Unlimited Adaptability

Tube & Clamp may be one of the most labor intensive scaffold systems, but the return on the time invested is nearly unlimited adaptability and access to even the most unique jobsite.

Structurally, Tube & Clamp scaffold is easy to erect and dismantle. With only three basic components, Tube & Clamp is adaptable to any scaffold situation – high or low, inside or out, round or straight, standard or irregular shapes.

Compatible with Safway Sectional, SafLock™, SafRing™ and Systems™ scaffold, it is versatile enough to be used independently or to supplement scaffold (depending on job conditions).

Durable CRA19 and CSA19 clamps fasten securely to both 1.69” and 1.90” outer diameter (OD) steel tubing. Tubing is pre-galvanized, and drop forged clamps are hot dip galvanized to protect against rust and corrosion.
Versatile Scaffold

- ST4SG / ST6SG / ST8SG / ST10SG / ST13SG Interlocking Steel Tubes
- CRA19 Rigid Clamp
- ST4SG / ST6SG / ST8SG / ST10SG / ST13SG Interlocking Steel Tubes
- CSA19 Swivel Clamp
- BP1SG Base Plate
- SAU3 / SAU6 Access Ladder Unit
- SAUB Access Ladder Bracket

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Tube & Clamp Component Parts

### Interlocking Steel Tubes

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Length</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST4SG</td>
<td>4'-1¾&quot;</td>
<td>11.0 lbs.</td>
</tr>
<tr>
<td>ST6SG</td>
<td>6'-0&quot;</td>
<td>14.6 lbs.</td>
</tr>
<tr>
<td>ST8SG</td>
<td>8'-0&quot;</td>
<td>18.5 lbs.</td>
</tr>
<tr>
<td>ST10SG</td>
<td>10'-0&quot;</td>
<td>22.4 lbs.</td>
</tr>
<tr>
<td>ST13SG</td>
<td>13'-0&quot;</td>
<td>28.2 lbs.</td>
</tr>
<tr>
<td>ST16SG</td>
<td>16'-0&quot;</td>
<td>34.0 lbs.</td>
</tr>
</tbody>
</table>

Pre-galvanized 1.90" OD tube with twist and lock fittings on ends.

### Base Plate

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP1SG</td>
<td>3.6 lbs.</td>
</tr>
<tr>
<td>BP10SG</td>
<td>4.3 lbs.</td>
</tr>
</tbody>
</table>

BP1SG
- Provides secure footing for vertical tubes. Has twist and lock fitting to secure plate to vertical tubing.

BP10SG
- Can be used in place of Base Plate BP1SG. Female end of scaffold tube fits into base plate tube to prevent lateral movement.

### Right Angle Clamps

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Weight</th>
<th>Fits Tube Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRA19</td>
<td>Dual Purpose Right Angle Clamp</td>
<td>3.0 lbs.</td>
<td>1.69&quot; and 1.90&quot;</td>
</tr>
<tr>
<td>CRA2B</td>
<td>Right Angle Beam Clamp</td>
<td>3.9 lbs.</td>
<td>1.90&quot;</td>
</tr>
<tr>
<td>CRAL2</td>
<td>Single Purpose Right Angle Clamp</td>
<td>2.5 lbs.</td>
<td>1.90&quot;</td>
</tr>
<tr>
<td>MS2R</td>
<td>Military Right Angle Clamp</td>
<td>6 lbs.</td>
<td>1.90&quot;</td>
</tr>
<tr>
<td>WRC</td>
<td>Sidewalk Canopy Right Angle Clamp</td>
<td>5.6 lbs.</td>
<td>3.50&quot;</td>
</tr>
</tbody>
</table>

CRA19
- Used to join 1.69" OD or 1.90" OD tubes at right angles. Eye bolts swing up against vertical tube allowing easy placement of horizontal members. Clamp caps support horizontal tubes until they can be bolted securely.

CRA2B
- Used to clamp 1.90" OD tube to beam flanges. Must be used in pairs.

