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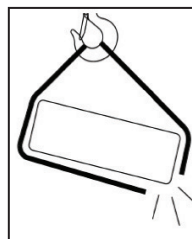
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## CUT AND WEAR PROTECTION

### Selection of Sling Protection Products

Sling protection products need to be used in applications where sling damage may occur. Cutting of synthetic slings during use is the number one cause of sling accidents. A variety of factors influence sling protection performance. Since no material is fully cut proof, a qualified person must select materials and methods that adequately protect slings from edges or surfaces. *Lift-All* can assist customers with their product selections.



### WARNING

Exposure of sling to edges with a radius that is too small can cause sling failure and loss of the load. Always protect synthetic slings from being cut or damaged by corners, edges, and protrusions using protection sufficient for each application.

### Cut Protection versus Wear Protection

*Lift-All* sling protection products are divided into two categories, Cut Protection and Wear Protection. **Cut Protection Products** are designed to improve workplace safety. When placed between slings and edges, cut protection products act as a buffer to prevent sling cutting and to reduce bearing pressure levels at contact areas. **Wear protection products** serve to extend sling life by reducing abrasive wear and prevent marring of the load surfaces. The following table provides comparative sling protection performance for standard *Lift-All* products.

Product	Thickness	Color	Relative Cut Protection Performance Rating
<b>CUT PROTECTION</b>			
<b>Edge Defender™</b> 3-Ply Polyester Flat Quick Sleeve Code: ED	0.45	Yellow	<div></div>
<b>Edge Defender Flex Plus</b> Flat Quick Sleeve w/Dyneema® Code: FQSD	0.35	White/Yellow	<div></div>
<b>Edge Defender Flex Plus</b> Tubular Quick Sleeve w/Dyneema Code: TQSD	0.24	White/Yellow	<div></div>
<b>Sling Shield™</b> Code: SS	1" Radius	Silver/Red	<div></div>
<b>COMMON WEAR PROTECTION MATERIALS - LOOSE PADDING</b>			
<b>Polyester Webbing</b> 1600 <i>Webmaster</i> ® Pads	0.14	Yellow	<div></div>
<b>Dyneema Sleeveing</b> (Light Duty Single Wall)	0.054	White	<div></div>
<b>Pukka (Synthetic Felt) Pads</b>	0.33	White	<div></div>
<b>Leather (Heavy) Pads</b>	0.13	Tan	<div></div>
<b>PVC Pads</b>	0.17	Black	<div></div>
<b>SEWN-ON TYPE PADS</b>			
<b>Polyester Webbing</b> 1600 <i>Webmaster</i> Pads	0.14	Yellow	<div></div>
<b>Dyneema Sleeveing</b> (Light Duty Single Wall)	<b>Not Recommended as a Sewn Sleeve</b>		
<b>Pukka (Synthetic Felt) Pads</b>	0.33	White	<div></div>
<b>Leather (Heavy) Pads</b>	0.13	Tan	<div></div>
<b>PVC Pads</b>	0.17	Black	<div></div>

**Performance Rating:** The bar graphs shown above reflect the comparative performance of *Lift-All* Cut Protection products against commonly used loose and sewn-on types of Wear Protection products.

**Test Lift Qualification:** To validate the suitability of sling protection products for each application, always complete one or more test lifts in a non-consequence manner. Technical Bulletin MS-10 available for additional information.

## **EDGE DEFENDER™** Flat Type Cut Protection Pads (Code: ED)

US Patent 9,597,996  
Canadian Patent 2,900,438

The *Edge Defender* product line is patented technology. Constructed with multiple layers of protection material with Kevlar® aramid binding, the *Edge Defender* has become the new standard in edge cut protection technology for guarding synthetic slings. Protect your loads and your slings now by using the *Lift-All Edge Defender!*



- **Cut Protection:** The patented technology creates a high level of compression on the surface to produce a superior level of cut protection.
- **Conforms to the Shape of Load Edges:** The flat design will conform to the load shape during handling operations, yet the construction is firm enough to prevent wrinkling.
- **Construction Materials:** *Edge Defender* is made of polyester with Kevlar aramid binding.
- **Ease of Attachment:** The use of hook and loop straps allow quick attachment and helps to hold position on slings.
- **Ease of Sling Inspection:** The open design allows easy access to slings during frequent inspections.
- **Available Sizes:** Available in a variety of lengths and widths.



