.25	0.50	1.69	2.81	1.00	1.69	3.88	1.00
	101.60	64	9.8	7.61	82.55	12.70	42.93	71.37	25.40	42.93	98.55	25.40
H138-CB	4.000	14,900	3	5.8	3.25	0.50	1.69	2.81	1.00	1.69	3.88	1.00
	101.60	66	9.8	8.65	82.55	12.70	42.93	71.37	25.40	42.93	98.55	25.40

Bold denotes stock line

## Conveyor Chain Sprockets

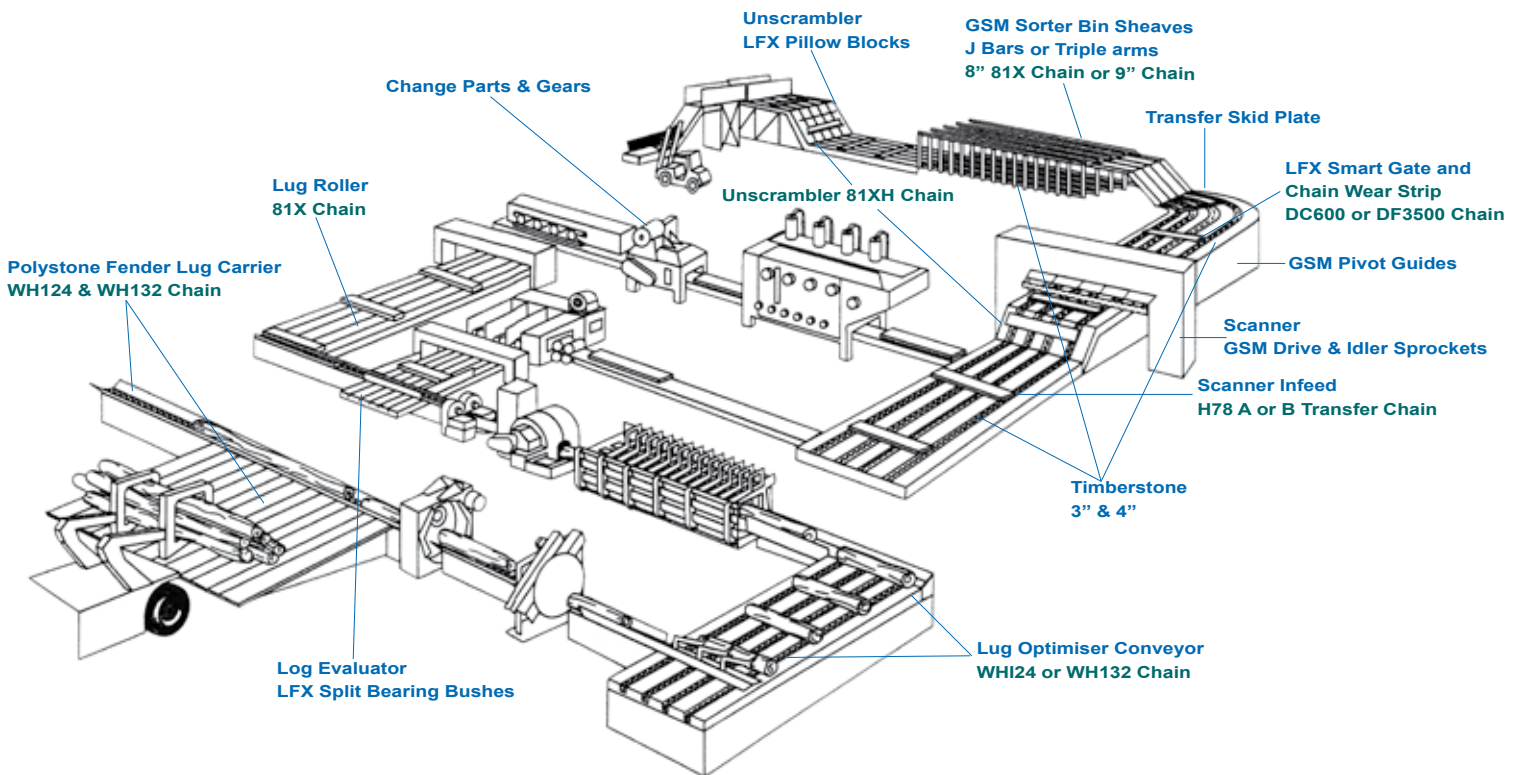


**Please Advice:**

- Number of Teeth
