

GAS © **FORM**
QUENCHING SYSTEM
For Hardening Of Ring Shaped Parts

- High Precision Cooling
- Minimum Deformation
- Economical
- No Enviromental Pollution

GASoFORM



QUENCHING SYSTEM

An alternative to oil quenching of ring and disk shaped parts

DESCRIPTION

After the parts achieve a uniform heat-up within the ROLLMOD furnace, a high speed exit roller module, controlled by a photo cell, shuttles one part at a time into the GASoFORM unit; this part is then immediately quenched from all sides with several high intensity gas jet nozzles.

A process controller automatically regulates the quenching process with capabilities of martempering, austempering or bath tempering (fig. 1).

PRECISE COOLING PROCESS

The GASoFORM system offers complete reproducible heat transfer uniformity without surface stress, thereby avoiding product deformation.

The high precision cooling is performed by way of the Newton principle. A heat transfer coefficient of 1000W/m²K is achievable with 150 mbar of air or nitrogen, which is similar to the quenchability to that of oil (fig.2).

The Jominy Hardenability test, in which a steel bar is heated to the desired austenitizing temperature and quench-hardened at one end, then measured for hardness along its length, beginning at the quenched end, is illustrated for the GASoFORM in (fig.3) and comparable to that of oil. Due to the even heat-transfer from all sides tensions and distortion are almost completely avoided.

SAVINGS

GASoFORM quenching of repetitive parts is more cost effective than standard oil quenching:

- The GASoFORM system is extremely compact requiring minimal surface area.
- The need for oil disposal is eliminated.
- No after quench part cleaning is required.
- The tool costs for GASoFORM quenching is much lower than that for fixture hardening.
- A high reduction in tool changing time is achieved.

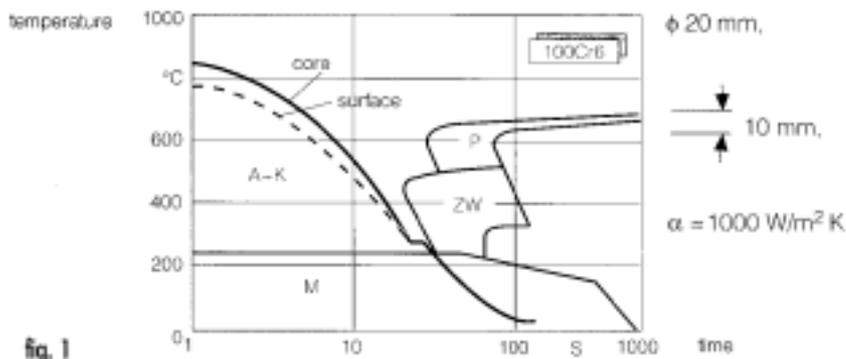


fig. 1

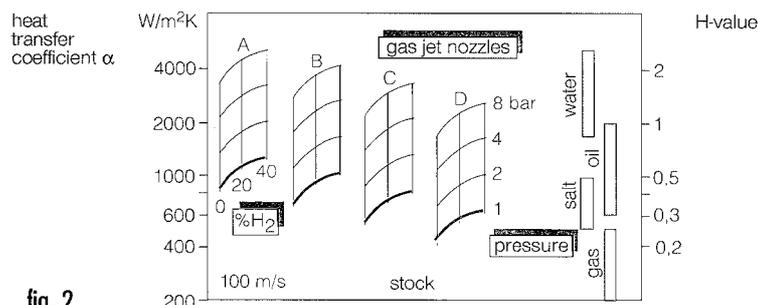


fig. 2

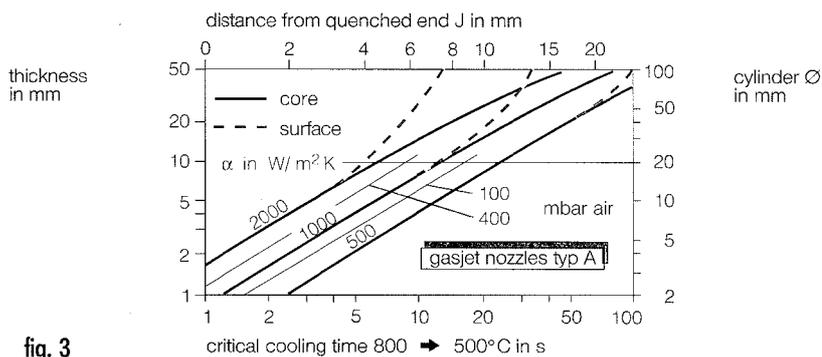


fig. 3

SAFETY AND POLLUTION

The concern of oil fires is eliminated. The concern for hazardous waste disposal is eliminated, thereby enabling the GASoFORM to be permitted and installed virtually without question.

ROLLMOD®
 Hochtemperatur-Transportsysteme GmbH
 ROLLMOD GmbH
 Dornierstraße 14 · 71272 Renningen
 Tel.: 0 71 59 / 60 63 · Fax: 0 71 59 / 27 38