



Spec Component: SC-207-03/10
SikaGrout 328

DIVISION 3 – CONCRETE
Section 03600 - Grouts



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Part 1 – General

1.01 Summary

- A. This specification describes grouting of machinery base plates, anchor bolts, pins and dowels with a cement based precision grout.

1.02 Quality Assurance

- A. Manufacturing qualifications: The manufacturer of the specified product shall be ISO 9001:2000 certified and have in existence a recognized ongoing quality assurance program independently audited on a regular basis.
- B. Contractor qualifications: Contractor shall be qualified in the field of concrete repair and protection with a successful track record of 5 years or more. Contractor shall maintain qualified personnel who have received product training by a manufacturer's representative
- C. Install materials in accordance with all safety and weather conditions required by manufacturer or as modified by applicable rules and regulations of local, state and federal authorities having jurisdiction. Consult Material Safety Data Sheets for complete handling recommendations.

1.03 Delivery, Storage, and Handling

- A. All materials must be delivered in original, unopened containers with the manufacturer's name, labels, product identification, and batch numbers. Damaged material must be removed from the site immediately.
- B. Store all materials off the ground and protect from rain, freezing or excessive heat until ready for use.
- C. Condition the specified product as recommended by the manufacturer.

1.04 Job Conditions

- A. Environmental Conditions: Do not apply material if it is raining or snowing or if such conditions appear to be imminent. Minimum application temperature 45°F (7°C) and rising.
- B. Protection: Precautions should be taken to avoid damage to any surface near the work zone due to mixing and handling of the specified material.

1.05 Submittals

- A. Submit two copies of manufacturer's literature, to include: Product Data Sheets, and appropriate Material Safety Data Sheets (MSDS).

1.06 Warranty

- A. Provide a written warranty from the manufacturer against defects of materials for a period of one (1) year, beginning with date of substantial completion of the project.

Part 2 - Products

2.01 Manufacturer

- A. **SikaGrout 328**, as manufactured by Sika Corporation, is considered to conform to the requirements of this specification.

2.02 Materials

- A. General
1. The material shall be a blend of selected portland cements, specially graded aggregates, admixtures for controlling setting time and water reducers for workability.
 2. The material shall be non-combustible, both before and after cure.
 3. The material shall be supplied in a factory-blended bag.

2.03 Performance Criteria

- A. Typical Properties of the material:
1. Color: concrete gray
 2. Working Time: Approximately 60 minutes
 3. Flow Conditions
 - Dry Pack: 10-25% - Flow Table ATSM C-230
 - Plastic: 100-125% - Flow Table ATSM C-230
 - Flowable: 124-145% - Flow Table ATSM C-230
 - Fluid: 20-60-sec - CRD-C-611-Efflux Time
 4. Set Times

FLOW CONDITION	INITIAL SET	FINAL SET
Dry Pack	< 15 minutes	< 2 Hours
Plastic	> 2 Hours	< 6 Hours
Flowable	> 3 Hours	< 7 Hours
Fluid	> 4 Hours	< 8 Hours

Typical Data (Material and curing conditions @ 73°F (23°C) and 50% R.H.)

Flow Conditions	Dry Pack	Plastic	Flowable	Fluid
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I. Compressive Strength, psi ASTM-C-109

<i>(a) 1 day</i>	5,000	4,500	4,000	3,500
<i>(b) 3 day</i>	8,000	6,500	6,000	5,500
<i>(c) 14 day</i>	9,200	7,000	6,700	6,500
<i>(d) 28 day</i>	10,000	8,200	8,000	7,500

II. Splitting Tensile Strength, psi (ASTM C-496)

<i>(a) 1 day</i>				350
<i>(b) 7 day</i>				400
<i>(c) 28 day</i>			650	

III. Flexural Strength, psi (ASTM C-78)

<i>(a) 1 day</i>				1,100
<i>(b) 7 day</i>				1,200
<i>(c) 28 day</i>				1,300

IV. Bond Strength, psi (ASTM C-882 modified):

Hardened concrete to plastic grout

<i>(a) 1 day</i>				950
<i>(b) 7 day</i>				1750
<i>(c) 28 day</i>				2000

V. Freeze Thaw Cycles ASTM-C-666

Procedures A

300 Cycles RDF 99%

Part 3 – Execution

3.01 Surface Preparation

- A. Ensure that the placement area is clean and free of debris, fuel, oils, other contaminants, and site trash at all times.
- B. Remove all dirt, oil, grease, and other bond-inhibiting materials by mechanical means. Anchor bolts to be grouted must be degreased with suitable solvent. Concrete must be sound and roughened to promote mechanical adhesion. Prior to pouring, the surface should be brought to a saturated surface-dry condition.

