

## **CARGO SECUREMENT SAFETY INFORMATION RECOMMENDED OPERATING PRACTICES FOR TIE-DOWNS**

- ♦ Select a synthetic web tie-down having suitable characteristics for the type of load, environment and attachment to vehicle anchor point. Fittings shall have the required shape and size to attach properly to the vehicle anchor points.
- ♦ Identify the working load limit (WLL) marked on the synthetic web tie-down by the manufacturer. If the required markings are illegible or missing, remove from service. Read all warnings and/or instructions provided by the manufacturer.
- ♦ Identify the working load limit (WLL) of the vehicle anchor points. If no rating is visible contact the vehicle manufacturer for tie-down instructions. The lesser-rated working load limit (WLL), whether that is the anchor point or the synthetic web tie-down, shall determine the working load limit (WLL) of the securement system.
- ♦ Synthetic web tie-downs shall be attached to the vehicle and positioned in accordance with applicable regulations for the commodity being transported to prevent against shifting and/or loss of cargo.
- ♦ Synthetic web tie-downs should not be dropped or dragged on the floor, ground or any abrasive surface.
- ♦ Synthetic web tie-downs shall not be shortened, joined, repaired or lengthened by being tied into knots.
- ♦ Synthetic web tie-downs should not be pulled from under cargo when the cargo is resting on the tie-down.
- ♦ Synthetic web tie-downs shall always be protected from corners, edges, protrusions, and abrasive surfaces with edge protection that resists abrasion, cutting or crushing.
- ♦ Synthetic web tie-downs designed to secure cargo shall not be used for lifting, lowering or suspending cargo or for towing.
- ♦ Before operating any synthetic web tie-down assembly the user shall secure his footing to prevent slipping or falling. In adverse weather conditions, including freezing temperatures, additional weather conditions, including freezing temperatures, additional caution should be exercised.
- ♦ When using winch or ratchet straps a minimum of two (2) and a maximum of four (4) wraps of webbing shall be on the winch or ratchet mandrel. Excessive wraps of webbing on the mandrel may reduce the working load limit (WLL) of the synthetic web tie-down and may interfere with proper operation.
- ♦ Synthetic web tie-downs shall be used, inspected and adjusted during the transportation of cargo per applicable federal, state, provincial, local and industry regulations.

### **ADDITIONAL TIEDOWNS REQUIRED**

Additional tie-downs may be required based on the specific vehicle, cargo, tie-downs, and securement configuration involved. The individual securing the load ultimately takes responsibility for proper cargo securement.

If the cargo is prevented from moving forward by a headerboard, bulkhead, other secured cargo, or other appropriate blocking devices, then you must use at least one tie-down for every 10 feet of cargo or part thereof.

If forward movement is NOT prevented, then you must use at least the following number of tie-downs, based on 49 CFR §393.110(b);

<b>IF THE ARTICLE IS</b>	<b>USE AT LEAST</b>
5 Feet or Shorter and 1,100 Pounds or Lighter	1 Tiedown
5 Feet or Shorter and Over 1,100 Pounds	2 Tiedowns
Longer than 5 Feet but less than or equal to 10 Feet No Matter the Weight	2 Tiedowns
Longer than 10 Feet	2 Tiedowns, plus 1 additional for every additional 10 feet or part thereof

## CARGO SECUREMENT REMOVAL CRITERIA

The entire tie down must be inspected before each use and it shall be removed from service if ANY of the following are detected:

- If tie down identification tag is missing or not readable.
- Holes, tears, cuts, snags or embedded materials.
- Broken or worn stitches in the load bearing splices.
- Knots in any part of the webbing.
- Acid or alkali burns.
- Melting, charring or weld spatters on any part of the webbing.
- Excessive abrasive wear or crushed webbing.
- Signs of ultraviolet (UV) light degradation.
- Distortion, excessive pitting, corrosion or other damage to buckles or end fitting(s).
- Any conditions which cause doubt as to the strength of the tie down.

**SNAGS**



**MELTING OR CHARRING**



**KNOTS**



**CUTTING**



## 1 & 2 INCH RATCHET STRAPS

Ratchet Straps are easy to use and quickly tighten to the contour of the load. Our ratchet straps are fabricated with high strength polyester webbing that has been treated for abrasion resistance. All ratchet straps are labeled to meet CVSA guidelines, CHP standards, DOT regulations and WSTDA recommended standards.