- Chain Type
- Quantity

**Available on request**

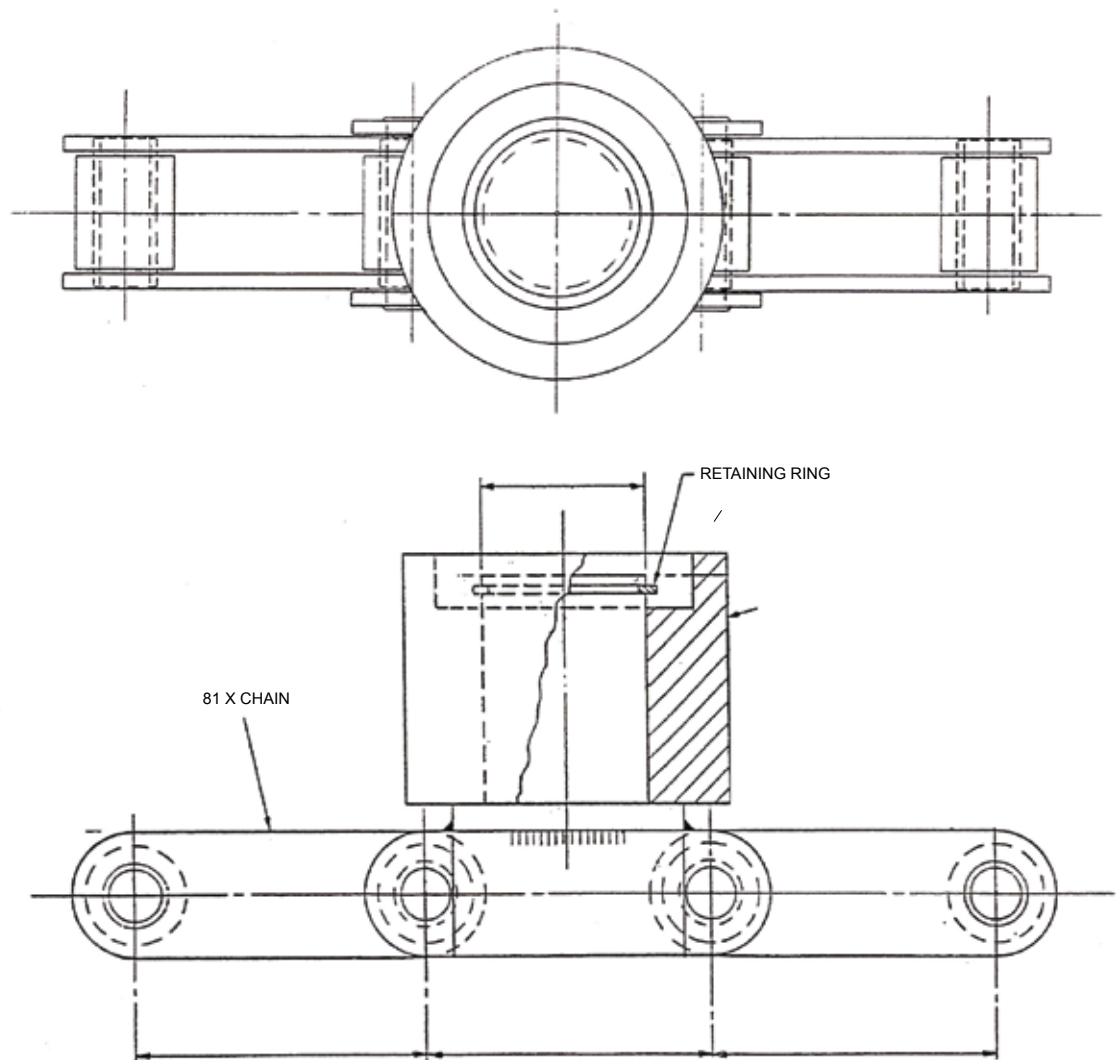
- Larger Boss Diameter and Distance through
- Plate Sprockets in UHMW, Nylatron or Steel
- Steel Hubs for Plastic Split Sprockets
- Flame Hardened Teeth
- Split Sprockets
- Ring Sprockets for Log Decks and Drag Chains
- Bore and Keyway, Bore only to suit Taper Locks