Maximum Pad Widths and Standard Sling Sizes				Standard <i>Edge Defender</i> *				
Pad Width** (in.)	Web Sling Width (in.)	Tuflex® Size	<sup>1</sup> KeyFlex™ <sup>1</sup> DynaFlex™ Size	12-inch	18-inch	24-inch	30-inch	36-inch
3	2	EN30	-	ED3X12IN	ED3X18IN	ED3X24IN	ED3X30IN	ED3X36IN
4	3	EN60	-	ED4X12IN	ED4X18IN	ED4X24IN	ED4X30IN	ED4X36IN
6	4	EN150	KEN20K	ED6X12IN	ED6X18IN	ED6X24IN	ED6X30IN	ED6X36IN
8	6	EN240	DEN50K	ED8X12IN	ED8X18IN	ED8X24IN	ED8X30IN	ED8X36IN
10	8	EN600	KEN90K	ED10X12IN	ED10X18IN	ED10X24IN	ED10X30IN	ED10X36IN
12	10	EN1000	DEN125K	ED12X12IN	ED12X18IN	ED12X24IN	ED12X30IN	ED12X36IN

<sup>1</sup>Double-Leg EN, KEN, or DEN

\*Kevlar® is a registered trademark of E.I. du Pont de Nemours and Company

\*\*Maximum recommended size is shown.

## Edge Defender™ Flex Plus Flat Style Cut Protection (Code: FQSD)

US Patent 9,597,996  
Canadian Patent 2,900,438

Our new *Edge Defender Flex Plus* made of *Dyneema®* fiber is woven to provide cut protection for a variety of edges and surfaces. The 'Flex Plus' is the addition of a double-ply layer of *Dyneema* with *Kevlar®* aramid binding. These pads are thinner, lighter, and more flexible than the standard *Lift-All Edge Defender*, yet maintain the same level of cut protection performance. The *Edge Defender Flex Plus* is well suited for handling loads with a straight, curved or non-uniform shaped edge, including coil handling applications.



### Features and Benefits

**Lighter and More Flexible:** The patented *Edge Defender Flex Plus* technology creates a high level of compression on the interior surface to produce a superior level of cut protection. With the use of high modulus *Dyneema* material, this lighter 'Flex Plus' version of the flat *Edge Defender* is almost twice as flexible and maintains the same high level cut protection performance.

**Ease of Attachment:** Hook and loop straps allow quick attachment and helps to keep position on slings.

**Ease of Inspection:** The open design allows easy access to slings during their frequent inspections.

**Available Sizes:** Available in a variety of lengths and widths.

Maximum Pad Widths and Standard Sling Sizes				<i>Edge Defender Flex Plus</i> Flat Quick Sleeves*				
Pad Width** (in.)	Web Sling Width (in.)	Tuflex®	<sup>1</sup> KeyFlex™ <sup>1</sup> DynaFlex™	1-FT	18-INCH	2-FT	30-INCH	3-FT
3	2	EN30	-	3FQSDX1	3FQSDX18IN	3FQSDX2	3FQSDX30IN	3FQSDX3
6	4	EN150	KEN20K	6FQSDX1	6FQSDX18IN	6FQSDX2	6FQSDX30IN	6FQSDX3
9	6	EN240	KEN50K	9FQSDX1	9FQSDX18IN	9FQSDX2	9FQSDX30IN	9FQSDX3
10	8	EN600	KEN80K	10FQSDX1	10FQSDX18IN	10FQSDX2	10FQSDX30IN	10FQSDX3
12	10	EN1000	KEN120K	12FQSDX1	12FQSDX18IN	12FQSDX2	12FQSDX30IN	12FQSDX3

<sup>1</sup>Double-Leg EN, KEN, or DEN

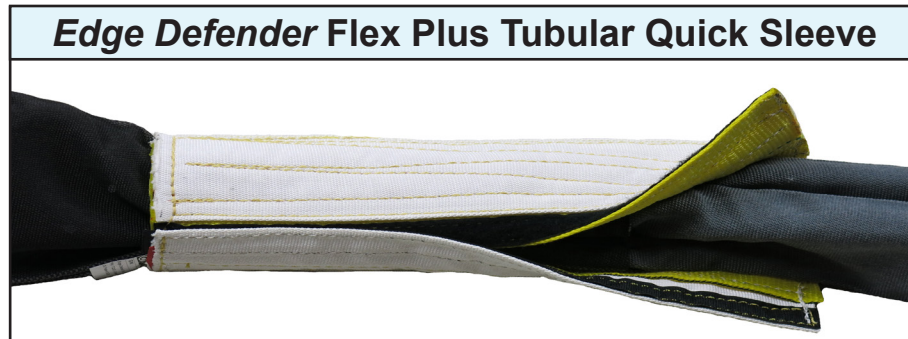
\*Kevlar® is a registered trademark of E.I. du Pont de Nemours and Company

\*\*Maximum recommended size is shown.

