

JIS

JAPANESE INDUSTRIAL STANDARD

Automotive engines—Pistons

JIS D 3104—1996

Translated and Published

by

Japanese Standards Association

**In the event of any doubt arising,
the original Standard in Japanese is to be final authority**

Errata for JIS (English edition) are printed in *Standardization Journal*, published monthly by the Japanese Standards Association.

Errata will be provided upon request, please contact:

**Business Department,
Japanese Standards Association**
4-1-24, Akasaka, Minato-ku,
Tokyo, JAPAN 107
TEL. 03-3583-8002
FAX. 03-3583-0462

Errata are also provided to subscribers of JIS (English edition) in *Monthly Information*.

JAPANESE INDUSTRIAL STANDARD

J I S

Automotive engines – Pistons

D 3104-1996

1. Scope This Japanese Industrial Standard specifies pistons made of aluminium alloy used for automobile engines (hereafter referred to as "pistons").

Remarks: The following standards are cited in this Standard:

- JIS B 0109 Glossary of terms relating to reciprocating internal-combustion engines (main parts)
- JIS B 0403 Casting – System of dimensional tolerances and machining allowances
- JIS B 2804 Retaining rings-C type
- JIS B 7184 Measuring projectors
- JIS B 7420 Limit gauges
- JIS B 7506 Gauge blocks
- JIS B 8032 General rules for piston rings
- JIS G 3131 Hot-rolled mild steel plates, sheets and strip
- JIS G 3141 Cold-reduced carbon steel sheets and strip
- JIS G 5510 Austenitic iron castings
- JIS H 4140 Aluminium and aluminium alloy forgings
- JIS H 5202 Aluminium alloy castings
- JIS Z 2245 Method of Rockwell and Rockwell superficial hardness test

2. Definitions For the purpose of this Standard, the following definitions, in addition to those specified in JIS B 0109, apply:

- (1) pin direction The axis direction of piston pin hole.
- (2) thrust direction The direction perpendicular to the pin direction.
- (3) valve recess The recess made on the piston-top surface for preventing interference with suction valve and exhaust valve.
- (4) pin hole offset The quantity of deflection of pin hole axis line from piston axis line.
- (5) side wall The member connecting pin boss with skirt
- (6) side relief groove The groove made on inner surface of pin hole in the pin direction.
- (7) rotation stop pin The pin provided in ring groove for stopping rotation of piston ring.
- (8) lip The aperture edge of combustion chamber of piston.

- (9) reference diameter of skirt The diameter taken as reference of piston in fitting with cylinder, and diameter in thrust direction at designated height of skirt.
- (10) parallel ring groove The ring groove for the ring of parallel sides such as rectangular ring and the like.
- (11) keystone ring groove The ring groove for keystone ring and half keystone ring.
- (12) volume of combustion chamber The volume of combustion chamber established in piston crown including the volume convex part on piston-top surface, if formed.
- (13) mass adjustment To adjust the piston to the designated mass by machining.
- (14) scuff prevention groove The groove formed in circumference direction of top land for preventing scuff.
- (15) slot The narrow opening penetrating from the bottom of oil ring groove to the inside.

3. Name of each part Name of each part of piston is shown in Fig. 1. Fig. 1 shows an example.

Fig. 1. Name of each part of piston (an example)

Piston for four-cycle gasoline engine

