

**QUALITY
STEEL PROVIDERS
FROM AROUND THE
WORLD**



PUROHIT STEEL®
GLOBAL STEEL SOLUTIONS



STOCKING PARTNERS

BULK IMPORTS FROM EUROPEAN MFG

MILLING SERVICE UP TO 1400 X 2200

CRANES FROM 2 UP TO 35 TON

BAND SAWS UP TO 1000 X 2200 X 4000

ROUGH CNC AND OTHER ALLIED SERVICES



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MADE OF STEEL

ABOUT US



TEAM PUROHIT takes the honour in introducing ourselves as leading importers and stockists of Plastic Mould Steel, Tool Steel, Alloy Steel, Die Steel and Special Purpose Steels in India.

Our broad product range has acquired us a virtually unique position in the world's markets, offering our clients a decisive advantage - they can enjoy the benefit of one-stop solutions.

Our experience, modern warehouse and not least, our qualified, dedicated staff are the foundations for the high quality of the products we stock.

We import steel from around the world from the most reputed organizations. They are stocked and supplied from a highly modern warehouse in Vasai or the sales outlet from Mumbai to anywhere in India, rapidly, on time and every time to the customer's delight.

PUROHIT STEEL, due to its strong determination and hard work, has forged strong ties with almost all leading companies and Tool & Die makers. The same success is now being experienced at our new warehouse ensuring a professional and efficient experience to all our customers. On the basis of this potential by combining the skills and expertise of our employees and the trust Purohit has won from our customers, we have become one of the leaders in our field. Now, we aim to maintain our position at the very top in our line of business. Please join us in our journey to the future and accept our appreciation for your kind and on going support.

OUR VISION

To build a world leading steel solutions company around the core values of Quality, Trust, Commitment and Service.

OUR MISSION

WE WILL ACHIEVE OUR MISSION THROUGH:

OUR PEOPLE

By fostering teamwork, nurturing talent, enhancing leadership capability and acting with pace, pride and passion.

OUR OFFER

By becoming the supplier of choice, delivering premium products and services and creating value for our customers.

OUR INNOVATIVE APPROACH

By developing leading edge solutions in technology, products and processes.

OUR CONDUCT

By providing a safe workplace, respecting the environment, caring for our communities and demonstrating high ethical standards.



ELEMENTS AND THEIR EFFECTS



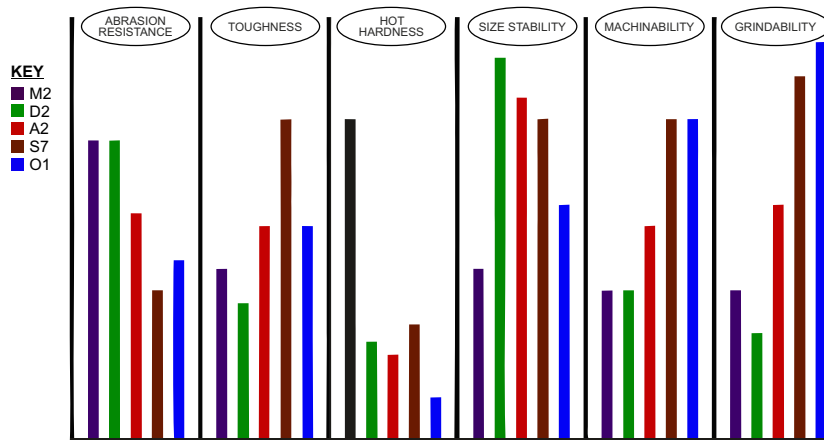
ELEMENT	EFFECT ON STEEL	COMMON % USE IN STEEL
 Chrome (Cr)	Improves oxidation resistance and hardenability .	Usually at least 10,5% and up to 18% in stainless steels.
 Manganese (Mn)	It increases the strength of steel and assists with de-oxidation . Manganese has a milder effect on the strength of steel than carbon.	Usually at least 0,3%. Can be up to 1,5% in carbon steels.
 Molybdenum (Mo)	Improves hardenability and high temperature strength .	Usually less than 1%.
 Nickel (Ni)	Increases strength , hardness and hardenability . Also often increases ductility and toughness .	Usually 8-10% in stainless steels.
 Phosphorous (P)	Increases machinability . Can increase strength but majorly reduces toughness and ductility , is generally considered as impurity.	Can be added up to 0,1% to low-alloy high-strength steels.
 Silicon (Si)	Similar to carbon and manganese. Silicon increases the strength of steel . Silicon has a milder effect on the strength than manganese and consequently than carbon.	Usually between 0,1% to 1%. Can be up to 6,5% in electrical steels.
 Sulphur (S)	Can reduce toughness and ductility , is generally considered as impurity.	Should not exceed 0,05% unless the goal is to get resulfurised steel.
 Titanium (Ti)	Increases hardness and toughness . Reduces the oxygen or nitrogen in the molten steel.	Usually between 0,2% and 0,6%.
 Tungsten (W)	Improves high temperatures strength .	Can vary from 2% to even 18% in high speed steels.
 Vanadium (V)	Improves hardenability and high temperatures strength . Extremely effective.	Usually 0,05%. Can be up to 0,25% in high speed steels.

