SURFACE VEHICLE RECOMMENDED PRACTICE

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Superseding J1730 FEB2019

ABS Exciter Ring Location Standardization

RATIONALE

This document has been revised to update the scope to clarify what this SAE Recommended Practice (RP) covers.

1. SCOPE

This SAE Recommended Practice establishes the antilock brake system (ABS) sensor interface and envelope dimensions for standardizing the location of the ABS rings mounted on or integral to the inboard end of spoke wheels, hubs, rotors, and hub-rotor assemblies on the following axle designations as defined in SAE J1842.

a. FF

b. FL

c. FC

d. FH

e. L

f. R

g. U

h. W

j. N

k. P

1.1 Purpose

This document provides standardized wheel end ABS sensor interface dimensions for spoke wheels, hubs, and hub-rotor assemblies intended for normal highway use on trucks, buses, truck trailers, and multi-purpose vehicles. The illustrations given in the document are for reference only. These illustrations show typical sensor ring designs and mountings, but are not limited to those shown. Serviceability considerations are not covered in this document.

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2. REFERENCES

2.1 Related Publications

The following publications are provided for information purposes only and are not a required part of this SAE Technical Report.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or + 1 724-776-4970 (outside USA), www.sae.org.

SAE J393 Nomenclature - Wheels, Hubs, and Rims for Commercial Vehicles

SAE J1842 Disc Wheel Hub/Spoke Wheel and Axle Interface Dimensions - Truck and Bus

SAE J2475 Wheel End Assembly and Axle Spindle Interface Dimensions - Truck and Bus

3. DEFINITIONS

A listing of the basic nomenclature and definitions is shown as follows. A hub shall be defined as a disc wheel hub or the hub area of a spoke wheel. A hub/rotor assembly shall be defined as the combination of a hub and rotor. The rotor may be attached to the hub with a variety of techniques (i.e., bolted, retained with a stud and nut).

3.1 Definitions

See Figures 2 to 13 and Tables 1 to 3.

a. A = Outer bearing cup (per American Bearing Manufacturers Association)

b. B = Inner bearing cup (per American Bearing Manufacturers Association)

c. C = Wheel speed sensor

d. D = 7 mm diameter sensor target zone

e. E = Dimension from inner bearing cup seat to the face of the ABS exciter ring teeth

f. F = Minimum inside diameter of the ABS exciter ring to allow for seal clearance

