QUICKEST WAY TO CUT WELDING COSTS

Increased productivity without capital investment or increased labor costs just has to spell PROFIT. Hundreds of resistance welding users are profiting from the TUFFALOY methods of multiple welding, to produce almost any assembly requiring closely spaced welds.

The key is to "think multiple!" Whenever the welding machine goes through a cycle, have it do more than one weld at a time. It’s easy and practical with one of the TUFFALOY multiple welding devices: The Teeter-Tip dual tip adapter, the Equatip dual tip holder, the Equa-Press dual tip holder, or the Tri-Spacer.

They’re ready to go to work, cutting costs and increasing production efficiency for you.

Study the multiple welding holders and adapters in this section. Learn their capabilities, “think multiple,” and you’ll probably see many ways in which TUFFALOY multiple welding can improve your operation. Remember that TUFFALOY is prepared to provide any special fixturing you need. Show our engineers what you require, and they’ll design a set-up to do it.

TEETER-TIP DUAL TIP ADAPTERS

*U.S. Pat. 3,356,821*

You can spot or projection weld in half the time by doubling the number of welds per machine stroke. Use Teeter-Tip dual tip adapters, which come with water-coolant fittings to beat high heat build-up. These, adapters transmit total pressures of 1000 lbs., and deliver equal current and pressure to each tip. They compensate for normal electrode wear, imperfect tip dressing, and work variations up to .060”.

**LIGHT-DUTY** adapters have no. 4 or 5 RW shanks, tip spacing to 4 inches, tip sockets for 1/2” or 5/8” diameter male Tuffcap caps, or 4 RW tips (5/8” cap sockets are standard).

**HEAVY-DUTY** adapters have shanks from 5 to 7 RW size, tip spacing to 6 inches, tip sockets for 1/2” or 5/8” diameter male Tuffcap caps, or 4 or 5 RW tips (4 RW sockets are standard). These adapters have a deeper, stronger body.

Two low-height 5/8” dia. cap-type tips are shown below. They are recommended for use in these adapters. Other standard caps, both 5/8” & 1/2” dia., are tabled on the next page. You must specify the size tip sockets you want, or the standard socket will be supplied.

---

**Style** | **Shank** | **Description** | **Tip Spacing Range (inches)** | **Socket Taper**
---|---|---|---|---
**LIGHT Duty** | 4RW | TT-1408 | 1-1/4 to 2 | 4RW 4CT 5CT
| 4RW | TT-1416 | 2 to 4 | 4RW 4CT 5CT
| 4RW | TT-1508 | 1-1/2 to 2 | 4RW 4CT 5CT
| 4RW | TT-1516 | 2 to 4 | 4RW 4CT 5CT
| 5RW | TT-15516 | 2 to 4 | 4RW 5RW 4CT 5CT
| 5RW | TT-15524 | 4 to 6 | 4RW 5RW 4CT 5CT
| 5RW | TT-15716 | 2 to 4 | 4RW 5RW 4CT 5CT
| 5RW | TT-15724 | 4 to 6 | 4RW 5RW 4CT 5CT

**HEAVY Duty**

| 5RW | TT-15516 | 2 to 4 | 4RW 5RW 4CT 5CT
| 6RW | TT-15524 | 4 to 6 | 4RW 5RW 4CT 5CT
| 6RW | TT-15616 | 2 to 4 | 4RW 5RW 4CT 5CT
| 6RW | TT-15624 | 4 to 6 | 4RW 5RW 4CT 5CT
| 7RW | TT-15716 | 2 to 4 | 4RW 5RW 4CT 5CT
| 7RW | TT-15724 | 4 to 6 | 4RW 5RW 4CT 5CT

*When ordering, also state exact tip spacing and tip socket size. Example: TT - 1508 - 1-1/2 - 5CT. (5CT means 5/8” diameter cap, 4CT means 1/2” diameter cap.)

---
EQUATIP DUAL TIP HOLDERS

U.S. Pat. No. 3,558,847

The Equatip dual tip holder is a smaller version of the Equa-Press holder (on next page). It is more compact, and is more economical for those applications where it will work equally well. An even smaller device, the Equatip adapter (not water-cooled) is shown in box below.

Using the Equatip holder, both tips contact the work squarely, because tip axes remain parallel to direction of force (unlike the Teeter-Tip adapters). An internal roller equalizes current and pressure between the two electrodes, and will compensate for work height variations up to 1/16".