Property:	C	Cr	Ni	S	Mn	Si	P	Cu	Mo	Se	Ti or Nb
Corrosion Resistance	-	✓	✓	X	-	-	✓	-	✓	-	-
Mechanical Properties	✓	✓	-	-	✓	✓	✓	✓	✓	-	✓
High Temperature Resistance	-	✓	✓	X	-	-	-	-	✓	-	✓
Machinability	X	X	-	✓	-	-	✓	-	-	✓	-
Weldability	X	X	-	X	✓	-	X	-	✓	-	✓
Cold Workability	X	X	✓	X	-	-	-	✓	-	-	-

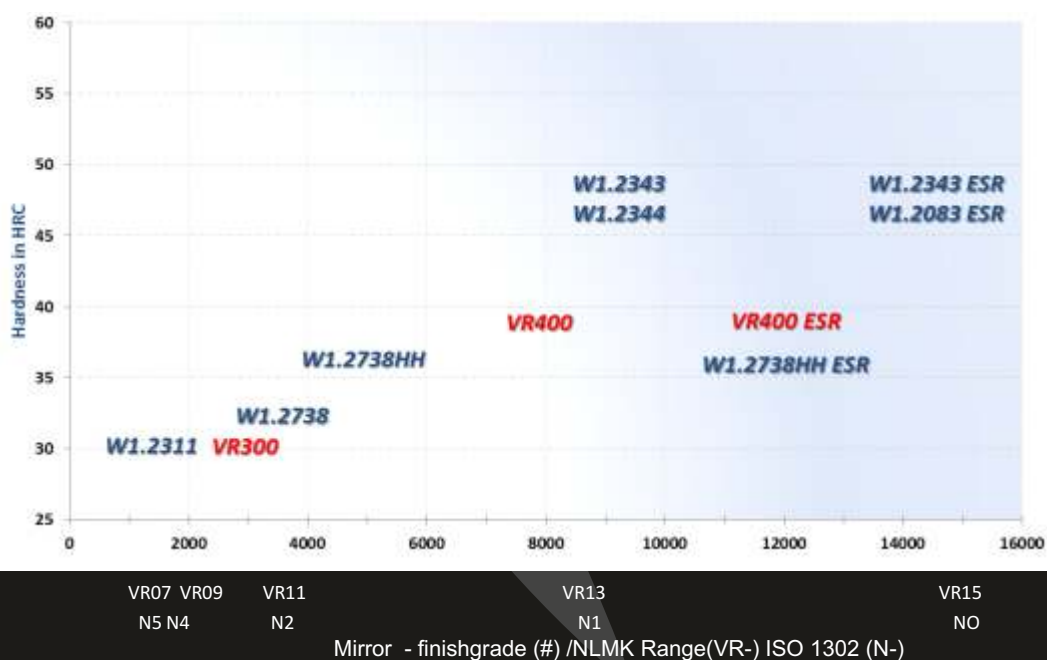
Key

✓ = Beneficial
X = Detrimental

SELECTION OF MATERIALS



HARDNESS AND POLISHABILITY OF



REGULAR STOCKING GRADES



PLASTIC MOULD STEELS

1.2311 / VR300 / 1.2738 / VR400 / VR400 ESR / 1.2085 / VR STAINLESS / VR16 / VR16 HH / M303 HH / VR16 HH ESR

COLD WORK TOOL STEELS

1.2080 / 1.2379 / 1.2510 / 1.2842 / A2 / A7 / S1 / S7 / 1.2990 / DUMAC 11 / 1.2767

HOT WORK TOOL STEELS

H11 / H13 / H12 / 1.2367 / DURAH61 / 1.2344 ESR

SPECIAL STEELS

M2 / M35 / M42 / OTHER CPM GRADES

EN SERIES STEEL

EN8 / 9 / 19 / 24 / 31 / 36 / 41B / 47 / 353 / SAE 8620 / 20MnCr5

PRODUCT OVERVIEW



Brand	Wear Resistance	Corrosion Resistance	Toughness	Polishability	Texturing Properties	Weldability	Machinability	Nitridability
THYROPLAST® 2083	++	++	+	++	++	+	++	+
