

44SMn28HP

High performance free cutting steel



ADVANTAGES

Excellent mechanical properties comparable to Q&T performance with FP microstructure	Free of Surface and internal defects
Higher UTS (830 - 1150 MPa) and yield strength (>500 MPa) than cold drawn 44SMn28	Control of superficial defects and internal cleanness in the entire dimensional range
Without residual stresses	Guaranteed straightness
No cold deformation is applied	Optimized for automatic turning machines

APPLICATION

Complex components with optimized compromise between machinability and strength



CHEMICAL COMPOSITION

Grade	%wt	C	Si	Mn	P	S	Others*
44SMn28HP	min.	0,40	0,20	1,40	-	0,24	-
	max.	0,48	0,48	1,70	0,03	0,33	-

*Microalloyed grade

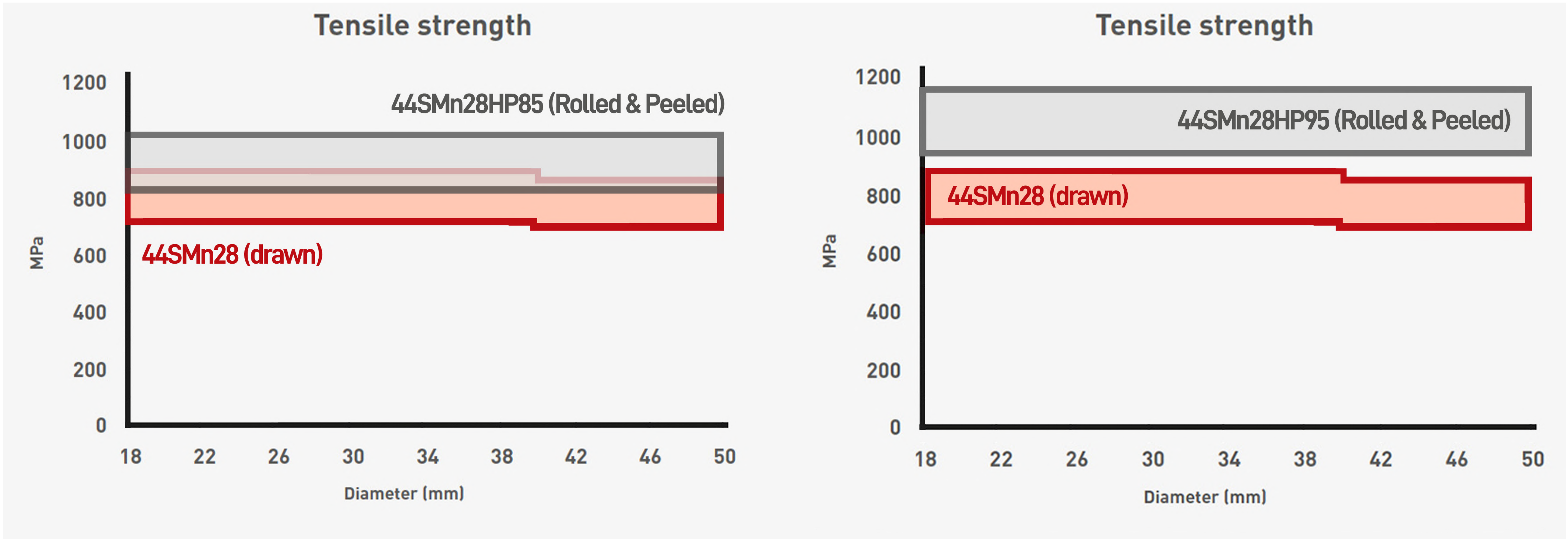
APPLIED TECHNOLOGY

- Ultimate tensile strength enhancement by microprecipitation.
- Detailed control of the manufacturing process in order to obtain a homogeneous distribution of microprecipitates.
- Respecting international standards EN, DIN, AFNOR...