The holders are ordered with either 1" or 1-1/2" spacing between barrels, and with tip sockets to accept either male Tuffcap caps (5/8" dia.) or straight No. 4 RW electrodes. (Bent tips are not recommended.) The distance between welds can be varied by rotating offset-nose tips in the barrels.

Equatip holders can be supplied with straight shanks for arm mounting, a tapered adapter shank for holder mounting, or a cylinder adapter shank to be clamped to a cylinder rod.

Equatip holders can be used with forces up to 1000 lbs.

EQUATIP HOLDERS

<table>
<thead>
<tr>
<th>Tip Spacing &amp; Mounting Style</th>
<th>For 5/8&quot; Dia. Tuffcap Caps (5 CT)</th>
<th>For No. 4 RW Tips (5 CT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ONE-INCH SPACING:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-in. shank</td>
<td>111-0015</td>
<td>350-4050</td>
</tr>
<tr>
<td>1-1/4-in. shank</td>
<td>112-0025</td>
<td>350-4051</td>
</tr>
<tr>
<td>1-1/2-in. shank</td>
<td>113-0015</td>
<td>350-4052</td>
</tr>
<tr>
<td>SRW adapter</td>
<td>115-0015</td>
<td>350-4053</td>
</tr>
<tr>
<td>Cylinder adapter*</td>
<td>116-0025</td>
<td>350-4054</td>
</tr>
<tr>
<td>1/2-INCH SPACING:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-in. shank</td>
<td>350-4150</td>
<td>350-4155</td>
</tr>
<tr>
<td>1-1/4-in. shank</td>
<td>350-4151</td>
<td>350-4156</td>
</tr>
<tr>
<td>1-1/2-in. shank</td>
<td>350-4152</td>
<td>350-4157</td>
</tr>
<tr>
<td>SRW adapter</td>
<td>350-4153</td>
<td>350-4158</td>
</tr>
<tr>
<td>Cylinder adapter*</td>
<td>350-4154</td>
<td>350-4159</td>
</tr>
</tbody>
</table>

Those caps are fully dimensioned on page 6.

*Without clamp

For light-duty welding

EQUATIP ADAPTER

The Equatip dual tip adapter works like the Equatip holder, but it is not water-cooled and is meant for less demanding jobs. It costs less, and is a little smaller, barrels being 5/8" apart. Its straight tips are TUFFCAP caps, 1/2" in diameter.

For 1/2" DIA. TUFFCAP CAPS (4 CT)

<table>
<thead>
<tr>
<th>Nose Style</th>
<th>Alloy Class</th>
<th>Description</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pointed</td>
<td>TA-14</td>
<td>111-0014</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TA-24</td>
<td>112-0024</td>
<td></td>
</tr>
<tr>
<td>Dome</td>
<td>TB-14</td>
<td>113-0014</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TB-24</td>
<td>114-0024</td>
<td></td>
</tr>
<tr>
<td>Flat</td>
<td>TC-14</td>
<td>115-0014</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TC-24</td>
<td>116-0024</td>
<td></td>
</tr>
<tr>
<td>Offset</td>
<td>TD-14</td>
<td>117-0015</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TD-24</td>
<td>118-0024</td>
<td></td>
</tr>
</tbody>
</table>

Those caps are fully dimensioned on page 6.
The Equa-Press Holder makes two identical welds at once. When it contacts the workpiece, the forging pressure is automatically equalized between the two electrodes, regardless of variations in work thickness, or electrode wear (up to 3/16"). The two tip-holding barrels are sliding pistons, whose movements are controlled by a mechanical equalizing slide in the housing (see cutaway drawings). The spring's only function is to return the barrels to a fully extended position when there is no work contact. Maximum conductivity is maintained through sturdy copper alloy working parts. Spacing can vary up to 4 inches, using TUFFALOY bent offset tips in Equa-Press holders having the standard barrel spacing of two inches (shown).

Barrel spacing up to six inches is available as semi-standard (see price list). These are drilled to order from stock components. To order you must give the barrel spacing desired, along with the Item number (from table).

Equa-Press Holders are made in two mounting styles: platen models to mount directly to the platen on press-type welding machines, and shank models for rocker arm machines. All are available in two designs: the standard and the short (close-coupled) type. The short design is internally flood-cooled and takes up less space in the welder.

