



SOUTH AFRICAN IRON & STEEL INSTITUTE

Present and contemplated plant facilities, nameplate capacities and planned production (Carbon Steel)

December 2004



MEMBERS:

Cape Gate (Pty) Ltd; Cape Town Iron and Steel Works (Pty) Ltd; Columbus Stainless (Pty) Ltd; Highveld Steel and Vanadium Corporation Ltd; Ispat Iscor Ltd; Scaw Metals Group

Present and contemplated plant facilities, nameplate capacities* and planned production.

The objective of this document is to give an overview of the present and contemplated plant facilities, potential capacities and planned production at all the primary carbon steel producers in South Africa.

This overview includes estimates of production and capacity of the six carbon steel respondents listed below for the following:

- A:** Ironmaking
- B:** Steelmaking
- C:** Steel casting
- D:** Rolled semis, forgings and seamless tubes
- E:** Rolled steel products (sections)
- F:** Rolled steel products (sheet, plate and coil)
- G:** Present and contemplated plant facilities

The statistics cover actual production and capacity for 2001, 2002 and 2003 as well as estimates of production and capacity for 2004 to 2007.

All the information contained in this document was provided by the respondents, being the members of the South African Iron and Steel Institute as well as one non-member, Duferco Steel Processing (DSP).

The following companies were included in the survey:

- Cape Gate (Pty) Ltd
- Cape Town Iron and Steel Works (Pty) Ltd – Cisco
- Highveld Steel and Vanadium Corporation Ltd
- Mittal Steel SA Ltd**
- Scaw Metals, a Division of Anglo Operations Ltd
- Duferco Steel Processing (DSP)

Notes:

* *Capacity refers to the design capacity = 24 hours per day, 7 days per week*

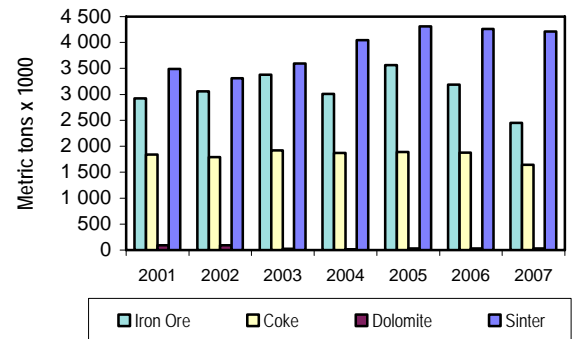
** *The recently announced planned increases in production by Mittal Steel SA Ltd over the next few years are not included in this report as detailed information is not yet available.*

A: IRONMAKING – Actual and estimated production and capacity

Blast Furnaces

Year	Input (metric tons) X 1000					Output (metric tons) liquid iron X 1000	
	Iron Ore	Coke	Dolomite	Sinter	Total	Production	Capacity
2001	2 923	1 842	90	3 491	8 346	4 156	4 627
2002	3 058	1 790	92	3 312	8 252	4 094	4 627
2003	3 381	1 921	27	3 594	8 922	4 499	4 627
2004	3 007	1 869	12	4 042	8 930	4 335	4 627
2005	3 566	1 887	28	4 310	9 791	4 729	4 627
2006	3 190	1 878	28	4 261	9 358	4 722	4 627
2007	2 450	1 642	28	4 210	8 330	4 167	4 627

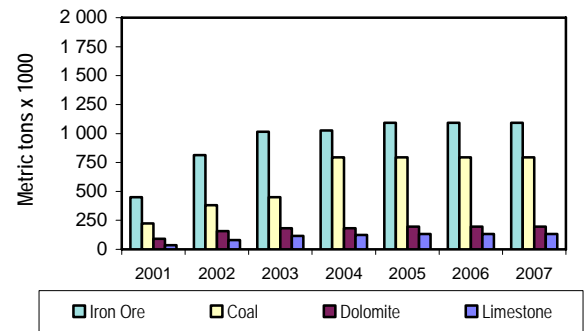
Input material for Blast Furnaces



Corex

Year	Input (metric tons) X 1000					Output (metric tons) liquid iron X 1000	
	Iron Ore	Coal	Dolomite	Limestone	Total	Production	Capacity
2001	451	224	91	36	802	302	683
2002	813	380	158	79	1 430	536	683
2003	1 016	449	181	116	1 762	707	718
2004	1 027	794	181	124	2 126	747	762
2005	1 092	794	195	133	2 214	783	762
2006	1 092	794	195	133	2 214	783	762
2007	1 092	794	195	133	2 214	783	762

