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Global Steel Grade Encyclopedia



涵盖的行业或国家与地区类别



国际材料与试验协会

GJB

国家军用标准



动力机械工程师协会

EU

前欧洲标准化

AISI

美国钢铁学会



德国工业标准

AMS

航空航天材料规范



国际标准

JASO

日本汽车标准组织

EN

欧洲标准

JB

中国机械行业标准

UNS

统一编号系统

UNI

意大利标准



美国机械工程师协会

SS

瑞典标准



国家标准



日本工业标准

Formadur PH 42 Superclean

(15NiCuAl12-10-10)

C 0.15 Mn 1.50 Ni 3.00 Cu 1.00 Al 1.00

Steel properties

As-delivered hardness approx. 38 HRC (approx. 1200 MPa). Precipitation hardened, remelted plastic mould steel with excellent polishability and suitability for texturing. Good electrical discharge machinability, machinability and weldability, suitable for nitriding. Improved compressive strength due to higher hardness compared to conventional plastic mould steels.

Physical properties

Coefficient of thermal expansion

at °C	20 – 100	20 – 150	20 – 200	20 – 250	20 – 300	20 – 350	20 – 400	20 – 450	20 – 500
$10^{-6} \text{ m/(m} \cdot \text{K)}$	12.6	12.8	13.0	13.3	13.5	13.7	13.9	14.0	14.2

Precipitation hardened

Thermal conductivity

at °C	23	150	300	350	400	500
$\text{W/(m} \cdot \text{K)}$	25.7	29.4	29.8	29.6	29.2	28.2

Precipitation hardened

Modulus of elasticity

at °C	20
MPa	206000

Applications

Formadur PH 42 Superclean is suitable for all kinds of tools in plastic processing with high demands on strength, such as highly stressed plastic injection moulds, compression moulds and hot-runner systems.

Heat treatment

Formadur PH 42 Superclean is supplied in precipitation hardened condition with a hardness of approx. 38 HRC. No additional heat treatment is necessary. After repair welding an ageing at 520 °C/1 hr is recommended.

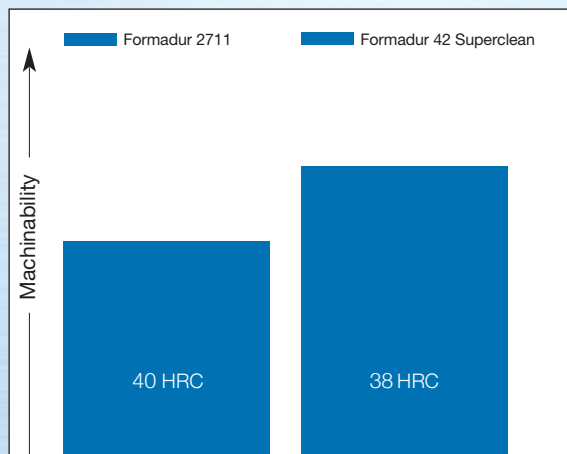
Special information

Due to its well-balanced composition and its high homogeneity, Formadur PH42 Superclean has a comparable machinability to Formadur 2311 and 2738 even at a higher as-delivered hardness approx. 38 HRC. Compared to Formadur 2711, machinability is significantly improved with a similar hardness level.



Machinability

Comparison of machinability of conventional plastic mould steel Formadur 2711 with Formadur PH 42 Superclean.



Reference numbers in brackets are not standardized in EN ISO4957.