**1 Inch Ratchet Straps**

Part Number	Strap Length	Buckle Style	End Fittings	Working Load Limit (lbs.)
R2706SH	6'	Ratchet	Coated S-Hook	800
R2715SH	15'	Ratchet	Coated S-Hook	800
R2706WH	6'	Ratchet	Coated Wire Hook	800
R2715WH	15'	Ratchet	Coated Wire Hook	800
CB506SH	6'	Cam	Coated S-Hook	500
CB515SH	15'	Cam	Coated S-Hook	500
CB506WH	6'	Cam	Coated Wire Hook	500
CB515WH	15'	Cam	Coated Wire Hook	500

**2 Inch Ratchet Straps**

Part Number	Strap Length	Buckle Style	End Fittings	Working Load Limit (lbs.)
R5027FH	27'	Long Wide Ratchet	Flat Hook	3,335
R5030FH	30'	Long Wide Ratchet	Flat Hook	3,335
R5027WH	27'	Long Wide Ratchet	Wire Hook	3,335
R5030WH	30'	Long Wide Ratchet	Wire Hook	3,335
R5027CE	27'	Long Wide Ratchet	18" Chain Extension	3,335
R5030CE	30'	Long Wide Ratchet	18" Chain Extension	3,335
R5027FSH	27'	Long Wide Ratchet	Flat Snap Hook	3,335
R5030FSH	30'	Long Wide Ratchet	Flat Snap Hook	3,335
R5027TSH	27'	Long Wide Ratchet	Twisted Snap Hook	3,335
R5030TSH	30'	Long Wide Ratchet	Twisted Snap Hook	3,335
R5027DR	27'	Long Wide Ratchet	Stamped D-Ring	3,335
R5030DR	30'	Long Wide Ratchet	Stamped D-Ring	3,335

**Self Contained Ratchet Straps**

Part Number	Web Width	Strap Length	End Fittings	Working Load Limit (lbs.)
SCR2706SH	1"	6'	Coated S-Hook	800
SCR2715SH	1"	15'	Coated S-Hook	800
SCR5027FH	2"	27'	Flat Hook	3,335
SCR5030FH	2"	30'	Flat Hook	3,335
SCR5027WH	2"	27'	Wire Hook	3,335
SCR5030WH	2"	30'	Wire Hook	3,335
SCR5027CE	2"	27'	Chain Extension	3,335
SCR5030CE	2"	30'	Chain Extension	3,335



## AUTO TRANSIT & AXLE STRAPS

Part Number	Description	Web Width (in)	Strap Length (ft)	Buckle Style	End Fittings	Working Load Limit (lbs.)
R5406FSH	Auto Transit	2	6	Short Handle Ratchet	Flat Snap Hooks	3,335
R5408FSH	Auto Transit	2	8	Short Handle Ratchet	Flat Snap Hooks	3,335
R5406TSH	Auto Transit	2	6	Short Handle Ratchet	Twisted Snap Hooks	3,335
R5408TSH	Auto Transit	2	8	Short Handle Ratchet	Twisted Snap Hooks	3,335
AXLE 2	2' Axle Strap w/ cordura wear pad	2	2	N/A	Stamped D-Rings	3,335
AXLE 3	3' Axle Strap w/ cordura wear pad	2	3	N/A	Stamped D-Rings	3,335

## 3 & 4 INCH RATCHET STRAPS

### 3 Inch Ratchet Straps

Part Number	Strap Length	Buckle Style	End Fittings	Working Load Limit (lbs.)
R7527FH	27'	Long Handle Ratchet	Flat Hook	5,400
R7530FH	30'	Long Handle Ratchet	Flat Hook	5,400
R7527WH	27'	Long Handle Ratchet	Wire Hook	5,400
R7530WH	30'	Long Handle Ratchet	Wire Hook	5,400
R7527CE	27'	Long Handle Ratchet	18" Chain Extension	5,400
R7530CE	30'	Long Handle Ratchet	18" Chain Extension	5,400
R7527DR	27'	Long Handle Ratchet	Forged D-Ring	5,400
R7530DR	30'	Long Handle Ratchet	Forged D-Ring	5,400

### 4 Inch Ratchet Straps

Part Number	Strap Length	Buckle Style	End Fittings	Working Load Limit (lbs.)
R10027FH	27'	Long Handle Ratchet	Flat Hook	5,400
R10030FH	30'	Long Handle Ratchet	Flat Hook	5,400
R10027WH	27'	Long Handle Ratchet	Wire Hook	6,600
R10030WH	30'	Long Handle Ratchet	Wire Hook	6,600
R10027CE	27'	Long Handle Ratchet	18" Chain Extension	5,400
R10030CE	30'	Long Handle Ratchet	18" Chain Extension	5,400
R10027DR	27'	Long Handle Ratchet	Forged D-Ring	5,400
R10030DR	30'	Long Handle Ratchet	Forged D-Ring	5,400

### Ordering Notes

When ordering 1" straps, a 9" fixed end is standard. Standard webbing color is Black; other colors including Blue and Camo are available.

When ordering 2", 3", or 4" straps, an 18" fixed end is standard, except the chain extension straps which have a 33" fixed end. Standard webbing color is a highly visible yellow webbing. All our 2", 3" and 4" tie-down straps are made of polyester webbing with special edge yarns that provide superb resistance to wear for longer assembly life.

All Royal Arc working load limits are based on 1/3 of the assembly breaking strength. All ratings are based on a straight tensile pull.



### **! WARNING**

U.S. Department of Transportation regulations, 49 CFR, Part 393, Paragraph 393.102(b) requires that: "The aggregate working load limit of the tie down assemblies used to secure an article against movement in any direction must be at least 1/2 times the weight of that article."

