

HEAT TREATMENT

Top Hat Facilities offering:

Annealing

Normalising

Hardening

Tempering

*Call any of our Speed Treatment™ Pit Crew on (011) 827 3525 / 4693
or visit us at www.sovereignsteel.com*

Earth's fastest steel company™



SOVEREIGNSTEEL

SPEED TREATMENT™

Heat Treatment Procedures	
Annealing	48 Hours cycle time <ul style="list-style-type: none"> • Full Annealing • Stress Relieve Annealing • Sub-critical Annealing • Solution Annealing
Normalising	40 Hours cycle time <ul style="list-style-type: none"> • Basic • High Temperature
Hardening & Tempering	72 Hours cycle time <ul style="list-style-type: none"> • Oil Quench • Air Quench
Other processes may be available according to customer requirements	

Testing	
In house laboratory tests certify:	<ul style="list-style-type: none"> • Surface hardness
Full test certificates can be supplied from independent testing facilities with the following material information:	<ul style="list-style-type: none"> • Chemistry • Mechanical properties including tensile and impact • Metallographic information and photo-microscopy • Cross-sectional micro-hardness
Other services include:	<ul style="list-style-type: none"> • Metallurgical investigations • Non-destructive testing • Failure analysis • Straightening • Shot blasting • Test pieces for customer testing • Mechanical test witnessing

Symbols for Hardness			
SYMBOL	TON F/SQ IN.	MPA N/mm ²	HARDNESS (BRINELL)
P	35/45	540/695	83 – 96 HRB (152/207)
Q	40/50	618/772	88 – 99 HRB (179/229)
R	45/55	695/849	95B – 24 HRC (201/255)
S	50/60	772/926	18 – 27 HRC (223/277)
T	55/65	849/1004	23 – 30 HRC (248/302)
U	60/70	926/1080	27 – 34 HRC (269/331)
V	65/75	1004/1158	29 – 36 HRC (293/352)
W	70/80	1080/1235	31 – 39 HRC (311/375)
X	75/85	1158/1312	35 – 41 HRC (341/401)
Y	80/90	1235/1390	38 – 45 HRC (363/429)
Z	100 MIN	1544 MIN	47 – HRC MIN (444 MIN)

Process Capabilities		
MATERIAL BS 970	HEAT TREATMENTS	HARDNESS* (Brinell 30)
BS970	Soft Annealing	2 HRC (156)
070M20	Soft Annealing	15 HRC (197)
070M55	Soft Annealing	22 HRC (229)
709M40	Soft Annealing, Hardening, Temper	53-61 HRC ² (514-614)
817M40	Soft Annealing, Hardening, Temper	50-58 HRC ² (486-583)
080M15	Soft Annealing, Case Hardening	79 HRB ¹ (143)
655M13	Soft Annealed, Case Hardening	21 HRC ² (224)
304(AISI)	Solution Annealed	20 HRC (217)
316(AISI)	Solution Annealed	20 HRC (217)
431(AISI)	Soft Annealing, Hardening, Temper	47 HRC (451)
* Limiting Ruling Sections may apply: 1 - 60mm 2 - 150mm		

Call any of our Speed Treatment™ Pit Crew on (011) 827 3525 / 4693 or visit us at www.sovereignsteel.com