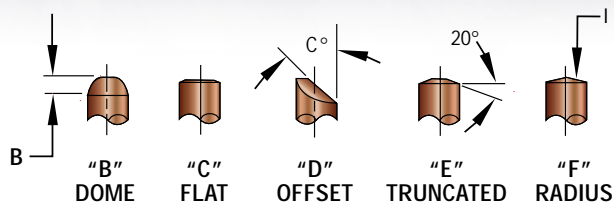
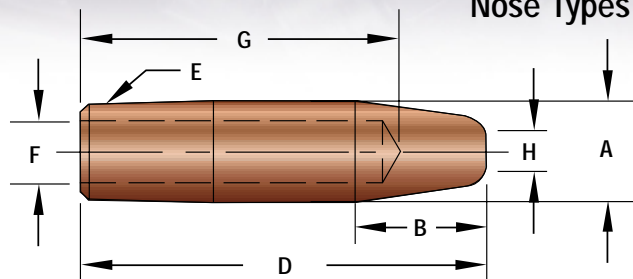


RESISTANCE WELDING ELECTRODES

Tips With Tapered Shanks Nose Types A, B, C, D, E & F

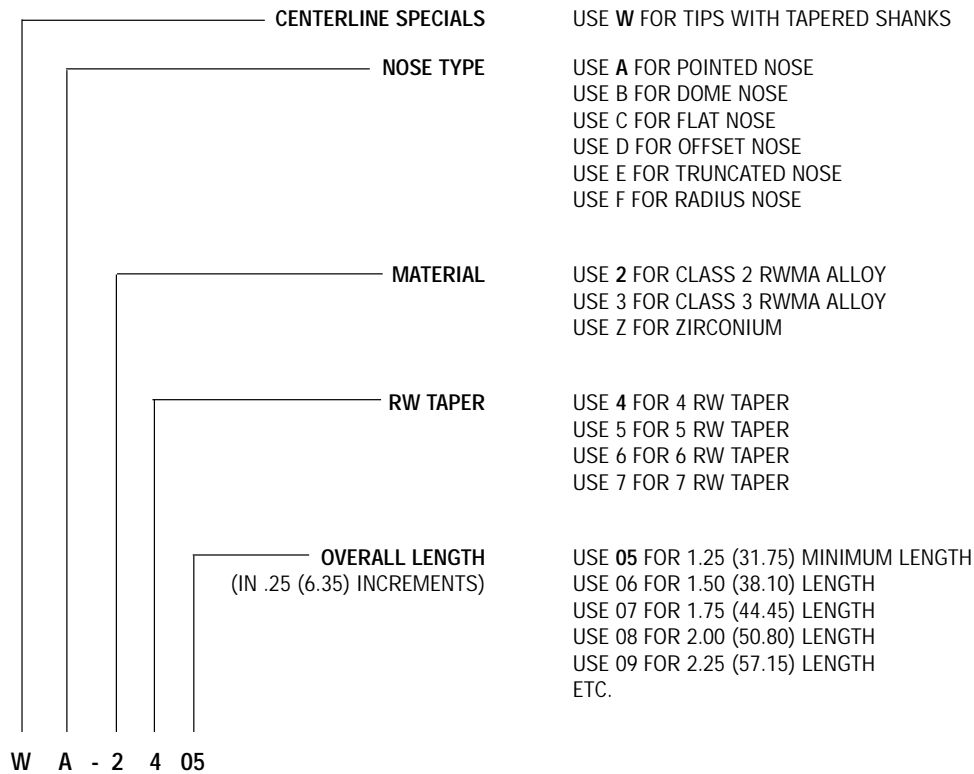


• Dimensions Shown Are: inches (mm).

"A" POINTED

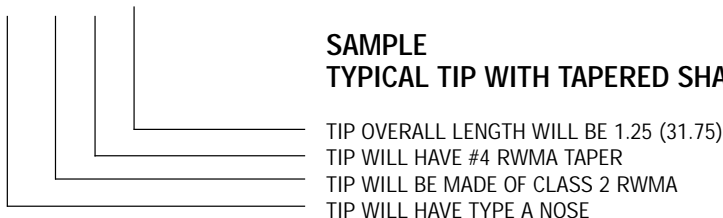
FIGURE 5-1 (Material RWMA Class 2 & 3)

EXAMPLE EXPLANATION CODING



W A - 2 4 05

SAMPLE TYPICAL TIP WITH TAPERED SHANK CODING



EXAMPLE:

• **WA-2405**

• Dimensions Shown Are: inches (mm).