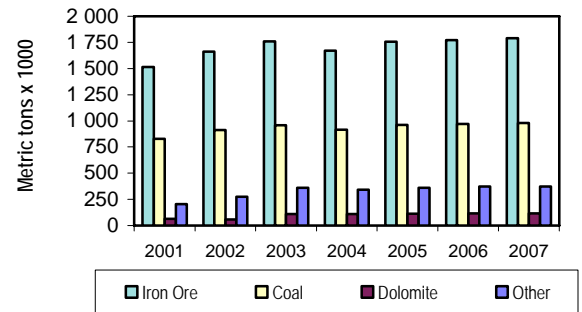
Input material for Corex



Direct reduction (Kilns)

Year	Input (metric tons) X 1000					Output (metric tons) sponge iron X 1000	
	Iron Ore	Coal	Dolomite	Other	Total	Production	Capacity
2001	1 513	827	63	206	2 609	1 006	1 041
2002	1 662	913	57	275	2 908	1 105	1 065
2003	1 758	958	111	360	3 187	1 164	1 147
2004	1 669	916	109	341	3 035	1 109	1 147
2005	1 756	962	113	360	3 191	1 167	1 147
2006	1 772	970	116	374	3 232	1 165	1 147
2007	1 790	980	117	374	3 261	1 177	1 147

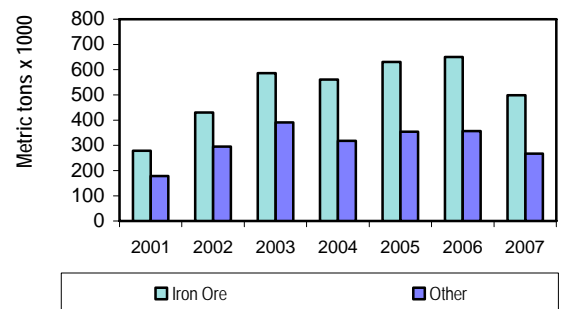
Input material for Direct reduction (Kilns)



Direct reduction (Midrex/Shaft Furnace)

Year	Input (metric tons) X 1000			Output (metric tons) sponge iron X 1000	
	Iron Ore	Other	Total	Production	Capacity
2001	278	179	457	295	804
2002	431	295	726	518	804
2003	586	391	977	698	804
2004	561	318	879	631	804
2005	631	354	985	703	804
2006	651	357	1 008	720	804
2007	499	267	766	547	804

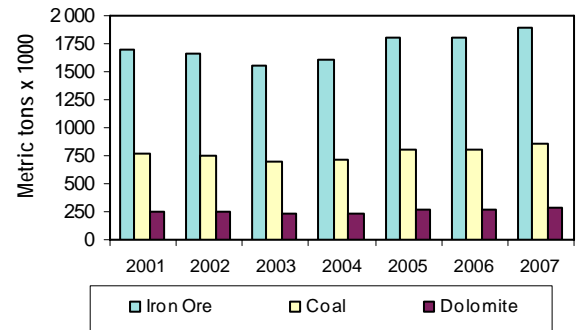
Input material for Direct reduction (Midrex/Shaft Furnace)



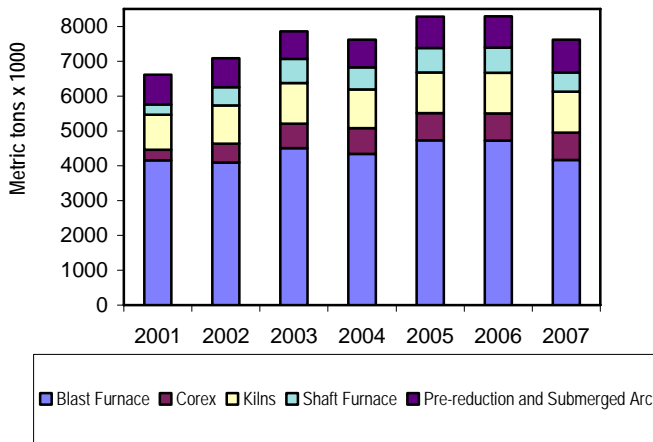
Other (Pre-reduction and Submerged Arc)

Year	Input (metric tons) X 1000				Output (metric tons) iron X 1000	
	Iron Ore	Coal	Dolomite	Total	Production	Capacity
2001	1 700	765	255	2 720	850	900
2002	1 660	750	249	2 659	831	900
2003	1 550	700	233	2 483	793	900
2004	1 600	720	240	2 560	800	900
2005	1 800	810	270	2 880	900	1 000
2006	1 800	810	270	2 880	900	1 000
2007	1 900	850	285	3 035	950	1 000

Input material Pre-reduction and Submerged Arc



Iron Production



During the period 2001 to 2003, approximately 60% of iron was produced through the Blast Furnaces and 7% was produced through the Corex route.