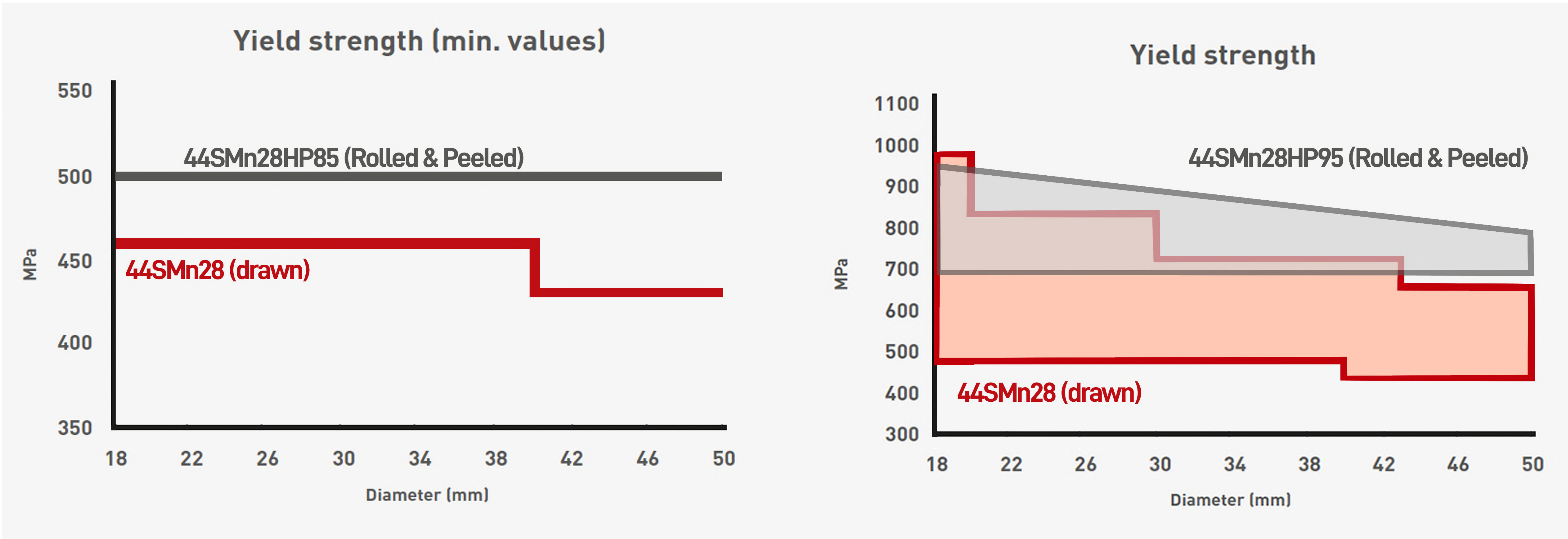
MECHANICAL PROPERTIES

Grade	UTS (MPa)	YS (MPa)	El _{5d} (%)
44SMn28HP85	830-1020	>500	>10
44SMn28HP95	950-1150	>680	>10