Timberstone Profiles					
Chain	Size	Overall width	Height	Depth inside	Width inside
		Mm	Mm	Mm	Mm
	2"	50.8	21	12	37
81X / 81X RT	3"	76.2	31	19	55
81XH / C188 / WH78	4"	101.6	31	19	81
H78 H78 A&B	4.5"	114.3	31	19	91



- UHMWPE Yellow
- Light Weight
- Non Corrosive
- Impact Resistance
- High Visibility
- Chemical Resistance
- Available in 10 & 20 ft lengths
- Other profiles tailor made to your requirements



**Note:**

1. U.H.M.W. Rollers can be Varied in Height & dia. to suit Customer Requirements
2. Rollers can be attached by means of Snap Ring or Welded Cap
3. Rollers can be attached to any of the following chain types: **WR 78, 81X, 81XH**

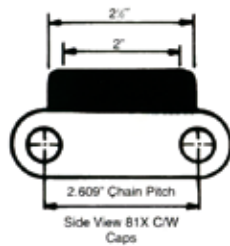
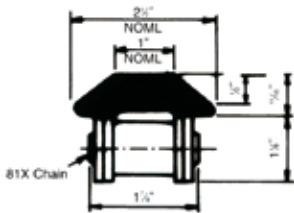
## Weld on Roof Top Caps

These weld on caps used in sawmill applications to keep chain from marring finished lumber, we have re-designed to remedy for the inherent problems of those products previously supplied into the market.

- A superior designed “clip” that will not allow the high-impact co-polymer to work loose and fall out from continuous impact!
- Greatly improved the weld locations by increasing its area and insuring all “plastic” has been removed, resulting in a decrease of 30% plus in set-up and weld time
- True advantages when “time is money”
- Designed to suit Mac 81X Timber Chain



Currently available in green, yellow, blue and orange following soon.  
Custom colours also available.



### TECHNICAL DATA

Typical Properties	J640 Impact Copolymer	Test Method
Density g/cm <sup>3</sup>	.91	ASTM D1505
Vicat Softening Point °C	160	ASTM D1238
Hardness, Rockwell 'R-Scale'	87	ASTM D785
Deflection Temp, °C @ 66 PSI	105	ASTM D648
<b>Mechanical Properties</b>		
Maximum Tension Strength, PSI (MPA)	23	ASTM D638
Elongation @ Break, %	500	
Notched IZOD @ 23°C, kj/m	87	ASTM D256

# Plastic Products:

## J Bars and Carrier Wear Plates

### Reason for using Polystone 300

- Weight Reduction over Polyurethane
- Good Wear Resistance
- Economical Material
- Doesn't Mark Timber
- Good Memory Properties

Polyurethane J Bars made to order



## Tipple Arm Chain Carrier Wear Plates

### Reason for using Polystone 7000

- Good Wear & Abrasion Resistance
- Tough & Durable
- Easily Modified to Suit your Requirements



## Transfer Skid Plates

### Polystone 7000 Natural

- Good Wear & Abrasion Resistance
- Tough & Durable
- Reduced Cost & Delivery from overseas OEM
- Design changes are easier using local supplier



# Plastic Products:

## Nylatron GSM Cable Sheaves

### Sorter Bin Cable Sheaves Offers the following advantages over Steel

- Self Lubricating
- Light Weight
- Longer Wire Rope life up to 6 times
- Corrosion Resistance