**WINCH STRAPS**

Part Number	Web Width	Strap Length	End Fitting	Working Load Limit (lbs.)
WS227FH	2"	27'	Flat Hook	3,335
WS230FH	2"	30'	Flat Hook	3,335
WS227WH	2"	27'	Wire Hook	3,335
WS230WH	2"	30'	Wire Hook	3,335
WS227CE	2"	27'	18" Chain Extension	3,335
WS230CE	2"	30'	18" Chain Extension	3,335
WS327FH	3"	27'	Flat Hook	5,400
WS330FH	3"	30'	Flat Hook	5,400
WS327WH	3"	27'	Wire Hook	5,400
WS330WH	3"	30'	Wire Hook	5,400
WS327CE	3"	27'	18" Chain Extension	5,400
WS330CE	3"	30'	18" Chain Extension	5,400
WS327DR	3"	27'	Stamped D-Ring	5,400
WS330DR	3"	30'	Stamped D-Ring	5,400
WS327	3"	27'	For winch to winch	5,400
WS330	3"	30'	For winch to winch	5,400
WS427FH	4"	27'	Flat Hook	5,400
WS430FH	4"	30'	Flat Hook	5,400
WS427WH	4"	27'	Wire Hook	6,600
WS430WH	4"	30'	Wire Hook	6,600
WS427CE	4"	27'	18" Chain Extension	5,400
WS430CE	4"	30'	18" Chain Extension	5,400
WS427DR	4"	27'	Stamped D-Ring	5,400
WS430DR	4"	30'	Stamped D-Ring	5,400
WS427	4"	27'	For winch to winch	5,400
WS430	4"	30'	For winch to winch	5,400

Winch straps provide the strength and durability demanded in flatbed tie-down applications. All winch straps are labeled to meet CVSA guidelines, CHP standards, DOT regulations and WSTDA recommended standards.



**WARNING**  
 U.S. Department of Transportation regulations, 49 CFR, Part 396, Paragraph 396.102(b) require that "The aggregate working load limit of the tie-down assembly used to secure an article against movement in any direction must be at least 125 times the weight of the article."

## E-SERIES LOGISTIC STRAPS & HARDWARE

Logistic straps are designed for use in interior van loading requirements. All standard logistic straps have a 4' fixed end and adjustable ends are sewn captivated. Logistic strap webbing is color coded to length: 12 ft = Yellow, 16 ft = grey, 20 ft = Blue.

Part Number	Web Width (in)	Strap Length (ft)	Buckle Style	End Fittings	Working Load Limit (lbs.)
R5312SEF	2	12	Interior Ratchet	Spring E-Fitting	1,466
R5316SEF	2	16	Interior Ratchet	Spring E-Fitting	1,466
R5320SEF	2	20	Interior Ratchet	Spring E-Fitting	1,466
CB312SEF	2	12	Cam	Spring E-Fitting	800
CB316SEF	2	16	Cam	Spring E-Fitting	800
CB320SEF	2	20	Cam	Spring E-Fitting	800



EFR-2



Part Number	Description	Break Strength (lbs.)
RTO-6	6" Rope Tie-Off w/ spring e-fitting & d-ring	4,400
EFR-2	E-track fitting w/ 2" Round Ring	5,500
HET-5P	5 foot section of 12 gauge steel horizontal e-track (painted)	
WBES	Wood beam end socket	



HET-5P



RTO-6



WBES

**TIE DOWN HARDWARE**



1 INCH TIE DOWN HARDWARE	
Description	Break Strength (lbs.)
Coated S-Hook	2,400
Light Duty Coated S-Hook	1,500
Standard Cam Buckle	1,500
Light Duty Cam Buckle	550
Self Contained Wide Handle Ratchet	4,400
Wide Handle Ratchet	4,400
Wide Handle Ratchet	3,300

2 INCH TIE DOWN HARDWARE	
Description	Break Strength (lbs.)
Flat Hook	11,000
Flat Snap Hook	11,000
Twisted Snap Hook	11,000
18" Chain Extension	16,200
Grab Hook w/ Pear Link	16,200
Wire Hook	6,600
Wire Hook (3 3/8" ovr)	11,000
Wire Hook (4 3/8" ovr)	11,000
Swivel J-Hook	11,000
Rubber Block	N/A
Web Adjuster	10,000
Stamped D-Ring	10,000
Cluster Hook	11,000
Cam Buckle	2,420
Wide Handle Ratchet w/ Swivel Hook	11,000
Interior Wide Handle Ratchet	4,400
Short Standard Handle Ratchet	11,000
Self Contained Wide Handle Ratchet	11,000
Long Wide Handle Ratchet	11,000



## TIE DOWN HARDWARE



3 Inch Hardware	
Description	Break Strength (lbs.)
Flat Hook	17,600
Wire Hook	22,000
18" Chain Extension	16,200
Forged Delta Ring	18,000
Long Handle Ratchet	22,000



4 Inch Hardware	
Description	Break Strength (lbs.)
Flat Hook	17,600
Wire Hook	22,000
18" Chain Extension	16,200
Forged Delta Ring	20,000
Long Handle Ratchet	22,000

