



WFPP 002

WORLDWIDE FASTENER PRACTICE/PROCEDURE - BEST PRACTICES AND COMPLEXITY REDUCTION

1. SCOPE

This Standard defines the agreements that have been approved by the Worldwide Fastener Technical Committee for all new releases. These agreements support best fastener practices and complexity reduction efforts. Carry-over fasteners should be reviewed in line with these policies and strategies.

Proprietary features other than those to which a Worldwide Fastener Standard exists or those approved by the Worldwide Fastener Technical Committee are prohibited and shall not be specified.

EXCEPTIONS:

Exceptions to the practices and procedures within this document require approval of the Supervisor of the relevant Fastener Engineering Office.

Exceptions require the submission of a business case along with the 1217 number request form.

The business case shall include the cost and/or technical benefits to Ford Motor Company based on statistically valid data.

2. REFERENCES

ISO 4757 Cross Recesses for Screws

WB 900 Appendix D – Dimensional Requirements for Internal Lobed Recesses.

WB 900 Appendix E – Lobed External Drive System for Threaded Fasteners.

WD 951 Mechanical and Performance Requirements of Case Hardened Thread Rolling Screws

WD 952 Mechanical and Performance Requirements of Through Hardened and Carbon Restored Thread Rolling Screws with Induction Hardened Points

WD956 Mechanical and Performance Requirements of Through Hardened and Carbon Restored Thread Rolling Screws for Use in Aluminum Applications

WK 900 Hoseclamps – Worm Drive

3. AGREEMENTS

BOLTS, SCREWS, STUDS, AND SCREW AND WASHER ASSEMBLIES

The only property classes that shall be specified for non-hardened and through hardened externally threaded fasteners are PC4.8, PC8.8, or PC10.9. PC10.9 (10.9 underlined) fasteners are unacceptable.

NUTS

The only property classes that shall be specified for internally threaded fasteners are PC04, PC8, PC10 or PC12.

PC12 shall only be used for yield tightening applications to ensure that the mode of failure is bolt shank fracture.

THREAD ROLLING SCREWS

For general steel applications, all thread rolling screws shall be of a trilobular design and meet the requirements of WD951 or WD952.

Thread rolling screws M6 and above shall use the Taptite 2000® thread form and comply with the requirements of WD952.

For general aluminum applications, thread rolling screws shall be of a trilobular design (Taptite 2000® "SP") and meet the requirements of WD956.

SCREWS FOR THERMOPLASTIC MATERIALS

Remform® and PT® are the only thread forms to be used for screws going into thermoplastic materials.

DRIVE SYSTEMS

The hexagon external drive per WA900 and the six lobe drive per WB900 Appendix E are the only approved external drive systems.

The six lobe drive per WD900 Appendix D is the only approved internal drive system.

The hexagon internal drive system is permitted only for set screws and screw plugs.





POINT FEATURES

CROSS THREAD PREVENTION POINTS

The NP point shall be specified for the reduction of cross threading unless not feasible for the given application. In those instances where the NP point is not feasible, the CTP point shall be specified. No other cross-threading point styles are permissible.

Some forms of prevailing torque nuts are not compatible with all forms of cross thread prevention points. For example, limited thread engagement and the prevailing torque style of multiple threaded spring nuts makes this nut form incompatible with NP points and may lead to assembly concerns. In this case, the CTP point is recommended. Compatibility of both prevailing torque nut and cross thread prevention point styles should be reviewed before releasing.

DRILL POINTS

The use of drill points is prohibited for Worldwide fasteners.

WORM DRIVE HOSE CLAMPS

The only approved design for worm drive hose clamps is the all stainless formed-band type in accordance with WK903.

TORQUE VALUES

Torque values should be in accordance with PT-3 of the Power Tool and Torque Standards.

This standard can be found at:

http://www.dearborn3.ford.com/met/gray/standard_ops/fastener_systems/fastener_systems1.htm

SUMMARY OF REVISIONS

2012 09 28

Para 2: Added WD956 Reference

Para 3: Under "THREAD ROLLING SCREWS" added thread type description for aluminum applications

Under "SCREWS FOR THERMOPLASTIC MATERIALS" revised allowable thread forms

Under "DRIVE SYSTEMS" revised allowable internal drive requirement