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.