THYROPLAST® 2083 SUPRA	++	++	++	++	++	+	++	+
THYROPLAST® 2085	+	++	+	0	0	+	+++	+
THYROPLAST® 2162	++	+	+	+++	+++	++	+++	+
THYROPLAST® 2190 SUPRA	++	++	+	+++	++	+	++	++
THYROPLAST® 2311	+	+	+	+	++	++	++	++
THYROPLAST® 2312	+	+	+	0	0	+	+++	++
THYROPLAST® 2316	+	++	+	++	++	++	++	+
THYROPLAST® 2316 SUPRA	+	++	+	++	++	++	++	+
THYROTHERM® 2343 EFS	++	+	++	++	++	++	++	++
THYROTHERM® 2343 EFS SUPRA	++	+	+++	+++	++	++	++	++
THYROTHERM® 2344 EFS	++	+	++	+	++	++	++	++
THYROTHERM® 2344 EFS SUPRA	++	+	++	++	++	++	++	++
THYROPLAST® 2361	+++	++	+	+	0	0	+	+++
THYRODUR® 2363	++	+	+	+	+	0	++	+
THYRODUR® 2379	+++	+	0	0	0	0	+	+
THYRODUR® 2709	++	+	+++	+++	+++	+++	++	++
THYROPLAST® 2711	+	+	+	+	++	++	++	++
THYROPLAST® 2738	+	+	+	+	++	++	++	++
THYROPLAST® 2764	++	+	++	+++	+++	++	++	-
THYRODUR® 2767	++	+	++	++	++	++	++	-
THYRODUR® 2842	++	+	+	++	++	0	++	-
THYROPLAST® 2891	+++	+	++	0	0	0	++	+++
THYRODUR® 2990	+++	+	+	+	0	0	++	+
THYRAPID® 3343	+++	+	+	0	+	0	+	+
THYROPLAST® PH X SUPRA	+	++++	+++	+++	+++	+++	++	++
THYROPLAST® PH 42 SUPRA	+	+	++	+++	+++	+++	++	++
PLAST 320	+	+	+	++	+++	+++	+++	++
CorroPlast®	+	++	++	+	+	+++	+++	++