#### Questionnaire:

Inner OD + ID Existing Sheave

OD =

ID =

Useable Bore Width =

Groove Diameter =

Shaft Diameter

Rope Diameter

Total Load

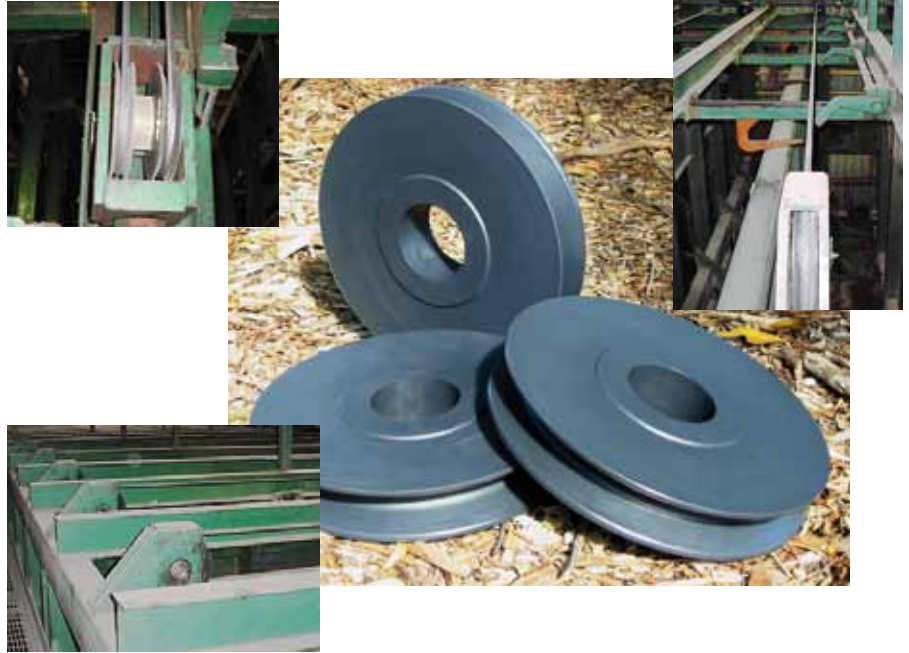
Min=

Number of Sheaves is =

Max Speed =

Also available:

[http://www.dotmar.com.au/technical/technical\\_03.htm](http://www.dotmar.com.au/technical/technical_03.htm)



### Ertalon LFX Pillow Block Bearing Replacement offer the following advantages

- Excellent Wear Resistance, even in dirty Environments
- Split Bearing - easy to replace
- No need for Lubrication
- Made to suit your Dimensional Requirements

#### Questionnaire:

Shaft Diameter =

Shaft Speed =

Mounting hole Centres =

Mounting hole Diameter =

Load on Bearing = kg

Operating Time=



## Fender Log Carrier

### Reason for using Polystone Fender

- Wear Resistance
- Low Coefficient of Friction
- Impact Resistance
- Weather Ability
- Economical Material



## Polyguard

### Reason for using Polystone 300

- High Visibility
- Customer Design
- Durable, Tough, Resilient
- Impact Resistant
- Corrosion and Rust Free
- Good Chemical Resistant



## Safeguard UVX / Safeguard Hard

Manufactured with UV protective coatings on both sides, Safeguard UVX offers excellent weathering properties, whilst maintaining high clarity and impact resistance. Safeguard HARD provides excellent scratch, chemical and graffiti resistant properties.

PRODUCT	THICKNESSES mm	SHEET SIZES	
		2440 x 1220	2440 x 1830
Safeguard PC	1.5, 2.0, 3.0, 4.5, 6, 9.5, 12	☑	☑
Safeguard UVX	3.0, 4.5, 6.0, 9.5	☑	☑
Safeguard Hard	3.0, 4.5, 6.0, 9.5	☑	☑

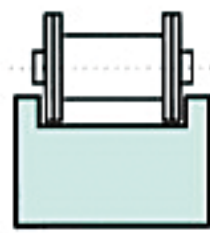
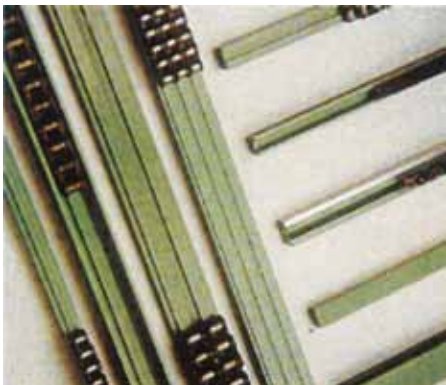
### Application

- Debarker Windows
- Machine Guards
- Sight Guards

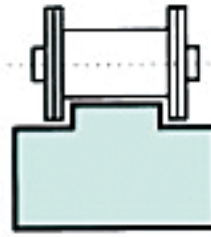


Polyslide Roller Chain Track Systems

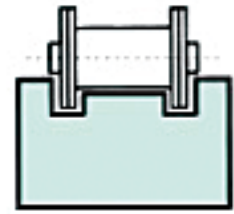
The Standard range “Guide for roller chains” comprises 15 different design types.