Equa-Press holders can be used with forces up to 1500 lbs.

<table>
<thead>
<tr>
<th>Mounting Style</th>
<th>Standard Design Description</th>
<th>Part No.</th>
<th>Short Design Description</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-in. shank</td>
<td>4010</td>
<td>350-4010</td>
<td>4015</td>
<td>350-4015</td>
</tr>
<tr>
<td>1-1/4-in. shank</td>
<td>4011</td>
<td>350-4011</td>
<td>4016</td>
<td>350-4016</td>
</tr>
<tr>
<td>1-1/2-in. shank</td>
<td>4012</td>
<td>350-4012</td>
<td>4017</td>
<td>350-4017</td>
</tr>
<tr>
<td>Platen</td>
<td>4013</td>
<td>350-4013</td>
<td>4018</td>
<td>350-4018</td>
</tr>
</tbody>
</table>

Note: For best results, position the holder so that a line drawn through the electrode centers is at, or nearly at, right angles to the direction of the welder arms. Otherwise, the magnetic field between the arms can cause an excess of current to flow through the inboard electrode.
LOWER HOLDERS AND ELECTRODES FOR USE WITH EQUA-PRESS HOLDER

A lower, fixed, dual tip holder is offered for use with Equa-Press Holders. Like the Equa-Press, it has a standard two-inch tip spacing and helps make two welds at once, precisely alike. The standard trans-verse bar electrode shown is used when work geometry doesn’t require tips on the lower side. They are water-cooled.

<table>
<thead>
<tr>
<th>Shank Diameter</th>
<th>Description</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4020</td>
<td>350-4020</td>
</tr>
<tr>
<td>1-1/4</td>
<td>4021</td>
<td>350-4021</td>
</tr>
<tr>
<td>1-1/2</td>
<td>4022</td>
<td>350-4022</td>
</tr>
</tbody>
</table>

* When ordering specify center distance and either 4RW or 5RW sockets

LOWER ELECTRODES

A Case History: Projection welding brackets to automotive frame assemblies is twice as fast with an Equa-Press dual tip holder. Lower welding fixture acts as an inspection device, so warped parts are discovered before welding. Inspection time and scrap loss are both reduced.

A Case History: Joining a piece of metal to itself is always tough. This job was done with an Equa-Press holder – two at a time. Lower clamp faces, carrying current, contact parts near the weld areas to avoid current bypassing weld projections. Two standard swivel tips make four welds, two per part.

A Case History: Dual spot welding of panelled wall sections reduced welding costs enough to justify buying welding machine to do the job in-plant. Equa-Press holder with 5-inch spacing, and special (but simple) tooling to provide two offset tip adapters and matching holders were used. Electrodes are standard TUFFCAP caps.

A Case History: Joining a piece of metal to itself is always tough. This job was done with an Equa-Press holder – two at a time. Lower clamp faces, carrying current, contact parts near the weld areas to avoid current bypassing weld projections. Two standard swivel tips make four welds, two per part.

In this drawing, two studs are projection welded in each welder stroke, using an Equa-Press dual holder over a pair of studwelding electrodes held in PM-style holders.

Here, four spot welds are made simultaneously on a corrugated part. An Equa-Press dual holder is used to hold two Teeter-Tip dual tip adapters.
TRISPACER™ TRIPLE TIP HOLDER

U.S. Pat. No. 3,558,848

The Trispacer tip holder will make three spot welds at one time, automatically splitting the current and the pressure equally between the three tips. In doing so, it compensates for variations in work thicknesses and electrode wear-up to 3/16-in.

The three tip-holder barrels (#5 RW) are equidistant from one another, all falling on a 1-5/8-in. diameter circle (in the standard model shown). Using straight tips the weld pattern would form an equilateral triangle. However, the weld pattern can be widely varied by using standard or special bent tips. In fact, the three welds can be made in a straight line.

The Trispacer Holder works in the same simple, mechanical way as the Equa-Press Holder: The tip-holding barrels have a limited up-and-down movement, to accommodate work conditions, and are adjusted to deliver equal pressure by the cone-shaped equalizing device in the housing. All current-carrying parts are made of RWMA copper alloys. It is made in two styles: to mount directly to the platen of press-type welders, and with shanks to fit in welder arms.