PLASTIC MOULD STEELS



Grades	HARDNESS		TECHNICAL PROPERTIES			Application
	HB	HRC	Machinability	Polishability	Texturability	
1.2311	280-325	29-33	...	•	••	Plastic moulds with excellent surface finishing properties. It is also used for mould frames, plates, dies box, etc.
VR 300	280-325	29-33	...	••	...	For plastic dies with excellent surface finishing properties, compression moulding, plastic injection moulds, moulds for automotive industry with texturing.
1.2738	280-325	29-33	...	...	...	Thermoplastic injections and extrusion moulds, rubber moulds, large moulds, frames, containers
VR 400	360 - 400	38 - 42	••	....	....	Plastic injection moulds, compression moulds
VR 400 ESR	360 - 400	38 - 42	••	.....	.....	Very high Gloss demands such as injection moulds, compression moulds, Lighting moulds , Clear Articles.
VR 16	280-325	29-33	...	...	•	Plastic moulds for corrosive plastic and or for the presence of abrasive additives.
VR16 HH	360 - 400	38 - 42	••	....	••	Plastic moulds for corrosive plastic and / or for the presence of abrasive additives. Added hardness for better tool life
VR16 HH ESR	360 - 400	38 - 42	••	.....	••	Plastic moulds for corrosive plastic and / or for the presence of abrasive additives. High polishing
1.2085	280-325	29-33	....	••	•	As holder, Used for plastic or where equipment needs to be stainless steel with excellent workability and excellent resistance to corrosion and or presence of abrasive additives
VR STAINLESS	280-325	29-33	.....	••	•	As holder, it is used for plastic and rubber moulds
1.2083 ESR	-	52 - 56*	....	.....	...	Particularly for acid aggressive plastic or plastics containing abrasive fillers. manufacturers of glass, moulds of optical products

COLD WORK TOOL STEEL

Grades	HARDNESS		TECHNICAL PROPERTIES			Application
	HB	HRC	Machinability	Polishability	Texturability	
1.2080 / D3	-	-				Excellent wear resistant
1.2379 / D2	max. 250	60-63*				Threading rolls and dies, cold extrusion tools, trimming, cutting and stamping tools for sheet thicknesses up to 6 mm, precision cutting tools for sheet thicknesses up to 12 mm, cold pilger mandrels, circular-shear blades, deep-drawing tools, pressure pads and highly wear-resistant plastic moulds.
1.2510 / O1	-	-				Cutting & punching tools, thread rolling tools, measuring instruments.
1.2842 / O2	-	-				Taps, shear knives, moulds for plastic materials, gauges.
1.2550 / S1	-	-				Very good toughness, dimensional stability & impact resistance. Mainly used in cold shear, paper & wood cutting knives
S7	-	-				Highly Shock resistant tool steel
A2	-	-				Very high toughness. Mainly used in coining, extrusion, trimming, thread rolling

HOT WORK TOOL STEEL

Grades	HARDNESS		TECHNICAL PROPERTIES			Application
	HB	HRC	Machinability	Polishability	Texturability	
H11 / ESR343 -	-	54 - 58*	....	....	•••	Dies for the pressure casting of light alloys, moulds for plastic materials, dies for friction and mechanical presses for hot forming of steels, brass, aluminum and its alloys, dies for extrusion aluminum, hot work shear
H13 / 1.2344 - ESR	-	54 - 58*	....	....	•••	Dies for the pressure casting of light alloys, tooling for the extrusion of light alloys and steels, hot work shear blades, rolls for profiling tools
DB6 / 1.2714	360 - 400	38 - 42				Blocks for dies, hammers and pile drivers, rams for power hammers, hot mill rolls, very hard cold work dies and punches
H21	-	-				Good combination of hot hardness, temper resistance & moderate toughness