CRA19

CRAL2
- Military clamp is 4" wide and used to join 1.90" OD tube or pipe at right angles. Meets or exceeds Navy Specification MIL-S-29180A.
### Swivel Clamps

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Weight</th>
<th>Tube Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSA19</td>
<td>Dual Purpose Swivel Clamp</td>
<td>3.5 lbs.</td>
<td>1.69&quot; and 1.90&quot;</td>
</tr>
<tr>
<td>CSAL2</td>
<td>Single Purpose Swivel Clamp</td>
<td>2.6 lbs.</td>
<td>1.90&quot;</td>
</tr>
<tr>
<td>MS2S</td>
<td>Military Swivel Clamp</td>
<td>6.3 lbs.</td>
<td>1.90&quot;</td>
</tr>
<tr>
<td>HDSA238</td>
<td>Shoring Swivel Clamp</td>
<td>4 lbs.</td>
<td>2.375&quot;</td>
</tr>
<tr>
<td>WSC</td>
<td>Sidewalk Canopy Swivel Clamp</td>
<td>6.1 lbs.</td>
<td>3.50&quot;</td>
</tr>
</tbody>
</table>

- **CSA19**: Used to join 1.69” or 1.90” tubes at any angle required. Used primarily for diagonal bracing. These clamps have same eye bolts and flanged nuts used on the right angle clamps.
- **MS2S**: Military clamp is 4” wide and used for bracing. Compatible with 1.90” OD tubing or pipe at any angle. Meets or exceed Navy Specification MIL-S-29180A.

- **HDSA238**: Joins 1.90” OD tube bracing members to 2¼” OD tube shoring frame legs.
- **WSC**: Joins 1.90” OD tube bracing members to 3½” OD tube sidewalk canopy posts.

### Tube & Clamp Wrench

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>CW78</td>
<td>Ratchet and Socket Wrench with Mallet</td>
<td>2.2 lbs.</td>
</tr>
</tbody>
</table>

### Access Ladder Units and Components

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Weight Painted</th>
<th>Weight Galvanized</th>
<th>Width</th>
<th>Rung Spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAU3*</td>
<td>Access Ladder Unit, 3’</td>
<td>9.6 lbs.</td>
<td>10.7 lbs</td>
<td>17¾”</td>
<td>12”</td>
</tr>
<tr>
<td>SAU6*</td>
<td>Access Ladder Unit, 6’</td>
<td>18.3 lbs.</td>
<td>20.2 lbs.</td>
<td>17¾”</td>
<td>12”</td>
</tr>
<tr>
<td>SAUB</td>
<td>Access Ladder Bracket</td>
<td>5.8 lbs.</td>
<td>6.0 lbs.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Must be installed with SAUB brackets. Two brackets are required on base ladder section; one on each additional section.

Climbing ladder and brackets must be used to provide easy access to scaffold. Landing platforms must be provided when required.

Access Ladder Bracket (SAUB) will attach to SAU ladder sections at any elevation and clamp to either a vertical tube or a horizontal bearer. Provides 7” toe clearance.

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# Tube & Clamp Component Parts

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRGA</td>
<td>Adjustable Gate</td>
<td>27.9 lbs.</td>
</tr>
<tr>
<td>LTUB4</td>
<td>Access Ladder Unit 4'</td>
<td>14.2 lbs.</td>
</tr>
<tr>
<td>LTUB7</td>
<td>Access Ladder Unit 7'</td>
<td>24.1 lbs.</td>
</tr>
<tr>
<td>LTUBB</td>
<td>Access Ladder Bracket</td>
<td>6.8 lbs.</td>
</tr>
</tbody>
</table>

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**Access Ladders and Gates**

![Access Ladders and Gates Diagram]

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Tube & Clamp Safety Guidelines

Scaffold safety is everyone’s responsibility. Everyone’s safety depends upon the design, erection, use, and dismantling of scaffold by Competent Persons only. Inspect your scaffold before each use to see that the assembly has not been altered and is safe for your use.

**WARNING**
SERIOUS INJURY OR DEATH CAN RESULT FROM YOUR FAILURE TO FAMILIARIZE YOURSELF, AND COMPLY WITH, ALL APPLICABLE SAFETY REQUIREMENTS OF FEDERAL, STATE AND LOCAL REGULATIONS AND THESE SAFETY GUIDELINES BEFORE ERECTING, USING OR DISMANTLING THIS SCAFFOLD.

**WARNING**
BE SURE TO FULLY TIGHTEN CLAMPS IMMEDIATELY AFTER PLACING COMPONENT. CLAMPS THAT ARE NOT FULLY TIGHTENED WILL NOT SUPPORT DESIGN LOADS. FAILURE TO TIGHTEN CLAMPS COULD CAUSE SERIOUS INJURY OR DEATH.

Safety must come first!
Safway® equipment is designed and manufactured with the user in mind. The safety that goes into each piece of equipment, however, cannot offset carelessness on the part of the erector or the user. With this thought in mind, in order to prevent injury to the users of Safway® equipment, we urge you to follow these safety guidelines.

