

DIN 51524-1



ICS 75.120

Supersedes  
DIN 51524-1:2006-04 and  
DIN 51524-1 Corrigendum  
1:2006-09

**Pressure fluids –  
Hydraulic oils –  
Part 1: HL hydraulic oils, Minimum requirements,  
English translation of DIN 51524-1:2017-06**

Druckflüssigkeiten –  
Hydrauliköle –  
Teil 1: Hydrauliköle HL, Mindestanforderungen,  
Englische Übersetzung von DIN 51524-1:2017-06

Fluides sous pression –  
Huiles hydrauliques –  
Partie 1: Huiles hydrauliques HL, Exigences minimales,  
Traduction anglaise de DIN 51524-1:2017-06

Document comprises 11 pages

Translation by DIN-Sprachendienst.

In case of doubt, the German-language original shall be considered authoritative.

*A comma is used as the decimal marker.*

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## Foreword

This document has been prepared by Working Committee NA 062-06-51 AA “Requirements for lubricating and other oils” of *Fachausschuss Mineralöl- und Brennstoffnormung* (FAM) (Standardization of petroleum, fuels, lubricants and related products committee) of *DIN-Normenausschuss Materialprüfung* (DIN Standards Committee Materials Testing).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. DIN shall not be held responsible for identifying any or all such patent rights.

DIN 51524 consists of the following parts, under the general title *Pressure fluids — Hydraulic oils*:

- *Part 1: HL hydraulic oils, Minimum requirements*
- *Part 2: HLP hydraulic oils, Minimum requirements*
- *Part 3: HVLP hydraulic oils, Minimum requirements*

To allow a better selection of oils, maximum values for viscosity at 0 °C or –20 °C for start-up operations in winter have been specified instead of the viscosity index, and minimum values for viscosity at 100 °C have been specified for the maximum loading of hydraulic oils in summer.

## Amendments

This standard differs from DIN 51524-1:2006-04 and DIN 51524-1 Corrigendum 1:2006-09 as follows:

- a) DIN 51524-1 Corrigendum 1:2006-09 has been incorporated;
- b) Annex A on READ-ACROSS has been added;
- c) the standard has been editorially revised and normative references have been updated.

## Previous editions

DIN 51524: 1971-12

DIN 51524-1: 1985-06, 2006-04

DIN 51524-1 Corrigendum 1: 2006-09

## 1 Scope

This standard applies to the hydraulic oils listed in Table 1, for use predominantly in hydrostatic drive systems

- in which high thermal stresses would result in unduly short service lives of H oils without additives;
- where corrosion is expected, for example as a result of the ingress of water.

HL hydraulic oils may also be used in hydrodynamic drive systems, provided they meet the requirements of these systems.

An oil as in DIN 51524-2 may be used where an HLP hydraulic oil is required for predominantly hydrostatic systems in which high thermal stresses arise and where corrosion is expected due to the ingress of water, and/or where oils containing anti-wear additives for mixed friction applications are required in pumps or hydraulic motors due to their design or operating conditions.

**Table 1 — HL hydraulic oils - Correspondence of symbols**

Standards	Symbol							
DIN 51502:1990-08	HL 10	HL 15	HL 22	HL 32	HL 46	HL 68	HL 100	HL 150
DIN EN ISO 6743-4:2015-11	HL 10	HL 15	HL 22	HL 32	HL 46	HL 68	HL 100	HL 150

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

DIN 51502:1990-08, *Designation of lubricants and marking of lubricant containers, equipment and lubricating points*

DIN 51524-2, *Pressure fluids — Hydraulic oils — Part 2: HLP hydraulic oils, Minimum requirements*

DIN 51757, *Testing of mineral oils and related materials — Determination of density*

DIN EN ISO 2160, *Petroleum products — Corrosiveness to copper — Copper strip test*

DIN EN ISO 2592, *Petroleum products and related products — Determination of flash and fire points — Cleveland open cup method*

DIN EN ISO 3104, *Petroleum products — Transparent and opaque liquids — Determination of kinematic viscosity and calculation of dynamic viscosity*

DIN EN ISO 4259, *Petroleum products — Determination and application of precision data in relation to methods of test*

DIN EN ISO 4263-1, *Petroleum and related products — Determination of the ageing behaviour of inhibited oils and fluids — TOST test — Part 1: Procedure for mineral oils*

DIN EN ISO 6245, *Petroleum products — Determination of ash*