

## HOLLOW BAR SUMMARY OF GRADES

GRADE	CHEMICAL COMPOSITION LIMITS %											MECHANICAL PROPERTIES				
	C %	Si %	Mn %	P	S	Cr	Mo	Ni	V	Ce	Tensile Strength >25mm Mpa Min	Yield Strength >25mm Mpa Min.	Elongation A5 min. %	Hardness approx. HB	Impact Strength min at +20 C J	

OVAKO 280	Min.	0.17	0.30	1.45	-	0.02	0.20	-	-	-	0.08	640	470	20	220	27
	Max.	0.20	0.45	1.60	0.03	0.035	0.30	0.30	0.10	0.30	0.12					

### DESCRIPTION & TYPICAL APPLICATIONS

Ovako 280 is equivalent to 20MnV6 carbon steel that has been micro alloyed and specially balanced to improve yield strength and ultimate tensile strength, yet maintaining good machinability and weldability.

20MnV6 (HR Cond.)	Min	0.16	0.10	1.30	-	0.02	-	-	-	-	0.08	550	430	18	180	-
	Max	0.22	0.35	1.60	0.03	0.04	-	-	-	-	0.15					

### DESCRIPTION & TYPICAL APPLICATIONS

20MnV6 is a carbon-manganese steel micro alloyed with vanadium, generally supplied in the black hot rolled condition.

4140 (H&T)	Min	0.38	0.15	0.75	-	-	0.80	-	0.15	-	-	1000	900	16	300	-
	Max	0.43	0.40	1.00	0.04	0.04	1.10	-	0.25	-	-					

### DESCRIPTION & TYPICAL APPLICATIONS

4140 is a steel for quenching and tempering, which has a good combination of strength and toughness. For general purpose use. 4140 has a restrictive weldability.

OVAKO 495	Min	0.47	0.20	0.75	-	0.013	1.00	0.43	0.93	-	0.11	-	-	-	-	-
	Max	0.50	0.30	0.85	0.15	0.020	1.20	0.50	1.00	-	0.15					

### DESCRIPTION & TYPICAL APPLICATIONS

Ovako 495 is a high strength quench and tempering steel with high wear resistance, good toughness and good dimensional stability. The steel can be tempered at high temperatures and it is microalloyed to obtain a precipitation hardening effect.