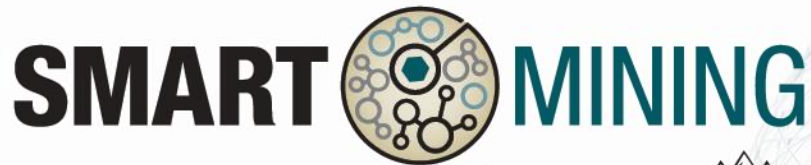


# Bolting Solution Dramatically Reduces the Risk of Hand Injuries

*Randy Reagan, Eric Stone, HYTORC, Mahwah, NJ*



*Resources for a Connected World*



**February 26, 2019**

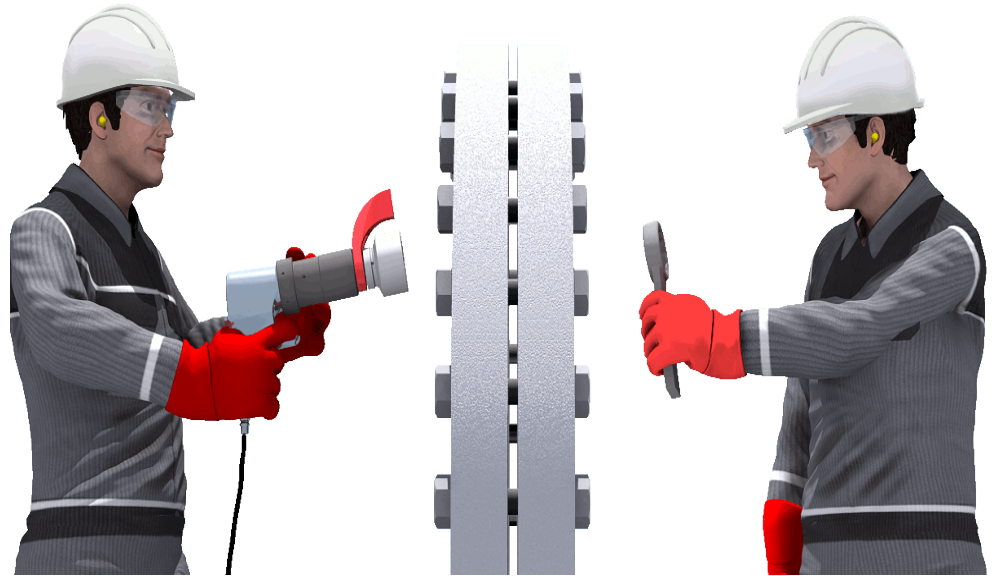
# Mining – Bolts are Everywhere

- Heavy equipment
- Extreme vibrations
- Large bolts & bolt loads
- Dangerous conditions



# Safety Concerns

- High torque
- Reaction arms
- Backup wrenches
- Injury risks very real



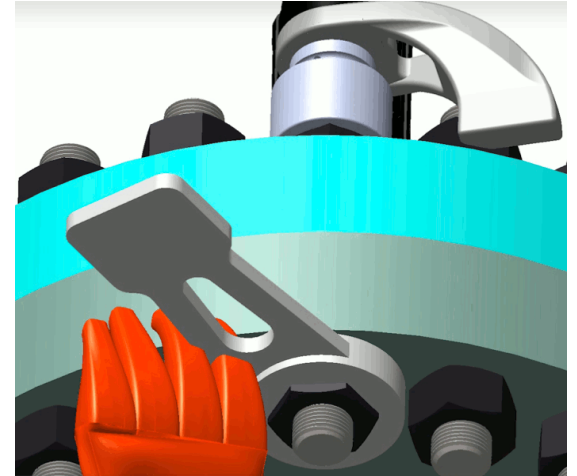
# Reaction Arms

- Action – Reaction
- High Turning Force
- Slow Moving
- Pinch Points



# Backup Wrenches

- Prevents back nut from turning
- Slow moving
- High Torque
- Pinch Points





# Impact

- **27%** of workplace injuries occur to fingers & hands (OSHA)
- **43%** of injuries hand related in heavy industry (Oil & Gas)
- **\$50K-\$250K** direct financial cost
- **\$\$\$** Indirect cost of insurance, down time, training, etc.
- **Impact**, never considers all factors



