

# 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

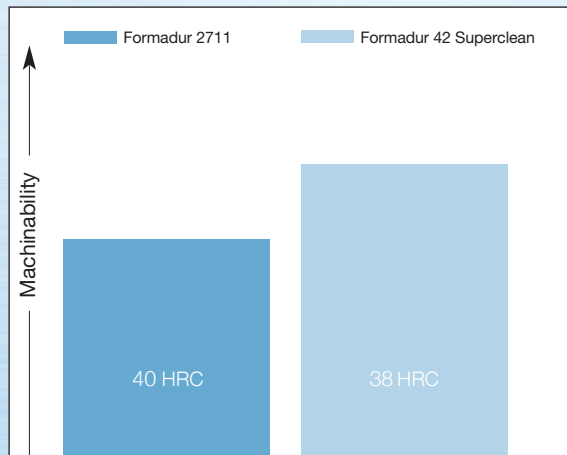
Formadur PH 42 Superclean is supplied in precipitation hardened condition with a hardness of approx. 38 HRC. No additional heat treatment is necessary. After repair welding an ageing at 520 °C/1 hr is recommended.

## 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.