RESISTANCE WELDING ELECTRODES

Tips With Tapered Shanks Nose Types A, B, C, D, E & F

KEY TO ITEM NUMBERS

- W - Standard Prefix
 ★ - Nose Designation (see pg. 5-1 for nose types)
 2, 3 or Z - RWMA Alloy Class
 4 thru 7 - RW Taper
 05 thru 16 - Overall Length – .25 (6.35) Increments

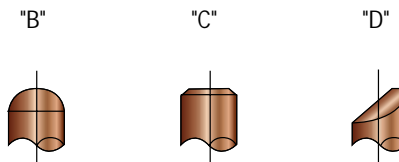
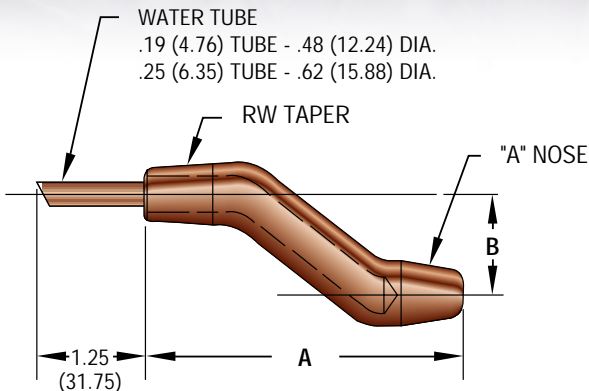
• Dimensions Shown Are: inches (mm).

ITEM NO.	DIMENSIONS									
	CLASS 2	A Major Diameter	B Nose Length	C Angle Offset	D Overall Length	E RW Taper	F Water Hole Diameter	G Water Hole Depth	H Weld Face Diameter	I Nose Sphere Radius
W ★ -2405			.38 (9.53)		1.25 (31.75)			.75 (19.05)		
W ★ -2406			.63 (15.88)		1.50 (38.10)			1.00 (25.40)		
W ★ -2407			.75 (19.05)		1.75 (44.45)			1.25 (31.75)		
W ★ -2408			.75 (19.05)		2.00 (50.80)			1.50 (38.10)		
W ★ -2409			.75 (19.05)		2.25 (57.15)			1.75 (44.45)		
W ★ -2410	.482 (12.24)	.75 (19.05)	30°	2.50 (63.50)	4	.28 (7.14)	2.00 (50.80)	.19 (4.76)	2	
W ★ -2411		.75 (19.05)		2.75 (69.85)			2.25 (57.15)			
W ★ -2412		.75 (19.05)		3.00 (76.20)			2.50 (63.50)			
W ★ -2413		.75 (19.05)		3.25 (82.55)			2.75 (69.85)			
W ★ -2414		.75 (19.05)		3.50 (88.90)			3.00 (76.20)			
W ★ -2415		.75 (19.05)		3.75 (92.25)			3.25 (82.55)			
W ★ -2416		.75 (19.05)		4.00 (101.60)			3.50 (88.90)			
W ★ -2505		.75 (19.05)	40°	1.25 (31.75)			.50 (12.70)			
W ★ -2506		.75 (19.05)	40°	1.50 (38.10)			.75 (19.05)			
W ★ -2507		.75 (19.05)	30°	1.75 (44.45)			1.00 (25.40)			
W ★ -2508		1.13 (28.58)	30°	2.00 (50.80)			1.25 (31.75)			
W ★ -2509		1.13 (28.58)	30°	2.25 (57.15)			1.50 (38.10)			
W ★ -2510	.625 (15.88)	1.13 (28.58)	30°	2.50 (63.50)	5	.38 (9.53)	1.75 (44.45)	.25 (6.35)	2	
W ★ -2511		1.13 (28.58)	30°	2.75 (69.85)			2.00 (50.80)			
W ★ -2512		1.13 (28.58)	30°	3.00 (76.20)			2.25 (57.15)			
W ★ -2513		1.13 (28.58)	30°	3.25 (82.55)			2.50 (63.50)			
W ★ -2514		1.13 (28.58)	30°	3.50 (88.90)			2.75 (69.85)			
W ★ -2515		1.13 (28.58)	30°	3.75 (95.25)			3.00 (76.20)			
W ★ -2516		1.13 (28.58)	30°	4.00 (101.60)			3.25 (82.55)			
W ★ -2608		1.00 (25.40)		2.00 (50.80)			1.25 (31.75)			
W ★ -2610		1.00 (25.40)		2.50 (63.50)			1.75 (44.45)			
W ★ -2612	.750 (19.05)	1.00 (25.40)	30°	3.00 (76.20)	6	.44 (11.11)	2.25 (57.15)	.28 (7.14)	4	
W ★ -2614		1.00 (25.40)		3.50 (88.90)			2.75 (69.85)			
W ★ -2616		1.00 (25.40)		4.00 (101.60)			3.25 (82.55)			
W ★ -2708		.75 (19.05)	40°	2.00 (50.80)			1.25 (31.75)			
W ★ -2710		1.13 (28.58)	30°	2.50 (63.50)			1.75 (44.45)			
W ★ -2712	.875 (22.23)	1.13 (28.58)	30°	3.00 (76.20)	7	.50 (12.70)	2.25 (57.15)	.31 (7.94)	6	
W ★ -2714		1.13 (28.58)	30°	3.50 (88.90)			2.75 (69.85)			
W ★ -2716		1.13 (28.58)	30°	4.00 (101.60)			3.25 (82.55)			

Replace ★ with nose type A, B, C, D, E, or F.