Scaffold design must include analysis of load carrying members by properly qualified personnel. Safway® component load capacity and weight information is available from your Safway branch. Scaffold must be erected, moved or disassembled only under the supervision of Competent Persons.

**I. Erection Of Tube & Clamp Scaffold**

**A. Prior To Erection - All Scaffold Assemblies**

1. Job site must be inspected to determine ground conditions, strength of supporting structure, proximity of electric power lines, overhead obstructions, wind conditions, and the need for overhead or weather protection. These conditions must be evaluated and adequately addressed.
2. Post spacing and sill size can only be determined after the total loads to be imposed on the scaffold and the weight of the scaffold have been calculated.
3. Stationary scaffolds over 125 ft. in height must be designed by a professional engineer.
4. All equipment must be inspected to see that it is in good condition and is serviceable. Damaged or deteriorated equipment must not be used.

**WARNING**
NOT ALL SPECIES AND GRADES OF LUMBER CAN BE USED AS SCAFFOLD PLANK. WOOD PLANKS USED FOR SCAFFOLD PLATFORMS MUST BE GRADED AS SCAFFOLD PLANK BY AN APPROVED GRADING AGENCY OR SPECIFICALLY MANUFACTURED FOR SCAFFOLD USE.

5. Scaffold plank must be inspected to see that it is graded as scaffold plank, is sound and in good condition, and is free from saw cuts, cracks, notches, splits, delaminations and holes.

6. A fully qualified and Competent Person can deviate from these guidelines only if it can be shown that the resulting scaffold design complies with applicable codes and generally accepted scaffold engineering practices.

7. The scaffold assembly must be designed to comply with local, state and federal requirements.

**B. Erection Of Fixed Scaffold**

**WARNING**
FALL ARREST EQUIPMENT ATTACHED TO SCAFFOLD MAY NOT PREVENT SERIOUS INJURY OR DEATH IF A FALL OCCURS.

Scaffold must be erected, moved or disassembled only under the supervision of Competent Persons. Safety equipment, including safety glasses and hard hats, must be worn by all persons erecting, moving, dismantling or using scaffold.

1. Base plates must be used on all scaffolds, centered on the sills, and be in firm contact with both sills and vertical posts. Be especially careful when scaffolds are to be erected on soft or frozen ground. Any part of a building or structure used to support the scaffold must be capable of supporting the load to be applied.
2. Use base plates and sills if required by ground conditions. Do not use unstable objects or materials.
3. Use only tools recommended by Safway for erection and dismantling.
4. Plumb and level scaffold until connections can be made with ease. Be sure scaffold stays plumb and level as erection progresses.

**WARNING**
SAFWAY® “TWIST AND LOCK” TUBING, WHETHER USED AS VERTICAL OR HORIZONTAL MEMBERS, MUST BE ROTATED INTO A LOCKED POSITION BEFORE BEING CLAMPED.

5. Space the vertical posts to ensure the scaffold will safely support the intended load. Refer to ORN 403 Safway Tube and Clamp – Updated Bearer Allowable Loads.
6. Horizontal members must be installed with right angle clamps and must be level. Vertical posts must be plumb.

**WARNING**
ALL CLAMPS MUST BE TIGHTENED FIRMLY (APPROXIMATELY 45 FT.-LBS. OF TORQUE) AS ERECTION PROCEEDS.

7. Runners (horizontal run members) shall be securely clamped to posts at each end. They shall not be spaced more than 6 ft. 6 in. apart vertically, with the bottom runner placed as close to the base as possible. Runners must be clamped along the length of the scaffold. Interlock ends to form continuous lengths when necessary.
8. Bearers are horizontal members which support a platform. Each bearer clamp shall be positioned above, and in contact with, a runner clamp. Bearers should not extend beyond their supports more than 6 in. unless the scaffold design requires a longer member.

9. Bracing across the width of the scaffold shall be installed at the ends of the scaffold and at least every fourth level vertically and repeated every third set of posts horizontally. This bracing shall form a cross configuration which extends from the bottom of the inner post or runner to the top of the outer post or runner, and from the bottom of the outer post or runner to the top of the inner post or runner.

10. Diagonal bracing on both the inside and the outside row of posts must start as close to the bottom as possible on each end of the scaffold run and extend upward at approximately a 45 degree angle to the top of the scaffold. If such a diagonal bracing does not reach the top, the direction of the bracing must be reversed and proceed to the top of the scaffold. This bracing pattern must be repeated at every fifth vertical post. Diagonal bracing may be coupled to the runners.