The relative importance of Blast Furnace production is expected to subsequently decline to approximately 57% for the period 2004 to 2006 and thereafter to 55% in 2007.

The contribution of iron produced via the Corex route is expected to increase to 10% during 2004 and it is expected to remain on much the same level as from 2005.

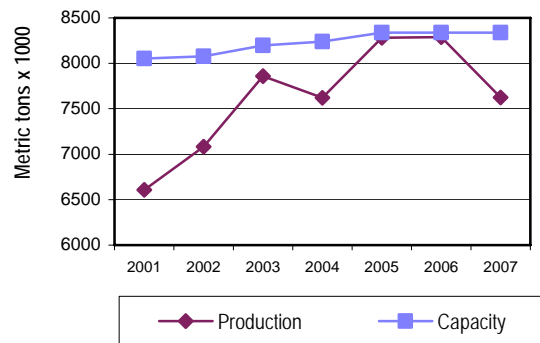
The relative importance of the direct reduction furnaces remained at much the same levels for Kilns, but the relative importance for the Shaft Furnace increased from 5% in 2001 to about 9% as from 2005.

The relative importance of the Pre-reduction and Submerged Arc furnaces decreased marginally from 13% in 2001 to 11% during 2004 and it is expected to remain on much the same level as from 2005.

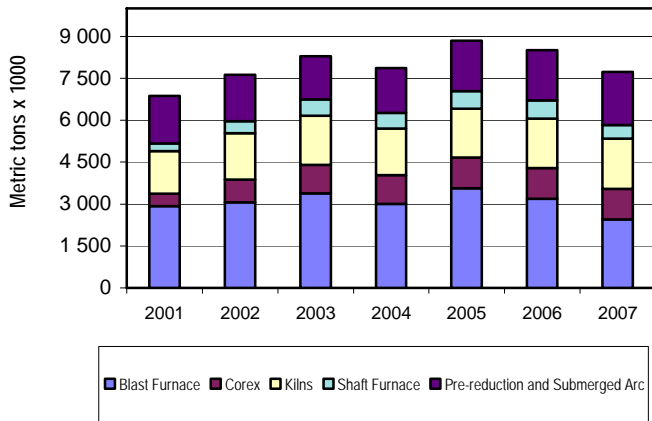
Iron Production and Capacity

Year	Total Iron Production (metric tons) x 1000	Total Iron Capacity (metric tons) x 1000
2001	6 609	8 055
2002	7 084	8 079
2003	7 861	8 196
2004	7 622	8 240
2005	8 282	8 340
2006	8 290	8 340
2007	7 624	8 340

Total Iron Production and Capacity



Iron Ore input by process



The local demand for iron ore increased by 20% from 6,9 million tons in 2001 to 8,3 million tons in 2003.

Despite the estimated drop in demand during 2004, the demand is expected to revert to its previous levels and to increase to levels of around 8,8 million tons as from 2005.

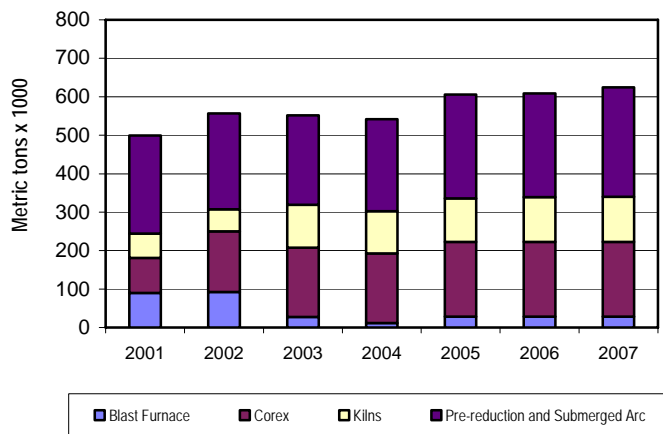
Coal input by process



The local demand for coal increased by 17% from 1,8 million tons in 2001 to 2,1 million tons in 2003.

Demand is expected to increase to levels of around 2,6 million tons from 2005 onwards.

Dolomite input by process



The local demand for dolomite increased by 11% from 499 000 tons in 2001 to 552 000 tons in 2003.

