

# INTERNATIONAL STANDARD

ISO  
6743-3B

First edition  
1988-02-15



INTERNATIONAL ORGANIZATION FOR STANDARDIZATION  
ORGANISATION INTERNATIONALE DE NORMALISATION  
МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ

## Lubricants, industrial oils and related products (class L) — Classification —

### Part 3B: Family D (Gas and refrigeration compressors)

iteh STANDARD PREVIEW  
(standards.iteh.ai)

*Lubrifiants, huiles industrielles et produits connexes (classe L) — Classification —*

*Partie 3B: Famille D (Compresseurs de gaz et frigorifiques)*

1988  
<https://standards.iteh.ai/catalog/standards/sist/8da0aa69-c5d0-4f4e-ac6a-1a0ea1165751/iso-6743-3b-1988>

Reference number  
ISO 6743-3 B : 1988 (E)

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 6743-3B was prepared by Technical Committee ISO/TC 28, *Petroleum products and lubricants*.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

iTeh STANDARD PREVIEW  
(standards.iteh.ai)

ISO 6743-3B:1988  
<https://standards.iteh.ai/catalog/standards/sist/8da6aa09-c5d0-4f4e-ac6a-1a0ea1165751/iso-6743-3b-1988>

# Lubricants, industrial oils and related products (class L) — Classification —

## Part 3B: Family D (Gas and refrigeration compressors)

iTeh STANDARD PREVIEW  
(standards.iteh.ai)

### 1 Scope and field of application

This part of ISO 6743 establishes the detailed classification of lubricants in use for gas and refrigeration compressors. It constitutes the second element in the classification of lubricants in use for all types of compressors, family D, which includes air compressors and vacuum pumps (ISO 6743-3A<sup>1)</sup>), in addition to gas and refrigeration compressors.

The intent of this part of ISO 6743 is to describe lubricants in common use for gas compressors (table 1) and refrigeration compressors (table 2).

This document should be read in conjunction with ISO 6743-0.

### 2 References

ISO 3448, *Industrial liquid lubricants — ISO viscosity classification*.

ISO 6743-0, *Lubricants, industrial oils and related products (class L) — Classification — Part 0: General*.

### 3 Explanation of the symbols used

**3.1** The detailed classification of family D has been established by defining the categories of products required for the main applications of this family.

**3.2** Each category is designated by a symbol consisting of three letters, which together constitute a code.

NOTE — The first letter of the code (D) identifies the family of the product considered, but the second and third letters, taken separately, have no significance of their own.

The designation of each category can be supplemented by the addition of viscosity grades according to ISO 3448.

**3.3** In this classification system, products are designated in a uniform manner. For example, a particular product may be designated in complete form, i.e. ISO-L-DGA, or in an abbreviated form, i.e. L-DGA.

1) ISO 6743-3A and ISO 6743-3B will be combined in a single document before 1992.

## 4 Detailed classification

The detailed classification is shown in tables 1 and 2.

Table 1 — Classification of lubricants for gas compressors

Code letter	General application	Particular application	More specific application	Product type	Symbol ISO-L	Typical applications	Remarks
D	Compressors	Positive displacement reciprocating and rotary compressors for all gases. Compressors for refrigeration circuits or heat pump circuits, together with air compressors, are excluded.	Gases that do not react chemically with highly refined mineral oil or do not lower the viscosity to such an extent that mineral oil cannot be used	Highly refined mineral oil	DGA	<ul style="list-style-type: none"> <li>— N<sub>2</sub>, H<sub>2</sub>, NH<sub>3</sub>, Ar, CO<sub>2</sub> at pressures below 100 bar (10<sup>4</sup> kPa)</li> <li>— He, SO<sub>2</sub>, H<sub>2</sub>S at all pressures</li> <li>— CO at pressures below 10 bar (10<sup>3</sup> kPa)</li> </ul>	Ammonia has been found to react with certain additives used in some lubricants
			Gases of DGA type but containing moisture or condensable materials	Special mineral oil	DGB		
			Gases with high solubility in mineral oil that reduce viscosity	Usually, synthetic fluids	DGC*	<ul style="list-style-type: none"> <li>— Hydrocarbons at all pressures</li> <li>— NH<sub>3</sub>, CO<sub>2</sub> at pressures above 100 bar (10<sup>4</sup> kPa)</li> </ul>	Ammonia has been found to react with certain additives used in some lubricants
			Gases that react chemically with mineral oil	Usually, synthetic fluids	DGD*	<ul style="list-style-type: none"> <li>— HCl, Cl<sub>2</sub>, O<sub>2</sub> and oxygen-enriched air at all pressures</li> <li>— CO at pressures above 10 bar (10<sup>3</sup> kPa)</li> </ul>	With O <sub>2</sub> and oxygen-enriched air, mineral oils are <b>prohibited</b> , and very few synthetic fluids are compatible
			Inert or reducing gases that are very dry (dew point -40 °C)	Usually, synthetic fluids	DGE*	<ul style="list-style-type: none"> <li>— N<sub>2</sub>, H<sub>2</sub>, Ar at pressures above 100 bar (10<sup>4</sup> kPa)</li> </ul>	These gases present lubrication difficulties and require special consideration

