SURELOCK® mechanical anchors are flexible high-tensile steel strands of specific lengths, anchored inside a drilled hole with an innovative locking-off unit called the ‘SURELOCK® swivel barrel’ at the collar. The advantage of using this locking-off device is that once the required prestressed load is achieved, the shear ring shears on the barrel into a positive visual indicator with an audible knock.

SURELOCK® mechanical anchors are made to requirements as specified by the end user. These anchors are designed to give immediate support and are normally post-grouted after being pre-stressed.

Advantages
- These anchors are easily installed using trained support installation crews.
- The cable anchors are manufactured to the required specifications of the customer e.g. the cut length of the strand, size of expansion shell, specified load at which shear ring activates.
- All mechanical anchors are tensioned to the required loads as specified by the customer, with hydraulic equipment approved by the supplier.
- The mechanical anchors require reasonably competent rock in order for the expansion shell to embed itself inside the drilled hole.
- All mechanical anchors may be grouted either before or after pre-stressing the anchors.

### TECHNICAL INFORMATION

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Strand diameter (mm)</th>
<th>Ultimate tensile strength (tons)</th>
<th>Pre-Stress Load (tons)</th>
<th>Hole diameter (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.70</td>
<td>18.0</td>
<td>10.0</td>
<td>38.0 to 42.0</td>
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<td>15.24</td>
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<td>35.0</td>
<td>20.0</td>
<td>38.0 to 42.0</td>
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<td>18.00 Compact</td>
<td>38.0</td>
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<td>22.00</td>
<td>50.0</td>
<td>20.0</td>
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</table>

Training
Aveng Manufacturing Duraset provides “on the job” training and certificates are presented to individuals who successfully complete the anchor training.
Installation procedure for SURELOCK® mechanical anchors

Check the equipment and the anchor to be installed
1. Check the 25 ton tensioner as per the daily maintenance list
2. Check the hydraulic pump as per the daily maintenance list
3. Check the strand cropper as per the daily maintenance list
4. Check the grout pump with hoses and correct fittings
5. Check the type of anchor – the length and that the other material is available, i.e. the bearing plate with the SURELOCK® barrel and wedge.

Flexible anchor installation procedure
Before installing the SURELOCK® Mechanical Anchor, check the following:
1. The length of the anchors, always add 0.5m for the tensioner
2. The type of anchor, i.e. the mechanical anchor
3. Invert the anchor and push it to the back of the drilled hole, if 0.5m of strand is left protruding from the hole, then the depth of the drilled hole is correct
4. Check the diameter of the hole. If it is not to the correct specifications, i.e. oversized or undersized, the anchor could slip inside the hole, or not be able to enter the hole
5. Remove the tape at the expansion shell and push the large poly pipe down the expansion shell (but not all the way)
6. Insert the expansion shell carefully into the collar of the hole, holding the large poly pipe and preventing such from entering the hole, and gently push the anchor into the hole until it strikes the back of the drilled hole
7. Pull the protruding strand of the anchor until the expansion shell kicks open and locks firmly inside the hole
8. Cut a short piece off the poly pipe and insert into the collar of the hole, two pieces of poly pipe will now protrude from the drilled hole, namely the grout tube (short cut piece) and the breather tube (protruding by 0.3 meter)
9. Seal the collar of the drilled hole with quick-setting grout to prevent grout from escaping during the grouting operation
10. Clean the protruding strand with a clean cloth
11. Place the anchor bearing plate over the strand through the centre hole until it is flush against the collar of the hole, the two grout tubes should protrude through the two smaller side holes
12. Push the SURELOCK® barrel and the wedge over the length of the protruding strand, until flush against the bearing plate.

Tensioning procedure
1. Connect the hydraulic tensioner to the hydraulic pump
2. Push the tensioner with the jack nose over the protruding strand until flush up against the SURELOCK® barrel (always ensure that the grout tubes will not be pinched closed during the pre-stressing operation)
3. Operate the hydraulic pump until the shear ring of the SURELOCK® barrel shears
4. Never let anyone stand directly behind the tensioner whilst in operation
5. The anchor is now pre-stressed to the specified load
6. Reverse the control of the hydraulic pump and operate until the tensioner is loose on the protruding strand
7. Remove the tensioner and connect the strand cropper to the hydraulic pump and cut the protruding strand approximately 100mm from the SURELOCK® barrel
8. Prepare the grout and connect the grout pipe from the grout pump to the short grout tube and pump the grout into the hole until grout starts to escape from the breather tube
9. Close off the breather tube and pump once or twice until the hole is completely full
10. Remove pump grout hose and close off the grout pipe.