SAE International™

SURFACE VEHICLE STANDARD

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Superseding J1459 SEP2001

V-Ribbed Belts and Pulleys

RATIONALE

This document has been revised to update the pulley cross sections, specifically the definition of pulley flanges to improve robustness against belt misinstallation.

1. SCOPE

This SAE Standard covers the dimensioning technique, tolerances, and methods of measurement of V-ribbed belts and mating pulleys for use on automotive accessory drives.

2. REFERENCES

There are no referenced publications specified herein.

3. V-RIBBED BELTS

Although several v-ribbed cross sections are available, this document shall be confined to “PK” (K) section belts which are used in automotive applications, including trucks at least up to Class 3. Belts shall conform to Figure 1.

4. PULLEYS MATING WITH V-RIBBED BELTS

It is the intention of this document to relate the belt profile to the pulley profile using the variables associated with the 2.50 mm ball used in measuring pulley diameters. Pulleys shall conform to Figures 2, 3 and 4. Figure 2 shows a split pulley section, Figure 3 a folded pulley section – both preferred constructions. Figure 4 shows an optional folded pulley section.

4.1 Pulley Diameter Definitions

The diameter over balls (DoB) is the only diameter measured on a pulley in the groove/flange area. There are other diameters used that are calculated from this value. The ball diameter is defined as 2.500 mm ± 0.010 mm. See Tables 1A and 1B.

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TABLE 1A - PULLEY DIAMETER - 40 DEGREES GROOVE
(for calculation purposes only - 40 degrees groove)

Diameter	Definition
Effective	Db - 0.99 (Groove Dia. with **0.25R** Tip)
Effective	Db - 1.706 (Groove Dia. with **0.48R** Tip)
Apex	Db - 0.03 (Flank Intersect.)
Pitch	Db + 2PBΔg (To Cord Line) Db + 2.01 Ref. (Previous Defined Estimate)

TABLE 1B - PULLEY DIAMETER - 37 DEGREES GROOVE
(for calculation purposes only - 37 degrees groove)

Diameter	Definition
Effective	Db - 0.82 (Groove Dia. with **0.25R** Tip)
Effective	Db - 1.648 (Groove Dia. with **0.48R** Tip)
Apex	Db - 0.26 (Flank Intersect.)
Pitch	Db + 2PBΔg (To Cord Line)

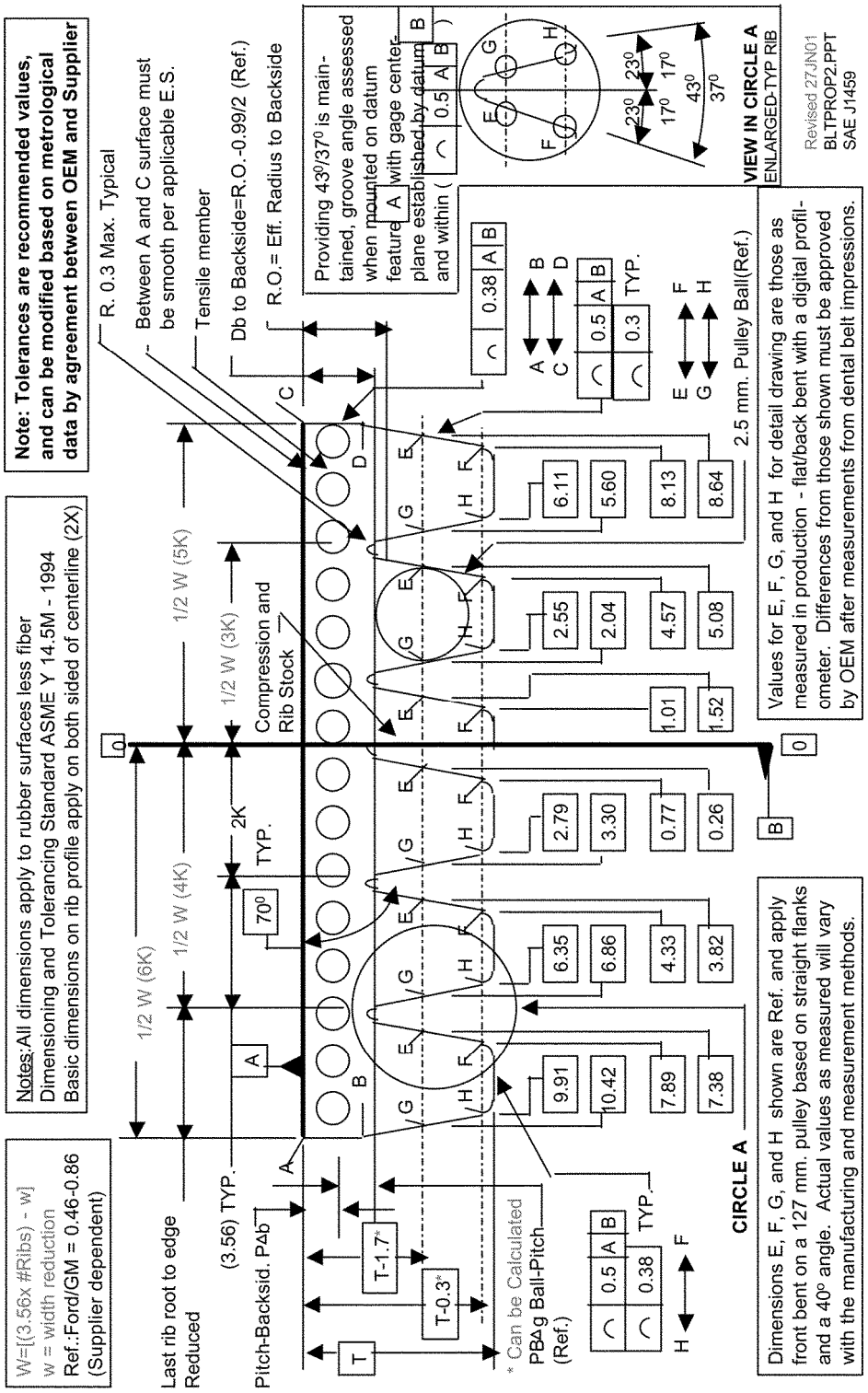

FIGURE 1 - BELT DIMENSIONING TEMPLATE