3.02 Mixing and Application

Mixing Mechanically mix with a low speed drill (400-600 rpm) for at least 5 minutes using a Sika mixing paddle. SikaGrout 328 can be mixed in an appropriately sized mortar mixer. Mixing should continue until a homogenous mixture is achieved.

Product Extension: For deeper applications, SikaGrout 328 (plastic and flowable consistencies only) may be extended with 25 lbs. of 3/8" pea gravel. The aggregate must be non-reactive, clean, well-graded, saturated surface dry, have low absorption and high density, and comply with ASTM C33 size number 8 per Table 2. Add the pea gravel after the water and SikaGrout 328.

Mixing Procedure Make sure all forming, mixing, placing, and clean-up materials are on hand. Add appropriate quantity of clean water to achieve desired flow. Add bag of powder to mixing vessel. Mix to a uniform consistency, minimum of 3 minutes. Ambient and material temperature should be as close as possible to 70°F. If higher, use cold water; if colder, use warm water.

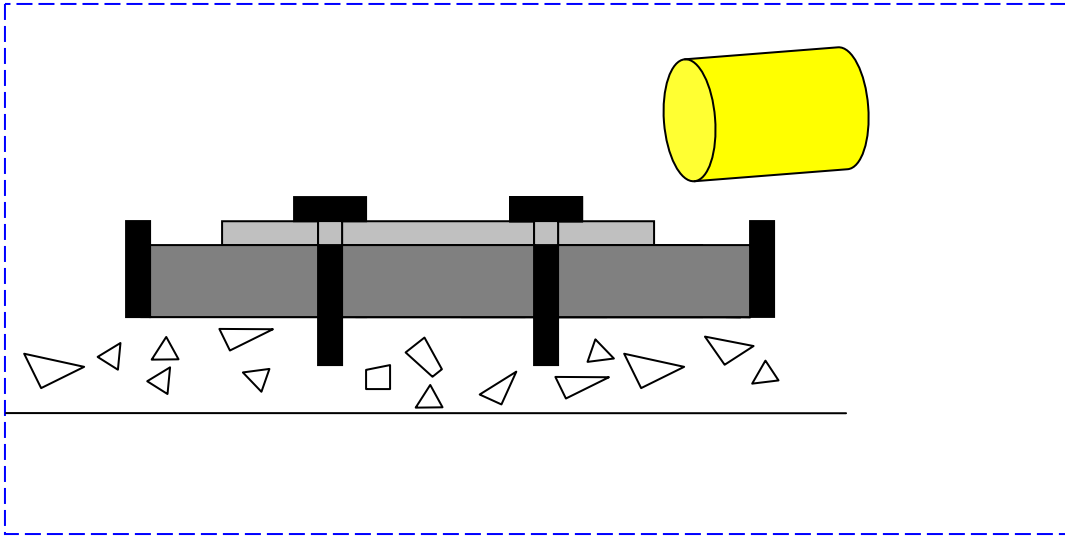
Application Within 60 minutes after mixing, place grout into forms in normal manner to avoid air entrapment. Vibrate, pump, or ram grout as necessary to achieve flow or compaction. SikaGrout 328 must be confined leaving minimum exposed surface. After grout has achieved final set, remove forms, trim or shape exposed grout shoulders to designed profile. SikaGrout 328 is an excellent grout for pumping, even at high flow. For pump recommendations, contact Technical Service. Wet cure for a minimum of 3 days or apply a curing compound on exposed surfaces which complies with ASTM C-309.

3.05 Cleaning

- A. The uncured material can be cleaned from tools with water. The cured cement grout can only be removed mechanically.
- B. Leave finished work and work area in a neat, clean condition without evidence of spillovers onto adjacent areas.

