



**Corrosion  
Engineering™**

AN ERGONARMOR COMPANY

**TECHNICAL INFORMATION**

**CES-329**

**04/00 SUPERSEDES 03/99 PAGE 1 OF 3**

# ***CORROSION ENGINEERING SPECIFICATION FOR INSTALLATION***

## ***ANCHOR SPACING FOR GUNITE LININGS***

### ***1. SCOPE OF WORK***

- 1.1 This specification will outline the recommended spacing for anchoring Corrosion Engineering SDX® and TUFCEM® Silicate Gunite linings.

### ***2. MATERIALS***

- 2.1 Potassium silicate gunites are resistant to a broad variety of corrosives found in industrial gases from various fuel-fired boilers. These cements, when suitably reinforced, have been found to be a cost-effective, acid-resistant lining for such stacks.
- 2.2 Potassium silicate cements, installed by the dry gunite method, may either be a single component Gunite Mix SDX® or a 2-component TUFCEM® Silicate Gunite. The gunned density of the products shall range between 120-135 lbs./cu.ft. wet.
- 2.3 Chemical-Resistant Membrane. Elastomeric membranes, TUFCEM II Membrane Spray Grade, are used in combination with potassium silicate cements in industrial stacks off wet or dry scrubbers. Where flue gas temperatures are higher, namely off particulate control devices such as electrostatic precipitators, the substitution of a higher temperature mastic, namely PACMASTIC® 325 Coating, is recommended.

### ***3. REINFORCEMENT OF GUNITE LINING***

- 3.1 The acid-resistant potassium silicate gunite must be anchored. Anchorage shall be a minimum of 304 stainless steel V-Type metal anchors, or material suitable to the corrosive environment typically 1/8" thick x 5/8" wide, crimped 2-tine anchors.

**ANCHOR SPACING FOR GUNITE LININGS**  
**CES-329**  
**04/00 SUPERSEDES 03/99 PAGE 2 OF 3**

- 3.2 The stud anchors shall be welded in accordance with the anchor manufacturer's specifications.
- 3.3 Anchors shall be placed in a standard square pattern on the floors, walls and overheads. Anchor spacing shall be as recommended on CES-321 "Corrosion Engineering Specifications for Sizing and Spacing of V-Type Metal Anchors for Castable Gunite Lining Installation".

**4. BENDING OF ANCHORS**

- 4.1 After priming is completed, each anchor shall be bent with a hammer or heavy wall tubing bending tool so that the angle is greater than 90°F between the tines, but less than 180°F. They shall be bent in such a manner that there is a minimum 3/4" gunite coverage over the tips of the tines.
- 4.2 Any anchor welds that fail during bending the anchors shall be completely removed and replaced.

**5. RECOMMENDED ANCHORING PATTERN**

Surface	Nominal Lining Thickness	"X"	"Y"	" Z"	Net number of Anchors/SF Typical Pattern
Flat/Curved Vertical Area Areas 30° Above & Below CL of Horizontal/Sloping Cylindrical Equipment	1½"	5"	5"	2½"	5.8
	2"	6"	6"	3"	4
	2½"	8"	8"	3½"	2.3
	3"	9"	9"	4"	1.8
Flat Horizontal Overhead Flat Sloping Overhead Upper 120° of Horizontal/Sloping Cylindrical Equipment	1½"	4 "	4 "	2½"	9
	2"	5 "	5 "	3"	5.8
	2½"	6 "	6 "	3½"	4
	3"	6 "	6 "	4"	4
Flat/Sloping Floor Areas Lower 120° of Horizontal/Sloping Cylindrical Equipment	1½"	9 "	9 "	2½"	1.8
	2"	9 "	9 "	3"	1.8
	2½"	9 "	9 "	3½"	1.8
	3"	9 "	9 "	4"	1.8
Structural Steel - Pipe stiffeners, I-beams, Angles	1½"	3 "	3 "	2½"	16
	2"	3 "	3 "	3"	16
	2½"	3 "	3 "	3½"	16
	3"	3 "	3 "	4"	16

X= Horizontal Plane Spacing  
Y= Vertical Plane Spacing  
Z= Length of Opened Anchor Tine

**5. SAFETY PRECAUTIONS AND DISCLAIMER**

- 5.1 TUFCEM® Silicate Gunite, SDX® Gunite, PACMASTIC® 325 Membrane, and PENNGUARD® Primer, components, and mixes of them present a number of hazards. Read before using and follow the hazard information, precautions, and first aid directions on the individual product labels and Material Safety Data Sheets.
- 5.2 The statements, technical information and recommendations contained herein are believed to be accurate as of the date hereof. Since the conditions and methods of use of the product and of the information referred to herein are beyond our control, Corrosion Engineering expressly disclaims any and all liability as to any results obtained or arising from any use of the product or reliance on such information; NO WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, IS MADE CONCERNING THE GOODS DESCRIBED OR THE INFORMATION PROVIDED HEREIN. The information provided herein relates only to the specific product designated and may not be applicable when such product is used in combination with other materials or in any process. The user should thoroughly test any application before installation. Nothing contained herein should be taken as an inducement to infringe any patent and the user is advised to take appropriate steps to be assured that any proposed use of the product will not result in patent infringement.
- 5.3 Please contact Corrosion Engineering for specific recommendations at +1-610-833-4000 or fax +1-610-833-3040.

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