\* The attention of the user is drawn to the fact that each of the categories DGC, DGD and DGE may, under the same designation, cover products of very different chemical composition which should not be mixed without consulting the suppliers.

NOTE — Compression of gases at high pressures may cause difficulties (consult the compressor suppliers).

Table 2 — Classification of lubricants for refrigeration compressors

Code letter	General application	Particular application	More specific application Operating temperature Type of refrigerant	Product type	Symbol ISO-L	Typical applications	Remarks
D	Compressors	Reciprocating and rotary volumetric compressors with hermetic, semi-hermetic or open configuration	Above $-40^{\circ}\text{C}$ (evaporator)  Ammonia or halocarbons	Highly refined mineral oils (naphthenic, paraffinic or white) and synthetic hydrocarbons	DRA	— General refrigeration — Air conditioning	
			Generally below $-40^{\circ}\text{C}$ (evaporator)  Ammonia or halocarbons	Synthetic hydrocarbon oils allowing appropriate miscibility control of the hydrocarbon/refrigerant mixture. These synthetic hydrocarbons will have to be miscible with each other	DRB	— General refrigeration	In installations with dry evaporators, miscibility is less important  In certain cases, depending on the type of refrigerant, highly refined mineral oils can be used (subject to low temperature and miscibility properties)
			Above $0^{\circ}\text{C}$ (evaporator or condenser) and/or high discharge temperatures or pressures  Halocarbons	— Highly refined mineral oils — Synthetic hydrocarbon oils having good thermal/chemical stability	DRC	— Heat pumps — Air conditioning — General refrigeration	Synthetic hydrocarbon oils allowing appropriate miscibility control of the hydrocarbon/refrigerant or hydrocarbon/mineral oil mixture
			All temperatures (evaporators)  Hydrocarbons	Synthetic lubricants that are non-miscible with refrigerants, mineral oils or synthetic hydrocarbons	DRD	Where lubricant and refrigerant must be immiscible and separate quickly	Compressors of this category are generally open

## NOTES

- Choice of oils is dependent upon system and required lubricant properties.
- The choice of one of the lubricants in the table is necessary only when this lubricant is in contact with the compressed gas in the cylinder(s) or if there is a possibility for the lubricant to be in contact with the gas in another part of the machine when the cylinder(s) is (are) not lubricated.
- Where single-envelope exchanger technology is used and there is danger of contact between food and the refrigerant/lubricant mixture, the particular lubricant required by the regulations of each country should be used.

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

This page intentionally left blank

ISO 6743-3B:1988

<https://standards.iteh.ai/catalog/standards/sist/8da0aa69-c5d0-4f4e-ac6a-1a0ea1165751/iso-6743-3b-1988>

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

This page intentionally left blank

ISO 6743-3B:1988

<https://standards.iteh.ai/catalog/standards/sist/8da0aa69-c5d0-4f4e-ac6a-1a0ea1165751/iso-6743-3b-1988>

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

ISO 6743-3B:1988

<https://standards.iteh.ai/catalog/standards/sist/8da0aa69-c5d0-4f4e-ac6a-1a0ea1165751/iso-6743-3b-1988>

---

**UDC 665.765**

**Descriptors :** petroleum products, lubricants, lubricating oils, classification, compressors.

Price based on 3 pages

---