MECHANICAL PROPERTIES

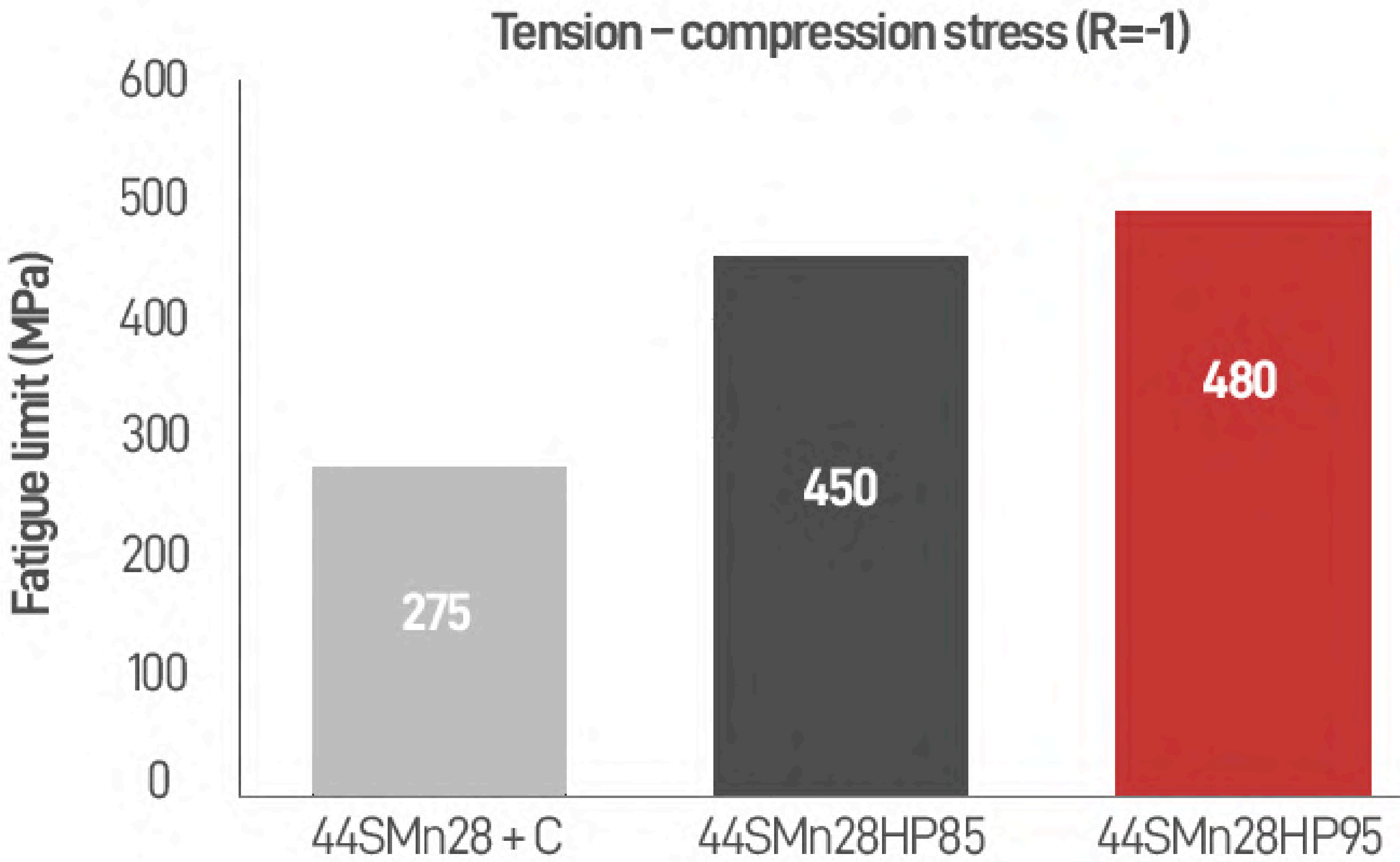
Grade	UTS (MPa)	YS (MPa)	El _{5d} (%)
44SMn28HP85	830-1020	>500	>10
44SMn28HP95	950-1150	>680	>10



DYNAMIC MECHANICAL PROPERTIES

- 44SMn28HP steels cope with much higher stressess than cold drawn 44SMn28.

