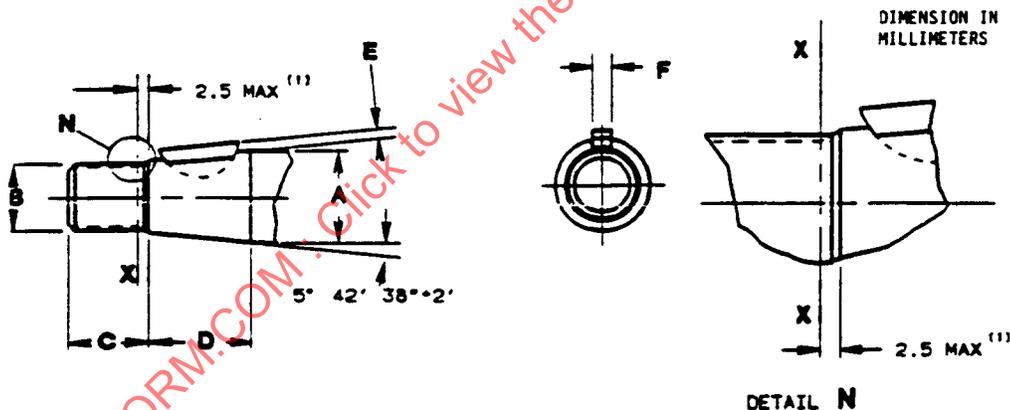


Submitted for recognition as an American National Standard

Tapers for Shaft Ends and Hubs for Fuel Injection Pumps

This document is technically equivalent to ISO 6519.

1. **Scope**—This SAE Standard specifies the dimensional requirements necessary for the interchangeability of tapered shaft ends and hubs for fuel injection pumps of diesel engines.
2. **References**—There are no referenced publications specified herein.
3. **Dimensions and Tolerances**
 - 3.1 **Shaft Ends with Taper**—(See Figures 1 and 2 and Tables 1 and 2.)



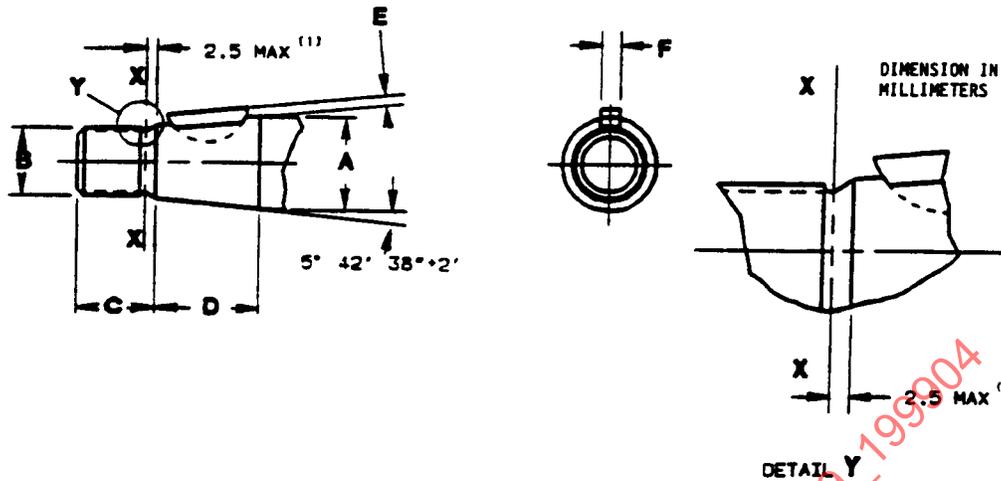
NOTE—The shaft ends may be made optionally according to type 1 or 2. However, it shall be possible to screw the go-gauge for the thread up to the chain line X-X.

FIGURE 1—SHAFT END, TYPE 1

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NOTE—The shaft ends may be made optionally according to type 1 or 2. However, it shall be possible to screw the go-gauge for the thread up to the chain line X-X.

FIGURE 2—SHAFT END, TYPE 2

TABLE 1—SHAFT ENDS
DIMENSIONS IN MILLIMETERS

A ⁽¹⁾ nom	B	C max	D -1	E1 max	F ₁ h9
17	M12	14.5	18	1.6	3 ⁰ -0.025
20	M14 x 1.5	16.5	20	2.0	4 ⁰ -0.03
22	M14 x 1.5	16.5	20	2.0	4 ⁰ -0.03
22	M16 x 1.5 ⁽²⁾	18.0	20	2.0	4 ⁰ -0.03
25	M18 x 1.5	20.0	25	2.6	5 ⁰ -0.03
30	M20 x 1.5	23.0	30	2.6	5 ⁰ -0.03
35	M24 x 1.5	27.0	35	2.6	5 ⁰ -0.03

1. The tolerance for dimension A depends on the type of shaft bearing.
2. The thread M16 x 1.5 is to be preferred for the shaft ends with 22 mm diameter.

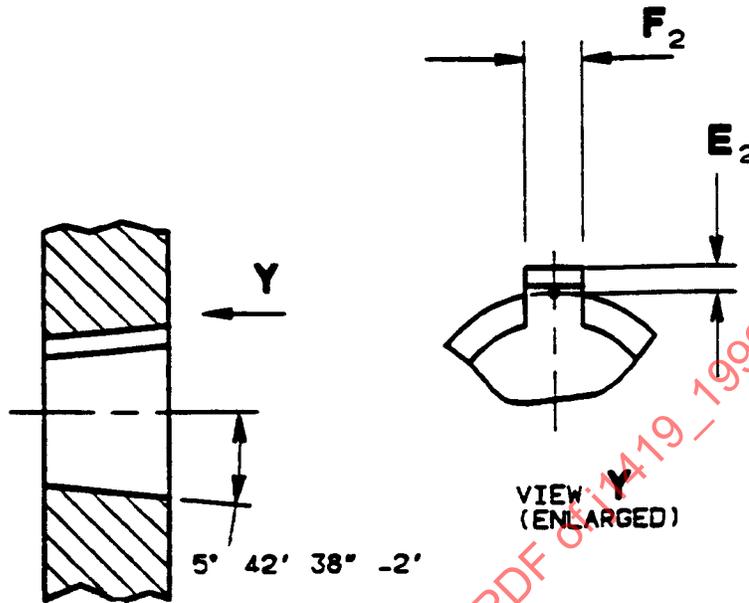
**TABLE 2—HUB
DIMENSIONS IN MILLIMETERS**

A⁽¹⁾ nom	E₂ min	F₂ D10
17	1.8	3 +0.060 +0.020
20	2.2	4 +0.078 +0.030
22	2.2	4 +0.078 +0.030
25	2.8	5 +0.078 +0.030
30	2.8	5 +0.078 +0.030
35	2.8	5 +0.078 +0.030

1. A is the nominal diameter of the shaft.

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3.2 Keyways of Hub With Taper—(See Figure 3.)



NOTE—The length of the hub cone shall be such that, after assembling, the face at the smaller diameter of the hub cone lies so far in front of the line X-X (see Figures 1 and 2) that the fixing nut can be correctly screwed up.

FIGURE 3—HUB

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