

# ISO 6834:2022-10 (E)

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

---

<b>Contents</b>		<b>Page</b>
	<b>Foreword</b> .....	<b>iv</b>
	<b>Introduction</b> .....	<b>v</b>
<b>1</b>	<b>Scope</b> .....	<b>1</b>
<b>2</b>	<b>Normative references</b> .....	<b>1</b>
<b>3</b>	<b>Terms and definitions</b> .....	<b>1</b>
<b>4</b>	<b>Symbols, units and abbreviated terms</b> .....	<b>1</b>
<b>5</b>	<b>Basis of calculation, assumptions, and preconditions</b> .....	<b>5</b>
	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
<b>6</b>	<b>Design charts</b> .....	<b>10</b>
	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
<b>7</b>	<b>Calculation procedure</b> .....	<b>14</b>
	<b>Annex A (informative) Calculation examples</b> .....	<b>16</b>
	<b>Bibliography</b> .....	<b>24</b>