SPECIAL STEELS



CPM PROCESS

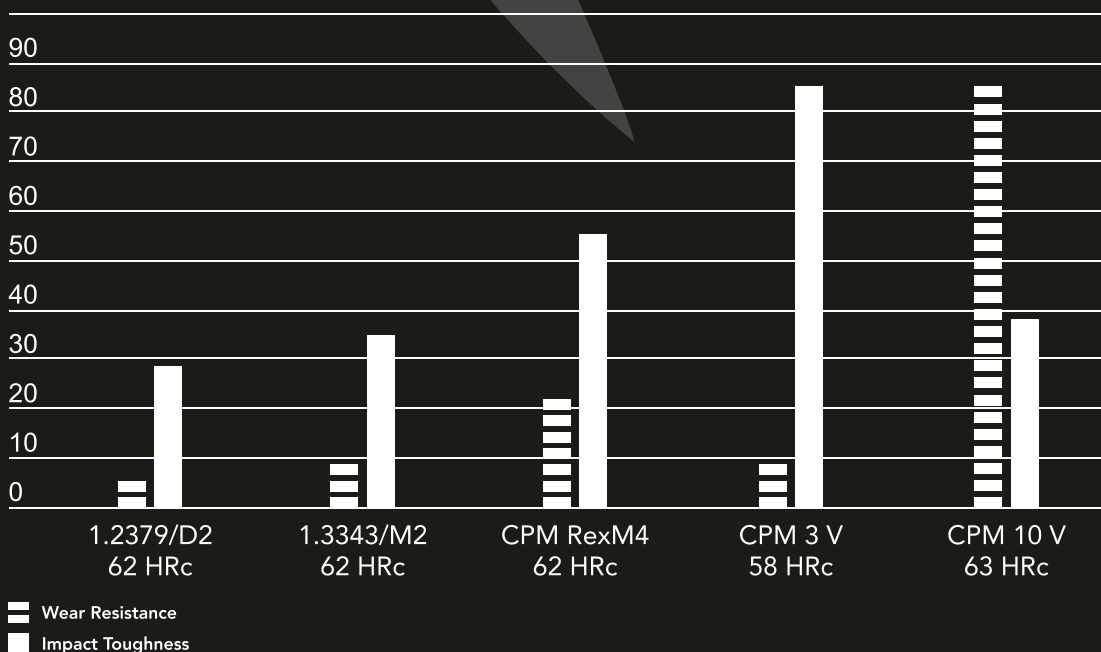
In its approach to the CPM processing techniques, Crucible has concentrated, among other things, on the production of high alloyed cold worked steels.

These innovative powder metallurgical alloys, which are particularly rich in vanadium, have largely been patented; they fulfil the highest performance requirement

ANALYSIS AND PROPERTIES

Steel grade	Chemical composition (standard values in percentages%)					
	C	Cr	Mo	W	V	Co
CPM® 3 V®	0.8	7.5	1.3	-	2.8	-
CPM® 9 V®	1.9	5.2	1.3	-	9.0	-
CPM® 10 V®	2.4	5.2	1.3	-	9.7	-
CPM® 15 V®	3.4	5.2	1.3	-	15.0	-
CPM® 420 V®	2.3	14.0	1.0	-	9.0	-
CPM® S 30 V®	1.5	14.0	2.0	-	4.0	-
CPM® Rex M4®	1.4	4.2	5.2	5.5	4.0	-
CPM® Rex 45®	1.3	4.0	5.0	6.2	3.0	8.0
CPM® Rex T15®	1.6	4.0	-	12.0	5.0	5.0
CPM® Rex 76®	1.5	3.7	5.2	10.0	3.1	9.0
CPM® Rex 121®	3.4	4.0	5.0	10.0	9.5	9.0

MECHANICAL PROPERTIES OF CPM MATERIALS



SPECIAL STEELS

MAIN ADVANTAGE OF THE POWER METALLURGICAL HIGH PERFORMANCE STEEL

ADVANTAGES

ALLOYS : The highest alloy levels can be achieved without any adverse effect on mechanical characteristics

TOUGHNESS : The uniform distribution of carbides and absence of metallurgical defects increases security against fracture and fatigue strength .