## Edge Defender™ Flex Plus Tubular Style Cut Protection (Code: TQSD)

US Patent 9,597,996  
Canadian Patent 2,900,438

Our new *Edge Defender Flex Plus* made of *Dyneema*® fiber is woven to provide cut protection for a variety of edges and surfaces. The 'Flex Plus' is the addition of a double-ply layer of *Dyneema* with *Kevlar*® aramid binding. These pads are thinner, lighter, and more flexible than the standard *Lift-All Edge Defender*, yet maintain the same level of cut protection performance. The *Edge Defender Flex Plus* is well suited for handling loads with a straight, curved or non-uniform shaped edge, including coil handling applications.



### Features and Benefits

**Lighter and More Flexible:** The patented *Edge Defender Flex Plus* technology creates a high level of compression on the interior surface to produce a superior level of cut protection. With the use of high modulus *Dyneema* material, this lighter Flex Plus version provides a wraparound style pad in a flexible design, while maintaining a high level of cut protection performance.

**360° of Protection:** The *Edge Defender Flex Plus* tubular style pad is well-suited for use with roundslings and affords uniform cut protection around the exterior of the sling body.

**Ease of Attachment and Removal:** Hook and loop fastening allows quick attachment and easy access for sling inspections.

**Pad Positioning:** When sized properly, this tubular pad will offer protection in the desired location on slings.

**Available Sizes:** Available in a variety of lengths and widths.

Standard Pad Widths and Maximum Sling Sizes						Edge Defender Flex Plus Tubular Quick Sleeves*				
Pad Width** (in.)	Web Sling Width (in.)	Tuflex®		KeyFlex™ DynaFlex™		1-FT	18-INCH	2-FT	30-INCH	3-FT
		Single Leg EN	Double Leg EN	Single Leg KEN/DEN	Double Leg KEN/DEN					
4.5	1	-	-	-	-	4TQSDLX1	4TQSDLX18IN	4TQSDLX2	4TQSDLX30IN	4TQSDLX3
7	2	60	-	-	-	7TQSDX1	7TQSDX18IN	7TQSDX2	7TQSDX30IN	7TQSDX3
8	-	150	60	30K	-	8TQSDX1	8TQSDX18IN	8TQSDX2	8TQSDX30IN	8TQSDX3
10	-	240	120	50K	20K	10TQSDX1	10TQSDX18IN	10TQSDX2	10TQSDX30IN	10TQSDX3
13	4	360	180	80K	30K	13TQSDX1	13TQSDX18IN	13TQSDX2	13TQSDX30IN	13TQSDX3
16	-	1000	360	175K	80K	16TQSDX1	16TQSDX18IN	16TQSDX2	16TQSDX30IN	16TQSDX3
20	8	-	800	200K	125K	20TQSDX1	20TQSDX18IN	20TQSDX2	20TQSDX30IN	20TQSDX3
23	-	-	1000	-	175K	23TQSDX1	23TQSDX18IN	23TQSDX2	23TQSDX30IN	23TQSDX3
26	10	-	-	-	200K	26TQSDX1	26TQSDX18IN	26TQSDX2	26TQSDX30IN	26TQSDX3

\*Kevlar® is a registered trademark of E.I. du Pont de Nemours and Company

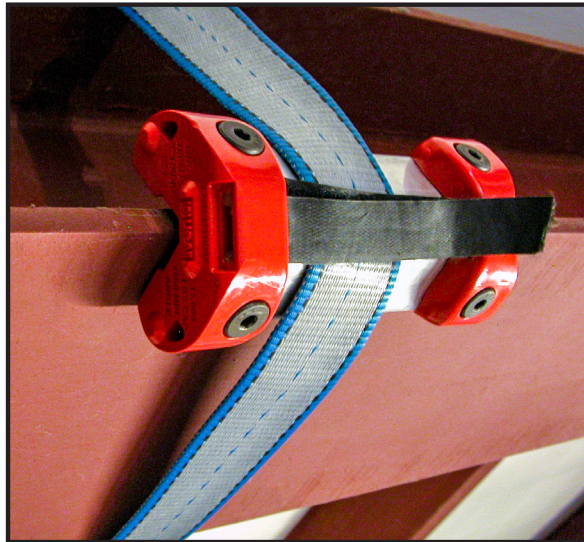
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## SLING SHIELD™