g. G = Basic sensor pitch diameter

h. H = Maximum outside diameter of the ABS tone ring

3.2 Typical ABS Ring Configurations

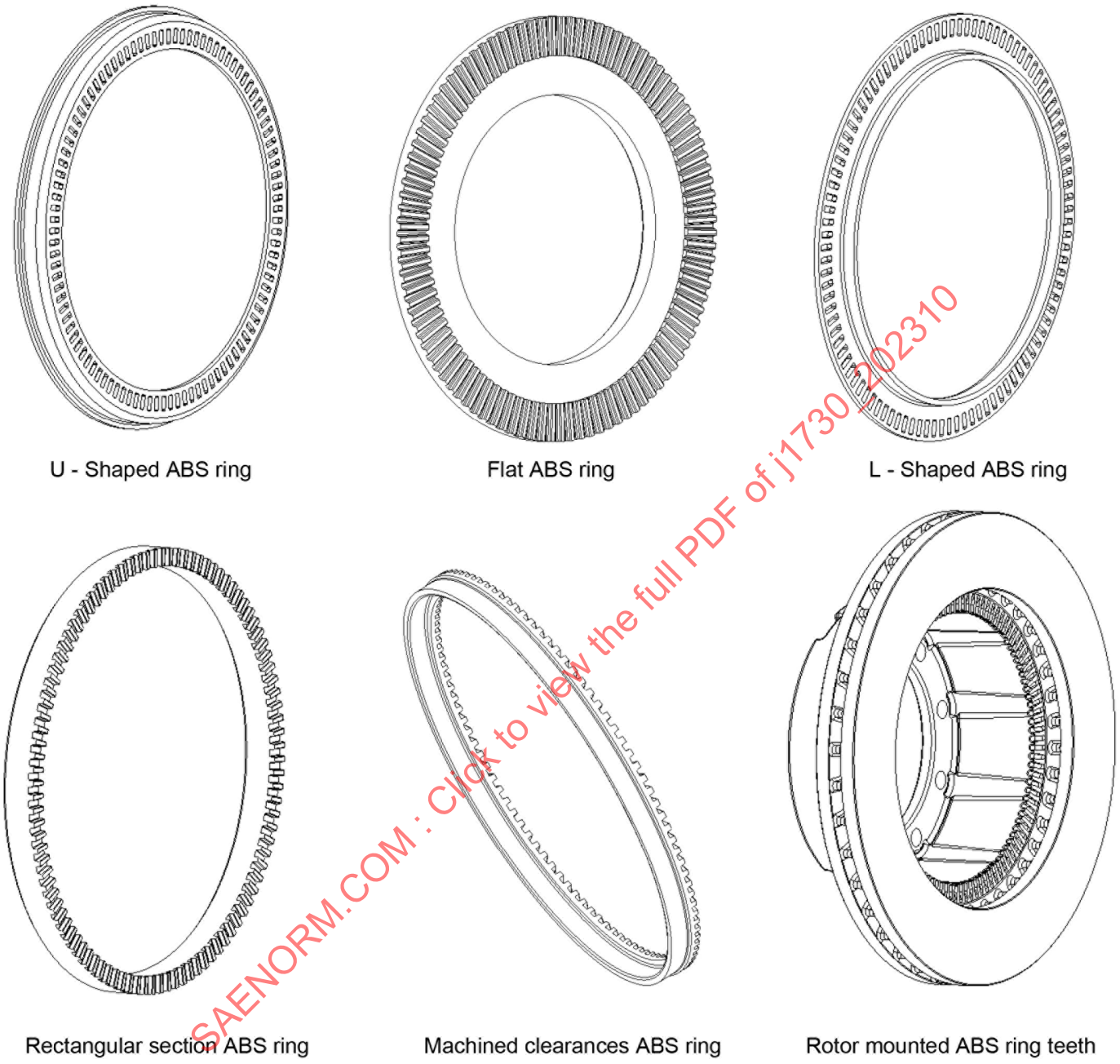

Figure 1 - Typical ABS ring configurations

4. DIMENSIONS FOR DRUM BRAKE APPLICATIONS

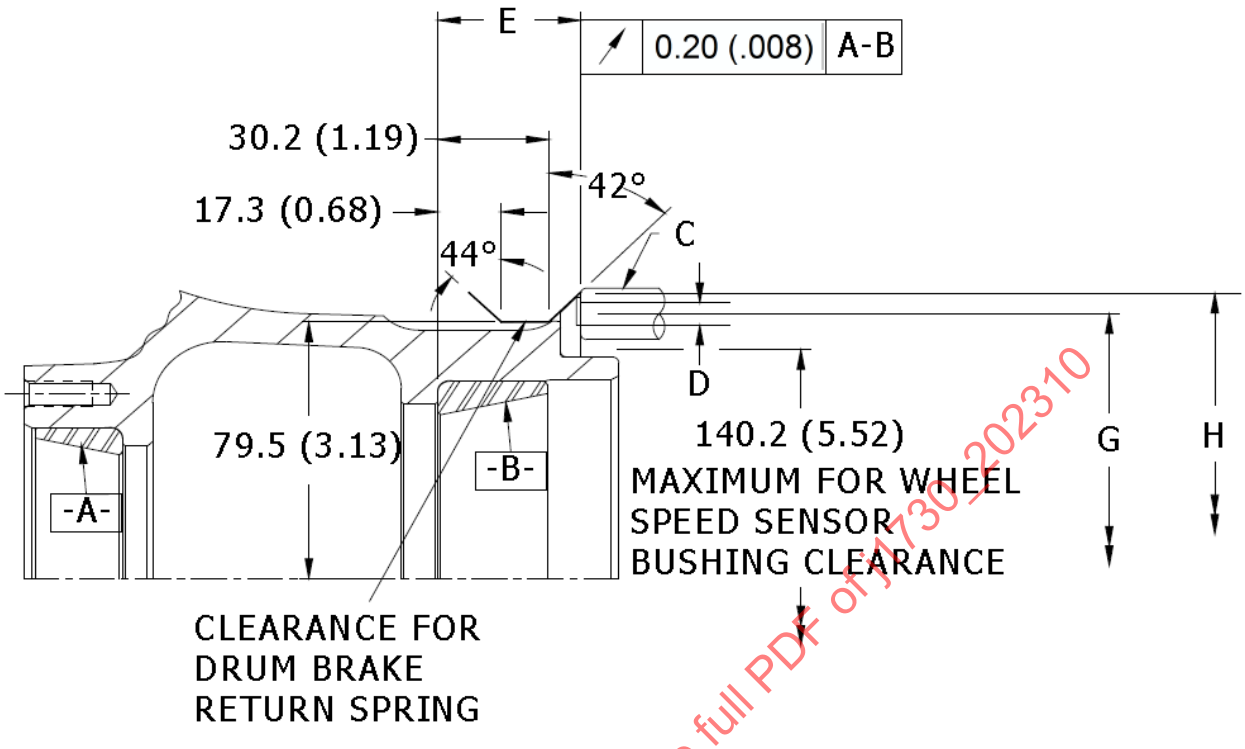

Figure 2 - FF drum brake application

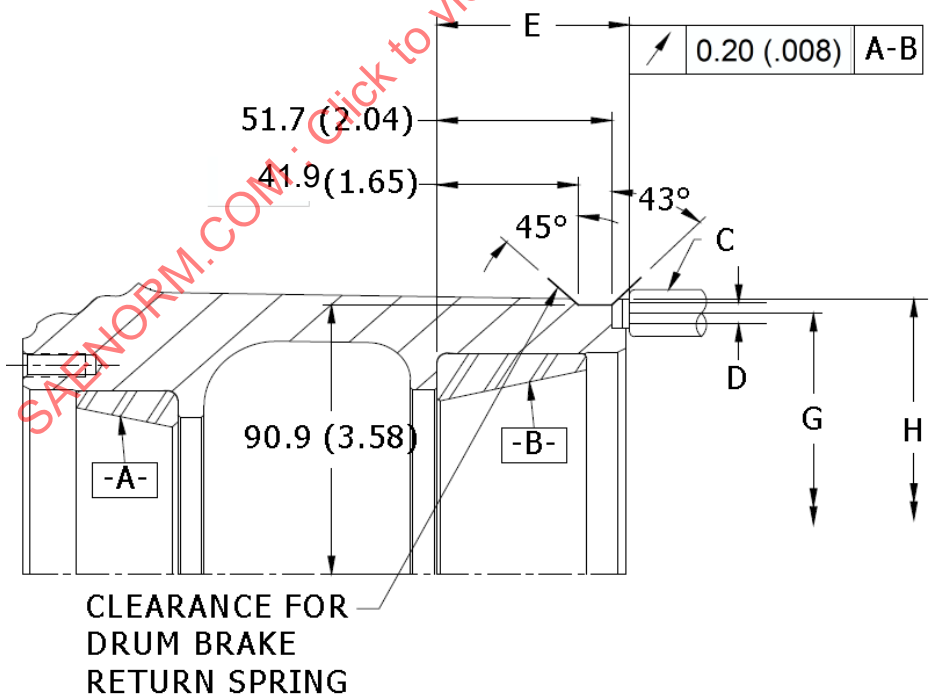

Figure 3 - FL drum brake application

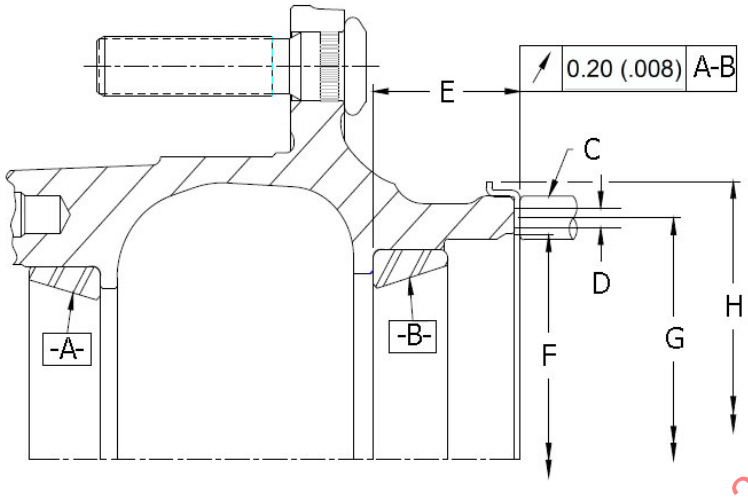

Figure 4 - L, R, U, W, N, and P drum brake applications

Table 1 - Drum brake applications

SAE Axle Designation	Reference Figure	Dimension E[1] ±0.76 (0.030)	Dimension F Minimum	Dimension G Basic	Dimension H Maximum
FF	2	38.9 (1.53)	N/A	164.0 (6.46)	178.6 (7.03)
FL	3	57.2 (2.25)	N/A	176.0 (6.93)	186.9 (7.35)
L	4	59.2 (2.33)	147.6 (5.81)	177.8 (7.00)	192.0 (7.56)
R	4	59.2 (2.33)	163.3 (6.43)	175.3 (6.90)	196.1 (7.72)
U	4	64.5 (2.54)	190.5 (7.50)	208.5 (8.21)	218.9 (8.62)
W	4	73.7 (2.90)	197.1 (7.76)	209.6 (8.25)	218.6 (8.61)
N	4	59.4 (2.34)	159.0 (6.26)	172.0 (6.77)	196.6 (7.74)
P	4	55.9 (2.20)	159.0 (6.26)	172.0 (6.77)	196.6 (7.74)