11. Ties, guys, bracing and/or outriggers may be needed to assure a safe, stable scaffold assembly. The height of the scaffold in relation to the minimum base width, wind loads, the use of brackets or cantilevered platforms and imposed scaffold loads determines the need for sway and stability bracing. The following general guidelines apply:
   a. A scaffold must always be secured when the height of the scaffold exceeds four times the minimum base width. See Footnote 1.
   b. Ties must be placed as near as possible to horizontal members. The bottom tie must be placed no higher than 4 times the minimum scaffold base width. Subsequent vertical tie placement will depend upon the scaffold width. Scaffolds 3 ft. and narrower must be tied at vertical intervals no more than 20 ft. apart. Scaffolds wider than 3 ft. must be tied at vertical intervals no more than 26 ft. apart. The uppermost tie should be placed as close to the top as possible and, in no case, more than 4 times the minimum base width from the top. See Footnote 1.
   c. Vertical ties must be placed at the ends of the scaffold runs and at no more than 30-ft. horizontal intervals in between.
   d. Ties must be installed as the erection progresses and not removed until scaffold is dismantled to that height.
   e. Side brackets, cantilevered platforms, pulleys, hoist arms, enclosed scaffolds, sloped surfaces and windy conditions introduce overturning and uplift forces which must be considered and compensated for. These situations require additional bracing, tying or guying.
   f. Circular scaffolds erected completely around or within a structure may be restrained from tipping by use of “stand off” bracing members.
   g. A free standing tower must be guyed at the intervals outlined above or otherwise restrained to prevent tipping or overturning.

**WARNING**
OUTRIGGERS, OR OTHER MEANS, MAY BE USED TO INCREASE THE MINIMUM BASE DIMENSION OF A SCAFFOLD TOWER. THE RESULTING BASE DIMENSION, HOWEVER, MAY NO LONGER BE THE MINIMUM (OR LIMITING) BASE DIMENSION.

Footnote

b. Ties must be placed as near as possible to horizontal members. The bottom tie must be placed no higher than 4 times the minimum scaffold base width. Subsequent vertical tie placement will depend upon the scaffold width. Scaffolds 3 ft. and narrower must be tied at vertical intervals no more than 20 ft. apart. Scaffolds wider than 3 ft. must be tied at vertical intervals no more than 26 ft. apart. The uppermost tie should be placed as close to the top as possible and, in no case, more than 4 times the minimum base width from the top.

c. Vertical ties must be placed at the ends of the scaffold runs and at no more than 30-ft. horizontal intervals in between.

d. Ties must be installed as the erection progresses and not removed until scaffold is dismantled to that height.

e. Side brackets, cantilevered platforms, pulleys, hoist arms, enclosed scaffolds, sloped surfaces and windy conditions introduce overturning and uplift forces which must be considered and compensated for. These situations require additional bracing, tying or guying.

f. Circular scaffolds erected completely around or within a structure may be restrained from tipping by use of “stand off” bracing members.

g. A free standing tower must be guyed at the intervals outlined above or otherwise restrained to prevent tipping or overturning.
12. Work platforms must be fully decked with platform units in good, sound condition. Platform units may be individual scaffold grade wood planks, fabricated scaffold platforms.
   a. Scaffold platforms and walkways must be at least 18 in. wide.
   b. Each end of each plank must overlap its support by a minimum of 6 in. or be cleated.
   c. Each end of each platform 10 ft. long or less must overhang its supports by no more than 12 in. Each end of each platform longer than 10 ft. must overhang its supports by no more than 18 in. All scaffold platforms must be guarded to prevent access to the overhang.
   d. Each plank on a continuous run scaffold must extend over the scaffold of either the 'walkway' or the 'platform' unit.
   e. Spans of 2 in. x 10 in. nominal scaffold grade planks must never exceed 10 ft. No more than one person must stand on an individual plank at one time.
   f. Secure platform units to scaffold to prevent uplift caused by high winds or other job site conditions.
      Use latches, if supplied by platform manufacturer, or other suitable means.
13. Guardrails must be used on all open sides and ends of scaffold platforms. Both top and midrails are required. Local codes specify minimum heights where guardrails are required. Use at lower heights if falls can cause injury.
14. Toeboards must be installed whenever people are required to work on any part of the scaffold platform.
   a. Face the rungs as you climb up or down.
   b. Do not try to carry materials while you climb.
   c. Do not climb braces, guardrails or vertical posts. Do not climb any scaffold component unless it is specifically designed for that purpose.
   d. Be sure floor surface is clear of obstructions or holes before moving scaffold.
   e. Clean shoes and rungs to avoid slipping.
15. Access must be provided to all work platforms.
   a. Height of the rolling tower must not exceed 4 times its minimum base width, or 40 ft., whichever is lower.
   b. Remove all materials from scaffold before moving scaffold.
   c. Do not bridge between rolling towers.
   d. Remove all materials from scaffolding before moving a rolling tower.
   e. Be sure floor surface is clear of obstructions or holes before moving scaffold.
   f. Be sure there are no overhead obstructions or energized electric power lines in the path when moving a rolling tower.
   g. Rolling towers must only be used on level surfaces.
   h. Move rolling towers from the base level only. Do not pull or push from the top.
   i. When materials are to be stacked higher than the platform overhangs.
   j. No one must be on a rolling tower while it is being moved.

