

HYTORC

Accelerating Naval Maintenance Through Advanced Bolting Technology

PROBLEM STATEMENT Naval maintenance and modernization schedules are heavily impacted by labor-intensive bolting operations. Critical repairs often require multiple personnel, extended installation times, & expose maintainers to ergonomic & safety risks. Shipyards need methods to reduce maintenance duration without compromising quality or worker safety.	BENEFITS • Up to 50% reduction in bolting cycle time • Additional 40-60% reduction using ASTM F3394 washers • Reduced labor requirements for maintenance tasks • Improved worker safety through reaction-arm elimination • Increased maintenance throughput & schedule adherence • Supports workforce productivity amid skilled labor shortages														
TECHNOLOGY SOLUTION HYTORC's Advanced Bolting System combines: • Simultaneous multi-tool tightening (ASME PCC-1 recognized methodology) • ASTM F3394 Reaction Washers • ASTM F3394 Backup Washers Together these technologies: • Eliminate traditional reaction arms • Eliminate backup wrenches • Reduce required personnel • Standardize torque procedures • Significantly shorten installation & maintenance times	GRAPHIC <table> <tr> <th>Traditional Bolting</th><th>HYTORC Advanced Bolting</th></tr> <tr> <td></td><td></td></tr> <tr> <td>2-3 Personnel</td><td>1-2 Personnel</td></tr> <tr> <td>100% Baseline Time</td><td>Up to 80% Faster</td></tr> <tr> <td></td><td></td></tr> <tr> <td>⚠ Reaction Arm</td><td>✓ ASTM F3394 Washer</td></tr> <tr> <td>⚠ Backup Wrench</td><td>✓ No Backup Wrench</td></tr> </table>	Traditional Bolting	HYTORC Advanced Bolting			2-3 Personnel	1-2 Personnel	100% Baseline Time	Up to 80% Faster			⚠ Reaction Arm	✓ ASTM F3394 Washer	⚠ Backup Wrench	✓ No Backup Wrench
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