[1] Hub and ring design to allow for sensor contact with ABS ring teeth without interference.

5. DIMENSIONS FOR DISC BRAKE APPLICATIONS

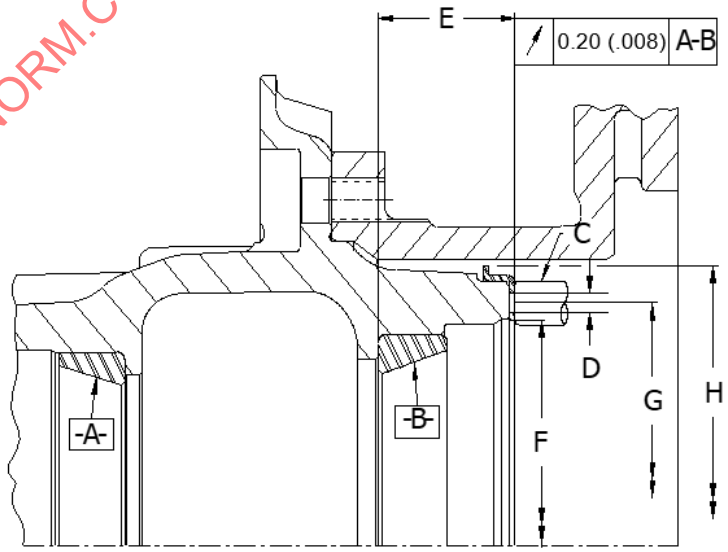

Figure 5 - R, N, and P disc brake application U rotor

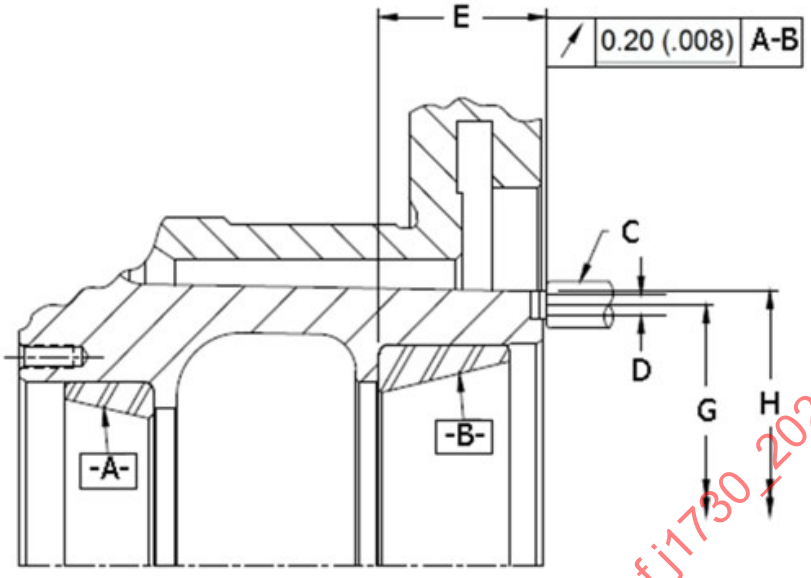