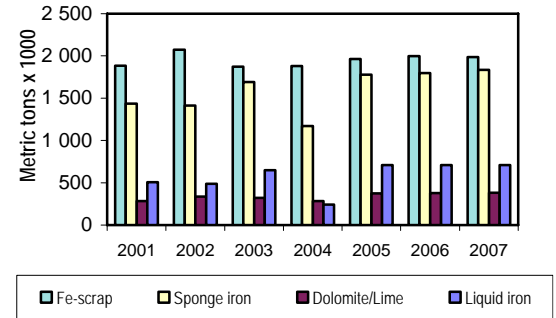
Despite the slight estimated drop in demand during 2004, demand is expected to increase to approximately 606 000 tons in 2005, 609 000 tons in 2006 and 625 000 tons in 2007.

B: STEELMAKING – Actual and estimated production and capacity

Electric Arc Furnaces

Year	Input (metric tons) X 1000					Output (metric tons) steel X 1000	
	Fe-scrap	Sponge iron	Dolomite/Lime	Liquid iron	Total	Production	Capacity
2001	1 883	1 437	285	505	4 110	3 349	4 321
2002	2 075	1 414	336	489	4 313	3 584	4 346
2003	1 875	1 693	320	649	4 536	3 713	4 346
2004	1 879	1 171	282	241	3 574	2 903	4 366
2005	1 964	1 780	373	711	4 828	3 914	4 487
2006	1 998	1 798	377	711	4 884	3 961	4 518
2007	1 987	1 834	380	711	4 912	3 986	4 538

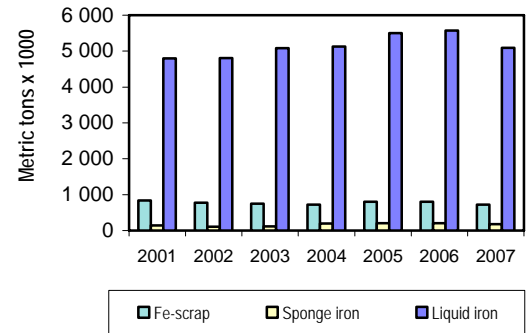
Input material for Electric Arc Furnaces



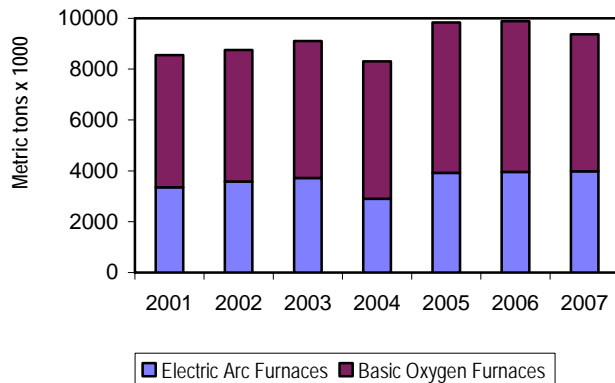
Basic Oxygen Furnaces

Year	Input (metric tons) X 1000				Output (metric tons) steel X 1000	
	Fe-scrap	Sponge iron	Liquid iron	Total	Production	Capacity
2001	841	143	4 800	5 784	5 208	6 500
2002	772	111	4 806	5 689	5 174	6 500
2003	746	117	5 080	5 943	5 393	6 500
2004	722	194	5 130	6 046	5 400	6 500
2005	804	206	5 500	6 510	5 926	6 600
2006	804	206	5 574	6 584	5 926	6 600
2007	724	180	5 093	5 997	5 388	6 650

Input material for Basic Oxygen Furnaces



Steel Production



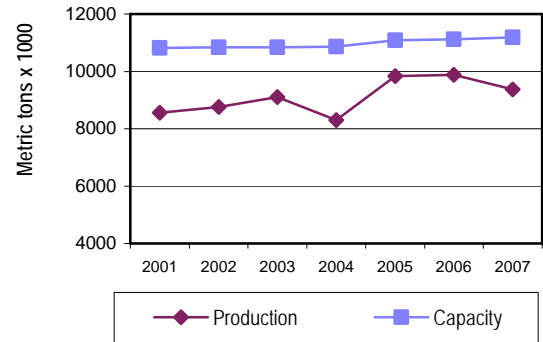
Steel production increased from 8,6 million tons in 2001 to 9,1 million tons in 2003, representing an increase of 5.8%. Production dropped during 2004 as a result of a drop in the Electric Arc Furnaces output. Production in 2005 and 2006 is expected to be approximately 9,8 million tons, tapering down to approximately 9,4 million tons in 2007.

Electric Arc and Basic Oxygen Furnaces contributed 41% and 59% respectively to steel production in 2003, with an expected marginal change in this ratio to 40:60 in 2005 and 43:57 in 2007.