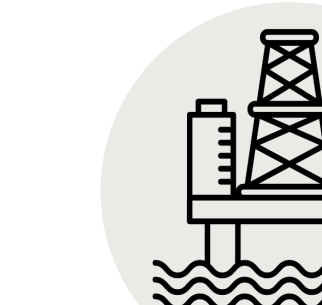
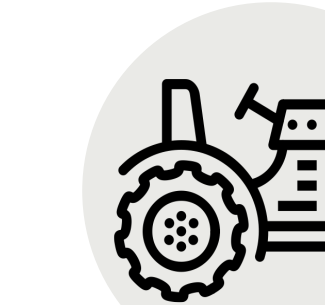
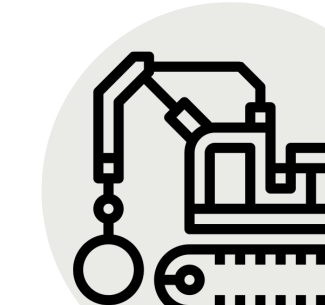
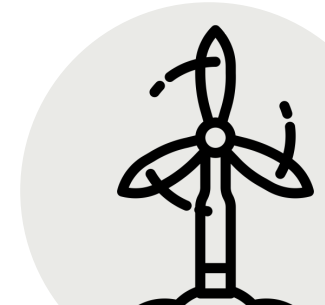
Dynamic		44SMn28HP85	44SMn28HP95
Tension/compression (R= -1)	σ_w (MPa)	ca. 450	ca. 480
Pulsating (R= 0,1)	σ_{sch} (MPa)	ca. 310	ca. 330
Torsional reversal (R=-1)	τ_w (MPa)	ca. 270	ca. 290



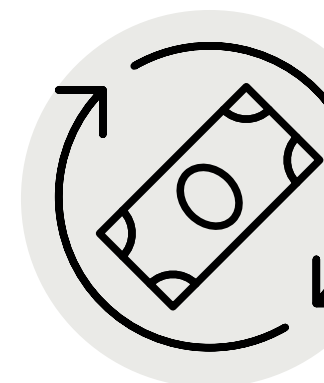
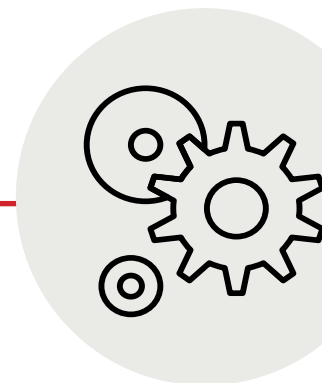
*Testing conditions: Diameter: 48,5-50 mm & Run out criterion: 10000000 cycles



1. 44SMn28HP is the best solution to meet excellent machinability and mechanical properties.



2. The 44SMn28HP family (85 or 95) is the solution to save cost in components with high mechanical requirements and important machining operations.



3. The attained **machinability is the same** to steels 44SMn28 but much higher mechanical performance.

High performance free cutting steel
44SMn28HP85

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Free cutting steel grade with tensile strength comparable to Q&T grades

APPLICATION

Complex components with optimized compromise between machinability and strength.

ADVANTAGES

Excellent mechanical properties comparable to Q&T performance with FP microstructure

Higher UTS (830 -1020 MPa) and yield strength (>500 MPa) than cold drawn 44SMn28

Without residual stresses

No cold deformation is applied

APPLIED TECHNOLOGY

- Ultimate tensile strength enhancement by microprecipitation.
- Detailed control of the manufacturing process in order to obtain a homogeneous distribution of microprecipitates.



High performance free cutting steel
44SMn28HP95

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Free cutting steel grade with tensile strength comparable to Q&T grades

APPLICATION

Complex components with optimized compromise between machinability and strength.

ADVANTAGES

Excellent mechanical properties comparable to Q&T performance with FP microstructure

Higher UTS (950 -1150 MPa) and yield strength (>680 MPa) than cold drawn 44SMn28

Without residual stresses

No cold deformation is applied

Free of Surface and internal defects

Control of superficial defects and internal cleanliness in the entire dimensional range

Guaranteed straightness

Optimized for automatic turning machines

APPLIED TECHNOLOGY

- Ultimate tensile strength enhancement by microprecipitation.
- Detailed control of the manufacturing process in order to obtain a homogeneous distribution of microprecipitates.

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Thank you very much

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