US Patent 9,039,337  
Canadian Patent 2,846,325

*Sling Shields* are constructed with a low-weight, high-strength aluminum center bar and offer the highest level of cut protection of our standard products. They provide a 1" bend radius to protect your slings from even the sharpest load edges and sustain sling tensions of up to 25,000 pounds per inch of sling contact width. *Velcro*® strips hold sling in place and a magnetic surface retains position on the steel load. *Sling Shields* are well suited for loads having a straight contact edge, such as I-Beams. Stop replacing your synthetic slings and wear pads due to cutting; use *Lift-All Sling Shields*.



### Features and Benefits

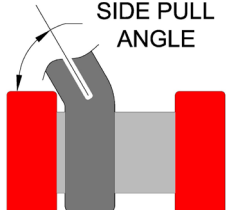
- **Magnetic:** Holds position against steel loads for ease of rigging.
- **Cut Protection:** *Sling Shields* provide a very high level of cut protection, supporting sling tensions of up to 25,000 pounds per inch of contact width.
- **1" Bend Radius:** The design provides a bend radius to reduce bearing pressures for synthetic slings.
- **Construction Materials:** *Sling Shields* are made of high strength extruded aluminum bars.
- **Ease of Attachment:** The use of hook and loop straps allow quick attachment.
- **Sling Position:** Polycarbonate end retainers keep slings positioned on the *Sling Shield*.
- **Ease of Sling Inspection:** The open design allows easy access to slings during their frequent inspections.

Part Number	Inside Width (in.)	Overall Length (in.)	Weight (lbs.)	Widest Web Sling (in.)	Largest Tuflex® Size		Largest KeyFlex™ Size	
					Single Leg	Double Leg	Single Leg	Double Leg
SS12	2.50	4.50	2.2	2	EN180	EN90	KEN30K	KEN10K
SS14	4.50	7.50	2.7	4	EN360	EN120	KEN80K	KEN15K
SS16	6.75	10.00	3.2	6	EN1000	EN240	KEN100K	KEN40K
SS112	12.75	16.00	4.8	12	EN1000	EN1000	KEN100K	KEN100K
SS118	18.75	22.00	6.4	18	EN1000	EN1000	KEN200K	KEN150K

### LOAD RATINGS

The load rating for a *Sling Shield* is 25,000 lbs. of sling tension per inch of sling width. This rating is reduced when lifting at sling angles of less than 70°.

- Do not exceed listed sling tensions.
- Prevent *Sling Shield* from sliding when using at an angle.
- Do not use at side pull angles less than 45°.
- See Safety Bulletin for more detailed information (included with each product at time of purchase).

	Side Pull Angle	Basket Choker Rating (lbs.)*
	65°	17,500
	60°	15,000
	55°	13,000
	50°	11,000
	45°	8,000

\* Ultimate rating regardless of width.  
**Note:** Lifting in a vertical hitch reduces the ratings by half.

## WEAR PADS

### The Importance of Wear Protection

Wear Protection products like wear pads extend the life of slings by reducing exposure to abrasion and other similar forms of damage. Wear pads also help protect load surfaces from damage along points of contact, particularly when used with steel slings. **Always inspect slings by following the safety bulletin provided with each sling.**

### Features and Benefits

**Sling and Load Damage Protection:** Wear Protection can help to protect both the sling and the load from wear damage.

**Construction Materials:** A variety of padding materials are available to best suit the needs of each application.

**Ease of Attachment:** Some styles use hook and loop fastening to allow quick attachment and to help keep the position on the sling.

**Ease of Sling Inspection:** Length selection and other pad options are available that allow easy access to slings for frequent inspections.