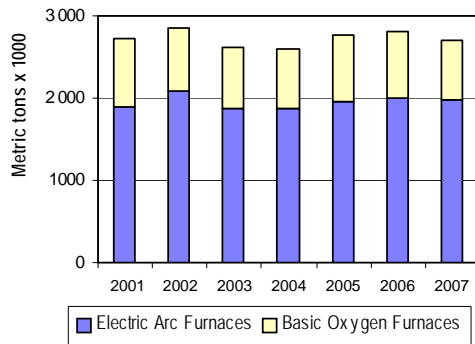
Steelmaking Production and Capacity

Year	Steelmaking Production (metric tons) x 1000	Steelmaking Capacity (metric tons) x 1000
2001	8 557	10 821
2002	8 758	10 846
2003	9 106	10 846
2004	8 303	10 866
2005	9 840	11 087
2006	9 887	11 118
2007	9 374	11 188

Total Steelmaking Production and Capacity



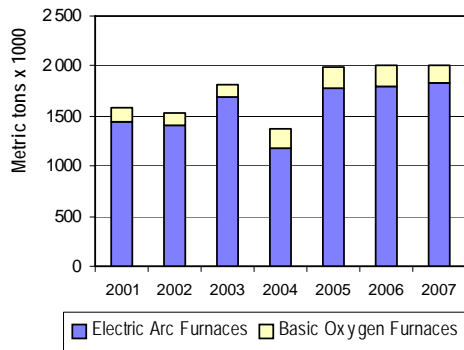
Fe-scrap input by process



It is expected that the local demand for Fe-scrap (sourced from outside sources and generated in the works) by primary steel producers will decline from 2,7 million tons in 2001 to an expected 2,6 million tons in 2004. This represents a decrease of 4%.

Demand is expected to increase marginally to 2,8 million tons for 2005 and 71% of demand is expected to be from the Electric Arc Furnaces.

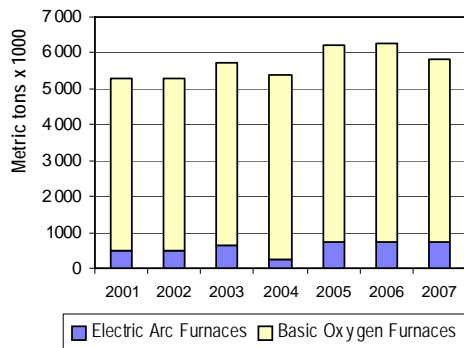
Sponge Iron input by process



Local demand for Sponge Iron from the primary steel producers increased from 1,6 million tons in 2001 to 1,8 million tons in 2003. This represents an increase of 12,5% for the period.

Demand is expected to increase to 2 million tons for 2005 and 2006. About 90% of demand is expected to be from the Electric Arc Furnaces from 2005 to 2006.

Liquid Iron input by process



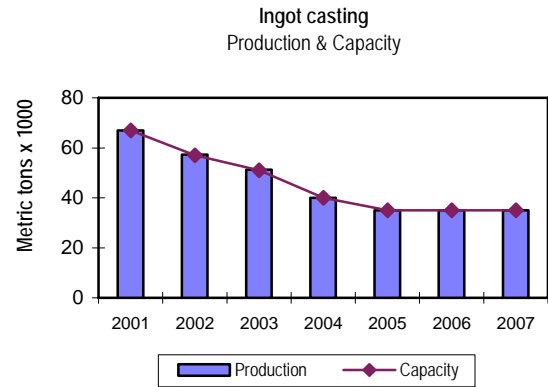
The quantity of Liquid Iron used by primary steel producers to produce steel increased from 5,3 million tons in 2001 to 5,7 million tons in 2003.

Demand is expected to increase further to approximately 6,2 million tons in 2005 and 2006, falling back to 5,8 million tons in 2007. This represents an increase of 17% from 2001 to 2005.

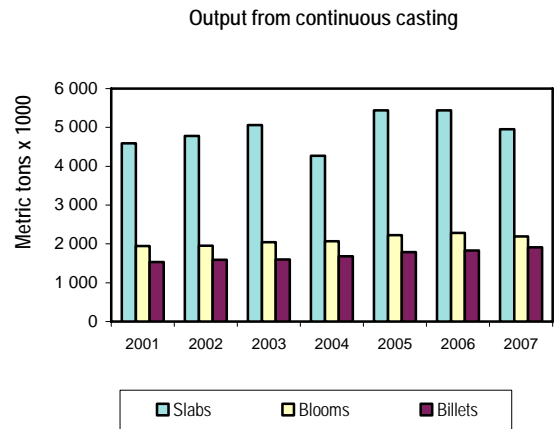
About 89% of Liquid Iron is expected to be used by the Basic Oxygen Furnaces from 2005, falling back to 88% in 2007.

