

**OSC 12**  
Ohio Safety Congress & Expo

**WELL AT HOME. SAFE AT WORK.**

# 371 Rigging Angles: What You Can't See Can Hurt You

Larry L. Petkovsek

Wednesday, March 28, 8:15 to 9:15 a.m.

**Ohio** Bureau of Workers' Compensation

**CRANES**  
**WIRE ROPE**  
**FABRICATION**  
**HARDWARE**  
**SLINGS**  
**FIELD SERVICE**

**MAZZELLA**  
Lifting Technologies

## Rigging Information

THE BASIC RIGGING PLAN	RESPONSIBILITY
<p>PLAN EVERY LIFT INCLUDE THE FOLLOWING QUESTIONS WITH THE OPERATORS YOUR EXPLANATIONS PRESENTS:</p> <ol style="list-style-type: none"> <li>1. WHO IS RESPONSIBLE FOR THE LIFT?</li> <li>2. IS THE CRANE/RIGGING EQUIPMENT CAPABLE OF THE LIFT?</li> <li>3. IS THE RIGGING APPROACH SAFE AND SOUND?</li> <li>4. DOES THE RIGGING AREA HAVE PROPER RESTRICTIONS?</li> <li>5. DOES ALL CLEAR HAVE KNOWN WORKING LOAD LIMITS?</li> <li>6. WHAT IS THE WEIGHT OF THE LOAD?</li> <li>7. WHAT IS THE LENGTH (LEAD) OF CABLE(S)?</li> <li>8. WHAT IS THE ANGLE OF THE CABLE(S) AS IT LOADS?</li> <li>9. ARE THE RIGGING POINTS SUITABLE FOR THE LOAD?</li> <li>10. IS THE LOAD BEING LIFTED IN A SAFE MANNER?</li> <li>11. IS THE TAG LINE SECURED TO CONTROL LOAD?</li> <li>12. IS THERE ANY POSSIBILITY OF SWAYING?</li> <li>13. WILL THE LOAD SWAY, AND IF SO, WILL IT BE IN A SAFE MANNER?</li> <li>14. ARE THERE ANY SPECIAL REQUIREMENTS?</li> </ol> <p>THE RIGGING MUST BE IN ACCORD WITH MANUFACTURER'S RECOMMENDATIONS AND INDUSTRY STANDARDS THAT INCLUDE OSHA, ANSI, ASME, AND OTHERS.</p>	<p><b>USER RESPONSIBILITY</b></p> <ol style="list-style-type: none"> <li>1. VERIFY APPROPRIATE RIGGING PLAN (SUITABLE FOR THE LOAD) IS IN PLACE.</li> <li>2. VERIFY THE RIGGING PLAN WITH INDUSTRY STANDARDS AND THE MANUFACTURER'S DOCUMENTATION.</li> <li>3. CONDUCT VISUAL INSPECTION AND MAINTENANCE OF THE RIGGING GEAR.</li> <li>4. PROVIDE SUPERVISION WITH TRAINING TO MEET OSHA AND ASME (B30.36, ETC.) REQUIREMENTS.</li> </ol> <p><b>MANUFACTURER'S RESPONSIBILITY</b></p> <ol style="list-style-type: none"> <li>1. PRODUCT AND APPLICATION INFORMATION</li> <li>2. IDENTIFY EACH PART AND IDENTIFIED NAME OR LOGO</li> <li>3. IDENTIFY EACH PART'S TENSILE STRENGTH</li> <li>4. PRODUCT TRAINING AND TRAINING RECORDS</li> </ol>

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Rated capacities are affected by angle of lift (sling to load), measured from horizontal when used with multi-legged slings choker/basket hitches.

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## Mazzella Rigging Chart . . .

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## Mazzella Rigging Chart . . .

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Mazzella Rigging Chart . . .

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Regional Service: 800-427-6144

**WIRE ROPE Slings**

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Mazzella Rigging Chart . . .

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**Alloy Chain Slings**

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**WIRE ROPE Slings**

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**Alloy Chain Slings**

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**WIRE ROPE Slings**

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90° Sling Angle

**Alloy Chain Slings**

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60° Sling Angle

2000 lbs.

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45° Sling Angle

2000 lbs.

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30° Sling Angle

2000 lbs.

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Choker Hitch

Choker Hitch Rated Capacity Adjustment

For wire rope slings in choker hitch when angle of choker is less than 120°.

Angle of choker to Drossels	Rated Capacity Percent*
OVER 120	100
90-120	87
60-90	74
30-60	62
0-30	48

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Definition . . .

Adjusted Load--actual weight the sling is experiencing due to the angle, the Tension Factor - TF (decimal) determines the adjusted load.

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Definition . . .

Reduction Factor--RF (decimal) that informs us what the sling is actually rated at per the angle it is being used (what the sling can actually lift).

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**Types of Hitches**

VERTICAL CHOKER BASKET

Load Load Load

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**Definitions of Hitches**

- Vertical--or straight, attachment is simply using a sling to connect a lifting hook to a load.
- Choker--hitches reduce lifting capability of the sling, since this method of rigging affects ability of the wire rope components to adjust during the lift.
- Basket--hitches distribute a load equally between the two legs of a sling . . . within limitations.

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[www.mazzellalifting.com](http://www.mazzellalifting.com)

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**Thank You for Attending!**

**Want more information?**

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**MAZZELLA Companies**

MAZZELLA Lifting Technologies

INDUSCO Wire Rope & Supplies

TENNESSEE Sling Center

HOLLAND

ALABAMA Sling Center

MAZZELLA Crane Service

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