RESISTANCE WELDING ELECTRODES

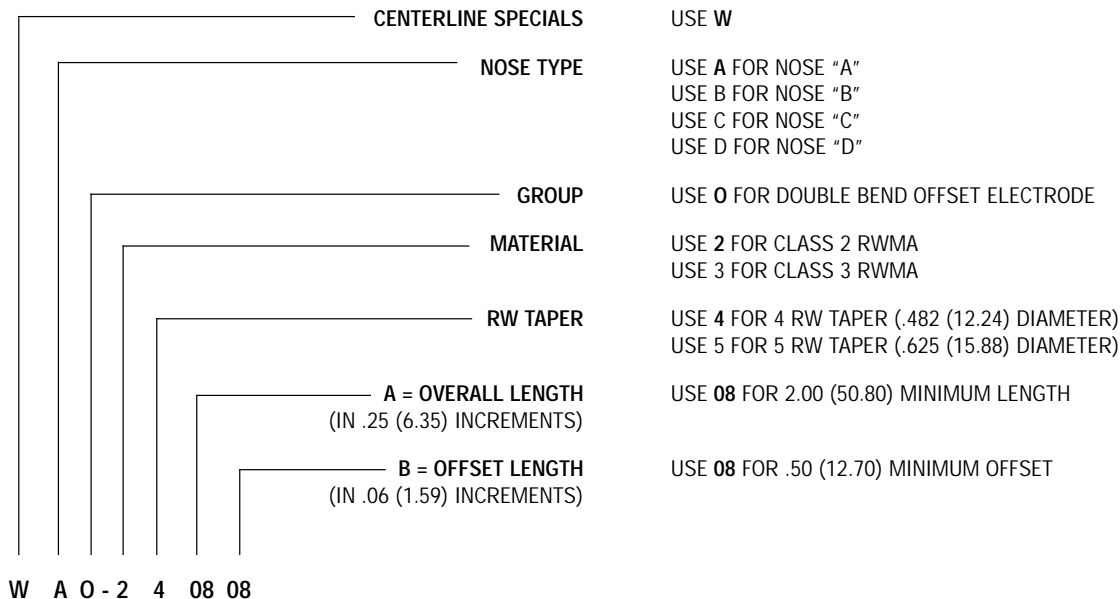
Double Bend Offset Electrodes



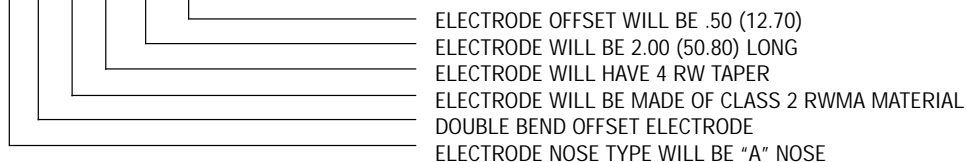
Example: • **WAO-2408-08**

FIGURE 5-2 (Material RWMA Class 2 & 3)

EXAMPLE EXPLANATION CODING



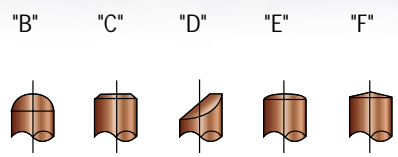
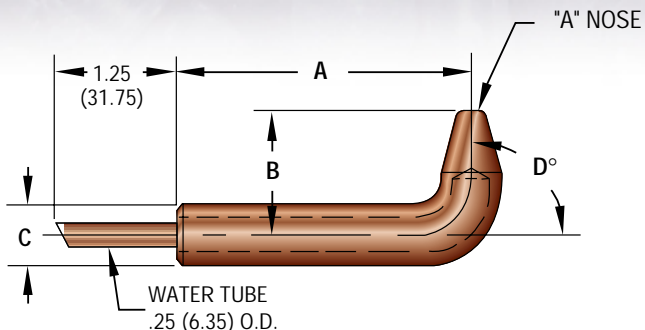
SAMPLE TYPICAL DOUBLE BEND OFFSET CODING



• Dimensions Shown Are: inches (mm).

RESISTANCE WELDING ELECTRODES

Single Bend Electrodes



Example: • **CLLA-25-10690**

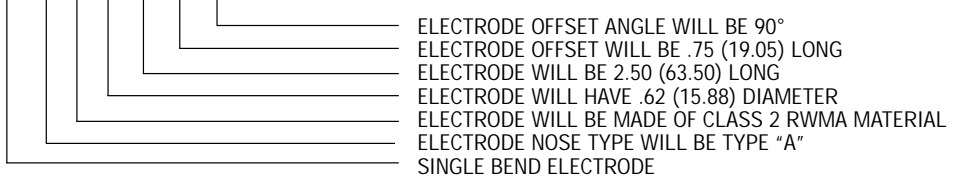
FIGURE 5-3 (Material RWMA Class 2, 3 & Zirconium)