II. Use Of Scaffolds
A. All Scaffolds
   1. Each time before you use the scaffold, a Competent Person must: inspect the scaffold assembly to be sure it has not been altered, is assembled correctly, is level and plumb, all base plates are in firm contact with sills, all bracing is in place and securely fastened, all platforms are fully decked, all guardrails are in place, safe access is provided, it is properly tied and/or guyed, there are no overhead obstructions, there are no energized electric power lines within 12 ft. of the scaffold assembly, all clamps are firmly tightened, and correct any deficiencies prior to use.
   2. Use only proper access. Do not climb braces, guardrails, or vertical members. Do not climb scaffold components unless they are specifically designed for that purpose. Do not stand on platform overhangs.
   3. Prior to removal or loosening of any component, consider the effect the removal of the component, or the loosening of a joint, will have on the strength of the remaining assembly.
   4. Check to see if scaffold has been altered in any way which would make it unsafe. If so, reconstruct where necessary before beginning the dismantling process.
   5. Use only proper access. Do not climb braces, guardrails, or vertical members. Do not climb scaffold components unless they are specifically designed for that purpose. Do not stand on platform overhangs.
   6. Do not remove ties until scaffolding has been removed.
   7. Do not throw components off scaffold.
   8. Do not pull or push scaffold.
   9. Remove component immediately after loosening clamp. Understanding and following these safety guidelines will increase your personal safety and the safety of your fellow workers.

B. Use Of Rolling Towers
   All of the above precautions plus:
   1. Do not ride manually propelled rolling scaffold. No one must be on a rolling tower while it is being moved.
   2. Lock all casters before getting on a rolling tower. Casters must be locked at all times the scaffold is not being moved.
   3. Do not bridge between rolling towers.
   4. Remove all materials from scaffolding before moving a rolling tower.
   5. Be sure floor surface is clear of obstructions or holes before moving scaffold.
   6. Be sure there are no overhead obstructions or energized electric power lines in the path when moving a rolling tower.
   7. Rolling towers must only be used on level surfaces.
   8. Move rolling towers from the base level only. Do not pull or push from the top.

C. Erection Of Rolling Scaffolds
The following additional precautions apply to the erection of rolling towers:
   1. Height of the rolling tower must not exceed 4 times its minimum base width, or 40 ft., whichever is lower. See Footnote 1.

**WARNING**

THE LOAD RATING OF THE CASTERS USED WILL LIMIT THE SIZE, CONFIGURATION AND LOAD CAPACITY OF THE ROLLING TOWERS.

2. All casters must be secured to adapters with nuts and bolts.
3. Horizontal diagonal bracing must be used at the bottom and top of rolling towers where the top work platform is more than 9 ft. above the surface. When rolling towers are to be erected higher than 9 ft., the first brace must be no more than 2 ft. above the casters, the others at no greater than 21-ft. intervals above. Fabricated planks with hooks may be used as diagonal braces.
4. Platform units with hooks, or cleated planks, must be used on rolling towers.

III. Dismantling Scaffolds
The following additional precautions apply when dismantling scaffolds:

**WARNING**

IT MAY BE NECESSARY TO ADD PARTS TO A SCAFFOLD BEFORE IT CAN BE DISMANTLED
SAFELY.

1. Prior to removal or loosening of any component, consider the effect the removal of the component, or the loosening of a joint, will have on the strength of the remaining assembly.

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Footnote 1:
California and some other states require a height-to-minimum base dimension (length or width) ratio of three-to-one (3:1). Refer to the governing codes for your job location.