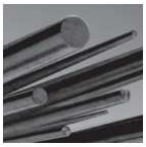
Steel grade

Material No. / Werkstoff-Nr.	PREMIUM 1.7225+QT
Description	42CrMo4
BS	708 M 40+QT
AISI/SAE	4140+QT
Search for alternatives in the ABRAMS STEEL GUIDE®	**www.steel-guide.co.uk/alternatives/708M40QT**

Specifications



Round steel [RS]
black
L: 500 mm
L: 1,000 mm

Chemical composition BS 708 M 40+QT (reference value %)

C	Si	Mn	P	S	Cr	Mo
0.38 – 0.45	0 – 0.4	0.6 – 0.9	0 – 0.035	0 – 0.035	0.9 – 1.2	0.15 – 0.3

Physical properties

Hardness (delivery condition)	max. 380 HB, tempered			
Tensile strength R_m (as received condition)	approx. 1300 N/mm²			
Working hardness	max. 48 HRC			
Thermal expansion coefficient 10^{-6}m/(m • K)	20 - 100°C	20 - 200°C	20 - 300°C	20 - 400°C
	11.1	12.1	12.9	13.5
Thermal conductivity W/(m • K)	20 °C			
	42.6			

Technical properties

Heat-treatable steel (tempered condition) that can be used for a wide range of applications with a high degree of strength and toughness. Often used for demanding applications in automotive engineering. In quenched and tempered condition it is used in machine construction.

Applications

Mechanical engineering, machine parts, axes, knuckles, connecting rods, crankshafts, gear shafts, pinions, gears, bandages, base plates, assembling parts.

Heat treatment

Soft annealing	**Temperature**	**Cooling**	**Hardness**
	680 - 720°C	Furnace	max. 380 HB
Hardening	**Temperature**	**Quenching in**	
	830 - 880°C	Oil or water	

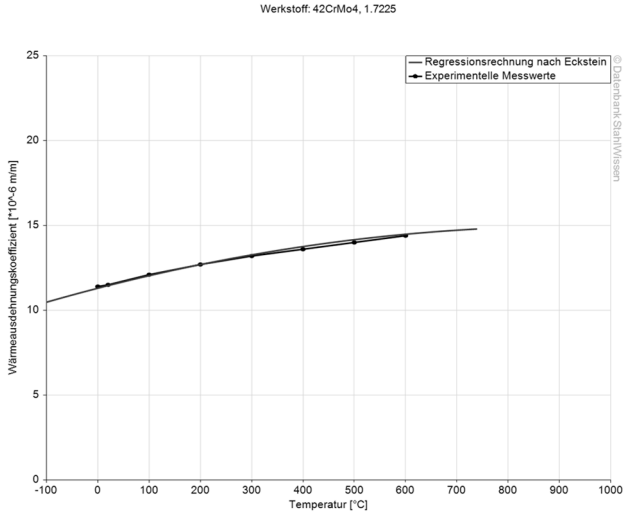
Divisions of
ABRAMS Industries GmbH & Co. KG
Hannoversche Str. 38 / 46
49084 Osnabrück
Germany

County court Osnabrück / Germany, HRA 6865
GP: ABRAMS Industries Verwaltungs GmbH
Country court Osnabrück / Germany, HRB 20019
CEO: Dipl.-Wi.-Ing. Dr. Jürgen Abrams
COO: Ms. Nur H. Nezir, LL.B.

