

Guide to Aggregate Extension of MasterFlow[®] Cementitious Grouts

The use of “fillers” or aggregate extension with MasterFlow precision non-shrink grouts is only suggested in specific applications.

1. Placement depth of six inches (6”) or greater
2. There are no obstructions (other than anchor bolts) to hinder grout flow
3. The added aggregate does not interfere with placement or require additional water be used in the grout.

Primary reasons for approving the use of aggregate extension are:

1. Reduction of heat of hydration when grout depth exceeds recommended maximum for neat grout.
 2. Applications such as mass grouting or when grout is being used in non-precision applications
- If aggregate extension is required, the following aggregate characteristics should be met:

Aggregates should be rounded, washed, saturated surface dry, graded, low-absorption, non-reactive, and high-density. Preferred gradation: 100% passes the 1/2” sieve and is retained on the 3/8” sieve. ASTM C 33 size #8 aggregate is also acceptable.

If extension is planned, up to 40% by weight has been used successfully. Limit extension to the smallest percentage practical. Experience has shown extension of twenty-five (25) percent by weight allows the best performance.

For aggregate extension information in bulk bag applications, refer to Technical Bulletin: Guide to Mixing MasterFlow Precision Grout Bulk Bags in a Transit Mixer.

% Aggregate Extension (by weight)	Weight of Aggregate (per 50 lb bag of grout) MasterFlow 100, 555, & 4316	Weight of Aggregate (per 55 lb bag of grout) MasterFlow 713, 928, & 885
10	5	5.5
15	7.5	8.3
20	10	11.0
25	12.5	13.8
30	15	16.5
35	17.5	19.3
40	20	22.0

Note: The specific gravity of the aggregate affects the volume of extension and related flow properties achieved.

Note: 25% aggregate extension by weight has been found to yield acceptable results for most applications.

MasterFlow grouts are subject to strict quality control standards and testing. The introduction of aggregate from an unknown source and of undetermined quality makes it difficult to assure performance. The user must qualify the characteristics recommended are present in any aggregate used to extend MasterFlow precision grouts. Preliminary testing with the proposed rate of aggregate extension is recommended with the proposed aggregate to ensure the properties obtained are suitable for the intended use.

Whenever aggregate extension is to be used, the initial batches of grout should be mixed to the Product’s recommend flow rates before the aggregate is added. Once the water content is determined do not add additional water to the extended grout. Once the proper water content has been established using neat grout mixes, the aggregate can be added to the mix water and before the grout for subsequent mixes. Doing so may reduce any tendencies of lump formation.

Grout extended with #8 aggregate should be tested for compressive strength using the same methodology as neat grout – ASTM C109 2”x 2”x 2” (50mm x 50mm x 50mm) cubes.

HEALTH , SAFETY AND ENVIRONMENTAL

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