VANGUARD STEEL LTD.

PRODUCT MANUAL

PRECISION FLAT GROUND STOCK

OIL HARDENING **AISI O 1**
AIR HARDENING **AISI A 2**

TYPICAL ANALYSIS

	C.	Mn.	Si.	Cr.	W.	V.	Mo.
O-1	0.90	1.20	0.30	0.50	0.50	0.20	
A-2	1.00	0.50	0.30	5.00		0.25	1.10

SUPPLIED IN THE ANNEALED STATE WITH A PRECISION GROUND, DECARB-FREE SURFACE, ARE AVAILABLE IN CONVENIENT, EASY TO WORK SIZES, AT A LOWER COST THAN IF PRODUCED INDIVIDUALLY FROM HOT ROLLED OR FORGED STOCK.

TYPICAL APPLICATIONS

CUTTING TOOLS AND DIES, BLANKING AND PUNCHING DIES, TRIM BLADES, TOOLS FOR THE WOODWORKING, PULP AND PAPER, TEXTILE AND PLASTICS INDUSTRIES. MACHINERY, JIGS AND FIXTURES, PARTS SUBJECT TO WEAR, STAMPS, PUNCHES, TEMPLATES, TOOLS GAUGES, LEVERS, CAMS, ETC.

THERMAL TREATMENT AISI O-1	**DEGREES IN CELSIUS**
ANNEALING	**760-785° SLOW COOL IN FURNACE; HARDNESS AS ANNEALED 190-220 BHN.**
STRESS RELIEVING	**PREHEAT 650-705° HIGH HEAT 775-815°**
QUENCH	**IN OIL**
TEMPERING	**THIS OPERATION SHOULD FOLLOW HARDENING IMMEDIATELY, ACCORDING TO PROPERTIES REQUIRED. FOR MAXIMUM WEAR 150-205° FOR MAXIMUM TOUGHNESS 230-315°**
OBTAINABLE HARDNESS	**63-65 RC**

(CONTINUED)

PRECISION FLAT GROUND STOCK

OIL HARDENING **AISI O 1**
AIR HARDENING **AISI A 2**

THERMAL TREATMENT AISI A-2	DEGREES IN CELSIUS
ANNEALING	830-860° SLOW COOL IN FURNACE; HARDNESS AS ANNEALED 204-234 BHN.
STRESS RELIEVING	PREHEAT 650-705° HIGH HEAT 940-980°
QUENCH	IN AIR OR SALT AT 540-595°
TEMPERING	THIS OPERATION SHOULD FOLLOW HARDENING IMMEDIATELY, ACCORDING TO PROPERTIES REQUIRED. FOR MAXIMUM WEAR 175-205° FOR MAXIMUM TOUGHNESS DOUBLE TEMPER AT 480°
OBTAINABLE HARDNESS	63-65 RC