



Based on plasma spray processing technology, CerAnode Technologies has developed impressed current anode designs for cathodic protection that feature easy installation, factory connections and rugged construction.

The Ruggedode™ Process Anode is made with a titanium substrate (a strong light weight aerospace metal) and activated with an inert conductive ceramic coating. It is then molded to a 316 stainless steel process fitting in conjunction with a plasma sprayed dielectric-ceramic epoxy-FRP interface resulting in high mechanical strength, an excellent process seal and a very high insulation resistance. The anode maintains dimensional stability over its design life.

**Ruggedode™**

# PROCESS ANODE

FOR

WATER BOXES

(HEAT EXCHANGERS)

CHEMICAL PROCESSES

VALVES

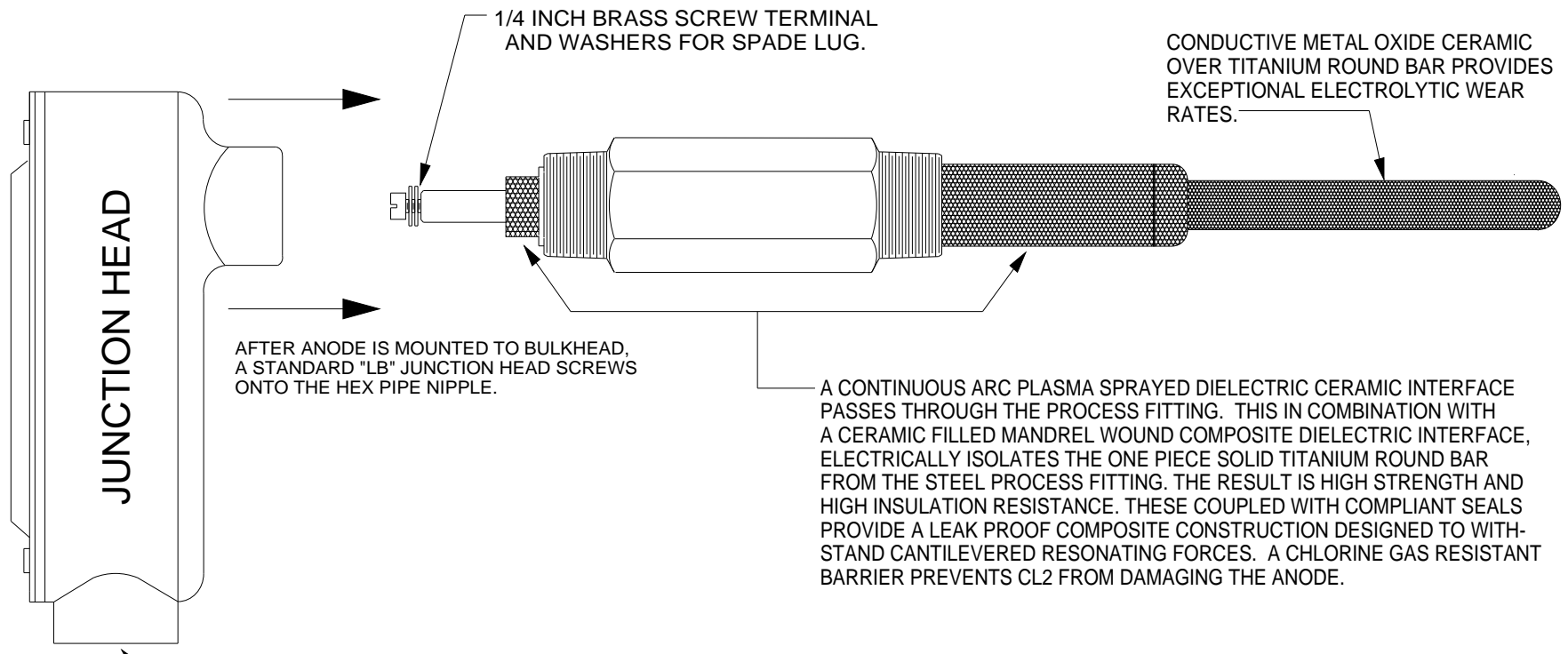
PUMPS

ETC.

The ceramic anode coating provides a long-life of 20 years at the rated output. The conductive ceramic consisting of Iridium oxide in combination with valve metal oxides provides superior dissolution rates compared to all other known CP anode materials available. The durable abrasion resistant ceramic coating and solid titanium substrate provide the rugged construction necessary to meet most of the harsh environmental demands of industry.

This anode is available in a variety of standard and custom sizes. The standard Ruggedode™ pictured on the following page fits a standard off-the-shelf LB or GAUB Rigid Conduit Junction Head or it can optionally be supplied by CerAnode. This Ruggedode features a CerAnode 7-Year Anode Warranty.

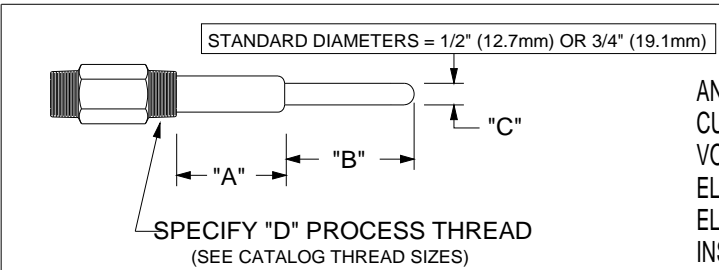
**CerAnode Ruggedode™**



AFTER ANODE IS MOUNTED TO BULKHEAD, A STANDARD "LB" JUNCTION HEAD SCREWS ONTO THE HEX PIPE NIPPLE.

