1. **Revision Log**

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| Revision Log | | | | | |
| Revision Level | Revision Date | Section | Description | | Revised By |
| REL | 05112016 | ---- | Initial Release | | TC |
| A | 11May2017 | 5.0 | Updated to current practice | | NT |
| B | 8/28/17 | 5.1.1 | Added another preferred Atlas Copco controller and driver | | NT |
| C | 4/17/19 |  | Mass update, complete re-write to standard | | NT |
| D | 12/1/2023 | Header | Replaced GHSP logo with newer version | | BB |
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| Approval: | | CN: RS,FS | | MX: JH | |
| US: JA | | Other (as req’d): DRW | |

1. **Purpose:** 
   1. To define the global standard for the use of Torque Drivers within GHSP manufacturing facilities.
2. **Scope:**
   1. This global standard applies to all GHSP manufacturing facilities.
3. **Definitions:** N/A
4. **References:**
   1. CP-WI-MFG-X301 Global Standard Production Equipment Safety, Ergonomic, and Delivery Checklist
   2. CP-WI-MFG-X327-Global Standard Assembly Equipment Manual
   3. Job Aids (Operating Standards 🡪 Job Aids 🡪8.5-Job-Aids-prod-service 🡪 Global Standards)
5. **Method:**
   1. **Electronic Torque Driver Selection**
      1. Preferred Brands

*Selection outside the preferred brand requires approval by the Advanced Process Engineer and Global Standards Team*

* Desoutter
  + Controller:
    - CVIR II
  + Drivers:
    - ERS
* Atlas Copco
* Controller:
  + - Power Focus 4000/4002
    - Power Focus 6000
    - Power Focus 600
* Drivers:
* Tensor SL
* Tensor ES
* QMC
  + 1. PLC Communication

*Selection outside the preferred method requires approval by the Advanced Process Engineer and Global Standards Team*

* EtherNet/IP
* Serial
  + If you need EtherNet connection, it is recommended to use 1 of the following 2 options:
    - RTA Module
    - Desoutter Module
* Discrete I/O
  + Recommended to use Balluff Part #: BNI007R
    1. When choosing driver, consideration for Duty Life Cycle must be taken into account.
  1. **Torque Arm Setup**
     1. Preferred Torque Arm:

*Selection outside the preferred brand requires approval by the Advanced Process Engineer and Global Standards Team*

* Desoutter: D-53
* Atlas Copco: SML T
  + 1. Torque arms must be sized accordingly based on the torque requirements of the driver.
    2. After installation, the counterweights must be adjusted to create a neutral buoyancy for the driver.
    3. The pull force to move the driver to the drive position must be between .5-3 lbs.
  1. **Verification**
     1. A “Torque to Failure” (i.e. FST-10) study must be completed on each joint location.
  2. **Audible Alert**
     1. If wanted, an audible alert can be used to signify to the operator when a full drive has been accomplished.
     2. Brand Selection:
* Speaker on Light Stack
* Mallory Sonalert SC110Q

1. **Records:**
   1. Torque driver programs to be included in the Assembly Equipment Manual.
      1. Anytime a change to the torque driver program is made, a PCR must be written and approved.
   2. All torque driver programs must be stored on the facility server.