

Just Add Water...

by Craig McDonald

Sufficient water supply is one of the most important variables in the application of good-quality dry-mix shotcrete. It is often overlooked, especially by people who are new to the industry. Although the flow required is relatively minimal (10 to 60 L/min [2.5 to 16 gal./min]), all too often the water pressure requirements are not given the attention they deserve. It is important for the water pressure to be at least 100 kPa (15 psi) greater than the pressure in your conveyance hose. Conveyance hose pressure will vary based on many factors such as length and inside diameter, material gradation, vertical ascents, rpm of the rotor or bowl, and the adjustment of the valves feeding the compressed air to the conveyance hose. Hose pressure will usually vary from as little as 200 kPa (30 psi) to as great as 480 kPa (70 psi). It is best not to rely on an onsite water source. A good-quality water tank and pressure booster pump will easily pay for themselves in the long run.

Water rings and fittings should not be overlooked or altered in any way. It is a common mistake to increase the size (drill out the holes) or to add more holes in a water ring if sufficient water is not available. This can be counterproductive due to the fact that increasing the number of holes and their

size may reduce the back pressure in the water supply line. If the water pressure was marginal to start with, it can decrease with larger holes in the water ring. It is good practice to dismantle the water ring assembly after every shoot and remove any material buildup, and grease the threads and O-rings (if applicable). Routine maintenance of the water ring assembly will save you repeated occurrences of down time. Neglect will cause lost time because of seized fittings and couplings. As the old saying goes, "You can pay me now or pay me later, but you will pay me."



Craig McDonald is Sales Manager for the Minequip Division of King Packaged Materials Company. Equipment for both the wet and dry shotcrete process, as well as the mixing and placing of dry-mix concrete and grout products, are his areas of expertise. McDonald is a graduate of the Mechanical Engineering Technology program at Canadore College in North Bay, ON, Canada.

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