EXAMPLE EXPLANATION CODING

<p>CENTERLINE SPECIALS</p> <p>GROUP</p> <p>NOSE TYPE</p> <p>MATERIAL</p> <p>C = ADAPTER DIAMETER (IN .125 (3.18) INCREMENTS)</p> <p>A = OVERALL LENGTH (IN .25 (6.35) INCREMENTS)</p> <p>B = OFFSET LENGTH (IN .125 (3.18) INCREMENTS)</p> <p>D = OFFSET ANGLE</p>	<p>USE CL</p> <p>USE L FOR SINGLE BEND ELECTRODE</p> <p>USE A FOR NOSE "A" USE B FOR NOSE "B" USE C FOR NOSE "C" USE D FOR NOSE "D" USE E FOR NOSE "E" USE F FOR NOSE "F"</p> <p>USE 2 FOR CLASS 2 RWMA USE 3 FOR CLASS 3 RWMA USE Z FOR ZIRCONIUM</p> <p>USE 5 FOR .62 (15.88) NOMINAL DIAMETER STRAIGHT SHANK USE 6 FOR .75 (19.05) NOMINAL DIAMETER STRAIGHT SHANK USE 7 FOR .88 (22.35) NOMINAL DIAMETER STRAIGHT SHANK USE 5E FOR .62 (15.88) NOMINAL DIAMETER ELECTRODE TAPER SHANK USE 6E FOR .75 (19.05) NOMINAL DIAMETER ELECTRODE TAPER SHANK USE 7E FOR .88 (22.35) NOMINAL DIAMETER ELECTRODE TAPER SHANK</p> <p>USE 10 FOR 2.5 (63.50) MINIMUM LENGTH</p> <p>USE 6 FOR .75 (19.05) MINIMUM OFFSET</p> <p>USE 30 FOR 30° OFFSET USE 45 FOR 45° OFFSET USE 60 FOR 60° OFFSET USE 75 FOR 75° OFFSET USE 90 FOR 90° OFFSET</p>
--	---

CL L A - 2 5 10 6 90

SAMPLE TYPICAL ELECTRODE CODING

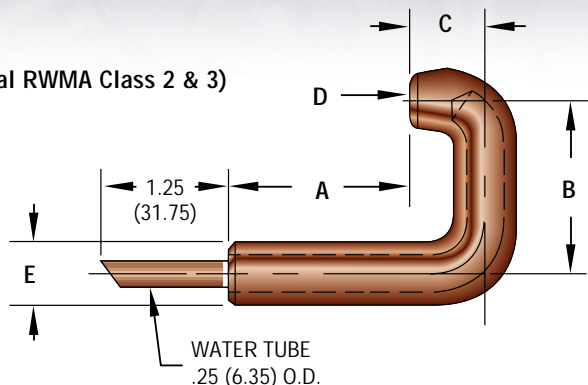


• Dimensions Shown Are: inches (mm).

RESISTANCE WELDING ELECTRODES

J Shape Electrodes

FIGURE 5-4 (Material RWMA Class 2 & 3)



Example: • CLJE1-25-10166

EXAMPLE EXPLANATION CODING

<p style="text-align: center;">CENTERLINE SPECIALS</p> <p style="text-align: center;">GROUP</p> <p style="text-align: center;">D = NOSE TYPE</p> <p style="text-align: center;">MATERIAL</p> <p style="text-align: center;">E = ADAPTER DIAMETER (IN .125 (3.18) INCREMENTS)</p> <p style="text-align: center;">A = OVERALL LENGTH (IN .25 (6.35) INCREMENTS)</p> <p style="text-align: center;">B = OFFSET LENGTH (IN .125 (3.18) INCREMENTS)</p> <p style="text-align: center;">C = NOSE HEIGHT (IN .125 (3.18) INCREMENTS)</p>	<p style="text-align: center;">USE CL</p> <p style="text-align: center;">USE JE FOR "J" SHAPE ELECTRODE</p> <p style="text-align: center;">USE 1 FOR NOSE - .62 (15.88) DIAMETER "A" NOSE USE 2 FOR NOSE - .75 (19.05) DIAMETER "A" NOSE USE 3 FOR NOSE - .88 (22.23) DIAMETER "A" NOSE</p> <p style="text-align: center;">USE 2 FOR CLASS 2 RWMA USE 3 FOR CLASS 3 RWMA</p> <p style="text-align: center;">USE 5 FOR .62 (15.88) NOMINAL DIAMETER USE 6 FOR .75 (19.05) NOMINAL DIAMETER USE 7 FOR .88 (22.23) NOMINAL DIAMETER</p> <p style="text-align: center;">USE 10 FOR 2.50 (63.50) MINIMUM LENGTH</p> <p style="text-align: center;">USE 16 FOR 2.00 (50.80) MINIMUM OFFSET</p> <p style="text-align: center;">USE 6 FOR .75 (19.05) MINIMUM HEIGHT</p>
<p>CL JE 1 - 2 5 - 10 16 6</p>	

