

Internal Combustion Engines—Piston Rings—Half Keystone Rings

This SAE Standard is equivalent to ISO Standard 6624/2 TR.

1. Scope—Differences, where they exist, are shown in Appendix A.

This SAE Standard specifies the essential dimensional features of HK- and HKB-half keystone rings with narrow ring width types.

Dimensional and allow for the use of cast iron (Table 6) or steel (Table 7). Since the modulus of elasticity of steel rings is higher than that of cast iron rings, the fluctuation in the surface pressure will become greater if the free gap is set as the reference for forces. Therefore, forces are set using the surface pressure as the reference in order to minimize the effect of the fluctuation.

The requirements of this document apply to half keystone rings of reciprocating internal combustion engines up to and including 70 mm diameter for cast iron rings and up to and including 100 mm diameter for steel rings.

1.1 Rationale—SAE J2001 is being discontinued because the content of this standard is also contained in ISO 6624-2. Therefore, to eliminate duplication and confusion in coordinating the standards between ISO and SAE, this document will be discontinued. The SAE Piston and Ring Standards Committee will now continue to support ISO in updating the standards as appropriate.

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2. References

2.1 Applicable Publications—The following publications form a part of the specification to the extent specified herein. Unless otherwise indicated the latest revision of SAE publications shall apply.

2.1.1 SAE PUBLICATIONS—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE DESIGNATION	ISO ¹ EQUIVALENT	
		INTERNAL COMBUSTION ENGINES—PISTON RINGS
J1588	6621/1	Vocabulary
J1589	6621/2	Measuring principles
J1590	6621/3	Material specifications
J1591	6621/4	General specifications
J1996	6621/5	Quality requirements
		INTERNAL COMBUSTION ENGINES—PISTON RINGS
J1997	6622/1	Rectangular rings
J1998	6622/2 TR	Rectangular rings with narrow ring width
		INTERNAL COMBUSTION ENGINES—PISTON RINGS
J2000	6624/1	Keystone rings
J2001	6624/2 TR	Half keystone rings
J2002	6625	INTERNAL COMBUSTION ENGINES—PISTON RINGS— OIL CONTROL RINGS
J2003	6626	INTERNAL COMBUSTION ENGINES—PISTON RINGS— COIL SPRING LOADED OIL CONTROL RINGS
J2004	6627 TR	INTERNAL COMBUSTION ENGINES—PISTON RINGS— EXPANDER/SEGMENT OIL CONTROL RINGS
J2226		INTERNAL COMBUSTION ENGINES—PISTON RINGS— STEEL RECTANGULAR RINGS
	1101	TECHNICAL DRAWINGS—GEOMETRICAL TOLERANCING— TOLERANCING OF FORM, ORIENTATION, LOCATION AND RUN-OUT— GENERALITIES, DEFINITIONS, SYMBOLS INDICATIONS ON DRAWINGS

1. TR refers to Technical Report

3. Ring Types and Designation Examples

NOTE—For the angle of half keystone rings, the same definition and measurement apply as for keystone rings (see SAE J1589).

3.1 Type HK—Straight Faced Half Keystone Ring 7 Degrees

3.1.1 GENERAL FEATURES

NOTE—See Table 6 or Table 7 for dimensions and forces.

