

Motorized roller screeds use a cylinder that is powered to spin counter to the direction of travel. This equipment rides on formwork and strikes concrete as the face of the cylinder travels over the surface. Four main variables in the specification and configuration of the screed will affect the compaction force applied to the surface of a slab of concrete of specific coarse aggregate.

The relative proportion between cylinder diameter and coarse aggregate size affects compaction intensity. A small cylinder will contact large aggregate and strike it forward rather than pressing it downward. Pervious concrete pavement placed using the one-step method (without additional compaction from full-width static rollers) requires the screed to achieve 80% of the compaction task. The remainder of compaction is achieved with cross rollers after the screed is finished.

The weight of the motorized roller screed must be configured to avoid riding high or skipping over concrete that is above slab elevation.

The hardness of the metal of the screed cylinder affects the compaction force as softer metal is prone to strike rather than compress surface materials. Higher carbon steel or stainless tubing is preferred for higher compression.

The speed of the cylinder rotation must be sufficient to pass at least 4500 inches of cylinder surface over the slab surface, per minute. This provides sufficient uniformity for pervious concrete placed in one-step operations.

Coarse aggregate size, inches	Cylinder diameter, inches	Rotation speed, rpm
1/4", 0% retained on 3/8 sieve	4	360
1/4", 5% max retained on 3/8 sieve	4.5	320
1/4", 10% max retained on 3/8 sieve	5	288
3/8", 0% retained on 1/2 sieve	6	240
3/8", 5% max retained on 1/2 sieve	6.5	220
3/8", 10% max retained on 1/2 sieve	7	205
1/2"	8	180