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SikaGrout 328 **Base Plate Grouting**

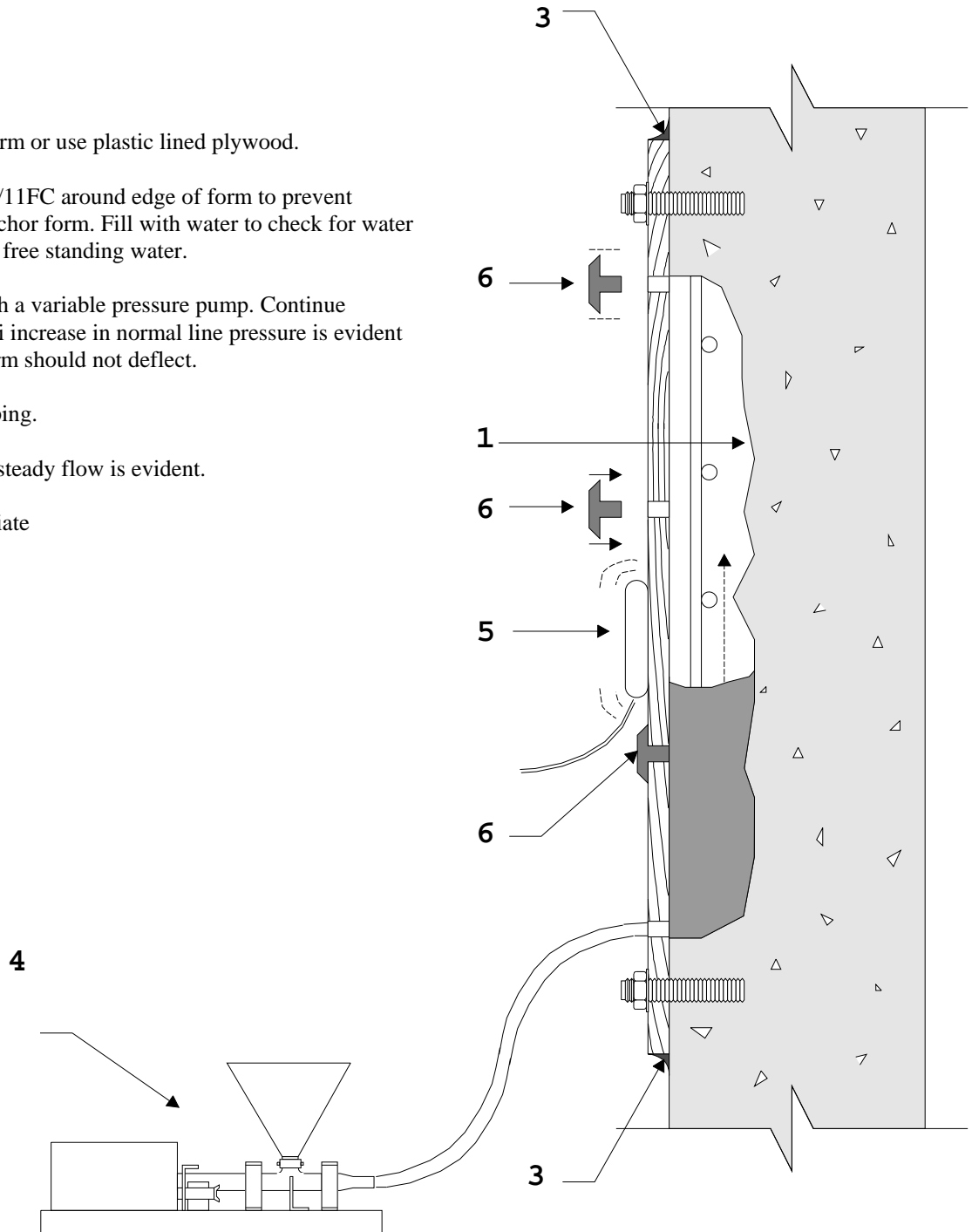


1. Pre-wet surface to SSD
2. Set Form and chip spot for pour box. Apply release agent to form or use plastic lined plywood.
3. Run bead of Sikaflex 1A/11FC around the edges of the form where one can expect leakage.
4. Vibrate form while pouring SikaGrout 328.
5. Ensure consolidation of the SikaGrout 328.