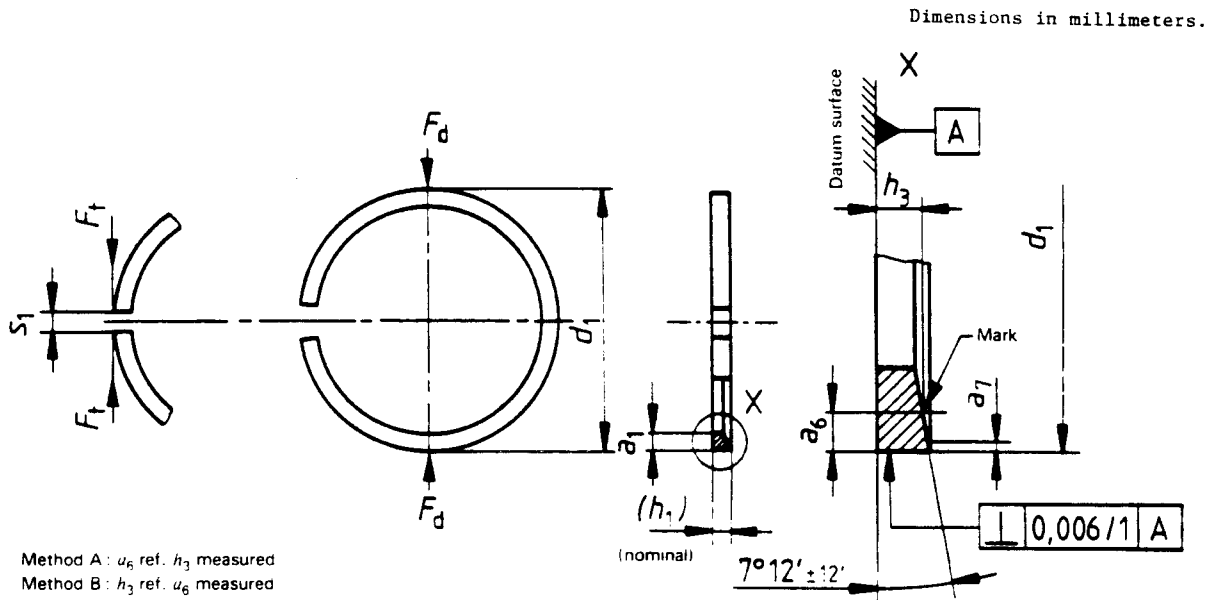


FIGURE 1—TYPE HK

3.1.2 DESIGNATION EXAMPLE—Designation of a straight faced half keystone ring 7 degrees of $d_1 = 60$ mm nominal diameter, $h_1 = 1.25$ mm ring width, made of steel (material subclass 62), general features as shown in Figure 1, and periphery chromium coated fully faced design 0.1 mm minimum thickness:

a. Piston ring SAE J2001 HK-60 x 1.25-MC62/CR2

3.2 Type HKB—Barrel Faced Half Keystone Ring 7 Degrees

3.2.1 GENERAL FEATURES

NOTE—See Table 6 or Table 7 for dimensions and forces.

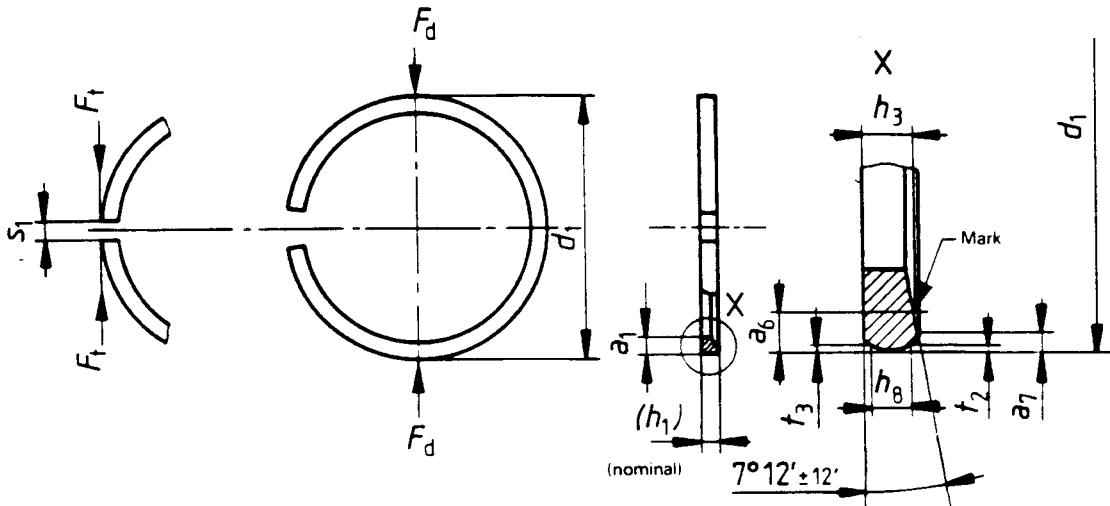


FIGURE 2—TYPE HKB

TABLE 1—GAUGE WIDTH (h_8) AND BARREL DIMENSIONS

Dimensions in millimeters				
h_1	h_8	t_2, t_3	t_2, t_3	Maximum Peak Off Center
1.25	0.6	0.001	0.013	0.2
1.55	0.8	0.02	0.016	0.25

3.2.2 DESIGNATION EXAMPLE—Designation of a barrel faced half keystone ring 7 degrees of $d_1 = 60\text{mm}$ nominal diameter, $h_1 = 1.25\text{ mm}$ ring width, made of steel (material subclass 62), general features as shown in Figure 2 and Table 1, and periphery molybdenum coated inlaid design 0.1 mm minimum thickness:

a. Piston ring SAE J2001 HKB-60 x 1.25-MC62/MO2