

**PERFORMANCE REQUIREMENTS OF ISO METRIC THREADED FASTENERS WITH DRY FILM MICROENCAPSULATED ADHESIVE COMPOUND APPLIED TO THE THREADS****1. SCOPE**

This specification covers the performance of ISO Metric male threaded fasteners with dry film microencapsulated adhesive compound applied to the thread.

NOTE: Fasteners with microencapsulated adhesive compound applied to the thread are not recommended for re-use after initial assembly.

Chemical residues from subsequent wash procedures may adversely affect the curing performance of the compound, and care should be taken in the selection of any media employed.

NOTE: These materials may be specified on fasteners that have multiple stage finishing processes. In some cases it may be advantageous to apply the adhesive material prior to the torque control lubricant. It is recommended that the processing route be agreed between the fastener maker, surface finisher and adhesive applicator to meet the Ford requirements.

1.1 REFERENCES

ISO 4032 -	Hexagon nuts, style 1 - Product grades A & B.
WSE-M97B44-B -	Coolant, Extended life - Concentrate for systems containing cast and wrought aluminum
WSE-M2C903-A2 -	Oil, Engine - ILSAC GF-1, SAE 10W-30
WSS-M2C938-A -	Fluid, Automatic Transmission

2. MICROENCAPSULATED ADHESIVE MATERIAL

The microencapsulated adhesive material must be as specified in WSS-M11P45-A1.

2.1 APPROVED SOURCE LIST

Parts PPAP'd six (6) months and later after release date of this document shall use the approved sources listed below.

OMNITECHNIK -	OMNITECHNIK PRECOTE 80 – PINK
LOCTITE LTD. -	LOCTITE 2045 -- RED
3M CO. -	SCOTCHGRIP 2353 -- BLUE
ND INDUSTRIES	MICROSPHERES 593SG -- GREEN

3. MICROENCAPSULATED ADHESIVE DIMENSIONS AND POSITION ON THREAD

Fasteners shall have a minimum of three full threads coated with the adhesive compound. The angle covered by the adhesive compound shall be 360°. The first two full threads at the end of the fastener shall be free from any compound. No compound shall be permitted on the thread runout, on the under head bearing face or on the plain shank of fasteners or paint-clearing feature.

The dimensions and position of the adhesive compound shall be as specified on the Ford drawing. Utility part numbers shall be dimensioned per Figure 1. The recommended minimum location of the patch, c, defined from the bearing surface or washer, if present is equal to 6P.

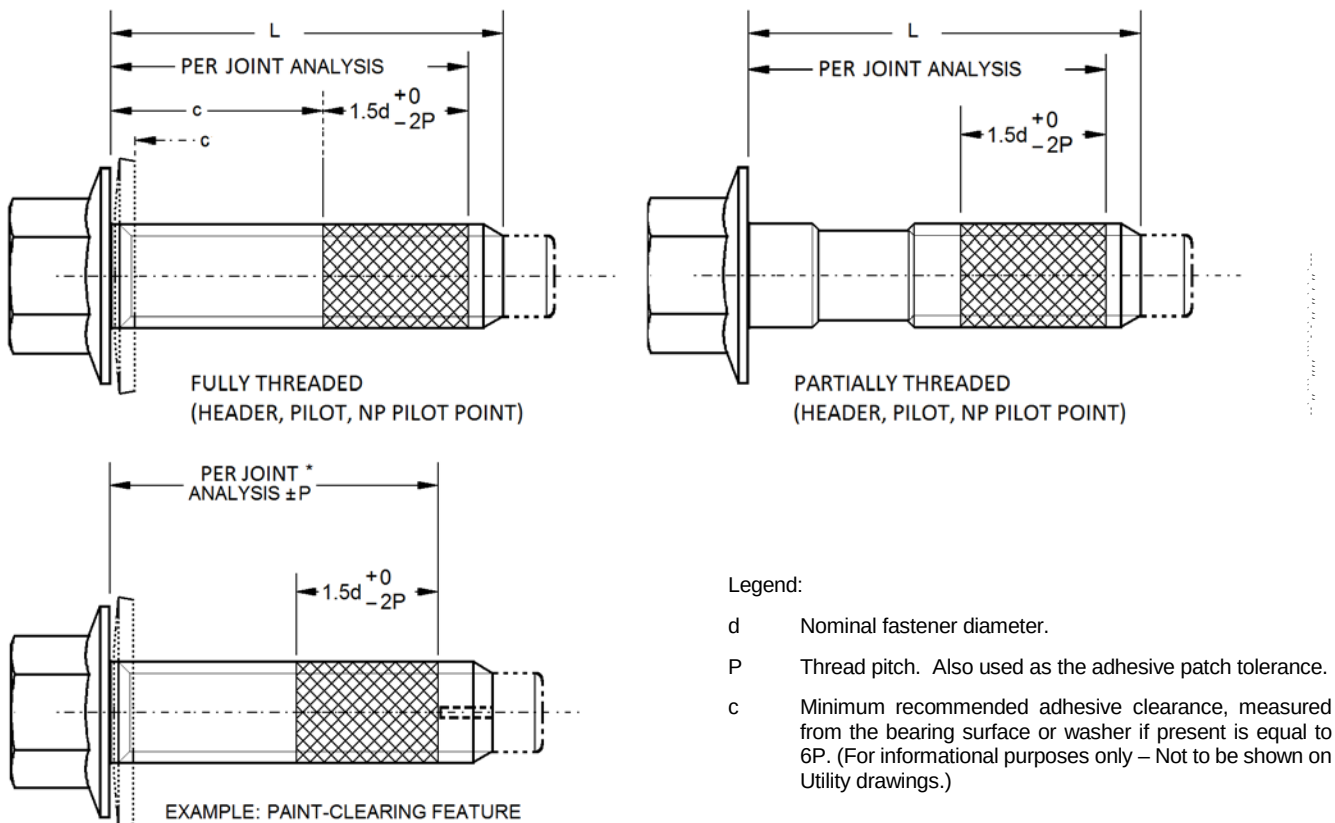


Figure 1: Utility Part Number Dimensioning

4. ROUTINE QUALITY CONTROL TEST

Fasteners with the microencapsulated adhesive applied, taken from a production batch, must be screwed into unplated, clean steel test nuts (to ISO 4032 with a 6H tolerance) until all the test nut threads are in contact with the adhesive coated threads or the adhesive coated threads are all in contact with the test nut threads. No clamp force shall be induced in either case. The assembly must then be cured for 24 hours at 20 °C. When a torque is applied to the fastener in the loosening direction, the adhesion break torque must meet the requirements specified in Table 1 appropriate to the size of fastener being tested.

NOTE: A new nut must be used for each test.

Table 1 Adhesion Break Torques

Nominal Size of Thread	Minimum Adhesion Break Torque Nm	Maximum Adhesion Break Torque Nm
M5	1.5	5
M6	2	8
M8	4	24
M10	10	44
M12	15	80
M14	20	130
M16	30	160
M18	30	175