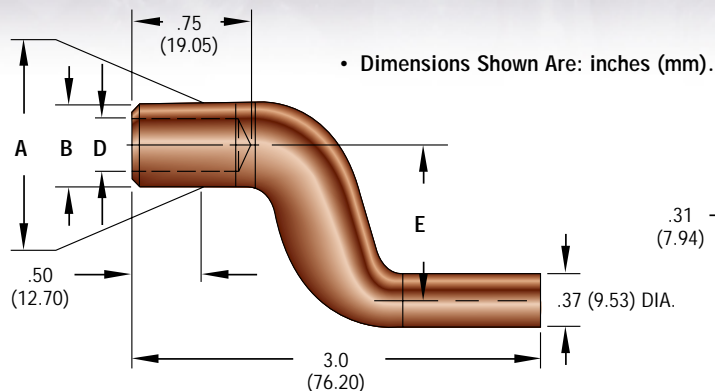
SAMPLE TYPICAL J SHAPE ELECTRODE CODING

- _____ ELECTRODE NOSE WILL BE .75 (19.05) HIGH
- _____ ELECTRODE OFFSET WILL BE 2.00 (50.80) LONG
- _____ ELECTRODE WILL BE 2.50 (63.50) LONG
- _____ ELECTRODE WILL HAVE .62 (15.88) DIAMETER
- _____ ELECTRODE WILL BE MADE OF CLASS 2 RWMA MATERIAL
- _____ ELECTRODE NOSE TYPE WILL BE .62 (15.88) DIAMETER
- _____ J SHAPE ELECTRODE

• Dimensions Shown Are: inches (mm).

RESISTANCE WELDING ELECTRODES

Irregular-Offset Electrodes With Taper Shanks



• WEF-SERIES FIGURE 5-5 (Material RWMA Class 2)

ITEM NO.	DIMENSIONS				
CLASS 2	A Major Taper Diameter	B Minor Taper Diameter	C RW Taper	D Water Hole Diameter	E Offset Distance
WEF-2412	.463 (11.76)	.438 (11.13)	4	.281 (7.14)	1.125 (28.58)
WEF-2512	.613 (15.57)	.588 (14.94)	5	.375 (9.53)	1.125 (28.58)

Spade Electrodes

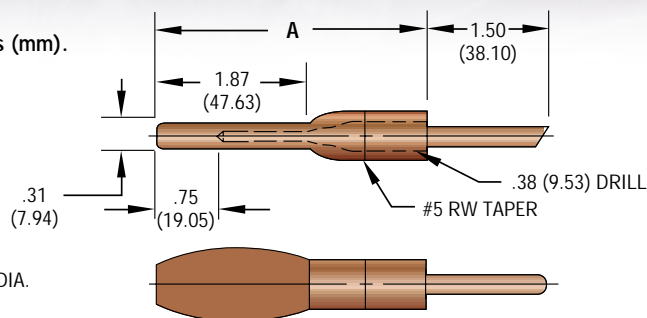


FIGURE 5-6 (Material RWMA Class 2)

ITEM NO.	"A" O.A.L.
WEM100-1	3.31 (84.14)
WEM100-2	3.56 (90.49)
WEM100-3	3.81 (96.84)
WEM100-4	4.06 (103.19)

• Dimensions Shown Are: inches (mm).

1.25 (31.75) Irregular-Offset Electrodes With Taper Shanks

• WFA-SERIES

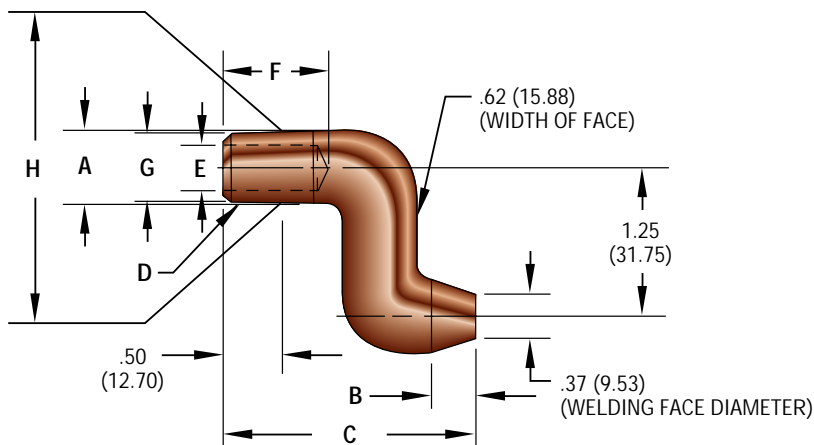


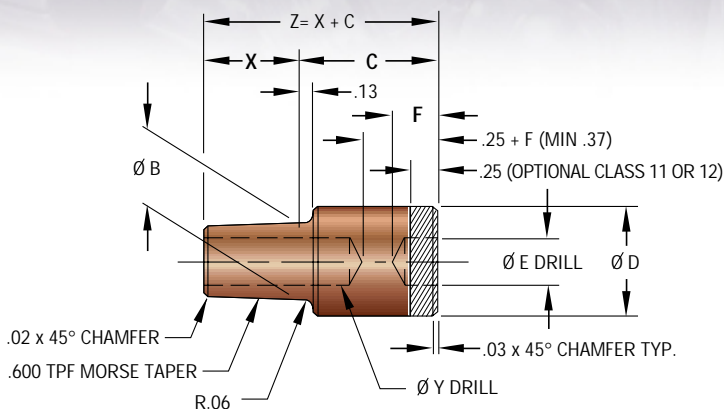
FIGURE 5-7 (Material RWMA Class 2)

• Dimensions Shown Are: inches (mm).