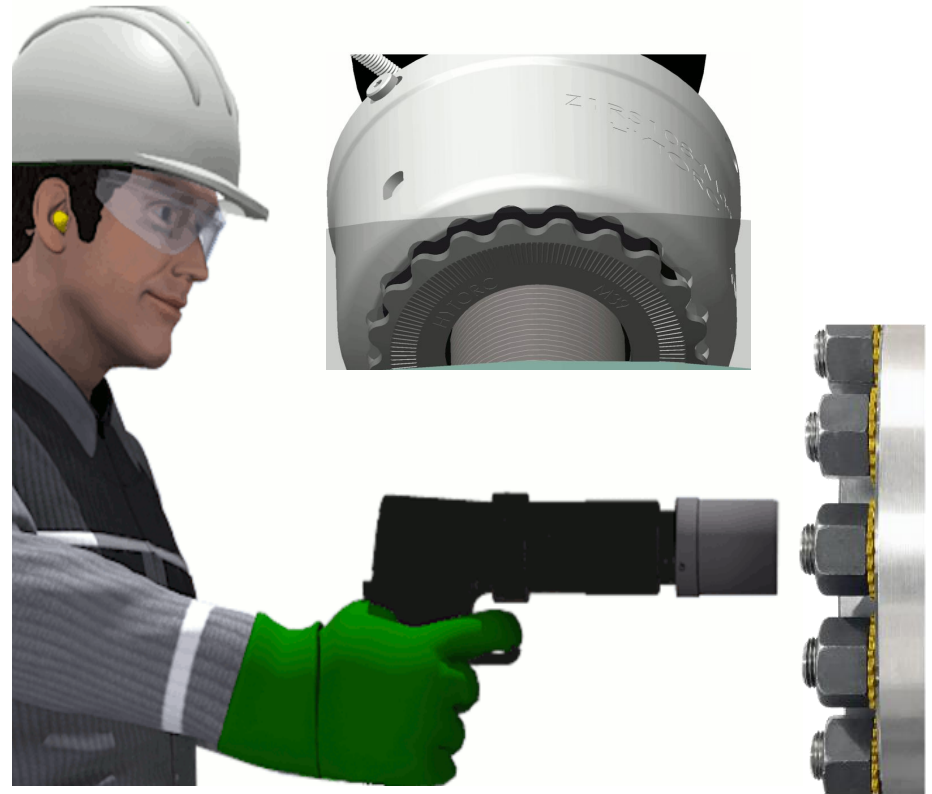
# Reaction Washer

- Hardened steel washer
- Replaces circular washers
- Assembled on turning side
- Knurled surface faces flange
- Prevents washer rotation
- Smooth side faces nut
- Outer edge engages tool



# No Exposed Moving Parts!

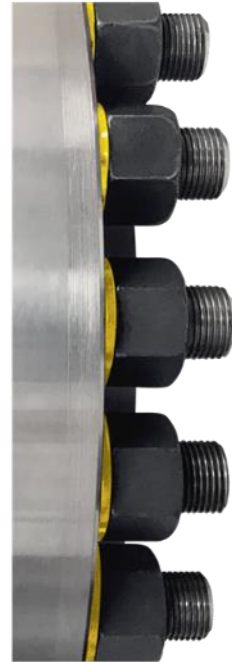
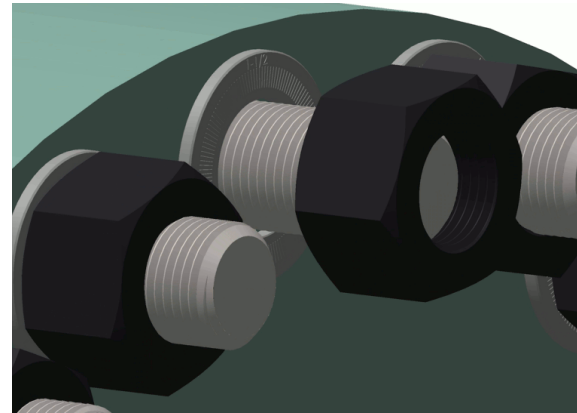
- Dual socket driver
- Inner socket engages nut
- Outer socket engages washer
- Constrains reaction forces





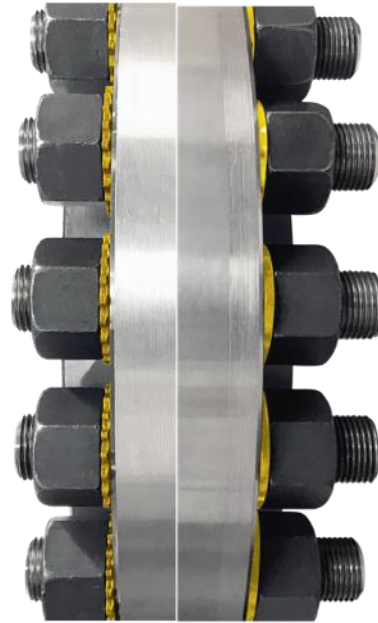
# Backup Washer

- Hardened steel washer
- Used on the non-turning side
- Knurls on both sides
- Firmly affixed
- Prevents turning back-nut
- Eliminates backup wrench



# Complete Solution

- No reaction arm
- No backup wrench
- No pinch points



**Only bolting system that reduces the risks of hand injury by completely eliminating pinch points.**

# Crusher

## Hydraulic Torque Tool



# Cutting Edge

## Pneumatic Torque Tool





# Roller

## Pneumatic Torque Tool



# Moving Equipment

## Electric Torque Tool





# Thank You!

Visit us at booth 1646

<https://hytorc.com/hand-safety>