A CONTINUOUS ARC PLASMA SPRAYED DIELECTRIC CERAMIC INTERFACE PASSES THROUGH THE PROCESS FITTING. THIS IN COMBINATION WITH A CERAMIC FILLED MANDREL WOUND COMPOSITE DIELECTRIC INTERFACE, ELECTRICALLY ISOLATES THE ONE PIECE SOLID TITANIUM ROUND BAR FROM THE STEEL PROCESS FITTING. THE RESULT IS HIGH STRENGTH AND HIGH INSULATION RESISTANCE. THESE COUPLED WITH COMPLIANT SEALS PROVIDE A LEAK PROOF COMPOSITE CONSTRUCTION DESIGNED TO WITHSTAND CANTILEVERED RESONATING FORCES. A CHLORINE GAS RESISTANT BARRIER PREVENTS CL<sub>2</sub> FROM DAMAGING THE ANODE.

1" LBCF  
 NOT TO SCALE



**RPA PROCESS ANODE**

ANODE SPECIFICATIONS: REV 3/12/13  
 CURRENT DENSITY -- SEE CURRENT DENSITY CHART.  
 VOLTAGE -- GENERALLY NO LIMIT (CONSULT CERANODE)  
 ELEMENT SUBSTRATE MAT. -- SOLID CP GRADE TITANIUM  
 ELEMENT CATALYTIC MAT. -- MIXED METAL OXIDE CERAMIC  
 INSULATION RESISTANCE TEST -- TESTED AT 2.5 KV  
 TEMPERATURE RANGE -- 5-50 DEGREES C FRESH WATER, 10-50 SEA

## -- PROCESS ANODES by CerAnode<sup>TM</sup> -- Ruggedode<sup>TM</sup> -- STANDARD PROCESS ANODE SIZES

### DESCRIPTION DESIGNATORS

ANODE PART NUMBER	ANODE CURRENT RATING DESIGNATOR	DIELECTRIC LENGTH DIMENSION mm (inches) A	ANODE ELEMENT DIMENSION mm (inches) B	ELEMENT DIAMETER DIMENSION mm (inches) C	PROCESS FITTING NPT SIZE DIMENSION D	"LB" BOX CONDUIT NPT SIZE DIMENSION E	CURRENT RATING 20 YRS SEA WATER <sup>1</sup> amps/m <sup>2</sup> (amps)	CURRENT RATING 20 YRS FRESH WATER <sup>2</sup> amps/m <sup>2</sup> (amps)
RPA-R6-1/2-3/4	R	150 (6)	150 (6)	12.7 (1/2)	3/4"	1"	175 (1.0A)	66 (0.4A)
RPA-H6-1/2-3/4	H	150 (6)	150 (6)	12.7 (1/2)	3/4"	1"	350 (2.1A)	132 (0.8A)
RPA-XH6-1/2-3/4	XH	150 (6)	150 (6)	12.7 (1/2)	3/4"	1"	700 (4.2A)	264 (1.6A)
RPA-R6-1/2-1	R	150 (6)	150 (6)	12.7 (1/2)	1"	1"	175 (1.0A)	66 (0.4A)
RPA-H6-1/2-1	H	150 (6)	150 (6)	12.7 (1/2)	1"	1"	350 (2.1A)	132 (0.8A)
RPA-XH6-1/2-1	XH	150 (6)	150 (6)	12.7 (1/2)	1"	1"	700 (4.2A)	264 (1.6A)
RPA-R6-3/4-1	R	150 (6)	150 (6)	19 (3/4)	1"	1"	175 (1.6A)	66 (0.6A)
RPA-H6-3/4-1	H	150 (6)	150 (6)	19 (3/4)	1"	1"	350 (3.2A)	132 (1.2A)
RPA-XH6-3/4-1	XH	150 (6)	150 (6)	19 (3/4)	1"	1"	700(6.4A)	264 (2.4A)
RPA-R9-1/2-3/4	R	230 (9)	230 (9)	12.7 (1/2)	3/4"	1"	175 (1.6A)	66 (0.6A)
RPA-H9-1/2-3/4	H	230 (9)	230 (9)	12.7 (1/2)	3/4"	1"	350 (3.2A)	132 (1.2A)
RPA-XH9-1/2-3/4	XH	230 (9)	230 (9)	12.7 (1/2)	3/4"	1"	700 (6.4A)	264 (2.4A)
RPA-R9-1/2-1	R	230 (9)	230 (9)	12.7 (1/2)	1"	1"	175 (1.6A)	66 (0.6A)
RPA-H9-1/2-1	H	230 (9)	230 (9)	12.7 (1/2)	1"	1"	350 (3.2A)	132 (1.2A)
RPA-XH9-1/2-1	XH	230 (9)	230 (9)	12.7 (1/2)	1"	1"	700 (6.4A)	264 (2.4A)
RPA-R9-3/4-1	R	230 (9)	230 (9)	19 (3/4)	1"	1"	175 (2.4A)	66 (0.9A)
RPA-H9-3/4-1	H	230 (9)	230 (9)	19 (3/4)	1"	1"	350 (4.8A)	132 (1.8A)
RPA-XH9-3/4-1	XH	230 (9)	230 (9)	19 (3/4)	1"	1"	700 (9.6A)	264 (3.6A)

### Typical Part Number (RPA-H9-3/4-1) & Description: RPA-H-A9"-B9"-C3/4"-D1"NPT-E1"NPT

NOTES: Anode specifications may change without notice. Consult CerAnode for current information.

- 1 Assumes total immersion in water. Reduce current 50% for operation below 5 degrees C. Electrolyte impurities may also affect rating.
- 2 Assumes total Immersion in water. Reduce current 50% for operation below 10 degrees C. Electrolyte impurities may also affect anode life.