C: STEEL CASTING – Actual and estimated production and capacity

Ingot casting			
Year	Input (metric tons) X 1000	Ingots output (metric tons) X 1000	
	Liquid steel	Production	Capacity
2001	73	67	67
2002	62	57	57
2003	56	51	51
2004	43	40	40
2005	38	35	35
2006	38	35	35
2007	38	35	35



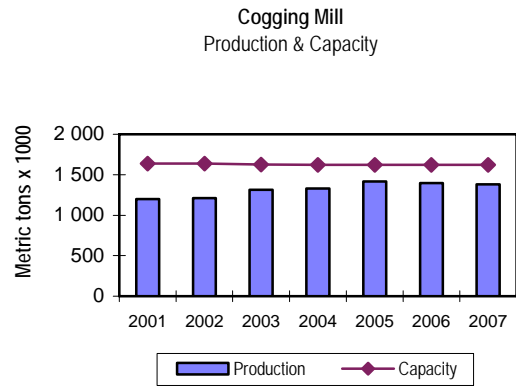
Continuous casting production output					
Year	Input (metric tons) X 1000	Production output (metric tons X 1000)			
	Liquid steel	Slabs	Blooms	Billets	Total
2001	8 336	4 592	1 944	1 530	8 066
2002	8 536	4 778	1 956	1 592	8 326
2003	8 891	5 060	2 040	1 601	8 701
2004	8 138	4 273	2 070	1 679	8 022
2005	9 598	5 437	2 228	1 786	9 451
2006	9 646	5 437	2 287	1 832	9 556
2007	9 174	4 950	2 192	1 916	9 058



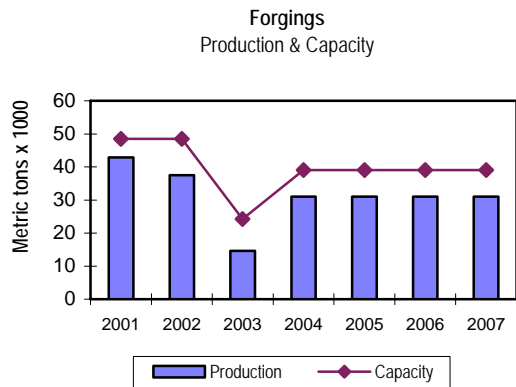
Continuous casting capacity				
Year	metric tons X 1000			
	Slabs	Blooms	Billets	Total
2001	5 418	2 350	1 782	9 550
2002	5 418	2 350	1 813	9 581
2003	5 418	2 350	1 813	9 581
2004	5 418	2 350	1 845	9 613
2005	5 418	2 350	1 925	9 693
2006	5 418	2 350	1 955	9 723
2007	5 418	2 350	1 975	9 743

D: ROLLED SEMIS, FORGINGS AND SEAMLESS TUBES – Actual and estimated production and capacity

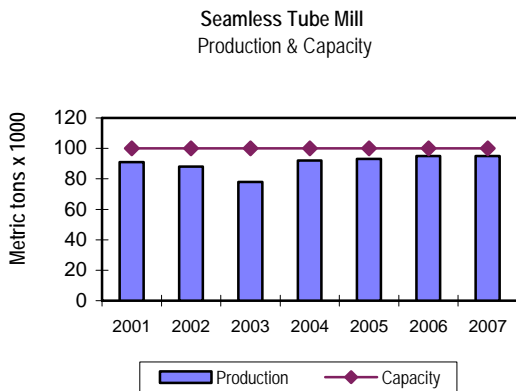
Cogging Mill			
Year	Input (metric tons) X 1000	Billet output (metric tons) X 1000	
	Ingots/Blooms	Production	Capacity
2001	1 248	1 201	1 639
2002	1 258	1 212	1 639
2003	1 363	1 313	1 626
2004	1 461	1 331	1 622
2005	1 465	1 416	1 622
2006	1 444	1 397	1 622
2007	1 428	1 381	1 622



Forgings			
Year	Input (metric tons) X 1000	Forgings output (metric tons) X 1000	
	Ingots	Production	Capacity
2001	50	43	49
2002	45	38	49
2003	17	15	24
2004	36	31	39
2005	36	31	39
2006	36	31	39
2007	36	31	39