LOWER ELECTRODE

A simple, water-cooled lower electrode is made for use with the Trispacer holder. Its three-inch-diameter face makes it usable with any weld pattern that may be developed for the Trispacer. It comes in three shank diameter models.

<table>
<thead>
<tr>
<th>Shank Dia.</th>
<th>Description</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4025</td>
<td>350-4025</td>
</tr>
<tr>
<td>1-1/4</td>
<td>4026</td>
<td>350-4026</td>
</tr>
<tr>
<td>1-1/2</td>
<td>4027</td>
<td>350-4027</td>
</tr>
</tbody>
</table>
HYDRAULIC EQUALIZING ADAPTERS AND ASSEMBLIES

CMW Hydraulic Equalizing adapter units are used to equalize the weld force when two or more welds are required simultaneously. The equalizing action is developed in a closed hydraulic system – and is accomplished by hydraulically interconnecting two or more units. We recommend using fire resistant hydraulic fluid compatible with BUNA "N" such as HOUGHTO-SAFE #620, 1120 or equivalent. Consult your local industrial lubricant distributor.

18-826 #1 SIZE UNIT WITH NU-TWIST® SHOWN

<table>
<thead>
<tr>
<th>Complete Unit</th>
<th>Unit Size</th>
<th>Electrode Attachment</th>
<th>Included Tapered Adapters</th>
<th>Height A</th>
<th>Mean Height B</th>
<th>Mean Electrode Engagement Height C</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-826</td>
<td>#1</td>
<td>NU-TWIST®</td>
<td>--</td>
<td>1-1/4</td>
<td></td>
<td>3-13/64</td>
</tr>
<tr>
<td>18-82650</td>
<td>#1</td>
<td>1/2-14 Pipe Thd.</td>
<td>--</td>
<td>1-1/2</td>
<td></td>
<td>3-29/64</td>
</tr>
<tr>
<td>18-82651</td>
<td>#1 with adapter</td>
<td>5 RW Male cap 4 RW 5 RW</td>
<td>18-7465-07 18-746-07 18-747-07</td>
<td>1-59/64</td>
<td>1-51/64</td>
<td>3-7/8 3-3/4 3-3/4</td>
</tr>
<tr>
<td>18-82652</td>
<td></td>
<td></td>
<td></td>
<td>1-43/64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-82653</td>
<td></td>
<td></td>
<td></td>
<td>1-51/64</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
HYDRAULIC EQUALIZING ADAPTERS AND ASSEMBLIES

18-826 COMPLETE #1 SIZE "NU-TWIST"**ASSEMBLY

18-826 Complete #1 size "NU-TWIST"**
Hydraulic assembly see page 52 for 5RW cap electrode, 4 RW, & 6 RW electrode complete #1 size assemblies

18-82165 Flexible shunt
18-82161-1 3/8-16 x 5/8 Lg. hex. screw
18-8216 Shunt Bar
18-8262 Shunt Sub-Assembly (Included are two 18-82167-22 cap screws shown above)
18-82167-22 #10-24 x 7/8 Lg. Soc.head cap screw (Included in shunt assembly)
18-801 Adapter Sub-Assembly (Page 48)
18-80150 Adapter Nut
18-80110 Adapter Base
18-10061-5 Electrode seal
18-10050 Water nipples fit standard 3/8 hose
18-82613 Retaining Screw
18-82611 Base
18-82612 Piston
18-82614-1 Seal
18-82615-13 1/4-20 x Lg. Soc. head cap screw
18-8262 Insulator
18-10060-6 "O" Ring Seal
18-10065 Washer
18-82163-2 Insulator
18-82162-2 Insulator Sleeve
HYDRAULIC EQUALIZING ADAPTERS AND ASSEMBLIES

CMW Hydraulic Equalizing adapter units are used to equalize the weld force when two or more welds are required simultaneously. The equalizing action is developed in a closed hydraulic system and is accomplished by hydraulically interconnecting two or more units. We recommend using fire resistant hydraulic fluid compatible with SUNA "M" such as HOUGHTO-SAFE #620, 1120 or equivalent. Consult your local industrial lubricant distributor.

