

# ASSAB 705

# GENERAL

ASSAB 705 is machinery steel with unique machinability. ASSAB 705 is supplied as quenched and tempered that enhances hardness and toughness distribution.

Typical analysis %	C 0.40	Mn 0.70	Cr 0.80	Ni 1.80	Mo 0.25
Reference standard	AISI 4340, DIN 34CrNiMo6, W.nr. 1.6582, BS EN24, AFNOR 35NCD6, JIS SNCM 439				
Delivery condition	Quenched and tempered to 293-352HB				

# APPLICATIONS

ASSAB 705 is an alloyed machinery steel with good hardenability also in large cross sections. It combines high strength with best toughness.

ASSAB 705 is intended for use in the as-delivered condition, requiring no further heat treatment. However, it can be oil, water or polymer hardened to higher hardness and higher mechanical properties if required. ASSAB 705 is suitable for induction hardening and can also be nitrided or tuftrided to a surface hardness of 600-650 Vickers.

ASSAB 705 is not suitable for welding but can be repair welded when certain precautions are taken.

Typical applications include high strength machine parts, spindles, high strength bolts and studs, gears, axle shaft, crankshafts, connecting rods, arbors etc.

# PROPERTIES

## MECHANICAL DATA

### QUENCHED AND TEMPERED

Mechanical Properties	Typical values under supplied condition
Yield strength, Rp 0.2, N/mm <sup>2</sup>	≥ 850
Tensile strength, N/mm <sup>2</sup>	≥ 980
Elongation, A <sub>5</sub> , %	≥ 14
Reduction of area, Z, %	≥ 45
Impact strength (Charpy-V at ~23°C), J/cm <sup>2</sup>	≥ 55



Components (main shafts) for palm oil extract



Car components

“ASSAB” and the logo are trademark registered. The information contained herein is based on our present state of knowledge and is intended to provide general notes on our products and their uses. Therefore, it should not be construed as a warranty of specific properties of the products described or a warranty for fitness for a particular purpose. Each user of ASSAB products is responsible for making its own determination as to the suitability of ASSAB products and services.

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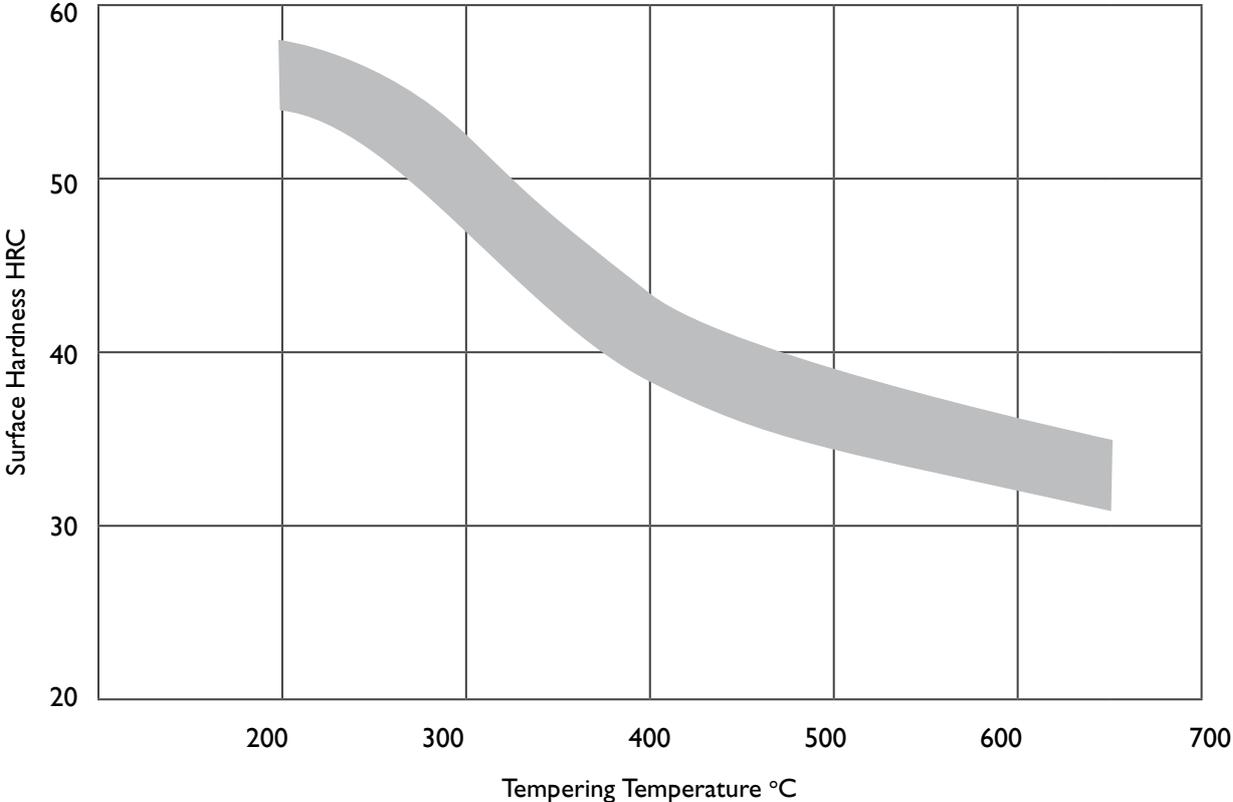
# HEAT TREATMENT

