## **Tool and Application Choices**

TOOL	APPLICATION	PROBLEM TO SOLVE	ADVANTAGES
SpinTORQ 360° Rotating Wrench	Breaking down Making up Continuous rotation of bolts & shafts	Need for: Speed Continuous rotation Reversible rotation SubSea / ROV	360° Continuous Rotation of Nut, clockwise and counter-clockwise 36 times faster than ratchet wrenches Continuous full power in both directions
ThinLINE Hydraulic Torque Wrench	Breaking down Making up	Clearance issues	60° turn of nut before resetting Cylinder engaged during power & retraction strokes Wrench profile is narrower than the nut height
AutoTORQ FL-XL Ratchet Wrench	Breaking down Making up	Limited Space	Low profile Direct fit over the nut
AutoTORQ FS-XL Ratchet Wrench	Breaking down Making up	Need for high torque Use of one tool on multiple nut sizes	Desired torque at the touch of a button Accurate to +/- 3% Many socket sizes fit each wrench
AutoSPLITTER Nut Splitter	Breaking down Removing nuts	Corroded fasteners Galled threads	Won't damage stud Each model cuts multiple nuts sizes (from 3 to 9 per model) Fits into tight spaces NO Hot Permit required Quick, safe & economical
Fixed & Variable Stud Tensioner	Breaking down Making up	Many studs Large studs Large flanges	Equal & simultaneous bolt load Compact & lightweight Reduces risk of galling fasteners
AutoSPREADERS Flange Spreader	Replacing gaskets Leveling machinery Separating flanges	Frozen flanges Need to replace gasket	Allows quick replacement of gaskets One size fits all flanges Only 3/32" clearance needed to fit spreader



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ZipLIFT Robotic Crane Grapple	Retrieve and abandon loads in hazardous environments	Connect and release lines to and from loads without human intervention	Zip-Lift pushes-on and pulls-off threaded lifting eyes
ZipTENSIONER Robotic Stud Tensioner	Connect bolted joints in deep water or other hazardous environments	Place stud tensioners on studs, pull studs into tension, rotate nuts and remove tensioner without human intervention	ZipTENSIONER pushes-on and pulls-off using ROVs or hardsuits Hydraulic motor rotates nuts
ZipPULLER Flange Pullers	Pull flanged pipelines together SubSea	Heavy loads to pull and hold without human intervention	Double Zip-Nuts on each end of the pulling cylinder provide robotic control
DTIs - Direct Tension Indicators	Measure bolt load induced in each bolt in a flange	Inspect for bolt load without the use of strain gauges or instruments	DTIs measure bolt load using a feeler gauge
AutoGRIPPER Stud Remover	Breaking down	Unable to remove studs from threaded hole	Especially useful on blind flanges Eliminates flame cutting & machining