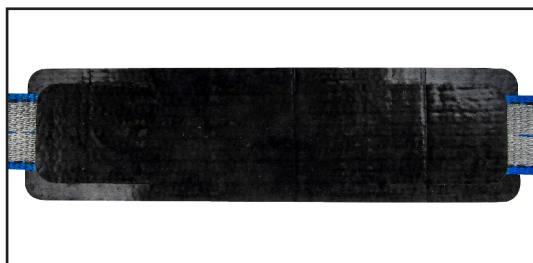
**Available Sizes:** Available in a variety of lengths and widths.



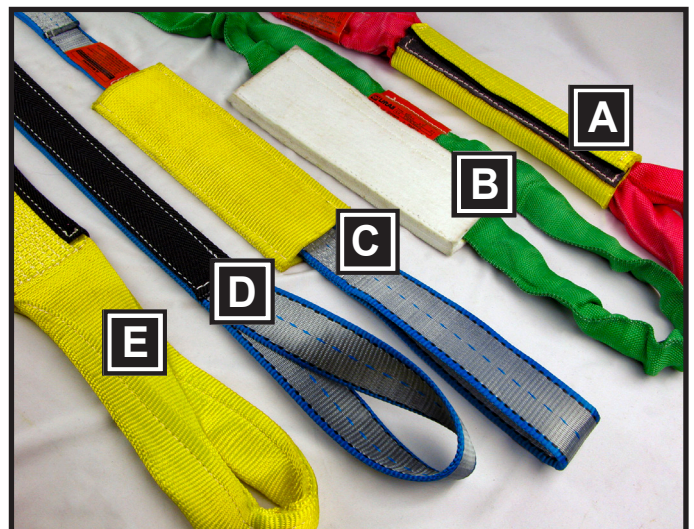
Full Body Wrap



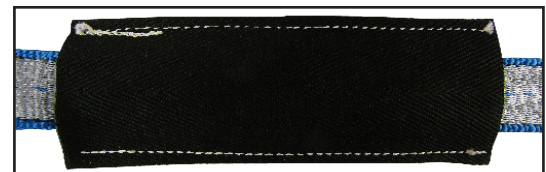
Flat Quick Sleeve



PVC Pad



- A: Tubular Quick Sleeve - Webmaster® 1600
- B: Flat Quick Sleeve - Pukka Pad Material
- C: Flat Sewn Sleeve - Webmaster® 1600
- D: Sewn-On Wear Pad - Texturized Buffer
- E: Edge Guard - Texturized Buffer



Flat Sewn Sleeve



Tubular Quick Sleeve



## WEAR PAD STYLES

### SLEEVE TYPE

Preferred for slings that are used in a variety of lifting situations. Easily repositioned along sling body to accommodate loads of various sizes. Sleeve allows sling to adjust to lift without movement against load edge.

<b>Tubular Quick Sleeve</b>	Use with: <i>Tuflex</i> ® Roundslings Chain & Wire Rope Available Materials: All (except PVC)	High strength hook & loop sleeve for secure positioning. Tubular design gives maximum usable surface and maximum pad life.
<b>Flat Quick Sleeve</b>	Use with: All Slings Available Materials: All (except PVC)	Hook & loop sleeve allow easy installation and removal. Friction keeps sleeve in place when rigging.
<b>Flat Sewn Sleeve</b>	Use with: All Slings Available materials: All (except PVC)	Preferred for long-term use on single sling. May be repositioned as needed along sling length. May require factory installation for slings with hardware and single leg <i>Tuflex</i> .
<b>Poly Pads</b>	Use with: Web Slings Available Materials: PVC	Slides easily along sling length for convenient sling protection. Must be installed at factory for web slings with hardware.

### SEWN-ON TYPE

For use on web slings where repetitive lifting situations expose the sling to damage. Eliminates the need to position pad before each lift.

<b>Sewn-On Wear Pad</b>	Use with: Web slings only Available Materials: All except ballistic nylon	For sling protection at expected wear points. Can be sewn anywhere on the sling, be any length and be on one or both sides.
<b>Edge Guard</b>	Use with: Web slings only Available Materials: Texturized nylon Light leather	Helps protect both edges of the sling. Placement on the sling per customer requirement.

## WEAR PAD MATERIALS



**Pukka-Pads (P) 0.3125" Thick**

A high-density polyester felt.