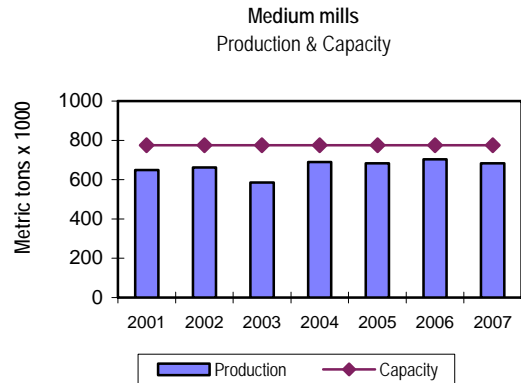


Seamless Tube Mill			
Year	Input (metric tons) X 1000	Seamless Tube output (metric tons) X 1000	
	Billets	Production	Capacity
2001	103	91	100
2002	98	88	100
2003	88	78	100
2004	104	92	100
2005	105	93	100
2006	107	95	100
2007	107	95	100

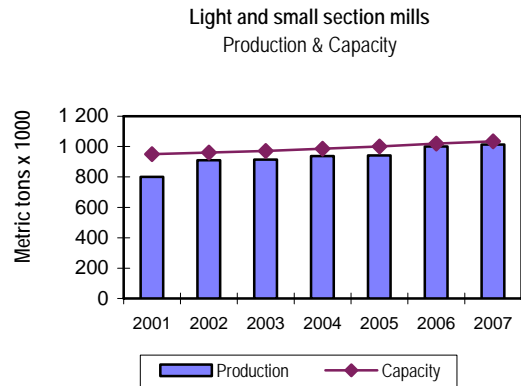


E: ROLLED STEEL PRODUCTS (SECTIONS) – Actual and estimated production and capacity

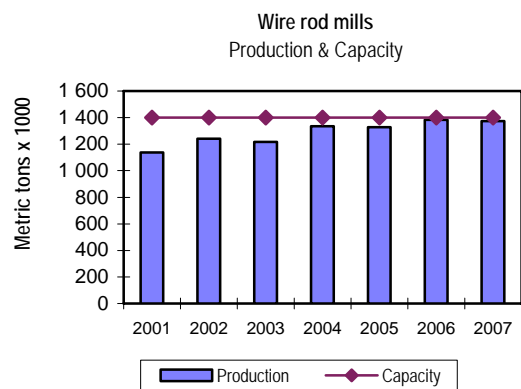
Medium mills			
Year	Input (metric tons) X 1000	Medium sections output (metric tons) X 1000	
	Blooms/Billet	Production	Capacity
2001	713	648	775
2002	726	661	775
2003	640	586	775
2004	729	689	775
2005	752	683	775
2006	747	704	775
2007	741	683	775



Light and small section mills			
Year	Input (metric tons) X 1000	Light sections output (metric tons) X 1000	
	Billets	Production	Capacity
2001	878	800	950
2002	998	910	960
2003	1 001	914	970
2004	1 011	938	985
2005	1 009	941	1 000
2006	1 074	1 001	1 020
2007	1 088	1 014	1 035

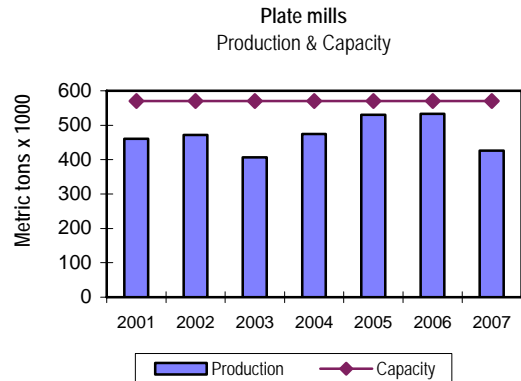


Wire rod mills			
Year	Input (metric tons) X 1000	Wire rod/rounds output (metric tons) X 1000	
	Billets	Production	Capacity
2001	1 207	1 139	1 400
2002	1 314	1 241	1 400
2003	1 290	1 217	1 400
2004	1 414	1 335	1 400
2005	1 408	1 328	1 400
2006	1 468	1 384	1 400
2007	1 438	1 373	1 400

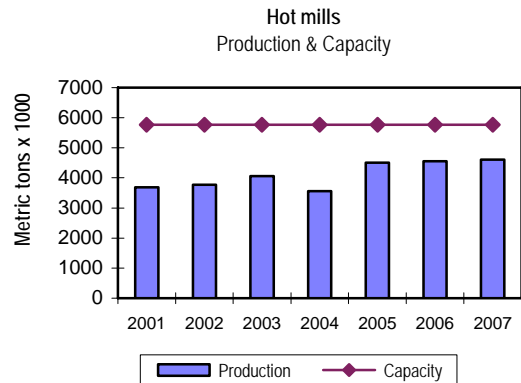


F: ROLLED STEEL PRODUCTS (SHEET, PLATE AND COIL) – Actual and estimated production and capacity