WEAR RESISTANCE : The volume and hardness of the carbides increase resistance to abrasive and adhesive wear.

GRINDABILITY : Machining ability is improved as a result of the small globular carbides .

DIMENSIONAL STABILITY : Powder metallurgical steels are free of segregation. This leads to substantially improved dimensional stability, tools need less re-machining

CLEANNESS : Excellent polishing and EDM machining capabilities result from the highest possible degree of purity .

POWDER METALLURGICAL MICROSTRUCTURE



PM HIGH PERFORMANCE STEEL

Positive effects of uniform microstructure for best cutting edge stability

CONVENTIONAL MICROSTRUCTURE



CONVENTIONAL HIGH SPEED STEEL

Carbide clusters near the cutting edge produce micro and macro-chipping.

EN SERIES



Steel Type	Quality	AISI	Typical Analysis in %								
			C	SI	Mn	Cr	W	V	Co	Mo	NI
High Speed Steel	18%W	T1	0.75	0.40	0.40	4.30	18.0	1.00	...	...	...
	18%W+5%Co	T4	0.80	0.40	0.40	4.30	18.0	1.60	5.0	0.80	...
	18%W+10%Co	T5	0.75	0.40	0.40	4.30	18.0	1.60	9.5	0.80	...
	6/5/2	M2	0.80	0.40	0.40	4.30	6.5	2.00	...	5.00	...
Hot Work Steel	9%W	H21	0.30	0.20	0.30	2.60	8.5	0.40	...	...	...
	5%Cr	H11	0.36	1.00	0.40	5.00	...	0.40	...	1.10	...
Non Shrinking Die Steel	HCHC	D3	2.00	0.30	0.30	12.00	...	...	...	...	...
	...	D2	1.70	0.30	0.30	12.00	0.5	0.10	...	0.60	...
	OHNS	01	0.95	...	1.00	0.50	0.5	0.10	...	...	...
	"	02	0.90	0.20	1.90	0.30	...	0.10	...	...	...
	"	EO300	1.00	0.40	1.00	1.00	...	0.10	...	0.10	...
Pneumatic Steel		S2	0.48	0.90	0.30	1.10	1.90	0.20	...	...	...
Shock Resisting Steel		V6N	0.90	...	...	...	...	0.20	...	...	0.70
Stainless Steel	Magnetic	410	0.10	0.75	1.00	13.00	...	...	...	...	0.60
	Non-Magnetic	304	0.08	1.00	2.00	18.00	...	...	...	...	10.00
Carbon Tool Steel		1095	0.90	0.20	0.40	...	...	...	...	...	...
Constructional Steel	EN-8	1040	0.35/ 0.45	0.10/ 0.35	0.60/ 0.90	...	S&P each 0.06 (Max)				
	EN-9	1055	0.45/ 0.60	0.10/ 0.35	0.50/ 0.80	...	S&P each 0.06 (Max)				
	EN-19	4140	0.35 0.45	0.10/ 0.35	0.50/ 0.80	0.90/ 1.50	S&P each 0.05 (Max)			0.20/ 0.40	...
	EN-24	4340	0.35/ 0.45	0.10/ 0.35	0.45/ 0.70	0.90/ 1.40	S&P each 0.05 (Max)			0.20/ 0.35	1.30/ 1.80
	EN-30B		0.26 0.34	0.10/ 0.35	0.40/ 0.60	1.10/ 1.40	S&P each 0.05 (Max)			0.20 0.35	3.90/ 4.30
	EN-31	52100	0.95/ 1.20	0.10/ 3.35	0.30/ 0.75	1.00/ 1.60	S&P each 0.025 (Max)				
	EN-36	3310	0.15	0.10 0.35	0.30/ 0.60	0.60/ 1.10	S&P each 0.05 (Max)			...	3.00/ 3.75
	Spring Steel	EN-45	0.50 0.60	1.50 2.00	0.70/ 1.00	...	S&P each 0.05 (Max)				
	EN-47	6150	0.45/ 0.55	0.50	0.50 0.80	0.80/ 1.20	0.15 (Max)	S&P each 0.05 (Max)			
Case Hardening Steel		SAE 8620	0.18/ 0.23	0.20 0.35	0.70/ 0.90	0.40/ 0.60	S&P each 0.04 (Max)			0.15/ 0.25	0.40 0.70