ITEM NO.	DIMENSIONS							
CLASS 2	A Major Diameter	B Nose Length	C Overall Length	D RW Taper	E Water Hole Diameter	F Water Hole Depth	G Minor Taper Diameter	H Taper Diameter
WFA-2408	.50 (12.70)	.38 (9.53)	2.00 (50.80)	4	.281 (7.14)	.88 (22.23)	.438 (11.13)	.463 (11.76)
WFA-2409	.50 (12.70)	.75 (19.05)	2.38 (60.33)	4	.281 (7.14)	.88 (22.23)	.438 (11.13)	.463 (11.76)
WFA-2508	.62 (15.88)	.38 (9.53)	2.12 (53.98)	5	.375 (9.53)	.75 (19.05)	.588 (14.94)	.613 (15.58)
WFA-2509	.62 (15.88)	.75 (19.05)	2.50 (63.50)	5	.375 (9.53)	.75 (19.05)	.588 (14.94)	.613 (15.58)

RESISTANCE WELDING ELECTRODES

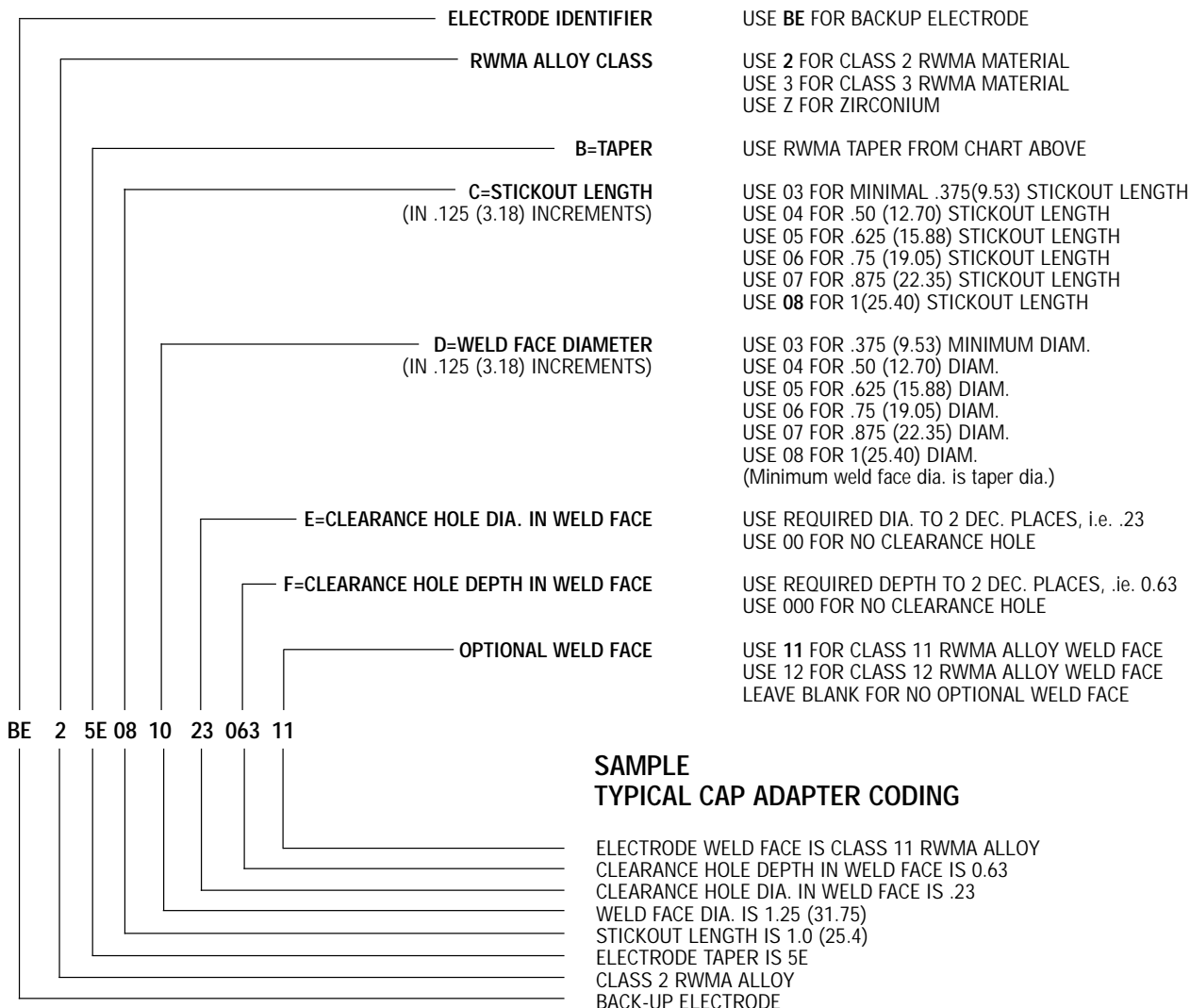
Backup Electrodes



RWMA TAPER	B	X	Y
3E	.375 (9.52)	.500 (12.70)	9/32
4E	.463 (11.76)	.500 (12.70)	9/32
5E	.625 (15.88)	.750 (19.05)	3/8
6E	.750 (19.05)	.875 (22.23)	7/16
7E	.875 (22.23)	1.125 (28.57)	1/2
4C	.375 (9.52)	.285 (2.86)	9/32
5C	.415 (10.52)	.390 (9.52)	5/16
6C	.501 (12.70)	.500 (12.70)	3/8
7C	.613 (15.57)	.500 (12.70)	1/2