18-827 #2 SIZE UNIT WITH "NU-TWIST" SHOWN

<table>
<thead>
<tr>
<th>Complete Unit Part No.</th>
<th>Unit Size</th>
<th>Electrode Attachment</th>
<th>Height A</th>
<th>Mean Height B</th>
<th>Mean Electrode Base Height C</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-827</td>
<td>#2</td>
<td>NU-TWIST</td>
<td>1-13/16</td>
<td>1-49/64</td>
<td>3-53/64</td>
</tr>
</tbody>
</table>
HYDRAULIC EQUALIZING ADAPTERS AND ASSEMBLIES

18-827 Complete #2 size NU-TWIST Assembly

18-800 Adapter Sub-Assembly
(See page 45)

18-82167-18
1/4-20 x 1 Lg. Scc.
head cap screw
(Included in shunt assembly)

18-80265 Nut Adapter

18-80210 Adapter Base

18-82265 Flexible shunt

18-10010 Water nipples fit standard 3/8 hose

18-82617-1
3/5-16 x 7/8 Lg. hex. screw

18-82716 Shunt Bar

18-82712 Platen

18-8271 Hydraulic Unit Assembly

18-82711 Base

18-8261/4-3 Seal

18-82167-13
1/4-20 x Lg. Scc.
head cap screw

18-10065 Washer

18-82163-2 Insulator

18-82162-2 Insulator Sleeve

18-10090-6 "O" Ring Seal
CMW Hydraulic Equalizing adapter units are used to equalize the weld force when two or more welds are required simultaneously. The equalizing action is developed in a closed hydraulic system and is accomplished by hydraulically interconnecting two or more units. We recommend using fire resistant hydraulic fluid compatible with SAE "N" such as HOUGHTON-SAFE #20, 1120 or equivalent. Consult your local industrial lubricant distributor.

### Fixed Unit Hydraulic Equalizing Assemblies

**Two #1 or #2 Size Hydraulic Units Mounted to Customer's Desired Electrode Spacing,***

<table>
<thead>
<tr>
<th>Assembly Unit Part No.</th>
<th>Unit Size</th>
<th>&quot;T&quot; Connector Shank Dia. B</th>
<th>Base Plate Length C</th>
<th>Base Plate Width D</th>
<th>Spacing* (Specify on Order A)</th>
<th>Max. Recommended Weld Force Per Electrode LBS</th>
<th>Mean Height to Electrode Base E</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-846 18-84601-01</td>
<td>#1</td>
<td>None 1&quot;</td>
<td>6</td>
<td>3</td>
<td>1-1/32&quot; to 5&quot;</td>
<td>1000 (12,000 Amps @ 10% duty cycle)</td>
<td>3-13/64</td>
</tr>
<tr>
<td>18-84601-02 18-84601-03</td>
<td></td>
<td>1-1/4&quot; 1-1/2&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3-13/64</td>
</tr>
<tr>
<td>18-847 18-84701-01</td>
<td>#2</td>
<td>None 1&quot;</td>
<td>7-1/2</td>
<td>3-1/2</td>
<td>1-3/4&quot; to 6&quot;</td>
<td>2000 (16,000 Amps @ 10% duty cycle)</td>
<td>3-61/64</td>
</tr>
<tr>
<td>18-84701-02 18-84701-03</td>
<td></td>
<td>1-1/4&quot; 1-1/2&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3-61/64</td>
</tr>
</tbody>
</table>

Note:
1. Multiple units of 2-8 can also be supplied on custom designed base plates with or without "T" Connectors.
2. Units may be modified with adapters for RW tapered caps and electrodes
ADJUSTABLE HYDRAULIC EQUALIZING ASSEMBLY 18-836

Part No. 18-836 (shown below) is a typical assembly using two 18-826 assemblies set up as a complete self-contained unit for making two spot welds at one time. This unit is so arranged as to allow the center distances to be readily adjusted from 1-3/32" centers to 2-1/4" centers or by rearrangement of the same parts centers maybe adjusted from 2-1/4" to 3-1/2". This setup also include facilities for filling and bleeding the hydraulic units. **Mounting 18-83614 is available to order for assembly 18-836, We recommend using fire resistant hydraulic fluid compatible with BUNA "N" such as HOUGHTO-SAFE #620, 1120 or equivalent. Consult your local industrial lubricant distributor.**