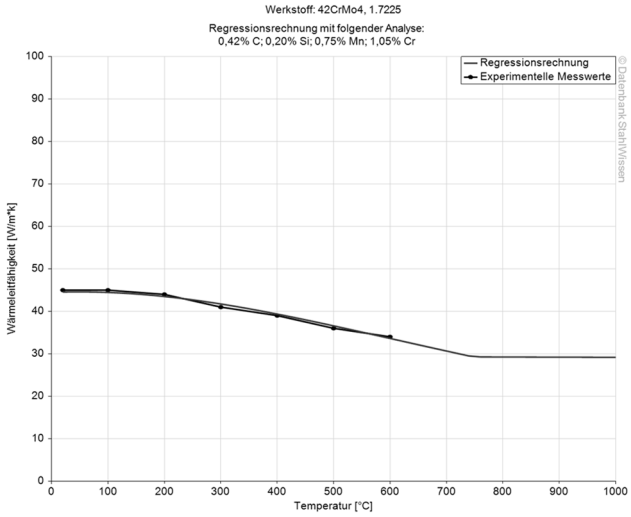
T: +44 (0) 121 368 0910
sales@abrams-industries.co.uk
www.abrams-industries.co.uk/shop
VAT-No.: DE221940667

British Account – Bank details:
Bank: Sparkasse Osnabrück / Germany
GBP730008976
BIC / SWIFT: NOLADE22

Thermal expansion coefficient diagram



Thermal conductivity diagram



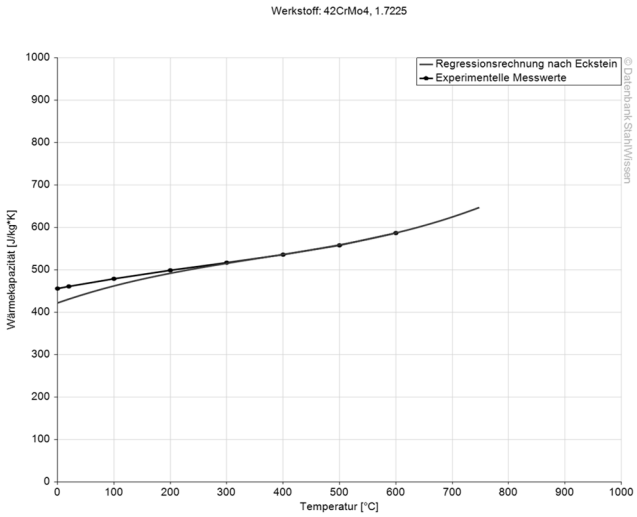
Divisions of
ABRAMS Industries GmbH & Co. KG
Hannoversche Str. 38 / 46
49084 Osnabrück
Germany

County court Osnabrück / Germany, HRA 6865
GP: ABRAMS Industries Verwaltungs GmbH
Country court Osnabrück / Germany, HRB 20019
CEO: Dipl.-Wi.-Ing. Dr. Jürgen Abrams
COO: Ms. Nur H. Nezir, LL.B.

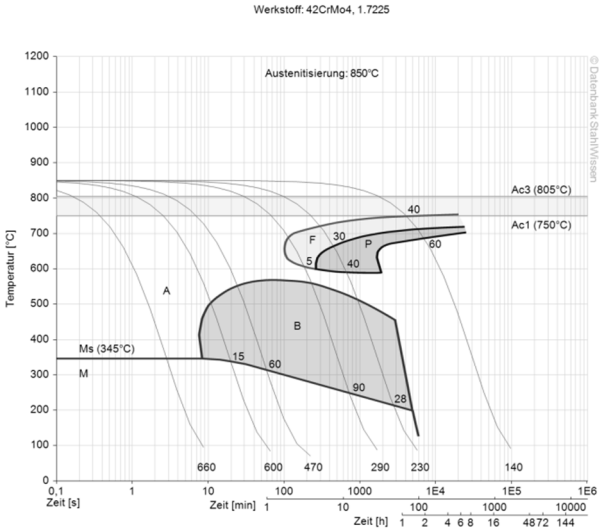
T: +44 (0) 121 368 0910
sales@abrams-industries.co.uk
www.abrams-industries.co.uk/shop
VAT-No.: DE221940667

British Account – Bank details:
Bank: Sparkasse Osnabrück / Germany
GBP730008976
BIC / SWIFT: NOLADE22