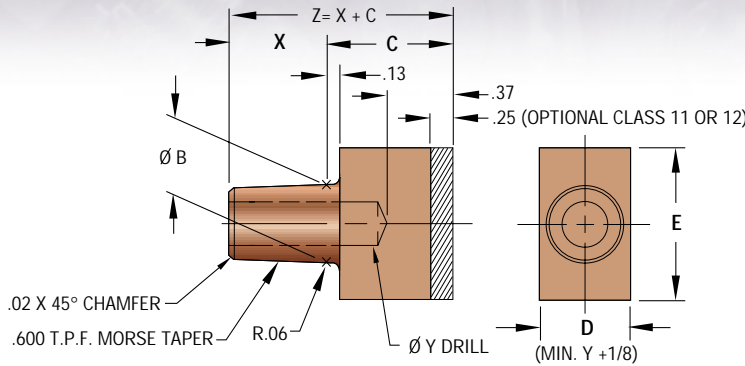
FIGURE 5-8 (Material RWMA Class 2&3)

EXAMPLE EXPLANATION CODING



RESISTANCE WELDING ELECTRODES

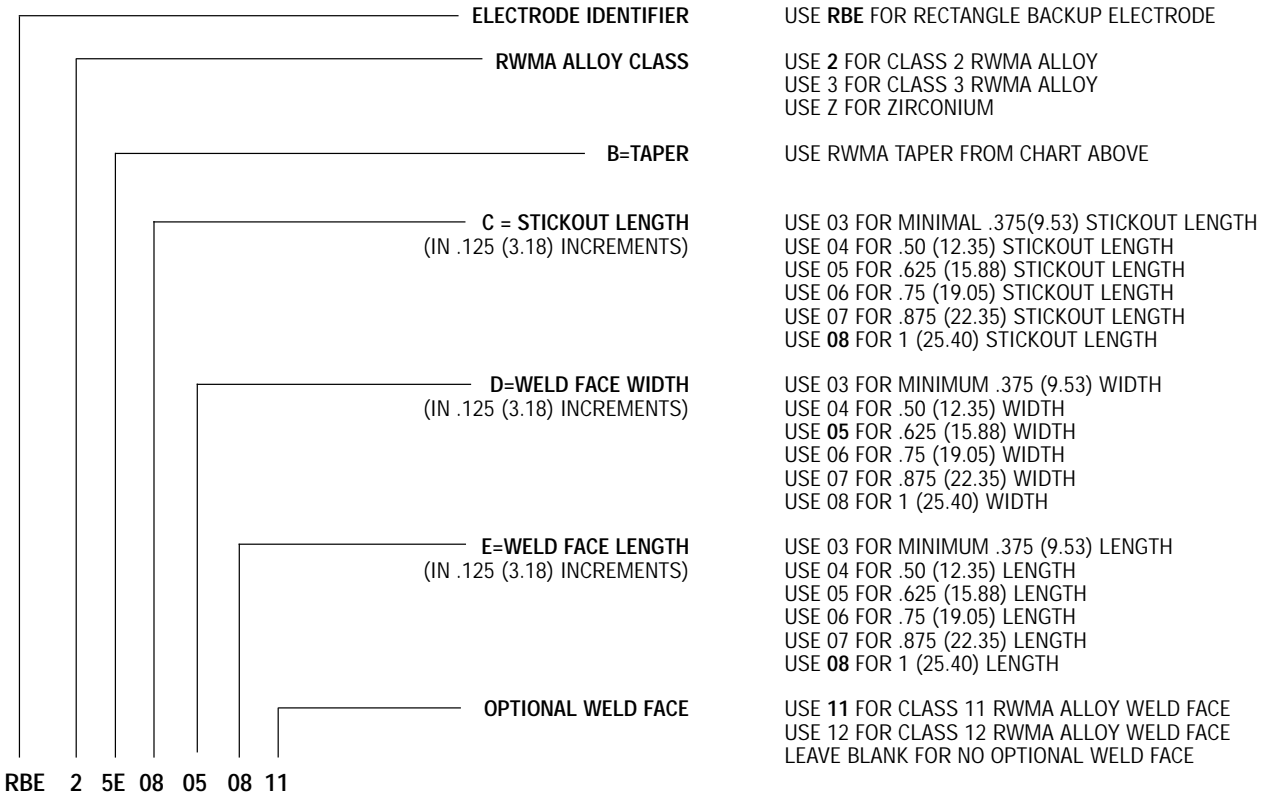
Block Type Electrodes



RWMA TAPER	B	X	Y
3E	.375 (9.52)	.500 (12.70)	9/32
4E	.463 (11.76)	.500 (12.70)	9/32
5E	.625 (15.88)	.750 (19.05)	3/8
6E	.750 (19.05)	.875 (22.23)	7/16
7E	.875 (22.23)	1.125 (28.57)	1/2
4C	.375 (9.52)	.285 (2.86)	9/32
5C	.415 (10.52)	.390 (9.52)	5/16
6C	.501 (12.70)	.500 (12.70)	3/8
7C	.613 (15.57)	.500 (12.70)	1/2