Figure 6 - FF, FH, and FL disc brake application U rotor

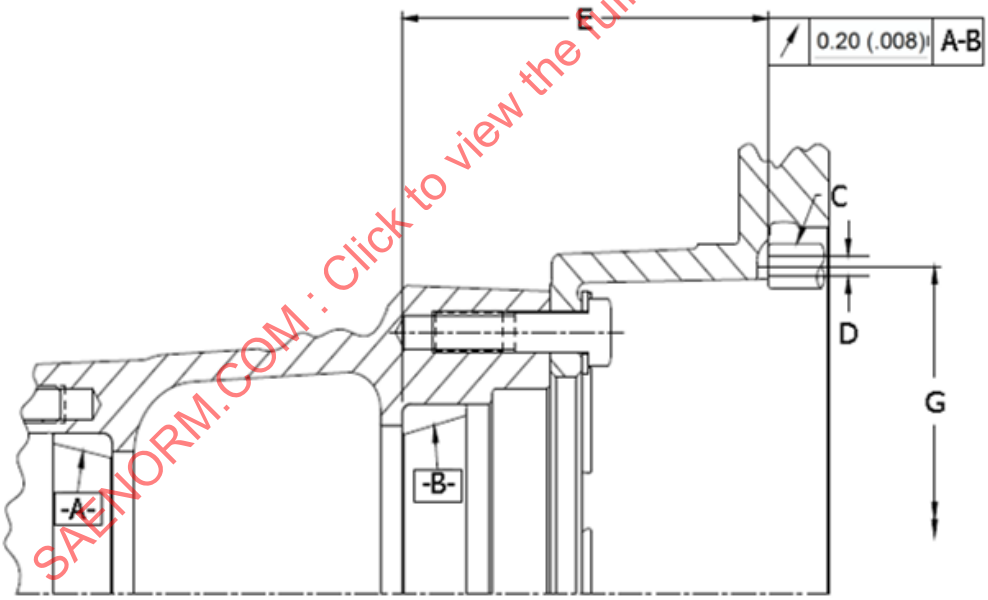

Figure 7 - L and R disc brake application hat rotor

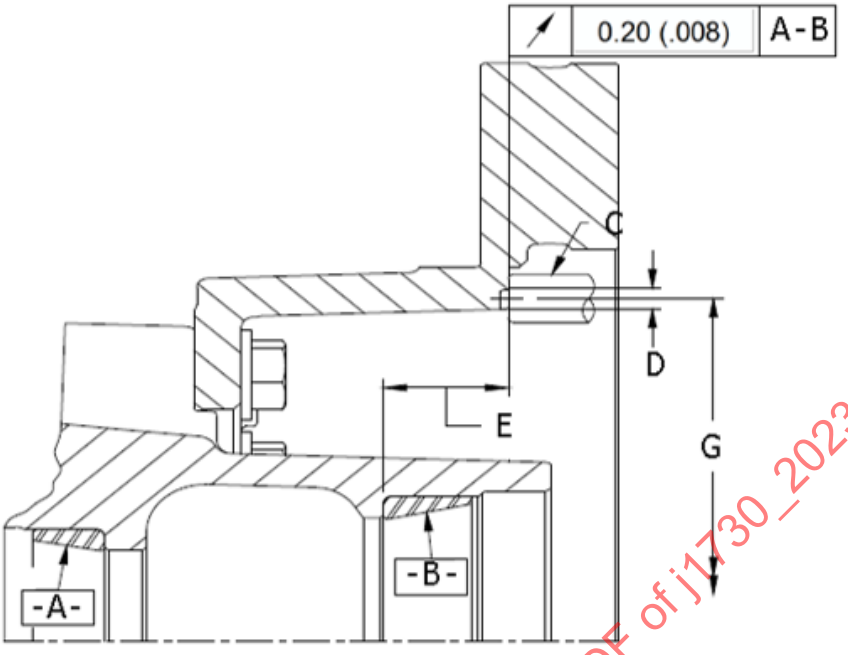

Figure 8 - FC, FF, and FL disc brake application hat rotor