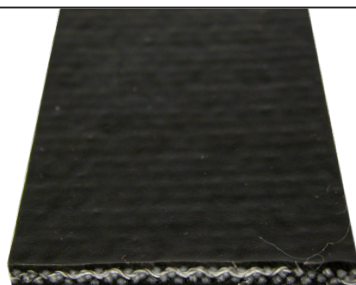
**Webmaster® 1600 (D/N) 0.1875" Thick**

Polyester or Nylon



**Heavy Leather (HL) 0.15625" Thick**

Genuine top-grain cowhide. May require multiple pieces.



**PVC Belting (PVC) 0.125" Thick**

Non-absorbent conveyor type belting.



**Texturized Buffer (TN) 0.09375" Thick**

A bulked fiber is used to produce a thin webbing with good abrasion resistance.



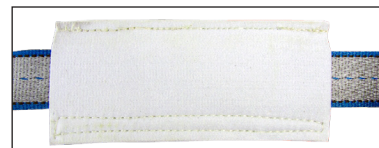
**Ballistic Nylon (BN) 0.0625" Thick**

A 2-ply wear resistant fabric made of bulked nylon fiber, appropriate for wider sleeves.



## WEAR PROTECTION

### FLAT QUICK SLEEVES

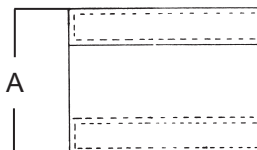


Flat Quick Sleeve Widths & Appropriate Sling Sizes										
Part Number	Sleeve Width <sup>1</sup> (in.)	Web Sling Width <sup>2</sup> (in.)	Tuflex®				Keyflex™		Wire Rope Sling Dia. (in.)	Chain Sling Size (in.)
			Single Leg EN	Double Leg EE	6-Part Braid B6E	8-Part Braid B8E	Single Leg EN	Double Leg EE		
3FQS	3	1	–	–	–	–	10K	–	1/4 – 7/16	–
4FQS	4	2	30 – 60	30	–	–	15K – 20K	–	1/2 – 3/4	7/32 – 9/32
5FQS	5	3	90 – 150	60	–	–	25K – 30K	10K	7/8 – 1-1/8	3/8
6FQS	6	4	180 – 240	90 – 120	30	–	40K – 80K	15K – 20K	1-1/4 – 1-1/2	1/2
8FQS	8	6	360	150 – 240	60	30	90K – 125K	25K – 30K	1-3/4 – 2-1/4	5/8
10FQS	10	8	600 – 800	360	90 – 120	60 – 90	150K – 175K	40K – 80K	2-1/2	3/4 – 7/8
12FQS	12	10	1000	600	150 – 180	120 – 150	200K	90K – 125K	–	1

<sup>1</sup> Width of sleeve depends on the material being used. This chart is based on using Pukka Pad material.

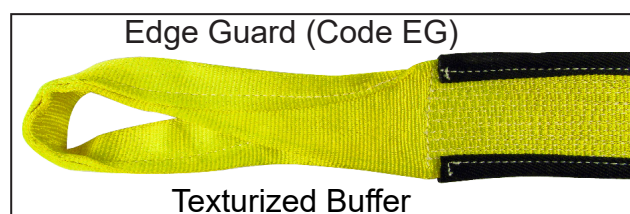
<sup>2</sup> 1-ply or 2-ply only. For 3-ply or 4-ply, go to the next larger sleeve.

### TUBULAR QUICK SLEEVES



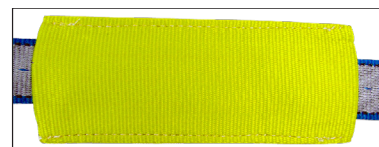
Tubular Quick Sleeve Widths & Appropriate Sling Sizes									
Part Number	Open Sleeve Width <sup>1</sup> (A) (in.)	Tuflex				Keyflex		Wire Rope Sling Dia. (in.)	Chain Sling Size (in.)
		Single Leg EN	Double Leg EE	6-Part Braid B6E	8-Part Braid B8E	Single Leg EN	Double Leg EE		
4TQS	4	–	–	–	–	–	–	1/4	–
5TQS	5	–	–	–	–	–	–	5/16 – 1/2	–
6TQS	6	30 – 60	–	–	–	10K	–	9/16 – 7/8	7/32
8TQS	8	90 – 150	30 – 60	–	–	15K – 30K	–	1 – 1-1/2	9/32 – 3/8
10TQS	10	180 – 240	90 – 120	30 – 60	30	40K – 50K	10K – 15K	1-3/4 – 2	1/2 – 5/8
12TQS	12	360	150 – 180	90	60	60K – 80K	20K – 30K	2-1/2	3/4
14TQS	14	600 – 800	240	–	90	90K – 125K	40K – 50K	–	7/8 – 1
16TQS	16	1000	360	120 – 150	120	150K – 175K	60K – 80K	–	1-1/4
18TQS	18	–	600	180 – 240	150 – 180	200K	90K – 100K	–	–
20TQS	20	–	800	–	–	–	125K	–	–
22TQS	22	–	1000	360	240	–	150K – 175K	–	–
24TQS	24	–	–	–	–	–	200K	–	–
26TQS	26	–	–	600	360	–	–	–	–
30TQS	30	–	–	800	600	–	–	–	–
34TQS	34	–	–	1000	800	–	–	–	–