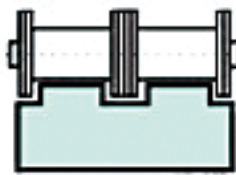
Type TU



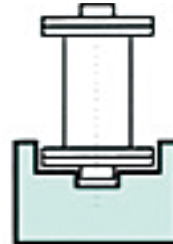
Type T



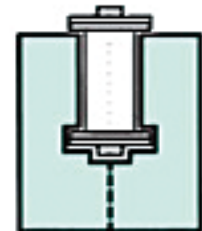
Type TS



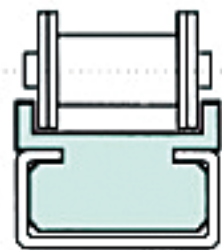
Type T-Duplex



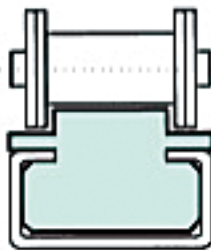
Type U



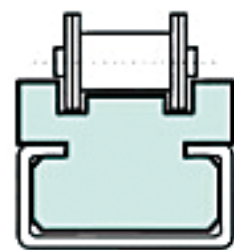
Type K



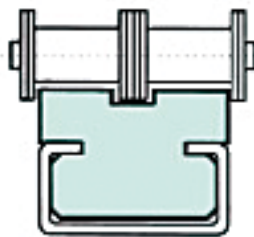
Type CTU



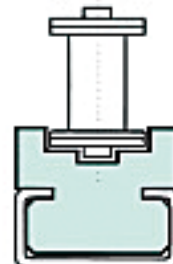
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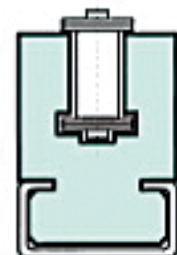
Type CTS



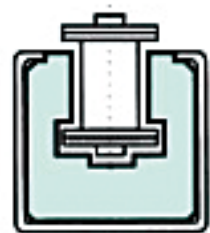
Type CT-Duplex



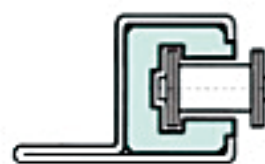
Type CU



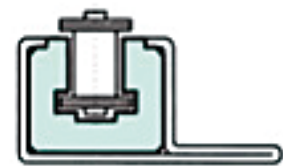
Type CK



Type CKG one-piece



Type CKG 14H one-piece



Type CKG 15V one-piece

**Polystone Ultra Chain Track System offer:**

- Good Slide Properties, therefore Lower Power Requirements
- High Wear and Abrasion Resistance, therefore extremely Long Life and Correspondingly Long Maintenance intervals
- No Lubrication, therefore No Contamination, No Disposal Problems, No Maintenance Costs
- Lower Noise Level
- Corrosion Resistance
- Resistance to Chemicals

## ENGINEERING FORMULA & HELPFUL TABLES

### Horsepower

Horsepower equals 33,000 foot pounds per minute, or 550 pounds per second, in terms of chain load and speed.

$$HP = \frac{\text{Working Load} \times \text{Ft. Per Min}}{33,000}$$

or

$$HP = \frac{\text{Working Load} \times T \times P \times \text{R.P.M.}}{396,000}$$

*T = number of sprocket teeth; P = chain pitch*

### Chain Working Load

When the horsepower input is known and the chain working load is desired, this can be calculated as follows:

$$\text{Working Load} = \frac{HP \times 33,000}{\text{Ft. Per Min.}} \quad \text{or} \quad \text{Working Load} = \frac{HP \times 396,000}{T \times P \times \text{R.P.M.}}$$

