MASCO
MASONS SUPPLY

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TECHNICAL DATA SHEET

Product: **MASCO PLATE DOWEL SYSTEM**
Revision Date: 2/11/2020

DESCRIPTION

The Plate Dowel System provides exceptional construction joint stability in concrete flat work applications with a minimal measurement of only 0.01 inches. The tapered shape and geometry of the steel plate dowel provides positive load transfer and continuity of surface profiles to minimize joint spalling, eliminate tripping hazards and improve joint filler performance. The plastic sleeve is nailed to lumber edge forms before concrete placement and the steel plate slides into the sleeve after forms are removed in preparation for the adjoining slab. The Plate Dowel System assures a return on your concrete flat work investment.

FEATURES

- Reduce your call backs and save labor on the project site.
- Optimize the amount of steel in your project.
- Limit liability and future joint issues.
- Deliver cost-effective concrete flatwork.

INSTALLATION ADVANTAGES

- Eliminates slab edge drilling and reduces labor costs for all types of ground level concrete slabs, including floors, flatwork and pavement.
- Eliminates drilling bulkheads, greasing and twisting round dowels and removing then reinstalling dowels.
- Allows for easy stripping of formwork.
- Guarantees positive load transfer and eliminates cracking from restraint with reliable dowel alignment.
- Reduces job-site trip hazards.

SIZES

Dimensions (Size) in inches	Item Number
1/4" x 4.5" x 4.5"	CFA TD14
3/8" x 4.5" x 4.5"	CFA TD38
3/4" x 4.5" x 4.5"	CFA TD34

1/4" Plate

3/8" Plate

3/4" Plate

STEEL OPTIONS

- Plates are manufactured from steel certified to meet ASTM A36 (1/4" and 3/8") or ASTM A108 (3/4")

For corrosion resistance, plates can be with:

- Electroplated zinc, certified to meet ASTM B633 Type II For absolute corrosion resistance, plates can be made from:
- Grade 304 stainless steel certified to meet ASTM A240

INSTALLATION

Plate Dowel System is engineered to guarantee the fastest and most perfectly aligned installation of load transfer at construction joints when properly installed.

First.....

- Utilize a suitable grade of lumber or polymer form- board according to the required slab thickness.
- Before setting the form board in place on the project site, measure and mark the form board accordingly to the project specification requirements for pocket former placement. You can also refer to the "Dowel Size and Spacing For Construction Joints" table on page 2 of this literature.
- Place the plastic pocket former with its identification label towards and against the surface of the form board.
- Be sure to center the plastic pocket formers in the center of the form board from top to bottom and check the project specifications for the proper spacing or refer to "Dowel Size and Spacing For Construction Joints" on page 2 of this literature.
- Secure or fasten the plastic pocket former with the factory installed nails located on both sides of the pocket former to the form board making sure that the surface of the pocket former, baring the Plate Dowel size identification of 1/4", 3/8" or 3/4", is flush and tight against the form board.
- After installing the plastic pocket formers, install the assembled form board in place and secure it with form stakes and / or any other bracket or clamp device.
- Place concrete normally, completely surrounding each sleeve location. Vibration is required to properly consolidate concrete and eliminate air entrapment. Do not strike or damage sleeves with the vibrator.
- When concrete reaches sufficient strength, the adjoining slab base can be leveled and compacted. Insert the steel plates into the sleeves by puncturing the cover strips. The plates should be completely inserted into the sleeves.
- Position, support and tie any remaining slab reinforcement. The adjoining concrete can now be placed against the edge of the first and the exposed steel plates. Place concrete normally, completely surrounding the area around each plate.

MASCO PLATE DOWEL SYSTEM | technical datasheet

ENGINEERING

All published engineering on the spacing of plate dowels at the construction joints is based on the geometry and size the Plate Dowel System.

Reduce Joint-Edge Spalling

- Delivers acceptable joint stability per industry guidelines of less than 0.01 inch and continuity of surface profile across the joint.
- Minimizes initial dowel looseness through the consistent and tight manufacturing tolerance in the formation of the Plate Dowel System Pocket Former.
- Reduces additional dowel looseness by delivering an engineered 6.36 inches of steel at the joint and 5.45 square inches of steel (given a joint opening of 1/8 inch) in the first inch of embedment where the bearing, shear and flexural stresses are the highest.
- Permits dowel placement where the curling stresses are highest, to within six inches of the joint intersection.

Minimize Random Cracks and Ensures Joint Activation

- Allows for free horizontal movement of the concrete without restraint with 45° tapered diamond plate geometry.
- Allows for a 3/8 inch of lateral movement at a joint that opens 1/8 inch.

PERFORMANCE CHARACTERISTICS

Plate Dowel system installation conforms to ACI 302.1R Guide for Concrete Floor and Slab Construction and ACI 360 Design of Slabs-on-Ground.

Materials

- Plate Dowel 1/4" and 3/8" plates are manufactured from steel certified to meet ASTM A36, providing consistent modulus of dowel support to ensure reliable quality and performance; 3/4" plates are manufactured from grade 1018 cold-finished steel certified to meet ASTM A108 to ensure thickness tolerances of the manufactured material.
- Plate Dowel pocket former is molded from high density ABS plastic with internal collapsible fins and spacers that ensure load plate is installed in correct position, maintains integrity of the pocket former and creates a vertical void to its vertical faces

Manufacturing QC / QA Processes

- All steel is laser cut full-depth and de-burred per industry guidelines ensuring smooth, square plate edges that will not induce restraint.

PACKAGING

Plate Dowel Formers	Plate Dowels
1/4" 100 Per Carton	1/4" 25 Per Carton
3/8" 100 Per Carton	3/8" 25 Per Carton
3/4" 50 Per Carton	3/4" 10 Per Carton

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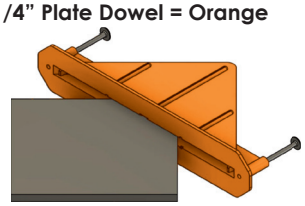
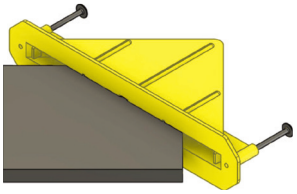
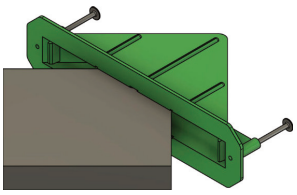
1/4" Plate Dowel = Orange



3/8" Plate Dowel = Yellow



3/4" Plate Dowel = Green



Dowel Size and Spacing for Construction Joints

Slab Depth, in. (mm)	Dowel Dimensions*, in. (mm)			Dowel Spacing Center-to-Center, in. (mm)		
	Round	Square	Diamond-shaped**	Round	Square	Diamond-shaped
5 to 6	3/4 x 14	3/4 x 14	1/4 x 4-1/2 x 4-1/2	12	14	18
7 to 8	1 x 16	1 x 16	3/8 x 4-1/2 x 4-1/2	12	14	18
9 to 11	1-1/4 x 18	1-1/4 x 18	3/4 x 4-1/2 x 4-1/2	12	12	20

Source Material: ACI 360R-06, Design of Slabs-on-Ground, Table 5.2; ACI 302.IR-04, Guide for Concrete Floor and Slab Construction, Table 3.2 * Total dowel length includes allowance made for joint opening and minor errors in positioning dowels. **Construction tolerances required make it impractical to use diamond-shaped load plates in saw-cut contraction joints. Note: Table values based on maximum opening of 0.2 in. Dowels must be carefully aligned and supported during concrete operations. Misaligned dowels may lead to cracking.