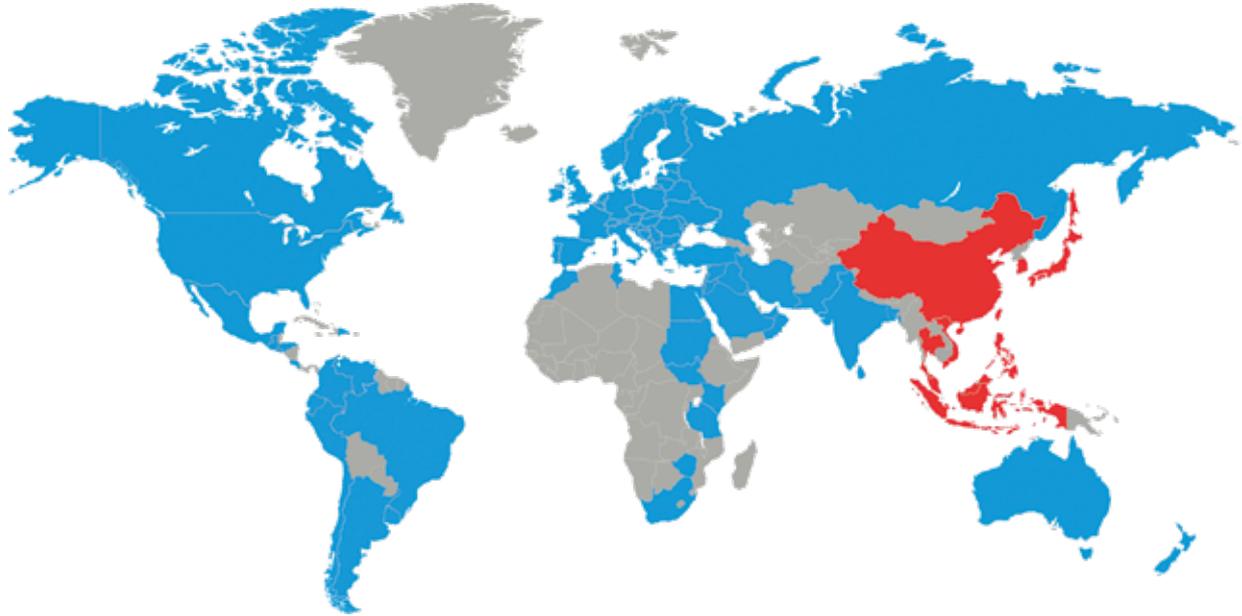
Heat treatment for pre-hardened condition:  
Hardened at 880-935°C  
Tempered at 600-670°C  
Quench media 100% water

ASSAB 705 can be re-hardened by oil, polymer or water to higher hardness. The following tempering diagram is achieved by induction heating followed by water quenching process.

Tempering diagram

Quenching in water after induction heating at 880°C





Choosing the right steel is of vital importance. ASSAB engineers and metallurgists are always ready to assist you in your choice of the optimum steel grade and the best treatment for each application. ASSAB not only supplies steel products with superior quality, we offer state-of-the-art machining, heat treatment and surface treatment services to enhance steel properties to meet your requirement in the shortest lead time. Using a holistic approach as a one-stop solution provider, we are more than just another tool steel supplier.

ASSAB and Uddeholm are present on every continent. This ensures you that high quality tool steel and local support are available wherever you are. Together we secure our position as the world's leading supplier of tooling materials.

For more information, please visit  
[www.assab.com](http://www.assab.com)

