

# ISO 6834:2022-10 (E)

## Plain bearings - Thermo-hydrodynamic lubrication design charts for circular cylindrical bearings under steady-state conditions

---

Contents	Page
Foreword.....	iv
Introduction.....	v
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions.....	1
4 Symbols, units and abbreviated terms .....	1
5 Basis of calculation, assumptions, and preconditions.....	5
5.1 Assumptions and preconditions.....	5
5.2 ISOADI THL model.....	6
5.2.1 General.....	6
5.2.2 Generalized Reynolds equation .....	6
5.2.3 Energy equation for lubricant film temperature distribution .....	7
5.2.4 Formula for lubricant film thickness.....	7
5.2.5 Formula for axial contraction ratio of lubricant streamlet.....	8
5.2.6 Temperature-viscosity relationship .....	8
5.2.7 Zero net heat flow method for journal surface temperature.....	8
5.2.8 Formula for mixing temperature.....	8
5.2.9 Balance of bearing load and lubricant film reaction force.....	9
5.3 Boundary conditions.....	9
5.3.1 Pressure distribution of lubricant film.....	9
5.3.2 Temperature distribution of lubricant film.....	9
5.4 Basis of calculation .....	9
6 Design charts.....	10
6.1 General.....	10
6.2 Input of design charts.....	12
6.3 Axes of design charts.....	13
6.4 Read of design charts.....	13
6.5 Conversion of modified dimensionless values from design charts to dimensional ones.....	13
7 Calculation procedure.....	14
Annex A (informative) Calculation examples.....	16
Bibliography.....	24