FIGURE 5-9 (Material RWMA Class 2&3)

EXAMPLE EXPLANATION CODING



SAMPLE TYPICAL CAP ADAPTER CODING

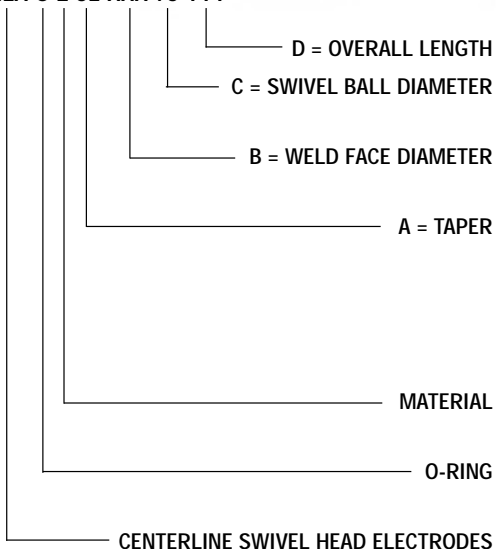
ELECTRODE WELD FACE IS CLASS 11 RWMA ALLOY
WELD FACE LENGTH IS 1.0 (25.4)
WELD FACE LENGTH IS 1.0 (25.4)
STICKOUT LENGTH IS 1.0 (25.4)
ELECTRODE TAPER IS 5E
CLASS 2 RWMA ALLOY
RECTANGLE BACK-UP ELECTRODE

RESISTANCE WELDING ELECTRODES

Swivel Head Electrodes with Water-Cooled Shanks

CODING EXAMPLE

SHEA O 2 5E XXX 75 YYY



SPECIFY REQUIRED LENGTH, EX. FOR 2.00 (50.80) USE 200

USE 50 FOR .50 (12.70) DIAMETER

USE 75 FOR .75 (19.05) DIAMETER

SPECIFY REQUIRED DIAMETER, EX. FOR 1.00 (25.40) DIAMETER

USE 100

USE 5C FOR #5 CAP TAPER

USE 6C FOR #6 CAP TAPER

USE 4E FOR 4RW TAPER

USE 5E FOR 5RW TAPER

USE 6E FOR 6RW TAPER

USE 7E FOR 7RW TAPER

USE 2 FOR CLASS 2

USE 3 FOR CLASS 3

USE O IF O-RING REQUIRED ON FORMED ASSEMBLY

OMIT O IF O-RING NOT REQUIRED

USE SHEA FOR FORMED ASSEMBLY

Blind Hole

EXAMPLE:
• SHEA25E10075200

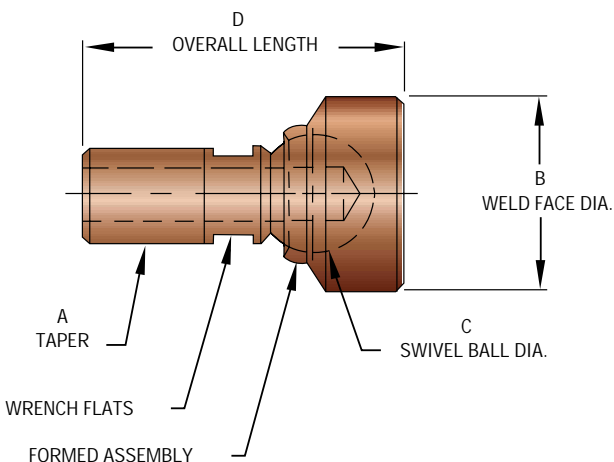


FIGURE 5-10 (Material RWMA Class 2&3)

Thru Hole with O-Ring

EXAMPLE:
• SHEAO25E10075200
O-RING

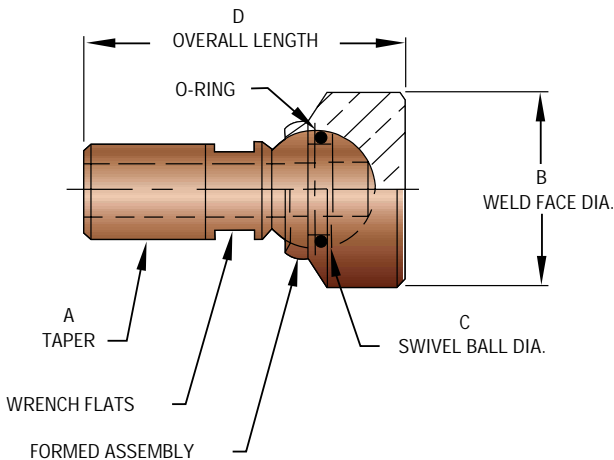


FIGURE 5-11 (Material RWMA Class 2&3)

• Dimensions Shown Are: inches (mm).