---

**Assembly Part No.** | **Hydraulic Unit Size** | **Electrode Attachment*** | **Adjustable Spacing Range** A | ****Connector | **Max. Recommended Weld force Per Electrode LBS**
--- | --- | --- | --- | --- | ---
18-836 | #1 | #1 NU-TWIST*** | 1-1/32 - 2-1/4 | 2-1/4 - 3-1/2" | **None** | 1000 (12000 AMPS @ 10% Duty Cycle)

---

* Partial disassembly, rearrangement of plates, and bleeding of unit will be necessary to switch centerline ranges.
** Customer must specify dimensions desired.
*** Other attachments available on request

---

**Available** | **Dia. B** | **Length C**
--- | --- | ---
18-83614-01 | **4** | **4**
18-83614-03 | **4** | **4**
1100 SERIES ADJUST-A-PRESSURE WATER COOLED LOW INERTIA ELECTRODE HOLDERS

Like other low-inertia holders the heavy duty Adjust-A-Pressure Holders are used for multiple spot and projection welding, and are excellent for indirect welding when mounted in the Adjust-A-Angle Adapter.

Electrical current is conducted through heavy flexible cables and holder is installed to prevent any damaging effects to the spring mechanism. Light duty springs supplied to order.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>18-1101</td>
<td>.463</td>
<td>1-1/4</td>
<td>4 RW 5 RW</td>
<td>1/2 3/4</td>
<td></td>
<td>100 - 500</td>
</tr>
<tr>
<td>18-1102</td>
<td>.626</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-1103</td>
<td>.463</td>
<td>1-1/2</td>
<td>4 RW 5 RW</td>
<td>1/2 3/4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-1104</td>
<td>.626</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Standard holder uses 18-11008-1 spring. A heavy duty holder is available with spring 18-11009c2 for pressure to 1000 lbs.

For additional holder information and replacement parts see page 59.

1150 SERIES ADJUST-A-ANGLE ADAPTERS

<table>
<thead>
<tr>
<th>Adapter Assembly</th>
<th>Shank Dia, B₆</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-1154</td>
<td>1</td>
</tr>
<tr>
<td>18-1155</td>
<td>1-1/4</td>
</tr>
<tr>
<td>18-1156</td>
<td>1-1/2</td>
</tr>
</tbody>
</table>

* Adapters for barrel sizes other than 1-1/4 dia, available as special order.

1100 SERIES ADJUST-A-ANGLE ADAPTORS ARE ADAPTABLE FOR USE WITH SPRING TYPE LOW INERTIA HOLDERS 1100 SERIES AS WELL AS STRAIGHT HOLDERS 100, 200, AND 300 SERIES.
1100 SERIES ADJUST-A-PRESSURE WATER COOLED LOW INERTIA ELECTRODE HOLDERS

**INCLUDES 18-110013, 18-10050, 18-10047-8**

*SPRINGS: 500# SPRING IS PAINTED BLUE; 1000# SPRING IS PAINTED YELLOW*

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Holder Assy.*</th>
<th>Barrel</th>
<th>Adapter</th>
<th>Adjust - A- Angle Adapters</th>
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<tr>
<td>18-1101</td>
<td>18-110005-1</td>
<td>18-7591</td>
<td>Select from Series Chart page 58</td>
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<tr>
<td>18-1102</td>
<td>18-110005-2</td>
<td>18-7592</td>
<td>Special order</td>
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<tr>
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<td>18-7591</td>
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<td>18-1104</td>
<td>18-110006-2 to 1000#</td>
<td>18-7592</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* See page 58 for more information
APPLICATION SHEET FOR TYPICAL MULTIPLE SPOT WELDING SETUPS

Typical Set Up For
3 Spots at a time in Parallel

1 CMW Std. 1150 Series Adapter
2 CMW Std. 1100 Series Holders
1 CMW Special 1100 Series Holder

Standard 1-1/4 dia.
Shank

4 RW-16-582011-01
5 RW-16-582012-01

Typical Set Up For
2 spots simultaneously
in parallel

Upper
2-1100 Series Holders
1-1150 Series Adapter

Lower
2-100,200 or 300 Series Holders
1-1150 Series Adapter with special center shank

TYPICAL SET UP OF 800 SERIES "NU-TWIST"* UNITS

For dual spot welding using hydraulic "Nu-Twist"* Pressure equalizing subassemblies and surface mounted adapters as basic building blocks