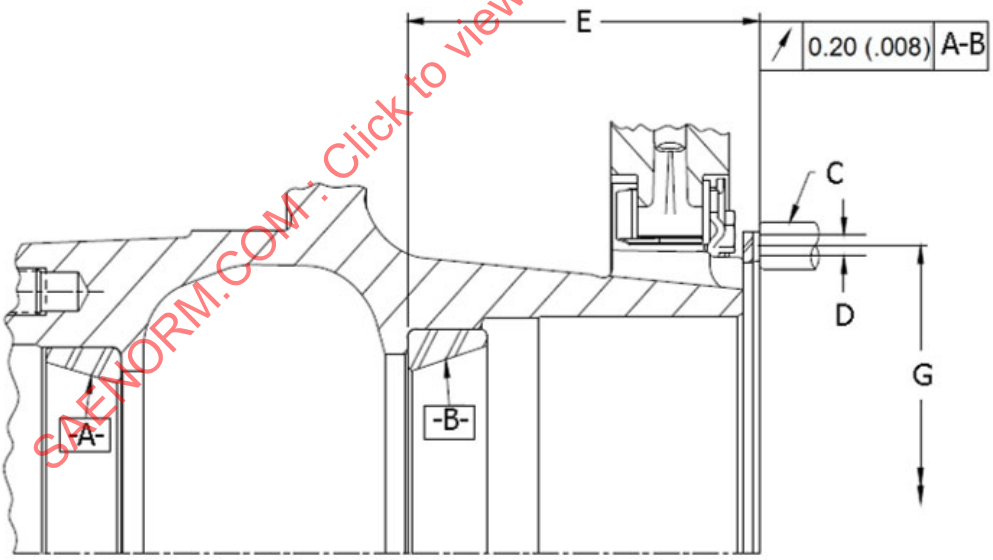

Figure 9 - R, N, and P disc brake application flat rotor

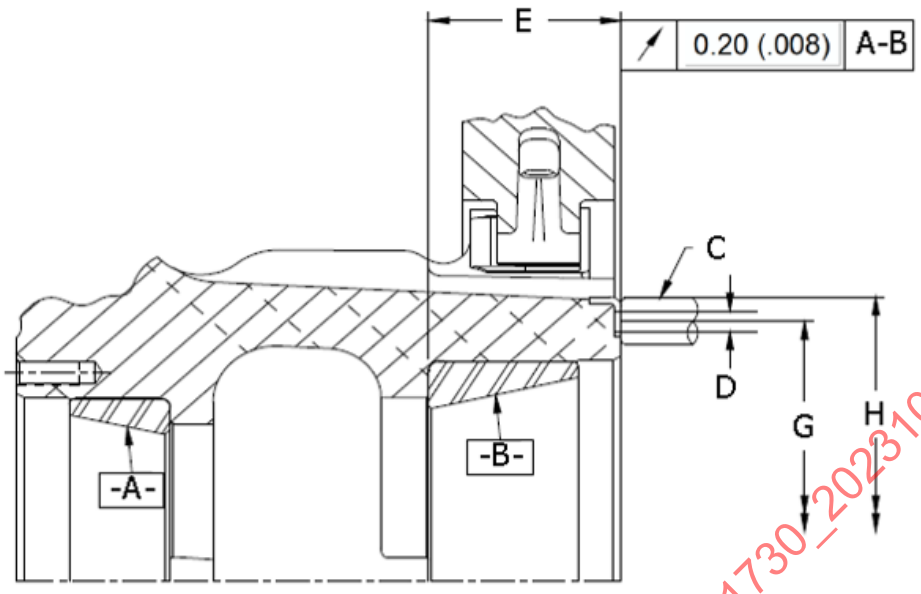

Figure 10 - FF and FL disc brake application flat rotor

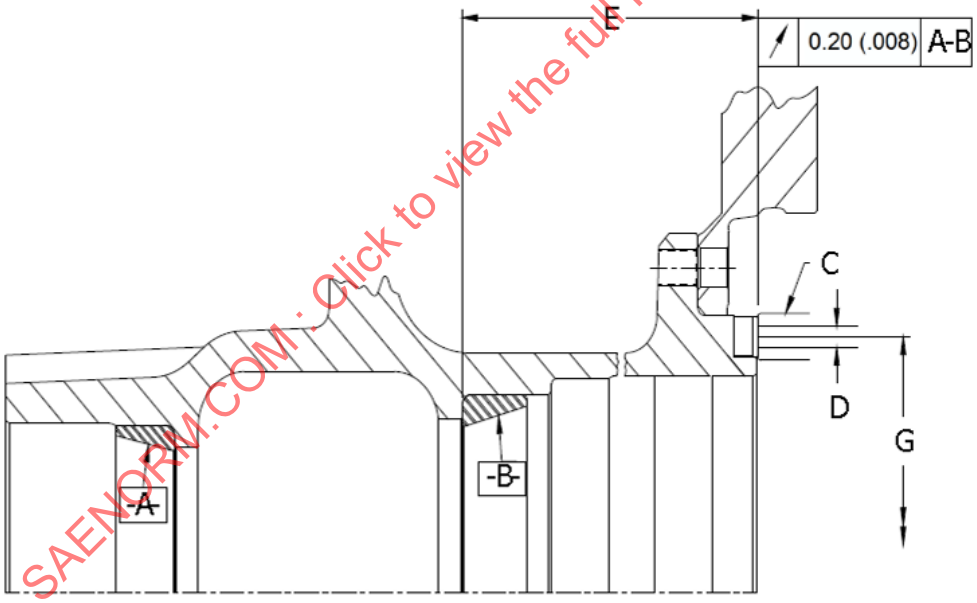

Figure 11 - L and R disc brake application hat rotor