Notes: O=Oil, CA=Compressed Air, M=Martempering bath, W=Water, A=Air

EN SERIES

Forging Temp. °C	Annealing Temp. °C	Hardening Temp. °C	Quenching Medium	Tempering Temp. °C	Hardness Rockwell °C
1150-900	830-870	1240-1290	O,CA,M	550-580	64-66
1150-900	800-850	1250-1310	O,CA,M	550-580	64-66
1120-950	800-850	1260-1320	O,CA,M	560-590	64-66
1100-900	800-850	1190-1250	O,CA,M	540-570	64-66
1100-900	740-780	1070-1150	O,CA,M	600-680	42-50
1100-900	800-830	980-1030	O,CA	55-650	38-52
1050-850	800-850	920-980	O,CA,M	100-350	58-65
1050-850	800-850	970-990	O,CA,M	100-350	58-65
1050-850	740-760	780-820	O,M	100-300	58-63
1050-850	690-710	780-830	O	100-300	58-64
1000-800	760-800	800-850	O,CA	200 Max	58-61
1050-850	720-740	900-950	O	150-400	50-57
1050-800	740-760	770-830	W	150-250	58-64
1050-1100	800-900	1000	O	700-750	BHN159-229
1050-1100		1100	Rapid Cooling		BHN135-185
1000-800	750-780	760-820	W	150-200	59-62
1100-850	650-700	820-850	O,W	530-670	BHN 179-229
Normalise 840-870					
1050-850	650-700	800-840	O,W	530-670	BHN 201-277
Normalise 820-850					
1050-850	680-720	820-850	O,W	530-670	BHN 201-415
Normalise 850-880					
1050-850	650-700	830-850	O	530-670	BHN 223-444
Normalise 850-880					
1050-900	580-630	810-830	O,A	530-670	BHN 285-444
Normalise 810-850					
1100-850	750-800	790-850	O,W	159-170	60-65
Normalise 860-890					
1100-850	620-670	760-780	O	170-210	BHN 220
Carburise 880-930 : Refine: 850-880					
900-830	650-680	830-860	O	470-540	BHN 235
900-1150		780-820	O,A	150-200	
Carburise 880-930 : Refine: 850-880					

ROUNDS DIVISION

PUROHIT STEEL INDIA PVT. LTD.
Purohit Industrial Estate, Range Office,
Vasai East - 401208, India

T +91 77988 15678 / 25678 / 35678 **E** info@purohitsteels.com

PLATES AND MACHINING DIVISION

PUROHIT STEEL INDIA PVT LTD UNIT-2
Rajprabha Mohan Estate-5B, Naikpada,
Waliv, Vasai East - 401208

T +91 7798895678 **E** info@purohitsteels.com

RETAIL CENTRE

PUROHIT STEEL CO.
1 Nathaline Estate,
Andheri Kurla Road, Sakinaka,
Mumbai - 400067

T +919930153000 **E** purohitsteel@gmail.com

PROFILE CENTRE

PUROHIT STEEL CO.
27/8, Bldg-3, Rahul Mittal Estate,
Andheri Kurla road,
Sakinaka, Andheri East

T +919930052000 **E** purohitsteel@gmail.com

SOUTH CENTRE

PUROHIT STEEL INDIA PVT. LTD.
No.82, Sompura 1st Stage, Dabaspeta Industrial Area,
Nelamangala Taluk, Bangalore Rural - 562132

E info@purohitsteels.com