

Thermodur® 2383 Supercool

For lowest cycle times



Thermodur® 2383 Supercool

Extended tool life and shorter cycle times in production: This is of particular interest for the molding industry. The demands on tool steels are constantly increasing. Swiss Steel Group has the special steel solution.

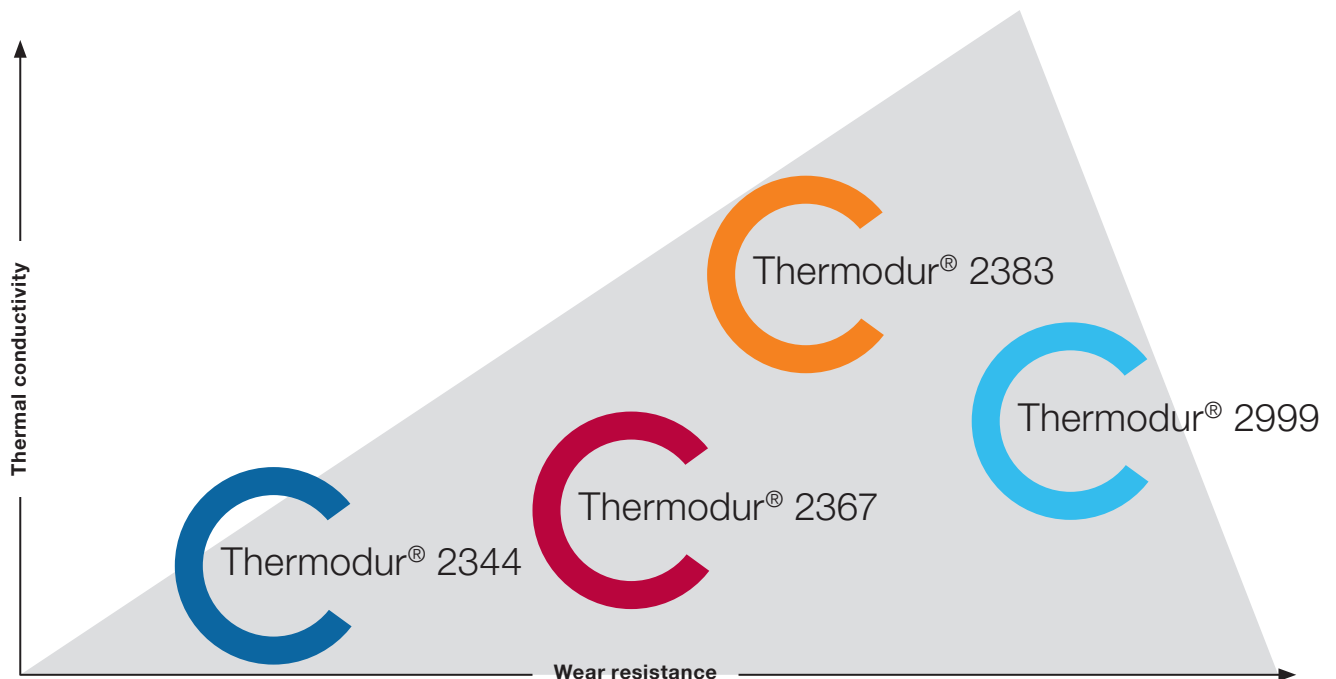
Thermodur® 2383 Supercool is the tool steel that combines excellent mechanical properties and high wear resistance with very high thermal conductivity.

Thermodur® 2383 Supercool has proved particularly successful in indirect press hardening, injection molding, low-pressure and gravity die casting.

Thermodur® 2383 Supercool, quenched and tempered to 45HRC, features a significantly higher thermal conductivity compared to conventional hot work tool steels like 1.2343 (H11), 1.2344 (H13), and 1.2367 at similar hardness level. A maximum value of 44W/(m K) is reached at 100 °C.

Due to the high thermal conductivity, the thermal energy at the surface can be dissipated more rapidly and temperature differences between surface and core are minimized. This results in lower thermal stresses in the die and the formation, number and depth of thermal shock cracks is significantly reduced.

The result: a tool made of Thermodur® 2383 Supercool noticeably lowers the cycle times in molding/forming applications thanks to improved heat conductivity.



Chemical composition

in %					
	C	Mn	Ni	Mo	V
Standard values	0.43	0.90	0.90	1.50	1.30

Physical properties

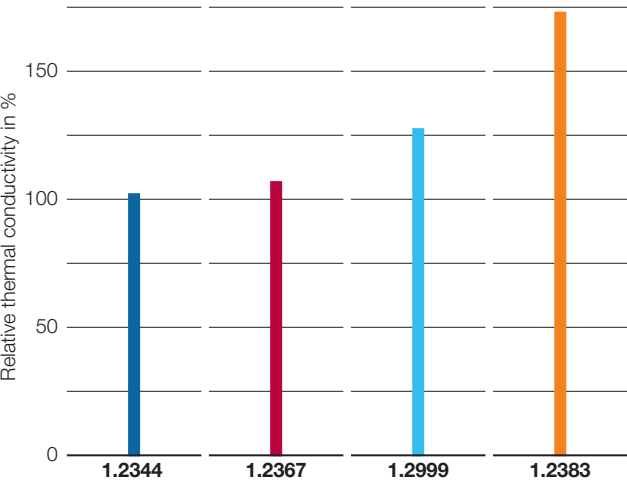
Coefficient of thermal expansion	in 10 ⁻⁶ K	Thermal conductivity	in W/(m K)
20–100 °C	12.0	100 °C	44
20–200 °C	12.3	200 °C	43
20–300 °C	12.7	300 °C	41
20–400 °C	13.1	400 °C	39

Properties

- Outstanding thermal conductivity
- High wear resistance
- Outstanding tempering resistance
- Good high temperature strength
- Excellent thermal shock resistance
- Excellent polishability, comparable to 1.2343 / 1.2344 (H11 / H13 ESR)
- Good weldability

Thermal conductivity

Relative thermal conductivity (Thermodur® 2344 as reference) in quenched and tempered condition (45±1 HRC), measured at 100 °C



Heat treatment

Soft annealing temperature	860 °C	Furnace	≤ 200 HB
Hardening	1080–1120 °C	Oil, hot bath 550–550 °C	52 HRC after quenching
Tempering temperature	400 °C		48
	500 °C		48
	550 °C		52
	600 °C		51
	650 °C		48

General note (liability)
Not liable for printing errors, omissions and/or changes. All statements regarding the properties and/or utilization of the materials or products mentioned are for purpose of description only. Product specific data sheet have priority over the information provided in this brochure. The desired performance characteristics are binding only if exclusively agreed upon in writing at the conclusion of the contract.



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