### Factor of Safety

Factor of Safety is determined as follows:

$$F.S. = \frac{\text{Chain Ultimate Strength}}{\text{Chain Working Load}}$$

### Chain Speed

Chain Speed can be determined from the following formula:

$$\text{Chain Speed} = \frac{T \times \text{R.P.M.}}{K}$$

*(Ft. Per Min.)*

*T = number of sprocket teeth*  
*K = pitches of chain per foot*

### Chain Lengths in Pitches (Approx.)

$$\text{Chain Length} = \frac{S}{2} + 2C = \frac{.0253D^2}{C}$$

*S = sum of teeth, both sprockets*  
*C = center of distance in pitches*  
*D = difference in number of teeth, both sprockets*

### Chain approx. working load

Divide =  $\frac{\text{Ultimate Strength in lbs.}}{6 \text{ (safety factor)}}$

*Example:*  $WR 132 = \frac{85,000\#}{6} = 14,167\#$

### Theoretical weights of steel

1)  $\frac{\text{cubic inches of steel}}{0.28334} = \text{Pounds}$

2)  $\frac{\text{cubic feet of steel}}{489.6} = \text{Pounds}$

### Approx. Weights of Wood in Lbs./Cu Ft.

Species	Green	Airdry
Alder, red	46	28
Ash, black	52	34
Ash, commercial white	48	41
Ash, Oregon	46	38
Aspen	43	26
Basswood	42	26
Beech	54	45
Birch	57	44
Birch, paper	50	38
Cedar, Alaska	36	31
Cedar, eastern red	37	33
Cedar, northern white	28	22
Cedar, southern white	26	23
Cedar, western red	27	23
Cherry, black	45	35
Chestnut	55	30
Cottonwood, eastern	49	28
Cottonwood, northern black	46	24
Cypress, southern	41	32
Douglas Fir, coast region	38	34
Douglas Fir, Rocky Mtn. Region	35	30
Elm, American	54	35
Elm, rock	53	44
Elm, Slippery	56	37
Fir, balsam	45	25
Fir, commercial white	46	27
Gum, black	45	35
Gum, red	50	34
Hemlock, eastern	50	28
Hemlock, western	41	29
Hickory, pecan	62	45
Hickory, true	63	51
Honeylocust	61	..
Larch, western	48	36
Locust, black	58	48
Maple, bigleaf	47	34
Maple, black	54	40
Maple, red	50	38
Maple, silver	45	44
Maple, sugar	56	44
Oak, red	..	44
Oak, white	63	47
Pine, lodgepole	39	29
Pine, northern white	36	25
Pine, Norway	42	34
Pine, Ponderosa	45	28
Pines, southern yellow:		
Pine, lobolly	53	36
Pine, longleaf	55	41
Pine, shortleaf	52	36
Pine, sugar	52	25
Pine, western white	35	27
Poplar, yellow	38	28
Redwood	50	28



## MACHINING

Our machining facilities are equipped with state of the art CAD-CAM and CNC systems, to convert our basic shapes into custom machined finished components.

## MACHINING OF ENGINEERING PLASTICS - GENERAL REMARK

In view of the poor thermal conductivity and the relatively low melting points of thermoplastics, one must make sure that the generated heat is kept to a minimum and heat-build up in the plastic part is avoided. This is in order to avoid colour changes or melting of the plastic surface.

Therefore:

- tools must be kept sharp and smooth at all times;
- tools must have sufficient clearance so that only the cutting edge contacts the material;
- coolants should be applied for operations where excessive heat is generated (e.g. drilling operations).

As engineering plastics are not as rigid as metals, it is essential to support the work adequately during machining to prevent deflection, e.g. thin walled bushings often require an internal plug for accurate machining of the outside diameter.

## CUTTING TOOLS

Similar to metal work, carbon steel, high speed steel and TCT tools can be used. However high speed steel and carbide tipped tools are preferred for long production runs on graphite and glass fibre filled thermoplastics.

## COOLANTS

Only required for machining operations where a lot of heat is generated. Cooling liquids, preferably of the soluble oil type do perfectly. Compressed air can also be used.

## MACHINING TOLERANCES

The machining tolerance for thermoplastics are considerably larger than those normally applied to metal parts. This is because of the increased coefficient of thermal expansion, plus swelling due to moisture absorption and possible deformations caused by internal stress relieving during machining. The latter phenomenon mainly occurs on parts where machining has caused heavy section-changes (e.g. on a bushing machined out of a large round rod). In these cases thermal treatment (stress relieving) after premachining of the part is necessary (oversize of min.3%). As a rule of thumb, for turned or milled parts, a machining tolerance of 0.1 to 0.2% of the nominal size can be allowed without taking special precautions (min. tolerance for small dimensions being 0.05mm). Speed and feed charts are available. Refer to Dotmar for more information on machining tolerances.