<sup>1</sup> Tubular Pukka Pads not available under 10" open sleeve width.



## WEAR PROTECTION

### STANDARD SEWN SLEEVES



#### Sewn Sleeve Widths & Appropriate Sling Sizes

Part Number	Sleeve Width <sup>1</sup> (in.)	Web Sling Width <sup>2</sup> (in.)	Tuflex®				Keyflex™ / DynaFlex™		Wire Rope Sling Dia (in.)	Chain Sling Size (in.)
			Single Leg EN	Double Leg EE	6-Part Braid B6E	8-Part Braid B8E	Single Leg	Double Leg		
3SS	3	1	30 – 60	–	–	–	–	–	1/4 – 3/4	7/32
4SS	4	2	90 – 150	30 – 60	–	–	10 – 15K	–	7/8 – 1-1/8	9/32 – 3/8
5SS	5	3	180 – 240	90 – 120	30	–	20 – 30K	–	1-1/4 – 1-1/2	1/2
6SS	6	4	360	150 – 180	60	30	40 – 80K	10 – 15K	1-3/4	5/8
8SS	8	6	600 – 800	240 – 360	90 – 120	60	90 – 100K	20 – 40K	2 – 2-1/2	3/4 – 7/8
10SS	10	8	1000	600	150 – 180	90 – 150	125 – 175K	50 – 80K	–	1
12SS	12	10	–	800 – 1000	240	180	200K	90 – 125K	–	1-1/4

<sup>1</sup> Width of sleeve depends on the material being used. This chart is based on using Pukka Pad material.

<sup>2</sup> Chart is for 1-ply or 2-ply slings. For 3-ply or 4-ply slings, use the next larger sleeve.

### POLY PADS

Easily movable poly pads are made of tough, woven polyester fabric impregnated and coated with PVC. Easy to position on both web slings and tiedowns. Poly pads are designed to give protection when lifting around load edges or abrasive loads.

Part Number	Poly Pad	Web Width (in.)
60115	3-1/2 X 12	1 – 2
60116	6 X 12	3 – 4



### How To Order

#### 1. Choose code for width and style

- TQS Tubular Quick Sleeve
- FQS Flat Quick Sleeve
- SS Flat Sewn Sleeve
- WP Sewn-On Wear Pad
- EG Edge Guard
- Poly Pad (Use Part No. above)

#### 2. Choose a Material

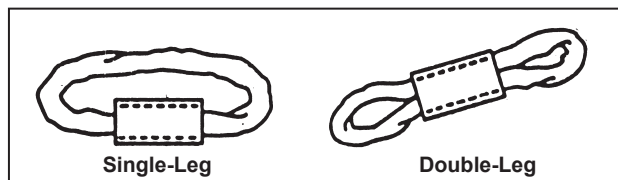
- P 5/16" Heavy Duty Pukka-Pad
- N Webmaster® 1600 Nylon
- HL Heavy Leather
- TN Texturized Buffer
- BN Ballistic Nylon (Tubular only)
- PVC (Sewn-on Wear Pads only)

#### 3. Length of Sleeve

(If sewn-on pad, describe position on sling)  
         Feet

#### 4. For Use On

- Web Sling (Code or Width)
- Tuflex          Single-Leg (Code)
- Double-Leg (Code)



- Chain Sling Size          inches
- Wire Rope Sling Dia.          inches

#### **WARNING**

Wear pads may not prevent cutting or other sling damage. To avoid severe personal injury or death, keep all personnel clear of loads about to be lifted, and suspended loads.