

Tool Steel – Ex Works in Working Hardness

# Low Pressure Die Casting

## Tool Steel – Ex Works in Working Hardness

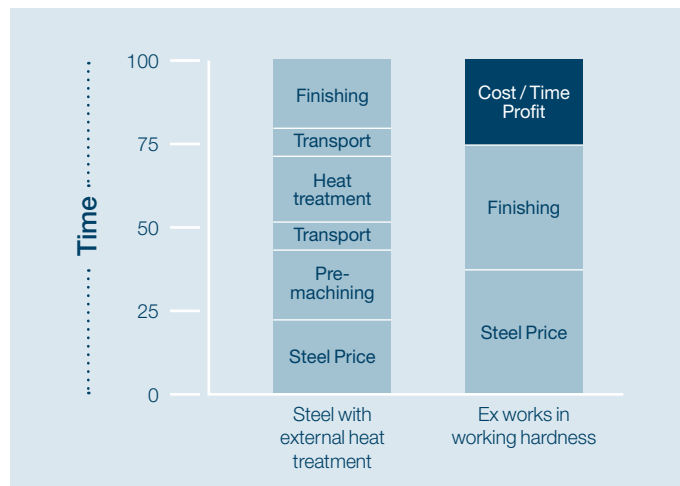
### Highest Efficiency for your Applications

- Time saving
- Cost saving
- Good machinability
- Reliable hardness
- No distortion during hardening
- All services from one provider

### Modern Processes in LPDC and Effects on Potential in Tool Steel for Thick Walled Castings

- Economic tool steel solutions to optimize the combination of hardness, tempering resistance and toughness
- High quality properties to match complicated product features in automotive light weight solutions
- Modern developed solution to cast high-tolerance parts
- Premium steels to be used with shorter cycle times
- Well defined tool steels to produce challenging designs for automobile aluminum wheels
- All supplied at working hardness ex mill – No additional heat treatment required

## External Heat Treatment versus Ex Works - in Working Hardness





### Stresses

Die cast dies are subject to very complex stresses in their operational use, comprising mechanical, thermal and chemical components. With the growing size – but also the complexity – of die cast components, the demands placed on dies and die steels are increasing. Significantly tougher steels are needed to compensate

mechanical and thermal stresses. In many cases, a high degree of thermal conductivity is becoming increasingly important. This property is not only important in terms of reducing cycle times, but also contributes heavily to reducing thermally induced stress in dies.

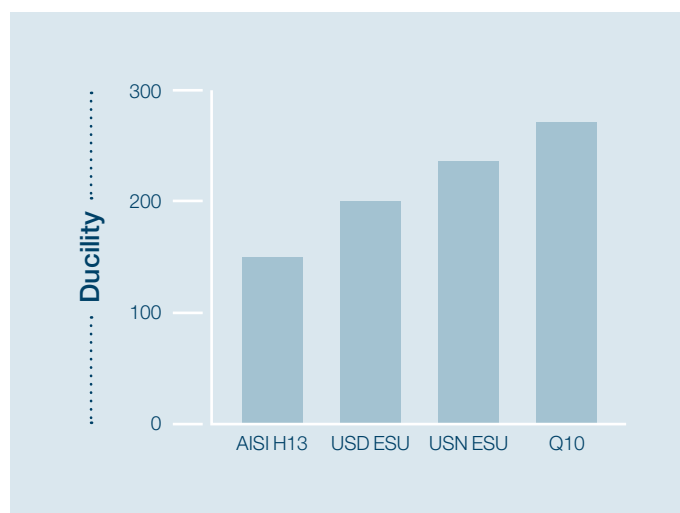
### Modern Tool Steel Solutions for Low Pressure and Gravity Casting

In addition to our quality hot-work tool steel brands, Kind&Co. offers the specially developed hot-work tool steel Q10, that has been created to adhere to the particular need of the die LPDC.

- Well reputed Quality Tool Steels USN ESU and USD ESU
- Modern Premium Tool Steel Q 10 for improved tooling performance
- Supply at working hardenss - No additional heat treatment required
- Typcial working hardness 36-40 HRC
- Working hardness on demand within the range 310- 400 HB
- Heat treated at short lengths of only 1000-1300 mm - High homogeneity of hardness

### Comparison of ductility

(un-notched 7x10x55mm) 43-45 HRC transverse direction



## Production processes

Melting

Forging

Heat treatment

Mechanical processing

Vacuum hardening

Surface treatment

## Products

Hot-work tool steels

Cold-work tool steels

Die forging steels

Plastic mould steels

## Industries

Die casting

Extrusion

Die forging

Pipe technology

Plastics technology

Hot-stamping

Special applications

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