Thermal capacity diagram



Continuous ZTU-diagram



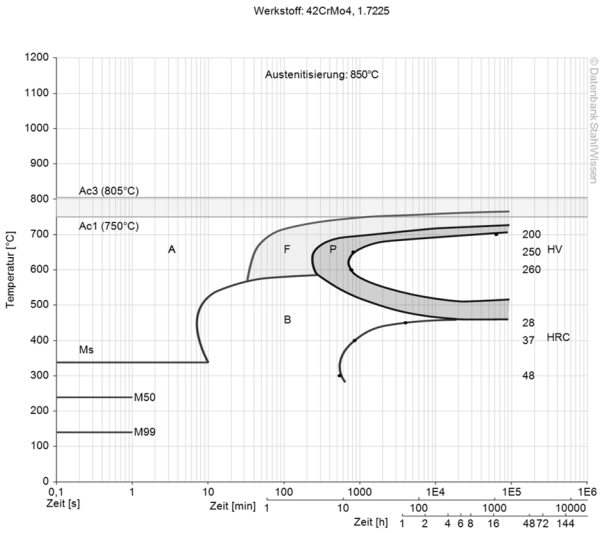
Divisions of
ABRAMS Industries GmbH & Co. KG
Hannoversche Str. 38 / 46
49084 Osnabrück
Germany

County court Osnabrück / Germany, HRA 6865
GP: ABRAMS Industries Verwaltungs GmbH
Country court Osnabrück / Germany, HRB 20019
CEO: Dipl.-Wi.-Ing. Dr. Jürgen Abrams
COO: Ms. Nur H. Nezir, LL.B.

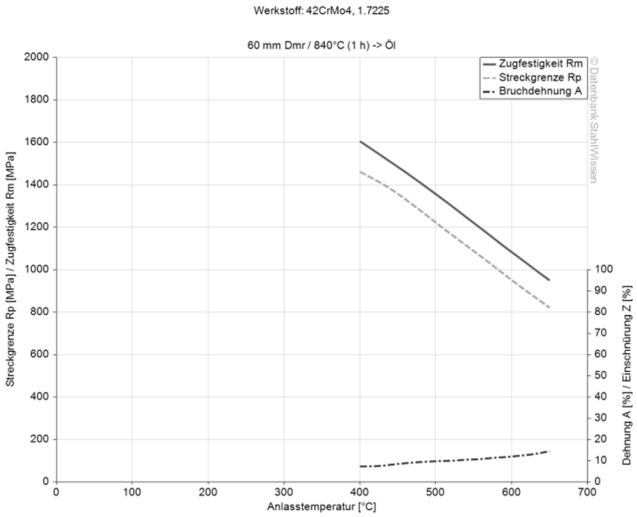
T: +44 (0) 121 368 0910
sales@abrams-industries.co.uk
www.abrams-industries.co.uk/shop
VAT-No.: DE221940667

British Account – Bank details:
Bank: Sparkasse Osnabrück / Germany
GBP730008976
BIC / SWIFT: NOLADE22

Isothermical ZTU-diagram



Hardening and tempering diagram



The data shown here is to be used only as an indication of the statistics, thus we accept no liability.
Diagrams are taken from Datenbank StahlWissen - Dr. Sommer Werkstofftechnik
Issued: 2012

Divisions of
ABRAMS Industries GmbH & Co. KG
Hannoversche Str. 38 / 46
49084 Osnabrück
Germany

County court Osnabrück / Germany, HRA 6865
GP: ABRAMS Industries Verwaltungs GmbH
Country court Osnabrück / Germany, HRB 20019
CEO: Dipl.-Wi.-Ing. Dr. Jürgen Abrams
COO: Ms. Nur H. Nezir, LL.B.

T: +44 (0) 121 368 0910
sales@abrams-industries.co.uk
www.abrams-industries.co.uk/shop
VAT-No.: DE221940667

British Account – Bank details:
Bank: Sparkasse Osnabrück / Germany
GBP730008976
BIC / SWIFT: NOLADE22