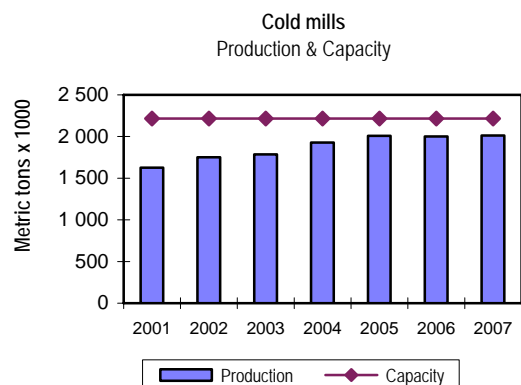
Plate mills			
Year	Input (metric tons) X 1000	Plate output (metric tons) X 1000	
	Slabs	Production	Capacity
2001	484	461	570
2002	502	472	570
2003	437	407	570
2004	504	475	570
2005	560	530	570
2006	562	533	570
2007	454	426	570



Hot mills			
Year	Input (metric tons) X 1000	Hot-rolled sheet output (metric tons) X 1000	
	Slabs	Production	Capacity
2001	3802	3688	5770
2002	3909	3770	5770
2003	4198	4061	5770
2004	3675	3563	5770
2005	4648	4506	5770
2006	4700	4557	5770
2007	4752	4607	5770



Cold mills			
Year	Input (metric tons) X 1000	Cold-rolled sheet output (metric tons) X 1000	
	Hot-rolled coil	Production	Capacity
2001	1 654	1 627	2 216
2002	1 792	1 753	2 216
2003	1 818	1 785	2 216
2004	1 961	1 927	2 216
2005	2 041	2 011	2 216
2006	2 033	2 003	2 216
2007	2 044	2 014	2 216



The production of hot-rolled sheet increased from 3,7 million tons in 2001 to 4,1 million tons in 2003. This represents an increase of 11% during this period. During 2004, a decrease to 3,6 million tons is expected, to be followed by an expected increase of 2% between 2005 and 2007.

The production of cold-rolled sheet increased from 1,6 million tons in 2001 to 1,8 million tons in 2003. This represents an increase of 12,5% during this period. An increase of 5% is expected between 2004 and 2007.

G: PRESENT AND CONTEMPLATED PLANT FACILITIES

Plant facility	Quantity						
	2001	2002	2003	2004	2005	2006	2007
DRI plant-kilns	6	6	6	6	6	6	6
Blast furnace	3	3	3	3	3	3	3
Midrex / DRI –Shaft furnace	1	1	1	1	1	1	1
Corex plant	1	1	1	1	1	1	1
Iron Granulation	1	1	1	1	1	1	1
Slag Granulation	4	4	4	4	4	4	4
Pre-reduction kilns	13	13	13	13	13	13	13
Submerged arc furnace	7	7	7	7	7	7	7
Electric arc furnace	7	7	7	7	7	7	7
Vacuum Oxygen Decarbonising (VOD)	2	2	2	2	2	2	2
Conarc	1	1	1	1	1	1	1
Basic oxygen furnace	9	9	9	9	9	9	9
Vacuum Degasser	3	3	3	3	3	3	3
Shaking ladles	4	4	4	4	4	4	4
Ladle refining furnace	6	6	7	8	8	8	8
Ingot caster	1	1	1	1	1	1	1
Continuous caster:	14	14	14	14	14	14	14
Slab caster	5	5	5	5	5	5	5
Bloom caster	4	4	4	4	4	4	4
Billet caster	5	5	5	5	5	5	5
Billet mill	2	2	2	2	2	2	2
Medium mill	3	3	3	3	3	3	3
Light / small section mill	6	6	6	6	6	6	6
Wire rod mill	3	3	3	3	3	3	3
Plate mill	2	2	2	2	2	2	2
Hot and cold mills	6	6	6	6	6	6	6
Temper mill	8	8	8	8	8	8	8
Forge press	3	3	3	3	3	3	3
Seamless tube mill	1	1	1	1	1	1	1
Electro slag refining (ESR)	1	1	1	1	1	1	1

Compiled by: _____

South African Iron and Steel Institute

PO BOX 6318

Pretoria

0001

South Africa

December 2004

Tel: +27 12 320 2450

Fax: +27 12 320 2456 / 1150

Website: <http://www.saisi.co.za>

E-mail: saisi@saisi.co.za

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