The suggestions and data presented here are based on information we believe to be accurate and reliable. They are given in good faith, but without guarantee, as the condition and methods of use of our product are beyond our control. Each user should make his own tests to determine the suitability of our materials and suggestions before adopting them on a commercial scale. This publication is not to be taken as a license to operate under, or recommendation to infringe upon, any patents.



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For guidance only, under load.  Indicated figures reveal the highest number has the "best" property.	Elongation	Compressive Strength	Impact Resistance	Wear Resistance	Dimensional Stability	Dielectric Strength	Co-efficient of Friction *	Machinability	Moisture Content	Chemical Resistance	Min. Cont. - Working	Max. Temperature °C
Polystone 300	19	9	18	8	5	10	9	20	19	13	-50	80
Polystone 500	20	12	20	10	5	10	12	19	19	13	-100	80
Polystone7000	18	10	20	17	5	10	18	19	19	13	-269	80
Polystone Ultra	18	11	20	19	6	10	15	19	19	13	-269	80
Polystone 7000SR	14	11	19	18	6	9	15	19	19	13	-200	80
P8000+/E78	14	10	18	19	5	10	15	19	19	13	-269	90
Matrox	16	11	20	20	6	10	19	19	19	13	-269	80
Ertacetal (H)	2	19	7	9	10	6	9	17	14	8	-50	105
Ertacetal (C)	2	18	8	7	9	6	9	17	15	9	-50	115
Ertalyte	1	20	4	8	14	5	15	18	16	9	-20	115
Ertalyte TX	1	19	4	15	13	6	18	18	17	9	-20	115
Ertalon 6SA	3	12	14	7	5	6	10	15	4	6	-40	85
Ertalon 66SA	2	16	12	11	7	4	10	16	5	7	-30	95
Ertalon 6PLA	2	14	12	11	7	6	10	16	5	7	-30	105
Ertalon 6XAU	2	15	10	12	7	8	10	16	5	7	-30	120
Ertalon LFX	4	12	8	14	7	3	15	16	5	7	-20	105
Nylatron GS	2	16	7	11	6	5	11	16	5	7	-20	100
Nylatron GSM	2	16	7	11	6	4	14	16	5	7	-30	105
Nylatron MC901	2	15	12	12	7	5	10	16	5	7	-40	105
Ertalon 4.6	2	14	8	10	12	6	11	16	6	7	-40	155
PEI 1000	3	16	9	7	20	7	14	15	15	7	-60	200
PSU 1000	3	15	6	7	14	8	14	15	15	7	-60	170
Ketron PEEK 1000	2	17	10	11	16	6	16	16	17	17	-60	250
Ketron PEEK HPV	1	18	9	15	19	1	17	15	18	17	-30	250
PVDF 1000	16	13	15	8	6	4	16	17	19	15	-40	150
Ertalon 66GF30	1	18	11	12	14	9	10	12	5	7	-20	95
Techtron HPV PPS	3	16	12	17	16	5	16	15	15	7	-20	220
Vespel	2	16	9	11	16	5	16	16	16	17	-273	255
Celazole	2	20	10	10	20	6	16	16	13	9	-	310
Torlon 4203	2	16	10	7	16	6	15	17	5	9	-200	250
Tetron S	14	1	16	2	8	20	20	20	20	20	-200	260
Tetron G	12	2	10	3	15	20	19	15	19	20	-200	260
Tetron B	8	3	6	4	7	2	19	7	19	12	-200	260
Tetron GR	6	4	7	5	10	3	18	12	19	18	-200	260
Tetron C	5	4	8	5	12	1	19	11	19	18	-200	260
Polystone P(H)	18	13	19	8	5	10	9	10	18	13	-20	100
Polystone P(C)	19	12	20	9	4	10	8	10	18	13	-20	60
Safeguard	3	16	15	3	6	15	-	8	4	2	-60	135
Trovidur PVC	3	15	10	4	9	12	-	12	19	12	-10	60

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Disclaimer: Information and Dimensions are subject to change without notice.