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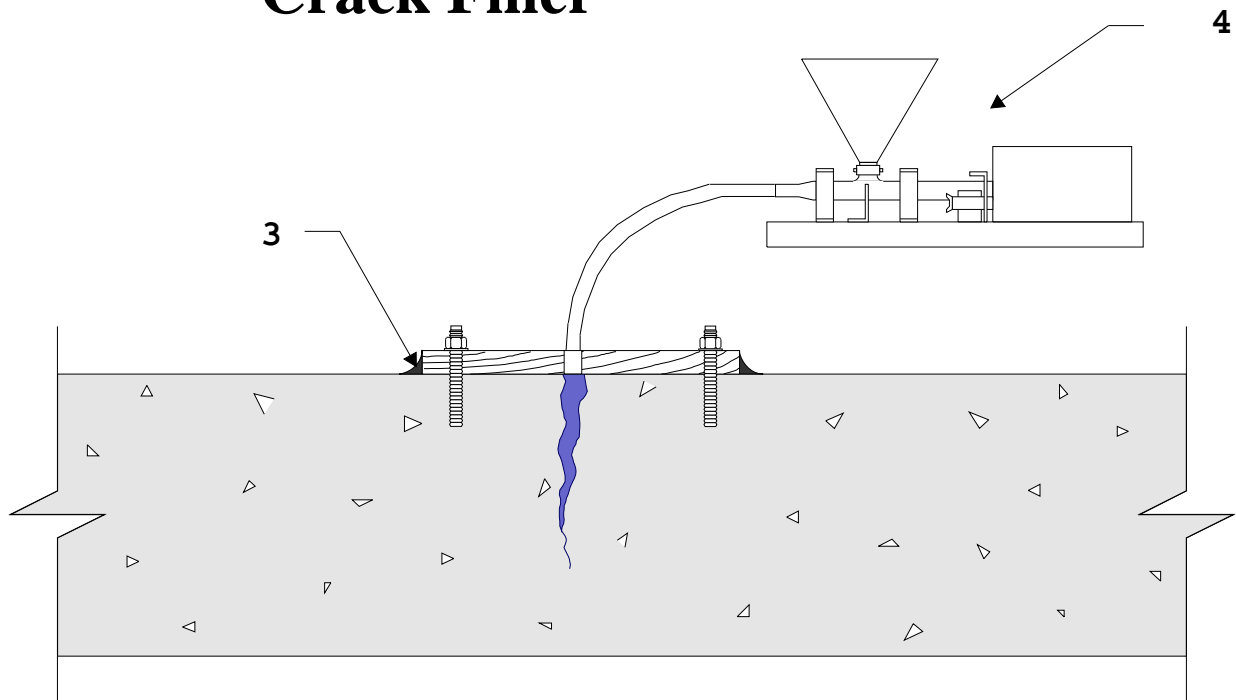
SikaGrout[®] 328 Form and Pump

1. Pre-wet surface to SSD.
2. Apply release agent to form or use plastic lined plywood.
3. Run bead of Sikaflex 1A/11FC around edge of form to prevent leakage, let cure, then anchor form. Fill with water to check for water tightness. Let drain to no free standing water.
4. Pump SikaGrout 328 with a variable pressure pump. Continue pumping until a 3 to 5 psi increase in normal line pressure is evident then STOP pumping. Form should not deflect.
5. Vibrate form while pumping.
6. Vent to be capped when steady flow is evident.
7. Strip form when appropriate



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SikaGrout[®] 328 Crack Filler



1. Pre-wet surface to SSD.
2. Apply release agent to form or use plastic lined plywood.
3. Run bead of Sikaflex 1A/11FC around edge of form to prevent leakage, let cure, then anchor form.
4. Pump SikaGrout 328 with a variable pressure pump. Continue pumping until grout flow is evident at an adjacent port.
5. Cap off original port when steady flow is evident, move to adjacent port and continue pumping procedure until all injectable cracks have been filled.
6. Strip form when appropriate.
7. Dry pack anchor holes with SikaGrout 328.

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