



SKAPS INDUSTRIES

SKAPS HYDROTEX

INSTALLATION GUIDELINE



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HYDROTEX™ brand fabric forms, manufactured by SKAPS industries are used to construct a wide range of concrete-filled systems that provide outstanding performance in erosion control, scour protection and repair, foundation, environmental and marine construction applications. The fabric forms are constructed by double-layer woven synthetic fabric. HYDROTEX linings and mats are installed by positioning fabric forms over the areas to be protected and then pumping high-strength, fine aggregate concrete (structural grout) into the forms. The fabric forms can be placed and filled either underwater or in-the-dry. The high-strength, fine aggregate concrete is used in place of conventional concrete because of its pumpability, high-strength, impermeability, and absorption resistance properties.

HYDROTEX linings and mats are used to protect canals, channels, culverts, dams, dikes, embankments, bridge piers, spillways, underwater pipelines, and other hydraulic and marine structures from the forces of flowing water and wave action. In addition to significant performance advantages, HYDROTEX fabric-formed concrete is economical to install. It eliminates the need for heavy equipment, steel reinforcement, and forming and stripping of conventional concrete forms. It generally does not require specialized labor or dewatering of the job site prior to installation.



EQUIPMENT AND TOOLS

The installation procedure for the SKAPS HYDROTEX® concrete mattresses requires tools and equipment described herein. The contractor shall have on hand the following:

1. Concrete transit mixer, for transportation of concrete from RMC to project site.
2. Concrete pump with metal pipe, metal adaptor, metal coupling etc. are required for smooth filling of concrete grout into Hydrotex mattresses.
3. Electric Generators for power requirement, narrow trench digging equipment's for trench excavation, vibratory compactor for soil compaction and other small equipment like ue gun, hand-held sewing machine, hammer, thermal cutter, scissors etc. are required.
4. Diving equipment's like Air Compressors, air Control and depth Monitoring Systems, umbilical lines, diver communication systems (hardware and software), diving masks, diving suits, marine cleaning system for underwater inspection.
5. Helmets, concrete gloves, concrete gum boots, face mask, safety tape, ear plugs, reflective jackets, hand gloves, safety belt

SITE PREPARATION – GRADING

1. Areas on which fabric forms are to be placed shall be constructed to the lines, grades, contours, and dimensions shown on the Contract Drawings. The areas shall be graded and uniformly compacted to a smooth plane surface with an allowable tolerance.
2. The areas shall be free of organic material and obstructions such as roots and projecting stones and grade stakes shall be removed.
3. Excavation and preparation of aprons as well as anchor, terminal or toe trenches shall be done in accordance with the lines, grades, contours, and dimensions shown on the Contract Drawings.
4. If installation of fabric will be carried out under water, cleaning of canal bed is required. The canal bed should be free of obstacles like debris, rocks, silt layer and vegetation. Scuba divers and above-mentioned accessories are required for cleaning of canal bad.



INSPECTION AND FABRIC PLACEMENT

1. Immediately prior to placing the fabric forms, the prepared area shall be inspected by the Site Engineer.
2. The first step in the installation of fabric formed concrete linings is to establish a starting point. It is the customary practice to work from the upstream end of the project to the downstream end.
3. The geotextile filter fabric shall be placed directly on the prepared area, in intimate contact with the subgrade, and free of folds or wrinkles. The geotextile filter fabric shall be placed so that the upstream roll of fabric overlaps the downstream roll. The longitudinal and transverse joints will be overlapped at least 600 mm. The geotextile will extend at least one 300 mm beyond the top and bottom concrete lining termination points, or as required by the Engineer.
4. Factory assembled Hydrotex fabric panels shall be placed over the geotextile filter fabric and within the limits shown on the Contract Drawings. Perimeter termination of the Hydrotex fabric shall be accomplished through the use of anchor, flank and toe trenches, as shown on the Contract Drawings.
5. Adjacent Hydrotex fabric panels shall be joined in the field by means of sewing or zippering closures. Adjacent panels shall be joined top layers to top layers and bottom layers to bottom.
6. Immediately prior to filling with fine aggregate concrete, the assembled fabric forms shall be inspected by the Engineer, and no fine aggregate concrete shall be pumped therein until the fabric seams have been approved.

FINE AGGREGATE CONCRETE FILLING

1. Following the placement of the fabric forms over the geotextile filter fabric, fine aggregate concrete shall be pumped between the top and bottom layers of the fabric form panels through filling ports in the top layer of the fabric form.
2. Fine aggregate concrete shall be pumped in such a manner that excessive pressure on the fabric forms is avoided.



3. The sequence of fine aggregate concrete shall be such as to ensure complete filling of the fabric formed concrete lining to the thickness specified. The flow of the fine aggregate concrete shall first be directed into the lower edge of the fabric form and working back up the slope, followed by redirecting the flow into the anchor trench.
4. Prior to removing the filling pipe from the current concrete lining section and proceeding to the fine aggregate concrete filling of the adjacent lining section, the thickness of the current lining section shall be measured by inserting a length of stiff wire through the lining at several locations from the crest to the toe of the slope. The average of all thickness measurements shall be not less than the specified average thickness of the concrete lining. Should the measurements not meet the specified average thickness, pumping shall continue until the specified average thickness has been attained.
5. Excessive fine aggregate concrete that has inadvertently spilled on the concrete lining surface shall be removed. The use of a high-pressure water hose to remove spilled fine aggregate concrete from the surface of the freshly pumped concrete lining shall not be permitted.
6. Foot traffic will not be permitted on the freshly pumped concrete lining when such traffic will cause permanent indentations in the lining surface. Walk boards shall be used where necessary.

After the fine aggregate concrete has set, all anchor, flank and toe trenches shall be backfilled and compacted flush with the top of the concrete lining. The integrity of the trench backfill must be maintained so as to ensure a surface that is flush with the top surface of the concrete lining for its entire service life. Toe trenches shall be backfilled. Backfilling and compaction of trenches shall be completed in a timely fashion to protect the completed concrete lining.